CAI-2013-10

UNITED STATES
DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION

COAL MINE SAFETY AND HEALTH

REPORT OF INVESTIGATION

Underground Coal Mine

Fatal Machinery Accident
July 2, 2013

Wildcat Hills Mine - Underground
Peabody Midwest Mining, LLC
Eldorado, Saline County, Illinois
I.D. No. 11-03156

Accident Investigators

Harry Wilcox
Coal Mine Safety and Health Inspector

Michael Tite
Coal Mine Safety and Health Inspector

David Minor
Coal Mine Safety and Health Inspector

Steven M. Miller
Supervisory Coal Mine Safety and Health Inspector

Originating Office
Mine Safety and Health Administration
District 8
2300 Willow Street
Vincennes, Indiana
Robert A. Simms, District Manager

TABLE OF CONTENTS

OVERVIEW 1
GENERAL INFORMATION 2
DESCRIPTION OF THE ACCIDENT 2
INVESTIGATION OF THE ACCIDENT 5
DISCUSSION 6
- Accident Scene 6
- Equipment 6
- Testing and Examination 6
- Strobe Light 6
- Ventilation Curtains 7
- Coal Hauler Accidents at This Mine 7
- Training and Experience 7

ROOT CAUSE ANALYSIS 8
CONCLUSION 9
ENFORCEMENT ACTIONS 10
Appendix A – Sketch of the Accident Scene 12
Appendix B - Persons Participating in the Investigation 13
Appendix C - Interview List 14
Appendix D - Victim Information 15

Photograph of Accident Scene Showing Battery-powered Coal Hauler and Coal Rib

OVERVIEW

On Tuesday, July 2, 2013, at approximately 12:15 p.m., Nathanial Clarida (victim), a 35-year-old continuous mining machine operator, was fatally injured while sitting in the last open crosscut on the No. 2 Unit (MMU 003-0 and MMU 004-0). Clarida was positioned behind an opaque ventilation line curtain, taking a lunch break in the last open crosscut of the No. 4 entry. Clarida was sitting against the corner of the right rib on the inby side of the intersection. A battery-powered coal hauler trammed, battery end first, into the last open crosscut. The coal hauler pinned Clarida between the machine's battery end bumper and the right coal rib.

The accident occurred because the mine operator's engineering controls, administrative controls, and accepted practices were not adequate to protect all persons on the working section from the hazard of being struck by battery-powered coal haulers.

GENERAL INFORMATION

The Wildcat Hills mine, I.D. 11-03156, is located near Eldorado, Saline County, Illinois. The mine operator is Peabody Midwest Mining, LLC, a subsidiary of Peabody Energy.

The mine is accessed by four openings in a highwall, leading to the Illinois Herrin No. 6 coal seam. The seam averages 5 ½ feet in height. The mine is ventilated with one blowing main mine ventilation fan and one exhausting main mine ventilation fan that are connected to the mine at the highwall openings. Miners and materials are transported into the mine through using diesel-powered equipment. The mine operates three mechanized mining units (MMU), utilizing the room and pillar method of mining. Coal is mined with two continuous mining machines on each working section and is transported from the working faces by battery-powered coal haulers. Coal is then transported to the surface via a belt conveyor system. The mine employed 240 people at the time of the accident. The mine works five days per week and operates three production shifts each day. The mine produces an average of 6,500 tons of raw coal per day.

The mine liberates 428,473 cubic feet of methane in a 24 hour period and is on a 10-day spot inspection schedule for excessive methane.

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

Mark Cavinder……. Operations Manager
Stephen Reynolds……... General Mine Manager
Steve Meneese……. Safety Manager

The most recent regular safety and health (E01) inspection of the mine was completed on June 27, 2013. The Non-Fatal Days Lost (NFDL) injury incidence rate for Wildcat Hills underground mine in 2012 was 0.52, compared to the National NFDL rate of 3.24.

DESCRIPTION OF THE ACCIDENT

Clarida reported to work on Tuesday morning, July 2, 2013, for his normal shift, from 8:00 a.m. to 4:00 p.m. He traveled underground with the No. 2 Unit crew along the Main North, 2nd West, and 2nd Main North travel ways, arriving on the No. 2 Unit around 8:30 a.m.

