

**REPORT OF FATALITY
RIB ROLL
UNDERGROUND COAL MINE**

FEBRUARY 6, 2018

**WOLF RUN MINING LLC
SENTINEL MINE
PERMIT #U00001583D**

**REGION ONE
14 COMMERCE DRIVE, SUITE ONE
WESTOVER, WEST VIRGINIA 26501
EDWARD PEDDICORD, INSPECTOR-AT-LARGE**

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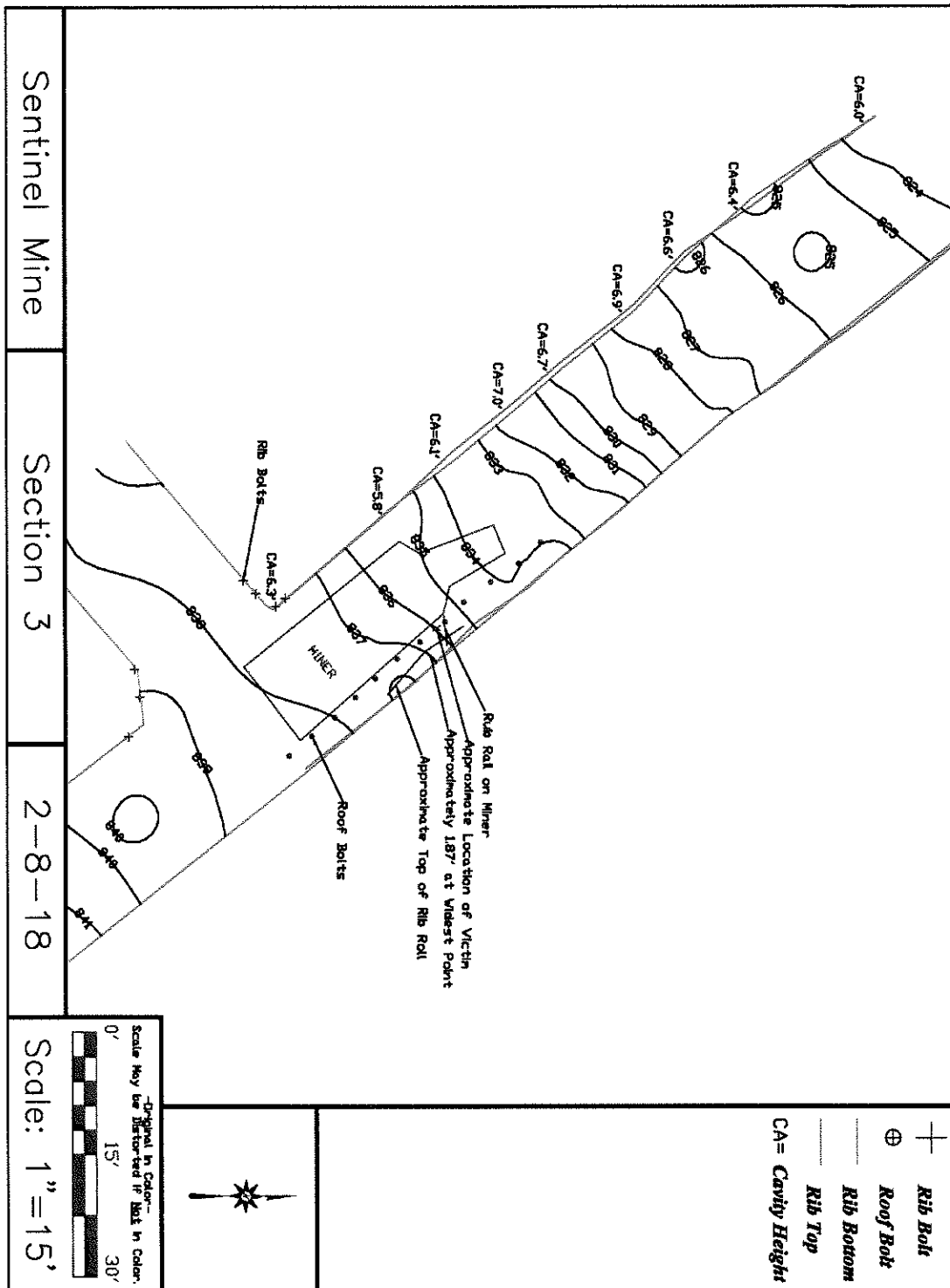
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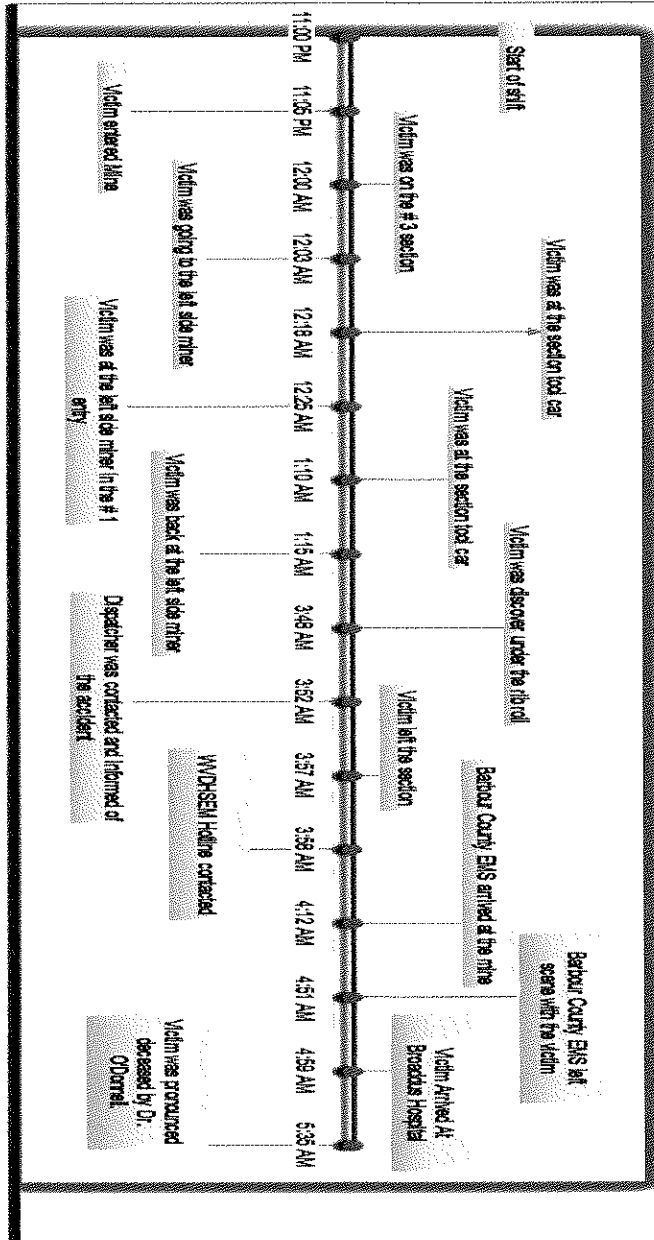
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TIMELINE



