R E P O R T

on

OVERTON NO. 2 MINE EXPLOSION

ALABAMA FUEL AND IRON COMPANY

IRONDALE, JEFFERSON COUNTY, ALABAMA

by

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U. S. Bureau of Mines

Birmingham, Alabama,
February 1, 1926.

CONTENTS

EXPLOSION REPORT

OVERTON NO.2 MINE

ALABAMA FUEL AND IRON COMPANY

DECEMBER 10, 1925

INTRODUCTION

General Statement:

An explosion occurred at 10:10 A.M. Thursday, December 10, 1925, in the Overton No. 2 Mine operated by the Alabama Fuel and Iron Company, located 17 miles southeast of Birmingham, Jefferson, County, Alabama, resulting in the death of 52 men and injury by burns to 3 men. The 3 burned men were immediately taken to a Birmingham hospital where one died with pneumonia, January 8, 1926, and the other two are recovering. In addition, 10 mules were killed and considerable damage done to property.

The explosion originated in 6 right and was the result of gas ignition and dust propagation. The source of ignition has not been definitely determined but the probabilities will be considered under conclusions.

The explosion evidenced maximum violence and flame in 6 right, however, all stoppings were blown in 7 and 8 left, 6, 7, and 8 right and the main slope headings. Overcasts were blown down and flame or hot gases traveled on either side of the slope up to and

including 3 left and right. These limits are shown on the photostate under "Investigation" in this report.

DESCRIPTION OF MINE AND PRACTICES

Location:

The Overton No. 2 Mine is situated about 17 miles southeast of Birmingham, in Jefferson County, Alabama. The approach to the tipple spans the Cahaba river, the mine on the southeast bank and the tipple on the northwest bank of the river. The tipple is located on a spur of the Central of Georgia Railroad which leaves the main line at McCombs Switch. This is only a freight spur and passengers use bus or taxi service from Birmingham.

Ownership and Operators:

The Overton No. 2 Mine is owned and operated by the Alabama Fuel & Iron Company with main offices on the tenth floor of the Pioneer Building, Birmingham, Alabama. This company also operates mines at Acton, Adamr, and Margaret, Alabama. The officials of the company are:

Charles DeBardeleben,Sr.,	President	Birmingham,Ala.
Charles DeBardeleben,Jr.,	Vice-Pres & Gen. Mgr.	Birmingham,Ala.
F. R. Ball,	Gen. Supt.	Irondale,Ala.R.F.D
J. I. Flynn,	Mine Supt.	Irondale,Ala."
James Mann,	Foreman	Irondale,Ala."
P.L. Bryer,	Chief Engineer	Birmingham,Ala.

Geology:

The Overton No.2 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 opened in the Glass or Upper Mammally bed which is one of the many beds in the Cahaba field. The bed averages about 55 inches in thickness including partings and at the outcrop dips about 10 degrees the direction of which is S 30^{0} - 45^{0} E. At about 1600 feet from the outcrop the dip changes abruptly to 20^{0} - 25^{0} in the same direction. The roof over the coal bed is hard sandstone, in a few places showing thin laminations of coal. The principal impurities in the bed is a 4½" - 12" parting of soft black shale or rash occurring 2'6" from the roof. This mine was sampled at 5 places by F. K. Cash and C. K. Eamon, December 18-22, 1925. Table No. 1 shows the sections and Table No. 2 gives the analyses of the coal on "As received" basis. Complete analyses of the samples are appended to this report.

TABLE NO. 1

Sections of Coal Bed

Can No. / Lab. No.	N 225 A 16209		D 016 A 16208		F 52 A 16207		N 240 A 16211		N 242 A 16210	
Top	Sandstone		Sandstone		Sandstone		Sandstone		Sandstone	
	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.
Coal	2	6	1	9	2	7	2	7	2	6
Shale or rash	-		0	0½	-		-		-	
Coal	-		1	6½	-		-		-	
x Shale or rash	1	0	0	7½	0	4½	0	7	0	10
Coal	0	11	0	10	1	0	1	3	1	0
Floor	Shale-Rash Sandstone		Shale-Rash Sandstone		Shale-Rash Sandstone		Shale-Rash Sandstone		Shale-Rash Sandstone	
Main Floor										

x = excluded.

TABLE NO. 2

Analyses Coal Samples
Sampled Dec.16-22,
1926.

Lab. No.	Moisture %	Vol. Matter %	Fixed Carbon %	Ash %	S %	B.T.U.	Location
A16207	1.8	31.8	52.6	13.8	0.7	12840	6 Rt. outby last crosscut.
A16208	2.0	30.5	53.6	13.9	0.9	12840	6 Lt. at 17 crosscut.
A16209	2.4	31.9	52.3	13.4	0.7	12860	5 Rt. at 15 Room
A16210	2.0	31.1	53.7	13.2	0.7	12990	7 Lt. outby last crosscut.
A16211	2.1	31.5	52.7	12.7	0.7	13000	7 Rt. aircourse.
A16212 Composite.	2.1	31.1	53.3	13.5	0.7	12880	

Analyses on "as received" basis.
Complete analyses will be found in the appendix.

Coal Analyses:

It will be seen from Table No. 2 that samples of face coal from 5 different points in the mine gave a very uniform analyses. The moisture ranging from 1.8% to 2.4%; volatile matter from 30.5% to 31.9%; fixed carbon 52.8% to 53.7%; ash 12.7% to 15.9%; sulphur 0.7% to 0.9%, and BTU 12840 to 13000. The volatile ratio or $\frac{V}{V+FC}$ on the composite sample is .369, or ranging in all samples from .368 to .378.

This coal from the above samples requires 65% inert material in the mixed dust to prevent propagation of flame in the absence of gas, and 10% added for each 1% methane.

Production and Employment:

At the time of the explosion Overton No. 2 Mine was producing 700 to 800 tons of coal daily employing 110 to 120 men underground. The men on the day of the explosion were divided as follows: 80 miners, 16 drivers, 10 day men, 1 mine foreman and 1 safety inspector. In addition to the above the firebosses and a few men worked at night. The mine worked 251 days in 1924 and produced 182,104 tons of coal.

Mining Methods:

The Overton No. 2 Mine is opened by a haulage slope and parallel manway slope driven in rock about 200 feet to where it

intersects the coal bed. From this point down three slopes are driven, all used for intake air: the middle is used for haulage and the right slope entry for a manway. The slope entries are driven 10 feet wide with 20-foot pillars between and protected on either side by a 100-foot barrier pillar. Room headings driven double spaced 300 feet apart averaging 12 feet in width are turned to the right and left off the slope. The system of mining employed is the room and pillar system. The room headings driven at right angles to the slope go 100 feet to a special aircourse. In this pillar the haulageway is driven wide for a sidetrack. After leaving the aircourse another 100-foot pillar is left before the No. 1 room is turned to the rise. The rooms are driven on 50-foot centers 35 to 45 feet wide with a 5 to 10-foot pillar between each pair of rooms. These rooms are driven in blocks or panels of 8 to 10 and skipping distance for 2 to 4 rooms. When these rooms are driven up and some pillars taken, a narrow cut-through is driven from the inby and outby corner of each block to the entry above. These openings serve as escapeways for accumulations of gas in the room faces.

Haulage:

Coal is loaded into loose gate wood cars on the room entries and pulled by mules to the side tracks just off the slope. From these points it is transported by rope from a 600 HP Nordberg electric hoist to the tipple.

The track is 36-inch gage 35-pound steel on slope and 16-pound in room entries. In 5 right and left and outby where the dip was not so great double wood track was laid up in the rooms, the loaded car down pulling the empty car to the face. Inby or below 5 right and left, the pitch is such that sheet iron chutes are put in the rooms and the coal sliding down is loaded into cars on the entries. Sixteen mules are required to gather the coal to the slope sidetracks.

Explosives:

Kenobel 1-LF permissible explosives is used for all shooting in the mine. The coal is shot off the solid, 6 holes, 5 feet deep are shot in entries and 6 or more are required in the rooms, in each case the charges are detonated by No. 6 caps and fuse. The miner bores and loads his holes and is supposed to use 3 sticks or less of explosives in a hole and stem with clay to the collar. In conversation with some of the miners, 3½ or 4 sticks of explosives were often used for the breaking shot.