The shift proceeded routinely with Clarida operating the remote control continuous mining machine on the left side entries of MMU 003-0. Clarida mined the faces of the No. 3 left crosscut, No. 4 face, and No. 5 right crosscut prior to 12:00 noon. Before taking a lunch break around 12:05 p.m., Clarida helped set up the trailing cable, water line, and curtains for the continuous mining machine in preparation for mining the No. 5 face. The supervisor/lead person, James Holbrook, took over operation of the left side continuous mining machine in the No. 5 entry from Clarida. Clarida walked toward the No. 4 entry to take his lunch break.

The battery-powered coal hauler operators normally establish the haulage route for transporting coal from the continuous mining machine to the section loading point. The established route for empty coal haulers to access the No. 5 entry face was to tram, battery end first, from the No. 4 entry to the No. 5 entry, through the last open crosscut. Three coal haulers are normally used. As the coal hauler operators arrived in the No. 5 entry, they planned to turn around their coal haulers, outby in the last open crosscut of the No. 5 entry and then back up, with the load end first, to the continuous mining machine.

The No. 307 battery-powered coal hauler, operated by Herbert McMillen, had staged outby the last open crosscut with the load end pointed inby, toward the continuous mining machine at the No. 5 entry face. The No. 308 battery-powered coal hauler, operated by Timothy Robinson, had staged outby the last open crosscut in the No. 4 entry with the battery end pointed inby. The No. 306 battery-powered coal hauler, operated by Michael Cummings, had staged outby the second open crosscut in the No. 4 entry with the battery end pointed inby.

Prior to loading the loose coal and rock from the No. 5 entry face, Holbrook waited for Moses Moultrie, Mine Examiner, to conduct his examination at the No. 5 entry face. Moultrie finished his examination in the No. 5 entry face and walked in the last open crosscut, toward the No. 4 entry face. Moultrie noticed Clarida sitting with his back against the right inby rib corner behind the opaque ventilation line curtain in the last open crosscut at the No. 4 entry. Moultrie spoke briefly to Clarida and then continued his examination, traveling to the No. 3 entry and remaining face areas.

After Moultrie left the No. 5 entry face area, Holbrook loaded the No. 307 coal hauler. The No. 307 coal hauler was trammed away to discharge its load at the section loading point. Robinson trammed the No. 308 coal hauler, battery end first, through a clear ventilation check curtain outby the last open crosscut in the No. 4 entry and turned the coal hauler to the right, toward the No. 5 entry. As the No. 308 coal hauler trammed through the opaque ventilation line curtain in the last open crosscut at the entrance to the No. 4 entry face area, Robinson heard

someone call out. Robinson stopped the No. 308 coal hauler and backed up a short distance. Robinson dismounted the coal hauler and walked around to the battery end of the machine. Robinson found Clarida sitting in a slumped over position in the last open crosscut on the inby right rib corner of the No. 4 entry (see Appendix A). Robinson determined that Clarida had been hit by the No. 308 coal hauler. Robinson immediately called for help and then went to find help.

At approximately 12:15 p.m., Holbrook heard Robinson call for help. Holbrook walked from the No. 5 entry face into the last open crosscut. Holbrook proceeded towards the No. 4 entry. He found Clarida behind the ventilation curtain. Holbrook organized other miners to bring first aid supplies and a back board to the accident scene. Robert Henning, Section Electrician /EMT, and David Heibner, Right Side Lead Person (MMU 004-0)/EMT, arrived at the accident scene and performed an initial assessment of Clarida. Clarida was unresponsive with no pulse detected. Clarida was placed on a back board and was transported to the surface of the mine. The Saline County Coroner pronounced Clarida dead on the surface at 2:14 p.m.

An autopsy was performed at the request of the Saline County Coroner's office. The cause of death was listed as "Crush injuries to the chest and abdomen."

