

UNITED STATES
DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION

COAL MINE SAFETY AND HEALTH

REPORT OF INVESTIGATION

Underground Coal Mine

Fatal Machinery Accident
January 19, 2016

Dotiki Mine
Webster County Coal, LLC
Clay, Webster County, Kentucky
ID No. 15-02132

Accident Investigators

Adam Carlisle
Electrical Specialist/Lead Investigator

Matt Stone
Roof Control Specialist

Originating Office
Mine Safety and Health Administration
District 10
100 YMCA Drive
Madisonville, KY 42431
Robert A. Simms, District Manager

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OVERVIEW

On Tuesday, January 19, 2016, at approximately 4:00 p.m., Nathan Phillips (victim), a 36-year-old continuous mining machine operator, was fatally injured when he was pinned between the tail of a continuous mining machine and the inby coal rib. The continuous mining machine was being positioned to cut the crosscut of the No. 6 entry when the victim was pinned between the conveyor boom of the machine and the coal rib in the last open crosscut between No. 5 and No. 6 entries on the No. 4 unit.

The accident occurred because the mine operator failed to provide adequate administrative controls and acceptable work practices to prevent miners from working or traveling in the "Red Zone" of the continuous mining machine while tramming from place to place or repositioning between cuts. In addition, the mine operator failed to provide a means to securely attach the miner wearable component of the proximity detection system to the continuous mining machine operator to ensure the miner wearable component was being worn during the operation of the continuous mining machine.

GENERAL INFORMATION

The Dotiki Coal Mine, ID 15-02132, is located in Clay, Webster County, Kentucky (KY) on KY Hwy 874, approximately three miles west of US Highway 41A. At the time of the accident, the mine employed 391 people, of which 343 worked underground. Workers access the mine via the intake shaft or the slope. The mine is ventilated through one intake air shaft and one return air shaft by an exhausting main fan connected to the vertical return air shaft opening.

The mine operates five days a week with two eight hour production shifts and one eight hour maintenance shift each day. The mine produces approximately 36,947 raw tons of coal daily. The mine operates eight mechanized mining units (MMU), utilizing the room and pillar method of mining in the Kentucky No. 13 coal seam which averages 9 feet 6 inches in height. Coal is mined with two continuous mining machines on each working section and transported from the working faces to the section loading points by shuttle cars. Coal is then transported to the surface via a belt conveyor system.

The mine liberates approximately 1,105,383 cubic feet of methane in a 24-hour period and is on a 5-day spot inspection for excessive methane liberation in accordance with Section 103(i) of the Mine Act.

At the time of the accident, the Mine Safety and Health Administration (MSHA) was in the process of completing a regular (E01) safety and health inspection of the mine. The previous regular safety and health inspection of the mine was completed on December 21, 2015. The Non-Fatal Days Lost, (NFDL) rate for this mine in 2015, was 0.86. The NFDL rate for this mine operator in 2015 was 1.25. The NFDL rate for the Nation, for mines of this type in 2015, was 3.31.

Principal officers for the mine at the time of the accident were:

Gary Thweatt.....	General Mine Manager
Chris Gunn.....	Safety Director
Jacky Phillips.....	Chief Maintenance Supervisor

DESCRIPTION OF THE ACCIDENT

Nathan Phillips started his shift at approximately 3:00 p.m., on Tuesday, January 19, 2016. Phillips traveled on the man hoist underground with his regular crew arriving on the Lisman Shaft bottom at 3:04 p.m. The miners assigned to the No. 4 unit proceeded from the shaft bottom utilizing three diesel mantrips to travel to the working section, arriving at approximately 3:22 p.m. The No. 4 unit is located on the 3rd Southwest Panel off the 1st Northwest Sub Mains.

Upon arrival on No. 4 unit, Keith Brown II, Section Foreman, sent the miners to their respective jobs. Brown II later received a briefing from the day shift section foreman, and began his dust parameter examinations on the right side of the section.

Phillips traveled to the left side continuous mining machine located in the No. 6 entry and began conducting a pre-operational and respirable dust control examination of the continuous mining machine before beginning to mine. The No. 6 entry had been partially cut on the previous shift. Phillips took approximately twenty-five minutes to complete the mining in the No. 6 entry. Phillips then backed the continuous mining machine into the last open crosscut between the No. 5 and No. 6 entries in preparation to cut the No. 6 left crosscut. Stewart Jordan, Shuttle Car Operator, was at the intersection of the No. 10 crosscut in the No. 5 entry waiting for the continuous mining machine to set up in the No. 6 left crosscut. Jordan stated he was standing at the inby end of his shuttle car and observed Phillips walking approximately fifteen feet behind the continuous mining machine while tramming into the crosscut between No. 5 and No. 6 entries. A few seconds later, at approximately 4:00 p.m., Jordan observed Phillips bend down and physically maneuver the continuous mining machine's trailing cable to the coal rib. When Phillips finished repositioning the trailing cable he stood up and the continuous mining machine conveyor boom struck him at chest level, pinning him to the coal rib.

