CAI-2016-04

UNITED STATES
DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION

COAL MINE SAFETY AND HEALTH

REPORT OF INVESTIGATION

Underground Coal Mine

Fatal Fall of Rib Accident
March 25, 2016

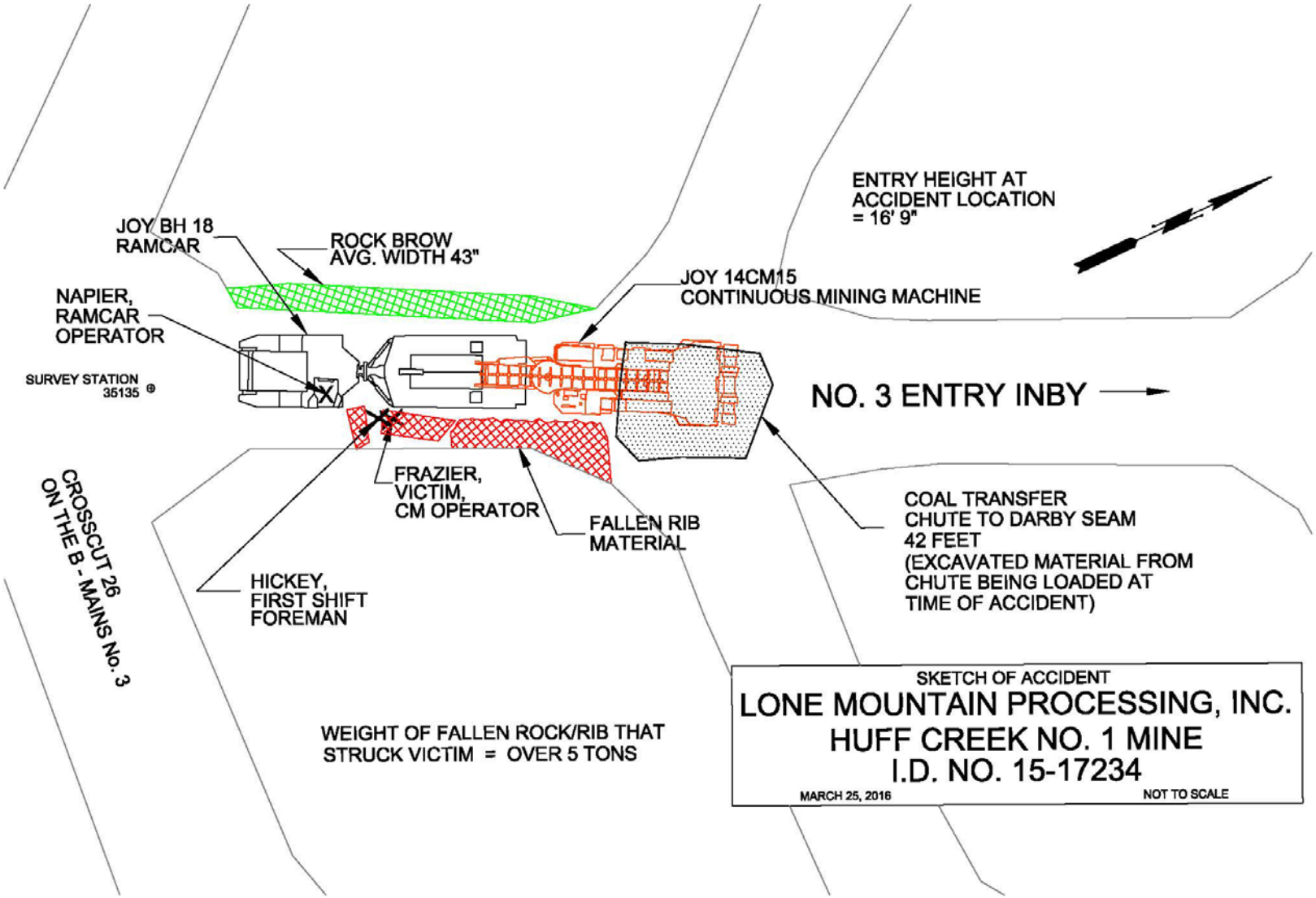
Huff Creek No. 1
Lone Mountain Processing, Inc.
Holmes Mill, Harlan County, Kentucky
ID No. 15-17234

