

UNITED STATES
DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION

COAL MINE SAFETY AND HEALTH

REPORT OF INVESTIGATION

Underground Coal Mine

Fatal Powered Haulage Accident
January 14, 2019

Irtec (Z142)
Caryville, Tennessee

at

Toms Fork Mine
TENNCO INC.
Balkan, Bell County, Kentucky
I.D. No. 15-19844

Accident Investigator

Ricky L. Suffridge
Roof Control Specialist

Originating Office
Mine Safety and Health Administration
District 7
3837 S U.S. Hwy 25E, Barbourville, Kentucky 40906
Samuel R. Creasy, District Manager

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PHOTOGRAPH OF ACCIDENT SCENE

OVERVIEW

On Monday, January 14, 2019, at approximately 11:10 a.m., Jeffery N. Slone, a 56-year-old survey crew member with 30 years of mining experience, was fatally injured when he was struck by a shuttle car traveling to the coal feeder. At the time of the accident, Slone was taking measurements of the mining height as part of his surveying duties.

The accident occurred because the mine operator did not have effective policies, procedures, and controls to protect miners who are on foot from being contacted by moving mobile face equipment.

GENERAL INFORMATION

Production began in the Toms Fork Mine in the Mason seam on December 12, 2018. The mine is accessed by one portal and the average mining height is 54 inches. The mine is ventilated by a blowing mine fan. Laboratory analysis of air samples taken on January 9, 2019, indicated no measurable amount of methane liberation in a 24-hour period. At the time of the accident, the mine employed 21 underground and 5 surface miners. Coal was produced on two production shifts and maintenance was performed on the third shift, five days per week.

The mine produced an average of 500 tons of raw coal per day from one mechanized mining unit (MMU). Coal was mined with a continuous mining machine, transported by shuttle cars to a feeder, and taken to the surface via a conveyor belt system. Since mining began, eight crosscuts had been completed and the mine was approximately 640 feet deep. Due to the short distance from the surface to the MMU, miners either walked underground or traveled via battery-powered rubber-tired personnel carriers.

The principal officers for Tennco Inc. at the time of the accident were:

Jack Stump Owner/Operator
Michael Runyon Owner/Operator

At the time of the accident, a regular (E01) safety and health inspection was in progress, although an inspector was not on site. Since the mine began production on December 12, 2018, no prior E01 had been conducted. The non-fatal days lost (NFDL) incidence rate for the mine for 2018 was 0.02 compared to the national average of 3.15 for mines of this type.

DESCRIPTION OF THE ACCIDENT

On Monday, January 14, 2019, at approximately 5:00 a.m., the day shift coal production crew traveled to the 001 MMU to begin their shift. Production began on the right side of the MMU in the No. 6 entry and normal mining operations continued from right to left. The feeder was located in the No. 4 belt entry.

At approximately 8:45 a.m., Jeffery N. Slone (victim) and William McKamey, two contract survey crew members, arrived at the mine. They met with Jack Stump, Owner/Operator, to arrange transportation to the MMU. After arriving on the MMU at 9:15 a.m., they met with H. Randall Hensley, Section Foreman, to get details about where to begin setting survey stations, mapping, and taking mining height measurements. At this time, the continuous mining machine was loading in the No. 3 entry, so the survey crew began in the No. 6 entry and they planned to work toward the No. 4 entry.

After lunch, Richard Lane, Shuttle Car Operator, began operating the No. 4 shuttle car and James Barnett, Roof Bolter, began operating the No. 2 shuttle car. Lane drove his shuttle car to the continuous mining machine which was in the left crosscut off the No. 2 entry (see Appendix A).

McKamey set the survey instrument in the No. 4 entry and Slone went to the No. 3 entry to take entry height measurements. Slone walked to the front of the No. 2 shuttle car, took a mining height measurement, and then walked 20 feet outby in the No. 3 entry to continue taking measurements.

After being loaded with coal, Lane drove his shuttle car toward the feeder. At approximately 11:10 a.m., Lane turned into the No. 3 entry and traveled about 10 feet past the inby corner of the pillar and stopped. Lane saw that his shuttle car's trailing cable was caught around the service jack of Barnett's shuttle car. Lane and Barnett exited their shuttle cars and freed the cable. Lane continued to the left side of the feeder and Barnett traveled to the continuous mining machine.

