FAI-6244501-1

UNITED STATES
DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION

REPORT OF INVESTIGATION

Underground
(Coal)

Fatal Fall of Roof or Back Accident
May 14, 2021

Kocjancic
Rosebud Mining Company
Brockway, Jefferson County, Pennsylvania
ID No. 36-09436

Accident Investigators

James C. Miller
Mine Safety and Health Inspector

Joseph Wagner
Mine Safety and Health Inspector

Originating Office
Mine Safety and Health Administration
East Region - Mt. Pleasant District
631 Excel Drive, Suite 100
Mt. Pleasant, Pennsylvania 15666
Michael P. Kelley, District Manager

TABLE OF CONTENTS

OVERVIEW 1

GENERAL INFORMATION 1

DESCRIPTION OF THE ACCIDENT 2

INVESTIGATION OF THE ACCIDENT 3

DISCUSSION 4

- Location of Accident 4
- Equipment Involved 4
- Practice of Exceeding the Maximum Cut Depth 4
- Roof Support 5
- Examinations 5
- Training and Experience 6

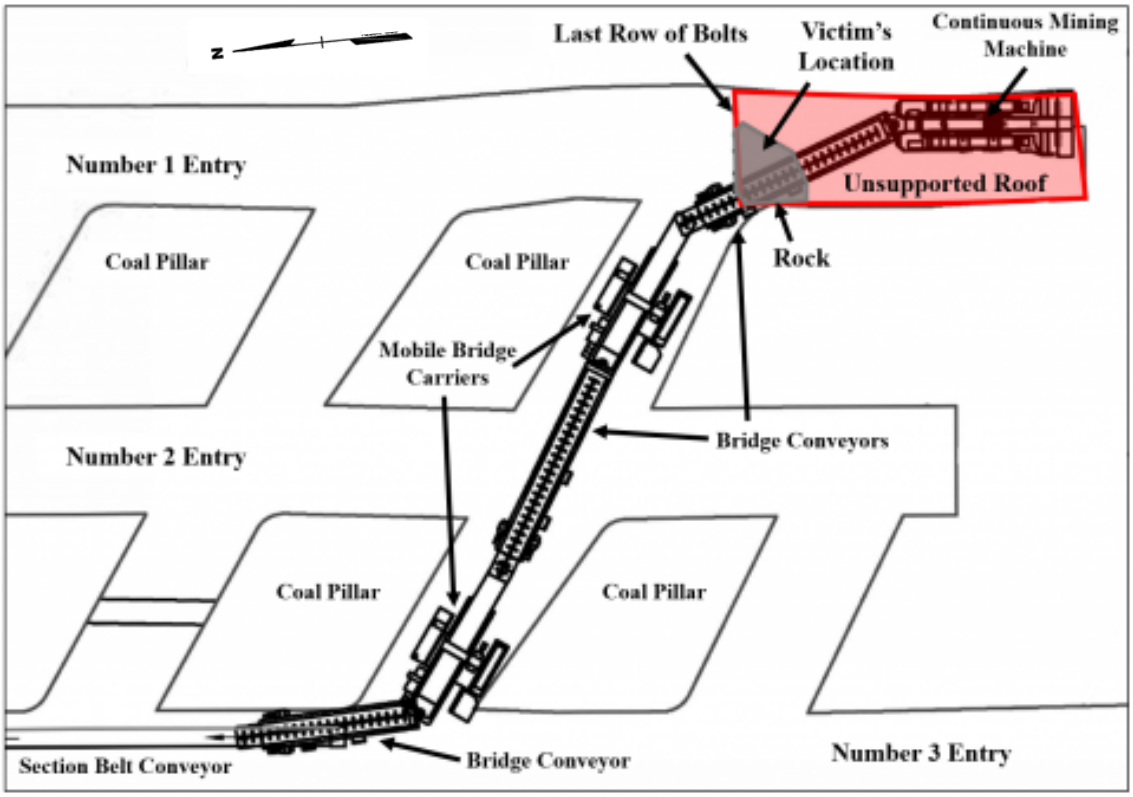
ROOT CAUSE ANALYSIS 6

CONCLUSION 6

ENFORCEMENT ACTIONS 7

APPENDIX A – D-2 Butt Section Map 9

APPENDIX B – Persons Participating in the Investigation 10



OVERVIEW

On May 14, 2021, at approximately 12:45 p.m., Joseph G. Guzzo, a 32-year-old continuous mining machine operator with approximately 11 years of mining experience, died when a portion of the mine roof fell on him. The accident occurred as he was operating the continuous mining machine (CMM) by remote control while he was under unsupported roof.

The accident occurred because the mine operator: 1) had a practice of exceeding the maximum depth of cut requirements specified in the approved roof control and ventilation plans, 2) did not install unsupported roof warning signs or streamers, and 3) allowed the CMM operator to travel and work under unsupported roof.

GENERAL INFORMATION

Kocjancic is an underground coal mine owned by Rosebud Mining Company, located in Brockway, Jefferson County, Pennsylvania. The mine operates a single mechanized mining unit (MMU) in the Lower Kittanning coal seam (bituminous) with an average mining height of 40 inches. The mine operates one production shift, five days a week, using the room and pillar mining method. The mine employs 17 miners.

The mine operator extracts coal using a CMM, which is then transported by mobile bridge conveyors to the dumping point. The mine operator uses a belt conveyor to transport coal to the surface. The mine uses self-propelled, rubber-tired personnel carriers and scoops to transport miners and materials in and out of the mine.