INVESTIGATION OF THE ACCIDENT

Stephen Reynolds, General Mine Manager, notified MSHA of the accident by calling the MSHA notification hotline at 12:43 p.m. The accident occurred at 12:15 p.m. The MSHA notification hotline was called 28 minutes after the mine knew of the accident. The nature of the injuries should have caused mine management to know that the accident was required to be immediately reported to MSHA in accordance with 30 CFR § 50.10(a). A citation which did not contribute to the cause of the accident was issued for failing to report this accident immediately, at once, without delay, and within 15 minutes.

Anthony Fazzolare, Coal Mine Safety and Health Inspector, and David Minor, Coal Mine Safety and Health Inspector, were at the mine conducting inspections on the surface and were notified of the accident at 12:30 p.m. Fazzolare immediately notified Steven Miller, Supervisory Coal Mine Safety and Health Inspector, of the accident. At 12:30 p.m., Fazzolare issued a 103(k) order to insure the safety of the miners. At 12:53 p.m., the MSHA call center notified John Hohn, Supervisory Coal Mine Safety and Health Specialist. Chad Barras, Peabody Midwest Mining, LLC Safety Director, contacted Miller and informed him of the accident. Miller, and MSHA Inspectors Harry Wilcox and Michael Tite traveled to the mine. Denzil Hughes, MSHA Training Specialist, was also dispatched to the mine to assist in the investigation.

The accident investigation was conducted in cooperation with the Illinois Department of Natural Resources, Office of Mines and Minerals (IDNR), and Peabody Midwest Mining, LLC. In addition to sixteen preliminary interviews conducted immediately following the accident on July 2, 2013, follow up formal interviews with five persons were conducted on July 8, 2013, at the Cottage Grove surface mine in Equality, Illinois. A list of those participating in the accident investigation is shown in Appendix B. A list of the employees interviewed is provided in Appendix C.

The investigation team conducted an inspection of the accident scene and operational checks on the No. 308 coal hauler. Photographs, measurements, mapping, and testimony were obtained during the investigation. An accident reenactment was conducted by the accident investigators with the assistance of Peabody Midwest Mining, LLC.

DISCUSSION

Accident Scene

The accident occurred on the left side of the No. 2 Unit (MMU 003-0) in the last open crosscut of the No. 4 entry, on the inby right rib corner at the entrance to the No. 4 entry face area, at Survey Station (spad) 84+05. No unusual mining conditions were noted by the investigation team.

When investigators arrived at the accident scene, the No. 308 coal hauler was located in the last open crosscut of the No. 4 entry, with the machine's left side battery end bumper positioned approximately 3 feet from the inby right rib corner. The outby end of the opaque ventilation line curtain was observed over the battery end of the No. 308 battery-powered coal hauler.

Equipment

The No. 308 battery-powered coal hauler involved in the accident was manufactured by Stamler/Joy, Model BH 18 AC, Serial No. BH1651, and had MSHA Approval No.18-A060011.

The accident investigators determined that the battery-powered coal haulers were being operated with the battery end of the coal hauler in a raised position. The elevated positioning of the batteries was being done in order to prevent the batteries from digging into the mine floor when traveling in the direction of the batteries. The raised battery end contributed to the hazard of limited visibility for the coal hauler operators. Engineering controls were not provided on the coal haulers to protect miners from the hazards of reduced visibility and inability of the machine operator to detect when miners were in close proximity to coal haulers.

Testing and Examination

The No. 308 coal hauler was examined by the investigation team and functional tests were performed on the coal hauler at the accident site. No operational irregularities or deficiencies were observed or detected during functional testing of the coal hauler.

Strobe Light

Information obtained during the accident investigation revealed that the victim had a strobe light to indicate his presence. The strobe light, which was attached to his hard hat, was functioning at the time of the accident. The strobe light was not effective because of victim's location, which was behind the opaque line curtain and not in view of the coal hauler operator. In addition, the position of

the coal hauler operator and the intensity of the coal hauler headlights would likely have washed out or weakened the contrast of any residual light that may have existed from the strobe light.

