FAI-4431618-1

UNITED STATES
DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION

REPORT OF INVESTIGATION

Surface
(Crushed, Broken Sandstone)

Fatal Machinery Accident
December 15, 2020

Rapid FM Aggregates, LLC
Fords Branch Mine 1
Pikeville, Pike County, Kentucky
ID No. 15-19602

C & M Giant Tire
Contractor ID No. A247

Accident Investigator

Thomas R. Bower
Mine Safety and Health Inspector

Originating Office
Mine Safety and Health Administration
East Region - Norton District
716 Spring Ave SE
Wise, Virginia 24293
Benjamin S. Harding, District Manager

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OVERVIEW

On December 15, 2020, at approximately 10:30 a.m., George W. Fitzpatrick, a 58-year-old miner with approximately 26 years of experience died while attempting to change the right rear tire on a Caterpillar 992D Front-End Loader.

The accident occurred because: 1) the contractor did not block the machine to prevent it from rolling or falling, and 2) a miner parked the machine at a site prepared by a member of mine management. The site was on unconsolidated fill material that was not level and stable for the tire change.

GENERAL INFORMATION

Rapid FM Aggregates, LLC owns and operates the Fords Branch Mine 1 in Pikeville, Pike County, Kentucky. The surface mine employs six miners and operates one ten-hour shift, five days per week. Miners drill and blast the sandstone and equipment operators load and haul the material to a jaw crusher for processing. The finished product is sold as construction material. Fords Branch Mine 1 also does incidental coal removal from the Elkhorn seam as they mine sandstone. C & M Giant Tire is a tire sales and service contractor hired by Rapid FM Aggregates to replace a tire on the front-end loader.

The principal officer for Rapid FM Aggregates, LLC at the time of the accident was:

Jimmy Branham Foreman/General Manager

The Mine Safety and Health Administration (MSHA) completed the last regular safety and health inspection at this mine on June 30, 2020. The 2019 non-fatal days lost (NFDL) incident rate for Fords Branch Mine 1 was 0, compared to the national average of 1.447 for mines of this type.

DESCRIPTION OF THE ACCIDENT

On December 15, 2020, George W. Fitzpatrick, Tire Technician with C & M Giant Tire, arrived at the mine at approximately 7:45 a.m., and contacted Jimmy Branham, Foreman/General Manager. Branham directed Fitzpatrick to the location of the inoperable front-end loader.

Fitzpatrick positioned his service truck, equipped with an articulating crane and a tire positioner, to start the tire change. The ground below the front-end loader was not solid and was constructed primarily with waste fill material from the mining process. Fitzpatrick placed two metal jack stands under the front-end loader, one under the rear differential and one under the rear frame area. He positioned an Esco one-hundred ton, hydraulic jack on each of the metal jack stands in preparation to raise the front-end loader.

Fitzpatrick raised the front-end loader and removed the right rear flat tire with the tire truck crane and tire positioner. He then attempted to mount the tire (a Michelin X Mine 2 size 45/65R45) onto the right rear wheel of the front-end loader. Fitzpatrick had trouble getting the tire to mount properly due to a tire bead repair, which reduced the inside diameter of the tire. He unsuccessfully tried to use the tire truck crane and tire positioner to push the tire onto the wheel.

At 10:18 a.m., Fitzpatrick called his supervisor Charles Newsome and notified him of the situation. Newsome told Fitzpatrick that he would travel to the mine, inspect the tire, and make a decision. Fitzpatrick removed the tire from the wheel and placed it into position for inspection. Based on an evaluation at the accident scene, it appears that Fitzpatrick went under the rear of the front-end loader. The loader shifted and fell on him causing fatal injuries. There were no eyewitnesses to the accident.

Steven Pratt, Highwall Drill Operator, was operating a drill on the bench above where Fitzpatrick was working. Pratt noticed that the right rear section of the front-end loader had fallen to the ground. He traveled from his drill to the front-end loader to see if he could help Fitzpatrick raise it. Pratt found Fitzpatrick underneath the front-end loader and behind the right rear wheel. Pratt ran to an excavator parked near the front-end loader and contacted Patrick Fannin, Loader Operator, for assistance via CB radio. Fannin traveled to the scene, assessed the situation, checked for a pulse on Fitzpatrick and found him unresponsive. Fannin called Branham and informed him of the accident.

Branham traveled to the accident scene, assessed the situation, and called Joe Jacobs of Jacobs Risk Management to notify him of the accident. Jacobs Risk Management is a contractor for the mine operator. Jacobs directed his business partner, Heather Hammonds, to call 911. Emergency Medical Services arrived at 11:16 a.m. and determined Fitzpatrick was deceased. Russell Roberts, Pike County Coroner, traveled to the mine and pronounced Fitzpatrick dead at 11:45 a.m.

INVESTIGATION OF THE ACCIDENT

On December 15, 2020, at 11:06 a.m., Hammonds called the Department of Labor National Contact Center (DOLNCC) to report a fatality. The DOLNCC contacted Craig Plumley, Assistant District Manager, in the Barbourville District, who contacted Vernus Sturgill, Assistant District Manager, in the Norton District. Thomas R. Bower, Mine Safety and Health Inspector, and Carlton D. Beggs, Mining Engineer, were dispatched to the mine.

At 2:00 p.m., MSHA's accident investigation team arrived at the mine and verbally issued a 103(k) order to secure the accident scene. The accident investigation team conducted a physical examination of the accident, interviewed miners, and reviewed conditions and work procedures relevant to the accident. See Appendix A for a list of persons who participated in the investigation.

DISCUSSION

Location of the Accident

The accident occurred in pit number one of the mine near the active drill bench, which had been previously graded by Branham.