Jordan ran to the accident scene to aid Phillips. Jordan realized he did not know how to move the conveyor boom without possibly causing more injuries to Phillips, so he ran to his shuttle car and began calling for help on his radio. Stewart Jordan remembered that Jordan Stanley, Roof Bolter, had been a continuous mining machine operator at another mine. Stanley was in the No. 5 right crosscut installing roof supports. Jordan ran to the roof bolting machine and informed Stanley of the accident and asked him to move the conveyor boom.

John Coates, Unit Mechanic, and Patrick Scott, Battery Mechanic, were working on a battery-powered scoop in the No. 8 entry when they heard the call for help over the radio. Running to the accident scene, they found Phillips was pinned to the coal rib by the continuous mining machine's conveyor boom. Jordan and Stanley traveled back to the accident scene and met Coates and Scott. Coates and Scott supported Phillips while Stanley moved the continuous mining machine's conveyor boom to the left, freeing Phillips. Coates and Scott lowered Phillips to the mine floor and instantly began first aid. Scott, an emergency medical technician, directed Jordan to get medical supplies located on the section emergency trailer. Scott directed miners to immediately notify mine management to have an ambulance waiting on the surface and assigned other duties as additional miners arrived at the accident scene. Miners moved shuttle cars out of the way to clear a route for the underground ambulance. Brown II arrived at the accident scene as Scott, Coates, Stanley, and Mike Cotton, Roof Bolter, were securing Phillips on a back board for transportation

to the surface. Merle Carter, Mine Foreman, arrived at the accident scene at 4:18 p.m. with the underground ambulance. Shortly thereafter, the underground ambulance departed the No. 4 Section. Scott, Stanley, and Cotton accompanied Carter in the underground ambulance continually providing aid to Phillips. They arrived at the Lisman Shaft bottom at approximately 4:32 p.m., and transported him to the surface.

The Webster County Ambulance Service was notified at 4:01 p.m. to respond to the accident. They transported Phillips to the Baptist Health hospital in Madisonville, Kentucky, where Phillips was pronounced dead at 5:43 p.m. by Baptist Health Doctor, Peter Clemens.

INVESTIGATION OF THE ACCIDENT

On Tuesday, January 19, 2016, at 4:13 p.m., the mine operator notified the Mine Safety and Health Administration of the accident. At 4:27 p.m., Alan Frederick, Madisonville, KY Field Office Supervisor, was alerted by the MSHA Call Center. Frederick was told a continuous mining machine operator pinched himself at the Dotiki Mine. Frederick immediately notified Robert Simms, District Manager, and Brian Dotson, Assistant District Manager (Enforcement). Frederick called Dotiki Mine and verbally issued a 103(j) order to Chris Gunn, Safety Director, at 4:40 p.m. to insure the safety of all persons during the recovery of the victim and accident investigation. Curtis R. Hardison, Staff Assistant, directed Frederick to contact Louis Adams, Electrical Supervisor, and Adam Carlisle, Electrical Specialist and Accident Investigator.

At approximately 7:05 p.m., Carlisle and Matt Stone, Roof Control Specialists, arrived at the mine site accompanied by Dotson and Frederick. Carlisle met with Bruce Taylor, Company Safety Official, and at 7:10 p.m. informed him the 103(j) Order was being modified to a 103(k) Order. Carlisle requested Jan Chambliss, Dotiki Maintenance Technician, contact Matrix Design Group and Joy Global Inc., representatives, to have them download the recorded data from the proximity detection system and the Joy Network Architecture (JNA) Faceboss system. Carlisle and Stone, along with inspectors from Kentucky Division of Mine Safety (KDMS), collected records and conducted initial interviews with the miners. Representatives of MSHA, KDMS, and the mine operator traveled underground to examine the accident scene, take photographs, make measurements, and create a record of the existing physical conditions (See Appendix A).

On Wednesday, January 20, 2016, Carlisle, Stone, Dotson, and Tim Fugate, KDMS Deputy Chief Accident Investigator, conducted formal interviews of witnesses listed in Appendix B at the Kentucky state office building in Madisonville, Kentucky. Representatives of Webster County Coal, LLC were present during these formal interviews. Justin Gatlin, Electrical Specialist, and Adams returned to the Dotiki

Mine with representatives from Matrix Design Group and Joy Global Inc., where the Matrix representative retrieved the stored proximity information and the Joy representative recovered the functional data from the JNA information recorded internally on the continuous mining machine involved in the accident.

