

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
December 20, 2018

North Fork
AK Coal Resources, Inc.
Acosta, Somerset County, Pennsylvania
ID No. 36-10041

Accident Investigators

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Coal Mine Safety and Health Inspector, Electrical

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Table of Contents

OVERVIEW.....	1
GENERAL INFORMATION	1
DESCRIPTION OF ACCIDENT.....	2
INVESTIGATION OF THE ACCIDENT	3
DISCUSSION	4
Accident Scene	4
Continuous Haulage Mining System	5
Communication	5
Training and Experience	5
ROOT CAUSE ANALYSIS	6
CONCLUSION.....	8
ENFORCEMENT ACTIONS	9
Appendix A - Victim Location.....	11
Appendix B - Persons Participating in the Investigation.....	12



OVERVIEW

On December 20, 2018, at approximately 3:00 a.m., Nevin Hostetter, a 35-year-old mobile bridge carrier operator with 5 years and 21 weeks of mining experience, was fatally injured when he was crushed between a bridge conveyor and a solid coal rib. The accident occurred when the mobile bridge system was being trammed toward a continuous mining machine (CMM). The accident occurred because the administrative and engineering controls and polices were not adequate to protect the victim from crushing injuries.

GENERAL INFORMATION

The North Fork mine is an underground mine operated by AK Coal Resources, Inc., located in Somerset County, Pennsylvania. The mine is accessed through four drift openings into the Middle Kittanning coal seam and has an average mining height of 43 inches. The mine is ventilated with one intake (blowing) fan on the surface. Miners and materials are transported into the mine using battery-powered equipment. At the time of the accident, the mine employed 103 miners which included 81 underground miners rotating on three, eight-hour shifts. The day and midnight shifts worked six days per week, and the afternoon shift worked five days a week. The mine produces an average of 3,103 tons of raw coal per day from two mechanized mining units (MMU). The coal is

extracted by a CMM and then transported by mobile bridge carriers (MBC) and bridge conveyors to a conveyor belt, which transports the coal to the surface.

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

Wade WrightPresident
Alan Polka Manager Production
Rick Beers Superintendent
Greg BassettMine Foreman
Vincent Pelesky Safety Supervisor

Prior to the accident, the Mine Safety and Health Administration (MSHA) completed the last regular (E01) safety and health inspection on September 27, 2018. The non-fatal days lost (NFDL) incident rate for the mine in 2017 was 2.67 compared to a National NFDL rate of 3.70 for mines of this type.

DESCRIPTION OF ACCIDENT

On Thursday, December 20, 2018, the eleven miners from the MMU 002 production crew gathered at the section at approximately 11:50 p.m.

At about 12:20 a.m., after repairing the section conveyor belt, the crew began mining coal. Mike Laue operated the CMM, Darrell Lane operated No. 2 MBC directly behind, and Nevin Hostetter (victim) operated No. 1 MBC behind that. The MBCs were connected by a bridge conveyor and had to be moved in tandem. A second bridge conveyor connected the No. 1 MBC to the section conveyor belt. The MBCs did not have operator compartments; each one was operated separately using a remote control transmitter with a range of about 100 feet.

After several hours of mining operations, Laue began to position the CMM to mine the No. 5 entry. Lane and Hostetter followed with the mobile bridge system, then stopped for a few minutes while Laue positioned the CMM cable.

At this time, the MBC operated by Darrell Lane was approximately 20 feet outby the back of the CMM. The MBC operated by Hostetter (victim) was outby the corner of the intersection in the No. 3 entry, between the conveyor belt and the left coal rib. Hostetter was located on the outby corner of the intersection in the No. 3 entry (see Appendix A). When Laue finished positioning the CMM cable, Lane used his cap light to signal to Hostetter that it was time to move again. Lane began to tram the MBC forward but heard a loud metallic noise and was unable to continue forward. Lane yelled for Hostetter and shut off his machine. He yelled again and received no response. Lane could not see Hostetter, so he crawled back and saw him pinned between the No. 1 bridge conveyor frame and the coal rib. Lane trammed the No. 2 MBC back, and Hostetter fell to the mine

floor. Lane pushed the panic button on the remote control transmitter to de-energize both MBCs, and yelled for Laue and Brian Francisco, Section Foreman and Emergency Medical Technician (EMT).

