

UNITED STATES
DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION

COAL MINE SAFETY AND HEALTH

REPORT OF INVESTIGATION

Underground Coal Mine

Fatal Machinery Accident
April 15, 2003

Crown III Mine
Freeman United Coal Mining Company
Farmersville, Montgomery County, Illinois
I.D. 11-02632

Accident Investigators

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Coal Mine Safety and Health Inspector

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OVERVIEW

On April 15, 2003, at approximately 12:30 a.m., Ronald D. Adams, continuous mining machine operator, was fatally injured when he was pinned by a continuous mining machine against the coal rib. There were no eyewitnesses to the accident. Based upon the physical evidence observed at the scene and statements obtained during interviews, it is the consensus of the accident investigation team that Adams was backing the continuous mining machine out of the face area and repositioning it to clean up the left side of the cut when he was pinned between frame of the continuous mining machine and the left rib.

The cause of the accident was the failure to ensure that all workers followed the safety precautions in regard to not standing or walking between the continuous mining machine and the coal rib while the continuous mining machine is in motion.

GENERAL INFORMATION

The Crown III Mine, located in Farmersville, Macoupin County, Illinois, is operated by Freeman United Coal Mining Company. The mine employs 216 persons underground and 27 persons on the surface. The mine is opened by one slope and two shafts into the Herrin No. 6 coal seam, which averages 78 inches in thickness. The mine produces coal three shifts per day, five days a week.

The mine produces an average of 8,500 tons daily from five advancing continuous-mining sections. Four of the sections are fishtail sections (two sections share a single loading point) and the other section is a single split unit. The coal is extracted from the faces with Joy 12CM-12 remote control continuous mining machines which is then loaded into shuttle cars and ram cars and transported from the section to the surface by a series of belt conveyors. Roof support is installed using Fletcher roof bolting machines equipped with automated temporary roof support systems. The mine is ventilated with one mine fan and liberates 480,846 cubic feet of methane per day.

The principal officers of the operation are as follows:

Walter A. Gregory	President
Michael Caldwell	Vice-President Operations and Engineering
Thomas Austin	Corporate Safety Director
Larry Millburg	Mine Superintendent
Kenny Hughes	General Mine Foreman
William Jankousky	Safety Inspector

An MSHA regular safety and health inspection (AAA) was ongoing at the time of the accident. The Nonfatal Days Lost (NFDL) incident rate during the previous quarter for this mine was 6.38.

DESCRIPTION OF THE ACCIDENT

On April 14, 2003, at approximately 4:00 p.m., the section crew of the 10th East Unit (MMU 001 and MMU 011) started underground to begin their shift. Darrell Kaskie, section foreman, issued instructions to the crew and they began normal mining operations. Mining was uneventful, except that the No. 22 continuous mining machine caused the power at the section transformer to trip several times. At approximately 12:00 a.m., Ronald D. Adams, continuous mining machine operator, began cutting coal from the face of the No. 2 entry. At approximately 12:25 a.m., Adams completed the cut to a depth of approximately 15 feet and started backing the continuous mining machine to reposition it on the left side of the entry to clean up loose coal.

Adams was standing behind the blowing line curtain while backing up the continuous mining machine when he became pinched between the continuous mining machine main frame and the left coal rib. Dwight Cremeens, ram car operator, was positioned behind the continuous mining machine to load the clean up coal. When the continuous mining machine did not start to load the ram car, he got out of his ram car and went to the continuous mining machine to see what was wrong. He then heard Adams yelling for help. Cremeens climbed on top of the continuous mining machine to try to help him, but Adams was pinched tightly by the continuous mining machine. Cremeens used his radio to call for help.

At this time, the third shift mining crew had arrived on the section. When the call for help was heard by the third shift crew, Ron Brown, continuous mining machine operator/Emergency Medical Technician (EMT) and Jason Watson, section foreman/EMT traveled to the scene of the accident. Efforts were made to extricate Adams by cutting the straps on the remote control box and his coveralls, but he could not be freed.

The battery cord was removed from the remote control box. The battery and cord from the other remote control box on the section was affixed to the No. 22 continuous miner remote control box. Don Brown used the remote control box for the No. 22 continuous mining machine to start the continuous mining machine and move it away from the rib.

