

UNITED STATES
DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION

COAL MINE SAFETY AND HEALTH

REPORT OF INVESTIGATION

Underground Coal Mine

Fatal Machinery Accident
June 13, 2017

Gateway Eagle Mine
Rockwell Mining, LLC
Wharton, Boone County, WV
ID No. 46-06618

Accident Investigators

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TABLE OF CONTENTS

OVERVIEW.....	1
GENERAL INFORMATION	2
DESCRIPTION OF THE ACCIDENT	2
INVESTIGATION OF THE ACCIDENT	4
DISCUSSION	5
Accident Scene.....	5
Continuous Mining Machine	5
Proximity Detection System.....	5
Proximity Detection System Override	6
Interference	7
Testing and Examination	8
Roof Control Plan.....	8
Training and Experience	8
ROOT CAUSE ANALYSIS	10
CONCLUSION.....	12
ENFORCEMENT ACTIONS	13
APPENDIX A - Persons Participating in the Investigation	16
APPENDIX B - Sketch of Section at Time of Accident	18
APPENDIX C - Sketch of Accident Scene.....	19
APPENDIX D - Proximity Measurements.....	20
APPENDIX E - Victim Information.....	21



PHOTO OF ACCIDENT SCENE

OVERVIEW

On June 13, 2017, at 8:43 p.m., Rodney S. Osborne, a 32-year-old continuous mining machine (CMM) operator, was fatally injured when he was pinned between the cutter head of a remote controlled CMM and a coal rib. The victim was in a hazardous area or Red Zone repositioning the machine when the accident occurred. The CMM was equipped with a proximity detection system (PDS), but it was manually overridden by an emergency stop override (ESO). As a result, the PDS did not warn the miner and the machine did not shut down when the miner entered the hazardous area.

The accident occurred because the mine operator did not enforce the provisions in its approved roof control plan to prevent miners from working or traveling in hazardous areas while moving the CMM from place to place or repositioning between cuts. Also, the mine operator did not provide administrative controls and acceptable work practices to prevent the PDS from being overridden during normal mining operations. In addition, the PDS on this CMM had been set up in a manner that deactivated the visual or audible warnings when the ESO function overrode the PDS.

GENERAL INFORMATION

The Gateway Eagle Mine is an underground mine operated by Rockwell Mining, LLC, a subsidiary of Blackhawk Mining, LLC. The mine is located in Wharton, Boone County, West Virginia. At the time of the accident, the mine employed 112 miners, with 109 working underground. The mine operates in the Eagle coal seam (bituminous) with an average mining height of 84 inches. Laboratory analysis of air samples indicated no methane liberation in a 24-hour period. The mine operates four mechanized mining units (MMUs) on two separate working sections utilizing the room and pillar method of mining. Coal is mined with two CMMs on each working section and transported from the working faces to the section loading points by shuttle cars. From there, a belt conveyor system moves the coal to the surface. Diesel-powered rubber-tired personnel carriers are used to transport miners and materials into and out of the mine.

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

Rex Osborne.....General Mine Manager
Luke Stepp.....Superintendent
Steve Gibson.....Mine Foreman
Justin Ray.....Safety Representative

A regular (E01) safety and health inspection was started on April 3, 2017, and had not been completed when the accident occurred. The previous regular inspection was completed on March 23, 2017. The non-fatal days lost (NFDL) injury incidence rate for the mine in 2016 was 12.16, compared to the national NFDL rate of 3.41 for mines of this type.

DESCRIPTION OF THE ACCIDENT

On June 13, 2017, Rodney S. Osborne arrived at the mine at approximately 11:00 a.m., four hours prior to his regular shift. He was assigned to clean lifeline reflectors in the secondary escapeway from the No. 6 belt head to the No. 7 belt head. The electronic tracking system shows that R. S. Osborne returned to the surface and met his regular production crew at 2:36 p.m. At 3:01 p.m., the crew began traveling to the 010-0/011-0 MMU No. 1 working section.

They arrived on the section at 3:36 p.m. and were met by Christopher Adkins, Section Foreman, who conducted a safety talk before instructing the crew to conduct pre-operational checks on their equipment. Adkins conducted an on-shift examination of the working places and assigned R. S. Osborne to the left side cut cycle for the day. R. S. Osborne began the mining cycle operating the Company No. 254 CMM in the Upper

2 Left room. He then mined coal in the Lower 2 Left room and in the No. 3 entry (see Appendix B).

Shortly before the accident, R. S. Osborne loaded the last coal of the cut in the No. 3 entry into the shuttle car operated by Densil Blankenship, Shuttle Car Operator. Before delivering the coal to the belt feeder, Blankenship decided to assist R. S. Osborne in moving the CMM to the next cut. He trammed the shuttle car two crosscuts outby, got out of the shuttle car and started walking toward the CMM when he saw R. S. Osborne on the inby end. He called out to R. S. Osborne but received no response. As he got closer, he saw that R. S. Osborne was pinned between the coal rib and the right side cutter head of the CMM.

Blankenship ran to the No. 2 entry and informed Steven Elswick and Jerrad Terrall, Roof Bolters, of the accident. Elswick immediately traveled to R. S. Osborne and checked for a pulse. He did not detect any vital signs. Before going to the accident scene, Terrall used the mine phone to call outside and request medical assistance. Daniel Moore, Roof Bolter, who was at the No. 4 entry, heard someone yelling for help and went to the scene.