Laue came from the CMM to the accident scene. Francisco was putting mining sights up in the No. 3 entry with Mike Scherer, Scoop Operator, when they both heard yelling and went to the accident scene. Other miners also heard yelling and went to the accident scene. Francisco assessed Hostetter's vitals and found no pulse or breathing. Francisco told the miners at the scene to call outside and tell Ernie Shaulis, Outside Attendant, to call 911 and then bring the first aid supplies and personnel carrier to the scene. Both Francisco and Scherer called Andrew Pianetti, Mine Examiner and EMT, who was working outby the section and told him to come to the section.

Shaulis called 911 at 3:03 a.m. and then called Vincent Pelesky, Safety Supervisor, and Bradley Russian, Pennsylvania Bureau of Mine Safety (PA BMS) Inspector. Shaulis was contacted again from the miners underground and told to call for a helicopter. He called for a helicopter and then met the ambulance to show them where to land the helicopter.

Hostetter was placed on the personnel carrier, which Laue drove to the surface while Pianetti and Scherer attempted to provide care to Hostetter. Pianetti and Scherer did not detect vital signs and were unable to perform cardiopulmonary resuscitation because of the trauma sustained by the victim. When they arrived on the surface, both the Boswell Volunteer Fire Department and the Somerset ambulance services were waiting for them in the pit. The attendants from the ambulance service made the decision not to treat the victim any further. He was placed into an ambulance and transported to the helicopter landing area, where he was pronounced dead at 3:33 a.m. by Wallace Miller, Somerset County Coroner, via telephone.

INVESTIGATION OF THE ACCIDENT

On December 20, 2018, at 3:48 a.m., Vincent Pelesky, Safety Supervisor for the North Fork mine, notified the Department of Labor National Contact Center (DOL-NCC) of the accident. The DOL-NCC notified Randall Caramellino, MSHA District 2 Staff Assistant, at 4:01 a.m. Caramellino contacted Dennis Zeanchock, MSHA Johnstown Field Office Supervisor, at approximately 4:17 a.m. Zeanchock directed Gregory Bodenschatz, Coal Mine Safety and Health Inspector (CMI), and Richard Gindlesperger, CMI/Accident Investigator, to begin the accident investigation. Bodenschatz arrived at the mine at 5:20 a.m. and issued a 103(k) order to preserve the accident scene, prevent the destruction of evidence, and ensure the safety of all persons in the mine.

MSHA personnel conducted the accident investigation in conjunction with the Pennsylvania Bureau of Mine Safety (PA BMS) and mine management. The investigation

team conducted interviews with miners. See Appendix B for a list of persons interviewed and those participating in the accident investigation.

The investigation team traveled underground and took pictures and measurements of the accident scene. The MBC system safety controls were tested on both MBCs and the remote control transmitters. During these preliminary tests investigators found no deficiencies.

On December 21, 2018, Gindlesperger, Bodenschatz, along with representatives of PA BMS, and members of mine management traveled underground to conduct further testing of the safety functions on the MBCs and remote control transmitters. They conducted a re-creation of the accident and collected additional photos and measurements. The MBCs and the remote control transmitters functioned as designed during this testing.

On December 26, 2018, Gindlesperger, Bodenschatz, Mark Gindlesperger, Deep Mine Inspector Supervisor, PA BMS, and members of mine management traveled underground to conduct function tests on the No. 1 MBC. The remote control transmitters for the No. 1 and No. 2 MBCs were taken into custody by MSHA for additional testing.

On January 25, 2019, Structured Mining Systems Inc., (dba Cervis Inc.) performed functionality testing on the remote control transmitters at the Cervis facility in Cranberry, Pa. Both remote control transmitters functioned as designed. Investigators determined that both transmitters had several discrepancies when they were compared to the approval documentation on file at the MSHA Approval and Certification Center. The discrepancies did not contribute to the fatal accident. MSHA issued two non-contributory citations to Cervis Inc., one for each transmitter.