On January 21, 2016, Carlisle, Gatlin, and Adam Larkins, Electrical Specialist, returned to the mine accompanied by MSHA Technical Support engineers Jay Prebeg and Matt Wharry. The group conducted examinations and tests of the proximity detection system (PDS) installed on the continuous mining machine involved in the accident.

On January 26, 2016, Carlisle and Adams again returned to the mine where they received a briefing from Randy Moore, Matrix Chief of Engineering, explaining the operation of the miner wearable component (MWC) test equipment and observed procedures used when testing the MWC. Carlisle and Adams then traveled underground to the No. 4 unit and conducted tests of the PDS to evaluate if the MWC pouch provided by Matrix would interfere with the function of the PDS.

On January 28, 2016, Carlisle, Adams, Prebeg, and Wharry returned to the mine to verify Matrix's January 25, 2016 report; which stated the accelerometer data indicates reduced movement of the MWC, which can be caused by the operator not wearing the locator. Carlisle, Adams, Prebeg, and Wharry conducted an in-mine study to determine how the PDS system would record the accelerometer data for the MWC while the MWC was being worn by the miner, located on the machine, or laying on the mine floor. Data logged by the PDS from this testing would provide a baseline of the magnitudes of acceleration of the MWC in these locations. At the time of the study, Matrix representatives were not present in the immediate area of the continuous mining machine. After conducting tests of the interaction of the MWC with the PDS, the test data was downloaded from the continuous mining machine by Matrix and Joy representatives and given to MSHA Technical Support for their evaluation. Accelerometer graphs, a simulation from baseline testing, and a simulation from the time of the accident were provided to MSHA Technical Support by May 28, 2016.

During the investigation process, it became apparent from the Matrix data that Phillip's MWC was moved after the accident, but prior to the MSHA accident investigators arrival on the accident scene. Raymond Collins, Roof Bolter, testified on February 3, 2016, that he picked up the MWC and moved it from the No. 6 entry, a point approximately 5 feet in by the No. 10 crosscut, to the vicinity of the conveyor boom of the continuous mining machine, located in the crosscut between the No.5 and the No.6 entries. This action was not necessary to rescue or recover an individual, prevent or eliminate an imminent danger, or prevent destruction of equipment. The mine operator's responsibility to preserve the accident site or area until completion of all investigation activities was not complied with in accordance

with 30 CFR § 50.12. A citation which did not contribute to the cause of the accident was issued because the scene of the accident was altered.

DISCUSSION

Accident Scene

The accident occurred on the left side of the No. 4 unit, MMU 029-0 in No. 10 crosscut between the No. 5 and the No. 6 entries; approximately 21 feet 6 inches from the No. 5 entry and No. 10 crosscut intersection, along the inby coal rib (see Appendix C, Figure 1). The mine floor in the area of the accident scene had no notable irregularities. Both of the inby and outby mine ribs were rounded due to the turning of the crosscut from the No. 6 entry.

At the location of the accident, the crosscut measured 19 feet wide and 10 feet ½ inches in height. The conveyor boom of the continuous mining machine was located 1 foot 9 inches from the inby rib. The cutting drum of the continuous mining machine was located 2 feet 5 inches from the outby rib corner angled into the notch (see Appendix C, Figures 2 and 3).

Continuous Mining Machine

The No. 6368 remote controlled continuous mining machine involved in the accident was manufactured by Joy Global Inc., Serial Number JM6899A; Model 12CM12, MSHA approval number 2G4117A-00. The machine was examined by MSHA Electrical Specialists and MSHA Technical Support personnel, with no deficiencies found. Additionally, weekly electrical examination records were examined and no problems or hazards were identified.

Proximity Detection System

Each continuous mining machine in operation at the Dotiki Mine on the coal producing sections has a PDS installed. The PDS is a safety system that uses an electromagnetic field and a line of sight radio signal that allows the machine mounted components (permanently installed on the continuous mining machine) and the MWC to communicate. When the miner wearing the MWC steps into the pre-determined area within the electromagnetic field, the MWC relays the strength of the electromagnetic field to the machine mounted components. The PDS determines the location of the continuous mining machine operator and relays the appropriate signal to the system. When it is determined that the miner is in the warning zone, the machine will flash a yellow light and the MWC will flash a yellow light and sound a beeping signal. If determined that the miner is in the shutdown zone the machine will flash a red light and the MWC will flash a red light with a continuous beeping sound. At this time the PDS will shut down the tram and conveyor boom swing functions of the continuous mining machine.