Blankenship then traveled outby one crosscut and informed Adkins of the accident. Adkins proceeded to the accident scene, where Elswick asked him to locate David Havey, CMM Operator (right side), who was in the No. 4 entry. When Havey arrived, he took the remote control transmitter from R. S. Osborne and moved the CMM to the left to free R. S. Osborne. Elswick, Terrall, and Moore supported R. S. Osborne and lowered him onto a backboard that had been delivered, along with first aid supplies, by Mark Stepp, Right Side Shuttle Car Operator. The miners detected no vital signs and the victim's injuries were extensive. They placed him on a diesel mantrip, which transported him to the surface at approximately 9:22 p.m.

At 8:47 p.m., James Lovejoy, Mine Dispatcher, called 911 to report the accident. The Boone County Ambulance Authority (BCAA) paramedics arrived at the mine at 9:15 p.m., and received R. S. Osborne when he arrived at the surface. After observing R. S. Osborne's condition, the paramedics contacted Medbase and at 9:47 p.m. were instructed by Dr. Marie Nowak, the physician on duty, to declare R. S. Osborne dead.

INVESTIGATION OF THE ACCIDENT

On June 13, 2017, at 8:51 p.m. Frank Javins, Evening Shift Mine Foreman, notified the Department of Labor (DOL) National Contact Center of the accident. At 9:00 p.m., the DOL Contact Center notified Joey Presley, Staff Assistant, MSHA Coal District 4. Presley then contacted Tracy Calloway, Staff Assistant, MSHA Coal District 12, because the mine was under the jurisdiction of District 12.

Calloway immediately notified the following MSHA Coal District 12 personnel:

- Brian Dotson, District Manager
- Larry E. Bailey, Assistant District Manager (Technical)
- Nicholas Christian, Pineville Field Office Supervisor
- Mark Muncy, Coal Mine Safety and Health Inspector/ Accident Investigator, and
- Rex Hampton, Coal Mine Safety and Health Inspector/Electrical Specialist.

At 10:25 p.m., Muncy and Christian arrived at the mine site, and Muncy issued a 103(k) order to Rex Osborne, General Mine Manager, to preserve the accident scene and to prevent the destruction of any evidence that would assist in determining the cause of the accident. Muncy and Christian reviewed mine records and conducted informal interviews with miners. They obtained written statements from some miners. Hampton and Bailey arrived at approximately 10:45 p.m. Hampton assisted in conducting initial interviews. Officials from the West Virginia Office of Miners Health Safety and Training (WVOMHST) and company officials participated in the investigation (see Appendix A).

Bailey, Christian, Muncy, and Hampton, along with representatives of WVOMHST, the mine operator, and representatives of the United Mine Workers of America (UMWA) traveled underground to investigate the accident scene. Muncy, Hampton, and Christian took photographs, and Muncy and Hampton took measurements to compose a sketch of the scene (see Appendix B). Muncy asked Rex Osborne to contact CMM manufacturer Joy Global, Inc. and PDS manufacturer Matrix Design Group to have them download recorded data from the PDS installed on the No. 254 CMM.

On June 14, 2017, Jonathan Cline, MSHA Roof Control Specialist/Civil Engineer, tested the PDSs on CMMs not involved in the accident. He performed static and dynamic testing of the PDS on the No. 262 CMM and the No. 253 CMM at different locations underground. Cline was unable to perform testing on the No. 252 CMM due to a maintenance issue. The PDS on the No. 253 and 262 CMMs operated correctly when tested.

On June 15, 2017, representatives from Joy Global, Inc. and Matrix Design Group recovered the data from the PDS for all the CMMs. Following further refinement, the

recovered data for the No. 254 CMM was turned over to MSHA by the mine operator on June 23, 2017.

Matt Wharry and Patrick Retzer, MSHA Technical Support Engineers, conducted static and dynamic testing of the No. 254 CMM on June 15, 2017. Muncy, Hampton, Dotson, and Calloway, along with representatives from the WVOMHST, the company and UMW, observed the testing.

MSHA and WVOMHST conducted formal interviews of miners on June 19, 2017, at the MSHA Coal District 4 Madison Field Office in Uneeda, WV, and on June 30, 2017 at the MSHA Coal District 12 Office in Pineville, WV.

On June 21, 2017, Bruce Linville, Educational Field and Small Mine Services (EFSMS) reviewed the mine operator's training records at the mine. As a result, MSHA issued two noncontributory citations for inadequate record keeping for violating 30 CFR 48.3(c)(3) and 48.9(a).

DISCUSSION

Accident Scene

The accident occurred on the left side (010-0 MMU) of the 010-0/011-0 MMU No.1 working section, in the No. 3 Entry, approximately 12.5 feet in by the last open crosscut, along the right rib. Entries Nos. 1, 2, and 3, and the associated crosscuts and rooms, made up MMU 010-0. All other entries and crosscuts were a part of MMU 011-0. The mine floor in the area was wet with a small ledge on the left side of the entry, which was not a factor in the accident. The CMM was trammed numerous times in this area during the investigation with no adverse effects. The width of the entry at the location of the accident measured approximately 19 feet wide by 8 feet high. After the victim was removed, the cutter head of the CMM was located 12.5 inches from the right coal rib (see Appendix C).

Continuous Mining Machine

The No. 254 CMM was manufactured by Joy Global Inc., Serial Number JM5801, Model 14CM15. The MSHA approval number is 2G-4159A-0. MSHA personnel conducted visual examinations and basic functional tests on this CMM, along with the remote control transmitter, including tram and hydraulic functions. These visual examinations and basic functional tests revealed no deficiencies.

Proximity Detection System

The PDS is designed to prevent injury by activating audio and visual warnings when a miner approaches a CMM and stopping movement before contact is made.