Clay is dug outside and sent into the mine at regular intervals, care being taken to get clay to each working place by putting it in a car assigned to a working place. With this practice coal dust dummies were found in several working places, this was true in 5 and 6 rooms off 6 right, the last room and aircourse on 7 left to mention a few of the places.

The Company requires that only one day's supply of powder be kept underground, a box was found on 6 right with 54 sticks of powder and another on 7 left with 4 sticks of powder, 6 pieces of fuse with caps on, 80 or more caps, coal dust dummies, nails and small tools all in one box.

In the aircourse in 7 left six holes were loaded and stemmed to within one foot of the collar, the last dummie at least in each was coal dust. In the last room off 7 left, one hole was loaded, charged and 15 coal dust dummies were found at the face for the other five holes.

Ventilation:

For the details as to the method of ventilating workings of this mine refer to the mine map at the beginning of this report. At the time of this explosion the mine was ventilated by a Sirocco fan of 166,000-foot capacity exhausting on a split system. There were separate splits for all room entries except 7 and 8 right slope bottom and 8 left, the aircourses for which were not complete. The three parallel slope entries served as intakes, the air entering each pair or room entries returning to a special air course on either side of the slope, joining return air from the entries below and exhausting through the fan.

In the room entries down to and including 5 right and 5 left the air entered the upper entry of each pair or the entry from which the rooms were driven, was deflected by stoppings and curtains to or near the face of the working rooms to the heading, returning through

the lower entry to the special air course being overcasted and thence to the fan. Below 5 left and right the pitch of the coal increased and on account of having the lower entry coal to handle up the pitch to the haulage entry the direction of the air is reversed, going in the lower entry which is the haulage and returns through the rooms. Where the return is through the rooms and haulage on the lower entry, it becomes necessary to have a chute hole in a stopping opposite each room. This naturally short circuits some air and necessitates closer watch over the regulator for each pair of entries. The rooms driven to the rise and most faces ahead of air from a few feet to 40 or 50 feet, although deflecting curtains are used from the last crosscut up to the loading boards, there is always a possibility of accumulating gas in the room faces.

The ventilation in this mine is inefficient due largely to the leaks in chute stoppings and numerous curtains used for deflecting the air.

The separate split for each pair of room entries is a big advantage in more effective and efficient ventilation but more attention should be given to carrying a current of air to all working places by closer and better stoppings where possible and curtains where permanent stoppings are not required. For instance when the first break-through is made between rooms, a tight board stopping should be put in the entry between the two rooms, when the second break-through is made the first should be stopped. The air at all times should be deflected from the last break-through to the face by a curtain kept up to within 10 feet of the face.

Location and Analyses of Air Samples
Overton No. 2 Mine

TABLE NO.3

Date 1925	Lab. No.	Location	Q cu.ft.	CO_2 %	O_2 %	CH_4 %	N %	Remarks
12/15	43075	6 Lt. at 19 c.c.	-	0.08	20.03	0.27	78.82	Ventilation impaired. No. Vel.
12/17	43076	Lt.side return at 1 Lt.overcast	44296	0.06	20.86	0.20	78.88	Temporary stoppings.
12/15	43077	6 Lt.return at regulator	1766	0.06	20.73	0.50	78.72	-
12/17	43078	Rt. side return 75 ft. inby undercast.	46235	0.08	20.87	0.19	78.86	Temporary stoppings.
12/15	43079	Return 7 & 8 Lt & Rt over cast 6 Left.	8975	0.07	20.77	0.68	78.48	All air below 6 rt and lt.
12/14	43080	No.6 Rt. return 3p.AC near 6 Rt.	7248	0.05	20.61	0.43	78.91	Return from Explosion origin.
12/17	43081	No. 6 Rt. return 3p AC near SST	6520	0.06	20.74	0.39	78.79	"
12/15	43082	No.5 Rt return at overcast.	2457	0.07	20.61	0.87	78.45	-
12/14	43083	Face 6 Rt. Heading	-	3.10	19.20	7.70	73.00	Feeder - No travel.
12/17	43084	Lt. side return No.1 overcast.	44296	0.05	20.85	0.19	78.90	Duplicate No. 43076.
12/15	43085	Return 7 & 8 Lt. & Rt. Overcast 6 Left.	8975	0.06	20.76	0.69	78.47	Duplicate No. 43079

Gas and Air Samples:

In Table No. 3 are analyses, volumes and locations of samples taken during the investigation following the Overton explosion. In No. 43076 - left side return and No. 43078 - right side return which make the total return a total volume of 92531 cubic feet and methane content of 0.20 and 0.19. Due to the number of temporary and leaking stoppings the volume is no doubt greater and methane less than during normal operating conditions.

There was no carbon monoxide in any of the samples taken since temporary ventilation had been restored at the time of sampling.

All samples contained methane in quantities ranging from 0.19 to 7.70%. The highest percentage 7.70 was in No. 43083 taken in the face of 6 Right heading. There was a feeder in the face of 6 right which probably accounted for a part at least of the gas found by the fire boss on the morning of December 10, in 4, 8 and 11 rooms off 6 right.

Feeders are not unusual in the mine and unless close attention is given to ventilation the accumulation of dangerous quantities of methane will continue to be a hazard, especially in the face of rooms.

Dust and Moisture:

The principal sources of dust as indicated by the investigation are: first, Solid shooting; second, Loading coal; third, Drilling holes; and fourth, Transportation. There is a 1-inch pipe

line in each room entry used for sprinkling during the day and air for rock drilling at night.

Shooting is responsible for the major part of the dust made in the mine. Six or more holes are shot in each working face, since the coal is not undercut it is necessary to use more holes and more powder per hole which results in crushing a greater amount around the bottom of each hole. Mining on the pitch results in fine coal and dust being blown down the room and not loaded out. A partial remedy for this would be to cut in the rash by pick at least for the breaking holes. This would require less powder, fewer holes and greater percentage of lump. The coal in rooms is shoveled into a sheet iron chute and slides to the haulage entry, resulting in dust suspended and fine coal spilled along the chute. This could be lessened by thoroughly wetting fresh shot coal and keeping it wet until loading is completed.

The dust resulting from transportation is due to leaky cars and overloading. This could be remedied to a great extent by repairing cars promptly and properly and wetting loaded and empty cars in slope and room entries.

From indications, although there is a 1-inch sprinkling line in each pair of room entries to wet the dust as often as necessary, it is questionable whether or not the dust in the working rooms and entries were kept wet enough to prevent propagation of flame. The dust in rooms and entries where flame and heat was not evidenced was very dry with no indications of water having been recently applied.

Inert material:

Table No. 4 gives in the last column the percentage of inert material, in the form of rock dust, required to be present in each of the samples of mine dust. In determining this percentage allowance has been made for the moisture present in the sample. For the pure coal dust this percentage of inert should be 65; therefore, for dry places in the mine where there is liable to be pure coal dust this percentage should be the minimum as determined by chemical analysis or by the volumeter.

The development of the mine where the room entries turned off the slope and were driven to the rise, naturally made a low place in the room entries between the special aircourse and slope or along the side tracks in room haulage entries near the slope. The water drained down the parallel slopes and in all cases the side tracks were from damp to very wet with standing water in several places. The drainage from the mine was down the parallel slopes. One pump in the bottom delivered the water to a sump in the right parallel slope between 6 and 7 right; from here it is pumped to a similar dam or sump below 5 right and from 5 right to the outside. In general, the slope, parallel slopes, and room entries 100 feet from the slope are wet and the rooms and working entries are dry.

Dust Samples:

Table No. 4 gives location and analyses of dust samples taken in the affected area and around the outside limits of explosion forces. There were 9 rib, 3 rib-and-roof, and 15 road dust samples taken. Only the part of samples passing through a 20-mesh screen play a part in explosions by the Bureau of Mines experiments. The 20-mesh and finer dusts assist in propagation and the finer dusts are the more dangerous. The smallest amount through 20-mesh was in A-18226, a road dust sample collected just outby 7 left in which only 21/2% passed the 20-mesh screen, and the greatest amount through 20-mesh from a road dust sample was 64.2% in A 18231 in 7 right air-course.

