



# Reports

Layland No. 3

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UNITED STATES DEPARTMENT OF THE INTERIOR  
BUREAU OF MINES

MINE EXPLOSION

File No. D-529

Mine Layland No. 3 Location Layland, W. Va.

Company New River and Pocahontas Consolidated Coal Co. Mailing address \_\_\_\_\_

Date March 2, 1915 Time of day 8<sup>30</sup> a.m. \_\_\_\_\_ p.m. Mine working or idle working

Total employment 375 Underground \_\_\_\_\_ Shifts worked \_\_\_\_\_ Daily production (tons) 315,000 annual

Number men killed 115 Injured \_\_\_\_\_ In mine 148

Number men escaped unassisted 12 Rescued 42 Barricaded \_\_\_\_\_

Type (gas or dust) Gas & Dust Ignition source Open Light Rock-dusted \_\_\_\_\_

Was breathing apparatus used Yes - in recovery work Gas masks \_\_\_\_\_ Self-rescuers \_\_\_\_\_

Time required to reach explosion area 30-40 hours (30-4 hrs) - about 3 days to get to the affected area.

Classification (gassy or nongassy) Non-gassy prior to explosion Methane exhausted (24 hours) \_\_\_\_\_

Number of main fans 1 Quantity air per minute 68,000

Ventilation (continuous or split) split Face (line brattice or fans) \_\_\_\_\_

Mine openings Drifts Principal \_\_\_\_\_

Coalbed Five Creek Thickness 36 to 48" Volatile ratio \_\_\_\_\_ Roof Shale Floor clay

Mining system Room & Pillar Pillars extracted \_\_\_\_\_

Room support: Main entries \_\_\_\_\_ Intermediate \_\_\_\_\_ Section \_\_\_\_\_

Transportation: Main Elec. Locom Intermediate horses Section horses

Electricity (voltage ac or dc) Mine power plant Face \_\_\_\_\_ Portable lights open

Principal mining machinery (continuous miners, conventional, etc.) Pick mining

Was machinery permissible type \_\_\_\_\_ Was it permissible \_\_\_\_\_

Blasting and explosives: Coal Black Powder Grading or special use \_\_\_\_\_

Cause of explosion Open light ignited gas permeated by dust

Did explosion result in fire or were fires found \_\_\_\_\_

Point of origin Accumulation of gas at bottom of 4-man

Area affected Major portion of the mine

Was Bureau report made Yes Author(s) J. A. Paul, D. J. Parker, H. D. Mason, W. S. German

If no Bureau report, what and by whom \_\_\_\_\_

Remarks \_\_\_\_\_

FINAL REPORT

on

EXPLOSION AT LAYLAND NO. 3 MINE

of

THE NEW RIVER AND POCAHONTAS CONSOLIDATED COAL COMPANY

LOCATED AT

LAYLAND, FAYETTE COUNTY, WEST VIRGINIA

MARCH 2, 1915.

-----:-----

By

J. W. PAUL, MINING ENGINEER,  
H. D. MASON, JR., ASST. MINING ENGINEER,  
D. J. PARKER, MINING ENGINEER,  
W. J. GERMAN, FOREMAN MINER.

Pittsburgh, Pa.  
May, 1915.

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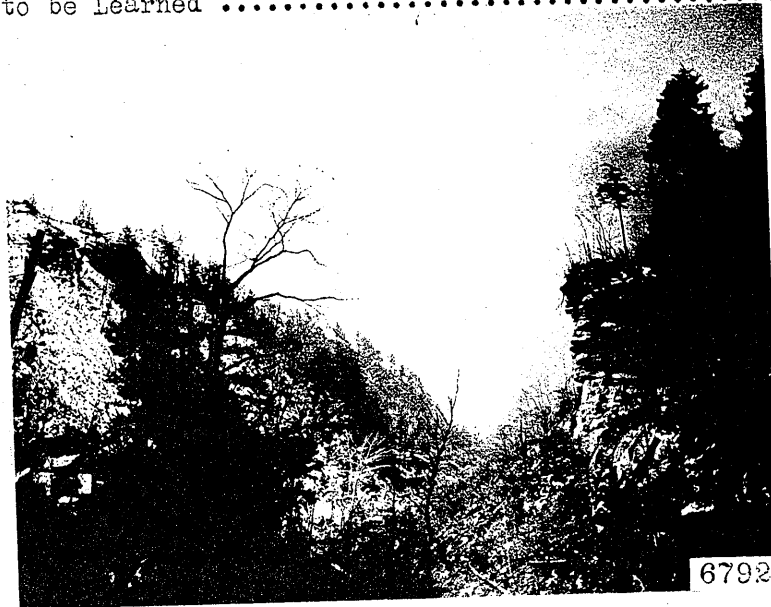
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Ravine below Layland Mines.