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

J. Clifford Forrest	Chief Executive Officer
David Doney	General Manager

The Mine Safety and Health Administration (MSHA) completed the last regular safety and health inspection at this mine on March 31, 2021. The 2020 non-fatal days lost (NFDL) injury incidence rate for the Kocjancic mine was zero, compared to the national average of 3.18 for mines of this type.

DESCRIPTION OF THE ACCIDENT

On May 14, 2021, at approximately 5:10 a.m., Jesse Hicks, Assistant Mine Foreman, Carmen Ishman, Examiner, and Jason Baumgartner, Section Foreman, entered the mine to begin the required pre-shift examination. Guzzo, who was not a certified person, traveled to the D-2 Butt working section. Guzzo, Hicks, and C. Ishman operated the CMM and continuous haulage system until the regular day shift mining crew arrived and took over for Hicks and C. Ishman at approximately 6:10 a.m. Guzzo continued to operate the CMM on the day shift.

At approximately 12:45 p.m., while mining in the No. 1 entry, Nathan Phillips, Inby Mobile Bridge Carrier (MBC) Operator, heard a piece of rock breaking and falling near the CMM, but could not see or determine what had occurred from inside the MBC compartment. The proximity detection system (PDS) caused the haulage system to shut down when communication was lost between the PDS machine mounted components and the PDS miner wearable component (MWC) worn by Guzzo. Phillips also pressed his emergency stop switch, crawled inby, crossed over the haulage system, and saw Guzzo beneath a piece of flat rock approximately four feet inby the last row of permanently installed roof bolts (see Appendix A). The emergency stop switches on the CMM, MBCs, and bridge conveyors are interlocked so that all pieces of equipment shut down when one emergency stop switch is pressed.

The rock was triangular in shape and approximately twelve feet long by nine feet wide, and three to five inches thick. Phillips found Guzzo under unsupported roof and immediately crossed back over the haulage system and summoned Jeremy Cary, Outby MBC Operator, telling him to get help and that Guzzo was under a rock. Cary signaled with his cap lamp to: Kyle Travis, Roof Bolter; Austin Cook, Roof Bolter; Raymond Briggs III, Section Mechanic; Jesse Reichard, Roof Bolter; and Baumgartner; who were at the face of the No. 3 entry, and yelled that Guzzo was under the rock. Phillips then left to search for a rock bar to move the rock off Guzzo.