Data retrieved from the PDS indicate that the victim's MWC began electronically communicating with the PDS at 3:24 p.m. The victim designated, or "associated" his MWC as the mining machine operator MWC at 3:27 p.m. The PDS will not allow the continuous mining machine to operate until one MWC is associated as the machine operator's MWC. If electronic communication is lost between the PDS and MWC, the PDS will immediately disable the continuous mining machine.

The mining machine involved in the accident was manufactured with a Matrix Intellizone Generation II PDS in February 2012 and this mine operator has been the only owner of this machine. All continuous mining machines at this mine were equipped with PDS by October 2014. The MSHA PDS final rule took effect on March 16, 2015.

Testing and Examination

The continuous mining machine was examined by the investigation team and functional tests of the remote control station, tram and conveyor boom systems were performed. Technical Support's examination and inspection of the PDS equipment, both machine-mounted and miner-wearable, resulted in no observed physical damage or abnormalities that would affect proper operation of the PDS. Tests of the PDS were performed and distance measurements of the warning and shutdown zones were recorded. The PDS static measurements and dynamic tests indicate the system was operating as designed (see Appendix D).

Sources of electromagnetic radiation that could have interfered with the performance of the PDS were tested during the investigation. It was determined that these sources of radiation did not cause or contribute to the fatal accident.

Analysis and correlation of the MSHA baseline testing results from January 28, 2016, Matrix's simulation and accelerometer graphs from January 19, 2016, and JNA Faceboss data from January 19, 2016, together support that the MWC was not moving at the time of the accident, which indicates the MWC was not worn by the victim when the accident occurred. Investigators were able to identify times from the accelerometer graphs that indicated when the MWC was experiencing changes in magnitudes of acceleration, orientation changes, and when communication was interrupted between the MWC and machine-mounted components.

In the approximate 30 minute time period in which the continuous mining machine was operated prior to the accident, accelerometer graphs indicate that the MWC was stationary and not worn by the victim. Therefore, during this 30 minute time frame, the MWC was not worn by the victim and was at a distance from the mining machine that would allow it to remain associated with the PDS, and allow normal machine operation.

Approximately 16 minutes before the accident, two shutdown zone incursions were recorded by the Joy JNA Faceboss, and after the shutdown incursions, accelerometer graphs show the MWC was turned over but remained in the same location. After the MWC was turned over, accelerometer graphs show it was again stationary and not worn by the victim until around the time of the accident. When a shutdown zone incursion occurs, the JNA Faceboss system logs the event as a 'Proximity Detection System Trip.' The JNA Faceboss system does not differentiate between the causes of the shutdown.

Since the victim was not wearing the MWC, there are two scenarios that would have caused this. First, the victim could have trammed or turned the mining machine so that the MWC entered the PDS shutdown zone. Secondly, he could have trammed the mining machine away from the MWC so that the electronic communication between the PDS and MWC was intermittent or broken.

At approximately 4:18 p.m., accelerometer graphs are consistent with Collins' statement that he moved the MWC. The graphs show that the MWC was worn or carried for a period of 32 seconds. After this, accelerometer graphs show that the MWC returned to a stationary condition where it was not being worn.

In their analysis, Matrix states:

After the accident occurred, radio frequency communication between the locator and the proximity detection controller was intermittent for a period of approximately 15 minutes and 34 seconds. During this time, 14 Loss of Operator Status Proximity Trip events were recorded. Loss of Operator Status can occur when the radio frequency signal is attenuated or the locator is out of range. At approximately 4:17:42, full communication was re-established and movement of the locator was detected. Electromagnetic readings indicate that the locator appears to have moved from the front right corner area of the CM across the front of the machine. A Red Zone Proximity Trip event was recorded at 4:17:48 and was cleared at 4:17:53. The locator continued along the left side of the CM toward the rear of the machine to the final location at 4:18:14, where it was observed during the post accident investigation.

Since the device was not in the shutdown zone at the time of the accident, and the victim was not wearing the MWC, interference could not have caused the fatal accident.

Brown II, Collins, and Dana Brown, Continuous Mining Machine Operator, stated they were aware Phillips either dropped the MWC or that it had fallen out of Phillips' pouch on occasions in the past while he was operating a continuous mining machine. After becoming aware of this, Brown II joked with Phillips about this. The

joke was that Brown II was going to make Phillips bring two MWCs because if one MWC fell out of his pouch he would have a backup MWC to replace the one that fell out of the pouch. Brown II stated that he never did actually make him carry two MWCs because it was just a joke. Brown II did not tell investigators any additional measures he took to ensure Phillips continuously wore the MWC. The investigation did not reveal instances where management or co-workers observed Phillips dropping the MWC or saw the MWC fall out of his pouch.

Alliance Coal owns Matrix Design Group and Dotiki Mine, Webster County Coal, LLC.

