

UNITED STATES
DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION

COAL MINE SAFETY AND HEALTH

REPORT OF INVESTIGATION

Underground Coal Mine

Fatal Fall of Roof Accident
June 17, 2004

No. 6
Dags Branch Coal Co., Inc.
Feds Creek, Pike County, Kentucky
ID No. 15-17979

Accident Investigators

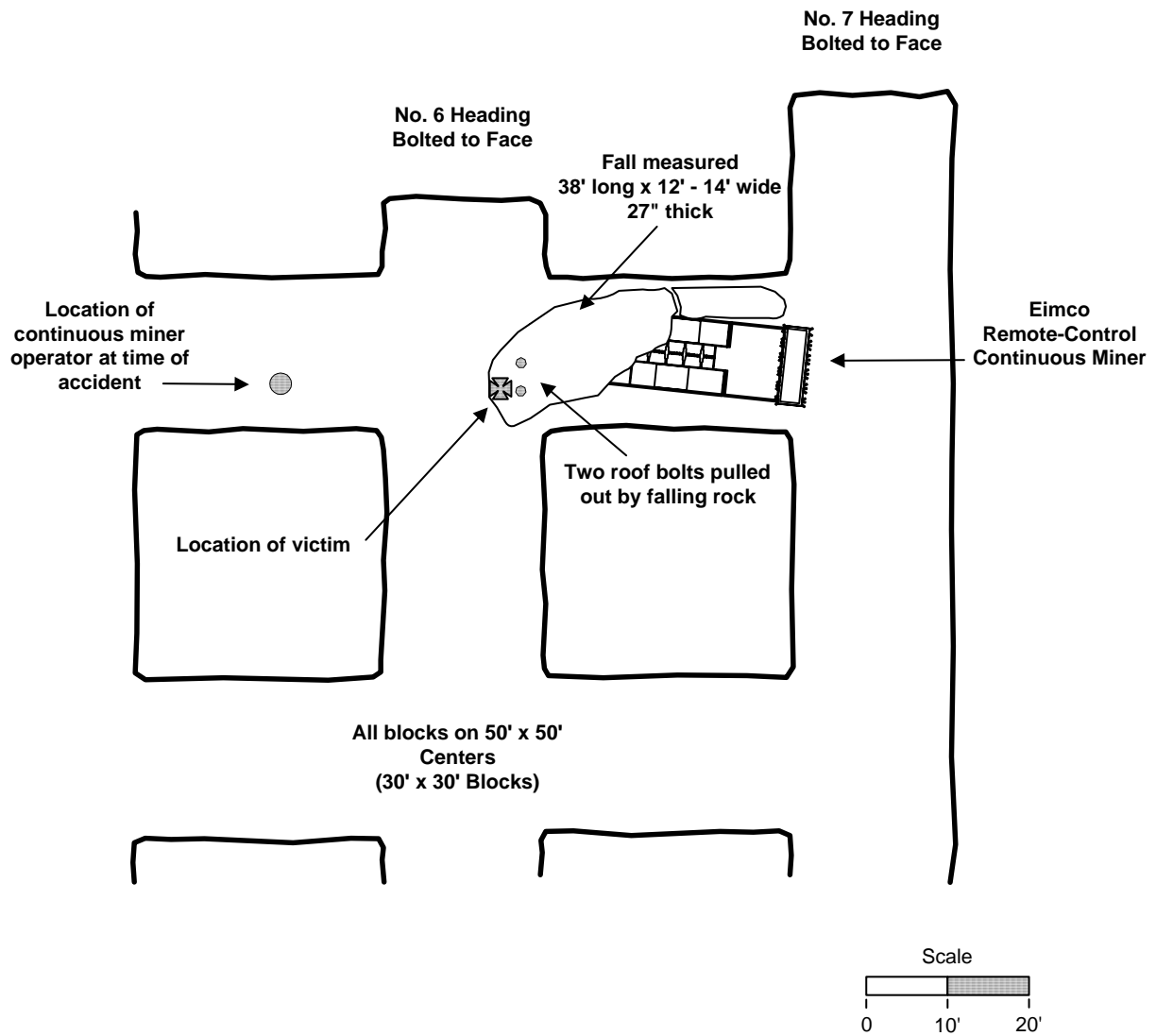
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Sketch of Accident Scene

Fatal Fall of Roof Accident
 No. 6 Mine
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 I.D. No. 15-17979
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OVERVIEW

On June 17, 2004, Eric Chaney, a 26-year old Utility Man, was fatally injured in a roof fall accident on the 001-0 advancing section. Chaney had two years total mining experience and had worked nine days at this mine.