Adams was placed on a backboard and checked for a pulse, none was found and CPR was started immediately. CPR continued from the section to the surface. He was transported by ambulance to Farmersville, Illinois, and then transported by life flight helicopter to St. John's Hospital in Springfield, Illinois, where he was pronounced dead.

INVESTIGATION OF THE ACCIDENT

Troy Bullard, Supervisory Coal Mine Safety and Health Inspector, was called by Thomas J. Austin, Corporate Safety Director for Freeman United Coal Mining Company at 1:45 a.m. on April 15, 2003, who reported that a serious accident had occurred at the Crown III Mine. Bullard dispatched Emil J. Teisa, Coal Mine Safety and Health Inspector, to the mine and then called Ralph Karnes, Acting Supervisory Coal Mine Safety and Health Inspector, and inform him of the accident. Bullard made a follow up call to Karnes at 3:30 a.m. to report that the victim had died. Teisa arrived at the mine at 3:21 a.m. and Karnes arrived at 4:45 a.m. Illinois Department of Natural Resources, Office of Mines and Minerals Inspectors, and Freeman United Coal Company management personnel were also at the mine to assist with the investigation.

A joint investigation was started by MSHA and representatives of the Illinois Department of Natural Resources, Office of Mines and Minerals. The investigation team held preliminary interviews with all persons who were on the working section prior to going to the accident scene. The investigation team examined the accident scene, took measurements and photographs of the area. The remote control box for the No. 22 continuous mining machine was secured by MSHA investigators for further testing, as was the battery cord from the other continuous mining machine. One half of Adams' belt, which had been cut off, was missing and later recovered from the coroner. This section of belt contained the power cord for the No. 22 continuous mining machine.

Formal interviews were conducted on April 16, 2003, at the Crown III Mine conference room, during which five miners were interviewed. The interviews were recorded by a court reporter and tape recorded to be transcribed later. While the interviews were being conducted, a team consisting of Arthur Wooten, Coal Mine Safety and Health Inspector (Electrical), Chad Huntley, Electrical Engineer (Technical Support), and Pat Retzer, Electrical Engineer (Technical Support), along with representatives of mine management and miners' representatives and Joy Mining Machinery, traveled underground to conduct a variety of tests on the continuous mining machine and the remote control box. No defects were found or observed during these tests, but several components were taken by Technical Support for further testing and evaluation. The onsite portion of the accident investigation was completed on April 16, 2003, and the 103(k) order was terminated after operational checks were conducted on all other continuous mining machines in the mine to ensure their proper operation.

On May 13, 2003, the remote control components were tested by Matric Limited technicians at their facility in Seneca, Pennsylvania. On June 11, 2003, the remote control firing package was tested by Magnetek technicians at their facility in Pittsburgh, Pennsylvania. Persons present during these tests are listed in Appendix B.

DISCUSSION

1. There were no eyewitnesses to the accident.
2. The accident occurred at approximately the 6613-foot mark in the No. 2 entry of the 10th East Unit working section, on the side being mined with MMU 001.
3. The mine floor in the immediate area of the accident was dry, smooth, with no uneven areas.
4. The height (mine floor to roof) in the immediate area was 7 ½ feet.
5. The continuous mining machine was being operated by remote control at the time of the accident.
6. After the accident the continuous mining machine was energized, the headlights were on, the area lights were turned off, and the pump motor was not running.
7. A line curtain was between the victim and the continuous mining machine. It could not be determined why the victim was positioned behind the line curtain.
8. The line curtain was positioned approximately 15 feet in by the operator's location at the time of the accident. Had the area lights been turned on the victim would have been able to see the lights through the translucent curtain.
9. An examination of the continuous mining machine and remote control box revealed no visual or operational defects.
10. The continuous mining machine involved in the accident was manufactured by Joy Mining Machinery. The model number of the machine was 12CM-12-11BX and the serial number was JM5032C. The MSHA approval number was 2G-3996A-00.
11. The following components of the remote control system and related components were removed from the continuous mining machine involved in the accident for further testing:
 - Matric Limited Remote Control Demultiplexer, Model 500-200, P/N 1000042863, S/N 90211AC002, MSHA IA-457
 - Matric Limited Permissible Radio Transmitter, Model TX3 (458MHz), P/N 00112672, S/N 75230AC039C, MSHA Approval 2G-4096-0
 - Matric Limited Receiver, Type RX1, P/N 1000016248, S/N 83811AB001D, MSHA IA-18528-0-1
 - Magnenetek Firing Package, P/N 601849-0124, S/N 40403001-16.

