

UNITED STATES
DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION

COAL MINE SAFETY AND HEALTH

AMENDED
REPORT OF INVESTIGATION

Surface of an Underground Coal Mine

Slip and Fall of Person
December 4, 2007
(Victim Died December 14, 2007)

No. 130 Mine
Mammoth Coal Company
Mammoth, Kanawha County, West Virginia
MSHA I. D. 46-06051

Accident Investigators

James R. Humphrey
Coal Mine Safety and Health Inspector

Edward O. Matthews
Coal Mine Safety and Health Inspector

Originating Office
Mine Safety and Health Administration
100 Bluestone Road
Mount Hope, West Virginia 25880
Robert G. Hardman, District Manager

TABLE OF CONTENTS

PHOTOGRAPH OF ACCIDENT SCENE1

OVERVIEW.....1

GENERAL INFORMATION1

DESCRIPTION OF THE ACCIDENT2

INVESTIGATION OF THE ACCIDENT4

DISCUSSION4

 Physical Conditions of the Work Site.....4

 Safety Features of the Cross Hollow Conveyor Belt5

 Cross Hollow Conveyor Belt Start-Up System.....5

 Pyott Boone Electronics Controller6

ROOT CAUSE ANALYSIS6

CONCLUSION.....7

ENFORCEMENT ACTIONS.....8

Appendix A - Persons Participating in the Investigation.....10

Appendix B - Victim Information11

Appendix C - Additional Photographs.....12

This report was amended to reflect a change in the Appendix B - Victim Information to more accurately describe the victim’s work experience.



OVERVIEW

At approximately 2:49 a.m. on Tuesday, December 4, 2007, David J. Neal, a 57-year old fireboss, was fatally injured in a fall of approximately 39 feet from an inclined conveyor belt. The accident occurred as the victim was lying on the bottom belt surface attempting to replace a bottom conveyor belt idler when the belt started unexpectedly. On December 14, 2007, the victim died as a result of injuries sustained in the accident.

The accident occurred because the Cross Hollow conveyor belt circuit breaker was not deenergized, the victim was not wearing fall protection, and the installed audible warning system to warn persons that the conveyor was starting was not audible from the work location.

GENERAL INFORMATION

The Mammoth Coal Company, No. 130 Mine, is located near Mammoth, in Kanawha County, West Virginia. Mammoth Coal Company is a wholly owned subsidiary of Massey Energy Co and began operating the mine on October 1, 2004. The mine operates in the Stockton bituminous coal seam, which 8 to 10 feet in height. The mine employs 110 persons operating two super sections, which utilize continuous mining machines. Approximately 4,000 tons of raw coal is produced daily on two 9-hour production shifts, 6 days a week. Coal is transported from the mine via overland surface conveyors to the Mammoth Coal

Processing Plant and River Terminal located along Route 60 near London, West Virginia.

The principal officers for Mammoth Coal Company are:

Dave HughartPresident
Larry Ward.....General Manager
Don Rutherford Superintendent
Rick Burke Maintenance Superintendent
David PetreyMine Foreman
Shane McPherson.....Safety Director

The last regular (quarterly) inspection by the Mine Safety and Health Administration (MSHA) of this operation was completed September 27, 2007. A regular safety and health inspection was started on October 1, 2007, and was ongoing at the time of the accident. The mine Non Fatal Days Lost (NFDL) incidence rate in 2007 was 3.26, compared to the national average of 4.73 for mines of the same type.

DESCRIPTION OF THE ACCIDENT

At the start of the midnight shift (maintenance shift), December 3, 2007, at approximately 11:00 p.m., David Neal, fire boss, and James Shelton, general laborer, started retrieving bottom conveyor belt idlers from an abandoned portion of the Cross Hollow conveyor belt. The recovered bottom idlers were to be used on another portion of the Cross Hollow conveyor belt.