For the rib samples, the coarsest was A 18213 where 45.9% passed 20-mesh and finest was A 18219 where 92.7% passed 20-mesh. The other samples ranged between these limits. The cumulative percentage through 200-mesh varied from 16.3% to 44.8% in the rib samples and 6.2% to 23.6% in the road samples.

The ash variation was from 18.3% to 44.4% and the moisture from 2.0% to 12.6%. There were only eight samples that indicated moisture in excess of 5% and they were in or near the slope. Coke was shown in all samples except 6 from a trace to 0.5%.

The moisture plus ash column or the inert in the dusts collected varied from 21.6% to 47.4%. As stated under coal analysis 65% inert is required to prevent propagation of the pulverized face coal in the absence of gas, but due to the rash parting and small amounts of roof and floor these percentages are reduced in the dust samples and range from 49% to 63%.

EXTENT AND STORY OF EXPLOSION

The explosion occurred about 10:10 A.M. Thursday, December 10, 1925, at a time when all men were at their respective places. On the day of the explosion the check sheet showed 105 men and 16 mules in the mine. In addition to the 105 men, a mechanic who was late coming to work was not checked in, the mine foreman, Frank Hess and Safety Inspector, Richard Nash, who were not required to check in, were also in the mine; making a total of 108 men. The men checked

in were listed as 80 miners, 16 drivers, and 10 company men. The men were working in the following sections at the time of the explosion:

2 Right	-	5 men
3 Right	-	14 men
4 Right	-	8 men
5 Right	-	11 men
6 Right	-	12 men
7 Right	-	4 men
3 Left	-	14 men
4 Left	-	15 men
5 Left	-	8 men
6 Left	-	7 men
7 Left	-	10 men

The explosion originated in 6 right, killing all men in and below 6 right and left by one or a combination of flame violence or gas. The maximum flame and violence were evidenced in 6 right, extended from 6 right, a short distance into 6 Left, down the slope and a short distance in 7 right. Flame traveling outby from 6 right was probably up the right and left special aircourses blowing down the overcasts up to and including the ones in 3 left and right. There is no evidence of flame outby 3 left and right.

The explosion resulted directly in the death of 52 men and injury to three who were sent to the hospital. One of the three men sent to the hospital died with pneumonia, January 3, 1926, and the other two will recover.

The source and exact location of ignition can not be definitely determined but the probable sources will be considered later.

At 10:50 A.M. the Birmingham Station was called and at 11:40 the Rescue truck arrived at the mine with apparatus and four men, C. E. Saxon, foreman miner, F. V. Meriwether, surgeon, E. J. Maust, Junior engineer, and F. E. Cash, district engineer.

There were no men working in 1 right, 1 left and 2 left. These entries had been worked out.

The five men working in 2 right escaped uninjured. There were 14 men in 3 right, two were burned and 12 escaped uninjured. In 3 left there were 14 men, 4 were killed, 1 by rockfall, 3 by afterdamp, 1 burned and 9 escaped through 2 left and the slope. There were 8 men in 4 right, 2 were killed by afterdamp and 6 escaped uninjured. There were 15 men in 4 left, 4 were killed by afterdamp and 11 escaped through 3 and 4 left uninjured. There were 11 men in 5 right, 5 were killed, 3 by flame and violence and 2 by afterdamp. The other 6 men collected on the entry opposite 22 room and were located by Lowrey, the firebose, wearing apparatus. Lowery was alone but after advising the men to stay where they were came back to the slope and got self-rescuers and took them to the men and brought the six to the slope safely. There were 8 men in 5 left. The 4 near the heading escaped. There were 12 men in 6 right and all were killed by violence or flame or both. Seven or all the men in 6 left were killed, one by flame and violence and 6 by afterdamp. The 4 men in 7 right were killed by afterdamp. All were

slightly burned. The 10 men in 7 left were killed, 2 by violence and flame and 8 by afterdamp. There were no men below 7 right and left.

The fireboss on his regular morning inspection of the mine found gas, according to his report in Nos. 4, 8, and 11 rooms off 6 right and in 6 right heading. Three or more brattice men or day shot firers were employed to remove the gas where found in the mine before the men entered, "marked out" places, and to do the necessary shooting during the shift.

These men carried safety lamps for testing, carbide lamps for shooting and matches for re-lighting carbide lamps in case the igniter would not work. The explosion happened after all men had entered the mine and their working places with the exception of No. 4 room off 6 right, miner not check in, and No. 7 room off 6 right where the top was working and an attempt was being made to timber to prevent falling or remove the chute before it fell.

As previously stated gas was detected in 4 places in 6 right and a feeder in the 6 right heading. It was reported to the mine foreman that the roof was working in No. 7 room off 6 right. Gas was expected to be given off from the roof while working or immediately after a fall. The mine foreman, thirty minutes, before the explosion sent two men, Rice and Yarborough to timber No. 7 room if it could be caught by timbering and if not, to remove the sheet iron coal chute from the room. It was during this work that something happened in the vicinity of No. 7 room which ignited the gas being given off and

the fall fed the flame with gas and also by raising dust to propagate the flame.

There was a miner working in No. 3 room, a brattice man in No. 4 room, a miner in No. 6 room, 2 brattice men in No. 7 room, and a man in each of the following: 8 and 10 rooms, 6 right heading and aircourse.

In addition to the brattice men who were allowed to use carbide lamps for shooting, the contractor in 6 left heading and the contractor in 7 right each had a carbide lamp. It is evident that shooting was done without testing for gas during the day and done by others than designated shotfirers.

The miner from 7 room off 6 right was sent to 10 room to work because the roof was working in his place. Two or more holes had been shot in 10 room between the shot firers round the night of December 9, and the explosion, December 10.

RESCUE AND RECOVERY

The Alabama Fuel & Iron Company had trained apparatus men at all of their mines. 5 sets of apparatus at Overton and 5 sets at Margaret, and in addition to the above apparatus 5 sets of Bureau of Mines apparatus were used. The men wearing apparatus were employees of the Alabama Fuel and Iron Company from Overton, Margaret, and Acmar mines, State Mining Department, DeBardeleben Coal Corporation, Mine Safety Appliances Company and Bureau of Mines. Apparatus was used to run the affected area of the mine first to determine whether or not any men remaining in the mine were alive and second to determine whether or not there was fire after the explosion.

During the apparatus work

quite a number of bodies were located and later recovered without apparatus. The bodies in 7 right were recovered with apparatus due to the impaired ventilating current in the mine.

Forty-six of the bodies were located with apparatus and recovered after ventilation was restored, 4 were located and recovered with apparatus and 2 were located and recovered after ventilation was restored.

The men wearing apparatus did good work and without injury to an apparatus man. Fifteen sets of apparatus and twenty wearers worked in relays from the time of the explosion continuously until 9 A.M. Friday morning - a total of 22 to 23 hours.

INVESTIGATION

Investigations were made by the State Mining Department, the Insurance Carrier and the Bureau of Mines. Assisting the writer with the investigation were C. E. Saxon, foreman miner and F.V. Meriwether surgeon.

Due to the damage to stoppings and the ventilation in general and the gaseous condition of the mine several days were required to complete the investigation. The Coroner's findings are included in the appendix of this report.

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

Evidence of Explosion:

Outside:

The explosion doors on the fan were blown open and smoke and dust were blown out through the open doors and out the murway. The first inside evidence of an explosion was found in the slope at 3 right.

3 Right Entries:

The overcast was blown down and force as evidenced by timbers split going out to the slope and inby the overcast 100 feet. A man was burned on 3 right sidetrack and one on the slope opposite 3 right. These entries were moist to wet from overcast to slope.

3 Left Entries:

The overcast was blown down and the forces split and spent themselves as in 3 right. These entries were damp to wet from overcast to slope. A man burned on slope at 3 left.

#1 Body (See map) killed by rock fall.

#2 Body killed by violence and afterdamp.

#3 Body killed by afterdamp after traveling from No. 7 room.

#4 Body killed by afterdamp after traveling from No. 8 room.

All men inby 6 room escaped through the upper workings.

4 Right Entries:

Overcast blown down and force practically the same as above. The entries were very wet just inby the overcast.

#5 Body killed by afterdamp after traveling from No. 22 room.

#6 Body killed by afterdamp, slightly burned. The other six men escaped unassisted.