Ventilation Curtains

The mine used clear ventilation check curtains outby the face areas. However, the mine used opaque ventilation line curtain in the face areas on the No. 2 Unit. The mine's practice of using opaque ventilation line curtains in the face areas of the active mining unit limited visibility for coal hauler operators. Engineering controls or other administrative controls were not provided by the mine operator to mitigate the coal hauler's limited visibility because of the opaque line curtains.

Coal Hauler Accidents at This Mine

This fatal accident involving the No. 308 coal hauler is the third serious injury accident and first fatality at this mine where a battery-powered coal hauler was being trammed on an active mining unit. The first injury accident occurred on January 25, 2011, when a battery-powered coal hauler was trammed into a parked scoop on No. 1 Unit, causing the bucket of the scoop to pin a miner between the coal rib and the scoop. The second injury accident occurred on July 23, 2011, when a battery-powered coal hauler was trammed through a ventilation curtain, striking a miner while he was building a permanent stopping.

Training and Experience

Clarida had eleven years of mining experience at underground coal mines. Clarida earned his State of Illinois Practical Miner (Face) certificate on June 20, 2003. He also received his Illinois Mine Examiner certification on April 21, 2011. Clarida's training was up-to-date. Inspection of the training records indicated that Clarida received the required 8 hours of annual refresher training for underground miners on March 9, 2012. Clarida had been employed at the Wildcat Hills underground mine since May of 2013. Clarida received the required experienced miner training on May 6, 2013. Clarida received task training on the operation of several pieces of mobile equipment, including the continuous mining machine, roof bolting machine, battery-powered coal hauler, battery-powered and diesel scoops during the month of May 2013.

Robinson had 1 year 10 months experience at the time of the accident. Robinson's training was up to date. Robinson completed the required new miner training on August 24, 2011. Robinson received annual refresher training for underground miners in February of 2012 and February 2013. Robinson received task training on the operation of the battery-powered coal hauler on September 1, 2011.

ROOT CAUSE ANALYSIS

An analysis was conducted to identify the underlying cause or causes of the accident that were correctable through reasonable management controls. Listed below are the root causes identified during the analysis and the corresponding corrective action implemented to prevent a recurrence of the accident:

Root Cause: The mine operator did not have effective engineering controls, policies, programs, or procedures to protect miners from the hazards of being struck by battery-powered coal haulers.

Corrective Actions:
Commercially available proximity detection devices will be installed on the battery-powered coal haulers. Also, ventilation curtain extensions installed or used on the working units will be made of, and maintained with, optically clear material.

The mine operator has instituted corrective administrative controls requiring miners to take lunch breaks in a safe location away from the working faces. All affected miners were trained on the corrective administrative controls established by the mine operator. The affected miners will also be trained on the proximity detection systems immediately prior to installation of the systems.

CONCLUSION

The accident occurred because the mine operator's engineering controls, administrative controls, and accepted practices were not adequate to protect miners from the hazard of being struck by battery-powered coal haulers. The mine's practice of using opaque ventilation line curtains in the face areas limited visibility for coal hauler operators.

In addition, operating the coal haulers with the battery end in a raised position limited visibility for coal hauler operators. The mine operator did not provide engineering controls on the coal haulers to protect miners from the hazards of reduced visibility and inability of the machine operator to detect when miners were in close proximity to the coal haulers.

Approved By:

Robert A. Simms
District Manager

1/8/2014
Date

ENFORCEMENT ACTIONS

1. Section 103(k) Order No. 8436518, was issued to assure the safety of all persons at this operation until the investigation is completed for the fatal accident that occurred on No. 2 Unit, MMU 003-0 active working section when a continuous miner operator was struck by the battery end of a coal hauler.

2. Safeguard No. 8438921, was issued citing 30 CFR § 75.1403. On July 2, 2013, a fatal accident occurred on No. 2 unit, MMU 003-0 active working section when a continuous miner operator was struck by the battery end of a coal hauler. The battery powered coal hauler was being trammed up the No. 4 entry, battery end first toward the continuous mining machine that was beginning a new cut in the No. 5 entry. The continuous miner operator was found crushed behind the opaque line curtain installed in the No. 4 entry where the inby end of the No. 4 entry and last open crosscut intersected at spad 84+05. Visibility for the operator of the battery coal hauler was limited due to the battery end of the coal hauler being in a raised position. The practice at this mine is to operate the battery end of the coal hauler in a raised position in order to prevent the batteries from digging into the mine floor when traveling in the direction of the batteries.