DISCUSSION

Accident Scene

The accident occurred 5 feet inby station spad 8487, in the No. 3 entry intersection of the 5 Right Room D section. The victim was on the right outby corner of the intersection in the No. 3 entry and the No. 1 MBC was outby the corner of the intersection in the No. 3 entry, between the conveyor belt and the left coal rib (see Appendix A). The area was mined 47 inches high. The roof had permanent roof support installed, and no hazardous conditions were observed in the roof and ribs in the area. The mine roof, ribs, and bottom were dry.

When the investigators arrived on the scene, the equipment was in the location that miners described during interviews. Imprints of the MBC tracks, found on mine floor, were undisturbed and used to determine the location of the equipment at the time of the accident.

Continuous Haulage Mining System

The continuous haulage mining system involved in the accident was a “detached system,” meaning that the MBCs and bridge conveyors were not physically attached to the CMM. In addition, the MBCs did not have operator compartments and were remotely controlled. The continuous haulage system was a Fairchild¹, Model - Hi-Cap XL, Serial Number (SN) MBC 13-182, MSHA approval number 2G-3326A-7. The No. 2 (inby) MBC collects the mined coal from the rear of the CMM. A bridge conveyor connects the No. 2 MBC to the No. 1 (outby) MBC and another bridge conveyor connects the No. 1 MBC to the section conveyor belt (see Appendix A).

The MBCs are operated separately by each MBC operator with a remote control transmitter from any location within radio frequency range, which can exceed 100 feet. The remote control transmitters used to control the MBCs were Structured Mining Systems Inc.², remote control Model Number TX-H107. Remote control transmitter SN 124 was used to operate the No. 1 MBC and remote control transmitter SN 129 was used to operate the No. 2 MBC.

Each remote control transmitter has an “inactivity shutdown” function that shuts down the transmitter and the MBC if no switch on the transmitter is actuated within a set time. After the accident, the inactivity shutdown time was changed from 1 hour (set by the manufacturer) to 1 minute.

Communication

Investigators learned that Lane commonly signaled with his cap lamp to inform Hostetter of his intentions to move forward or backward. This method of communication is unreliable because the view may be blocked and there is no confirmation that the MBC operator received or understood the signal. A positive means of verbal communication by radio or pager helps prevent miscommunication.

Training and Experience

Hostetter had a total of 5 years, 21 weeks, and 4 days of underground mining experience, with 4 years and 26 weeks of experience as a MBC operator. All of his experience was at the North Fork mine. Hostetter had a certificate of qualification as a miner and a machine operator’s certificate from the Commonwealth of Pennsylvania.

On July 22, 2013, and on August 9, 2013, Hostetter was trained in the task of a continuous haulage operator on a Caterpillar (CAT) MBC. This training was conducted prior to the arrival of the Fairchild MBCs in January of 2014. Training records show that he did not receive additional training after the new system arrived.

¹ Joy Global Underground Mining, LLC, acquired the approval for the Fairchild MBC in September 2018. However, the approval marking on the machine identifies Fairchild as the approval holder.

² Structured Mining Systems, Inc., is the approval holder for the Model TX-H107 remote transmitter.

The new system differed from the CAT MBC being used earlier in that it has no attached operator's compartment or machine mounted controls, is not attached to the CMM, and is operated by remote control. Given the differences between the two MBC systems, the mine operator should have revised the training plan to address the differences, including any potential differences in hazards. Such a revision should have emphasized red zones and safe locations for the operators.

Hostetter operated the Fairchild MBC for approximately 5 years before the accident and miners who were interviewed stated that he was proficient. Hostetter also performed task training for other Fairchild MBC operators. Therefore, investigators do not believe inadequate task training was a contributing factor to the fatal accident. However, MSHA issued a noncontributing citation for a violation of 48.7(a)(3) because the victim was not tasked trained before he started operating the Fairchild MBC in 2014.