GENERAL INFORMATION

The Wolf Run Mining LLC, Sentinel Mine, Permit No. U00001583D is a shaft and slope mine. This underground mine produces coal in the Clarion seam and is located along Rt. 119, three miles north of Philippi, WV and employs 325 miners. The mine produces approximately 9,405 tons daily from 7 continuous miner units. Coal is transported via conveyor belt to the slope belt, located near the coal preparation plant. Employees access the mine from the elevator shaft located adjacent to the bath house. Employees and supplies are transported by rubber tired equipment.

DESCRIPTION

On February 6, 2018, at 3:58 a.m., the Mine and Industrial Response System was notified by Anthony Moran, Dispatcher at the Sentinel Mine, that a rib roll had occurred crushing a miner and he was unresponsive. West Virginia State Mine Inspectors; Tony Hanlon, John Scott and Jeffrey Bennett were instructed by Edward Peddicord, Inspector-At-Large of the West Virginia Office of Miners' Health, Safety & Training, to go directly to the Sentinel Mine in Barbour County. During informal interviews, it was revealed that Leonard W. Griffith, Mechanic/Electrician was found by Benjamin Poling, Maintenance Foreman/EMT-M, underneath a rib roll, located on the left side of No. 5827 Joy continuous miner, in No. 1 entry, No. 3 section. A joint investigation with the Mine Safety and Health Administration, Wolf Run Mining LLC and Arch Coal, Inc began immediately.

On midnight shift, February 6, 2018, miners were scheduled to advance the conveyor belt and the electrical power for one block on No. 3 section. The afternoon shift reported that the No. 5530 Joy continuous miner, located in No. 7 entry, on No. 3 section, had a broken conveyor chain. When midnight shift arrived on No. 3 section, Earl Moats, Section Foreman, instructed miners what needed to be done at the start of the shift. The Mechanics/Electricians went to gather tools and supplies. Jason Harris, Richard Chambers and Dale Tenney went to the No. 5530 Joy continuous miner to work on the broken conveyor chain. Mr. Griffith, went to service and clean the scrubber system on the No. 5827 Joy continuous miner, located in No. 1 entry. This continuous miner was positioned by the afternoon shift. The drum of the miner was in the three-way intersection and the remainder of this miner was located outby this intersection. Mr. Griffith was working alone.

After work assignments were issued, Mr. Moats performed an on-shift examination on No. 3 section. Mr. Moats traveled between the left rib, barrier side and the No. 5827 Joy continuous miner in No. 1 entry where Mr. Griffith was working. Mr. Moats had a brief conversation with Mr. Griffith. Mr. Moats eventually went to the face in No. 1 entry and recorded an on-shift examination at 12:12 a.m. Mr. Harris asked Mr. Chambers to assist Mr. Griffith servicing the No. 5827 Joy continuous miner. Mr. Chambers went towards the No. 5827 Joy continuous miner and was informed by John Payne, Contractor Crew Leader for G.M.S. Mine Repair & Maintenance that the Fairchild scoop was broke down in the No. 3 entry. Mr. Chambers knew that repairing this scoop was a priority because it was going to be needed to assist in repairing the conveyor chain on No. 5530 Joy continuous miner. Mr. Chambers contacted Franklin Mullenax, Outby Electrician, who was performing electrical work outby No. 3 section. Mr. Chambers requested that Mr. Mullenax assist because he had more experience and better knowledge of the code that was on the display screen on the Fairchild scoop. Mr. Harris went to the tool boxes to get additional supplies to assist in removing the broken conveyor chain. Mr. Harris said that Mr. Griffith was at the tool boxes and that he had a brief conversation with him. Mr. Griffith informed him that he was working on the de-mister door/dust collection cover and that he was having problems with repairs.

Mr. Poling and Harvey Glotfelty, Assistant Maintenance Supervisor, were aware of these equipment repairs/maintenances on the No. 3 section. They started traveling towards the No. 3 section to assist in repairs after they completed other work.

At 2:10 a.m., Mr. Moats recorded a second on-shift examination of the No. 1 face. Mr. Moats traveled through the last open crosscut, inby No. 5827 Joy continuous miner. Mr. Moats did not see Mr. Griffith or observe a rib roll at the continuous miner while traveling to or from No. 1 face.