Roof Control Plan

The mine's approved roof control plan, dated November, 5, 2015, contained provisions for "Red Zone" protection. The requirements for safe operation of the continuous mining machine are located on Page 8, Item #7, of the plan where it states:

The remote control cable or the radio control unit shall be operated or located at a sufficient distance from the CM (Out of the "Red Zone") so that the operator will be at a safe distance and will not be endangered by sudden movement of the CM. Operators and all other persons shall place themselves outby the CM boom when setting over in the face area. Operators shall remain at this location until the head is against the coal at which time they may place themselves alongside the CM at or near the end of the line curtain (may be on either side of the curtain, inby or outby as required). When the head of the CM is not against the coal face, all persons shall position themselves to where any sudden movement, intentional or unintentional, of the CM cannot contact them. If work is required between the CM and the coal rib, the pump motor will be turned off.

Previous Accident

On March 15, 2008, a similar serious accident occurred at this mine. The current No. 4 unit Section Foreman, Keith Brown II, was working as a third shift greaser when he was involved in a "RED ZONE" accident. He was tramming the continuous mining machine with the tail of the machine positioned toward him. Brown II injured himself by splitting the cats on the continuous mining machine, pinning himself between the coal rib and the machine's tail. As a result of the accident, the miner missed ninety-eight days of work. The continuous mining machine was not equipped with a PDS when this accident occurred.

Training and Experience

Phillips had 5 years and 24 weeks of underground mining experience, all at the Dotiki Mine. He received his Kentucky underground mining card on September 11, 2010. An examination of the company training records indicated Phillips last

received the required 8-hour annual refresher training for underground miners on November 7, 2015. He received his mine specific training on July 7, 2010. He received task training as a continuous mining machine operator on February 25, 2015.

During the investigation it was determined that continuous mining machine operators were provided training on the basic operational functions and use of the PDS. Phillips received task training regarding operation of a PDS equipped continuous mining machine when he was initially trained as a continuous mining machine operator.

On Wednesday, January 20, 2016, a representative of MSHA's Educational Field and Small Mine Services examined training records for various miners. No deficiencies were identified in the training records that were reviewed.

ROOT CAUSE ANALYSIS

The accident team conducted an analysis to identify the underlying cause or causes of the accident that were correctable through reasonable management controls. The team identified root causes 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 corrective actions implemented to prevent recurrence of this type of accident:

1. Root Cause: The mine operator failed to ensure the safety precautions contained in the approved Roof Control Plan were being followed. The safety precautions were designed to ensure that miners do not enter dangerous areas that present pinch hazards, such as the “Red Zone” established around the continuous mining machine.

Corrective Action: Management submitted revisions of their roof control plan and upon approval, implemented these revisions. The revisions require the operator to follow the surface and underground locator test procedures recommended by the manufacturer of the proximity system on all continuous mining machines. The roof control plan was also modified to require the pump motor on continuous mining machines, while the machines are not being used to mine coal, to be de-energized before miners are allowed to enter the “Red Zone” of the continuous mining machines.

2. Root Cause: The mine operator did not ensure that the manufacturer’s recommendations for use of the proximity detection system and miner wearable components were being followed. These recommendations, when followed, ensure that the proximity detection system will function as designed, and ensure that miners know the hazards associated with improper use.

Corrective Action: The mine operator has submitted revisions to their roof control plan and upon approval, has implemented those revisions. The approved plan states the miner-wearable component will be worn by the continuous mining machine operator and helper at all times when in by the tailpiece on the working sections with the following precautions; The miner-wearable component will be secured to the person by a zip tie or other no less effective means on the front middle upper third of the body at all times, except when the miner-wearable component is integrated into the miner's cap lamp. If the miner-wearable component is carried in a pouch/case, the pouch/case will be one that is recommended by Matrix.

CONCLUSION

The accident occurred because the mine operator failed to implement effective procedures to ensure the roof control plan safety precautions and manufacturer's recommendations were followed to prevent miners from working or traveling in the "Red Zone" of a continuous mining machine while tramming it from place to place or repositioning between cuts. In addition, the mine operator failed to securely attach the miner wearable component of the proximity detection system to the continuous mining machine operator to prevent it from falling out of pouches or pockets.