   This is a notice to provide safeguard(s) that engineering controls be installed on all battery powered coal haulers that operate on any working section at this coal mine. Engineering controls, such as proximity detection devices, cameras, or other engineering controls which are permissible and commercially available will be installed to protect the miner from the hazards of battery powered coal haulers operating on the working section.

   This is the third serious accident and first fatality at this mine where a battery powered coal hauler was being trammed on an active section and was involved in a serious accident. The first accident occurred on January 25, 2011 when a battery coal hauler struck a parked scoop on No. 1 unit causing the bucket of the scoop to pin a miner between the coal rib and the scoop. The second serious accident occurred on July 23, 2011 when a battery coal hauler trammed through a ventilation curtain striking a miner while he was building a permanent stopping.

   A root cause of all three of these accidents was due to reduced visibility and inability to detect persons on foot by engineering controls when operating the battery coal hauler.

Standard 75.1403 was cited 10 times in two years at mine 1103156 (10 to the operator, 0 to a contractor).

3. Safeguard, No. 8438922, was issued citing 30 CFR § 75.1403. On July 2, 2013, a fatal accident occurred on No. 2 unit, MMU 003-0 active working section when a continuous miner operator was struck by the battery end of a coal hauler. The battery powered coal hauler was being trammed up the No. 4 entry battery end first toward the continuous mining machine beginning a new cut in the No. 5 entry. The continuous miner operator was found crushed behind the opaque line curtain installed in the No. 4 entry where the inby end of the No. 4 entry and last open crosscut intersected at Spad 84+05. Visibility for the operator of the battery coal hauler was limited due to the battery end of the coal hauler being in a raised position. The practice at this mine is to operate the battery end of the coal hauler in a raised position in order to prevent the batteries from digging into the mine floor when traveling in the direction of the batteries.