Car 8 enroute to Layland.

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## FINAL REPORT

on

EXPLOSION AT LAYLAND NO. 3 MINE

by

J. W. PAUL - H. D. MASON, JR. - D. J. PARKER - W.J. GERMAN

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INTRODUCTORY STATEMENT

At 8:30 a.m., Tuesday morning, March 2, 1915, an explosion occurred at the Layland No. 3 Mine, Layland, West Virginia, resulting in the death of 114 men inside the mine, and one man, the colored store porter, on the outside. Fifty-four men afterward escaped alive from the mine, seven coming out (from 4th Left off No. 3 Main) from two to five hours following the explosion; five more escaping unassisted, (from 9th Left off No. 3 Main) at 8:00 a.m. on the morning of March 6th; and the remaining 42 survivors were rescued an hour later from behind their barricades in 10th Left entry off No. 3 Main by rescue parties led by the State Mine Inspectors and employees of the Bureau of Mines. This made a total of one hundred and sixty-eight men inside the mine when the explosion occurred, 114 of whom were killed, and 54 escaped alive. *(Probably 44 miners died from suffocation.)* Abe Cooper, the colored store porter, was walking in front of and 100 feet from the drift mouth when the explosive wave burst forth, hurling him against a post and killing him instantly.

The explosive wave came from the drift mouth of No. 3 Mine with



great force shaking the buildings for a radius of one-half mile and breaking scores of windows in the immediate vicinity. The masonry arch over the drift mouth was destroyed and inby cross timbers displaced, resulting in a heavy fall which almost blocked the drift mouth, and the removal of which required four days' time.

#### GENERAL INFORMATION

Location: The Layland No. 3 Mine is located ~~six~~<sup>8</sup> miles from Quinnimont, W. Va. on a mountainous tributary of Laurel Creek, which empties into the New River at Quinnimont. Quinnimont is on the main line of the Chesapeake and Ohio Railway and from Quinnimont up the precipitous Laurel Creek ravine extends the Laurel Creek branch of the C. & O. Railway to Layland, a distance of six miles. The Layland mines, however, are two miles distant from the railway depot, and at an elevation of over 500 feet up the mountain side, a steep incline plane extending up to the mine tracks.

These motor haulage tracks extend around the mountain side for a distance of two miles and connect the three drift openings Nos. 1, 2 and 3, each being an independent operation, but all feeding onto the same tipple.

These openings are all in the Fire Creek or Quinnimont coal and are at an elevation of 2500 feet above sea level, and 1400 feet above the C. & O. Railway station at Quinnimont. With rugged, heavily timbered mountains on all sides, the location of the Layland camp is extremely wild, isolated and picturesque.

Ownership, Operators, etc. The Layland No. 1 Mine was originally opened up in 1901 by Captain Joe Beury, pioneer coal operator on the New River.

In 1906 the operation was acquired by the present operator, the New River and Pocahontas Consolidated Coal Company, and the No. 2 Mine was opened up, shortly followed by the No. 3 Mine.

The general offices of this Company are in Charleston, W. Va. and the personnel for the Layland operations is, as follows:

H. M. Bertolet, General Superintendent, Charleston, W. Va.

O. C. Knerr, Local Superintendent, Layland, W. Va.

L. J. Nahodile, General Mine Foreman, Layland, W. Va.

R. Y. Muir, Company Inspector, Berwind, W. Va.

G. S. Borden, Chief Engineer, Berwind, W. Va.

John McMillan (deceased) No. 3 Mine Foreman.

John Havard (deceased) No. 4 Mine Foreman.

The New River and Pocahontas Consolidated Coal Company conduct other large operations in West Virginia at Berwind, Minden, Jed and Canebrake; while in Pennsylvania, their extensive operations at Windber, Pa. are under the company name of the Berwind-White Coal Mining Company.

The annual output of the Layland mines for 1914 was 315,000 tons, and the average number of miners 375. The Layland camp is non-union.

#### GEOLOGY AND CHARACTER OF COAL.

The topography of the country surrounding Layland is extremely mountainous, rough and broken. The Fire Creek coal is opened at an elevation of 2500 feet by drift openings near the summits of the Quinnimont mountains above Laurel Creek, six miles east of the New River valley.

