CAI-2017-14

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
October 23, 2017

Marfork Coal Company, LLC
Horse Creek Eagle Mine
Whitesville, Raleigh County, WV
I.D. No. 46-09091

Accident Investigators

Larry Hedrick
Electrical Specialist/Accident Investigator

John Stone Jr.
Electrical Specialist/Accident Investigator

Originating Office
Mine Safety and Health Administration
District 4
100 Bluestone Road
Mount Hope, West Virginia, 25880
David S. Mandeville, District Manager

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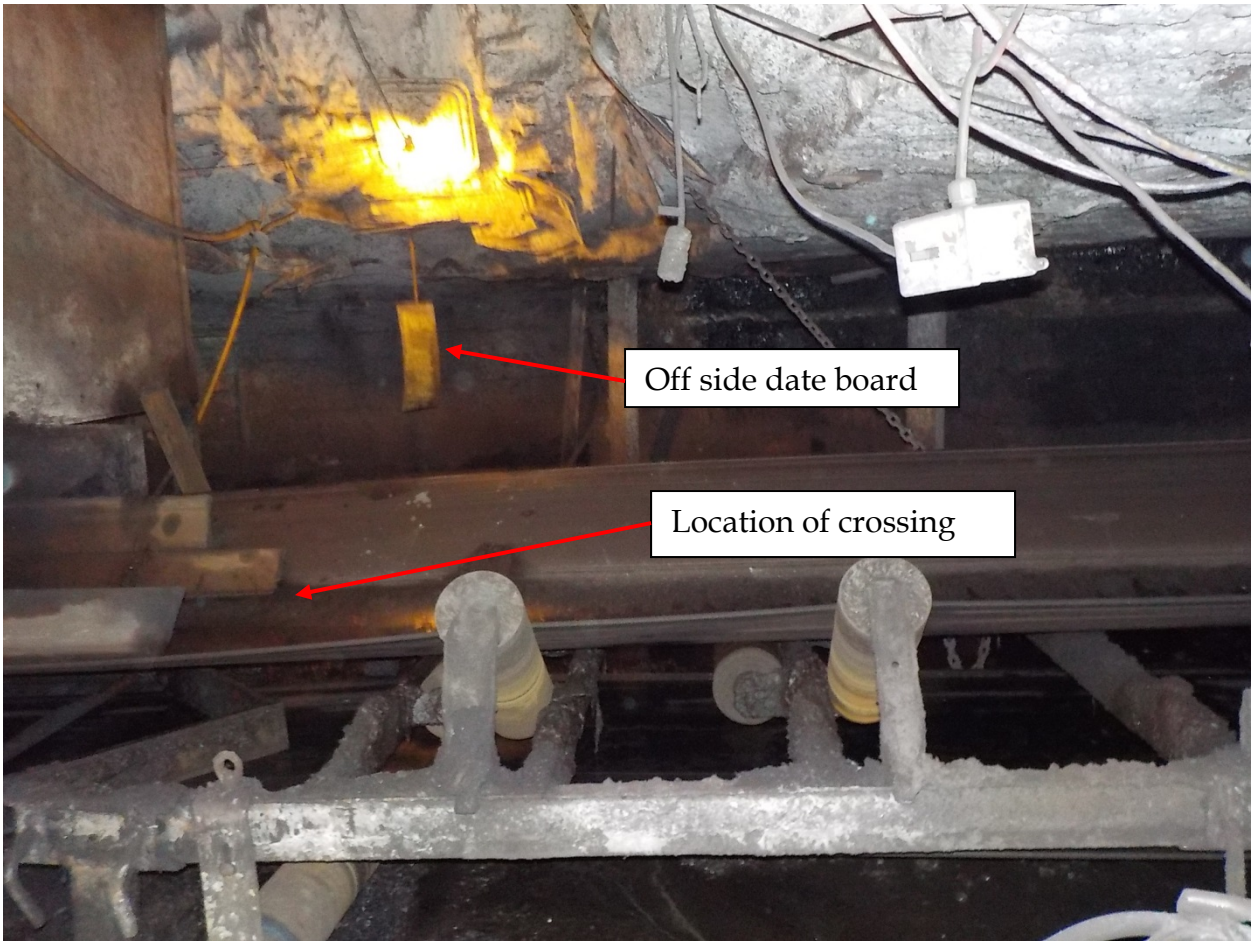