At the time of the accident, all CMMs in operation on the coal producing sections of the mine had a PDS. The No. 254 CMM had a Joy SmartZone Generation 2 PDS

manufactured by Matrix Design Group. It was installed by Joy Global Inc. during a rebuild before the CMM was placed into service at the mine on February 3, 2017.

The PDS uses an electromagnetic field and a line of sight radio signal to allow communication between components that are permanently installed on the CMM and those worn by a miner. When the miner wearable component (MWC) enters a certain area in the electromagnetic field, the machine-mounted components and MWC recognize the intrusion and relay the appropriate signal to the system.

The PDS on the CMM is set up to identify warning and shutdown zones. If a miner enters the warning zone, a yellow light flashes at all four corners of the CMM and the MWC flashes a yellow light and sounds a slow beeping signal. If a miner enters the shutdown zone, a red light flashes at all four corners of the CMM and the MWC flashes a red light with a fast beeping signal, and the tram and conveyor boom swing functions of the CMM are disabled. In addition, when electronic communication or MWC with CMM operator-association is lost, the PDS will disable the CMM tram and conveyor swing functions.

The PDS and MWCs for the CMMs were examined by the investigation team, which found no physical damage or abnormalities that would affect the ability of the PDS to stop the machine before contacting a miner. Data retrieved from the PDS on the No. 254 CMM indicated that the victim's MWC was properly communicating with the PDS. Static measurements and dynamic tests of the PDS indicated the CMM would stop before contacting a miner (see Appendix D).

Proximity Detection System Override

The emergency stop override (ESO) function is activated by a switch on the remote control transmitter used to operate the CMM.

Under MSHA's proximity detection standard (Title 30 CFR § 75.1732), the only reason to override the PDS is to move a disabled CMM from an unsafe location for the purpose of repair. Additionally, § 75.1732(b)(4) of the rule requires an audible or visual warning signal to be activated when the PDS is being overridden.

However, the No. 254 CMM was configured so that when the override was engaged, the warning signals ceased functioning. When investigators used the ESO to override the PDS, they confirmed there was no audible or visual warning signal. Investigators learned that Joy Global Inc. had set up or commissioned the PDS to operate this way on the No. 254 CMM and the three other CMMs on the working sections in the mine. MSHA issued noncontributing citations for the other three CMMs because § 75.1732(b)(4) was violated.

In order to determine the sequence of events before and during the accident the data from the No. 254 CMM was converted to accelerometer graphs and recorded playback of the computer simulation tool. Also, logs were made of MWC associations and the

ESO activation times. Investigators found that the victim activated the ESO six times in the 16 minutes he operated the No. 254 CMM before the accident. The victim was in the Red Zone three of those times.

MSHA Technical Support investigators determined that the victim engaged the ESO for the last time at 8:43 p.m. EDT. For the next 14 seconds, the ESO remained engaged while the MWC moved along the right side of the machine and into the shutdown zone. The movement stopped near the right side of the cutter head. The data is consistent with the MWC being worn by the victim while he was walking along the right side of the CMM as described.

For approximately seven more minutes, the CMM remained energized while the graphs and playback show no movement of the MWC. This indicated to investigators that the victim was struck at 8:43 p.m., and the MWC he was wearing did not move after he was struck.

At 8:47 p.m., other MWCs started to appear around the No. 254 CMM, and limited movement of the victim's MWC began at 8:50 pm. At 9:02 p.m., the victim's MWC, accompanied by other MWCs, traveled outby the CMM and out of range. This information is consistent with facts gathered by investigators concerning the events that took place after the accident when miners gathered at the scene, recovered the victim, and transported him away from the working section.

The data revealed that the ESO was used 87 times from the beginning of the shift until the time of the accident, totaling over 57 minutes during the shift. It was used approximately 1,000 times in the week prior to the accident, totaling 14 hours and 53 minutes. This data indicate the ESO was used frequently to override the PDS and was a common practice during regular production shifts.

In interviews, CMM operators Casey Harris, Stacey Harris, and William Daniels stated the ESO was being misused to save time while moving CMMs from one place to another, and mine management was aware of it.

In contrast, Adkins; Steve Gibson, Mine Foreman; Charles Maynard, 2nd Shift Chief Electrician; George Jones, 3rd Shift Maintenance Foreman; and Delano Kirby, No. 1 Section Dayshift Foreman said they were not aware that the ESO was being used to override the PDS in nonemergency situations.

Interference

Sources of interference were investigated and none contributed to the fatal accident.

Testing and Examination

The mine operator's examination records indicate that a pre-shift examination is conducted three times per day on the 010-0/011-0 MMU's No.1 working section. The pre-shift and the on-shift examination records did not show any hazards or violations for the day of the accident. The last weekly examination of the No. 254 CMM was conducted on June 5, 2017, which indicated that a trailing cable splice had been repaired. No other hazards or violations were reported.

Based on testimony of the CMM operators, only static testing of the PDS was being conducted prior to the operation of the CMMs on both working sections. Because no dynamic testing was being conducted prior to the accident, a noncontributory citation was issued for violating 30 CFR § 75.1732(c)(1)(i).

Roof Control Plan

The mine's roof control plan, which was approved by MSHA on February 22, 2017, contains provisions for Red Zone protection. The following requirements for safe operating of the CMM are under the heading "Continuous Miner Trammings:"

- When the continuous miner is being trammed anywhere in the mine, other than when cutting or loading coal, no person shall be allowed along either side of the CMM.
- During mining and place changing with the remote control miners: all persons shall be positioned in an area that will afford maximum protection to themselves and others from unsupported roof and moving equipment.
- During place changing, all persons involved in the move shall be positioned in an area outside the Red Zone of the continuous miner at all times while the miner is being trammed. If an operator's compartment is provided and a cab or canopy is required due to the mining height, then the continuous miner shall be trammed from the compartment.
- Red Zone Precautions: Continuous Miner Trammings states: When trammings the CMM to the next place, other than when cutting or loading coal, no one will be located along either side of the CMM, and they will be in a safe location outby the boom and head. All personnel shall remain at least 4 feet outside the Red Zone in all directions.