The accident occurred as Chaney was assisting the continuous miner operator with the miner cable after mining in the crosscut between the No. 6 and No. 7 Entries was completed. As Chaney bent over to pick up the miner cable, a “slickensided” rock, measuring 38 feet long by 12 to 14 feet wide by 27 inches thick, fell from the unsupported area of the crosscut. The fall, which pulled out two previously installed roof bolts in the area where Chaney was located, caught Chaney beneath it, resulting in his death.

The fatality occurred because the victim was in an unsafe area following the completion of an extended cut. The victim was located between the first and second row of installed roof bolts.

GENERAL INFORMATION

Dags Branch Coal Co., Inc., No. 6 mine, is located on First Fork of Big Creek, 1.2 miles from Kentucky Route 194 at Fedscreek, Pike County, Kentucky. The principal officers for Dags Branch Coal Co., Inc. at the time of the accident were:

Dan Justice	President
James L. Griffith	Vice President/Secretary/Treasurer
Herbert R. Hamilton	Mine Superintendent
Johnny B. McHone	Section Foreman

Dags Branch Coal Co., Inc., No. 6 mine, is opened into the Clintwood coal seam, which averages 31 inches in height and has been in active status since October 6, 1997. Coal is produced on one active section using an Eimco remote control continuous mining machine and shuttle cars. Underground conveyor belts are utilized to transport the coal to the surface where it is hauled by trucks to the preparation plant at Clintwood Elkhorn Coal Company near Biggs, Kentucky. The mine produces an average of 350 tons per day of clean coal.

This mine employs 14 persons and operates one eight-hour shift, five to six days a week. Maintenance is conducted on-shift as needed and/or scheduled. The last regular safety and health inspection of the mine was completed on March 25, 2004.

DESCRIPTION OF ACCIDENT

On Thursday, June 17, 2004, at approximately 6:00 a.m., the section crew under the direction of John McHone, Section Foreman, entered the mine via a rubber-tired personnel carrier and traveled to the 001-0 section for the regularly scheduled production shift. McHone instructed Johnny Mitchell, Continuous Miner Operator, to begin cutting the 4 Left Crosscut (head on) from the No. 5 Crosscut.

Eric Chaney, Utility Man (victim) began the shift installing ventilation curtains. After Chaney finished installing the curtains, McHone instructed him to take a section of plastic water pipe down the No. 7 Entry to Derek Atkins, Outby Foreman. When Chaney returned, he told McHone that his work was caught up and asked McHone for further instructions. McHone told Chaney that he didn't have anything specific for him to do at that time.

Mitchell completed mining the 4 Left Crosscut and trammed the continuous mining machine to the 6 Right Crosscut. As the mining of this cut neared completion at approximately 9:00 a.m., Eric Chaney arrived to assist Mitchell with the machine cable. When mining in the crosscut was complete, Mitchell told Chaney that it was time to move the continuous miner. Mitchell turned to the left and carried the remote control unit into the crosscut between No. 5 and No. 6 Entries when he heard the sound of rock falling. He turned to see what had happened and saw Chaney caught beneath a large piece of roof rock.

One of the roof bolter operators called to Mitchell to ask if he was all right. Mitchell replied that he was all right but that Chaney was under the rock. Harvey Hodge, Shuttle Car Operator, heard Mitchell and told McHone that Chaney was under the rock. McHone went to the accident site and then reported the accident to James L. Griffith, co-owner of the mine. Griffith notified MSHA and the Kentucky Office of Mine Safety and Licensing (OMSL) at approximately 9:35 a.m.

RECOVERY EFFORTS

Herbert R. Hamilton, Mine Superintendent, accompanied the recovery team to the accident scene. Based on the observed conditions, a joint decision was made to recover the victim from the No. 6 Entry. Compressed air mats were used to raise the rock. The victim was recovered at 1:15 p.m.

INVESTIGATION OF ACCIDENT

Griffith called Franklin M. Strunk, District Manager, to report the accident at 9:35 a.m. on June 17, 2004. Strunk notified Danny Harmon, District 6 Roof Control Supervisor, who assigned Darrell Hurley, Coal Mine Safety and Health Specialist (Roof Control), to

investigate the accident. Thomas Meredith, District 6 Assistant District Manager for Technical Programs, notified MSHA Headquarters in Arlington, Virginia and MSHA Educational Field Services in Beckley, West Virginia. MSHA's Safety and Health Technology Center in Pittsburgh, Pennsylvania was also placed on standby in the event that technical assistance was needed. Strunk, Harmon, and Hurley proceeded to the mine to begin the investigation where they joined Bennett Hylton, Acting Supervisor, Elkhorn City Field Office, and personnel from OMSL at approximately 10:15 a.m. Hylton had conducted a preliminary interview with Mitchell at the mine office and issued a 103(k) order to secure the accident scene while the investigation was conducted and to ensure the safety of any persons in the mine.

Harmon and Hurley, along with Mike Elswick, Chester Flint, and Worley Taylor of OMSL traveled underground, accompanied by Hamilton. The accident site was examined, measured, and photographed to the extent possible.