12. A second TX3 remote control unit was being used to control the continuous mining machine on the left side of the fishtail unit at the time of the accident. Tests were conducted to determine if this remote unit would affect the continuous mining machine involved in the accident. No cross activation was indicated during any of the tests.
13. Motorola HT1000 radios, Model H01SDC9AA3BN, MSHA 9B-213-0 were being used on the working section for communication between various workmen. Tests performed with the Motorola HT1000 radios indicated that the transmitting frequencies of these radios had no effect on the remote control components that could have caused the accident.
14. The continuous mining machine and remote control unit had been moved from their original positions to free the victim. The remote control appeared to be in good physical condition. It could not be determined the position of each switch on the remote unit at the time of the accident since all switches return to the neutral position when released. Mine personnel, who first arrived at the accident scene, stated that the pump motor was off, and the machine headlights were ON. This indicates that the remote control Shutdown Bar, CB Trip, or Pump Start/Off switch had been activated.
15. The continuous mining machine was configured for the following tram speeds:
- 15 ft/min - "SLOW"
 - 30 ft/min - "FAST"
 - 85 ft/min - "HIGH/TURBO"
16. The continuous mining machine was configured such that when the tram switches were split (one forward, one reverse) the highest track speed possible was 30 ft/min. However, if only one of the tram switches was operated the highest track speed was 65 ft/min.
17. Test were performed to determine the machine's slew rate, the time for the left rear corner of the machine to contact the rib, for various tramming conditions with 26 inches separating the machine and the rib. These results are tabulated below:

Tram Condition	Time (seconds)
Split cat condition (left forward, right reverse) in fast speed	3.1
Split cat condition (left forward, right reverse) in slow speed	6.3
Right tram reversed in fast speed	9.8
Left tram forward in fast speed	10.0
Right tram reversed in slow speed	13.0
Left tram forward in slow speed	15.5

18. Each component of the remote control system removed from the continuous mining machine involved in the accident were tested at the Matric Limited facility

in Seneca, Pennsylvania and Magnetek facility in Pittsburgh, Pennsylvania.. The components were tested to verify proper operation. The tests revealed no operational or physical defects in these components that could have contributed to the accident.

19. A review of the victim's training records indicated that these records were complete and up to date. Training materials were reviewed from previous safety meetings and from the latest annual refresher training that was received by the victim. There were five safety meetings held in the past nine months dealing with hazards identified in the moving of mining equipment including "Do not position yourself along side the continuous miner during tramming." The annual refresher training packet contained a sheet on safety precautions for remote control operation of continuous mining machines and a fatalgram where a miner was crushed between a continuous mining machine and the coal rib while backing the continuous mining machine.

ROOT CAUSE ANALYSIS

A root cause analysis was conducted and the following causal factors were identified:

Causal Factor: The continuous mining machine operator's vision was blocked because he was standing behind a line curtain while he was tramming the continuous mining machine by remote control.

Corrective Action: Management shall ensure that all continuous mining machine operators follow established procedures for remote control operation including having visual contact with the continuous mining machine.

Causal Factor: The continuous mining machine lighting system was not being used at the time of the accident...

Corrective Action: Management shall ensure that all machine mounted lighting fixtures are illuminated when self-propelled mining equipment is operated in working places.

Causal Factor: The mine operator's established procedures, for tramming a remote control continuous mining machine from a safe location, were not being followed.

Corrective Action: Management shall ensure that all workers understand and follow their safety precautions for operation of remote control continuous mining machines.

CONCLUSION

The cause of the accident was the failure to ensure that all workers followed the safety precautions in regard to not standing or walking between the continuous mining machine and the coal rib while the continuous mining machine is in motion.

Contributing factors were that the victim's vision of the continuous mining machine was blocked by a line curtain and that the lighting fixtures installed on the continuous mining machine were not illuminated. Test and evaluation of the continuous mining machine and the results of the additional testing of the components removed from the continuous mining machine after the accident did not reveal any deficiencies that could be attributed to causing the accident.