ROOT CAUSE ANALYSIS

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

Listed below is the root cause identified during the analysis and the corresponding corrective action which was implemented to prevent a recurrence.

1. Root Cause: The operator did not provide adequate means of protection against crushing injuries to miners that operate the Fairchild MBC system.

Corrective Action:

- a) A proximity detection system is being installed on the MBC involved in the fatal accident. The other MBCs will be provided with either a proximity detection system or a substantially constructed deck.
- b) All decks on MBCs shall be substantially constructed to protect MBC operators from crushing injuries. All decks shall be provided with an operator-in-position safety device. This device will be installed to deactivate the tram motors of all MBCs when an MBC operator exits the compartment. The switch shall prevent restarting the motor of any MBC until the operator returns in position. This safety device shall be functional when repositioning during the mining cycle or tramping the MBC from one place to another.
- c) The mine operator will perform and document a pre-operational check which includes checking each operator-in-position switch (if an operator's deck is installed), panic bar, and proximity detection system (if operated by remote control) prior to putting the equipment into service each shift. All deficiencies found that

affect safety must be corrected before any MBC is put into service. The pre-operational checks, deficiencies found, and corrective actions shall be documented in the foreman's note pad and made available to MSHA upon request and recorded in a book. The record book of the pre-operational checks shall be promptly dated and signed. The record book will be retained at a surface location at the mine for at least one year and shall be made available for inspection by authorized representatives of the Secretary and the representative of miners.

- d) All MBCs shall be provided with an audible alarm system that warns machine operators and other miners in the vicinity at least 3 seconds in advance that the machines are energized and able to move. Cap lamp signals will not be an acceptable means of warning.
- e) The inactivity shutdown feature on the remote control of each MBC will be reduced to a maximum of one minute. No miner shall operate more than one remote control box at the same time.
- f) All MBC operators have been provided with a stand-alone permissible two-way voice communications system. Such communication system shall be either hardwired on the machine or a wireless device worn by the machine operators. If a wireless device is used, a separate radio frequency specified for such use only shall be provided. MBC operators must receive a verbal confirmation from all other MBC operators prior to tramming.
- g) Specific Fairchild MBC operator training was added to the approved training plan. All Fairchild MBC operators have been trained accordingly.

CONCLUSION

On December 20, 2018, at approximately 3:00 a.m., Nevin Hostetter, a 35-year-old mobile bridge carrier operator with 5 years and 21 weeks of mining experience, was fatally injured when he was crushed between a bridge conveyor and a solid coal rib. The accident occurred when the mobile bridge system was being trammed toward a continuous mining machine (CMM). The accident occurred because the administrative and engineering controls and polices were not adequate to protect the victim from crushing injuries.

Russell J. Riley
District Manager

Date

ENFORCEMENT ACTIONS

1. A Section 103(k) Order No. 9080509 was issued to AK Coal Resources Inc., North Fork ID No. 36-10041.

A fatal accident occurred at this mine on December 20, 2018 at approximately 03:00. This order is being issued under Section 103(k) of the Federal Mine Safety and Health Act of 1977 to protect the safety of all persons on site, including those involved in the rescue and recovery operations or investigations 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 operation in the affected area. Additionally, the mine operator is reminded of its existing obligations to prevent destruction of evidence that would aid in investigating the cause or causes of the accident.

2. A 314(b) Safeguard Notice, No. 7032967, was issued to AK Coal Resources Inc., North Fork, pursuant to 30 CFR § 75.1403.

On December 20, 2018, at approximately 3:00 a.m., the operator of the No. 1 Mobile Bridge Carrier (MBC) being operated in the 5 Right, D Room Section, MMU 002-0, was fatally crushed between the bridge conveyor and rib. The administrative and engineering controls in place at the time of the accident were not adequate to prevent the accident. Additional controls are necessary to prevent this type of accident and to minimize hazards: A means for effective verbal communication between the MBC operators, a proximity detection system, or an operator's deck outfitted with a man-in-position switch that provides protection against crushing injuries, preoperational examinations of safety devices to ensure functionality, an audio start-up alarm, and a minimal time out feature on the remote control boxes.