OVERVIEW

On Monday, October 23, 2017, at approximately 4:29 a.m., James R. Adkins, a 48-year-old mine examiner with 18 years of mining experience, fell onto a moving conveyor belt and received fatal injuries. Adkins was attempting to cross the conveyor belt at the tailpiece in order to complete his examination of the No. 1 conveyor belt when he fell. He had been assigned to conduct a pre-shift examination of the No. 1, 2, and 3 conveyor belts, electrical boxes and track entry of the Horse Creek Eagle mine for the day shift.

The accident occurred because the operator did not follow proper safety procedures.

GENERAL INFORMATION

The Horse Creek Eagle Mine is an underground coal mine operated by Marfork Coal Co., LLC in the Eagle coal seam and is located near Naoma in Raleigh County, West Virginia. The mine operates two production shifts and one maintenance shift, five to six days per week, and employs 125 people. The mine is accessed and ventilated by eight drift portals. Bituminous coal is produced from two mining sections using the room and pillar method of mining. Each mining section utilizes two continuous mining machines and shuttle cars to extract and haul the coal from the face areas. The mine produces an average of 3,561 raw tons of coal per day. The coal is transported to the surface via a conveyor belt system that travels the surface and underground areas of a series of mines before arriving at the Marfork Coal preparation plant (see Appendix A). The principal officers for the mine at the time of the accident were:

Charles Bearse .....President

Delbert Harper.....Mine Superintendent

Thomas Hess.....General Mine Foreman

Michael Vaught .....Safety Manager

At the time of the accident, a regular (E01) safety and health inspection that was started on October 3, 2017 was in progress. The previous regular inspection was completed on September 21, 2017. The non-fatal days lost (NFDL) injury incident rate for the Horse Creek Eagle Mine for 2016 was 4.58 compared to the national NFDL rate of 3.37 for mines of this type.

DESCRIPTION OF ACCIDENT

On October 23, 2017, James Adkins started his shift at 3:50 a.m. by checking in with Randy Stover, Mine Dispatcher. Adkins had a short conversation with Stover before collecting his multi-gas detector and radio and going to work. As a mine examiner/belt man, he performed maintenance and cleaning on his assigned conveyor belts and addressed any hazardous conditions recorded in the mine examination books. Between 4:00 a.m. and 7:00 a.m., he would have conducted examinations to determine airflow direction, methane and oxygen quantities, and the presence of any hazardous conditions, as well as any violations of mandatory standards. He then would have recorded the results in the examination book located in the mine office.

The mine tracking system shows that at 4:10 a.m., Adkins recorded the date, time, and his initials (DTIs) at the date board located at the No. 1 belt drive outside the mine belt portal. He then entered the mine and traveled along the conveyor belt, recording his DTIs at successive date boards. At 4:26 a.m., his final DTIs were recorded at the off-side of the No. 1 belt across from the No. 2 belt junction point. His DTIs were not recorded on the next date board, which was directly across the belt on the walkway side (see Appendix B).

At about the same time, Gary Hastings and Joseph Varette, Owl Shift Examiners and Belt Men, were checking for bad belt splices at the No. 5A belt drive. They called to ask Stover, the dispatcher, to turn on the No. 1 to No. 5A belts and run them from outside.

Stover warned miners by radio, calling "belts coming on" four times before starting the belts. The computer system shows that the No. 1 beltline started at 4:28:23 a.m., about two minutes after Adkins left his final DTIs.

At 6:03 a.m., the overland belt transfer system was started up and coal was loaded onto the belt system from the belt stacker tube stock pile by a bulldozer. After 6:30 a.m., Jesse Smith, Owl Shift Mine Examiner, noticed that the personnel carrier driven by Adkins was parked outby the No. 2 belt head along the No. 1 beltline. Smith walked over to the beltline and called for Adkins. When he received no answer, he called Stout to ask where Adkins was located. Stout stated that the tracking system showed Adkins was on the surface.