Travis, Cook, Reichard, and Baumgartner went to the No. 1 entry. Briggs III went to the No. 4 entry (travelway) to call for Hicks who was also an emergency medical technician. Hicks was working outby, loading rock dust. At approximately 12:50 p.m., Briggs III called Wendall Shick, Mine Clerk, to inform him of the accident and the need for an ambulance. Michael Brewer, Outby Diesel Scoop Operator, was crawling from the No. 4 entry to the No. 3 entry when he heard the yelling about Guzzo. Brewer went to the No. 1 entry joining Travis, Cook, Reichard and Baumgartner at the accident scene.

While Cook, Travis, Reichard, and Baumgartner lifted the rock, Brewer pulled Guzzo from under the rock. Travis and Brewer took him from the No. 1 entry along the haulage system to the No. 2 entry, where Hicks began administering cardiopulmonary resuscitation (CPR) and connected an automated external defibrillator (AED) to Guzzo. The AED advised one shock and Hicks administered the shock at 1:01 p.m. with no success.

Hicks continued performing CPR while Baumgartner summoned Cary and Phillips to operate the MBCs while Baumgartner operated the CMM. Baumgartner trammed the CMM back to the rock that fell on Guzzo and used the CMM to push the rock to the face of the No. 1 entry. Baumgartner, Cary, and Phillips then backed the haulage system across the No. 2 entry to allow Brewer to tram the scoop to the victim. Hicks, Travis, and Reichard placed Guzzo in the bucket of the scoop. Baumgartner and Hicks continued CPR as the scoop transported Guzzo out of the section. Shawn Rheaume, Maintenance Chief, met them with the underground ambulance approximately four crosscuts outby the section.

While in the ambulance, Hicks and Baumgartner continued performing CPR while Rheaume drove approximately ten minutes to the surface. On the surface, Brockway Emergency Medical Services took over CPR and first aid duties. Brenda Shumaker, Jefferson County Coroner, pronounced Guzzo dead at 2:55 p.m.

INVESTIGATION OF THE ACCIDENT

On May 14, 2021, at 1:06 p.m., Wendall Schick, Mine Clerk, called the Department of Labor National Contact Center (DOLNCC) to report a serious accident. The DOLNCC notified Dennis Zeanchock, Supervisory Mine Safety and Health Inspector. Zeanchock notified Michael Kelley, District Manager, and Robert Roland, Supervisory Mine Safety and Health Inspector. Kelley dispatched James Miller and Joseph Wagner, Mine Safety and Health Inspectors, to the mine. Miller arrived at the mine at 4:00 p.m. and issued an order under the provisions of Section 103(k) of the Mine Act to assure the safety of the miners and preservation of evidence. Wagner arrived at 4:20 p.m.

Miller and Wagner interviewed ten miners upon their arrival. Following the interviews, Kelley arrived and traveled with company officials, MSHA investigators, and Pennsylvania Bureau of Mine Safety (PA BMS) officials to the D-2 Butt section, arriving on the section at 7:20 p.m. Investigators took photographs and recorded measurements. The mine operator altered the accident scene and therefore investigators were unable to get photographs of the accident scene and the actual rock that fell. The mine operator pushed this rock to the face and broke it up prior to MSHA arriving on the scene.

MSHA modified the Section 103(k) order to allow the mine operator to install roof bolts in the unsupported area of the accident scene. Investigators obtained the approximate dimensions of the roof fall by measuring the cavity it left in the mine roof. MSHA modified the Section 103(k) order to allow the mine operator to energize and tram the CMM to the face of the No. 1 entry where investigators tested the performance of the remote control transmitter for the CMM and the MWC of the PDS. During these tests, both the remote control transmitter and the MWC functioned properly.

On May 17, 2021, William Kibler, Electrical Specialist, Matt Wharry, Industrial Engineer from MSHA Technical Support, and Bruce Hunt, Matrix Representative, traveled to the accident scene to test the PDS and download PDS data from the CMM. Wharry; Nicholas Fallova, Industrial Engineer; and Brandon Boring, Electrical Engineer, analyzed the PDS data.