The Fire Creek, or Quinnimont semi-bituminous bed, is the lowest of

the three most valuable beds of the New River group, the other two being the Beckley and the Sewell. The Fire Creek seam is of the Upper Carboniferous system, the Pennsylvanian series, the Lower Pottsville formation and the New River group. The principal operations in the Fire Creek seam are along the C. and O. Railway in the New River district. It was the first bed to be mined along the New River, and for many years was the premier seam of the region; however, partial exhaustion has now relegated it to third place in production. It is a low volatile, semi-bituminous coal, of great commercial value as steam, bunker, domestic, or railway fuel.

Coal: At the Layland mines, the Fire Creek seam varies from thirty to forty-eight inches in thickness. On July 13, 1909, Layland Mines Nos. 1, 2 and 3 were sampled by J. J. Rutledge and J. W. Groves of the Bureau of Mines, as described below:

Lab. No. 8346 - Layland No. 1 Mine, face of Main Entry, 5000 feet east of drift mouth.

	Ft.	In.
Roof, Strong gray shale .....		
Coal .....	0	10
Mother coal .....	0	0-1/2
Coal .....	0	2
Gray band .....	0	2
Coal .....	2	1
* Shale .....	0	1-1/4
* Coal .....	0	3
Floor, Hard gray underclay .....		-----
Thickness of coal bed .....	3	7-3/4
Thickness of coal sampled .....	3	3-1/2

\* Excluded from sample.

Laboratory No. 8234 - Layland No. 2 Mine, face of Main Entry,  
5300 feet northeast of drift mouth.

Roof, Hard gray shale .....	Ft.	In.
Coal .....	3	7-3/4
Mother coal .....	0	0-1/2
Coal .....	0	5
Floor, Hard underclay .....	-----	
Thickness of coal bed .....	4	1-1/4

Laboratory No. 8350 - Layland No. 3 Mine, face of Main Entry,  
2400 feet east of drift mouth.

Roof, Strong gray shale .....	Ft.	In.
* Coal and shale, thin layers .....	0	2
Coal .....	2	9-3/4
Mother coal .....	0	0-1/4
Coal .....	0	4
Floor, Hard underclay .....	-----	
Thickness of coal bed .....	3	4
Thickness of coal sampled .....	3	2

\* Excluded from sample.

The analyses of these samples (coal as received) No. 8346, 8234  
and 8350 are as follows:

Lab. No.	Moisture	Volatile	Fixed Carbon	Ash	Sulphur
8346	3.01	15.32	76.74	4.93	.80
8234	3.60	14.50	74.90	7.00	.80
8350	2.72	16.30	75.49	5.49	.66

Face samples and road dust samples were also secured by J. W. Paul

and D. J. Parker in No. 3 Mine on March 17 and 18, 1915, and the measurements and analyses follow:

Location of Coal Sample	Moisture		Volatile		Fixed Carbon		Ash		Sulphur	
	As rec'd:	Mois- ture	As rec'd:	Moist- ure	As rec'd:	Moist- ure	As rec'd:	Moist- ure	As rec'd:	Moist- ure
	:	Free	:	Free.	:	Free	:	Free	:	Free
Face of 10th Left off No. 3 Main	4.04	---	19.07	19.87	68.83	71.73	8.06	8.40	.76	.79
Face of No. 3 Main entry .....	2.70	---	19.64	20.18	71.64	73.63	6.02	6.19	.72	.74
Face of 6th Left off No. 4 Main..	2.92	---	20.62	21.24	70.03	72.14	6.43	6.62	1.09	1.12
Face of Main Tunnel .....	2.21	---	20.21	20.67	70.34	71.93	7.24	7.40	.74	.76
Face of 3rd Left off Tunnels .....	3.02	---	20.63	21.27	70.23	72.42	6.12	6.31	.89	.92

Thirteen road dust samples and two rib dust samples were also collected in No. 3 Mine and analyzed as follows:

Road Dust as received.

Location	Percentage:		Moisture	Volatile	Fixed	Ash	Sulphur
	thru 20 mesh screen	:					
5th Left off No. 3 Main .....	38.5	:	10.11	16.85	60.50	12.54	.94
Near 7th Left on No. 3 Main .....	78.7	:	5.32	9.14	31.54	54.00	.49
3rd Crosscut, 7th Left off No. 3 Main ...	91.7	:	7.18	15.51	59.87	17.44	.86
Room 10, 8th Left off No. 3 Main....	68.1	:	.98	18.68	65.35	14.99	.87
Near 9th Left on No. 3 Main .....	77.7	:	10.56	14.32	50.43	24.69	.62
Near Tunnels on No. 4 Main .....	82.1	:	2.33	15.85	55.80	26.02	.77
Near Room 16, 4th Left, off No. 4 Main:	77.4	:	4.59	16.96	60.04	18.41	.77
Near 5th Left on No. 4 Main .....	69.1	:	3.83	17.41	59.52	19.24	.83