Mr. Poling and Mr. Glotfelty, arrived on No. 3 section. Mr. Poling asked Mr. Moats where the scoop was, and he was informed that it was on the left side, in No. 3 entry. Mr. Poling and Mr. Glotfelty went to the left side of the section and traveled to the inby end of the continuous miner in No. 1 entry to check on Mr. Griffith. Mr. Poling did not immediately see Mr. Griffith. Mr. Poling did see a rib roll located on the left rib, barrier side of the continuous miner. Mr. Poling walked across the inby end of the continuous miner towards the rib roll and noticed a small piece of reflective material. Mr. Poling then traveled over the rib roll towards the outby end to investigate this reflective material. When Mr. Poling arrived on the outby end of the rib

roll he looked inby and observed Mr. Griffith entrapped under the rib roll. Mr. Poling immediately informed Mr. Glotfelty who was nearby at approximately 4:48 a.m. They attempted to remove the large piece of coal/rock that was on Mr. Griffith, but it was too heavy. Mr. Poling immediately went to get assistance and inform others while Mr. Glotfelty removed smaller debris from the victim.

Mr. Poling first alerted Mr. Chambers and Mr. Mullenax who were working on the Fairchild scoop in No. 3 entry. Mr. Poling informed them that they were needed immediately at the left side continuous miner. Mr. Poling informed Mr. Moats of the accident so he could report it. Mr. Moats informed Mr. Moran to make necessary and required phone calls. Mr. Glotfelty, Mr. Chambers and Mr. Mullenax removed the large piece of coal/rock that was on Mr. Griffith. Mr. Poling then returned to the accident site and assisted in removing the victim to the outby end of the continuous miner to an awaiting backboard. Mr. Poling checked for a pulse, but no pulse was detected.

A diesel powered, rubber tired Genco 4-man personnel carrier had been driven to the accident site. The victim was placed on the personnel carrier and transported to the section power center, then to the Wallace 14-man diesel, rubber tired, personnel carrier. Everette Kalbough, Midnight Shift Foreman/Paramedic, and Shane Wilfong, Belt Man, were notified by Mr. Moran to go to No. 3 section as soon as possible. Mr. Kalbough, Mr. Wilfong, Mr. Poling and Tim Tenney, Electrician/EMT, traveled on the Wallace diesel powered, rubber tired personnel carrier that transported the victim to the elevator bottom. Oxygen was administered, and CPR was performed continuously on the victim while being transported to the surface. Despite these efforts, the victim never showed any signs of life. The Barbour County EMS arrived at the mine and transported Mr. Griffith to the Broaddus Hospital in Philippi, WV. Mr. Kalbough and Mr. Wilfong traveled with the victim in the ambulance and continued CPR during transportation. Dr. Patrick O'Donnell at the Broaddus Hospital pronounced Mr. Griffith deceased at 5:35 a.m., on February 6, 2018.

