

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 28, 2015

Brubaker Mine
LCT Energy, LP
Hooversville, Somerset County, Pennsylvania
ID 36-09939

Accident Investigators

Richard L. Gindlesperger
Coal Mine Safety and Health Inspector, Electrical Specialist

Robert Snyder
Mine Safety and Health Inspector

Originating Office
Mine Safety and Health Administration
District 2
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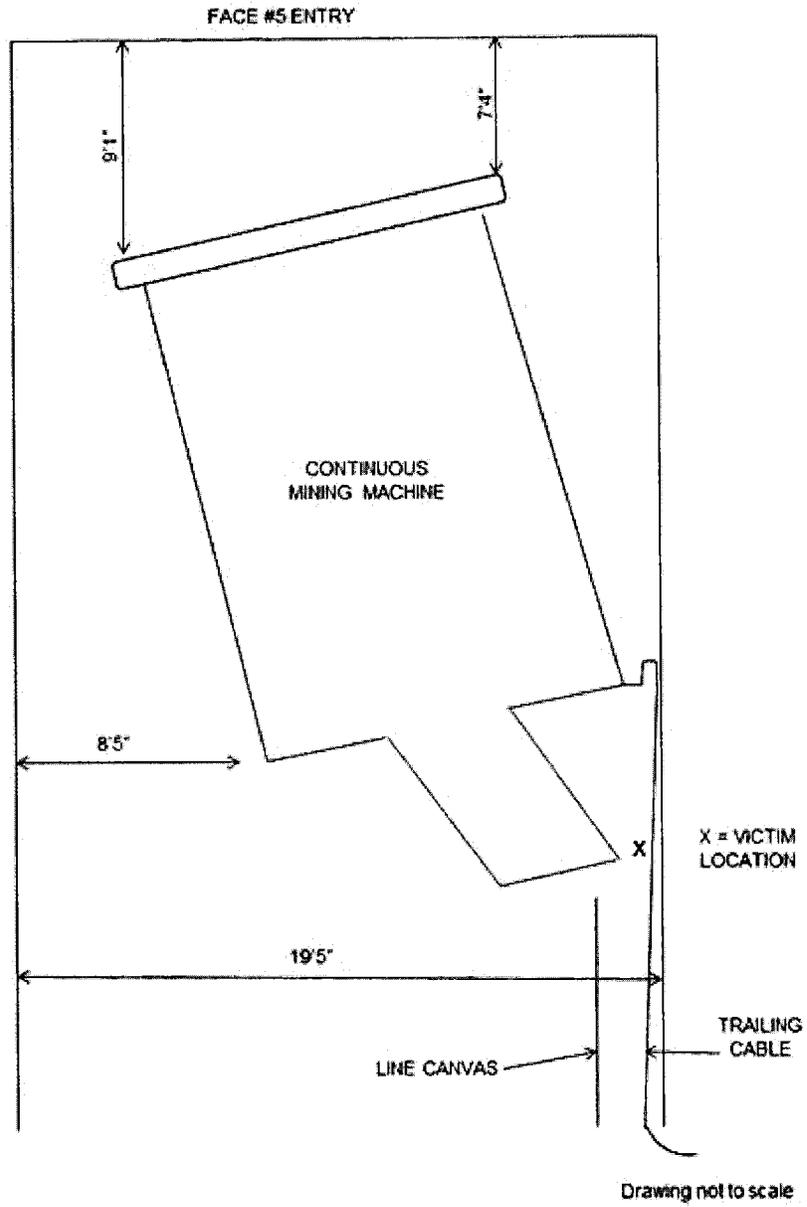
Thomas E. Light, District Manager

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ACCIDENT SITE

MMU 001-0



OVERVIEW

On January 28, 2015, at approximately 6:45 p.m. Rick Kline (victim), a 43-year-old continuous mining machine operator, was fatally injured when he was pinned between the conveyor boom of the remote controlled continuous mining machine and the coal rib in the No. 5 entry on the MMU 001-0, (Lebeau Mains Section). Kline was pinned when he positioned himself between the conveyor boom and the coal rib while trammng the continuous mining machine before beginning to mine coal at the face of the No. 5 entry.