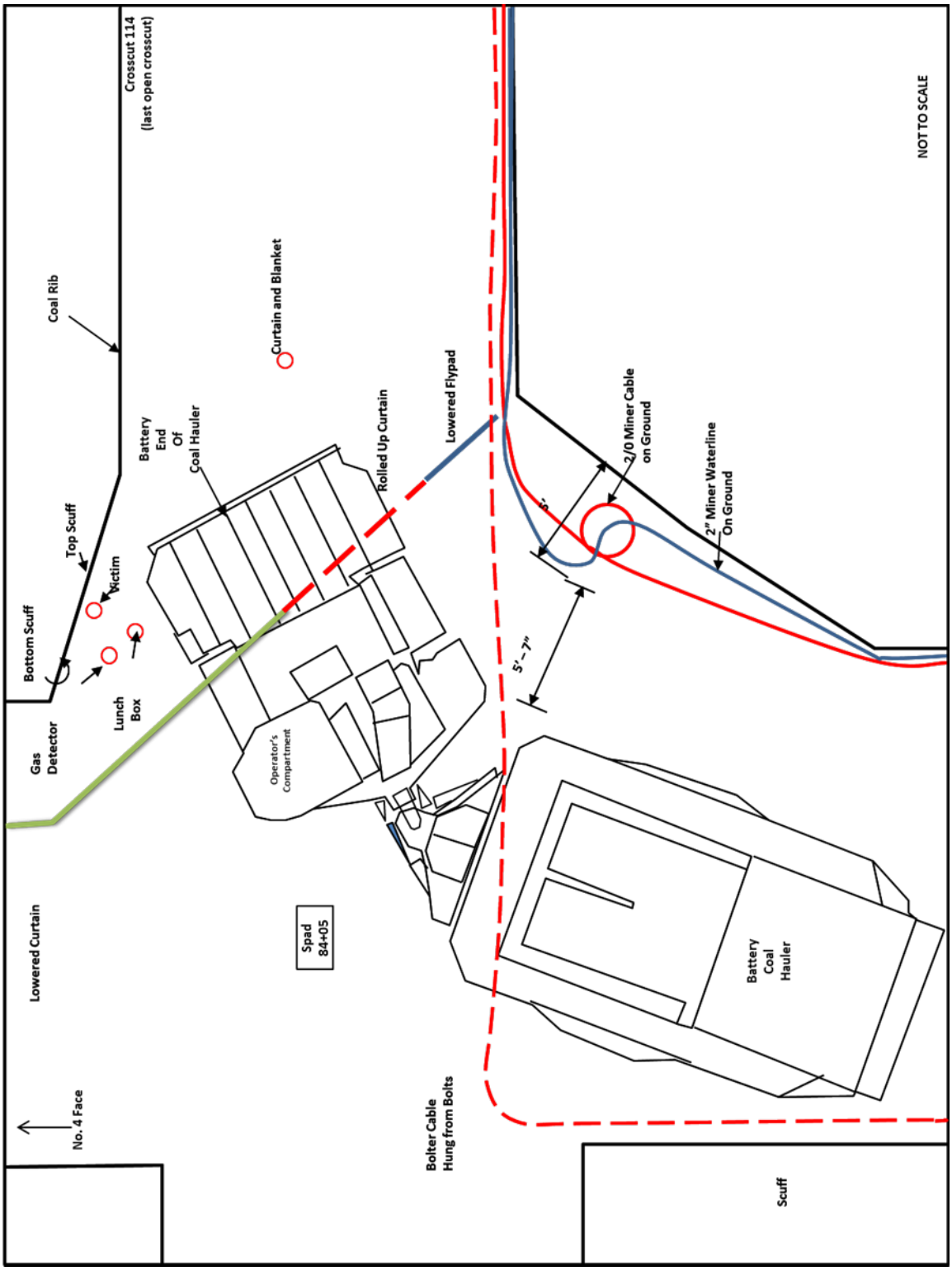
   This is a notice to provide safeguard(s) requiring line curtain extensions installed or used on the working sections at this mine where mobile rubber-tired haulage equipment may travel through such curtains, be made and maintained of clear material. The clear material on these line curtain extensions (wing curtains) shall begin a minimum of 10 feet inby the rib line and extend from that point to the end of the line curtain in the entry or crosscut.

   This is the third serious accident and first fatality at this mine where a battery powered coal hauler was being trammed on an active section and was involved in a serious accident. The first accident occurred on January 25, 2011 when a battery coal hauler struck a parked scoop on No. 1 unit causing the bucket of the scoop to pin a miner between the coal rib and the scoop. The second serious accident occurred on July 23, 2011 when a battery coal hauler trammed through a ventilation curtain striking a miner while he was building a permanent stopping.

   A root cause of all three of these accidents was due to reduced visibility and inability to detect persons on foot by engineering controls when operating the battery coal hauler.

   Standard 75.1403 was cited 10 times in two years at mine 1103156 (10 to the operator, 0 to a contractor).

Appendix A – Sketch of the Accident Scene



Appendix B - Persons Participating in the Investigation

Mine Safety and Health Administration

Mary Jo Bishop	Assistant District Manager, Enforcement
Steve Miller	Supervisory Mine Safety and Health Inspector
Harry Wilcox	CMS&H Inspector, Accident Investigator
David Minor	CMS&H Inspector
Michael Tite	CMS&H Inspector
Denzil Hughes	Training Specialist (EFS)

State of Illinois Department of Natural Resources, Office of Mines and Minerals

Tony Mayville	Director Office of Mines and Minerals
Mike Simpson	Inspector
William Patterson	Inspector at Large
Gary Roberts	Inspector

Peabody Midwest Mining, LLC

Chad Barras	Midwest Safety Director
Mark Cavinder	Operations Manager
Stephen Reynolds	General Mine Manager
Steve Meneese	Safety Manager
Brandon Lampley	Safety Supervisor
Jeremy Baker	Maintenance Manager

