

UNITED STATES
DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION

COAL MINE SAFETY AND HEALTH

REPORT OF INVESTIGATION

Underground Coal Mine

Powered Haulage
May 10, 2010

Ruby Energy
Spartan Mining Co., Inc.
Delbarton, Mingo County, West Virginia
I.D. No. 46-08808

Accident Investigator

James A. Maynard
Coal Mine Safety and Health Inspector

Originating Office
Mine Safety and Health Administration
District 4
100 Bluestone Road
Mount Hope, West Virginia 25880
Robert G. Hardman, District Manager

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OVERVIEW

On Monday, May 10, 2010, James R. Erwin (victim), a 55-year old Continuous Mining Machine Operator with approximately 37 years of mining experience, received fatal crushing injuries. As a loaded shuttle car turned into the last open crosscut from the No. 7 Entry, the victim was positioned in the outside turn radius of the shuttle car and was crushed between the shuttle car and the coal rib. The accident occurred on 1st East Sub Mains, No. 1 Section, MMU (mechanized mining unit) 008-0, in the No. 7 Entry near the working face.

GENERAL INFORMATION

The Ruby Energy mine is an underground coal mine located just off State Route 65, near Delbarton, Mingo County, West Virginia. Production at the mine began November 1, 1999. The mine has been owned and operated by Massey Energy Company throughout its history. The mine is accessed through a slope, located near Delbarton, West Virginia, and a shaft located on Scarlet Road, approximately one half mile off U.S. Route 119 near Belo, West Virginia. The mine is ventilated with one blowing fan. The mine liberates approximately 865,000 cubic feet of methane in a 24 hour period. Coal is being extracted from the No. 2 Gas coal seam.

The mine employs approximately 83 persons, and is not represented by a labor organization. An average of 2,400 tons of coal is produced daily from two sections with continuous mining machines. Coal is transported from the working sections to the surface via a series of belt conveyors. The mine produces coal two shifts per day, five days per week. Track is used to transport miners, supplies, materials, and equipment, into and out of the mine.

The principal officers for the mine at the time of the accident were:

Kenneth Williams.....	President
Tommy Fluty	Superintendent
Charles Woolum.....	Mine Foreman
Eugene Vance	Mine Foreman
Forrest Sammons.....	Safety Director

The last regular Safety and Health Inspection (E01) was completed on March 26, 2010. The non-fatal day's lost (NFDL) injury incidence rate in 2009 for the mine was 3.87, compared to a National NFDL rate of 4.23 for 2009.

DESCRIPTION OF THE ACCIDENT

On Monday, May 10, 2010, at 7:00 a.m., the No. 1 Section crew, consisting of Jeffery Chapman, Section Foreman, James Erwin and Jason Thomas, Continuous Mining Machine Operators, Kenneth Daily and Christopher Miller, Roof Bolting Machine Operators, Gregory Williams and Dave Runyon, Shuttle Car Operators, Thomas Gooslin, Electrician, and Chris Fluty, Trainee, started their shift. The crew entered the mine at the Scarlet Portal and traveled to the No. 1 Section via a rail-mounted personnel carrier. The crew arrived on the section at 7:15 a.m., and began preventative maintenance servicing of the equipment and preparing for production. Upon completion of preparation work, they began the mining process.

Normal mining was conducted with three cuts of coal mined in the first four hours of the shift. This section is referred to as a "walking section." The left side continuous mining machine was mining the No. 2 Left Crosscut and the No. 4 Entry. After the left side mining was completed, the right side continuous mining machine mined the No. 6 Right Crosscut. At 11:00 a.m., the right side continuous mining machine, operated by Erwin, started mining the No. 7 Entry. Runyon and Williams operated the shuttle cars, which were changing out one crosscut inby the loading point in the No. 5 Entry. This allowed the shuttle cars to travel to the continuous mining machine at the second line of crosscuts outby the face. Shortly after completing mining in the No. 7 Entry, while Erwin was starting to move the continuous mining machine to the next cut, the section experienced a power outage at approximately 11:57 a.m.

During the power outage, the crew worked on the construction of a permanent stopping in the crosscut between the No. 5 and 6 Entries, one crosscut outby the last open crosscut. This stopping was to be used later to separate the primary intake escapeway from the conveyor belt entries.

The power was restored to the section at approximately 12:20 p.m. While the power was off, draw rock fell in the unsupported portion of the No. 7 Entry. This prevented the roof bolting machine from entering the area to install roof support.