The accident occurred because the victim trammed the continuous mining machine while in a position where he could be contacted by the machine. The mine operator's administrative controls, policies, and training in place at the time of the accident were not adequate to ensure that the safety precautions in the approved roof control plan were being followed. Also, the mine operator does not have engineering controls in place to prevent this type of accident.

GENERAL INFORMATION

The Brubaker Mine is an underground mine operated by LCT Energy, LP, located in Hooversville, Pennsylvania. The mine is accessed through three drifts into the Lower Kittanning (Bituminous) coal seam and has an average mine height of 52 inches. This mine is ventilated with one main return fan and has no history of methane liberation. Miners and materials are transported into the mine through the drift openings using battery-powered equipment. This mine produces an average of 3,100 tons of coal daily. Coal is mined with the room and pillar method of mining, using remote controlled continuous mining machines and shuttle cars. The coal is transported from the section by conveyor belts to the surface. The mine works two, nine-hour production shifts and one eight-hour maintenance shift five days a week. On Saturdays, the mine works one eight-hour production shift and one eight-hour maintenance shift. There are a total of 77 employees at the mine; 68 working underground and 9 on the surface.

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

Mark R. Tercek	President
John S. Strutka	Vice President of Operations
James Mullen	Superintendent/Mine Foreman
Donald Foster	Safety Director
Troy Kunrod	Section Foreman

Prior to the accident, the Mine Safety and Health Administration (MSHA) completed the last regular safety and health inspection (E01) on December 16, 2014. An E01 inspection started on January 5, 2015, was ongoing at the time of the accident. The Non-Fatal Days Lost (NFDL) injury incidence rate for the mine in 2014 was 6.73, compared to an NFDL rate of 3.27 for mines of this type.

DESCRIPTION OF ACCIDENT

On January 28, 2015, Rick Kline (victim) began the afternoon shift at approximately 2:30 p.m. with the rest of the Lebeau Mains production crew. The production crew consisted of Jamie Houston, Corey Marcum, Joseph Lubniewski, Shane Kennedy, Roof Bolters; Korey Harbaugh, Austin Matsko, Shuttle Car Operators; Dave Sipes, Scoop Operator; Eugene Horner, Mechanic; Troy Kunrod, Section Foreman, and Kline, who was the only continuous mining machine operator. All of the production crew members except Horner, traveled to the section at the start of the shift. Horner arrived on the section later than the other crew members.

Kline operated the continuous mining machine and mined the No. 3 entry, mined a crosscut from No. 3 entry to No. 2 entry, and mined the No. 2 and No. 7 entries. After the No. 7 entry was mined, Kline moved the mining machine to the No.6 entry to load the rock that fell in the face area. Houston and Marcum finished bolting the No. 5 entry and then backed the roof bolting machine into the last open crosscut from the No. 5 entry to No. 6 entry, and waited for Kline to back the mining machine out of the No. 6 entry (see Appendix A).

Kline finished loading the rock and then began moving the mining machine from the No. 6 entry to the No. 5 entry. He trammed the mining machine in reverse outby the last open crosscut in the No. 6 entry, continuing through the next to last open crosscut, and then just outby this crosscut in the No. 5 entry. From that point he trammed the mining machine forward towards the face of the No. 5 entry.

When he passed the last open crosscut, Kunrod, Houston, and Marcum were behind the ventilation curtain in the crosscut discussing where the roof bolters were going to bolt next. They could not see Kline or the mining machine through the ventilation curtain, but they heard the mining machine's scrubber fan start as the mining machine was trammed in the No. 5 entry. Matsko trammed the No. 4 shuttle car through the last open crosscut from No. 4 entry to No. 5 entry and stopped at the No. 5 entry.

While pausing, Matsko heard the scrubber fan running and saw the mining machine's trailing cable and water line moving inby. When he observed the trailing cable and waterline stopped moving, Matsko went to the mining machine and saw Kline pinned between the conveyor boom of the mining machine and the coal rib. Kline was facing inby (towards the No. 5 face) with the conveyor boom against the left side of his chest and his right side was against the coal rib. The mining machine and scrubber fan were running and the nylon sling (rope) around the trailing cable and water line was attached to the conveyor boom.