Accident Investigator

Ricky L. Suffridge
Coal Mine Safety and Health Inspector

Originating Office
Mine Safety and Health Administration
District 7
3837 South US Hwy 25E
Barbourville, KY 40906
Jim W. Langley, District Manager

TABLE OF CONTENTS


ENTRY HEIGHT AT
ACCIDENT LOCATION
= 16' 9"
JOY BH 18
RAMCAR
ROCK BROW
AVG. WIDTH 43"
JOY 14CM15
CONTINUOUS MINING MACHINE
NAPIER,
RAMCAR
OPERATOR
SURVEY STATION
35135
NO. 3 ENTRY INBY
FRAZIER,
VICTIM,
CM OPERATOR
FALLEN RIB
MATERIAL
COAL TRANSFER
CHUTE TO DARBY SEAM
42 FEET
(EXCAVATED MATERIAL FROM
CHUTE BEING LOADED AT
TIME OF ACCIDENT)
HICKEY,
FIRST SHIFT
FOREMAN
CROSSCUT 26
ON THE B - MAINS No. 3
WEIGHT OF FALLEN ROCK/RIB THAT
STRUCK VICTIM = OVER 5 TONS
SKETCH OF ACCIDENT
LONE MOUNTAIN PROCESSING, INC.
HUFF CREEK NO. 1 MINE
I.D. NO. 15-17234
MARCH 25, 2016
NOT TO SCALE

PHOTOGRAPH OF THE ACCIDENT SCENE

OVERVIEW

At 8:16 am, on Friday, March 25, 2016, Mark Frazier (victim) was fatally injured while operating a continuous mining machine in an outby area of the mine. The victim was loading material from a coal transfer chute construction site in the B-Mains No. 3 portion of the mine. A large section of rock rib/brow fell trapping him between the frame of a battery-powered ramcar and the mine floor. The rock rib/brow measured approximately 44 feet in length, 4 feet in width, and 2 feet in thickness. The portion of the rock rib/brow that struck the victim measured 8 feet in length, 4 feet in width, and 2 feet in thickness and weighed over 5 tons.

GENERAL INFORMATION

The Huff Creek No. 1 Mine is an underground coal mine owned and operated by Lone Mountain Processing, Inc., a subsidiary of Catenary Coal Holdings, Inc. The mine is located approximately two miles west of Holmes Mill, in Harlan County, Kentucky, and is developed in the Kellioka Seam. Mine ventilation is provided by an exhausting main mine fan which moves approximately 488,500 cubic feet of air per minute. The mine liberates approximately 180 thousand cubic feet of methane per day. The mining height average is 6 feet. The mine is accessed by a return air shaft and 2 slope portals. It is operated four days per week and employs 93 underground and 14 surface personnel who work two production shifts and one maintenance shift per day. Mine production averages 4,300 tons of raw materials daily from two mechanized mining units (MMUs) using continuous mining machines. Coal is transported from the faces by battery-powered ramcars when advancing, and continuous haulage when retreating. Coal is then transported to the surface by conveyor belts. Employees travel in and out of the mine slope via diesel-powered equipment.

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

Arnold Hammons	General Manager
Ricky Johnson	Mine Manager
Donald Feltner	Superintendent
Willard Hickey	First Shift Foreman
Wilburn Howard	Safety Manager

A regular safety and health inspection was started on January 4, 2016, and was ongoing at the time of the accident. The Non-Fatal Days Lost (NFDL) injury incidence rate for the mine in 2015 was 0.71, compared to a National NFDL rate of 3.14 for mines of this type.