The Cross Hollow conveyor belt is an inclined conveyor belt located at the surface of the underground mine. The conveyor belt carries the raw, or unprocessed, coal from the underground coal mine conveyor belt (#1 conveyor) to a stacking tube located at the raw coal stockpile. The Cross Hollow conveyor belt is approximately 310 feet in length. The tail idler of the Cross Hollow belt is located approximately 20 feet above the surface of the ground and increases in elevation to the top of the raw coal stacking tube, which is approximately 96 feet in height. Bottom or return idlers were being replaced because several of the return idlers were broken, allowing the conveyor belt to drag on some of the steel cross members of the support structure.

Two evening shift miners, John Daniels, motorman/fire boss, and Kenneth Housh, motor crew helper/scoop man, were to change the gear oil in the stacker belt and the #1 conveyor belt gear boxes. At 12:45 a.m., Neal and Shelton had retrieved four bottom idlers and had placed them on the Cross Hollow conveyor belt platform where the starter controls and conveyor motors are located.

At approximately 1:15 a.m., Neal and Shelton began the process of installing the bottom idlers in the Cross Hollow conveyor belt. Work began at the lowest elevation and progressed up the conveyor belt. Meanwhile, Daniels and Housh turned off, deenergized, locked and tagged the circuit breakers on the #1 conveyor and stacker belts. This demonstrates the proper procedure to prevent injuries but was not followed for the work performed at the Cross Hollow conveyor belt. After taking these appropriate precautions, they began changing the gear oil out of the gear cases. Daniels and Housh completed changing the gear oil at approximately 2:15 a.m., removed the locks from the circuit breakers and left the area.

Shortly after 2:30 a.m., Neal and Shelton had completed installing two of the bottom idlers. Neal walked up the walkway to determine the other locations where the bottom idlers were to be replaced. After traveling approximately 20 more feet up the cat walk of the Cross Hollow conveyor belt, Neal, instructed Shelton to bring another bottom idler.

Neal crawled out onto the top surface of the lower (return) of the belt. Neal was positioned on his chest, reaching out, attempting to remove a bad bottom idler from a conveyor belt hanger located on the side of the belt opposite the walkway. Shelton brought another bottom idler and traveled back down the walkway to retrieve a come-a-long. Shelton traveled approximately two steps down the walkway, when he heard Neal shout turn the belt off and saw Neal's cap light travel past his location along the moving bottom belt. Shelton immediately grabbed the pull cord that was attached to the emergency stop switch of the Cross Hollow conveyor belt.

Before the belt stopped, Neal traveled approximately 49 feet on the top surface of the return side of the belt, in the narrow area located beneath the carrying side of the belt. When the Cross Hollow conveyor belt stopped, Neal fell to the surface of the raw coal storage pile, a distance of approximately 39 feet.

At approximately 2:45 a.m., Lawrence Click, outside man, walked back into the mine office, sat down in the chair in front of the Pyott-Boone Monitoring system and noticed the line on the monitoring screen representing the Cross Hollow conveyor belt changed from red to green indicating the conveyor was in operation. The Pyott-Boone Electronics Monitoring system indicated the Cross Hollow conveyor belt was energized at 2:49:04 a.m. At 2:49:19 a.m., the belt was stopped by a pull cord attached to the emergency stop switch. The belt operated for approximately 15 seconds.

After learning of the situation Click requested assistance from Daniels, Housh, and Dangerfield, then call 911. First aid was administered until an ambulance

from Cedar Grove Emergency Service arrived. The ambulance transported the victim to the top of an adjacent hill to a Health Net helicopter. The victim was transported to Charleston Area Medical Center, General Division, located in Charleston, WV. The victim died from injuries sustained in the accident on December 14, 2007.

INVESTIGATION OF THE ACCIDENT

The Mine Safety and Health Administration (MSHA) was notified of the accident at 3:17 a.m., on Tuesday, December 4, 2007, through the MSHA Call Center. MSHA personnel were immediately dispatched to the mine site. A 103(k) Order was issued to the mine operator to insure the safety of all persons during the investigation. The accident scene was photographed, sketched, and surveyed. The electrical system was examined along with the monitoring system. Interviews were conducted with persons considered to have knowledge of the facts concerning the accident. A list of the persons who participated in the investigation is contained in Appendix A. The on-site portion of the investigation was completed and the 103(k) order was terminated on December 5, 2007.

The investigation was conducted with the assistance of the West Virginia Office of Miners' Health, Safety and Training (WVOMHST), the mine operator, and mine employees.