4 Left Entries:

Overcast blown down and force split extending to slope and inby to 2 room. Canvas check on 4 left inby No. 1 room in place. Car on track at 3 room dust on outby end. Entries wet at overcast dry at and inby No. 2 room.

#7 Body killed by afterdamp.

#8 Body killed by afterdamp from room No. 1.

#9 Body killed by afterdamp.

#10 Body killed by afterdamp from room No. 28.

5 Right Entries:

Overcast blown down and force out to slope and inby to No. 4 room entries were damp to wet near overcast. Three stoppings were blown from the aircourse to the entry between the overcast and No. 3 room.

#11 Body killed by flame and violence.

#12 Body killed by flame and violence.

#13 Body killed by flame and violence.

#14 Body killed by afterdamp from No. 16 room.

#15 Body killed by afterdamp from No. 17 room.

Remainder of men assembled at room No. 22 and were rescued two hours later.

5 Left Entries:

The overcast was blown down and flame and force split and extended outby to the slope and the last inby evidence of coke was on

left rib at No. 1 room - the force extended to No. 5 room. Two stoppings were blown from the entry to the aircourse between 4 room and the overcast.

#16 Body above 5 left killed by flame and afterdamp.

#17 Body at 5 left on slope killed by flame and afterdamp.

#18 Body on side track killed by flame and afterdamp.

#19 Body on side track killed by flame and afterdamp from No. 17 room. Four men and a mule escaped later through the slope.

6 Left Entries:

The overcast at 6 left blown down. The force entered aircourse and entry blowing all stoppings away from aircourse towards entry up to 13 room except one opposite 12 room was blown towards the aircourse. The entries were wet from the slope to No. 5 room, damp No. 8 room and dry inby No. 8 room.

#20 Body killed by flame and violence.

#21 Body killed by afterdamp from Heading.

#22 Body killed by afterdamp from Heading AC.

#23 Body killed by afterdamp from room face.

#24 Body killed by afterdamp.

#25 Body killed by afterdamp.

#26 Body killed by afterdamp.

7 Left Entries:

No flame evidence in 7 left. All stoppings were blown from rooms and aircourse towards the entry.

#39 Body killed by violence.

#40 Body killed by violence.

#41 Body killed by afterdamp from No. 1 Room.

#42 Body killed by afterdamp from No. 1 Room.

#43 Body killed by afterdamp from No. 2 Room.

#44 Body killed by afterdamp opposite No. 4 Room.

#45 Body killed by afterdamp from Mdg.

#46 Body killed by afterdamp from Mdg AC.

#47 Body killed by afterdamp from No. 4 room.

#48 Body killed by afterdamp from No. 3 room face.

7 Right Entries:

There was evidence of a small amount of flame in 7 right and the stoppings were blown from aircourse towards the entry.

#49 Body killed by afterdamp and burned.

#50 Body killed by afterdamp and burned.

#51 Body killed by afterdamp and burned.

#52 Body killed by afterdamp and burned.

8 Right and Left Entries and Slope Bottom:

The force was down the slope in 8 right and left entries. There was no evidence of flame. The slope was moist to wet with standing water in the bottom. There were no men in this section at the time of the explosion.

6 Right Entries:

The detail evidence is shown on the sketch of 6 right which is a part of this report.

Both entries were wet from the slope to the special aircourse and the lower or haulage entry was wet with standing water to No. 1 room. All stoppings between entries were blown towards the lower entry. All stoppings in aircourse and rooms were blown outby or towards the slope up to No. 7 room. From No. 7 room to the face the force was inby. In room No. 1 to No. 6, inclusive, the force was down and outby. In No. 8 room the force was down and inby. The coke and direction of forces with location of bodies, mules, cars, and etc., are shown in detail on sketch.

#27 Body killed by violence and burned to a crisp probably blown from sidetrack in 6 right across slope.

#28 Body killed by violence and flame blown against trip of loaded cars.

#29 Body killed by violence and flame blown against trip of loaded cars.

#30 Body killed by flame and violence.

#31 Body killed by flame and rock fall.

#32 Body killed by flame and rock fall.

#33 Body killed by rock fall and burned.

#34 Body killed by flame and violence.

#35 Body killed by flame.

#36 Body killed by rock fall and burned.

#37 Body killed by flame and possibly violence.

#38 Body killed by flame.

in the hands of Nos. 37 or 38, where gas was found and also in return air from a feeder and working roof could easily have ignited the gas. A lighted match or an open light in the hands of either of the four men Nos. 31, 32, 35, or 36, would probably have ignited gas given off from the working roof in No. 7 room. These are only probable sources and wherever the flame originated from the evidence of flame and force it traveled to No. 7 room where sufficient gas was encountered or the fall occurred raising sufficient dust to make it a direct explosion.

It must be remembered that neither a defective safety lamp, carbide lamp, or burned matches was found in this section but a safety lamp, properly assembled, carbide can, and a match were found in room No. 4 and a pipe and smoking tobacco was found on one of the bodies in No. 7 room and a carbide lamp and safety lamp are missing.

SUMMARY

1. A gaseous mine ventilated by a Sirocco fan on a split system exhausting sufficient air for present workings. Too much dependence is put in single board and canvas stoppings.

2. Permissible electric lamps are used for general lighting and key-locked flame safety lamps for testing purposes. Approved flame safety lamps have been ordered to replace all key-locked lamps for testing.

3. Permissible explosives, fuse and caps are used for all underground shooting. Clay is sent underground for stemming but not used by a number of the miners. The rule is to shoot rooms at the end

Conclusions:

After participating in the rescue and recovery work and making a thorough investigation of the affected area of the mine following the explosion the source of the ignition nor its exact point of origin can be determined.

With a gas feeder in the face of 6 right and the roof working in No. 7 room off 6 right and the air returning through the last cross cuts in the rooms to the special aircourse it is probable that a flame in or near the face of any of the rooms off 6 right could have ignited gas and in turn raising dust resulting in the explosion.

From the location of certain bodies as found in 6 right and the evidence pointing to their locations prior to or at the time of the explosion, certain ones can be eliminated from any connection with the ignition while others might have been a party to it. The man No. 30 from No. 5 room was on the entry loading a car, the man No. 34 was hitching the mule to a loaded car or just starting it away from the heading, both being on intake air can in the writer's opinion be eliminated. The heading man No. 35 in the face of the aircourse was boring a coal hole with an auger and indications are had no connection with the ignition.

Indications are that the miner in room No. 3 traveled from near the face of the room to the second crosscut where he, No. 38, was found burned to death. The brattice man in No. 4 room where gas was found by the fireboss was near the face of the room without tools and material for extending the curtain. A burning match or an open light

of the shift only and the headings at 12 Noon and 4:00 P. M., the miner to load and tamp his holes and a regular shot firer to test the working place and light the shots. Other than regular shot firers have been known to light shots and at other than regular shooting time.

Explosive charges are used at times in excess of permissible quantities. The use of carbide lamps and matches in the mine is practiced by other men and for other purposes than those designated.

The Company are experimenting with batteries for shooting and expect to replace the fuse and caps with electric detonators. With this replacement will go all open lights.

4. A 1-inch sprinkling line is laid in room entries and used for a two-fold purpose; air, when rock is being taken down and water, when it is considered necessary to sprinkle. No hose was found in the mine and from the dry condition of the dust in rooms especially not near enough of sprinkling was done to prevent propagation. This was shown in 6 right where coked dust was found practically throughout the entries and rooms.

5. The electric cable supplying power to the pumps is run down the manway and in several places is on the floor necessitating stepping over or on in traveling. This is an insulated cable 440 volts and continuous travel will sooner or later cause it to leak making it dangerous. The wires and switches on the pumps at 5 and 7 right are not guarded.

6. There are dangerous accumulations of dust in rooms and airways. This is especially true in the rooms on 6 and 7 right and left and the special aircourses from 6 to 5 right and 7 to 5 left.

7. The top is good and requires very little timbering.

8. There is sufficient water made in the mine to keep thoroughly wet all working faces, empty and loaded cars, if care is exercised in storing and applying it.

9. At the time of the explosion no rock dust had been used in the mine but plans are being formulated and work started on the erection of a battery of trough barriers in each room entry aircourse between No. 1 room and the special aircourse and to dust all entries having track in them.

RECOMMENDATIONS

1. It is recommended that close supervision of the employees be exercised so that the existing company rules are carried out by every man underground.