DESCRIPTION OF THE ACCIDENT

On March 25, 2016, Mark Frazier, Outby Construction Crew Member and Fireboss, and Brian Napier, Outby Construction Crew Member, entered the mine at approximately 5:00 am and traveled to the coal transfer chute construction site located in the No. 3 entry of the B-Mains No. 3 panel. No coal production was scheduled, but employees were scheduled to work to clean up the coal/rock debris created from the excavation of the transfer chute in an outby area of the mine. Upon arrival at the construction site, Napier began preparing the ramcar for use and Frazier began an examination of the area. In the meantime, Tim Daniels, Outby Construction Crew Member, and Keith Boggs, Mine Examiner, entered the mine. At approximately 5:50 am, Boggs arrived at the transfer chute construction site, boarded a permissible buggy, and began traveling his mine examination route.

Daniels began the shift by operating a battery-powered scoop to push loose material from the No. 2 entry and adjacent right crosscut toward the transfer chute. There was a short

delay in the clean-up process while the feeder was repaired. Frazier operated the continuous mining machine to load out the excavated coal/rock debris into the ramcar operated by Napier. The clean-up process continued until about 25 loads of material were loaded out. At that time, Willard Hickey, First Shift Foreman, arrived at the work site and proceeded to the area of the continuous mining machine. At 8:16 am, a large section of the rock rib/brow fell from the right rib and trapped Frazier against the ramcar. Hickey was knocked to the mine floor but he was not trapped and not significantly injured. Napier witnessed the accident from his position in the operator's cab on the ramcar deck. He immediately flagged Daniels for help. Daniels shut off the feeder and traveled to the accident scene where he saw Frazier trapped beneath the fallen rock. Initial attempts to free Frazier were unsuccessful. Napier tried to swivel the ramcar away from the victim to free him from the fallen rock but the attempt failed. However, the maneuver did create enough space for Daniels to begin first-aid and administer cardiopulmonary resuscitation (CPR). Hickey traveled to the mine phone and called for help and returned to the accident site.

The rock was still on a portion of Frazier's body. Napier left the accident scene to find something to move the rock off of Frazier. He located a diesel Lo-Trac machine and trammed it to the accident site. Hickey and Daniels were still attempting to free Frazier and continuing to administer CPR. Frazier used the forks on the Lo-Trac to lift the rock, and Hickey and Daniels were then able to free Frazier from beneath the rock.

Napier moved the diesel Lo-Trac machine from the accident scene and returned with a personnel carrier. The victim was placed on the personnel carrier and transported to the surface area of the mine by Hickey while CPR continued to be administered by Napier and Daniels. Upon arrival on the surface, the victim was placed on a backboard. CPR was continued and the Automatic External Defibrillator (AED) was utilized. The AED indicated that no shock was advised.

Lifecare Ambulance Service and an Air Evac helicopter had been dispatched to the mine and arrived at approximately 9:00 am. The victim was turned over to medical personnel and transported to the helicopter landing zone approximately 4 minutes from the mine site. The flight paramedics and flight nurse determined the victim to be deceased and decided not to transport by air. The victim was then transported back to the mine site where he remained until the arrival of Jim Rich, Harlan County Deputy Coroner. Rich pronounced the victim dead at 10:05 am and transported the victim to the Harlan Appalachian Regional Hospital.

INVESTIGATION OF THE ACCIDENT

On March 25, 2016, at 8:41 am, Wilburn Howard, Safety Manager, called the MSHA Call Center to report the accident. He stated a mine employee was seriously injured in a rib roll accident. A violation, that did not contribute to the accident, was issued for a violation of 30 CFR § 50.10, because the mine operator did not report this accident immediately, at once, without delay, and within 15 minutes. Call center personnel contacted Erica Warren, MSHA Office Assistant, at 8:53 am to report the information.

Warren informed Samuel Creasy, Assistant District Manager (Enforcement), at approximately 8:55 am. Creasy immediately notified William B. Sears, Harlan Field Office (FO) Supervisor, to have him send an inspector to the mine. Silas Brock, Coal Mine Inspector (CMI), was dispatched to the mine. Brock arrived at the mine at 10:14 am, contacted Howard and issued a 103(k) order. Brock was joined at the mine by other MSHA officials: Jim Langley, District Manager; Creasy; Kevin Bruner, Barbourville FO Supervisor; and Ricky Suffridge, Coal Mine Inspector and Accident Investigator.