After dumping the load into the feeder, Lane noticed that an electrical cable attached to the mine roof over the feeder was down. He exited his shuttle car and reattached the cable. When he turned around to get back into his shuttle car, he saw Slone lying in the No. 3 entry intersection, adjacent to the feeder. Lane went to Slone and found Slone had been run over by Lane's shuttle car. Lane then ran and alerted Barnett of the accident.

At approximately 11:15 a.m., Lane went to the mine phone adjacent to the feeder and called Michael Runyon, Owner/Operator, and told him that a miner was seriously injured. Next, Lane went to the MMU first aid supplies to retrieve a blanket and a stretcher. Barnett ran and notified McKamey, Hensley, and the other miners of the accident.

Hensley went to the accident scene and realized there was nothing that could be done. He instructed the miners to walk to the surface. McKamey came to the accident scene. Lane arrived with a blanket and they covered Slone. At approximately 11:20 a.m., Lane called outside and told Runyon the victim's identity and that he was deceased. McKamey and Lane walked to the surface.

Runyon informed Stump of the accident then called emergency services. Stump called Mine Safety and Health Administration (MSHA), District 7, Kentucky Division of Mine Safety (KDMS), and the Department of Labor (DOL) National Contact Center.

MSHA and KDMS personnel arrived at the mine, and traveled to the accident scene with company personnel. Slone was placed on a personnel carrier and transported to the surface. At 11:49 a.m., the Bell County Ambulance Service arrived at the mine. When they arrived, Slone was placed into the ambulance. Jason Steele, Bell County Coroner, arrived shortly after 12:30 p.m., and pronounced Slone dead at 12:35 p.m.

INVESTIGATION OF THE ACCIDENT

On January 14, 2019, at 11:20 a.m., Stump notified Samuel R. Creasy, MSHA District 7 Manager, and Billy Allen, KDMS Inspector, to report the accident. At 11:25 a.m., Stump notified the DOL National Contact Center (Contact Center) of the accident. The Contact Center notified the District 7 Office at 11:40 a.m. Creasy assigned Ricky L. Suffridge, Roof Control Specialist/Accident Investigator, as the lead accident investigator. Creasy directed Dennis J. Cotton, Assistant District Manager/Technical; Argus Brock, Roof Control Supervisor; William C. Clark, Supervisory Coal Mine Inspector; Ronald D. Caudill, Health Specialist/Accident Investigator; and Sean G. Davenport, Electrical Specialist, to assist in the onsite investigation. They traveled to the mine to begin the accident investigation and were assisted by KDMS.

When Suffridge arrived at the mine he issued a 103(k) order to protect the safety of persons at the mine. Brock, Caudill, and Suffridge along with KDMS personnel conducted informal interviews with miners.

Once informal interviews were completed, Creasy, Brock, Clark, Suffridge, Caudill, and Davenport traveled underground with mine officials and KDMS investigators. Photographs and measurements of the accident scene were taken.

On January 15, 2019, Deborah B. Combs, Training Specialist with MSHA Educational Field and Small Mine Services, traveled to the mine to review training records of the mine operator and contractor.

On January 15, 2019, formal interviews were conducted jointly by MSHA and KDMS at the MSHA District 7 Office in Barbourville, Kentucky. See Appendix B for a list of persons interviewed and those participating in the accident investigation.

DISCUSSION

Mine Operator and Coal Owner Relationship

The contract between the mine operator and the coal owner requires the mining height to be at or below 54 inches. To verify compliance, the survey crew periodically measures the mining height on the MMU. Measurements are taken at 20 foot intervals in the center of each entry. Slone was taking mining height measurements in the No. 3 entry when he was struck by the shuttle car.

Accident Location

Investigators believe the accident occurred at approximately 11:10 a.m., when Lane turned the No. 4 shuttle car into the No. 3 entry at the switch-out location. The No. 4 shuttle car is 28 feet long and Slone's map was found about 30 feet from the inby corner of the pillar (see Appendix C). This would indicate that Slone had already been struck when Barnett and Lane exited their cars to free the shuttle car cable.

No. 4 Shuttle Car

The No. 4 10SC32 shuttle car, serial number ET16606, was manufactured by Joy Manufacturing Company. The last weekly electrical examination on the shuttle car was conducted on January 12, 2019, and the examination record stated that a cable was repaired.

The shuttle car was inspected after the accident. The brakes functioned properly and no permissibility violations were found, but one of the two headlights was inoperable. This light was on the side that the victim was located at the time of the accident. Interviews did not reveal that anyone had knowledge that the light was out on the shuttle car.