Erwin informed Williams that the area of the fall would have to be cleaned. With the stopping installed in the crosscut between the No. 5 and No. 6 Entries, the haul road previously used at the 2nd open crosscut was blocked. This required the shuttle cars to use the last open crosscut and travel through ventilation fly pads installed at the mouth of the No. 7 Entry. When Williams went through the fly pads into the No. 7 Entry, Erwin positioned himself in the intersection. Once the shuttle car was in the entry and under the continuous mining machine, Erwin went into the entry, stood along the right rib and loaded the car using his mining machine remote control unit. As the shuttle car left the entry, Erwin stayed in the entry near the continuous mining machine. A second shuttle car load was needed to clean the area and Williams returned with his shuttle car. Erwin again positioned himself in the intersection as the shuttle car traveled into the entry. When the shuttle car was under conveyor boom of the continuous mining machine, Erwin went back into the entry to load the car. After the shuttle car was loaded, Erwin signaled Williams, "that was all," and positioned himself along the right rib. Williams thought Erwin was in a safe location and started tramming his shuttle car out of the area. See Appendix C.

While William's shuttle car was being loaded, Miller came to the No. 7 Entry to see if the place was ready for the roof bolting machine. As the shuttle car was leaving the area, Miller saw Erwin take what was described as a step and a half at a 45 degree angle, toward the continuous mining machine. The shuttle car either caught or pushed Erwin into the rib. Miller immediately yelled for the shuttle car to be stopped. When it was stopped, Miller went to the shuttle car and discovered Erwin pinned against the rib. The shuttle car was moved forward, towards the continuous mining machine, to free him.

After Erwin was freed, other members of the crew learned of the accident. First aid supplies and a battery powered personnel carrier were taken to the accident scene. First aid was administered by the crew and Erwin was transported to the end of the track on the section. He was loaded on a rail-mounted personnel carrier and transported to the mouth of the section by Chapman, Dailey, and Runyon. At the mouth of the section, Erwin was transported to the surface and

cared for by Eugene Vance, Mine Foreman and Tim Dingess, Maintenance Foreman.

On the surface, Erwin was transported by S.T.A.T. Ambulance Service to Belo, West Virginia, and then air lifted by Health Net to St. Marys Hospital, located in Huntington, West Virginia. On Friday, May 21, 2010, Erwin died while hospitalized from injuries caused by the accident.

INVESTIGATION OF THE ACCIDENT

The MSHA Logan Field Office, District 4, was notified of the accident at 12:45 p.m., on May 10, 2010. A 103(j) Order was issued orally to the mine operator at 12:45 p.m., to protect the safety of all persons at the mine. MSHA accident investigators were dispatched to the mine and the 103(j) Order was modified to a 103(k) Order. The investigation was conducted in cooperation with the West Virginia Office of Miners' Health, Safety, and Training (WVMHST), with assistance of the mine operator and employees. A list of those persons participating in the investigation can be found in Appendix A of this report. Personnel from MSHA Educational Field Services (EFS) participated in the investigation.

DISCUSSION

Mining Type and Equipment

The No. 1 Section, MMU 008-0, is located at the 1st East Sub Mains and is an advancing section with seven entries developed on 70' by 70' centers. The crosscuts were turned on 90 degree angles. The entries are numbered one through seven, left to right. The conveyor belt and loading point are located in the No. 4 Entry of the section. Permanent stoppings are constructed between the Nos. 1 and 2 Entries to establish a return air course, and between the Nos. 5 and 6 Entries to establish intake air course entries. The coal is mined with two Model 14-15 continuous mining machines and transported to the belt feeder with three Model 32A shuttle cars. Alternating cuts of coal are taken on the section, with the one continuous mining machine and two shuttle cars operated at a time. The center shuttle car is used for mining each face, while the respective outside shuttle cars are alternated, depending on the continuous mining machine in operation. Two twin-boom roof bolting machines are utilized to install roof bolts.

Accident Location

The location of the accident was approximately 23 feet inby Survey Station No. 5142 in the No. 7 Entry of the 1st East Sub Mains. The mining height in the entry

averaged 72 inches. The entry was developed approximately 56 feet in by the last open crosscut. The fallen draw rock was located approximately 20 feet in by the last open cross cut, extending in by towards the face of the No. 7 Entry. Approximately 21 feet of the entry was supported with roof bolts. The entry width in the supported area was 16 feet 9 inches, up to 17 feet 9 inches. The mine floor was dry, broken, and somewhat uneven and irregular. Mine floor elevations taken by the operator showed the entry and crosscut to be relatively flat.