2. It is recommended that the ventilating current returning through rooms be carried from the last break-through to the face by curtains, stopping all other room break-throughs by close board stoppings. The line curtains to be advanced each time the room is shot.

3. It is recommended that any curtains blown down by shooting be replaced as soon after shooting as practical, thereby, avoiding gas accumulations.

4. It is recommended in addition to the regular and thorough fire boss examination of all working places as now practiced, that in case gas is found it be removed by ventilation before the men enter the mine. Care should be exercised in selecting a man to use a safety lamp for any purpose.

5. It is recommended that men be thoroughly searched daily and that no open lights or matches be allowed in the mine.

6. It is recommended that permissible explosives be used in permissible quantities stemmed with clay to the collar and shot by a permissible battery when all men except the shot firers are out of the mine. The shot firers should charge and tamp all holes.

7. It is recommended that experiments be conducted along the lines of hand sawbbing or cutting in the rock parting with a view to eliminating solid shooting, using less explosive and fewer holes and making less dust.

8. It is recommended that fine material left in rooms be analysed with a view of determining whether the coal it contains will not warrant loading out and washing and thereby giving much less dust left in the mine as a hazard or to be rendered inert.

9. It is recommended that the contemplated rock dusting program include dusting of all slopes and entries having track - applying the dust in aircourses and rooms as far as practical. Erect effective dust barriers in all entries and aircourses which cannot be dusted from track. Protect all abandoned or worked out areas with barriers.

10. It is recommended that all places where it is impractical to apply rock dust be kept wet at all times. This should include all working faces before and after shooting and during the process of loading.

11. It is recommended that regular air measurements and samples be taken of each split and records kept of such readings and analyses.

12. It is recommended that rock dusted areas be sampled monthly, to determine the amount of inert dust present in different sections of the mine at all times.

13. It is recommended that the oxygen breathing apparatus and All-Service gas masks at the mine be kept in proper wearing condition and not less than 15 trained men be available for an emergency at all times.

ACKNOWLEDGMENTS

The writer wishes to acknowledge and thank the Company Officials and employees for the cordial and willing assistance given during this investigation.

E. E. Cash
Mining Engineer

Approved:
J. W. Paul
Chief Coal Mining Engineer
U. S. Bureau of Mines.

APPENDIX

OFFICE OF CORONER
Jefferson County

Birmingham, Ala. Feb. 18, 1926

CORONER'S VERDICT

After making a thorough investigation, and carefully considering all of the evidence possible in the explosion of Overton Mine No. 2, and conferring with C. H. Nesbitt, Chief State Mine Inspector, I find that it is impossible to say just what caused the explosion, but I find there are the following possibilities:

1. That Charley Reynolds fired two shots in No. 9 Room just about the time the explosion happened. This is indicated by finding loose coal in No. 9 Room.

2. That another negro, whose name is unknown at present, who was supposed to be in No. 8 Room, who was, according to indications, on account of No. 8 Room being "marked out" for gas, - that this negro had gone into No. 10 Room, where there was very little coal found, but one very distinct windy shot found.

3. That Parnell's body being found in No. 4 Room that had also been marked "out" by the fire boss, and his safety lamp was found about 12 feet below Parnell's body, and there were several unused matches, which is thought to have come out of Parnell's jacket, and these matches were right by the side of Parnell's body, his jacket and safety lamp being found about 12 feet away, or below

his body. Russell's carbide lamp, which was used exclusively for shooting purposes, was missing and could not be found.

4. Inasmuch as Rice's safety lamp was never found, and is supposed to be under the fall in No. 7 Room, that the glass around his lamp could have gotten broken and set the gas off. All room numbers indicated above are in the 6th Right Entry.

Signed - J. D. Runyan
Coroner, Jefferson County, Alabama.

DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Test No. _____ G—COAL-ANALYSIS REPORT Lab. No. 18207

Sample of Coal Can No. F 32

Operator Alabama Fuel & Iron Co. Mine Overton No. 2

State Alabama County Jefferson Bed Glass or Upper Nunally

Town Overton

Location in mine 6 Rt. Cutby last crosscut.

Method of sampling Standard Gross weight, lbs. 30 Net weight, grams 1196.0

Date of sampling 12/15/25 Date of Lab. sampling 1/5/26 Date of analysis 1/15/26

B. of M. or U. S. G. S. section B of M. Collector Cash and Saxon

		Air-dry Loss 1/3 1.3	Coal (Air dried)	Coal (As received)	Coal (Moisture free)	Coal (Moisture and ash free)
Proximate Analysis	Moisture		.5	1.8		
	Volatile matter		32.2	31.8	32.3	37.6
	Fixed carbon		53.3	52.6	53.6	62.4
	Ash		14.0	13.8	14.1	
			100.0	100.0	100.0	100.0
Ultimate Analysis	Hydrogen					
	Carbon					
	Nitrogen					
	Oxygen					
	Sulphur		.7	.7	.7	.8
	Ash					
Calorific value	Calories		7222	7133	7261	8450
	British thermal units		13000	12840	13070	15210

Softening temperature of ash _____ ° C. 2340 ° F.

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

6—6089

6—139

DEPARTMENT OF THE INTERIOR

BUREAU OF MINES

Test No. _____ G—COAL-ANALYSIS REPORT Lab. No. ~~A 18209~~

Sample of Coal Can No. ~~H 235~~

Operator Alabama Fuel & Iron Co. Mine Overton No. 2

State Alabama County Jefferson Bed Glads or Upper Bunally

Town Overton

Location in mine 5 Rt. Entry at 15 Room

Method of sampling Standard Gross weight, lbs. 40 Net weight, grams 1137.0

Date of sampling 12/15/25 Date of Lab. sampling 1/5/25 Date of analysis 1/16/26

B. of M. or U. S. G. S. section B of M. Collector Cash and Saxon

		Coal (Air dried)	Coal (As received)	Coal (Moisture free)	Coal (Moisture and ash free)
Air-dry Loss	1.6				
Proximate Analysis	Moisture	.8	2.4		
	Volatile matter	~~32.4~~	~~31.9~~	~~32.7~~	~~37.8~~
	Fixed carbon	~~53.2~~	~~52.3~~	~~53.6~~	62.2
	Ash	~~13.6~~	~~13.4~~	~~13.7~~	
		~~100.0~~	~~100.0~~	~~100.0~~	~~100.0~~
Ultimate Analysis	Hydrogen				
	Carbon				
	Nitrogen				
	Oxygen				
	Sulphur	.7	.7	.7	.8
	Ash				
Calorific value	Calories	7261	7144	7317	8478
	British thermal units	~~13070~~	~~12860~~	~~13170~~	~~15260~~

Softening temperature of ash _____ ° C. 2530 ° F.

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

6—6089

6—139

DEPARTMENT OF THE INTERIOR

BUREAU OF MINES

Test No. _____ G—COAL-ANALYSIS REPORT Lab. No. A 18210

Sample of Face Coal Can No. H 242

Operator Alabama Fuel & Iron Co. Mine Overton No. 2

State Alabama County Jefferson Bed Glass or Upper Nunally.