FINDINGS OF FACT

1. Leonard Griffith received annual refresher training on January 6, 2018.
2. Mr. Griffith was a Certified Underground Miner No. 1-18773.
3. Mr. Griffith was a Certified Electrician No. 1-1166.
4. Mr. Griffith was a Certified EMT-M No. 1814.
5. Mr. Griffith received annual electrical retraining on March 4, 2017.
6. Midnight shift works from 11:00 p.m. to 8:00 a.m.
7. Mechanics/Electricians are generally assigned to work on certain sections and outby areas. Four Mechanics/Electricians are assigned to work on No. 3 section on midnight shift.
8. Travel time from the elevator bottom to No. 3 section is approximately fifty-five minutes.
9. No. 3 section is a "super section" consisting of eleven entries.
10. No. 3 section is parallel with the abandoned No. 33 section. The No. 33 section is located to the left of No. 3 section, adjacent to the No. 1 entry. The No. 33 section had been second mined/pillared and was sealed in November 2017.
11. The barrier block between old No. 33 section and No. 3 section is 179 feet.
12. The tracking system revealed that Mr. Griffith went to No. 5827 Joy continuous miner at 12:03 a.m., to service and clean the scrubber system.
13. The tracking system revealed that Mr. Griffith was at the tool boxes at 12:18 a.m. and 1:10 a.m. The tool boxes are in the No. 8 entry.
14. From 12:56 a.m. to 1:55 a.m. electrical power was removed on No. 3 section power center while the power center was being advanced.
15. The tracking system revealed that Mr. Griffith was at No. 5827 Joy continuous miner at 1:15 a.m.
16. The victim was wearing a battery powered cap light and a strobe light on the back of his hard hat. The strobe light was still flashing when the large piece of coal/rock was removed.
17. The victim's cap light and strobe light were not visible when he was entrapped under the rib roll.
18. The model of No. 5827 Joy continuous miner is a 14CM15. This miner was equipped with Strata proximity detection system. Mr. Griffith was wearing a proximity pad.
19. The No. 5827 Joy continuous miner was not energized when the victim was found, and no other electrical sources were at the accident site.
20. The cable coupler for No. 5827 Joy continuous miner had not been advanced after the section power center was moved.
21. The Sentinel Mine utilizes the IWT tracking system. The IWT tracking system tracks the radio of each miner as assigned. The IWT radio that was assigned to Mr. Griffith was operational.
22. The IWT tracking system was referenced during the investigation to obtain a more precise time line. Miners that were interviewed were unable to provide specific times when events had occurred.

23. The total length of the rib roll measured 18 feet 4 inches, 79 inches in height and up to 17 inches thick.
24. The No. 3 section, including the accident site, was dry. The mining height at the accident site measured 79 inches. The entry width measured 18 feet, 6 inches. The distance from the left rib, barrier side, to the continuous miner prior to the rib roll measured 3 feet. The distance from the left rib, barrier side, to the continuous miner after the rib roll occurred, measured 4 feet, 5 inches.
25. The grade of No. 1 entry, where the accident occurred, was approximately 16 percent. This incline started at spad station No. K68, No. 15 crosscut, 1 block outby the accident site. This incline was noticeable on the left side of No. 3 section but steepest in No. 1 entry.
26. The largest piece of coal/rock from this rib roll struck the victim. This large piece of coal/rock measured 36 inches in width at the bottom, 42 inches in width at the top, 28 inches in height, 14 inches thick and weighed approximately 618 pounds.
27. There are three binders present in the coal rib where the rib roll occurred. The largest piece of coal/rock that struck the victim fell between the middle and top binders. The top and bottom of this large piece of coal/rock where it was formed to the top and middle binders had slickenside surfaces.
28. On No. 3 section the approved roof control plan requires that all intersection rib corners shall be supported with a minimum of 48 inch resin bolts. Square corners require a minimum of 4 rib bolts, 2 rib bolts on each side of the square corner. Cut corners require a minimum of 3 rib bolts.
29. Additional rib bolts were installed at various locations on No. 3 section, between corner bolts. There were no rib bolts installed at the accident site.
30. The No. 3 section prescribed record book revealed that the afternoon shift pre-shift examination, conducted on February 5, 2018, had no roof/rib violations or dangerous/hazardous conditions recorded.
31. The victim was positioned between the left rib, barrier side and the left side, of No. 5827 Joy continuous miner. He was found underneath the rib roll in a crouched position, face down, his head towards the Joy continuous miner, and his legs extending towards the face.
32. The inby pin on the outby side rub rail was removed at the de-mister door/dust collection cover. The inby end of the rub rail was opened and swung towards the coal rib.
33. The bolts were removed from the de-mister door/dust collection cover but the door/cover had not been removed. Three drain plugs were removed from the sump area of the scrubber. The wash down hose was located across the continuous miner at the work site. The scrubber screen had not been cleaned/washed prior to the rib roll.
34. There were no eye witnesses to this accident and the precise time when the rib roll occurred is undetermined.