Training and Experience

R. S. Osborne had 9 years, 13 weeks, and 5 days total mining experience. He began working at the Gateway Eagle Mine on January 25, 2017. R. S. Osborne was assigned to operate the No. 254 CMM on March 10, 2017. R. S. Osborne received experienced miner training on January 26, 2017, and annual refresher training on April 1, 2017.

The mine operator did not task train R. S. Osborne on the safety aspects and safe operating procedures of the CMM, which included PDS and the ESO, as required by 30 CFR §48.7. Proper task training would have included the procedures found in the Joy Mining Machinery Remote Operation manual:

Before starting this machine or operating any controls, make certain you have read the Machine Operation book, found in the Introduction unit of the manual, have been trained in the proper operation of this machine, and are thoroughly familiar with all controls. Failure to do so could result in an accident causing serious injury or death to you or other personnel.

The manual also contains a warning statement about the use of the ESO and notes that this statement “call(s) attention to potentially hazardous situations that could result in serious personal injury or death if not avoided. Injury from these hazards is usually serious in nature, and a severe or fatal accident can occur if proper precautions are not followed.” Specifically, the warning statement states:

Only use the emergency stop override to tram the machine away from the obstruction that is pressing the EMERGENCY STOP switch. Never use the override during normal operation. Failure to comply with this warning may lead to an accident causing severe accident or death from attempting to stop the machine, in an emergency, with an overridden EMERGENCY STOP switch.

The victim was using the ESO during normal operations when he was fatally injured. In witness interviews, C. Harris, S. Harris, and William Daniels stated the mine operator did not address the safety aspects and safe work procedures of using the ESO during their task training.

The preamble to the final PDS rule issued in January, 2015 emphasizes that required task training must include training on overriding the PDS:

Overriding the proximity detection system should only occur for the time necessary to move the machine to a safe location...Mine operators must train machine operators, under existing new task training requirements, to relocate a machine to a safe location for repair.

ROOT CAUSE ANALYSIS

MSHA conducted an analysis to identify 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 investigation and the operator's implemented corrective actions to prevent a reoccurrence of this type of accident.

1. Root Cause: The mine operator did not enforce provisions set forth in the approved Roof Control Plan to prevent miners from working or traveling in the Red Zone of the CMM while it is being moved from place to place or repositioning between cuts. The safety provisions are designed to ensure that miners do not enter dangerous areas that present hazards, such as the Red Zone established around the CMM.

Corrective Action: Management developed an action plan to increase Red Zone safety awareness, and upon approval by MSHA, implemented the plan. The provisions to the action plan include Red Zone training, proximity detection training, increased observations, and dynamic testing procedures. The action plan requires all miners to receive classroom and underground training regarding potential Red Zone hazards and the operation of the PDS on the CMMs. The action plan also requires a certified foreman to observe each CMM operator during place changes and record the results of the observations in a book on the surface. Additionally, the operator revised its roof control plan to include training, observations, and PDS testing to follow Joy Global Inc.'s Smart Zone Proximity Systems User Guide when conducting static and dynamic testing.

2. Root Cause: The mine operator allowed a practice of using the ESO to override the PDS during movement of CMMs in nonemergency situations.

Corrective Action: Management submitted an updated training plan to include proximity training to new miners and experienced miners, and to provide task training on the PDS to all miners working at the mine, which includes Joy Global, Inc.'s recommended testing procedures. Management also implemented an emergency stop override policy, which states:

Except in the case of an imminent danger to the health and safety of a miner, continuous miner operators SHALL NOT utilize the ESO or other equivalent override procedures for continuous miners at any time unless:

The continuous miner operator obtains verbal permission from Mine Management, such as Section Foremen or other appropriate mine management personnel; AND

Mine management must observe the continuous mining machine operator engage the ESO or other equivalent override procedures for continuous mining machines to ensure safe procedures.

CONCLUSION

The CMM operator was fatally injured when he was pinned between the cutter head of a remote controlled CMM and the coal rib. The accident occurred because the mine operator did not enforce the provisions in its approved roof control plan to prevent miners from working or traveling in the Red Zone of the CMM while moving from place to place or repositioning between cuts. In addition, the mine operator did not provide administrative controls and acceptable work practices to prevent the proximity detection system from being overridden during normal mining operations.

The victim was using the emergency stop override at the time of the accident and had activated it 87 times for over 57 minutes during the shift. Furthermore, the PDS on this mining machine was set up or commissioned by Joy Global Inc. in a manner that deactivated the audible or visual warnings when the PDS was being overridden.

Approved By:

Brian M. Dotson
District Manager

Date

ENFORCEMENT ACTIONS

1. 103(k) Order, No. 8068571 was issued to Rockwell Mining, LLC.

A fatal accident has occurred at this operation on June 13, 2017, at approximately 2100 hours. This order is issued under Section 103 (k) of the Federal Mine Safety and Health Act of 1977, to assure the safety of all persons at this operation and prevent the destruction of any evidence which would assist in the investigation of the cause and or causes of this accident. It prohibits all activity at the 010-0/011-0/012-0/013-0 MMUs until MSHA has determined that it is safe to resume normal mining operations in the area. The mine operator shall obtain prior approval from an authorized representative for all actions to recover and/or restore operations to the affected area.