DISCUSSION

Physical Conditions of the Work Site

The Stacker conveyor belt dumps the raw coal onto the Cross Hollow belt at approximately the midway point of the inclined Cross Hollow conveyor belt. A walkway is located adjacent to the conveyor. The walkway is provided with a standard height handrail (of 42 inches is on the right hand side of the belt looking up the belt), including a top rail, middle rail, and toe board is installed along the entire length of the Cross Hollow conveyor belt. A photograph of the walkway is contained in Appendix C, of this report. The location in which the bottom idler was being replaced on the Cross Hollow conveyor belt was approximately 240 feet from the conveyor belt tailpiece and approximately 52 feet above the surface of the raw coal storage area.

Click, Shelton, and Neal were the only persons known to be on the surface in the immediate area, in locations where the Cross Hollow conveyor belt could be started. One start button is located on the face of the Belt Boss control box located on the platform of the Cross Hollow conveyor belt. The conveyor belt could also be started at the Pyott-Boone Electronic controller in the mine office.

Safety Features of the Cross Hollow Conveyor Belt

Two emergency stop switches are located along the Cross Hollow conveyor belt. An emergency pull cord is attached to each end of the emergency stop switches and is located about waist high the entire length of the conveyor belt. In an emergency, a person can pull on the emergency pull cord and the belt is deenergized and stops running. If a stop control is actuated, it takes several seconds for the conveyor belt to stop due to the inertia of the moving conveyor belt. Once the emergency pull cord is pulled and the belt stops, the conveyor belt cannot be re-started by pulling the emergency pull cord. The emergency stop switch that is activated has to be reset manually at that particular emergency stop switch and the conveyor belt will re-start if no other function has the belt deactivated.

The Cross Hollow conveyor belt is provided with a mechanical means to disconnect power at a 480 volt controller box located at the motor platform. The controller box has a grey handle which can be turned to open the circuit breaker, disconnecting electrical power. The handle is constructed to facilitate a lock to physically keep the system deenergized during mechanical or electrical repairs. The circuit breaker handle for the Cross Hollow conveyor belt was broken, rendering it useless for its intended purpose. A photograph of the controller and the handle are contained in Appendix C, of this report.

Cross Hollow Conveyor Belt Start-Up System

The Cross Hollow conveyor belt is controlled by a Pyott Boone Belt Boss System. The Pyott Boone system has a 10-second alarm that can be heard at the Pyott Boone Belt Boss located on the platform, approximately 230 feet down the Cross Hollow conveyor belt from the area where Neal was removing the bottom idler. The alarm sounds at a low level and was audible only in the immediate area. The start controller of the Cross Hollow conveyor belt has a 6-second alarm that is designed to sound after the 10-second alarm. The 6-second alarm is located approximately 200 feet down the Cross Hollow conveyor belt from the area where Neal was removing the bad bottom idler. This alarm, when tested, did not function.

When testing the start-up procedure of the Cross Hollow conveyor belt, the 10-second alarm, was not audible from the location where Neal and Shelton were located on the Cross Hollow conveyor belt. Additionally, the secondary 6-second alarm, failed to function.

The Pyott Boone Belt Boss controller located on the platform of the Cross Hollow conveyor belt has a red "Hard Stop Button" incorporated on the face of the Belt Boss controller. When the button is depressed, the Cross Hollow conveyor belt

will stop running. The conveyor cannot be restarted, by any means, until the button is physically pulled out.

Pyott-Boone Electronics Controller

The Pyott-Boone Electronics controller is located in the mine office on the mine site. It is a computerized system that has the ability to monitor belt availability, gas detection sensors, as well as numerous other functions including the condition of bearings, motors, and pumps. The system is equipped with a monitoring screen and can print the history of monitored functions.

The Pyott-Boone Electronics system contained the history of the Cross Hollow conveyor belt operations (starting and stopping) prior to the mine accident. The Cross Hollow conveyor belt's identifying number in the Pyott-Boone Electronics controller was 1.20. The Pyott-Boone Electronics system is designed to record the time when a conveyor belt is stopped and the location from which it is stopped. The system is also designed to show when a conveyor belt is started. The system is unable, however, to indicate the location from which a conveyor belt is started.