On May 18, 2021, Kibler met the following PA BMS investigators at the mine: Richard Murphy, Underground Bituminous Mine Inspector Supervisor; Lance Noel, Underground Bituminous Mine Electrical Inspector; and Gary Barkley, Bituminous Electrical Inspector Supervisor. Kibler and the PA BMS investigators gathered information from the Innovative Wireless Technologies (IWT) communication and tracking system. Wagner and Miller went into the D-2 Butt section to obtain additional measurements of the faces and test hole locations.

On May 19, 2021, MSHA and PA BMS officials conducted a second round of interviews with the ten miners previously interviewed on the day of the accident, and interviewed two additional miners.

On June 1, 2021, MSHA and PA BMS officials conducted interviews with three additional miners. On June 16, 2021, three miners were re-interviewed and revealed the actual chain of events on the day of the accident (some previous information had proven to be inaccurate). See Appendix B for a list of persons participating in the investigation.

DISCUSSION

Location of Accident

The accident occurred in the D-2 Butt section of the mine. The immediate roof in this area has a bed of clay and silt shale (black draw rock) approximately ten inches to twelve inches thick. The main mine roof above the immediate roof was black silt stone, 38 to 40 feet thick. The entry was approximately 19.5 feet wide, 42 inches high, and relatively dry. The section of roof that fell on the victim was triangular in shape, approximately twelve feet long by nine feet wide, and three to five inches thick.

Equipment Involved

At the time of the accident, the victim was operating an Eimco Dash Zero CMM. The CMM loaded coal on the No. 1 bridge conveyor, which transported coal through a series of mobile bridge carriers (MBCs) and additional bridge conveyors to the section belt conveyor. The CMM, bridge conveyors, and MBCs are connected and move in tandem. Investigators examined the CMM, bridge conveyors, and MBCs and found no deficiencies.

Practice of Exceeding the Maximum Cut Depth

The mine operator engaged in a practice of violating the depth of cut requirements in the approved ventilation plan and the approved roof control plan. The mine operator submitted the roof control and ventilation plans to MSHA on August 27, 2015 and May 1, 2018, respectively, for MSHA review and approval. MSHA approved the ventilation plan on October 6, 2015 and the roof control plan on May 30, 2018, respectively.

The approved roof control plan states that the maximum depth of cut, beyond the last row of permanent roof support, is 30 feet. Investigators measured the depth of the cut in the No. 1 entry to be 60 feet. The victim had traveled approximately four feet inby permanent roof support (roof bolts) when he was struck by the fallen rock. The length of the CMM is 26 feet. Therefore, the maximum cut depth is indicated when the bumper of the CMM is four feet inby the last row of bolts. If the bumper of the CMM is more than four feet inby the last row of bolts, the cut depth is greater than 30 feet.

Investigators also determined that reflective signs or streamers, to serve as a warning of unsupported roof inby, were not installed on the next to last row of roof bolts, as required by the approved roof control plan. Reflective signs and streamers were available on the section.

Additionally, the approved ventilation plan contains a drawing showing 30 feet from the last row of permanent roof support to the face. Investigators found the line brattice to be 12 feet outby the last row of bolts in the crosscut between No. 1 entry and No. 2 entry, approximately 72 feet from the face.

Investigators determined that during this shift, the CMM cutter drum was turned off five times to allow miners to move the CMM, bridge conveyors, and MBCs to other locations to begin new cuts. The mine operator reported over 300 feet mined on this shift on production reports, which equates to an average cut depth of 60 feet for multiple cuts. Investigators determined that a 33 foot cut was mined in the No. 3 entry and a 41 foot cut was mined in the No. 4 entry. During interviews, miners stated that cuts deeper than 30 feet had been mined during previous shifts.

Roof Support

The mine operator supported the roof of the D-2 Butt section with 48-inch fully grouted rebar roof bolts with six inch by six inch bearing plates. The mine operator installed these roof bolts on four foot by four foot centers.