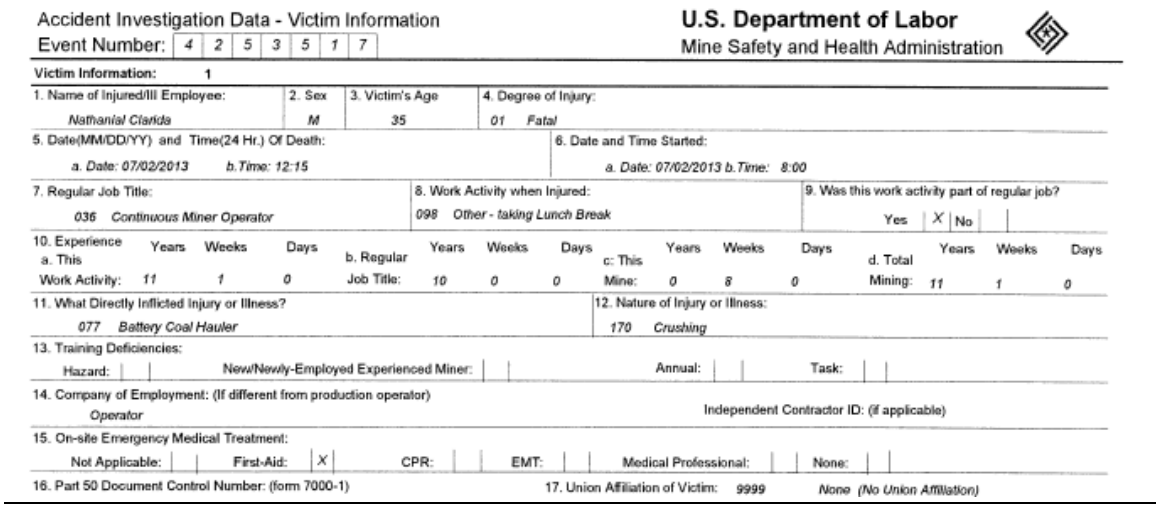
Jackson Kelly

Arthur Wolfson	Attorney

Appendix C - Interview List

Timothy Robinson	Battery-powered Coal Hauler Operator
Josh McClendon	Roof Bolter Operator
Brandon Gentiles	Roof Bolter Operator
James Murray	Continuous Mining Machine Operator
Cameron Chapman	Scoop / Utility Person
Cory Richard	Battery-powered Coal Hauler Operator
Herbert McMillen	Battery-powered Coal Hauler Operator
Thomas McDermott	Roof Bolter Operator
Andrew Robinson	Scoop / Utility Operator
Josh Hall	Roof Bolter Operator
Todd Rasmussen	Roof Bolter Operator
Mike Cummings	Battery-powered Coal Hauler Operator
James Holbrook	Lead Person / Supervisor
Robert Henning	Electrician / EMT
David Heibner	Lead Person / Supervisor
William Dixon	Mine Manager
Moses Moultrie	Mine examiner
Brandon Lampley	Safety Supervisor

Appendix D - Victim Information



Accident Investigation Data - Victim Information

Event Number: 4 2 5 3 5 1 7

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:
Nathanial Clarida	M	35	01 Fatal

5. Date(MM/DD/YY) and Time(24 Hr.) Of Death:	6. Date and Time Started:
a. Date: 07/02/2013 b.Time: 12:15	a. Date: 07/02/2013 b.Time: 8:00

7. Regular Job Title:	8. Work Activity when Injured:	9. Was this work activity part of regular job?
036 Continuous Miner Operator	098 Other - taking Lunch Break	Yes X No

10. Experience	Years	Weeks	Days		Years	Weeks	Days		Years	Weeks	Days		Years	Weeks	Days
a. This Work Activity:	11	1	0	b. Regular Job Title:	10	0	0	c: This Mine:	0	8	0	d. Total Mining:	11	1	0

11. What Directly Inflicted Injury or Illness?	12. Nature of Injury or Illness:
077 Battery Coal Hauler	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: X | CPR: | EMT: | Medical Professional: | None:

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

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