This is a notice to provide safeguard requiring:

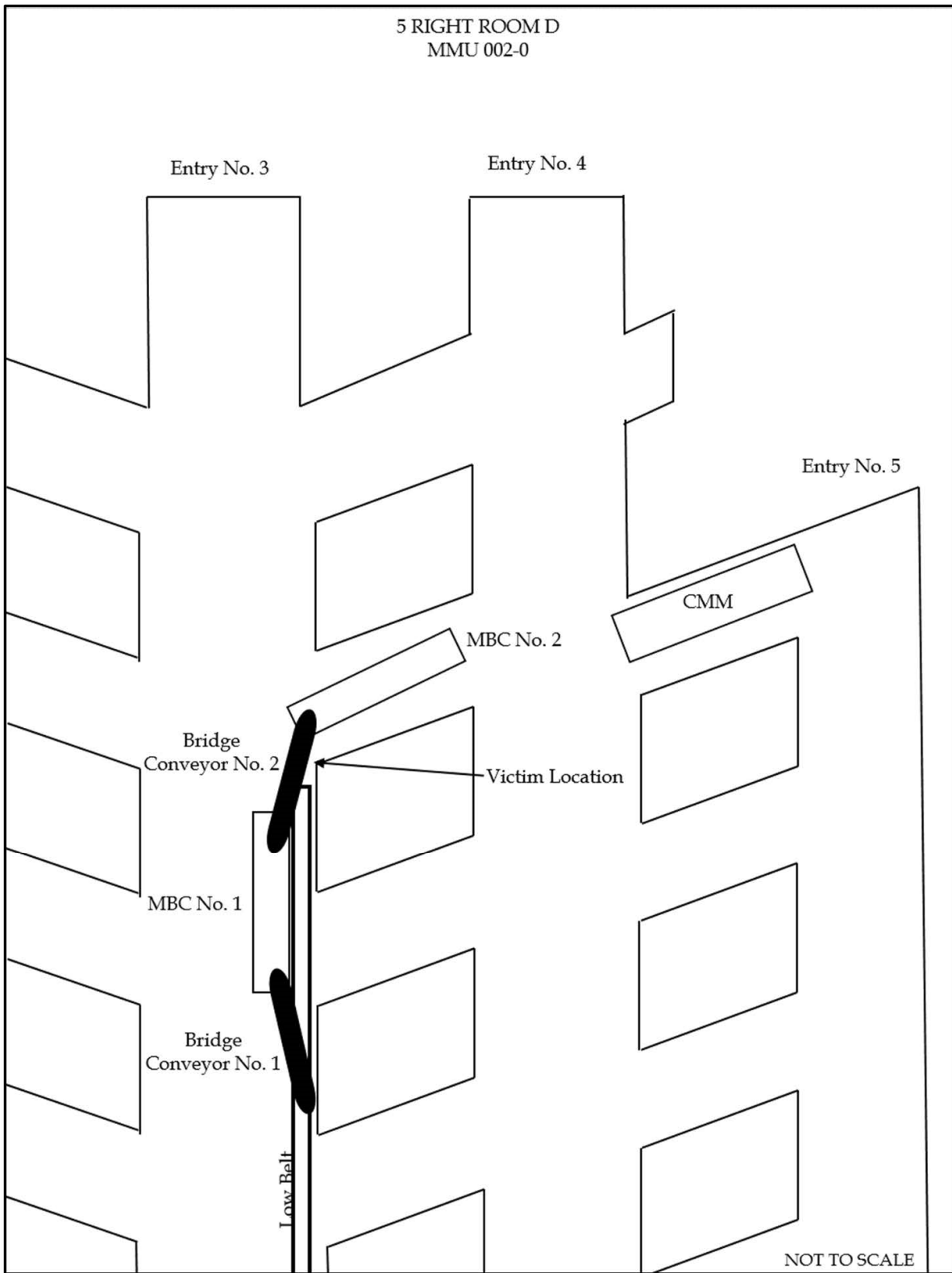
1. All MBC operators shall be provided with a stand-alone permissible two-way voice communications system. Such communication shall be either hardwired on the machine, or a wireless device, worn by the machine operators. If a wireless device is used, a separate radio frequency specified for such use only, shall be provided. MBC operators must receive a verbal confirmation from all other MBC operators prior to tramming.
2. All MBCs shall be provided with a proximity detection system, or a substantially constructed deck.
3. All MBCs, equipped with a deck, shall have such decks constructed for the lateral protection of, and other crushing injuries to, the operator. The construction of such operator deck components shall be as close as practical to