Training

Slone had over 30 years of experience as an underground miner and surveyor. He had been certified in the state of Kentucky as an underground miner and underground mine foreman, and he was certified in gas detection.

The mine operator provided hazard training to Slone. Slone worked several years as a surveyor in other mines owned by TENNCO INC, and these other mines used the same mining methods and equipment as the Toms Fork Mine.

ROOT CAUSE ANALYSIS

MSHA conducted an analysis to identify the most basic cause or causes of the accident that were correctable through reasonable management controls. Root causes were identified that, if eliminated, would have either prevented the accident or mitigated its consequences.

Listed below are the root causes identified during the analysis and the corresponding corrective actions which were implemented to prevent a recurrence.

1. Root Cause: The mine operator did not have effective policies, procedures, and controls to protect miners who are on foot from being contacted by moving mobile face equipment. The shuttle car operator's field of vision was greatly reduced due to the size/height of the shuttle car and the low mining height.

Corrective Action: On January 17, 2019, the mine operator submitted, and MSHA approved, a revision to the roof control plan that contains the following safety measures to protect miners travelling on foot on the working section.

- A. All persons entering the mine will wear a permissible LED light on the back of their hard hat.
- B. Survey crew members will notify the mine operator of the working section to which they will be travelling.
 - I. The mine operator will notify the miners on the working section.
 - II. The survey crew will only work on the opposite side of the section of the mining activity. If the survey crew is in the belt entry, all mining activities will cease.
 - III. Long reflective markers will be hung in each crosscut from the feeder to the face to show where the survey crew is working.
 - IV. When the survey crew is finished they will notify the mine operator who will notify the miners on the working section.

On January 20, 2019, all miners were trained by the mine operator on the provisions of the revised roof control plan. Documentation of miners receiving the training was provided.

The No. 4 shuttle car has been removed from service until a camera system is installed on the shuttle car. The camera system will enable the shuttle car operator to have greater visibility in the area where the victim was located. Camera systems were also installed on the other shuttle cars.

2. Root Cause: The mine operator did not ensure that both headlights on the shuttle car were working properly to illuminate the direction of travel and warn miners traveling on foot. One headlight on the dump end of the shuttle car involved in the fatal accident was not operational.

Corrective Action: The mine operator repaired the headlight and implemented a new pre-operational examination policy. The new policy requires the lights on shuttle cars to be examined, and repaired if necessary, before operating each shift.

CONCLUSION

On Monday, January 14, 2019, at approximately 11:10 a.m., Jeffery N. Slone, a 56-year-old survey crew member with 30 years of mining experience, was fatally injured when he was struck by a shuttle car traveling to the coal feeder. At the time of the accident, Slone was taking measurements of the mining height as part of his surveying duties.

The accident occurred because the mine operator did not have effective policies, procedures, and controls to protect miners who are on foot from being contacted by moving mobile face equipment.

Samuel R. Creasy
District Manager

Date

ENFORCEMENT ACTIONS

1. A 103(k) Order No. 8321788 was issued to Tennco Inc., on January 14, 2019.

This mine has experienced a fatal coal haulage accident on the 001 MMU. The accident occurred on January 14, 2019 at approximately 11:10 am. This order is being issued to ensure the safety of any person in the mine until an examination or investigation is made to determine that the 0010 section is safe. Only those persons selected from company officials, state officials, the miners' representative and other persons who are deemed by MSHA to have information relevant to the investigation may enter or remain in the affected area.

2. 104(a) Citation No. 8321790 was issued to Tennco Inc., for a violation of 30 CFR § 75.512.

On January 14, 2019, a fatal accident occurred at the Toms Fork mine on the 001 MMU when a contract miner (surveyor) was fatally injured by the No. 4 shuttle car (Serial No. ET16606).