Matsko reached under the conveyor boom and retrieved the remote control box for the mining machine and swung the conveyor boom away to free Kline, turned off the mining machine, and then yelled for Kunrod. Kunrod, a certified emergency medical technician (EMT), traveled to the accident scene with Houston (EMT) and Marcum. Kunrod began

administering first aid and told Marcum to call 911 and get the backboard and first aid supplies. Houston assisted Kunrod and began an initial assessment, but could not confirm vital signs. Marcum told Harbaugh to call outside to tell Colt Kniss, Outside Man, to call 911. Marcum obtained the first aid supplies and the backboard and took them to the accident scene. Harbaugh got the mantrip and backed it up to the continuous mining machine. Kline was placed on a backboard and was given oxygen. The automated external defibrillator (AED) was not used because Kline had a pacemaker. He was placed on the mantrip and first aid was administered while he was transported to the surface. Northern EMS ambulance service and crew members took over first aid care and transported Kline to the Windber Hospital Emergency Room. At 7:45 p.m., Kline was pronounced dead by Somerset County Coroner, Wallace Miller, due to blunt force trauma to the chest.

INVESTIGATION OF THE ACCIDENT

On January 28, 2015, at 7:47 p.m., James Mullen, Superintendent/Mine Foreman notified MSHA that an accident had occurred at the mine. A citation, that did not contribute to the accident, was issued for a violation of 30 CFR § 50.10 because the mine operator did not notify MSHA immediately, at once, without delay, and within 15 minutes. Ron Hixson, MSHA District 2 Assistant District Manager, called Dennis Zeanchock, MSHA Johnstown, Pennsylvania Field Office Supervisor, at approximately 7:50 p.m. Zeanchock contacted Dan Gonos, Brubaker Mine Safety Supervisor, and verbally issued a 103(j) order to preserve the accident scene and to prevent the destruction of evidence.

Zeanchock then dispatched three MSHA inspectors from the Johnstown field office to begin an accident investigation. MSHA personnel arrived at the mine at 9:30 p.m. and modified the 103(j) order to a 103(k) order at 9:35 p.m. The accident investigation was conducted in cooperation with the Pennsylvania Bureau of Mine Safety and the mine operator. Persons who participated in the investigation are listed in Appendix B.

Interviews were conducted with ten miners on January 28, 2015, on the surface of the mine, and with four additional miners on February 10, 2015, at the LCT Energy, LP office (see list of persons interviewed in Appendix B). Preliminary information was collected, including measurements, photographs, and sketches that were made at the accident scene. The functions and operations of the continuous mining machine were tested at the accident scene and a permissibility inspection was conducted on the mining machine. The remote control unit and its battery were obtained for examination and tested under laboratory conditions at the Matric facility in Seneca, Pennsylvania.

DISCUSSION

Accident Scene

The accident occurred in the face area in the No. 5 entry approximately 80 feet in by survey spad No. 2035 in the Lebeau Mains section (MMU 001-0). This entry was mined 82 feet in by the last open crosscut. The entry was approximately 19 feet and 5 inches in width and 50 inches in height. The roof had permanent roof support installed to the face and no hazardous conditions were observed in the roof and ribs in the area. The mine roof, ribs, and mine floor were relatively dry.

When the investigators arrived to begin the operation and function tests on the continuous mining machine, it was in the same position that it was in at the time of the accident, except that the conveyor boom was in the position that Matsko placed it when he moved it to free Kline. The front right corner of the mining machine was 88 inches out by the face and 35 inches from the right rib facing in by. The cable anchor point located on the right rear of the mining machine when measured was 7 inches from the right rib. There was a 5 to 6 foot loop of slack trailing cable and water line along the right rear corner of the mining machine. The gathering head (pan) of the mining machine was found in the raised position. The imprints of the mining machine tracks found on the mine floor extended 5 to 6 feet in front of where the front edge of the tracks were located. From all indications, the continuous mining machine was being backed away from the face at the time of the accident.