The Pyott-Boone Electronics print-out of the of the Cross Hollow conveyor belt indicated in the moments prior to the accident shows:

12-04-2007 02:49:04 (130..).1.20 Belt Boss - Belt Start
12-04-2007 02:49:19 (130..).1.20 Belt Boss - Stop - Pull Switch

The Cross Hollow conveyor belt started at 2:49:04 a.m. causing the accident. The conveyor belt operated for 15 seconds, and the operation was terminated by actuation of the emergency pull cord at 2:49:19 by Shelton.

ROOT CAUSE ANALYSIS

A root cause analysis was conducted to identify the most basic causes of the accident that were correctable through reasonable management controls. Listed below are root causes identified during the analysis, and their corresponding corrective actions were implemented to prevent a recurrence of the accident.

Root Cause: The circuit breaker supplying electrical power to the Cross Hollow conveyor belt was not deenergized prior to installing the bottom belt idlers. The circuit breaker handle located at the motor platform for the Cross Hollow conveyor belt was broken and therefore could not be used to properly deenergize and lock the conveyor motor circuit. Proper procedures were not followed before working on the conveyor belt.

Corrective Action: The Training Plan was revised requiring that a supervisor must lock and tag out the Cross Hollow conveyor belt and ensure that proper fall

protection procedures are followed before any repairs are performed on the structure.

Root Cause: The 10-second start-up alarm was not loud enough to hear from the work location up the Cross Hollow conveyor belt where Neal and Shelton were located. The 6-second start-up alarm was not maintained in a functional condition. As a result of ineffective procedures, the audible warning system was not sufficient to allow Neal and Shelton could not hear the start-up alarm which indicated the Cross Hollow conveyor belt was starting.

Corrective Action: The mine operator replaced the single 6-second start-up alarm with two louder alarms. One 6-second alarm is located near the bottom of the Cross Hollow conveyor belt, and an additional 6-second alarm is located near the top of the Cross Hollow conveyor belt. The alarms are audible from all locations along the Cross Hollow conveyor belt.

Root Cause: Although the fatal fall resulted from the conveyor start-up, appropriate fall protection equipment was not used where there was a danger of falling. An effective procedure was not in place to assure that fall protection would be used where a falling hazard existed.

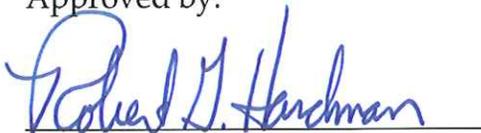
Corrective Action: The Training Plan was revised requiring that a supervisor must ensure that proper fall protection procedures are followed before any repairs are performed on the structure. The use of a harness and lanyard while working in elevated areas is required when working above 6 feet in height.

CONCLUSION

While attempting to replace a bottom belt idler, David J. Neal was seriously injured when the conveyor belt unexpectedly started causing the victim to fall a distance of 39 feet to the underlying raw coal stockpile. The victim passed away on December 14, 2007, from injuries sustained in the accident.

The accident occurred because the Cross Hollow conveyor belt circuit breaker was not deenergized, the victim was not wearing fall protection, and the installed audible warning system to warn persons that the conveyor was starting was not audible from the work location.

Approved by:



Robert G. Hardman
District Manager

04/14/2008
Date

ENFORCEMENT ACTIONS

- 1) A 103(k) Order, No. 7281413, was issued to ensure the safety of the miners until the investigation could be completed.
- 2) A 104(a) Citation, No. 7281417, was issued for violation of 30 CFR 77.502 stating that the Cross Hollow conveyor belt circuit breaker disconnecting device, located on the motor platform, was not maintained to assure safe operating condition. The handle of the device was broken which prohibited the turning motion necessary to deenergize electrical power.

This condition contributed to a fatal mining accident which occurred on December 4, 2007 in which a miner was carried by the belt conveyor a distance of 49 feet, which also caused him to fall from the conveyor structure to the raw coal stockpile, a distance of approximately 39 feet. The miner suffered serious injuries and later died on December 14, 2007.