Interviews were conducted with persons deemed to have knowledge of the facts regarding the accident on June 18, 2004, at the OMSL office in Pikeville, Kentucky. Robert H. Bellamy, Mining Engineer, joined the accident investigation team to assist in interviewing the miners. A list of persons interviewed is provided in Appendix B.

On June 21, 2004, the 103(k) order was modified to allow the operator to install additional roof bolts in the No. 5 and No. 6 Entries and the crosscut between No. 5 and No. 6. On June 22, 2004 the 103(k) order was modified to allow the operator to relocate the section to another area of the mine. On June 23, 2004, the operator trained all employees in the provisions of the roof control plan. The 103(k) order was modified to allow the operator to resume production in another area of the mine while mine seals were constructed across the entrance to the section where the accident occurred.

DISCUSSION

Geologic Conditions

The portion of the mine where the accident occurred was beneath 930 feet of overburden, close to the center of a ridge. The Clintwood coal seam averaged 31 inches thick and was above drainage at this location. Mining has been conducted in the Lower Elkhorn seam, located 190 feet above the Clintwood seam; and in the Glamorgan seam, located 180 feet below the Clintwood seam.

The immediate roof and the fallen material were composed of laminated sandy-shale. The fallen material predominately remained intact as two pieces, and measured 38 feet long by 12-14 feet wide and 27 inches thick. The fall began in the unsupported crosscut and extended to the second row of bolts in the No. 6 Entry. Two roof bolts in the last row of permanent roof support failed during the fall. The fall was bounded by two slickensided surfaces, which could not be detected from the supported area. The rock

appeared to have released suddenly, falling from the inby point to the outby point as evidenced by the bending of the two roof bolts pulled out by the fall. A photograph of the rock fall is shown in Appendix C.

Roof Control Practices

The fall of rock occurred after the continuous miner completed a 35-foot extended cut by mining the crosscut between the No. 6 and No. 7 Entries head-on from the No. 5 to No. 6 Crosscut. Pillars were developed on 50-foot by 50-foot centers, leaving 30-foot by 30-foot pillars of coal. The approved roof control plan permits 50-foot by 50-foot centers and 20-foot entry and crosscut widths, all of which were measured to be in compliance.

The approved roof control plan includes provisions for a 35-foot extended cut to be mined. This allows the crosscut to be developed in one set of lifts, reducing exposure time for the miners due to moving the continuous mining machine. Prior to roof bolting activities the resulting unsupported area in a typical crosscut at this mine is 38 feet between roof bolts. Additional safety precautions for extended cuts include provisions to prohibit any portion of the body from being positioned inby the second row of undisturbed permanent supports (roof bolts), and a requirement that extended cuts only be taken when the continuous mining machine is operated by remote control.

Ribbons, such as those used by surveyors, are hung from the last row of roof bolts to serve as a warning device to alert miners to the location of unsupported roof. These warning devices also increase the likelihood that miners will be made aware of the location of the second row of bolts where extended cuts are mined. The safety standard under the Code of Federal Regulations (30 CFR, Part 75.208), states that: "Except during the installation of roof supports, the end of permanent roof support shall be posted with a readily visible warning, or a physical barrier shall be installed to impede travel beyond permanent support."

Two crosscuts of this seven-entry panel were yet to be mined. The roof was supported with 5/8-inch diameter, 36-inch long, fully grouted roof bolts on 44-inch to 47-inch centers. The approved roof control plan allows the roof bolts to be installed on 48-inch by 48-inch centers. The roof bolts were installed with 8-inch by 8-inch square, donut-embossed, bearing plates. Roof bolt spacing was measured and found to be in compliance.

The approved roof control plan includes provisions for a 35-foot extended cut to be mined. This allows the crosscut to be developed in one set of lifts, reducing exposure time for the miners during tramming of the continuous mining machine.

Seismic and Blasting Activity

The USGS web site, which lists earthquakes worldwide and is updated hourly, was consulted. The nearest earthquake listed on June 17 2004, was at the New Madrid area in the Eastern Missouri/Western Kentucky area. It showed no activity in the Eastern Kentucky. The Geological Department at the University of Kentucky confirmed this information. No blasting activities had been conducted at the nearest surface mine on June 17, 2004.

Training

According to witness testimony and documentation of training received, the victim had been given all the required training, including training in the provisions of the approved roof control plan and the safety precautions to be used when mining extended cuts. Although there were some deficiencies related to record keeping, those were not related to the accident and were cited under a separate spot inspection event.

ROOT CAUSE ANALYSIS

An analysis was conducted to identify the most basic causes of the accident that were correctable through reasonable management controls. During the analysis, causal factors were identified that, if eliminated, would have either prevented the accident or mitigated its consequences.