When Smith recorded the results of his examination in the record book, he noticed that Adkins had not filled out his examination record. Shortly before 7:00 a.m., Smith asked at the examiner's office if anyone had seen Adkins. No one had, so Smith informed Thomas Hess, General Mine Forman, and together they started to look outside and then underground for Adkins. Smith found the hard hat belonging to Adkins on the mine floor at the belt airlock at No. 3 break. He ran outside and called on the radio to shut all the mine belts off. At 7:04:27 a.m., David Stout, Mine Dispatcher for the day shift, shut down the beltlines.

Smith proceeded to check the feeder area at the belt stacker tube, where the No. 1 conveyor belt ended. He found the cap light worn by Adkins on the ground beside the transfer belt. Smith then traveled along the transfer conveyor belt to the Horse Creek No. 12 transfer point located across from the Allen Powellton Mine, looking for signs of Adkins.

At about 7:09 a.m., Stout notified the Marfork Preparation Plant, Brushy Eagle Mine, Coon Cedar Grove Mine, Slip Ridge Cedar Grove Mine, and the Allen Powellton Mine to shut down their belts and to start looking for a missing miner. He also called the Whitesville Ambulance service at 7:22 a.m., and an ambulance arrived at the mine at 8:15 a.m.

Miners from the underground Horse Creek Eagle Mine, Slip Ridge Cedar Grove Mine, Coon Cedar Grove Mine and the Marfork Preparation Plant traveled all of the conveyor belts and associated belt transfers looking for signs of the missing mine examiner. Adkins was found at 10:44 a.m. as excavators dug coal out from around the No. 3 raw coal stacker tube at the Marfork Preparation Plant. His location indicated that he had been transported 7.2 miles from the No. 1 conveyor belt to the plant.

Adkins was recovered by company Emergency Medical Technicians (EMTs), Rob Asbury, Dave Green, Adam Sipes, Kelton Cozart, Brian Jarrell, and Shannon Dickens, and taken to a Whitesville Fire and Emergency Medical Services ambulance. At 11:00 a.m., the ambulance left the property and transported Adkins to the fire department, where he was pronounced dead by State of West Virginia Medical Examiner, Teddy Yeager.

INVESTIGATION OF ACCIDENT

On October 23, 2017, at 7:12 a.m., Stout, Mine Dispatcher, called the Department of Labor (DOL) National Contact Center to report the accident. At 7:32 a.m., the DOL Contact Center notified Donald Phillips, Conference and Litigation Representative, who informed Lincoln Selfe, Assistant District Manager. Selfe contacted Delbert Harper, Mine Superintendent, to inform him of the operator's obligation to preserve the accident scene. Selfe assigned Larry Hedrick and John Stone, Jr., Coal Mine Safety & Health Inspectors (Electrical)/Accident Investigators, to investigate the accident. Hedrick and Stone traveled to the mine and Hedrick issued a 103(k) order to protect miners and to prevent the destruction of any evidence.

The accident investigation was conducted in conjunction with the West Virginia Office of Miner's Health, Safety, and Training (WVOMHST), mine management, and employees at the mine. Investigators obtained statements from persons having knowledge of the facts and circumstances concerning the accident, retrieved information from the mine's tracking and communications system, and photographed, sketched, and surveyed the accident scene.

On October 27, 2017, MSHA and WVOMHST jointly conducted formal interviews at the office of the WVOMHST office in Oak Hill, WV. Persons who participated in the investigation are listed in Appendix C.

DISCUSSION

Adkins Work Schedule

Eleven weeks prior to the accident, Adkins assisted the midnight shift with pre-shift examinations. He started his shift about 4:00 a.m. and conducted examinations of the belts, track, and electrical installations along the No. 1, 2, and 3 belt conveyors for the on-coming day shift. This was in addition to his normal mine examiner duties on the day shift.

Accident Site

There were no witnesses to the accident. However, the mine tracking system, the sequence of date board signatures, and other physical evidence indicated to the investigators that the following happened:

Adkins parked his personnel carrier at the No. 9 crosscut on the No. 1 conveyor belt and traveled on foot to conduct the rest of his examinations. He traveled along the No. 1 conveyor belt from the No. 9 crosscut to the No. 11 crosscut, where he placed his DTI on the date board and checked the two power centers. He then used the crossunder at surveyor spad 6658 and walked behind the guard at the No. 2 belt drive and take-up unit, where he examined the offside of the No. 2 belt drive (see Appendix B).