Equipment Involved

The front-end loader involved in the accident was a 1996 Caterpillar model 992D. The service truck was a 2009 Peterbilt model 389, equipped with a Fleet Equipment Corporation (FEC) model 29017 crane and a FEC model TP160 tire positioner. The two 100-ton hydraulic jacks involved in the accident were Esco model number 10300.

Testing, Observations and Conclusions

Jeffrey A. Miles, Mine Safety and Health Specialist, observed a test on the tire truck's hydraulic unit and wireless remote system that controls the hydraulic unit.

The pressure output of the hydraulic unit on the tire truck was tested and had a maximum pressure of 9,200 pounds per square inch (PSI). The jacks are rated by the manufacturer at 10,000 PSI.

The wireless remote control for the hydraulic unit was tested and functioned properly.

Investigators determined that the accident was not caused by a malfunction in the hydraulic jacks.

Examinations

The pre-operational examination records of the tire truck conducted on the day of the accident indicated that there were no defects. The workplace examination records for the mine site did not reveal any hazards in pit number one where Fitzpatrick was changing the tire. However, investigators observed the jack stands sunken into the ground under the front-end loader.

The anti-pivot link for the front-end loader was not connected before the tire change process was started. The maintenance manual for this front-end loader indicates that this is the first step to take when preparing to remove and install the tire and rim assembly.

Weather

At the time of the accident, the temperature was between 32 and 34 degrees Fahrenheit. Scattered clouds were in the area with a five miles per hour wind. Investigators determined that weather was not a factor in the accident.

Training and Experience

George W. Fitzpatrick had approximately 26 years of experience as a tire technician. He received annual refresher training on February 1, 2020. He received hazard training for the Fords Branch Mine 1 on September 21, 2020.

ROOT CAUSE ANALYSIS

The accident investigation team conducted an analysis to identify the underlying cause of the accident. The team identified the following root causes, and the contractor and mine operator implemented the corresponding corrective actions to prevent a recurrence.

1. Root Cause: The contractor did not have effective programs, policies, or procedures in place regarding changing tires on mobile equipment. The front-end loader was not blocked against motion while the tire was being changed.

Corrective Action: The contractor modified their safety policy to emphasize blocking against motion before working under raised equipment. Contractors were trained on this modified safety policy concerning blocking against motion before working under raised equipment.

2. Root Cause: The operator did not have effective programs, policies, or procedures in place regarding changing tires on mobile equipment. The site where the victim was working to change the tire was on unconsolidated fill material that was not level and stable.

Corrective Action: The operator modified their training plan to include safe site preparation procedures. All miners were trained on safe site preparation procedures contained in the operator's modified training plan.

CONCLUSION

On December 15, 2020, at approximately 10:30 a.m., George W. Fitzpatrick, a 58 year-old miner with approximately 26 years of experience died while attempting to change the right rear tire on a Caterpillar 992D Front-End Loader.

The accident occurred because: 1) the contractor did not block the machine to prevent it from rolling or falling, and 2) a miner parked the machine at a site prepared by a member of mine management. The site was on unconsolidated fill material that was not level and stable for the tire change.

Approved By:

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Benjamin S. Harding Date
District Manager

ENFORCEMENT ACTIONS

1. A 103(k) Order No. 3531961 was issued to Fords Branch Mine 1 on December 15, 2020:

A fatality occurred at this operation on December 15, 2020, at approximately 10:30 a.m. A contractor was changing a tire on a Caterpillar 992D front-end loader when the loader fell from the hydraulic jack and fatally injured the victim. This section 103(k) order is being issued under the authority of the Federal Mine Safety and Health Act of 1977. This section 103(k) order is intended to protect the safety of all persons on site. This order prohibits all activity in pit number one. This order also prohibits any activity at the Caterpillar 992D front-end loader (serial number 7MJ00401) and at the Peterbilt Tandem Tire Truck (serial number 1NP-TL-40X-8-9D785262). Additionally, the mine operator is reminded of its obligations to prevent the destruction of evidence that would aid in investigating the cause or causes of the accident.

2. A 104(a) Citation was issued to C&M Giant Tire for a violation of 30 CFR §56.14211(a):

A fatal accident occurred at this mine on December 15, 2020, when a tire technician received fatal injuries while attempting to change the right rear tire on a Caterpillar 992D front-end loader. Persons shall not work under mobile equipment in a raised position until the equipment has been blocked or mechanically secured to prevent it from rolling or falling accidentally. The tire technician was under the rear section of the front-end loader when it fell to the ground causing fatal injuries. This machine was not blocked or mechanically secured to prevent it from rolling or falling. Two jack stands and two 100-ton hydraulic jacks were used to raise the machine. There was no cribbing material used to prevent the front-end loader from accidentally falling. Also, the anti-pivot link was not connected before the tire change process was started. The maintenance manual for this front-end loader indicates that this is the first step to take when preparing to remove and install the tire and rim assembly.

Appendix A
Persons Participating in the Investigation

C & M Giant Tire

Charles Newsome	Supervisor
Calvin Campbell	Supervisor
Brown Langdon	District Manager

Fords Branch Mine 1

Jimmy Branham	Foreman/General Manager
Steven Pratt	Highwall Drill Operator
Patrick Fannin	Loader Operator
Everett Shephard	Mechanic

Mine Safety and Health Administration

Thomas R. Bower	Mine Safety and Health Inspector
Larkin W. Clevinger	Mine Safety and Health Inspector
Carlton D. Beggs	Mining Engineer
Anthony Benton	Supervisory Mine Safety and Health Inspector
Jeffrey A. Miles	Mine Safety and Health Specialist