the original equipment manufacturer's design criteria. All decks shall be provided with a man-in-position safety device. This device will be installed to deactivate the tram motors of all MBCs when an MBC operator exits the operator's compartment. The switch shall prevent restarting the motor of any MBC until the operator returns in position. This safety device shall be functional when repositioning during the mining cycle or tramping the MBC from one place to another.

4. All MBCs shall have a written pre-operational check performed, which includes checking each man-in-position switch (should an operator's deck be installed), panic bar, and proximity detection system (should no operator's deck be installed or if operated by remote control) prior to putting the equipment into service each shift. All deficiencies found that affect safety must be corrected before any MBC is put into service. The pre-operational checks, deficiencies found, and corrective actions, shall be documented in the foreman's note pad made available to MSHA upon request and recorded in a book. The record book of the pre-operational checks shall be promptly dated and signed. The record book will be retained at a surface location at the mine for at least one year and shall be made available for inspection by authorized representatives of the Secretary and the representative of miners.
5. All MBCs shall be provided with an audio alarming system that warns machine operators, and other miners in the location of the continuous haulage system, at least 3 seconds in advance, that the machines are energized and able to move. Cap lamp signals will not be an acceptable means of warning.
6. The inactivity shutdown feature on the remote control of each MBC will be reduced to a maximum of one minute. No miner shall operate more than one remote control box at the same time.

Action to Terminate: Items one through six must be addressed and corrected. Items one, four, and six must be addressed and corrected prior to machines being operated.

Appendix A
Victim Location



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

AK Coal Resources, Inc.

Barry Anderson *Mechanic
 Greg Bassett.....Mine Foreman
 Rick Beers..... Superintendent
 John T. Buterbaugh Safety Foreman
 Dan Colberg * Scoop Operator
 Evan Ferguson * Roof Bolter Helper
 Dave Ferringer *Roof Bolter
 Brian Francisco * Section Foreman and Emergency Medical Technician
 J. R. GrahamShift Foreman
 Brandon Hauck * Roof Bolter Helper
 Derek Knopsnyder *Roof Bolter
 Darrell Lane * No. 2 Mobile Bridge Carrier Operator
 Mike Laue * Continuous Mining Machine Operator
 Andrew Pianetti * Mine Examiner and Emergency Medical Technician
 Ben Saxon.....Shift Foreman
 Mike Scherer *Scoop Operator
 Ernie Shaulis *Outside Attendant
 Bert Slater..... Maintenance Manager
 Arthur Wolfson..... Attorney, Jackson/Kelly

Pennsylvania Bureau of Mine Safety

John Antoon Electrical Engineer
 Colvin C. Carson..... Director
 Nicholas Dady..... Underground Electrical Inspector
 Mark Gindlesperger..... Deep Mine Inspector Supervisor
 Jeffrey Kerch.....Chief Mine Safety Program Manager
 Bradley Russian Underground Mine Inspector
 Richard Wagner..... Mine Safety Program Manager
 Chas Washlack..... Electrical Inspector Supervisor

Mine Safety and Health Administration

Gregory Bodenschatz..... Coal Mine Safety and Health Inspector
Richard Gindlesperger..... Coal Mine Safety and Health Inspector/ Accident Investigator
Steven Kotvas..... Electrical Supervisor
Russell J. Riley..... District Manager
Dennis ZeanchockJohnstown Field Office Supervisor
Cesar Casas.....MSHA Technical Support Electrical Engineer
Kenneth DarbyMSHA Technical Support Electrical Engineer