Town Overton

Location in mine 7 lf. outby last crosscut

hod of sampling Standard Gross weight, lbs. 30 Net weight, grams 1315.0

Date of sampling 12/22/25 Date of Lab. sampling 1/5/26 Date of analysis 1/16/26

B. of M. or U. S. G. S. section B of M Collector Cash and Saxon

		Air-dry Loss 1.3	Coal (Air dried)	Coal (As received)	Coal (Moisture free)	Coal (Moisture and ash free)
Proximate Analysis	Moisture		.7	2.0		
	Volatile matter		31.5	31.1	31.7	36.7
	Fixed carbon		54.4	53.7	54.8	63.3
	Ash		13.4	13.2	13.5	
			100.0	100.0	100.0	100.0
Ultimate Analysis	Hydrogen					
	Carbon					
	Nitrogen					
	Oxygen					
	Sulphur		.7	.7	.7	.8
	Ash					
Calorific value	Calories		7311	7217	7361	8506
	British thermal units		13160	12990	13250	15310

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

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

6—6039

6—139

DEPARTMENT OF THE INTERIOR

BUREAU OF MINES

Test No. _____ G—COAL-ANALYSIS REPORT Lab. No. A 18211

Sample of Face Coal Can No. H 240

Operator Alabama Fuel & Iron Company Mine Overton No. 2

State Alabama County Jefferson Bed Glass or Upper Kunally

Town Overton

Location in mine 7th Rt. aircourse

Method of sampling Standard Gross weight, lbs. 30 Net weight, grams 1268.0

Date of sampling 12/22/25 Date of Lab. sampling 1/5/26 Date of analysis 1/18/26

B. of M. or U. S. G. S. section B of M. Collector Cash and Saxon

	Air-dry Loss 1.4	Coal (Air dried)	Coal (As received)	Coal (Moisture free)	Coal (Moisture and ash free)
Proximate Analysis	Moisture	.7	2.1		
	Volatile matter	31.9	31.5	32.2	37.0
	Fixed carbon	54.5	53.7	54.8	63.0
	Ash	12.9	12.7	13.0	
		100.0	100.0	100.0	100.0
Ultimate Analysis	Hydrogen				
	Carbon				
	Nitrogen				
	Oxygen				
	Sulphur	.7	.7	.7	.8
	Ash				
Calorific value	Calories	7328	7222	7378	8478
	British thermal units	13190	13000	13280	15260

Softening temperature of ash _____ ° C. 2340 ° F.

Date January 22, 1926 (Signed) H. M. Cooper

Chemist.

6—6089

6—139

DEPARTMENT OF THE INTERIOR

BUREAU OF MINES

Test No. _____ G—COAL-ANALYSIS REPORT Lab. No. A 18212

Sample of Bituminous Coal Can No. _____

Operator Alabama Fuel & Iron Company Mine Overton No. 2

State Alabama County Jefferson Bed Glass or Upper Nunally

Town Overton - Irondale R.F.D.

Location in mine Composite of A 18207-8-9-10-11

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

Date of sampling _____ Date of Lab. sampling _____ Date of analysis 1/18/26

B. of M. or U. S. G. S. section B of M Collector Cash and Saxon

		Air-dry Loss 1.3	Coal (Air dried)	Coal (As received)	Coal (Moisture free)	Coal (Moisture and ash free)
Proximate Analysis	Moisture		1.8	2.1		
	Volatile matter		31.6	31.1	31.8	36.9
	Fixed carbon		53.9	53.3	54.4	63.1
	Ash		13.7	13.5	13.8	
			100.0	100.0	100.0	100.0
Ultimate Analysis	Hydrogen		4.7	4.8	4.6	5.4
	Carbon		73.2	72.2	73.8	85.5
	Nitrogen		1.5	1.5	1.5	1.8
	Oxygen		6.1	7.3	5.5	6.4
	Sulphur		.8	.7	.8	.9
	Ash		13.7	13.5	13.8	
			100.0	100.0	100.0	100.0
Calorific value	Calories		7239	7139	7294	8461
	British thermal units		13030	12850	13130	15230

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

Date January 20, 1926 (Signed) H. M. Cooper

6—6089 *Chemist.*

6—213

DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

GAS ANALYSIS REPORT

Bottle No. 185 Laboratory No. 43075

Sample of Mine air

Mine Overton No.2 Operator Ala. Fuel & Iron Co.

State Alabama County Jefferson Township

Town (distance and direction from, and railroad) 16 miles S.E.Birmingham.

Name of coal bed Glass 4 ft., 7 in., Sec. , T. , R.

Location in mine 19 crosscut, 6th left entry.

Method of sampling vacuum Date sampled 12/15/25 Hour

Velocity Area 4 x 12 Quantity

Barometer: Inside Outside

Corrected to sea level: Inside Outside

Bulbs: Wet 62-1/2 Dry 65 Humidity %

Collector F.E.Cash Mailed 12/21/25 Received 12/26/25

Laboratory No.	43075		Ethane (C_2H_6)		
Carbon dioxide (CO_2)	0.08		Hydrogen sulphide (H_2S)		
Oxygen (O_2)	20.85		Unsaturated hydrocarbons (C_2H_4, etc.).		
Carbon monoxide (CO)	0.0		Sulphur dioxide (SO_2)		
Methane (CH_4)	0.27				
Hydrogen (H_2)	0.0				
Nitrogen (N_2)	78.80				
Total					

Remarks:

Date January 12,1926 (Signed) W.P.Yant, Associate Chemist.

GOVERNMENT PRINTING OFFICE
6—6953

6—213

DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

GAS ANALYSIS REPORT

Bottle No. 137 Laboratory No. 45077

Sample of Mine air

Mine Overton No.2 Operator Ala. Fuel & Iron Co.

State Alabama County Jefferson Township

Town (distance and direction from, and railroad) 6th If. return, regulator.

Name of coal bed Glass 4 ft., 7 in., Sec., T., R.

Location in mine 6th If return regulator

Method of sampling vacuum Date sampled 12/15/25 Hour

Velocity 447 Area 2 x 2 Quantity 1788

Barometer: Inside Outside

Corrected to sea level: Inside Outside

Bulbs: Wet 64 Dry 68 Humidity 95 %

Collector F.E.Cash Mailed 12/21/25 Received 12/26/25

Laboratory No.	45077		Ethane (C_2H_6)		
Carbon dioxide (CO_2)	0.06		Hydrogen sulphide (H_2S)		
Oxygen (O_2)	20.72		Unsaturated hydrocarbons (C_2H_4, etc.).		
Carbon monoxide (CO)	0.0		Sulphur dioxide (SO_2)		
Methane (CH_4)	0.50				
Hydrogen (H_2)	0.0				
Nitrogen (N_2)	78.72				
Total					

Remarks:

Date January 13, 1926 (Signed) W.P.Yant, Associate Chemist.

GOVERNMENT PRINTING OFFICE
6—6253

6—213

DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

GAS ANALYSIS REPORT

Bottle No. 188 Laboratory No. 45078

Sample of Mine air

Mine Overton No.2 Operator Alabama Fuel & Iron Co.

State Alabama County Jefferson. Township

Town (distance and direction from, and railroad) 16 mi. S.E.Birmingham.

Name of coal bed Glass 4 ft., 7 in., Sec. , T. , R.

Location in mine Rt. side return, 75 ft. inby overcast.

Method of sampling vacuum Date sampled 12/17/25 Hour

Velocity Area 5 1/2 x 10 Quantity 48235

Barometer: Inside Outside

Corrected to sea level: Inside Outside

Bulbs: Wet 68 67 Dry 68 Humidity 95 %

Collector F.E.Cash Mailed 12/21/25 Received 12/26/25

Laboratory No.	45078		Ethane (C_2H_6)		
Carbon dioxide (CO_2)	0.08		Hydrogen sulphide (H_2S)		
Oxygen (O_2)	20.87		Unsaturated hydrocarbons (C_2H_4, etc.).		
Carbon monoxide (CO)	0.0		Sulphur dioxide (SO_2)		
Methane (CH_4)	0.19				
Hydrogen (H_2)	0.0				
Nitrogen (N_2)	78.86				
Total					

Remarks:

Date January 12,1926 (Signed) W.P.Yant, Associate Chemist.

GOVERNMENT PRINTING OFFICE
6—6953

6—213

DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

GAS ANALYSIS REPORT

Bottle No. 191-192 Laboratory No. 43076-43084

Sample of Mine air

Mine Overton No.2 Operator Alabama Fuel & Iron Co.

State Alabama County Jefferson Township

Town (distance and direction from, and railroad) 16 miles S. E. Birmingham, Ala.

Name of coal bed Glass 4 ft., 7 in., Sec. , T. , R.

Location in mine Lf. side return at No. 1 lf. overcast.

Method of sampling vacuum Date sampled 12/17/25 Hour

Velocity 1808 Area 7 x 3 1/2 Quantity 44296

Barometer: Inside Outside

Corrected to sea level: Inside Outside

Bulbs: Wet 61 Dry 62 Humidity 94 %

Collector F.M.Cash Mailed 12/21/25 Received 12/26/25

Laboratory No.	43076	43084			
Carbon dioxide (CO_2)	0.06	0.06	Hydrogen sulphide (H_2S)		
Oxygen (O_2)	20.86	20.85	Unsaturated hydrocarbons (C_2H_4, etc.).		
Carbon monoxide (CO)	0.0	0.0	Sulphur dioxide (SO_2)		
Methane (CH_4)	0.20	0.19			
Hydrogen (H_2)	0.0	0.0			
Nitrogen (N_2)	78.88	78.90			
Total					

Remarks:

Date January 12,1926 (Signed) W.P.Yant, Associate Chemist.