2. 104(a) Citation, No 8068574, was issued to Rockwell Mining, LLC for a violation of 30 CFR § 75.220(a)(1).

On June 13, 2017, at approximately 8:43 p.m., a fatal accident occurred on the No. 1 working section, (010-0/011-0 MMU). A continuous mining machine operator was pinned between the mining machine's right side cutter head and the coal rib, while moving the mining machine from the No. 3 entry into the last open crosscut. The operator did not comply with provisions of the approved roof control plan on the No. 1 working Section (010-0 MMU), specifically on 1) page 19: "When trammig the CMM to the next place, other than when cutting or loading coal, no one will be located along either side of the CMM, and they will be in a safe location outby the boom and head. All personnel shall remain at least 4 feet outside the Red Zone in all directions; 2) page 8, Item #36: "When the continuous miner is being trammed anywhere in the mine, other than when cutting or loading coal, no person shall be allowed along either side of the CMM;" 3) page 11 Item #1: "During mining and place changing with the remote control miners: all persons shall be positioned in an area that will afford maximum protection to themselves and others from unsupported roof and moving equipment;" and 4) page 11 Item #2: "During place changing, all persons involved in the move shall be positioned in an area outside the Red Zone of the continuous miner at all times while the miner is being trammed. If an operator's compartment is provided and a cab or canopy is required due to the mining height, then the continuous miner shall be trammed from the compartment."

During the fatal accident investigation, MSHA determined there was a practice of continuous mining machine operators trammig the CMMs from place to place while they were positioned in the Red Zone.

3. 104(d)(1) Citation, No. 8068575, was issued to Rockwell Mining, LLC for a violation of 30 CFR § 75.1732(b).

On June 13, 2017, at approximately 8:43 p.m., a fatal accident occurred on the No. 1 working section, (010-0/011-0 MMU). A continuous mining machine operator was pinned between the mining machine's right side cutter head and the coal rib while moving the mining machine from the No. 3 entry into the last open crosscut. The mine operator did not ensure that the emergency stop override on the No. 254 continuous mining machine, Serial #JM5801, was only used for purposes of relocating the machine from an unsafe location for repair. Instead, the emergency stop override was being used by the operator during the movement of the continuous mining machine from one location to another during the mining cycle. This action overrides the proximity detection system (PDS) and prevents the system from preventing tram and conveyor boom swing on the continuous mining machine while the operator is positioned in the shutdown zone. During the investigation, MSHA Technical Support personnel determined that the emergency stop override of the No. 254 continuous mining machine was used approximately 1,000 times in the week prior to the accident. Additionally, it was determined that the emergency stop override was used 87 times on June 13, 2017 between 3:50:00 PM and 8:43:56 PM. The total time the continuous mining machine operated in emergency stop override during this period was 57 minutes and 4 seconds. Based on the amount of times the emergency stop override was activated, mine management had reason to know the emergency stop override was being used for reasons other than relocating the continuous mining machine from an unsafe location for repair only. Therefore, the mine operator also had reason to know the audible or visual alarm did not activate when the proximity detection system (PDS) was being overridden by emergency stop override.

During the fatal accident investigation, MSHA determined there was a practice of continuous mining machine operators tramming the CMM from place to place, while they were positioned in the PDS shutdown which is located in the Red Zone.

4. 104(d)(1) Order, No. 8068576 was issued to Rockwell Mining, LLC for a violation of 30 CFR § 48.7(a).

On June 13, 2017, at approximately 8:43 p.m., a fatal accident occurred on the No. 1 working section, (010-0/011-0 MMU). A continuous mining machine operator was pinned between the mining machine's right side cutter head and the coal rib while moving the mining machine from the No. 3 entry into the last open crosscut. The mine operator did not task train this miner in the safety aspects and safe operating procedures of the continuous mining machine, which included the proximity detection system (PDS) and emergency stop override (ESO). The victim was using the ESO when the fatality occurred. The use of the ESO overrode the PDS and

allowed the mining machine to operate and fatally injure the victim while he was located within the PDS's shutdown zone.

5. 104(a) Citation, No. 8068577 was issued to Joy Global, Inc for a violation of 30 CFR § 75.1732(b)

Joy Global Inc. initially set up or "commissioned" the proximity detection system on the No. 254 continuous mining machine without the ability to activate an audible or visual warning signal when the proximity detection system (PDS) was being overridden by the emergency stop override (ESO). On June 13, 2017, at approximately 8:43 p.m., a fatal accident occurred on the No. 1 working section, (010-0/011-0 MMU) while the victim was using the ESO. The use of the ESO overrode the PDS and allowed the mining machine to operate and fatally injure the victim while he was in the PDS shutdown zone.

6. 104(d)(1) Order, No. 9172135, was issued to Rockwell Mining, LLC for a violation of 30 CFR § 75.1732(c).

On June 13, 2017, at approximately 8:43 p.m., a fatal accident occurred on the No. 1 working section, (010-0/011-0 MMU). A continuous mining machine operator was pinned between the mining machine's right side cutter head and the coal rib while moving the mining machine from the No. 3 entry into the last open crosscut. The proximity detection system on the No. 254 continuous mining machine was inadequate because it would not activate an audible or visual warning signal when the proximity detection system (PDS) was being overridden by the emergency stop override (ESO). On June 13, 2017, at approximately 8:43 p.m., a fatal accident occurred on the No. 1 working section, (010-0/011-0 MMU) while the victim was using the ESO. The person designated by the mine operator to check the PDS did not ensure that the PDS was functioning properly after it was commissioned. During the investigation, MSHA Technical Support personnel determined that the ESO of the No. 254 continuous mining machine was used approximately 1,000 times in the week prior to the accident. Additionally, it was determined that the ESO was used 87 times on June 13, 2017 between 3:50:00 PM and 8:43:56 PM. The total time the continuous mining machine operated while the ESO was used during this period was 57 minutes and 4 seconds. Based on the amount of times the ESO was activated, mine management had reason to know the ESO was being used for reasons other than relocating the continuous mining machine from an unsafe location for repair only. Therefore, the mine operator also had reason to know the audible or visual alarm did not activate when the proximity detection system (PDS) was being overridden by emergency stop override.