During the investigation, it was evident that portions of draw rock had fallen out during the mining process, ranging in thickness from three to five inches throughout the section. In addition, there was an average of four inches of draw rock cut during the mining process.

Examinations

The mine operator is required to perform pre-shift and on-shift examinations on the D-2 Butt section. Records indicate that on May 14, 2021, Baumgartner conducted a pre-shift examination, between 5:15 a.m. and 5:40 a.m. Baumgartner called the results of his examination out to the surface to D. Ishman at 5:45 a.m. The mine operator did not record any hazards. Baumgartner conducted an on-shift examination between 6:15 a.m. and 6:38 a.m. and recorded it on the surface. The mine operator did not record any hazards during this examination.

Training and Experience

Guzzo had approximately 11 years of total mining experience. He had approximately nine years of experience operating a CMM. Training records indicate that Guzzo had received experienced miner training at the Kocjancic mine on November 7, 2016, and task training on the Eimco Dash Zero CMM on November 11, 2016. Investigators reviewed the training records and found no training deficiencies.

ROOT CAUSE ANALYSIS

The accident investigation team conducted an analysis to identify the underlying cause of the accident. The team identified several root causes, and the mine operator implemented the corresponding corrective actions to prevent a recurrence.

Root Causes: The mine operator 1) had a practice of exceeding the maximum depth of cut requirements specified in the approved roof control and ventilation plans, 2) did not install unsupported roof warning signs or streamers, and 3) allowed the CMM operator to travel and work under unsupported roof.

Corrective Actions: The mine operator retrained all supervisors and miners on the hazards of mining beyond the allowed depth of cut, the hazards of working and traveling into areas of unsupported roof, and how to properly hang warning signs and streamers to identify areas of unsupported roof.

CONCLUSION

On May 14, 2021, at approximately 12:45 p.m., Joseph G. Guzzo, a 32-year-old continuous mining machine operator with approximately 11 years of mining experience, died when a portion of the mine roof fell on him. The accident occurred as he was operating the continuous mining machine (CMM) by remote control while he was under unsupported roof.

The accident occurred because the mine operator: 1) had a practice of exceeding the maximum depth of cut requirements specified in the approved roof control and ventilation plans, 2) did not install unsupported roof warning signs or streamers, and 3) allowed the CMM operator to travel and work under unsupported roof.

Approved By:

_____ _____

Michael P. Kelley Date
District Manager

ENFORCEMENT ACTIONS

1. A 103(k) order was issued to Rosebud Mining Company on May 14, 2021 at 4:00 p.m.:

   A fatal roof fall accident occurred on Friday, May 14, 2021 at 12:45 p.m., in the D-2 Butt section, MMU 001, of the Kocjancic Mine, owned and operated by the Rosebud Mining Company. While mining coal in the #1 entry, the miner operator was fatally injured when he was struck with a piece of rock. As investigative work is necessary, the 103(k) order is being issued under the authority of the Federal Mine Safety and Health Act of 1977, to prevent the destruction of any evidence that would assist in investigating the cause or causes of the accident. It prohibits all activity in the D-2 Butt section until MSHA permits normal mining operations in this area. This order was initially issued verbally to the mine operator at 4:00 p.m. on May 14, 2021, and now has been reduced to writing.

2. A 104(d)(1) order was issued to Rosebud Mining Company for a violation of 30 CFR § 75.202(b):

   No person shall work or travel under unsupported roof. On May 14, 2021, in the No. 1 entry of the D-2 Butt section, MMU 001, a continuous mining machine operator traveled approximately four feet inby the last row of permanent supports and was fatally injured when he was struck by a piece of falling rock. The mine operator's practice of violating the maximum cut depth of 30 feet listed in the approved roof control and ventilation plans contributed to this fatality. On May 14, 2021, a cut 60 feet in depth was mined in the No. 1 entry of the D-2 Butt active advancing section, MMU 001. In addition, multiple deep cuts were taken during this shift. A 33 foot cut was mined in the No. 3 entry and a 41 foot cut was mined in the No. 4 entry. This violation is an unwarrantable failure to comply with a mandatory standard.