When accident investigators went to the accident scene, a ventilation curtain was installed on the left side of the entry. Fly pads were installed across the intersection and curtain was installed from the fly pads to the next to last row of roof bolts. The ventilation curtain was installed 2 to 3 feet off the left rib. The distance from the curtain to the right rib averaged 14 feet. A continuous mining machine was located on the right side of the entry with the cutter head against the face. A shuttle car was located in the intersection at an angle, with the loaded end next to the right rib in the entry, extending through the fly pads and into the crosscut. The shuttle car was approximately two thirds loaded. The shuttle car had been moved to recover the victim.

Shuttle Car

The shuttle car involved in the accident was a rubber tired, electrically operated shuttle car, Model 10SC32-64AKK-5, Company No. 12, Serial No. ET17507, MSHA approval Schedule 2G-4163A-00, manufactured in June of 2006. The shuttle car was powered by 480 volts alternating current, supplied by a trailing cable.

The shuttle car measured 28 feet 6 inches in length, 10 feet in width, and in the area where the car struck the victim, the height from the mine floor to the top of the car frame was 37 ¼ inches. The operator's compartment is located on the outby end, standard side. The operator sits in the compartment with his body perpendicular to the shuttle car.

The shuttle car is equipped with four-wheel steering. The steering lever operates a valve that controls the flow of oil to a steering cylinder on each side of the car. These hydraulic cylinders apply pressure to the steering mechanism to control the machine. With four-wheel steering, the shuttle car can turn from a 20 foot wide entry into a 20 foot wide crosscut, which is perpendicular to the entry, without contacting either coal rib.

A review of the mine's "Examination of Electrical Equipment" records for the No. 12 shuttle car was conducted, back to April 13, 2010. This record did not indicate any defects or deficiencies. Operational tests were conducted during the

investigation. No defects or deficiencies related to tramming, brakes, steering, wheel alignment, the hydraulic system, the de-energization device, or lights, were revealed.

Re-creation of the Accident Conditions

A re-creation of the conditions and events of the accident was conducted by MSHA, WVMHST, the company, and labor personnel on May 11, 2010. The continuous mining machine was returned to the right side of the entry where it was located when the accident occurred. The shuttle car involved in the accident was operated by Williams and was trammed into the No. 7 Entry from the last open crosscut, with the car loaded the same as when the accident occurred.

Although the shuttle car operator's visibility was limited as he passed through the fly pads installed in the intersection, the car was trammed into the entry without hitting either the left or the right rib. The right inby end of the shuttle car only cleared the right rib by inches. The car was then positioned under the continuous mining machine to replicate the accident. When the shuttle car left the continuous mining machine, it started turning into the last open crosscut immediately. As the shuttle car made the turn into the crosscut, the inby end of the car, on the right side, was approximately two inches from the rib, where Erwin was reported to have been located when the accident occurred. Once the shuttle car started turning, the car operator's vision of the continuous mining machine operator was restricted by the load and the angle of the car.

Roof Control Plan

The mine's roof control plan, required under Title 30 CFR § 75.220(a), was approved on December 23, 2008.

The General Safety Precautions of the roof control plan in effect at the time of the accident, Page 5, Item 18, required that, "The continuous miner shall be operated from a sufficient distance while in the remote mode so as the miner operator will not be endangered by the continuous miner or shuttle car. The operator is not permitted to set the remote control unit on the continuous miner and operate it in this manner."

ROOT CAUSE ANALYSIS

An analysis was conducted to identify the most basic causes of the accident that were corrected through reasonable management controls. The following root causes were identified.

Root Cause: The mine operator failed to implement the existing roof control plan adequately, which was designed to ensure that miners did not position themselves in dangerous areas that present pinch hazards while mobile equipment was being operated. The continuous mining machine operator was positioned between the shuttle car and the mine rib.

Corrective Action: The mine operator upgraded the roof control plan to include a stronger safety precaution for working around mobile equipment. The revision requires additionally that “shuttle car operators will assure that no one is along side of the shuttle car in the turning radius prior to making the turn into or out of an entry.”

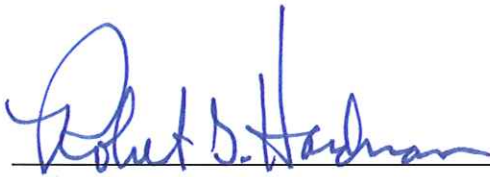
Root Cause: The mine operator failed to provide adequate training and oversight with regard to the training that the miners had received for working around mobile equipment in operation.

Corrective Action: Although miners had been trained previously in the dangers of pinch points, all miners, including supervisors, were provided with additional training to reinforce their understanding of the hazards associated with the operation of all mobile equipment, with emphasis on pinch points, including the revised safety precautions of the roof control plan. MSHA’s Education Policy and Development Branch (EPD) field personnel will also evaluate the effectiveness of the training that miners receive at this mine.