Listed below are causal factors identified during the analysis and their corresponding corrective actions implemented to prevent a recurrence of the accident:

Causal Factor: The standards, policies, and administrative controls in use at this mine did not ensure that persons would not position themselves inby the second row of undisturbed permanent roof supports (roof bolts), as is required by the approved roof control plan, when an extended cut was mined. A visible warning device, which would have alerted persons concerning the location of the last row of roof bolts, was not hung on the last row of permanent support as required by 30 CFR, 75.208. A procedure had not been established by mine management to assign responsibility for installing the warning devices. The victim was positioned between the first and second row of permanent supports outby the extended cut taken in the crosscut between the No. 6 and No. 7 Entries.

Corrective Actions: The roof control plan was reviewed and explained to each and every employee prior to mining being resumed. Special emphasis was placed on the importance of never positioning any part of the body inby the second row of undisturbed permanent roof supports (roof bolts).

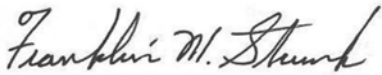
Causal Factor: A warning device was not installed at the end of permanent roof supports. A procedure had not been established by mine management to assign responsibility for installing the warning devices. A visible warning device would have alerted persons concerning the location of the last row of roof bolts, and served as a reminder that the plan required persons to remain outby the second row of permanent support.

Corrective Actions: The operator will have either the roof bolter operator or continuous miner operator install bright red reflectors on the last row of permanent supports prior to the continuous mining machine beginning a new cut.

CONCLUSION

The accident occurred when the victim was positioned inby the second row of permanent roof supports immediately after an extended cut had been mined. A warning device, which would have increased the likelihood that the victim would have recognized his proximity to the last row of bolts, had not been installed on the last row of permanent roof supports. An undetectable, slicksided section of roof rock fell in the unsupported area and extended to the second row of bolts in the No. 6 Entry, striking the victim and causing fatal injuries.

APPROVED BY:



Franklin M. Strunk
District Manager

Date: 07/28/04

ENFORCEMENT ACTIONS

- A 103(k) Order, No. 7409180, was issued to Dags Branch Coal Co., Inc. to ensure the safety of all persons until an investigation was completed and the area deemed safe.
- A 104(a) Citation, No. 7404626, was issued to Dags Branch Coal Co., Inc. for a violation of 30 CFR 75.220(a)(1): The Approved Roof Control Plan was not being complied with on the 001 MMU. The approved plan states that "The continuous miner operator (remote-control station) and other persons in the area shall not expose any portion of their body inby the second row of undisturbed permanent supports." A fatal accident occurred on June 17, 2004, when a Utility Man was positioned inby the second row of undisturbed permanent roof supports and received fatal crushing injuries from a fall of roof that originated in the unsupported cut and extended to the second row of roof bolts.
- A 104(d)(1) citation, No. 7404627, was issued to Dags Branch Coal Co., Inc. for a violation of 30 CFR 75.208: A readily visible warning device or physical barrier to impede travel beyond permanent support was not installed at the end of permanent roof support at both approaches to the unsupported crosscut between the No. 6 and No. 7 Entries on the 001-0 MMU. A fatal accident occurred on June 17, 2004, when a Utility Man received crushing injuries from a fall of roof that originated in the unsupported area where no warning devices were installed.

APPENDIX A

List of Persons Participating in the Investigation

Dags Branch Coal Company Officials

Herbert R. Hamilton	Mine Superintendent
Noelle M. Holladay	Attorney (Wyatt, Tarrant & Combs, LLP)
James L. Griffith	Vice President/Secretary/Treasurer
Dan Justice	President
Marco M. Rajkovich, Jr.	Attorney (Wyatt, Tarrant & Combs, LLP)

Kentucky Office of Mine Safety and Licensing

Mike Elswick	District Supervisor
Chester Flint	Roof Control Specialist
Greg Goins	Accident Investigator
Tracy Stumbo	Chief Accident Investigator
Worley Taylor	Roof Control Specialist

Mine Safety and Health Administration

Robert Bellamy	Mining Engineer
Brian Dougherty	Attorney
Danny Harmon	Roof Control Supervisor
Darrell Hurley	Mine Safety & Health Specialist
Bennett Hylton	Mine Safety and Health Inspector
Gerald McMasters	Conference Litigation Representative
Robert Newberry	Mining Engineer
Franklin M. Strunk	District Manager
Arlie A. Webb	Accident Investigation Coordinator

APPENDIX B

List of Persons Interviewed

Herbert R. Hamilton	Superintendent
Harvey Hodge, Jr.	Shuttle Car Operator
Johnny Brent McHone	Section Foreman
John Henry Mitchell	Continuous Miner Operator

APPENDIX C



Photograph of Accident Scene
(Crosscut as viewed from No. 6 Entry)
Showing Continuous Miner and Rock that Fell