- 3) A 104(a) Citation, No. 7281418, was issued for violation of 30 CFR 77.404(c), stating that a miner was performing repairs on the inclined and elevated Cross Hollow conveyor belt while the circuit breaker supplying power to the Cross Hollow conveyor belt was not deenergized prior to performing the repairs. The miner was lying face down on top surface of the bottom belt, beneath the top portion of the belt. The Cross Hollow conveyor belt started without warning, causing the miner to fall approximately 39 feet to the surface of the raw coal storage pile.

This condition contributed to a fatal mining accident which occurred on December 4, 2007 in which a miner suffered serious injuries and later died on December 14, 2007.

- 4) A 104(a) Citation, No. 7281419 was issued for violation of 30 CFR 77.1607(bb), stating that the entire length of the Cross Hollow conveyor belt is not visible from the starting switches, a visible warning system was not installed, and the audible warning system was insufficient to warn persons that the conveyor was starting.

The installed Pyott Boone Belt Boss System, located at the motor platform, provides an initial 10-second audible warning alarm which is not audible from the location where two miners were assigned work duties along the conveyor. The volume on the alarm was too low to be effective.

The start controller of the Cross Hollow conveyor belt, also located at the motor platform, has a 6-second audible alarm was not maintained in an operable condition and failed to function when tested.

The inclined and elevated Cross Hollow conveyor belt is approximately 310 feet in length. Another conveyor belt discharges raw coal near the midpoint of the Cross Hollow conveyor belt. The multi-belt configuration prohibits persons from clearly observing the entire length of the conveyor prior to starting.

This condition contributed to a fatal mining accident which occurred on December 4, 2007 in which a miner suffered serious injuries and later died on December 14, 2007. The accident occurred when a miner, unable to hear the ineffective audible alarm, was carried by the belt conveyor a distance of 49 feet, which also caused him to fall from the conveyor structure to the raw coal stockpile, a distance of approximately 39 feet

Appendix A

List of Persons Participating in the Investigation

Mammoth Coal Company

Larry Ward.....General Manager
Don Rutherford Superintendent
Rick Burke Maintenance Superintendent
Jeff Hartley Maintenance Foreman
David Petrey Mine Foreman
Shane Mc Pherson..... Safety Director
John Daniels Motorman/Fireboss
Kenneth Housh..... Motor Crew Helper/Scoop Operator
Larry Dangerfield.....Preparation Plant Laborer
James Shelton..... Belt Buster/General Laborer
Lawrence ClickOutside man

Pyott Boone Electronics

Wes Leffel.....Sales/Maintenance Representative

West Virginia Office of Miner's Health, Safety and Training

Bill TuckerAssistant Inspector-at-Large
Clarence Dishman..... Underground Inspector
Wayne MillerUnderground Inspector/Electrical

Mine Safety and Health Administration

Jim Honaker Electrical Engineer
Edward Matthews..... Coal Mine Safety and Health Inspector
James R. Humphrey..... Coal Mine Safety and Health Inspector
Joseph C. Mackowiak PE Mine Safety and Health Specialist