Approved By:



Robert A. Simms
District Manager



Date

ENFORCEMENT ACTIONS

1. 103 (j) Order, No. 9044524, was issued to protect the miners and to help preserve the accident scene. It affected everything inby the No. 4 unit loading point. Carlisle modified the 103(j) order to a 103(k) order upon his arrival at the mine site.
2. 104(d)(1) Order, No. 9044527, was issued citing 30 CFR § 75.220(a)(1). On January 19, 2016, at approximately 1600 hrs. a fatal accident occurred on the No. 4 unit, 029-0 MMU. A continuous mining machine operator, while moving the continuous mining machine from the No.6 entry to the No.6 left crosscut, was struck by the continuous mining machine. The continuous mining machine operator was caught between the conveyor boom and the coal rib, resulting in fatal injuries to the operator. The approved roof control plan is not being followed on the No.4 unit, 029-0 MMU. The requirements for the safe operation of the continuous mining machine are located on page 8, item 7 of the approved roof control plan dated November 5, 2015. "The remote control cable or the radio control unit shall be operated or located at a sufficient distance from the continuous mining machine (Out of the "Red Zone") so that the operator will be at a safe distance and will not be endangered by sudden movement of the machine. Operators and all other persons shall place themselves outby the continuous mining machine boom when setting over in the face area. Operators shall remain at this location until the head is against the coal at which time they may place themselves alongside the continuous mining machine at or near the end of the line curtain (may be on either side of the curtain, inby or outby as required). When the head of the continuous mining machine is not against the coal face, all persons shall position themselves to where any sudden movement, intentional or unintentional, of the continuous mining machine cannot contact-them. If work is required between the continuous mining machine and the coal rib, the pump motor will be turned off."

Mine management engaged in aggravated conduct consisting more than ordinary negligence, in that mine management was aware that there had been several times that the continuous mining machine operator was not wearing the proximity detection system (PDS) locator while operating the continuous mining machine. Not wearing the PDS locator enables the mining machine operator to work in the "Red Zone" of the mining machine without the PDS disabling the tram and conveyor boom swing functions. This mine had a previous serious crushing accident, when a miner who is now a supervisor, operated a continuous mining machine in the "Red Zone." This should have alerted mine management to take the necessary measures to prevent this type of accident from occurring in the

future, which included taking measures to ensure that the locator was worn.

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

APPENDIX A

PERSONS PARTICIPATING IN THE INVESTIGATION

Mine Safety and Health Administration

Robert A. Simms..... District Manager
Brian Dotson Assistant District Manager, Enforcement
Curtis R. Hardison Staff Assistant
Adam Carlisle Electrical Specialist/Lead Accident Investigator
Matt Stone.....Roof Control Specialist
Louis Adams Electrical Supervisor
Randall Boyd..... Family Liaison
Alan Frederick Field Office Supervisor
Justin Gatlin Electrical Specialist
Adam Larkin.....Electrical Specialist
Joe Fritz Education Field Services
Jay Prebeg..... Technical Support
Matt Wharry..... Technical Support

Kentucky Division of Mine Safety

Tim FugateDeputy Chief Accident Investigator
Danny Hurt.....Chief Electrical Inspector
Lee Vincent.....Mine Safety Specialist
James TaborMine Safety Specialist
Brad ThomasMine Safety Specialist
William Millay.....Mine Safety Specialist/Roof Control
Kenny Mitchell District Supervisor

Mine Company Officials

Gary Thweatt General Mine Manager
Chris Gunn Safety Director
Bruce Taylor Company Safety Official
Jacky Phillips.....Chief Maintenance Supervisor
Jan Chambliss.....Dotiki Maintenance Technician
Eric BlanfordEngineer
Kenny Murray Vice President of Operations
Marco Rajkovich Jr..... Attorney

Matrix Design Group Personnel

Randy Moore.....Matrix Chief of Engineering

APPENDIX B

Persons Interviewed

Keith Brown II.....	Section Foreman
Stewart Jordan.....	Shuttle Car Operator
Clinton Clark	Shuttle Car Operator
Travis Littlepage.....	Shuttle Car Operator
Brandon Beach.....	Continuous Mining Machine Operator
Dana Brown	Continuous Mining Machine Operator
John Coates	Unit Mechanic
Patrick Scott	Battery Mechanic
Jordan Stanley.....	Roof Bolter
Mike Cotton.....	Roof Bolter
Raymond Collins.....	Roof Bolter
Keith Gipson.....	Scoop Operator

Overview of Equipment and Locations

Area not Mapped for Rib Support

Area not Mapped for Rib Support

Feeder Location

POWER

POWER

Location of Victim

Legend:

- Rib Support
- Continuous Mining Machine Cable - 3/0 AWG 3/C 2KV SH-DQC
- Roof Bolting Machine Cable - 2 AWG 3/C 2KV SH-DQC
- Cable Solice
- Unbolter/Roof