Location	:Percentage: : thru 20 :mesh screen	:Moisture:	:Volatile:	: Fixed : Carbon	: Ash	: Sulphur
Near 5th Left on No. 4 Main .....	69.2	1.14	17.27	59.04	22.55	.82
Near 7th Left on No. 4 Main Aircourse...	85.7	5.05	18.46	65.00	11.49	.85
Near No. 4 Main on Main Tunnel .....	69.9	6.15	18.54	60.77	14.54	.75
3rd Left off Tunnels:	88.7	11.66	12.79	48.01	27.54	.77
Near Face of Main Tunnel .....	66.2	3.07	16.91	70.19	9.83	.88
Rib Dust on Sub- Station .....	98.6	2.86	15.52	57.30	24.32	.76
Rib dust, 5th Left off No. 4 Main .....	90.5	7.85	15.64	63.02	13.49	.93

(Road dust samples from adjacent mines)

Hemlock Hollow Mine : Main entry .....	38.0	2.72	17.51	60.35	19.42	.75
Hemlock Hollow Mine : Main entry .....	31.7	2.74	15.82	53.44	28.00	.71
Greenwood Mine, Main: Entry .....	36.1	2.39	16.70	55.83	25.08	.63
Greenwood Mine, Main: Entry .....	32.6	3.54	20.43	59.60	16.43	.64

Inflammability Tests:

Inflammability tests on a large scale

on Layland dust will be conducted within a few months at the Experimental mine, Bruceton, Pa., and the results obtained will follow in a supplemental report.

Roof: The top is generally a hard, gray shale, rather variable and containing numerous "slips", which render it dangerous to the miner. It requires close attention and systematic posting. Two feet of top is "brushed" in haulage-ways but not in rooms.

Timbering: Other than a few dozen of heavy cross timbers on No. 3 Main haulage-way, near the drift-mouth, there were no timbers used in the main entries. On the side entries props were used where gob was stored, requiring the widening of the entries, but no cross timbering was done. In the rooms systematic timbering was in evidence throughout the mine. The Company owns its own timber lands and saw-mill.

Cover: The thickness of the "cover" over No. 3 Mine ranges from 20 feet, near the outcrop, to 500 feet where the advance workings are a mile and a half in the mountain.

Floor: The pavement is mainly made up of a hard underclay, which makes a smooth bottom, and does not mix with the coal in loading.

Moisture: The workings seemed damp in many places and there was considerable standing water at the faces. The mine seems to be naturally rather moist and few places were found unusually dry and dusty.

Gas: The mine was generally considered as non-gaseous and no fire bosses were employed. Inspector Absolom testified at the inquest that he had never found "explosive" gas in the No. 3 Mine. However, Mine Foreman Nahodile testified that he had known gas to be "liberated" in small quantities in No. 3 Mine for over a year.

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Night Foreman Frank Wallen testified that he had found gas in 12th Left off No. 3 Main and could light the gas "bubbling from the water". Also he had found gas in 8th Left off No. 4 Main Entry; but he did not consider any of this gas dangerous with proper ventilation; and to his knowledge no employee had ever been burned with gas; but he claimed that Mine Foreman McMillan (deceased) had neglected his work by not placing trappers at the ventilating doors, which might result in gas accumulating.

Hugh J. McMillan, one of the 42 men who escaped from 10th Left, testified that he had found gas in the 12th Left off No. 3 Main, but "very little", and he always considered the ventilation good.

Earl Aurentz testified that he had worked in the 5th, 6th, 7th, 8th and 10th Lefts off No. 3 Main and had never seen gas. He had never worked in a mine that made gas. The motormen were often careless in leaving trap-doors open and he had heard some miners complain of insufficient ventilation. At one time a door had been broken down near his entry and when he asked the foreman when it would be repaired, the foreman answered, "When we get damn good and ready".

R. Y. Muir, Company Inspector, testified that he had at one time detected gas at the face of No. 3 Main heading but only by boring a hole in the coal. He had inspected the mine on February 26, 1915, (4 days prior to the explosion) and found all working conditions safe.

Note: It might be well commented upon at this point that R. Y. Muir is not only a mining man of wide experience, but one of the most thorough, fearless, and conscientious inspectors to be found in any field. These facts are well known to the writers of this report.