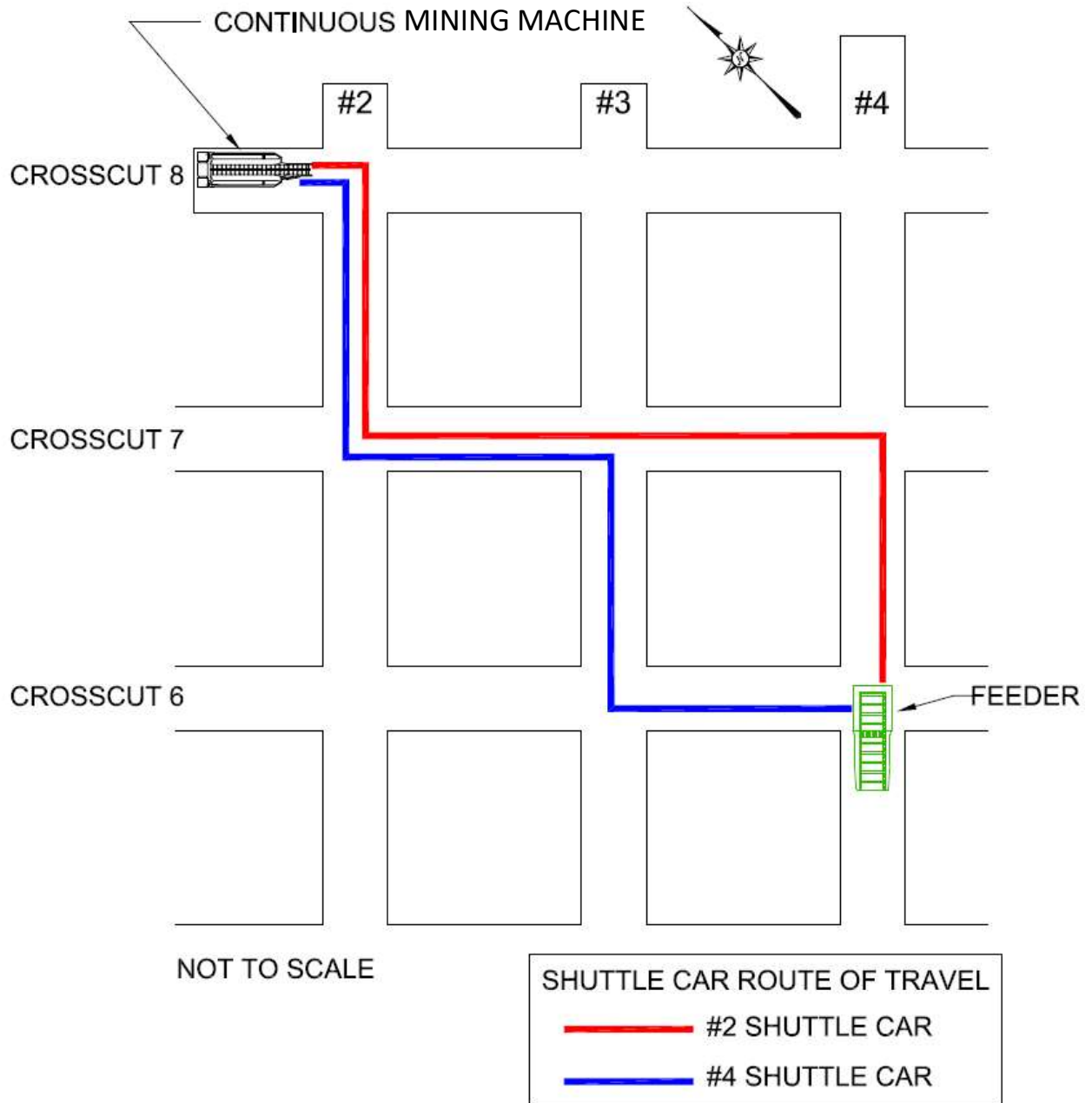
The shuttle car headlight on the off-side (dump end) was not working. Less illumination reduced visibility for the shuttle car operator and made the presence of the shuttle car difficult to detect for miners traveling by foot.

3. A section 314(b) Safeguard No. 8321789 was issued to Tennco Inc., pursuant to 30 CFR § 75.1403.

On January 14, 2019, a loaded shuttle car traveling to the feeder on the 001 MMU struck and fatally injured a contract miner (surveyor). The shuttle car operator's visibility was greatly restricted due to the low mining height and the shuttle car's load.

This is a notice to provide safeguards requiring engineering controls be installed and maintained on all rubber-tired haulage equipment operating on any MMU of this coal mine. The engineering controls will be used to protect miners from hazards of rubber-tired haulage equipment and will be permissible and commercially available, such as proximity detection devices and/or cameras.