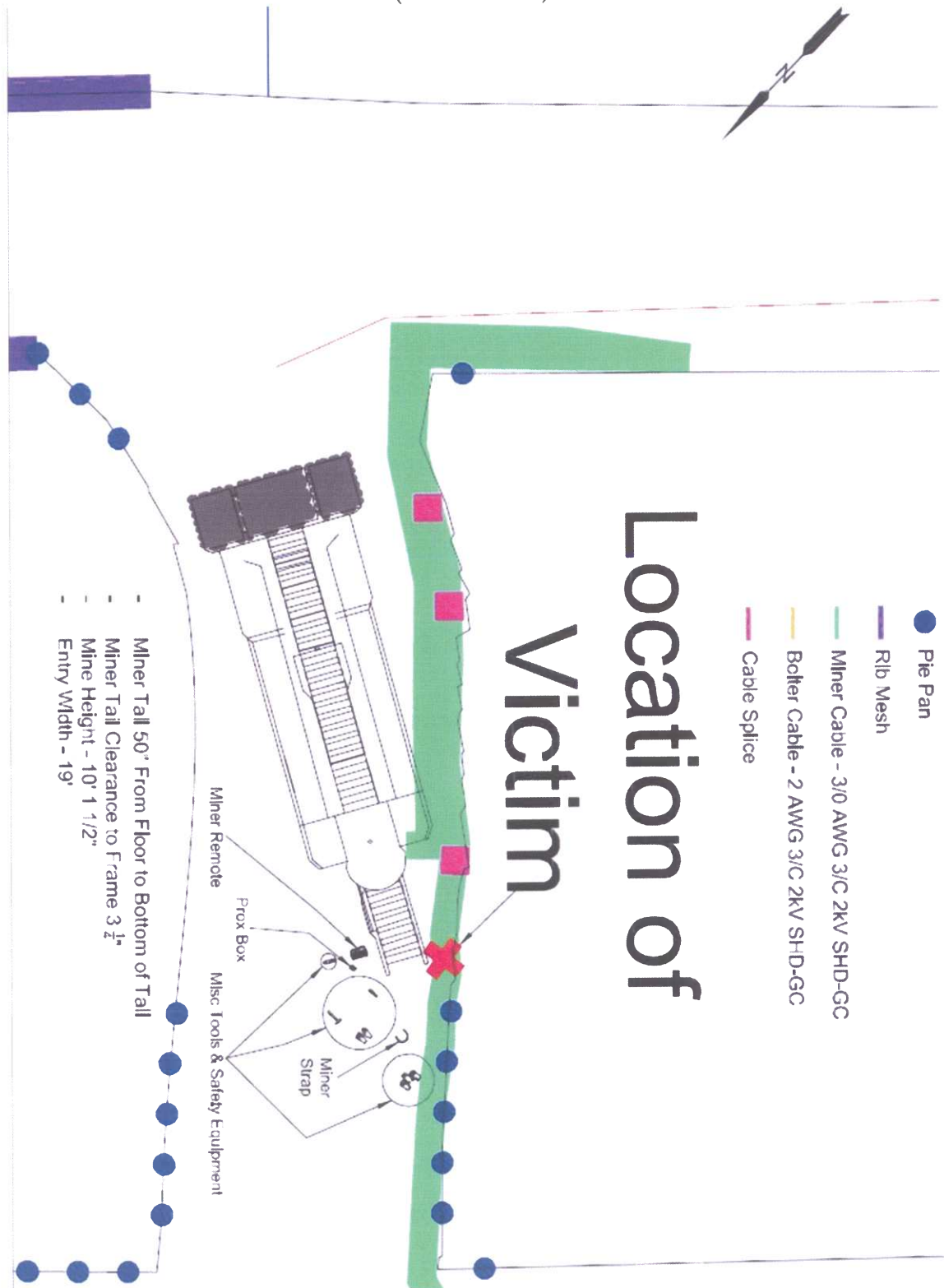
Figure 2

Dimensions of the Accident
(Not to scale)