After Adkins placed his DTI on the offside date board, he attempted to cross the No. 1 conveyor belt at the No. 1 conveyor belt tailpiece rather than returning to the crossunder, which was 95 feet away. As he attempted to cross, he fell onto the No. 1 belt at approximately the same time that the conveyor belt was started up. Adkins was then transported on the No. 1 conveyor belt out of the mine.

Investigators examined the accident area and tested the No. 1 belt drive and belts, as well as the belt start and stop switches and belt drive at the No. 2 belt transfer. The investigators determined that the belt controls were working properly.

Remote Belt Start Procedure

When the accident occurred, all miners located near the outby belts, including Adkins, had two-way radios. Before starting the No. 1 through No. 5A belts at about 4:30 a.m., Stover, the dispatcher, used the outby radio channel to inform miners that the belts were getting ready to start. In his interview, Stover said that no outby miner responded

before he started the belts, and he did not expect anyone to do so unless they noticed a hazard.

Mine Examination Practices

The belt examiners at the mine utilized three-wheeled, battery-operated personnel carriers to conduct the majority of the conveyor belt examinations. They travelled along the wide side of the conveyor belt where possible and examined the areas around belt heads on foot. They examined both sides of the belt at transfer points and recorded their DTIs at all locations. In order to cross the belts, examiners were supposed to use crossunders located at the rear of the belt drives or crossovers available at the outby end of the belt junction points.

Mine Tracking System

The mine uses an MSHA approved tracking system manufactured by Pyott Boone Electronics (PBE) Group. Miners wear or carry tracking devices in pouches so their locations can be tracked. The devices transmit a signal, and receivers throughout the mine receive the signal and provide the miner's location to a system computer. The computer retains a log of the information from each receiver for a period of two weeks.

The tracking system log shows that Adkins was at the No. 2 belt transfer at 4:29 a.m. At 4:30 a.m., Adkins' location was picked up by a receiver on the surface. This tracking indicates that Adkins attempted to cross the conveyor belt just outby the No. 2 belt rock box, fell onto the conveyor, and was carried outside. Adkins' device signal was tracked from the No. 9 belt drive between the Slip Ridge Cedar Grove mine and the Coon Cedar Groove mine on the conveyor belt system, to the No. 8 belt drive and the No. 7 belt drive in the Coon Cedar Grove Mine, where the signal was lost. This indicates that the conveyor system carried Adkins to the surface when that operation started at 6:03 a.m. and through the series of underground mines to the processing plant, 7.2 miles away. The tracking device was not recovered.

No. 2 Belt Transfer and No. 1 Belt

The No. 2 belt transfer, near where Adkins fell, was constructed with four-foot by eight-foot sheets of metal plating welded together to form a steel chute with angled deflector walls. This steel chute, called a "rock box," funneled mined material onto the No. 1 conveyor belt to minimize spillage. At this location, there were 37 ½ inches of clearance between the belt and the roof.

Investigators found smudges and chalk marks on the roof bolt plates above the belt directly in front of the rock box. This indicated that the plates had been used as handholds while the examiners crossed the belt. The tracks indicated that the

examiners stepped up on a water line lying beside the belt structure, stood on the belt structure, reached over to the roof bolt plates, and stepped across the conveyor belt onto the opposite belt structure and the ground. This crossing was apparently used as a shortcut instead of the nearest crossunder, which was 95 feet away (see Appendix B).

The belt was suspended from the roof by chains spaced every ten feet for the entire length of the belt. The clearance between the roof and the belt was as small as twenty inches, making it extremely difficult for a miner to exit the fast-moving belt after falling.

The No. 2 belt transfer was well illuminated so that mine examiners could see the area. Start and stop controls were present at the portal, behind the take-up unit and at the nine and 12 breaks. The start and stop controls functioned properly and could be accessed from both sides of the conveyor belt.