During on site testing, when the continuous mining machine was trammed forward a few feet from its location at the time of the accident, and then trammed back, investigators observed that the mine floor was uneven under the mining machine. The uneven mine floor caused the front and back of the mining machine to rock up and down. At this point, when investigators operated the tracks in opposite directions, the mining machine pivoted and turned very easily and very quickly.

Equipment

The remote controlled continuous mining machine involved in the accident was manufactured by Joy Global Inc. The model number is 14CM09-11AX, the serial number is JM6803, MSHA approval number 2G-4159A-00, and the Pennsylvania Bureau of Mine Safety approval number is BFE-0031-08. The remote control unit being used at the time of the accident was manufactured by Matric Ltd. The part number is 100510082, serial number is 172205AP019, and the MSHA approval number is 2G-4096-0.

During functional operation testing of the continuous mining machine performed on January 29, 2015, the stabilizer jack was inoperable. The stabilizer jack is used to raise the back of the mining machine up and /or to stabilize the mining machine during the process of mining. Also, the conveyor gathering head had no float function, unless the

selector switch on the remote was held continuously to activate the solenoid on the valve bank. These conditions existed because the mine operator changed the configuration of the valve bank wiring and hydraulic hosing. A noncontributing citation was issued for these conditions.

All of the other functions tested during the functional operation testing of the continuous mining machine operated properly.

On February 5, 2015, accident investigators inspected the permissibility of the continuous mining machine. The right headlight lens was broken and the guard protecting it was missing two bolts. All of the lights were working. Illumination in the area was not a contributing factor to the accident. No reflective tape was on the rear of the continuous mining machine. A red reflector measuring 3 ½ inches by 2 inches, and yellow reflective tape measuring 1 ¾ inch by 2 ¼ inch located on the right side of the conveyor boom, were approximately 5 feet from the rear of the continuous miner. A noncontributing citation was issued for these conditions.

The remote control unit to operate the mining machine was the only unit present on the Lebeau Mains section (MMU 001-0). This remote has a unique identification code that is paired with the continuous mining machine to eliminate the possibility of cross activation by other radio frequencies. The remote control unit testing and examination was done at the Matric facility in Seneca, PA. The MSHA Approval and Certification Center (A&CC) participated in this testing. Testing at Matric Ltd. did not reveal any performance deficiencies with the unit.

Examinations

The preshift examination was conducted and no hazardous conditions were recorded. Kunrod performed an inadequate on-shift examination on the shift that the accident occurred. Kunrod stated that no hazards existed, however, investigators found significant ventilation (improper air flow), rock dust (total incombustible content), and loose rib hazards. A 104(d) citation and 104(d) order were issued for these violations which were noncontributory to the accident.

Training and Experience

Kline had 9 years and 1 week of underground mining experience, with 4 years and 9 weeks as a continuous mining machine operator, and 23 weeks of experience at this mine. Kline had a miner's certificate of Qualification and Machine Operator's Certificate from the Commonwealth of Pennsylvania.

The mine operator could not produce records of Underground Experienced Miner Training. Also, the mine operator had no records of Task Training for the miners. Noncontributory citations were issued to the mine operator.

During interviews, Gonos stated that the experienced miner training for the victim was never documented. Rick Huff, Midnight Shift Section Foreman, stated that task training

records were stored on the working section on the section power center with other records. Huff stated that the training records got wet and were discarded. Huff stated that he task trained Kline on the Joy 14CM continuous mining machine, but then admitted that he didn't know if he had even been trained on a Joy 14CM mining machine himself. Management was aware that Kline was not trained by a qualified trainer, or a supervisor experienced in the assigned tasks, or other person experienced in the assigned tasks as required by 30 CFR § 48.7(e). However, Huff stated that he discussed the hazards of red zones with Kline. Although the victim was an experienced continuous mining machine operator, a noncontributory citation was issued to the mine operator for task training.

Roof Control Plan

The approved roof control plan in effect at the time of the accident contains the following statement on page 15, under the heading "Safety Precautions for Operating Remote Control Continuous Mining Machine and ATRS Roof Bolter using Haulage or Shuttle Cars."

During mining and the place changing with remote-control miners, no person shall position themselves where they can be contacted by the miner during the mining or tramming process.