During the fatal accident investigation, MSHA determined there was a practice of continuous mining machine operators tramming the CMM from place to place, while they were positioned in the PDS shutdown which is located in the Red Zone.

APPENDIX A

Persons Participating in the Investigation

(Persons interviewed are indicated by a * next to their name)

Rockwell Mining, LLC

Norman Page Corporate Safety Director
Ott Mullins Corporate Safety Official
Rex Osborne General Mine Manager
Luke Stepp Superintendent
Justin Ray Safety Representative
Joe Evans Attorney
Todd Myers Attorney
*Steve Gibson Mine Foreman
*Christopher Adkins No. 1 Section Foreman
*Delano Kirby No. 1 Section Dayshift Foreman
*Charles Maynard 2nd Shift Chief Electrician
*George Jones 3rd Shift Maintenance Foreman
*Russell Nelson No. 1 Section Electrician
*David Havey Continuous Mining Machine Operator
*Casey Harris Continuous Mining Machine Operator
*Stacey Harris Continuous Mining Machine Operator
*William Daniels Continuous Mining Machine Operator
*Randal Riddle Continuous Mining Machine Operator
*Carl Nuckolls Continuous Mining Machine Operator
*Kevin Meadows Continuous Mining Machine Operator
*Steven Elswick Roof Bolter
*Daniel Moore Roof Bolter
*Jerrad Terrall Roof Bolter
*Densil Blankenship Shuttle Car Operator
*Scotty White Shuttle Car Operator
*Otto Bryant Trainer
*Steve Hensley Continuous Mining Machine Operator

United Mine Workers of America

Josh King District Representative
Gary Scott Local Representative

Matrix Design Group

Bruce Hunt Engineer
Zack Carrigan Engineer

APPENDIX A, continued

Joy Global, Inc. Personnel

Josh Burns.....Engineer
Philip Rosentern.....Engineer
Joe Mirmeta.....Attorney

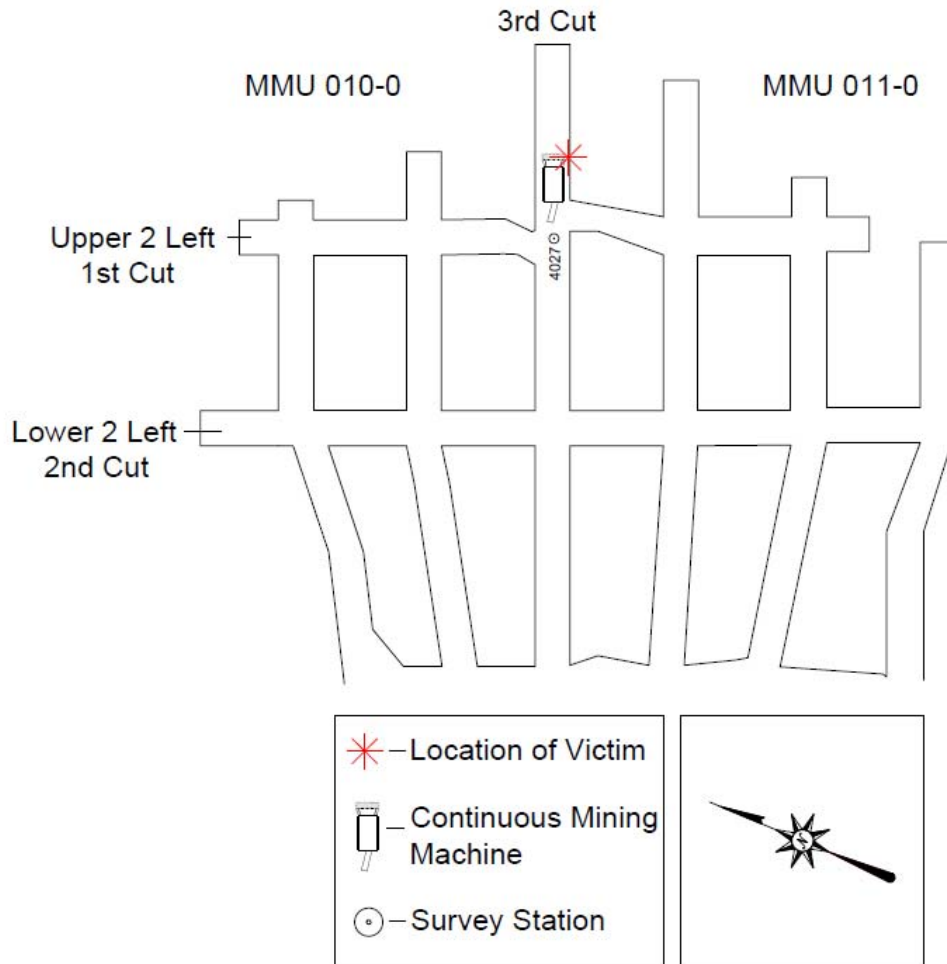
West Virginia Office of Miners Health, Safety and Training