Experience and Training

Adkins began his employment at the Horse Creek Mine in February of 2016, as a mine examiner and belt man. A review of Adkins' training records showed he received experienced miner training on February 29, 2016, annual refresher training in March of 2016 and 2017, and certified person training on April 29, 2017. Adkins received his underground mine foreman certification from the State of West Virginia on March 25, 2011. He was certified as an emergency medical technician (EMT) on December 28, 2016. Adkins' training was up to date and in compliance with Part 48 of the CFR.

ROOT CAUSE ANALYSIS

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

Listed below is the root cause identified during the investigation and the operator's implemented corrective actions to prevent a recurrence of this type of accident:

1. Root Cause*:* Proper safety procedures were not followed while performing a conveyor belt examination.

   Corrective Action*:* The mine operator installed belt crossovers at all belt transfer points. These crossovers are located at the belt tailpieces and prevent the use of belt tailpieces as a means to cross the belts. All crossovers, mid-belt crossovers, and crossunders were evaluated and modified, relocated, added or removed as appropriate. All miners were trained to use these suitable belt crossing facilities.

   Also, the mine operator installed a visual and audible pre-start alarm at each underground tailpiece, which alarms 10 seconds before the startup of the belt, as well as lights along the No. 1 conveyor belt and pull cord plugs at each remote belt switch along the conveyor belt. These plugs are hung across the conveyor belt so that a person can reach them to stop the belt.

CONCLUSION

On October 23, 2017, at approximately 4:29 a.m., James R. Adkins, a 48-year-old mine examiner with 18 years of mining experience fell onto a moving conveyor belt and received fatal injuries. Adkins was attempting to cross the conveyor belt at the tailpiece in order to complete his examination of the belt, when he fell. He had been assigned to conduct a pre-shift examination of the No. 1, 2, and 3 conveyor belts, electrical boxes and track entry of the Horse Creek Eagle mine for the day shift.

The accident occurred because the operator did not follow proper safety procedures.

Approved by:

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David S. Mandeville Date
District Manager
Coal Mine Safety and Health, District 4

ENFORCEMENT ACTIONS

1. A 103(k) order was issued to Marfork Coal Company, LLC.

   On October 23, 2017, to Marfork Coal Company, LLC, Horse Creek Eagle Mine to protect miners and to prevent the destruction of any evidence which would assist in the investigation of the cause or causes of the accident. An accident has occurred at this operation resulting in a fatality at this mine. This Section 103 (k) order is intended to protect the safety of all persons on-site, including those involved in rescue and recovery operations or investigation of the accident. The mine operator shall obtain prior approval from an Authorized Representative of the Secretary for all actions to recover and/or restore the affected area. Additionally, the mine operator is reminded of its existing obligations to prevent the destruction of evidence that would aid in investigating the cause or causes of the accident. This order was issued verbally at 8:57 a.m., October 23, 2017 and is now being reduced to writing.

2. A 314(b) Safeguard Notice, No. 9116648 was issued to Marfork Coal Company, LLC.

   A fatal accident occurred at this operation on October 23, 2017, when a miner fell on to the moving conveyor belt while trying to cross the No. 1 conveyor. The operator failed to provide adequate belt cross overs to allow miners to access both sides of the belt line while completing their work.

   This is notice to provide safeguard requiring suitable crossing facilities on the No. 1 belt conveyor and all other belts at this mine and areas where miners need to regularly cross belt conveyors.