The intent is to prevent the hazardous exposure of all persons in the working place from dangers associated with roof hazards and the movement of mining equipment.

Kline positioned himself where he was contacted by the continuous mining machine that he was tramming with a remote-control unit. The mine operator's administrative controls, policies, and training in place at the time of the accident were not adequate to ensure that the safety precautions in the approved roof control plan were being followed. The mine operator also had no commercially available proximity detection systems installed on the continuous mining machines being used at the mine.

ROOT CAUSE ANALYSIS

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

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

1. Root Cause: The provisions of the approved roof control plan to prevent the hazards associated with the movement of mining equipment were not followed.

Corrective Action: The mine operator has implemented the following written procedures:

- a. No one will walk in close proximity of the continuous mining machine when tramming.
- b. The continuous mining machine pump motor will be de-energized when loading or unloading miner cable.
- c. A spotter will be used to assist the mining machine operator to move the continuous mining machine from place to place, setting up to mine coal and moving into and out of the cut.
- d. When tramming the continuous mining machine into a fresh cut, with the assistance of a spotter, the operator will tram the machine in on the left side of the cut, de-energize the machine, drop the cable and set the mining machine up to begin mining as required on the air side.

The company established a written plan to install the Strata proximity detection system on all the continuous mining machines the company currently owns beginning with the mining machine involved in this accident. All miners will receive proper training on the proximity system, prior to their exposure to the system.

CONCLUSION

The continuous mining machine operator received fatal crushing injuries when he was caught between the continuous mining machine and the coal rib. The accident occurred because the victim operated (trammed) the machine, while located between the right side of the conveyor boom and the coal rib, in violation of the approved roof control plan. The mine operator's administrative controls, training, and policies in place at the time of the accident were not adequate to prevent the practice of operating continuous mining machines from an unsafe location.

Approved By:

Thomas E. Light
Thomas E. Light
District Manager

May 12, 2015
Date

ENFORCEMENT ACTIONS

1. A 103(j) order, number 7029296, was issued to LCT Energy, LP, to ensure the safety of the miners until the investigation could be completed.

An accident occurred at this operation on January 28, 2015 at approximately 19:25 hours. This order is being issued, under section 103(j) of the Federal Mine Safety and Health Act of 1977, to ensure the safety of all persons at this operation. This order is also being issued to prevent the destruction of any evidence which would assist in investigating the cause or causes of the accident. It prohibits all activity inby the loading point of the Lebeau Mains 001 MMU until MSHA has determined that it is safe to resume normal mining operations in this area. The order was initially issued orally to the mine operator at 19:57 hours and now has been reduced to writing.