GOVERNMENT PRINTING OFFICE
6—0953

6—213

DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

GAS ANALYSIS REPORT

Bottle No. 181-184 Laboratory No. 43079-43085

Sample of Mine air

Mine Overton No.2 Operator Alabama Fuel & Iron Co.

State Alabama County Jefferson Township

Town (distance and direction from, and railroad) 16 miles S.E. of Birmingham.

Name of coal bed Glass 6 ft., 7 in., Sec. , T. , R.

Location in mine Overcast 6th left return 7 & 8 xt. & If. entry.

Method of sampling vacuum Date sampled 12/15/25 Hour

Velocity Area Quantity 8975

Barometer: Inside Outside

Corrected to sea level: Inside Outside

Bulbs: Wet 62 Dry 64 Humidity 89 %

Collector F.R.Cash Mailed 12/21/25 Received 12/26/25

Laboratory No.	43079	43085	Ethane (C_2H_6)		
Carbon dioxide (CO_2)	0.07	0.06	Hydrogen sulphide (H_2S)		
Oxygen (O_2)	20.77	20.78	Unsaturated hydrocarbons (C_2H_4, etc.).		
Carbon monoxide (CO)	0.0	0.0	Sulphur dioxide (SO_2)		
Methane (CH_4)	0.68	0.69			
Hydrogen (H_2)	0.0	0.0			
Nitrogen (N_2)	78.48	78.47			
Total					

Remarks:

Date January 12, 1926 (Signed) W.P.Yant, Associate Chemist.

GOVERNMENT PRINTING OFFICE
6—6953

6—213

DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

GAS ANALYSIS REPORT

Bottle No. 178 Laboratory No. 45080

Sample of Mine air

Mine Overton No.2 Operator Ala. Fuel & Iron Co.

State Alabama County Jefferson Township

Town (distance and direction from, and railroad) 16 mi. S.E. of Birmingham.

Name of coal bed Glass 4 ft. 7 in. Sec. , T. , R.

Location in mine Special air course near 5th Rt. No. 6 rt. return.

Method of sampling vacuum Date sampled 12/14/25 Hour

Velocity Area 40 Quantity 7,248

Barometer: Inside 29.90 Outside

Corrected to sea level: Inside Outside

Bulbs: Wet 63-1/2 Dry 65 Humidity 92 %

Collector F.E.Cash Mailed 12/21/25 Received 12/26/25

Laboratory No.	45080		Ethane (C_2H_6)		
Carbon dioxide (CO_2)	0.05		Hydrogen sulphide (H_2S)		
Oxygen (O_2)	20.61		Unsaturated hydrocarbons (C_2H_4, etc.).		
Carbon monoxide (CO)	0.0		Sulphur dioxide (SO_2)		
Methane (CH_4)	0.43				
Hydrogen (H_2)	0.0				
Nitrogen (N_2)	78.91				
Total					

Remarks:

Date January 12, 1926 (Signed) W.P.Yant, Associate *Chemist.*

GOVERNMENT PRINTING OFFICE
0—0953

6—213

DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

GAS ANALYSIS REPORT

Bottle No. 179 Laboratory No. 45081

Sample of Mine air

Mine Overton #2 Operator Alabama Fuel & Iron Co.

State Alabama County Jefferson Township

Town (distance and direction from, and railroad) 16 mi. S.E.Birmingham.

Name of coal bed Glass 4 ft., 7 in., Sec. , T. , R.

Location in mine No. 6 rt. return at overcast.

Method of sampling vacuum Date sampled 12/17/25 Hour

Velocity 165 Area 4x10 Quantity 6520

Barometer: Inside Outside

Corrected to sea level: Inside Outside

Bulbs: Wet 62 Dry 63 Humidity 95 %

Collector F.E.Cash Mailed 12/21/25 Received 12/26/25

Laboratory No.	45081		Ethane (C_2H_6)		
Carbon dioxide (CO_2)	0.06		Hydrogen sulphide (H_2S)		
Oxygen (O_2)	20.76		Unsaturated hydrocarbons (C_2H_4, etc.).		
Carbon monoxide (CO)	0.0		Sulphur dioxide (SO_2)		
Methane (CH_4)	0.53				
Hydrogen (H_2)	0.0				
Nitrogen (N_2)	78.79				
Total					

Remarks:

Date Jamary 12, 1926 (Signed) W.P.Yant, Associate Chemist.

GOVERNMENT PRINTING OFFICE
6—6963

6—213

DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

GAS ANALYSIS REPORT

Bottle No. 180 Laboratory No. 45082

Sample of Mine air

Mine Overton No.2 Operator Alabama Fuel & Iron Co.

State Alabama County Jefferson Township

Town (distance and direction from, and railroad) 16 miles S.E. Birmingham.

Name of coal bed Glass 4 ft. 7 in. Sec. , T. , R.

Location in mine No. 5 rt. return, overcast.

Method of sampling vacuum Date sampled 12/16/25 Hour

Velocity 546 Area 2-21/4 Quantity 2457

Barometer: Inside Outside

Corrected to sea level: Inside Outside

Bulbs: Wet 62 Dry 65 Humidity 94 %

Collector F.H. Cash Mailed 12/21/25 Received 12/26/25

Laboratory No.	45082		Ethane (C_2H_6)		
Carbon dioxide (CO_2)	0.67		Hydrogen sulphide (H_2S)		
Oxygen (O_2)	20.61		Unsaturated hydrocarbons (C_2H_4, etc.)		
Carbon monoxide (CO)	0.0		Sulphur dioxide (SO_2)		
Methane (CH_4)	0.27				
Hydrogen (H_2)	0.0				
Nitrogen (N_2)	78.45				
Total					

Remarks:

Date January 12, 1926 (Signed) W.P. Yant, Associate Chemist.

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DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

GAS ANALYSIS REPORT

Bottle No. 1 Laboratory No. 45085

Sample of Mine air

Mine Overton #2 Operator Ala. Fuel & Iron Co.

State Alabama County Jefferson Township

Town (distance and direction from, and railroad) 16 mi. S.E. Birmingham.

Name of coal bed Glass 4 ft., 7 in. Sec. , T. , R.

Location in mine Face 6th right entry.

Method of sampling vacuum Date sampled 12/14/25 Hour

Velocity Area 12 x 4 Quantity

Barometer: Inside 29.90 Outside 29.60

Corrected to sea level: Inside Outside

Bulbs: Wet 62 Dry 64 Humidity 89 %

Collector F.E.Cash Mailed Dec.21,1925 Received Dec.26,1925

Laboratory No.	45085		Ethane (C_2H_6)		
Carbon dioxide (CO_2)	0.1		Hydrogen sulphide (H_2S)		
Oxygen (O_2)	19.2		Unsaturated hydrocarbons (C_2H_4, etc.).		
Carbon monoxide (CO)	0.0		Sulphur dioxide (SO_2)		
Methane (CH_4)	7.7				
Hydrogen (H_2)	0.0				
Nitrogen (N_2)	73.0				
Total					

Remarks:

Date January 12,1926 (Signed) W.P.Yant,
Associate Chemist.