Appendix B Victim Information

Accident Investigation Data - Victim Information

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



Event Number: 4 1 1 8 4 7 1

Victim Information: 1

| | | | | | |
|--|--|--|---|--|---|
| 1. Name of Injured/ill Employee: <i>David J. Neal</i> | | 2. Sex: <i>M</i> | 3. Victim's Age: <i>57</i> | 4. Last Four Digits of SSN: | 5. Degree of Injury: <i>01 Fatal</i> |
| 6. Date(MM/DD/YY) and Time(24 Hr.) Of Death: a. Date: <i>12/14/2007</i> b. Time: <i>19:51</i> | | | 7. Date and Time Started: a. Date: <i>12/03/2007</i> b. Time: <i>23:00</i> | | |
| 8. Regular Job Title: <i>095 Fire Boss</i> | | 9. Work Activity when Injured: <i>098 Changing a bottom belt roller</i> | | 10. Was this work activity part of regular job? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> | |
| 11. Experience: a. This Work Activity: <i>0</i> Years <i>16</i> Weeks <i>0</i> Days | | b. Regular Job Title: <i>0</i> Years <i>16</i> Weeks <i>0</i> Days | | c. This Mine: <i>0</i> Years <i>16</i> Weeks <i>0</i> Days | |
| 12. What Directly Inflicted Injury or Illness? <i>038 fall from inclined conveyor belt</i> | | 13. Nature of Injury or Illness: <i>370 Multiple injuries</i> | | | |
| 14. Training Deficiencies: Hazard: _____ New/Newly-Employed Experienced Miner: _____ Annual: _____ Task: _____ | | | | | |
| 15. Company of Employment:(if different from production operator) <i>Operator</i> | | | Independent Contractor ID: (if applicable) | | |
| 16. On-site Emergency Medical Treatment: Not Applicable: _____ First-Aid: _____ CPR: _____ EMT: _____ Medical Professional: _____ None: _____ | | | | | |
| 17. Part 50 Document Control Number: (form 7000-1) | | | 18. Union Affiliation of Victim: <i>9999 None (No Union Affiliation)</i> | | |

Victim Information:

| | | | | | |
|--|--|---|--|---|----------------------|
| 1. Name of Injured/ill Employee: | | 2. Sex: | 3. Victim's Age: | 4. Last Four Digits of SSN: | 5. Degree of Injury: |
| 6. Date(MM/DD/YY) and Time(24 Hr.) Of Death: | | | 7. Date and Time Started: | | |
| 8. Regular Job Title: | | 9. Work Activity when Injured: | | 10. Was this work activity part of regular job? Yes <input type="checkbox"/> No <input type="checkbox"/> | |
| 11. Experience: a. This Work Activity: _____ Years _____ Weeks _____ Days | | b. Regular Job Title: _____ Years _____ Weeks _____ Days | | c. This Mine: _____ Years _____ Weeks _____ Days | |
| 12. What Directly Inflicted Injury or Illness? | | 13. Nature of Injury or Illness: | | | |
| 14. Training Deficiencies: Hazard: _____ New/Newly-Employed Experienced Miner: _____ Annual: _____ Task: _____ | | | | | |
| 15. Company of Employment: (if different from production operator) | | | Independent Contractor ID: (if applicable) | | |
| 16. On-site Emergency Medical Treatment: Not Applicable: _____ First-Aid: _____ CPR: _____ EMT: _____ Medical Professional: _____ None: _____ | | | | | |
| 17. Part 50 Document Control Number: (form 7000-1) | | | 18. Union Affiliation of Victim: | | |

Victim Information:

| | | | | | |
|--|--|---|--|---|----------------------|
| 1. Name of Injured/ill Employee: | | 2. Sex: | 3. Victim's Age: | 4. Last Four Digits of SSN: | 5. Degree of Injury: |
| 6. Date(MM/DD/YY) and Time(24 Hr.) Of Death: | | | 7. Date and Time Started: | | |
| 8. Regular Job Title: | | 9. Work Activity when Injured: | | 10. Was this work activity part of regular job? Yes <input type="checkbox"/> No <input type="checkbox"/> | |
| 11. Experience: a. This Work Activity: _____ Years _____ Weeks _____ Days | | b. Regular Job Title: _____ Years _____ Weeks _____ Days | | c. This Mine: _____ Years _____ Weeks _____ Days | |
| 12. What Directly Inflicted Injury or Illness? | | 13. Nature of Injury or Illness: | | | |
| 14. Training Deficiencies: Hazard: _____ New/Newly-Employed Experienced Miner: _____ Annual: _____ Task: _____ | | | | | |
| 15. Company of Employment: (if different from production operator) | | | Independent Contractor ID: (if applicable) | | |
| 16. On-site Emergency Medical Treatment: Not Applicable: _____ First-Aid: _____ CPR: _____ EMT: _____ Medical Professional: _____ None: _____ | | | | | |
| 17. Part 50 Document Control Number: (form 7000-1) | | | 18. Union Affiliation of Victim: | | |

**Appendix C
Additional Photographs**



Cross Hollow Conveyor Belt Walkway at the Location of the Accident



Broken Conveyor Handle at the Cross Hollow Conveyor Belt Controller Located at the Conveyor Belt Platform