John Kinder.....Inspector at Large
Wayne Pauley.....Assistant Inspector at Large
Greg Raines.....District Inspector
Randy Carter.....Roof Control/Accident Investigator
Tim Hughes.....Mine Safety Specialist
Kendall Smith.....Mine Safety Specialist/Electrical

Mine Safety and Health Administration

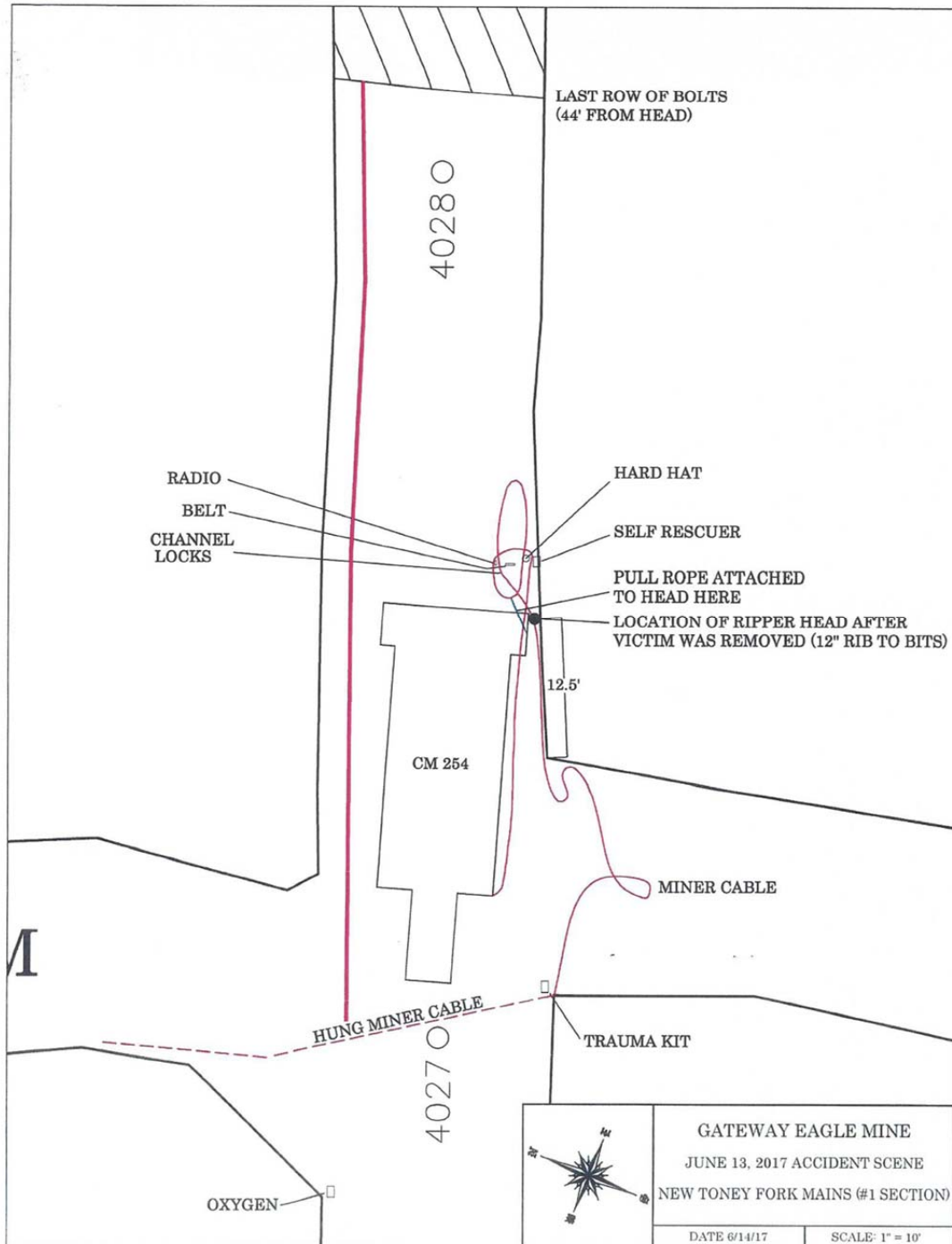
Brian Dotson.....District Manager
Larry E. Bailey.....Assistant District Manager, Technical
Tracy Calloway.....Staff Assistant
Mark Muncy.....CMS&H Inspector/Lead Accident Investigator
Rex Hampton.....Electrical Specialist
Charles Justice.....Electrical Specialist
Nicholas Christian.....Field Office Supervisor
Jonathan Cline.....Roof Control Specialist
Rodney Adamson.....Mine Safety and Health Specialist
Matt Wharry.....Technical Support
Patrick Retzer.....Technical Support
Bruce Linville.....Training Specialist