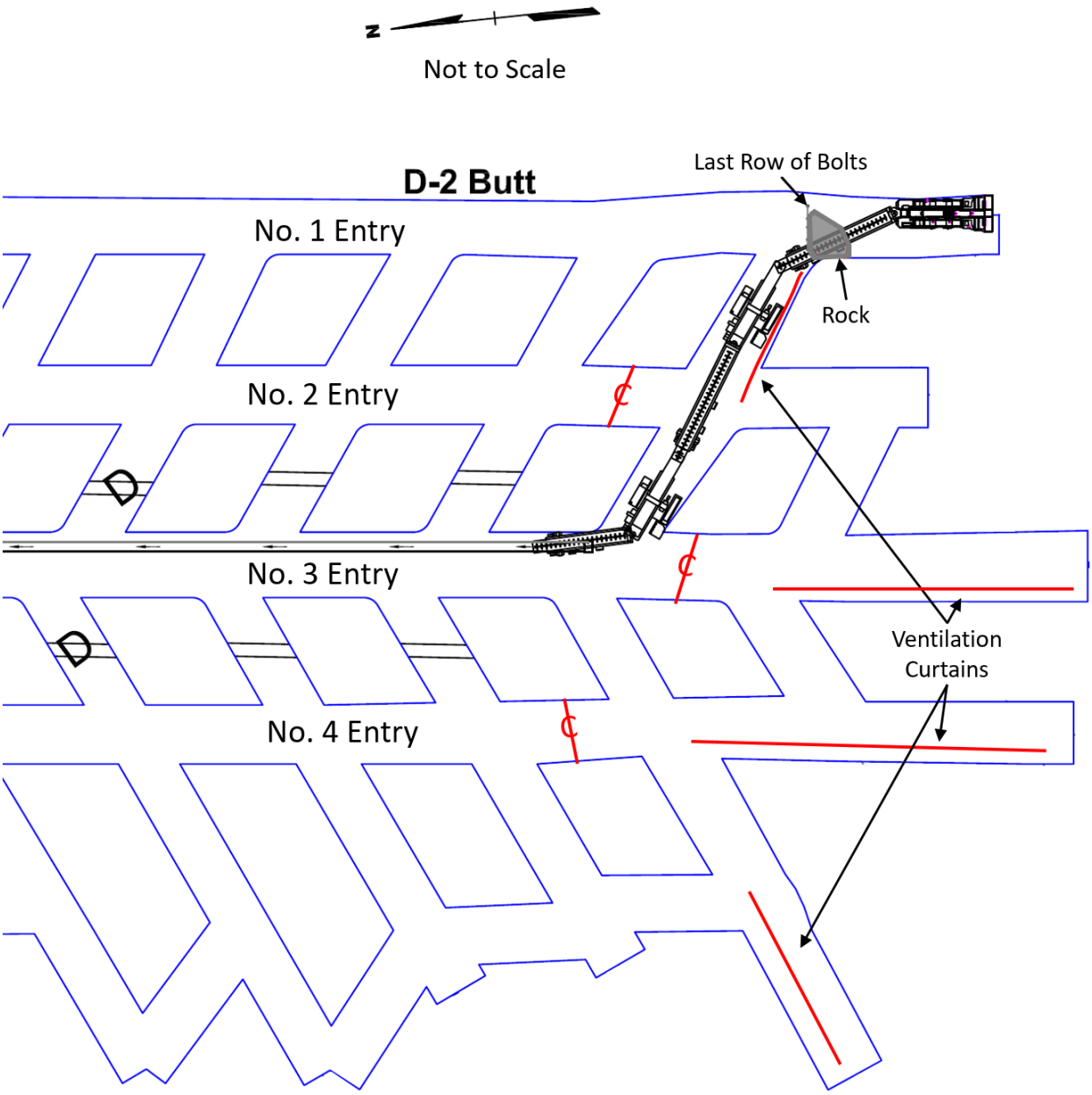
3. A 104(d)(1) citation was issued to Rosebud Mining Company for a violation of 30 CFR § 75.220(a)(1):