Ernie Hawkins, Kentucky Division of Mine Safety (KY DMS) Mine Safety Specialist, was at the mine upon the arrival of MSHA personnel. Tim Fugate, KY DMS Chief Investigator, arrived later and participated in the underground investigation.

Preliminary activities at the mine surface included, but were not limited to, reviewing the mine maps and pre-shift books, and gathering additional information from mine management personnel. Preliminary interview statements were taken from the miners who had worked or traveled to the transfer chute construction site and those who had taken part in the rescue and recovery efforts.

MSHA and KY DMS personnel at the mine, along with mine management personnel Donald Feltner, Mine Superintendent; Willard Hickey, First Shift Foreman; Wilburn Howard, Safety Manager; and Jimmy Rouse, Safety Manager traveled underground to the accident scene. Investigators took photographs of the accident scene and made pertinent measurements for the accident investigation.

The MSHA Pittsburgh Technical Support (PTS) Roof Control Division was contacted to assist in the accident investigation. On March 26, 2016, Gregory Rumbaugh, Civil Engineer, and Paul Tyrna, Geologist, of PTS traveled to the mine and accompanied Suffridge to the accident area. They investigated the accident area and adjacent areas and the mine conditions. The persons who participated in the investigation are listed in Appendix A.

On March 28, 2016, formal interviews were conducted by MSHA and the KY DMS with witnesses and miners who had information related to the fatal accident. The interviews were conducted at the KY DMS Office in Harlan, Kentucky. See Appendix B for a list of persons interviewed.

On April 4, 2016, additional interviews were conducted at the mine site by MSHA. The purpose of these interviews was to obtain additional information relevant to the accident investigation.

DISCUSSION

The mine extracts coal from the Kellioka seam utilizing room-and-pillar mining methods. The accident location is the No. 3 entry between crosscuts 26 and 27 of the B-Mains No. 3 panel and approximately 31 feet inby survey station #35135.

The area was developed in 2006 in a 5-entry configuration with 70° crosscuts and 80 feet by 90 feet pillar centers with 20-foot wide entries and crosscuts. During the development of this area, the mining height averaged about 7 feet. The area has over 1,900 feet of overburden.

Work was ongoing at the accident site to create a transfer chute to be used to load out coal from the Darby coal seam approximately 42 feet above the Huff Creek No. 1 Mine. The drilling and blasting of the transfer chute was completed on December 12, 2015, forming a roughly 15 feet by 15 feet square hole. Work in this area was performed intermittently between the date the transfer chute was completed and the date of the accident. The fallen material created by the drilling and blasting process was loaded into a ramcar with a continuous mining machine. The ramcar carried the material to a nearby feeder where it was loaded onto a conveyor belt and transported out of the mine. To facilitate the construction and use of the chute, mining height in the No. 3 entry between crosscuts No. 26 and 27 was increased from about 7 feet to approximately 17 feet during the construction of this area. The width of the inclined roof was approximately 20 feet. This additional entry height exposed gray, hard sandstone above the coal seam which became part of the entry's ribs. This created an overhanging rock portion of the ribs that extended up to 10 feet in height between the transfer chute and the next crosscut outby (crosscut 26). The rock portion of the ribs was spot bolted with 5 and 6 foot horizontal bolts. Severe sloughing in the softer coal beneath the rock ribs during the time between initial development and construction of the transfer chute created overhanging brows with no vertical support. The overhanging brow ranged from 1 to 4.5 feet on the right side and 1 to 3 feet on the left side of the No. 3 entry. The creation of the brow rendered the horizontal bolts inadequate to support the rock portion of the rib.