APPENDIX A
Travel Routes of Shuttle Cars



APPENDIX B
Persons Participating in the Investigation
(Persons interviewed are indicated by a * beside of their name)

Irtec (Z142)

*William McKamey..... Survey Crew Member

Tennco Inc. Toms Fork Mine Officials and Employees

Jack Stump..... Owner/Operator
*Michael Runyon..... Owner/Operator
*H. Randall Hensley..... Section Foreman
*W. Dean Guy..... Outby Foreman
*Charlie Johnson III.....Roof Bolter
*David Helton.....Roof Bolter
*Kevin Daniels..... Belt Man/Roof Bolter
*Jason Gibson.....Roof Bolter
*Terry Heck..... Continuous Mining Machine Operator
*James Barnett.....Roof Bolter
*Richard Lane..... Shuttle Car Operator

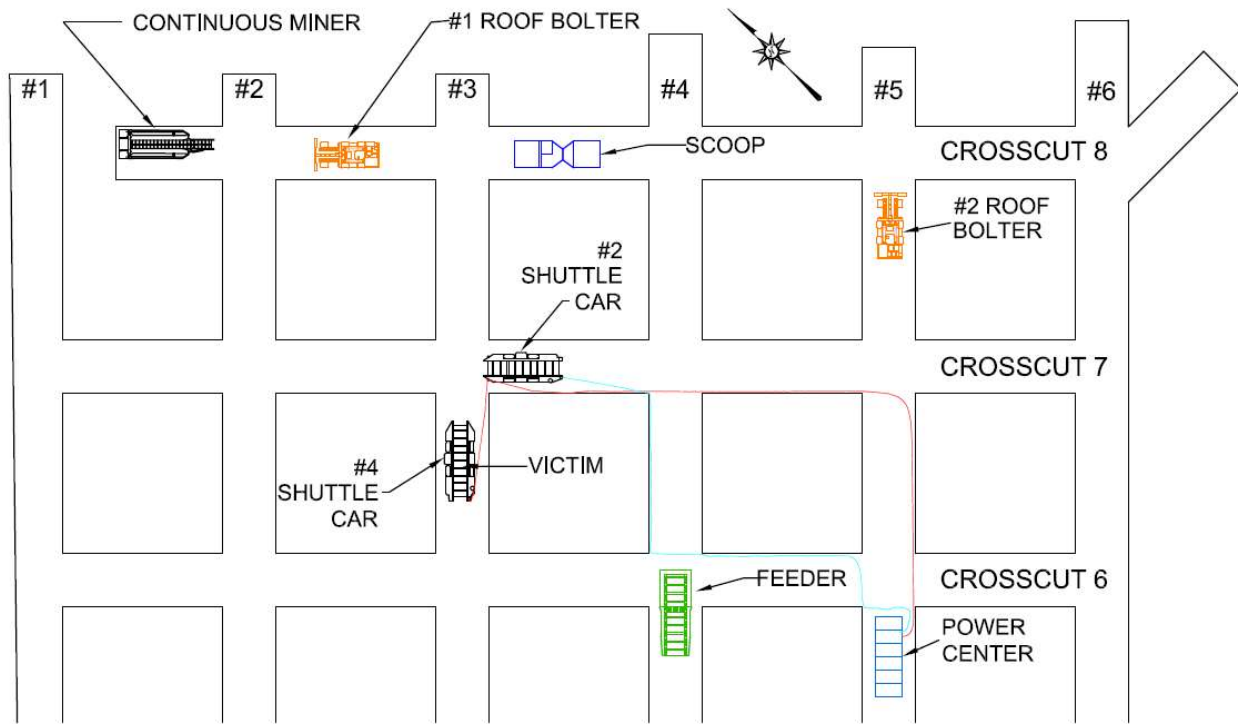
Kentucky Division of Mine Safety

Timothy L. Fugate..... Chief Accident Investigator
Jim Owens..... Harlan Branch Manager
John Dixon..... Electrical Supervisor
Todd Middleton..... Investigator
Ernest Hawkins..... Investigator

Mine Safety and Health Administration

Samuel R. Creasy..... District Manager
Dennis J. Cotton.....Assistant District Manager/Technical
Steven L. Sorke..... Accident Investigation Coordinator/Staff Assistant
Argus Brock..... Roof Control Supervisor
William C. Clark..... Supervisory Coal Mine Inspector
Ricky L. Suffridge..... Roof Control Specialist/Accident Investigator
Ronald D. Caudill.....Health Specialist/Accident Investigator
Sean G. Davenport.....Electrical Specialist
Deborah B. Combs..... Training Specialist

APPENDIX C
Locations of Shuttle Cars at the Time of the Accident



NOT TO SCALE