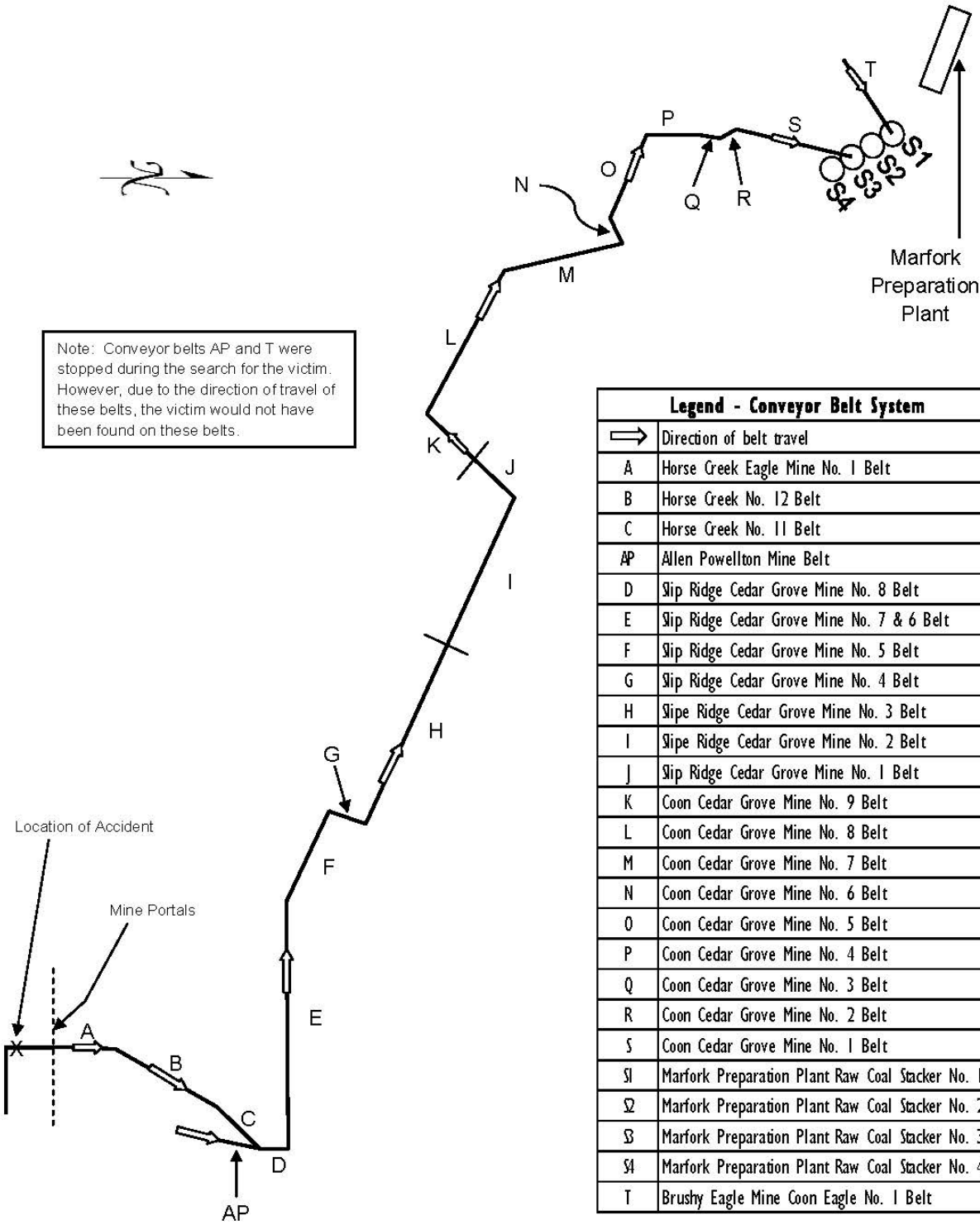
   All belt conveyor junctions shall have belt cross overs installed at the junction points.

   An audible and visual pre-start alarm shall be installed on all belts at this mine, and shall sound for at least 10 seconds before starting at the tail pieces.

   Safeguard No. 9116648 supersedes Safeguard No. 9060067 as of Date of Issuance of the new safeguard.

   Standard 75.1403 was cited 52 times in two years at mine 4609091 (52 to the operator, 0 to a contractor).