Pillar Stability

A pillar stability analysis of the area where the accident took place was conducted by the District 7 Roof Control and Impoundments Branch staff utilizing computer software developed by the National Institute for Occupational Safety and Health (NIOSH) titled *Analysis of Retreat Mining Pillar Stability* (ARMPS) version 6.2.02v6. The computer program uses the input of the overburden, pillar sizes, entry/crosscut widths and other pertinent information to calculate a global stability factor. It does not predict localized mine conditions such as the unique conditions at this accident site.

Pillar stability factors generated by the analysis exceed NIOSH recommended minimums for the B-Mains No. 3 panel and no warnings were generated by the software.

Rib Conditions and Support

Observation of the rib conditions at the accident location revealed that the coal portion of the ribs had severely sloughed out creating 4-foot deep overhanging rock brows on both sides of the No. 3 entry. The ribs were spot bolted, but the overhanging brows had no vertical support. Three factors which likely contributed to the rib sloughage were high overburden, high mining height, and time. The area had over 1,900 feet of overburden with a mining height of about 17 feet. The entries and crosscuts in the location of the accident were originally developed in 2006. The portion of the rock rib/brow that fell on the victim measured 8 feet in length, 4 feet in width, and 2 feet in thickness and weighed over 5 tons.

Mine Examinations

Terry Mullins, Foreman, started the last recorded preshift examination on March 25, 2016, during the first shift. According to the preshift records, his examination did not include the area in and around the transfer chute construction site. This is reflected in the preshift book dated March 25, 2016, with a notation indicating that Mullins' preshift examination was not complete for this reason.

A previous outby preshift examination was conducted during the evening shift on March 24, 2016, by Brian Lefevers, Mine Examiner. During interviews, Lefevers stated that his examination did not extend inby the B-3 tailpiece and feeder location, and he had never conducted a preshift examination of the B-Mains No. 3 transfer chute construction site.

During the accident investigation and corresponding interviews, it was determined that preshift examinations were not being conducted in accordance with 30 CFR §75.360 at the transfer chute construction site. Testimony revealed work was scheduled for the morning of March 25, 2016, for three miners to continue cleanup of the excavated material at the transfer chute area. No coal production was scheduled for the mine on this day. To comply with §75.360, a preshift examination must be made within 3 hours preceding the beginning of any 8-hour interval during which any person is scheduled to work or travel underground. Additionally, no person other than the certified examiner(s) conducting the examination may enter or remain in an underground area unless a preshift examination has been completed. The required preshift examination of the accident area was not conducted on March 25, 2016. According to interview testimony, a supplemental examination was conducted by Frazier on the morning of March 25, 2016, but regulations require a preshift examination of the area when work is scheduled. A supplemental examination of an area is to be conducted prior to miners entering an area where a preshift examination was not made because that area was not previously scheduled for work or travel. A citation, that did not contribute to the accident, was issued for a violation of 30 CFR §75.360(g).

Additionally, any conducted examinations were determined to be inadequate because overhanging rock ribs/brows were inadequately supported on both sides of the accident scene and excessive entry widths were present. The approved roof control plan specifies

that entry widths are to be no more than 20 feet. Because of the severe sloughage, the entry width at the accident site was measured and found to be in excess of 26 feet.

The failure to conduct adequate examinations of the transfer chute construction site contributed to the fatal accident in which a rock rib/brow fell, fatally injuring Frazier. Due to coal sloughage beneath the rock portion of the rib, a 4-foot overhanging brow, which had no type of vertical support, existed on both sides of the No. 3 entry. This condition was obvious and extensive. An adequate examination of this area would also have revealed that the No. 3 entry width was greater than 20 feet wide in several locations, which was a violation of the mine's approved roof control plan.

Frazier had placed his initials, date, and time on the mine roof in the work area and was a certified foreman. Later that day, but before the fatal accident occurred, Hickey, First Shift Foreman, was also at the location of the fatality observing the work to load out the shot material from the transfer chute excavation. During interviews, Hickey stated he had observed a crack on the right outby corner at crosscut 27, which he mentioned to Frazier just before the accident occurred. Neither Frazier nor Hickey noted the hazardous conditions or halted the work to correct those conditions. The failure to make a preshift examination (and make an adequate examination) of the work area was contributory to the fatal accident.