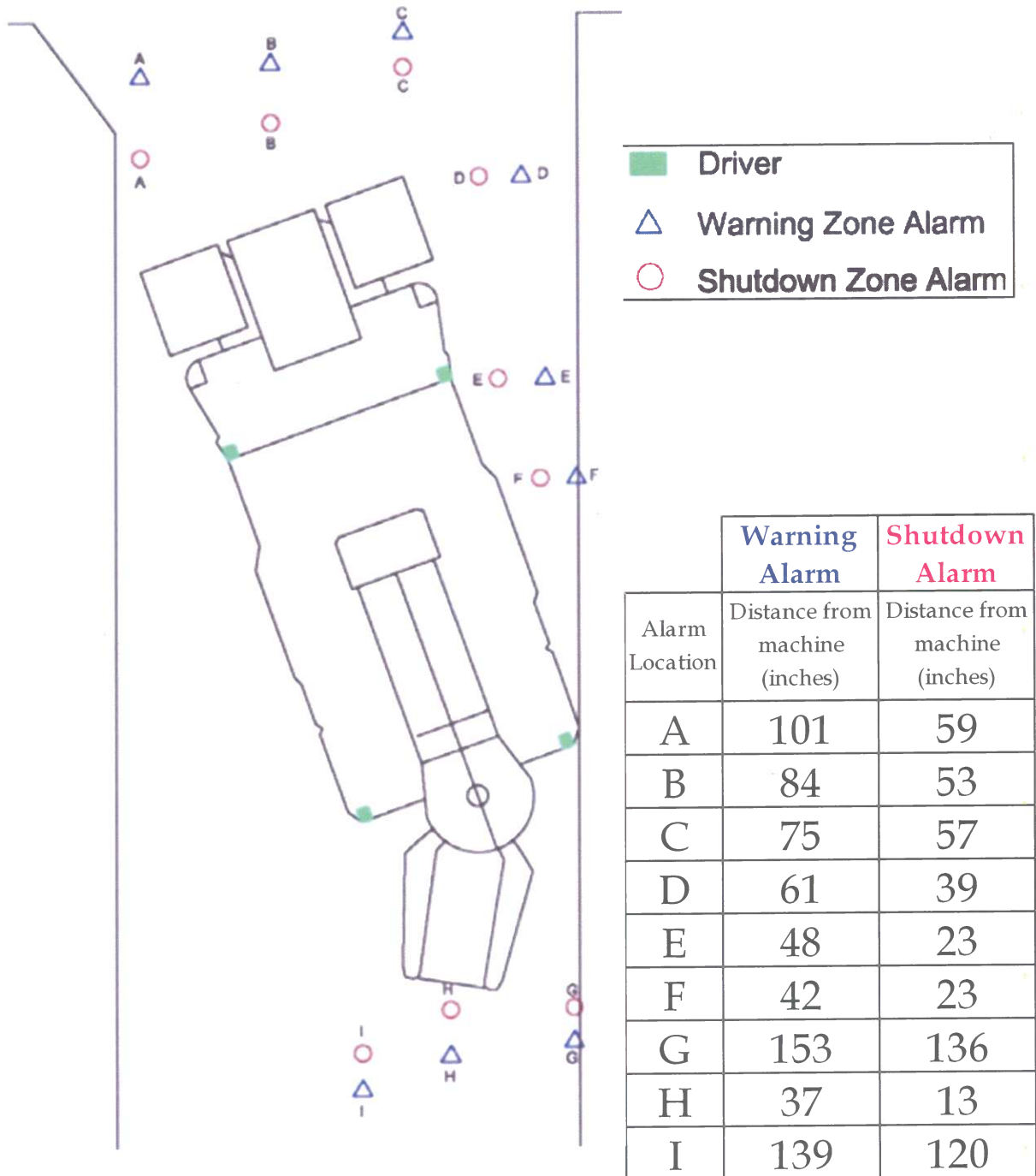


Figure 3

Location of Equipment after the Accident
(Not to scale)



Appendix D
Proximity Detection System
Distance Test Results
(Not to scale)



Note: Location (H) is measured from the end of the tail.
Locations (G) and (I) are measured from the rear of the machine.

APPENDIX E

Victim Information

Accident Investigation Data - Victim Information

U.S. Department of Labor

Mine Safety and Health Administration



Event Number: 4 4 8 8 3 5 3

Victim Information: 1																																							
1. Name of Injured/Ill Employee: Nathan G. Phillips				2. Sex: M		3. Victim's Age: 36		4. Degree of Injury: 01 Fatal																															
5. Date(MM/DD/YY) and Time(24 Hr.) Of Death: a. Date: 01/19/2016 b. Time: 17:43								6. Date and Time Started: a. Date: 01/19/2016 b. Time: 16:05																															
7. Regular Job Title: 036 Continuous Miner Operator						8. Work Activity when Injured: 041 Trimming continuous mining machine						9. Was this work activity part of regular job? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>																											
10. Experience a. This				Years		Weeks		Days		b. Regular Job Title:				Years		Weeks		Days		c. This Mine:		Years		Weeks		Days		d. Total Mining:		Years		Weeks		Days					
Work Activity:				0		44		4		Job Title:				0		44		4		Mine:				5		24		0		Mining:				5		24		0	
11. What Directly inflicted Injury or Illness? 077 Continuous Mining Machine														12. Nature of Injury or Illness: 170 Crushing injuries from miner tail																									
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: <input checked="" type="checkbox"/> CPR: <input checked="" type="checkbox"/> EMT: <input checked="" type="checkbox"/> Medical Professional: <input checked="" type="checkbox"/> None: <input type="checkbox"/>																																							
16. Part 50 Document Control Number: (form 7000-1)														17. Union Affiliation of Victim: 9999 None (No Union Affiliation)																									