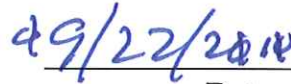
CONCLUSION

The accident occurred because the continuous mining machine operator was positioned in a dangerous location within the outside turn radius of the shuttle car as it left the entry. The mine operator failed to implement the roof control plan's General Safety Precaution, designed to ensure that miners did not position themselves in dangerous areas that present pinch hazards. The continuous mining machine operator was in the turn radius of the loaded shuttle car when it left the location of the continuous mining machine. The shuttle car operator's vision was restricted by the loaded material on the shuttle car and the turning angle of the car, preventing him from observing the mining machine operator.

Approved By:



Robert G. Hardman
District Manager



Date

ENFORCEMENT ACTIONS

1. A 103(j) Order, No. 8105453, was issued and modified subsequently to a 103(k) Order to ensure the safety of all persons in the mine during the investigation of the affected area and equipment.

2. A 104(a) Citation, No. 8111189, was issued for a violation of Title 30 CFR § 75.220(a)(1). The operator failed to comply with the approved roof control plan at this mine. On May 10, 2010, a remote controlled continuous mining machine operator on the MMU 008-0, 1 East Sub Mains, No. 1 Section was positioned in a dangerous location and received crushing injuries when he was pinned between a shuttle car and a coal rib. As the loaded shuttle car left the continuous mining machine in the No. 7 entry, the continuous mining machine operator was positioned in the outside turn radius of the shuttle car along the right rib when he was struck. On May 21, 2010, the victim died while hospitalized.

Item 18 on page 5 of the roof control plan that was approved December 23, 2008 states: The continuous miner shall be operated from a sufficient distance while in the remote mode so as the miner operator will not be endangered by the continuous miner or shuttle car.

APPENDIX A

List of persons furnishing information and/or present during the investigation:

Ruby Energy

David HensleyPresident, Long Fork Coal Company
Tommy Fluty Superintendent
Eugene Vance Mine Foreman
Charles Woolum..... Mine Foreman
Archie Vance..... Safety Tech
Robert Ellis Maintenance Manager
Johnthan Hatfield..... Maintenance Foreman
Mark Heath Counsel for Ruby Energy
Jeffery Chapman Section Foreman
Chris Miller Roof Bolting Machine Operator
Gregory Williams..... Shuttle Car Operator

West Virginia Office of Miners' Health, Safety, and Training

Eugene White..... Inspector-at-Large
John Kinder Assistant Inspector-at-Large
Terry Daniels District Inspector
Michael Pauly District Inspector

Mine Safety and Health Administration

James Maynard..... Coal Mine Safety and Health Inspector
Richard Kline Assistant District Manager, Technical Programs
Sharon Cook..... Educational Field Services

APPENDIX B Victim Information

Accident Investigation Data - Victim Information										U.S. Department of Labor		
Event Number: 6 2 8 5 1 9 0										Mine Safety and Health Administration		
Victim Information: 1												
1. Name of Injured/Ill Employee: <i>James R. Erwin</i>			2. Sex: <i>M</i>	3. Victim's Age: <i>66</i>		4. Last Four Digits of SSN: <i>5954</i>		5. Degree of Injury: <i>01 Fatal</i>				
6. Date(MM/DD/YY) and Time(24 Hr.) Of Death: <i>a. Date: 05/21/2010 b. Time: 6:00</i>						7. Date and Time Started: <i>a. Date: 05/10/2010 b. Time: 7:00</i>						
8. Regular Job Title: <i>036 Continuous Miner Operator</i>				9. Work Activity when Injured: <i>049 Operate Continuous Miner</i>				10. Was this work activity part of regular job? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
11. Experience: Years Weeks Days b. Regular Years Weeks Days c. This Years Week Days d. Total Years Weeks Days												
a. This Work Activity: 35 0 0 Job Title: 35 0 0 Mine: 7 0 0 Mining: 37 0 0												
12. What Directly Inflicted Injury or Illness? <i>077 Underground Mining Machines</i>						13. Nature of Injury or Illness: <i>170 Crushing</i>						
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: <input checked="" type="checkbox"/> CPR: EMT: Medical Professional: <input checked="" type="checkbox"/> 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: Years Weeks Days b. Regular Years Weeks Days c. This Years Week Days d. Total Years Weeks Days												
a. This Work Activity: Job Title: Mine: Mining:												
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: Years Weeks Days b. Regular Years Weeks Days c. This Years Week Days d. Total Years Weeks Days												
a. This Work Activity: Job Title: Mine: Mining:												
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
 Sketch of the Accident Scene