Prior Roof Control (Rib) Enforcement Actions

In the two years preceding this accident, the operator was cited by MSHA four times for failure to support and/or control the ribs where miners were required to work or travel in this mine. Three of the cited areas were located in outby portions of the mine.

Experience and Training

Frazier was 48 years old at the time of the accident. He first began working for Lone Mountain Processing, Inc., in 1995 but left the company for a period of time. He was rehired on October 17, 2001, and remained employed at this mine until the date of the accident.

Frazier held certifications in Kentucky which included Temporary Underground Miner Certification (December 3, 1987), Permanent Underground Miner (April 7, 1989), Conventional Shot Firer (November 5, 1992) and First Class Underground Foreman (February 23, 2006). At the time of the accident, Frazier's title was Outby Construction Crew Member and Fireboss and he had 5 years of experience at this occupation. Frazier had a total of over 26 years of underground mining experience.

A review of the training plan and training records (Annual Refresher, Newly Employed, Task, and Miner Certifications) of the first and second shift miners at this mine was conducted by Debbie Combs, EPD Specialist. No training deficiencies were found during the review of the records.

ROOT CAUSE ANALYSIS

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

Listed below are the root causes identified during the analysis and the corresponding corrective actions implemented to prevent a reoccurrence of the accident.

Root Cause: Mine management failed to ensure that a preshift examination was conducted prior to allowing miners to work or travel in the B-Mains No. 3 transfer chute construction site on March 25, 2016. The completion of such examination would have allowed the mine operator to identify and correct the hazardous conditions of the overhanging rock ribs/brows prior to miners entering this area.

Corrective Action: On April 25, 2016, additional training was provided to all mine examiners on the requirements of §75.360, specifically regarding preshift examinations.

Root Cause: Mine management failed to adequately support or otherwise control the rock ribs/brows where miners were required to work and travel in the No. 3 entry of the B-Mains No. 3 transfer chute construction site. The lack of standing and/or vertical support of the rock ribs/brows exposed miners to hazards related to falling material. Several locations of the No. 3 entry between crosscuts 26 and 27 where the accident occurred were in excess of 20 feet wide which is a violation of the approved roof control plan. Given mine managements' knowledge of the mine's geology and ground conditions, and despite the wide entry widths and overhanging brows present in the area in which the accident occurred, mine management failed to prevent rock ribs/brows from further deterioration and ultimate failure.

Corrective Action: An Action Plan has been implemented to provide additional rock rib/brow support including the installation of 14-foot tensionable cable bolts, 100 ton Heitzman jacks, and meshing. The 100 ton Heitzman jacks were also used to narrow the width of the area. On May 10, 2016, MSHA personnel inspected the area and deemed the work to support the brows and narrow the entry to be complete and the area safe to travel.

CONCLUSION

The victim was fatally injured as a result of the mine operator's failure to conduct a preshift examination, an adequate supplemental examination, adequately support the overhanging rock ribs/brows, comply with maximum entry width in the approved roof control plan, and identify and correct the hazards associated with overhanging rock ribs/brows at the B-Mains No. 3 transfer chute construction site.

Approved By:

J. W. Langley

Jim W. Langley
District Manager

7-5-2016
Date

ENFORCEMENT ACTIONS

Order No. 8322218 was issued to Lone Mountain Processing, Inc. on March 25, 2016, under the provisions of Section 103(k) of the Mine Act:

A fatal accident occurred at this mine at the B-3 transfer chute construction site on March 25, 2016 at approximately 8:25 a.m. This order is being issued under 103(k) of the Mine Safety and Health Act of 1977. This section 103(k) order is intended to protect the safety of all persons on site, including those involved in rescue and recovery operations or investigation of the accident. The mine operator shall obtain prior approval from an Authorized Representative of the Secretary for all actions to recover and restore operations in the affected area (The entire underground portion of the mine). Additionally the operator is reminded of its existing obligation to prevent the destruction of evidence that would aid in investigating the cause or causes of the accident.