   The mine operator did not comply with the Roof Control Plan, approved on May 30, 2018, in that several cuts exceeded the maximum cut depth and reflective warning signs and streamers were not installed at the next to last row of permanent roof supports. Pages 18, 19, 20, 21, and 22 all identify the maximum cut depth as 30 feet. Page 12, items 25 and 29 require reflective warning signs and streamers to be installed at the next to last row of bolts at areas of the face that are not roof bolted. On May 14, 2021, a 60 foot cut was mined in the No. 1 entry of the D-2 Butt active advancing section, MMU 001 and there were no signs or reflective signs or streamers installed. The continuous mining machine operator traveled inby the last row of permanent roof supports and was struck by a piece of rock resulting in a fatal injury. The mine operator engaged in a practice of violating the maximum cut depth of 30 feet listed in the approved roof control plan. Multiple deep cuts were taken during this shift. A 33 foot cut was mined in the No. 3 entry and a 41 foot cut was mined in the No. 4 entry. This violation is an unwarrantable failure to comply with a mandatory standard.

4. A 104(a) citation was issued to Rosebud Mining Company for a violation of 30 CFR § 75.370(a)(1):

   The mine operator was not following the approved Ventilation Plan, approved October 6, 2015. Page B2 item 5 states that the line brattice set back distance shall not exceed the maximum cut set back distance of the cut being taken. In addition, page B6a shows that the maximum cut approved is 30 feet. On May 14, 2021, a 60 foot cut was taken in the No. 1 entry of the D-2 Butt active advancing section, MMU 001. The line brattice was found to be 12 feet outby the last row of bolts in the crosscut 2-1, approximately 72 feet from the face. A continuous mining machine operator traveled approximately four feet inby the last row of permanent supports and was fatally injured when he was struck by a piece of falling rock. Multiple deep cuts were taken during this shift. A 33 foot cut was mined in the No. 3 entry and a 41 foot cut was mined in the No. 4 entry. Additionally, air was not being directed into the face to provide ventilation to dilute and render harmless and to carry away flammable, explosive, noxious, and harmful gasses, dust, smoke, and fumes from the working face. This violation is an unwarrantable failure to comply with a mandatory standard.

APPENDIX A – D-2 Butt Section Map



APPENDIX B – Persons Participating in the Investigation

Rosebud Mining Company

David Doney	General Manager
Brian Burkett	Mine Superintendent
Donald Ishman	Mine Foreman
Shawn Rheaume	Maintenance Chief
Jesse Hicks	Assistant Mine Foreman
Carmen Ishman	Examiner
Jason Baumgartner	Section Foreman
Ben Stock	Attorney
Jacob Wells	Safety
Tanner Lowmaster	Safety
Wendall Schick	Mine Clerk
Nathan Phillips	Inby Mobile Bridge Carrier Operator
Jeremy Cary	Outby Mobile Bridge Carrier Operator
Austin Cook	Roof Bolter
Jesse Reichard	Roof Bolter
Kyle Travis	Roof Bolter
Michael Brewer	Outby Diesel Scoop Operator
Raymond Briggs III	Section Mechanic
Jeremy Adams	Scoop Operator

Pennsylvania Bureau of Mine Safety

Jim Schuessler	Program Manager
Gary Barkley	Bituminous Electrical Inspector Supervisor
Richard Murphy	Underground Bituminous Mine Inspector Supervisor
Brenton Harmon	Underground Bituminous Mine Inspector
Lance Noel	Underground Bituminous Mine Electrical Inspector

Matrix Design Group

Bruce Hunt	Representative

Mine Safety and Health Administration

William Kibler	Electrical Specialist
James Miller	Mine Safety and Health Inspector
Joseph Wagner	Mine Safety and Health Inspector
Nicholas Fallova	Industrial Engineer
Matt Wharry	Industrial Engineer
Brandon Boring	Electrical Engineer