ENFORCEMENT ACTIONS

A 103(k) Order, No. 7587970, was issued on April 15, 2003, to protect the safety of all persons until an investigation could be made to determine the extent of the hazards contributing to the accident.

A 104(a) citation, No. 7590534, was issued for a violation of 75.1719-1(e)(1). The area lights on the No. 22 continuous mining machine being operated in the No. 2 Entry of the 10th East unit (MMU 001) were not being used.

Approved by:

JAMES K. OAKES
District Manager

Date

APPENDIX A

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

Freeman United Coal Mining Company Officials

Michael R. Caldwell	Vice President, Operations and Engineering
Donald H. Dame	Vice President, Human Resources and Government Relations
Thomas J. Austin	Safety Director
Larry J. Millburg	Superintendent
Kenneth W. Hughes	General Mine Foreman
William Jankousky	Safety Inspector
*Darrell Kaskie	Section Foreman
*Ronald Kiehna	Section Foreman
**Jason Watson	Section Foreman

Freeman United Coal Mining Company, Crown III Mine Employees

**Don Brown	Continuous mining machine Operator
**Dwight Cremeens	Ram Car Operator
*Paul Lane	Ram Car Operator
*Kenny Summers	Roof Bolter Operator
*Mick Brown	Roof Bolter Operator
*Paul Anderson	Roof Bolter Operator
*Ron McElroy	Ram Car Operator
**Aaron Moore	Trainee
**Don Brownback	Continuous mining machine Operator
*John Jones	Roof Bolter Operator
*George Kunkler	Roof Bolter Operator
*Kenny Watson	Ram Car Operator
*Ron Brown	Continuous mining machine Operator
*Mike Martin	Repairman

United Mine Workers of America

Joe Urban	UMWA District 12 Safety Representative
Gary Butler	District 12 International Board Member
Dennis Baum	President Local 12
Scott Roach	Chairman Local 12 Safety Committee
Nathan Bryce	Local 12 Safety Committee

ILLINOIS DEPARTMENT OF NATURAL RESOURCES
Office of Mines and Minerals

Jerry Jones	Director
Tony Mayville	Senior Administrator of Mine Safety and Training
Don McBride	Mine Safety Supervisor
Art Rice	Administrative Assistant
Roger Spresser	Inspector

Mine Safety and Health Administration

David L. Whitcomb	Assistant District Manager
Ronald Stalhut	Supervisory Coal Mine Safety and Health Inspector (Electrical)
Arthur Wooten	Coal Mine Safety and Health Inspector (Electrical)
Emil J. Teisa	Coal Mine Safety and Health Inspector
Ralph Karnes	Acting Supervisory Coal Mine and Safety Inspector
David Weaver	Educational Field Services
Chad Huntley	Electrical Engineer Technical Support
Pat Retzer	Electrical Engineer Technical Support

*Indicates interviewed in preliminary investigation

**Indicates interviewed in both preliminary and formal investigation

APPENDIX B
List of Persons Present During Testing

On May 13, 2003, the remote control components were tested by Matric Limited technicians at their facility in Seneca, Pennsylvania. This testing was observed by the following individuals:

Art Wooten.....	MSHA
Ralph Karnes.....	MSHA
Chad Huntley	MSHA
Patrick Retzer.....	MSHA
Clint Glover	Joy Mining Machinery
David Thomas	Joy Mining Machinery
David Griffin.....	Joy Mining Machinery
Fabian Dechant	Matric Ltd.
Doug Sturtz	Matric Ltd.
Kevin Dulaney	Matric Ltd.
Bill Hinz.....	Freeman United Coal Mining Co.
Tom Austin	Freeman United Coal Mining Co.
David Care	Freeman United Coal Mining Co.
Scott Roach	UMWA

On June 11, 2003, the remote control firing package was tested at the Magnetek facility in Pittsburgh, Pennsylvania. The testing was performed by Magnetek technicians and was observed by the following individuals:

Art Wooten.....	MSHA
Ralph Karnes.....	MSHA
Chad Huntley	MSHA
Patrick Retzer.....	MSHA
Sam McDowell	Joy Mining Machinery
David Griffin.....	Joy Mining Machinery
Gary Bolbat.....	Magnetek
Joe Ley	Magnetek
Bill Hinz.....	Freeman United Coal Mining Co.
Tom Austin	Freeman United Coal Mining Co.
Scott Roach	UMWA