CONCLUSION

Mr. Griffith was fatally injured while attempting to clean the scrubber system on a Joy continuous miner on February 6, 2018. The victim was positioned between the left rib, barrier side and the Joy continuous miner, located in No. 1 entry, No. 3 section. While preparations were being made to clean the scrubber system a rib roll dislodged from the coal rib with the largest portion of the rib roll striking the victim causing fatal injuries.

ENFORCEMENT ACTION

A non-assessed control order was issued in accordance with West Virginia Code Chapter 22A, Article 2, Section 68 to preserve evidence until an investigation by the Office of Miners' Health, Safety & Training is completed.

A notice of violation was issued in accordance with West Virginia Code Chapter 22A, Article 2, Section 25(a); During the investigation of a fatal accident that occurred on the No. 3 section, in the No. 1 entry, between No. 15 and No. 16 crosscuts, it is evident that the rib was not supported or controlled adequately to protect persons from a fall of the rib. Mr. Leonard Griffith received fatal injuries when he was struck by a large section of a rib fall. The section of rib that fell measured 18 feet 4 inches in length, 79 inches in height and up to 17 inches thick.

RECOMMENDATIONS

Rib bolts will be installed with every 2nd row of primary roof support in the upper ½ of the rib. Rib bolts will be a minimum of 48 inches in length. Where the mined height exceeds 8.5 feet either a double row of rib bolts will be installed or a single row of rib bolts with a strap or board of at least 36 inches in length. Where a future crosscut will be started or cut through, rib bolts will not be installed, however this location will be marked with ribbon, paint or other appropriate means. The miner operator will not be positioned in by the last rib support. There cannot be two consecutive rib bolts damaged or missing in a row and no more than 4 rib bolts can be damaged or missing in the same entry or crosscut on a block to block basis (including both ribs-right and left). The rib bolts will be installed with an approved plate and pie pan. In areas that will be second mined the rib bolts may be installed without pie pans. In the event the rib bolt becomes loose, a wire rope clamp, wedge, or wooden cap piece may be used to tighten the installation to the rib.

If maintenance needs to be performed on a piece of equipment, the equipment will be located in a four way intersection or if necessary to perform work between the rib and the equipment the rib will be supported with rib bolts, cribs, ribsters or similar supports prior to work being performed.

Wolf Run Mining LLC submitted a request for a modification of the approved roof control plan with the addition of the above items. This addendum was approved by the West Virginia Office of Miners' Health, Safety & Training.

ACKNOWLEDGEMENT

The West Virginia Office of Miners' Health, Safety & Training gratefully acknowledges the cooperation of Wolf Run Mining LLC, Arch Coal, Inc and the Mine Safety and Health Administration, during this investigation.

MINE INFORMATION

COMPANY Wolf Run Mining LLC

MINE NAME Sentinel

WV PERMIT U00001583D MSHA PERMIT NO. 46-04168

ADDRESS 21550 Barbour County Highway, Philippi, WV 26416

COUNTY Barbour PHONE NO. 304-457-1895

DATE PERMIT ISSUED May 12, 2006

WORKING STATUS Active

LOCATION Intersection of Rt. 76 & 119, 3 miles north of Philippi, WV

UNION _____ NON-UNION X

DAILY PRODUCTION 9,405 Tons ANNUAL PRODUCTION TO DATE Raw-Tons 268,749

TOTAL EMPLOYEES 325

NUMBER OF SHIFTS 3

COAL SEAM NAME AND THICKNESS Clarion 84 inches

ACCIDENT INCIDENT RATE 0 in 2018 LOST TIME ACCIDENTS 0 in 2018

TYPE OF HAULAGE Rubber tired

WVOMHST INSPECTOR Tony Hanlon

DATE OF LAST INSPECTION February 5, 2018

NOTIFIED BY Anthony Moran/Dispatcher

NOTIFICATION TIME 3:58 AM on February 6, 2018

CMSP-ANNIVERSARY DATE April 17, 2018

CMSP-CONTACT PERSON Johnny Stemple