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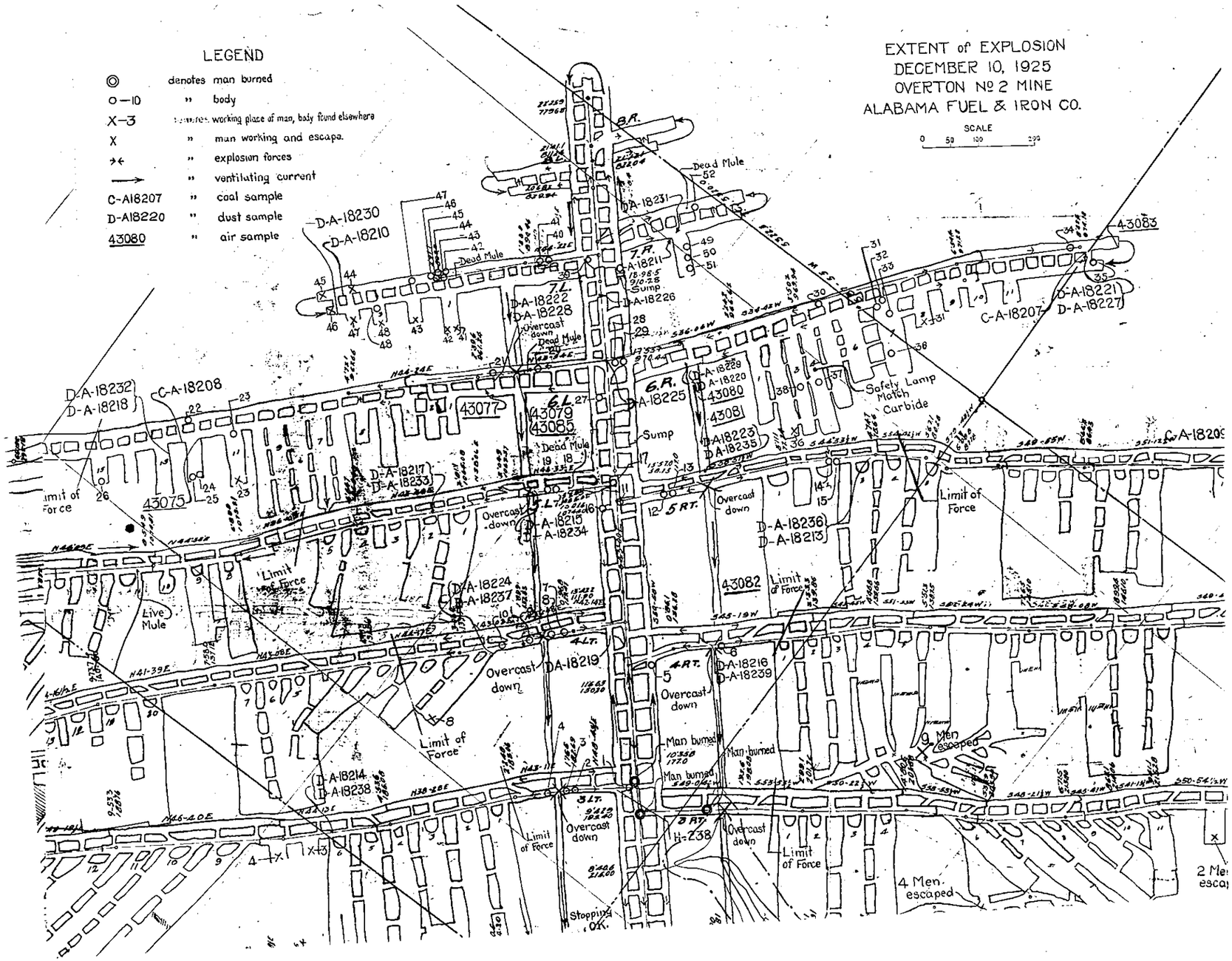
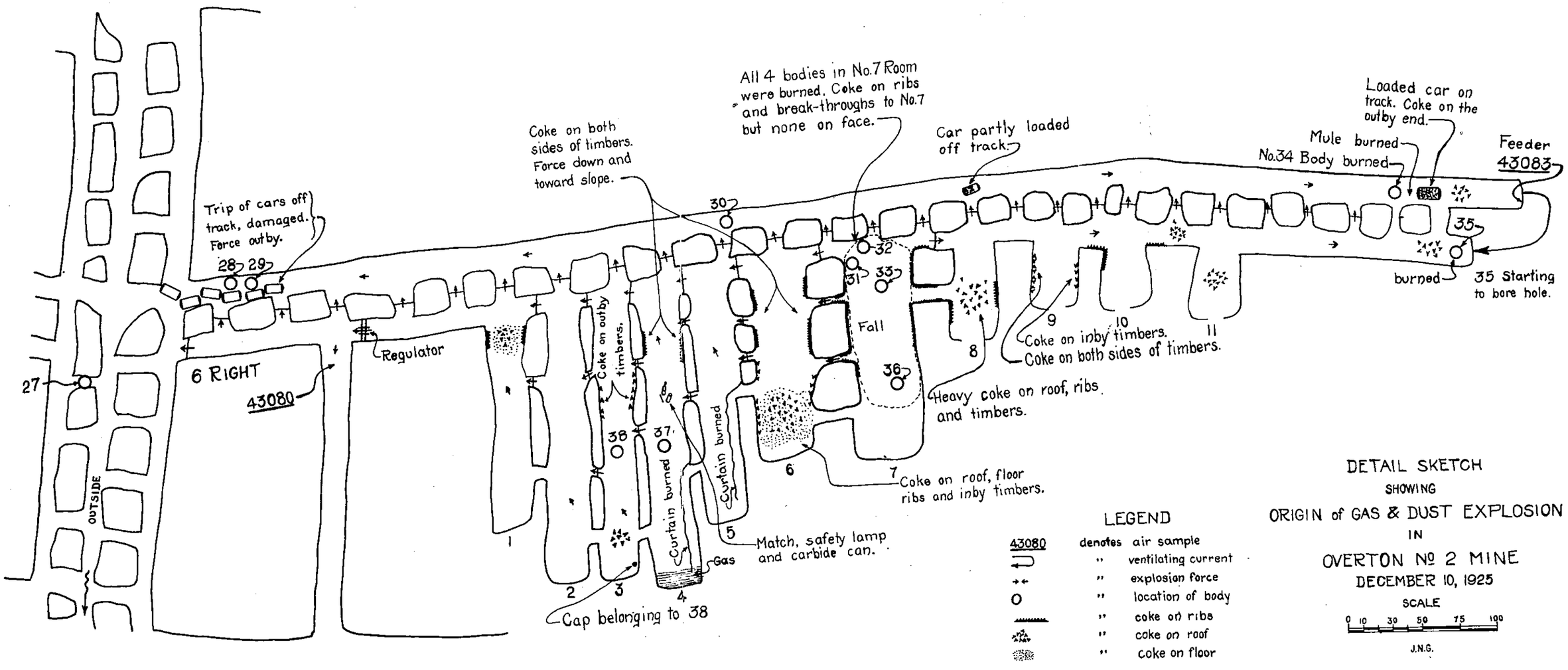

LEGEND
denotes man burned
" body
" working place of man, body found elsewhere
" man working and escape.
" explosion forces
" ventilating current
C-A18207 " coal sample
D-A18220 " dust sample
43080 " air sample
EXTENT of EXPLOSION
DECEMBER 10, 1925
OVERTON № 2 MINE
ALABAMA FUEL & IRON CO.
SCALE
0 50 100 200
Dead Mule
D-A-18230
D-A-18210
D-A-18231
D-A-18211
D-A-18222
D-A-18228
D-A-18226
Overcast down
43083
C-A-18207
D-A-18221
D-A-18227
D-A-18232
D-A-18218
C-A-18208
43077
43079
43085
D-A-18225
D-A-18229
D-A-18220
43080
43081
D-A-18223
D-A-18235
Safety Lamp
Match
Carbide
Sump
D-A-18217
D-A-18233
Limit of Force
43075
Live Mule
D-A-18215
D-A-18234
D-A-18236
D-A-18213
43082
D-A-18224
D-A-18237
D-A-18219
D-A-18216
D-A-18239
Man burned
9 Men escaped
D-A-18214
D-A-18238
Stopping OK.
4 Men escaped



LEGEND

43080	denotes air sample
	" ventilating current
	" explosion force
O	" location of body
	" coke on ribs
	" coke on roof
	" coke on floor

DETAIL SKETCH
SHOWING
ORIGIN of GAS & DUST EXPLOSION
IN
OVERTON Nº 2 MINE
DECEMBER 10, 1925

SCALE
0 10 30 50 75 100

J.N.G.

MAP.
OVERTON № 2 MINE
ALABAMA FUEL & IRON CO.
JANUARY 1, 1926

SCALE

LEGEND

◎	denotes man burned
o—10	" body
X—3	" working place of man, body found elsewhere
X	" man working and escaped.
✳	" explosion forces
⟶	" ventilating current
C-A18207	" coal sample
D-A18220	" dust sample
43080	" air sample