104(d)(1) Citation No. 8345112 was issued to Lone Mountain Processing, Inc., for violation of 30 CFR §75.360(b)(10):

On March 25, 2016, at 8:16 am, an Outby Construction Crew Member who was operating a continuous mining machine, was fatally injured by a rock rib/brow measuring 44 feet in length, 4 feet in width, and 2 feet in thickness. A preshift examination was not conducted and recorded prior to persons entering and working in the transfer chute construction site for the oncoming first shift for the miners assigned to work in the B-Mains No. 3 portion of the mine. During the accident investigation, it was discovered through interviews that mine management observed fractures and cracks in the ribs. An adequate preshift examination would have resulted in the mine operator identifying and correcting the hazardous conditions associated with the overhanging rock ribs/brows and excessive entry widths as observed during the accident investigation. This particular area was selected for a coal transfer chute to connect the overlying Darby coal seam and the Kellioka coal seam. The No. 3 entry of the B-Mains No. 3 panel between crosscuts 26 and 27 was previously excavated to a height in excess of 16 feet, exposing the overhanging rock ribs/brows.

The lack of standing and/or vertical support of the overhanging rock ribs/brows and excessive entry widths exposed miners to hazards related to falling materials. Given the mine operator's knowledge of the mine's geology and ground conditions, the operator was aware that standing and/or vertical support was necessary to prevent the rock ribs/brows from further deterioration and ultimate failure.

This operator has engaged in aggravated conduct constituting more than ordinary negligence. These hazardous conditions were obvious to the most casual observer and had existed for an extended period of time. When the first shift foreman arrived in the area, he stated he observed a crack in the right rib of the No. 3 pillar, but took no immediate action to correct the condition. Minutes later, a portion of this rock rib/brow fell and fatally injured a miner. An adequate pre-shift examination would have identified these hazards and the conditions should have been corrected before allowing miners to work and travel in this area.

This violation is an unwarrantable failure to comply with a mandatory standard.

104(d)(1) Order No. 8345004 was issued to Lone Mountain Processing, Inc., for violation of 30 CFR §75.202(a):

On March 25, 2016, at 8:16 am, an Outby Construction Crew Member, who was operating a continuous mining machine, was fatally injured by a rock rib/brow measuring 44 feet in length, 4 feet in width, and 2 feet in thickness. The rock ribs/brows were not being adequately supported or otherwise controlled in the No. 3 entry of the B-Mains No. 3 portion of the mine between crosscuts 26 and 27. This area of the mine had been previously excavated to obtain additional height to accommodate the facilities necessary for a proposed coal transfer chute. The additional height ranged from 0 feet at the outby crosscut (crosscut 26) to 10 feet at the transfer chute. The ribs had been horizontally bolted prior to the fatal accident.

However, the additional excavation of the mine roof at the accident scene created a hazardous condition that left extremely high exposed ribs/brows and rendered the horizontal rib bolts inadequate. No standing and/or vertical support of the rock ribs/brows were installed. The operator also relied solely upon supplemental examinations of the construction site by miners assigned to perform work to identify and correct any hazards observed. During the accident investigation, several hazards were observed including cracks and fractures in the adjacent rock ribs, as well as excessive entry widths.

This operator has engaged in aggravated conduct constituting more than ordinary negligence. These hazardous conditions were obvious to the most casual observer and had existed for an extended period of time. When the first shift foreman arrived in the area, he stated he observed a crack in the right rib of the No. 3 pillar, but took no immediate action to correct the condition. Minutes later, a portion of this rock rib/brow fell and fatally injured a miner. The rock ribs/brows would not have fallen had they been adequately supported or controlled through the use of standing and/or vertical support. This is an unwarrantable failure to comply with a mandatory standard.