APPENDIX B
Sketch of Section at Time of Accident

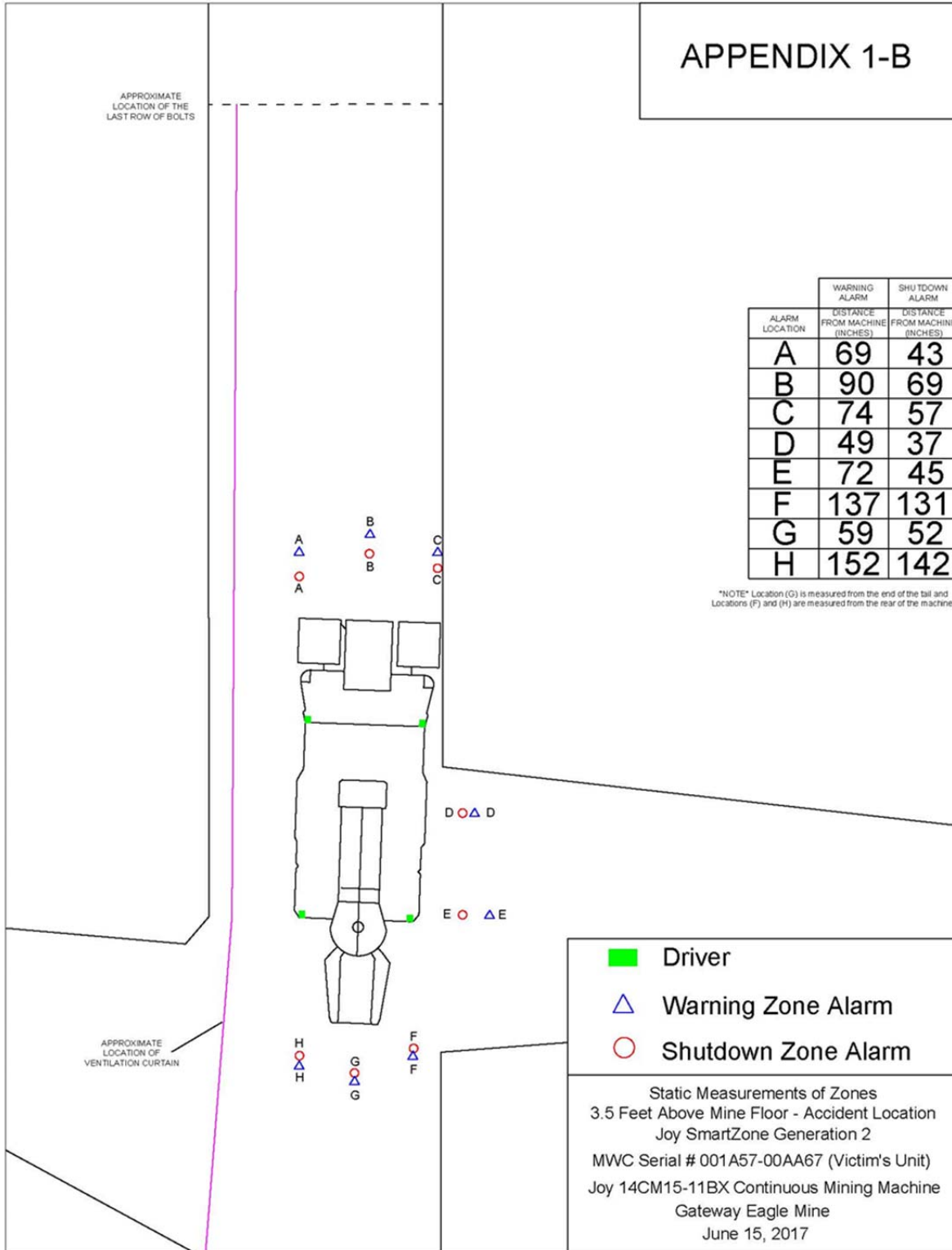


APPENDIX C

Sketch of Accident Scene



APPENDIX D Proximity Measurements



APPENDIX E Victim Information

Victim Information: 1																																															
1. Name of Injured/Ill Employee: <i>Rodney S. Osborne</i>			2. Sex <i>M</i>		3. Victim's Age <i>32</i>			4. Degree of Injury: <i>01 Fatal</i>																																							
5. Date(MM/DD/YY) and Time(24 Hr.) Of Death: <i>a. Date: 06/13/2017 b. Time: 21:37</i>								6. Date and Time Started: <i>a. Date: 06/13/2017 b. Time: 11:00</i>																																							
7. Regular Job Title: <i>036 Continuous Miner Operator</i>					8. Work Activity when Injured: <i>041 Moving Continuous Mining Machine</i>					9. Was this work activity part of regular job? <table style="width: 100%; border: none;"><tr><td style="text-align: center;">Yes</td><td style="text-align: center;"><input checked="" type="checkbox"/></td><td style="text-align: center;">No</td></tr></table>						Yes	<input checked="" type="checkbox"/>	No																													
Yes	<input checked="" type="checkbox"/>	No																																													
10. Experience																																															
a. This																																															
			Years			Weeks			Days			b. Regular			Years			Weeks			Days			c. This			Years			Weeks			Days			d. Total			Years			Weeks			Days		
Work Activity:			<i>0</i>			<i>12</i>			<i>3</i>			Job Title:			<i>0</i>			<i>12</i>			<i>3</i>			Mine:			<i>0</i>			<i>19</i>			<i>6</i>			Mining:			<i>9</i>			<i>13</i>			<i>5</i>		
11. What Directly Inflicted Injury or Illness? <i>077 Pinned between rib and cutting drum</i>								12. Nature of Injury or Illness: <i>170 Crushed between rib and cutting drum</i>																																							
13. Training Deficiencies:																																															
Hazard: <input type="checkbox"/> New/Newly-Employed Experienced Miner: <input type="checkbox"/> Annual: <input type="checkbox"/> Task: <input type="checkbox"/>																																															
14. Company of Employment: (If different from production operator) <i>Operator</i>																																															
Independent Contractor ID: (if applicable)																																															
15. On-site Emergency Medical Treatment:																																															
Not Applicable: <input type="checkbox"/>			First-Aid: <input type="checkbox"/>			CPR: <input type="checkbox"/>			EMT: <input type="checkbox"/>			Medical Professional: <input type="checkbox"/>			None: <input checked="" type="checkbox"/>																																
16. Part 50 Document Control Number: (form 7000-1)								17. Union Affiliation of Victim: <i>2555 United Mine Workers of Amer.</i>																																							