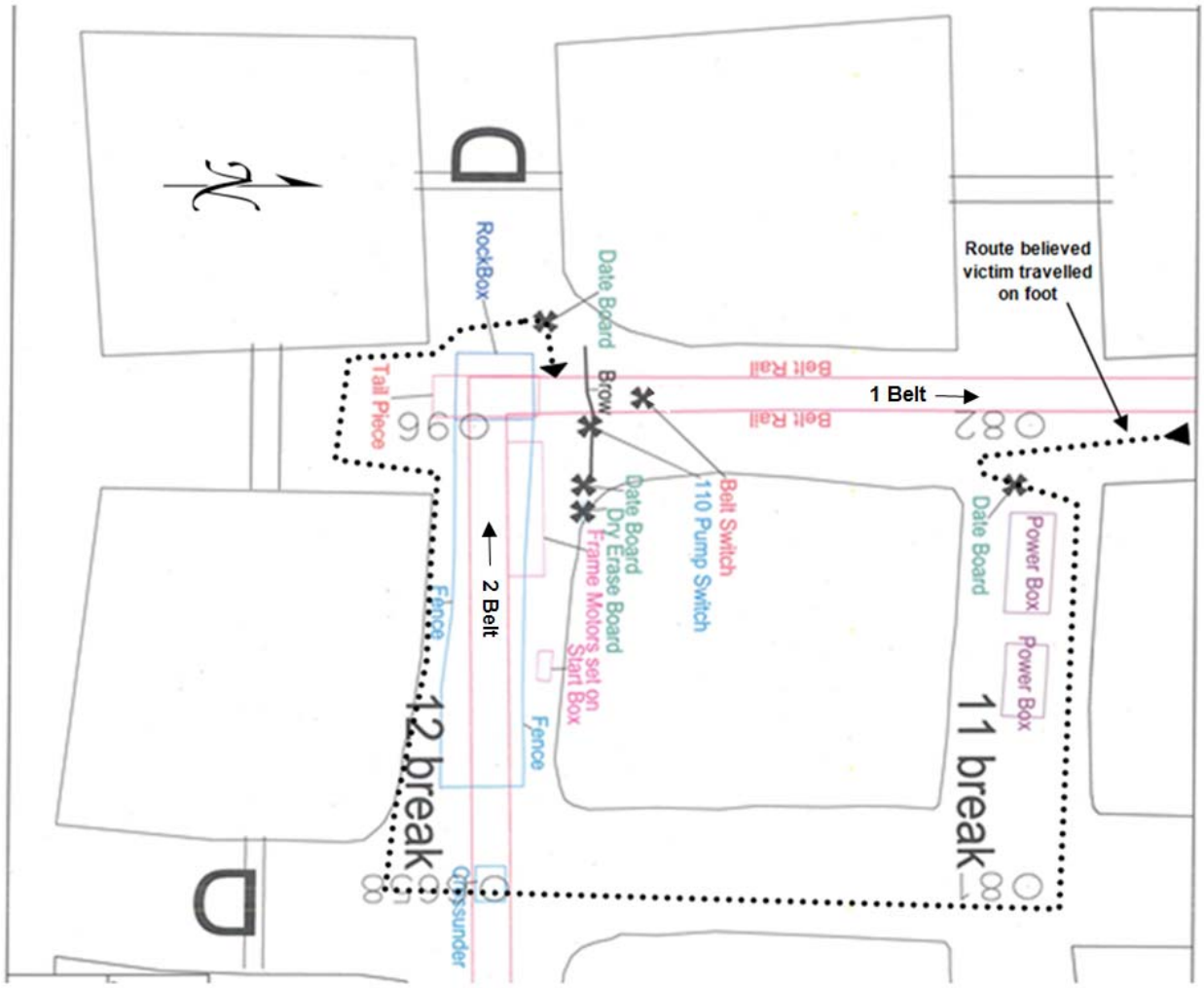
Appendix A
Conveyor Belt System
(Not to Scale)



Note: Conveyor belts AP and T were stopped during the search for the victim. However, due to the direction of travel of these belts, the victim would not have been found on these belts.