104(d)(1) Order No. 8345099 was issued to Lone Mountain Processing, Inc., for violation of 30 CFR §75.220(a)(1):

The mine operator is not fully complying with the approved Roof Control Plan dated October 27, 2014, in the B-Mains No. 3 portion of the mine. A measured distance of 26.6 feet was observed coal rib to coal rib between the #2 and #3 pillars, which extended for 10 feet in length. The plan specifies a maximum entry and crosscut width of 20 feet. This measurement was taken approximately 31.3 feet inby survey station #35135, located in the No. 3 entry. This was near the site of the fall of the rock rib/brow which resulted in a fatality on March 25, 2016, at 8:16 am. This particular area of the mine was being rehabilitated for a coal transfer chute.

Standard 75.220(a)(1) was cited 10 times in two years at mine 1517234 (10 to the operator, 0 to a contractor). This violation is an unwarrantable failure to comply with a mandatory standard.

APPENDIX A

Persons Participating in the Investigation

Lone Mountain Processing, Inc.

Name	Title
J. Christopher Sykes	President-Eastern Operations, Arch Minerals
Arnold Hammons	General Manager
Donald Feltner	Superintendent
Willard Hickey	First Shift Foreman
Wilburn Howard	Safety Manager
Jimmy Rouse	Safety Manager

Kentucky Division of Mine Safety

Name	Title
Tim Fugate	Chief Investigator
Ernie Hawkins	Mine Safety Specialist
Billy Allen	Mine Safety Specialist
Joey Morgan	Mine Safety Specialist

Mine Safety and Health Administration

Name	Title
Jim Langley	District Manager
Dennis Cotton	Assistant District Manager (Technical)
Samuel Creasy	Assistant District Manager (Enforcement)
Steven Sorke	Staff Assistant & Accident Coordinator
Silas Brock	Mine Safety and Health Inspector
Kevin Bruner	CMI Supervisor
Alvin Brown	Family Liaison
Ricky Suffridge	Accident Investigator
Kevin Doan	District Roof Control Specialist
Deborah Combs	EPD Specialist
Gregory Rumbaugh	Civil Engineer, MSHA Tech Support/Roof Control
Paul Tyrna	Geologist, MSHA Tech Support/Roof Control

APPENDIX B

List of Persons Interviewed

Name	Title
Willard Hickey	First Shift Foreman
Brian Napier	Outby Construction
Timothy Daniels	Outby Construction
Keith Boggs	Mine Examiner
Brian Lefevers	Mine Examiner

APPENDIX C

Accident Investigation Data - Victim Information
Event Number: 6 4 2 9 3 1 2

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

Victim Information: 1

1. Name of Injured/Ill Employee:	2. Sex	3. Victim's Age	4. Degree of Injury:
Mark Frazier	*M*	*48*	*01 Fatal*

5. Date(MM/DD/YY) and Time(24 Hr.) Of Death:	6. Date and Time Started:
a. Date: 03/25/2016 b.Time: 10:05	*a. Date: 03/25/2016 b.Time: 5:00*

7. Regular Job Title:	8. Work Activity when Injured:	9. Was this work activity part of regular job?
095 Inspector/fire boss/preshift exam.	*073 Continuous Mining Machine*	Yes | No *X*

10. Experience	Years	Weeks	Days
a. This Work Activity:	*7*	*26*	*0*
b. Regular Job Title:	*7*	*26*	*0*
c: This Mine:	*14*	*26*	*0*
d. Total Mining:	*30*	*0*	*0*

11. What Directly Inflicted Injury or Illness?	12. Nature of Injury or Illness:
121 Back mine roof, hanging wall	*170 Crushing*

13. Training Deficiencies:
Hazard: | New/Newly-Employed Experienced Miner: | Annual: | Task:

14. Company of Employment: (If different from production operator)
Operator
Independent Contractor ID: (if applicable)

15. On-site Emergency Medical Treatment:
Not Applicable: | First-Aid: | CPR: *X* | EMT: *X* | Medical Professional: | None:

16. Part 50 Document Control Number: (form 7000-1)

17. Union Affiliation of Victim: *9999* *None (No Union Affiliation)*