Legend - Conveyor Belt System	
⇨	Direction of belt travel
A	Horse Creek Eagle Mine No. 1 Belt
B	Horse Creek No. 12 Belt
C	Horse Creek No. 11 Belt
AP	Allen Powellton Mine Belt
D	Slip Ridge Cedar Grove Mine No. 8 Belt
E	Slip Ridge Cedar Grove Mine No. 7 & 6 Belt
F	Slip Ridge Cedar Grove Mine No. 5 Belt
G	Slip Ridge Cedar Grove Mine No. 4 Belt
H	Slipe Ridge Cedar Grove Mine No. 3 Belt
I	Slipe Ridge Cedar Grove Mine No. 2 Belt
J	Slip Ridge Cedar Grove Mine No. 1 Belt
K	Coon Cedar Grove Mine No. 9 Belt
L	Coon Cedar Grove Mine No. 8 Belt
M	Coon Cedar Grove Mine No. 7 Belt
N	Coon Cedar Grove Mine No. 6 Belt
O	Coon Cedar Grove Mine No. 5 Belt
P	Coon Cedar Grove Mine No. 4 Belt
Q	Coon Cedar Grove Mine No. 3 Belt
R	Coon Cedar Grove Mine No. 2 Belt
S	Coon Cedar Grove Mine No. 1 Belt
S1	Marfork Preparation Plant Raw Coal Stacker No. 1
S2	Marfork Preparation Plant Raw Coal Stacker No. 2
S3	Marfork Preparation Plant Raw Coal Stacker No. 3
S4	Marfork Preparation Plant Raw Coal Stacker No. 4
T	Brushy Eagle Mine Coon Eagle No. 1 Belt

Appendix B
Drawing of No. 2 Belt Transfer
(Not to scale)



Appendix C
Persons Participating in the Investigation
(Persons interviewed are indicated by an * next to their name)

Marfork Coal Company

Jason Whitehead.....General Manager
Charles Bearse .....President
Brian Keaton .....Safety
Carl Lucas.....Production Manager
Michael Vaught .....Safety Manager
Delbert Harper.....Mine Superintendent
*Thomas Hess .....General Mine Foreman
Jack Martin .....Safety
Eric Silkwood.....Attorney
Charles Haga .....Chief, Electrical
*Randy Stover..... Mine Dispatcher
*David Stout..... Mine Dispatcher
*Jesse Smith..... Owl Shift Mine Examiner
*Larry Goodman Jr ..... Mine Examiner
*Dennis Salman Jr ..... Welder
*Billy Steel ..... Welder
*John Lane .....Belt Man

West Virginia Office of Miners Health Safety & Training

Greg Norman.....Director
Eugene White.....Deputy Director
McKennis Browning .....Inspector at Large
Steve Lafferty .....District Inspector
Bobbie Harper.....District Inspector
Gene Stewart.....District Inspector
Barry Koerber .....Attorney
David Boggs.....District Inspector
Mike Hale .....Electrical Inspector

Mine Safety and Health Administration

Larry Hedrick .....Electrical Specialist/Accident Investigator
John Stone Jr.....Electrical Specialist
Jamie Shufflebarger .....Coal Mine Safety & Health Inspector
Lincoln Selfe..... Assistant District Manager/Enforcement

Adkins Family

Reverend John Buchanan.....Family Representative

Appendix D
Victim Information

Accident Investigation Data Victim Information

Event Number: 6 3 0 2 4 3 3

U.S. Department of Labor
Mine Safety and Health Administration

Victim Information: 1

1. Name of Injured/Ill Employee:	2. Sex	3. Victim's Age	4. Degree of Injury:
James R. Adkins	M	48	01 Fatal

5. Date(MM/DD/YY) and Time(24 Hr.) Of Death:
a. Date: 10/23/2017 b.Time: 4:30

6. Date and Time Started
a. Date: 10/23/2017 b.Time: 3:50

7. Regular Job Title:
095 Fire Boss/ Belt man

8. Work Activity when Injured:
017 Crossing a Belt Conveyor

9. Was this work activity part of regular job?
Yes X No

10. Experience

	Years	Weeks	Days
a. This Work Activity:	4	30	1
b. Regular Job Title:	1	34	0
c. This Mine:	1	34	0
d. Total Mining:	18	10	0

11. What Directly Inflicted Injury or Illness?
038 Belt dumped into stacker tube

12. Nature of Injury or Illness:
370 Multiple Blunt Force Injuries

13. Training Deficiencies:
Hazard | New/Newly Employed Experienced Miner: | Annual: | Task:

14. Company of Employment: (If different from production operator)
Operator

Independent Contractor ID: (if applicable)

15. On-site Emergency Medical Treatment
Not Applicable: | First-Aid: | CPR: | EMT: X | Medical Professional: | None:

16. Part 50 Document Control Number: (form 7000-1) 22017303002?

17. Union Affiliation of Victim: 9999 None (No Union Affiliation)