2. A 104(a) S&S citation, number 7028590, was issued to LCT Energy, LP, citing 30 CFR § 75.220(a)(1):

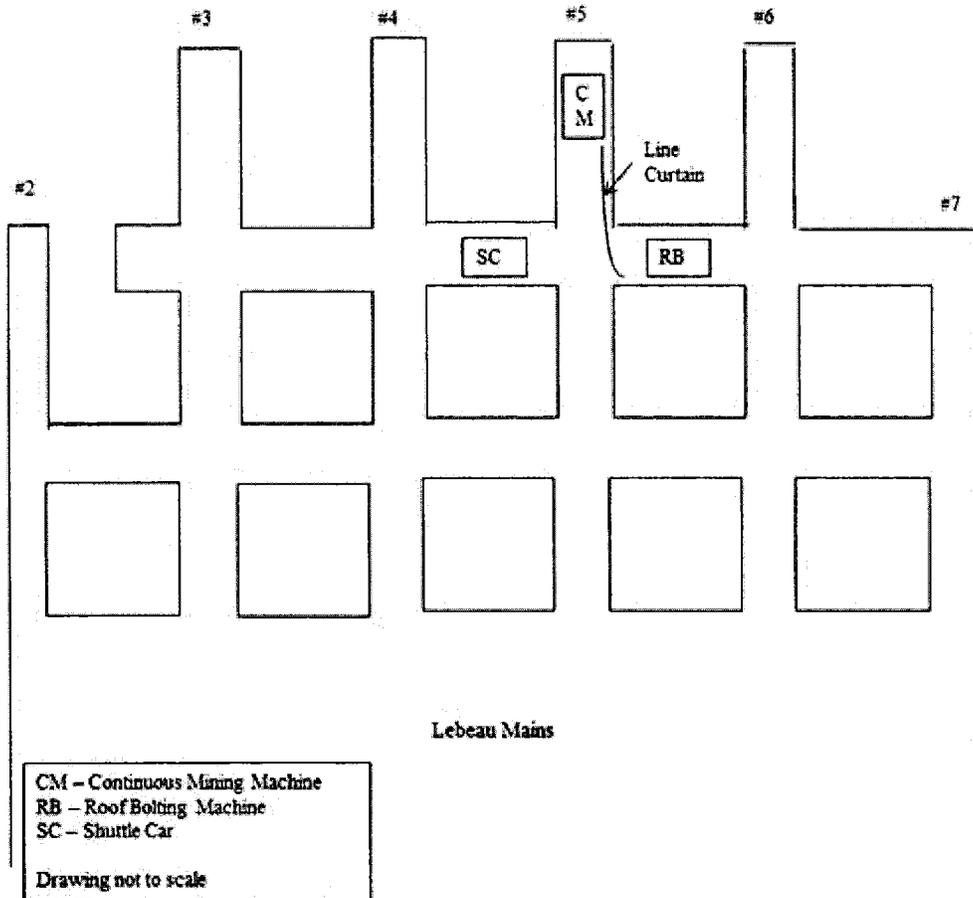
The mine operator failed to comply with the approved roof control plan. On January 28, 2015 the remote controlled continuous mining machine operator in the Lebeau Mains, MMU 001-0 active section was fatally injured. The continuous mining machine operator did not operate the machine from a position that afforded him protection from being contacted by the movement of the continuous mining machine. The approved roof control plan N0. 137103-B4, Dated 7/8/2014, states on page No.15, item No. 1 that during mining and place changing with remote-control miners, no person shall position themselves where they can be contacted by the miner during the mining or tramming process.

The operator will follow the four requirements listed below, until the installation of a Proximity detection system is implemented, completed and the men are trained on the operation of the system.

Standard 75.220(a)(1) was cited 10 times in two years at this miner (10 to the operator, 0 to a contractor).

Appendix A

Expanded View of the Accident Scene



**Appendix B
Persons Participating in the Investigation**

Mine Operator

<u>Name</u>	<u>Title</u>
James Mullen	Superintendent/Mine Foreman
Donald Foster	Safety Director
Daniel M. Gonos*	Safety Supervisor
Korey Harbaugh*	No. 6 shuttle Car Operator
Eugene Horner*	Section Mechanic
Jamie Huston*	Intake Roof Bolter (EMT)
Colt Kniss*	Surface Responsible Person
Shane Kennedy*	Roof Bolter Helper (return)
Troy Kunrod*	Section Foreman (EMT)
Joseph Lubniewski*	Roof Bolter Operator (return)
Corey Markum*	Roof Bolter Helper (intake)
Austin Matsko*	No. 4 Shuttle Car Operator (EMT)
Dave Sipes*	Scoop Operator
Rick Huff*	Section Foreman (midnight)
Jeff Alwine*	Mechanic (midnight)
Jason Horner*	Chief Electrician

*** Persons Interviewed**

Mining equipment Manufacturer

<u>Name</u>	<u>Title</u>
Matt Crow	Joy Global Inc.
Chris McCormick	Joy Global Inc.
Mike Wilson	Matric Ltd.
Kevin Dulaney	Matric Ltd.
Russ Cataldo II	Matric Ltd.

State Agency

<u>Name</u>	<u>Title</u>
Joseph Sbaffoni	Bureau of Mine Safety Div. Chief
Craig Carson	Chief, Mine Safety Pgm. Mgr.
Jeff Kerch	Chief, Mine Safety Pgm. Mgr.
Jim Ross	Electrical Insp. (Approvals)
Gary Barkley	Bit. U/G Mine Elect. Insp.
Robert Dubreucq	Bit. Deep Mine Insp. Supervisor

Appendix B Cont'd.
Persons Participating in the Investigation

Mark Gindlesperger	Bit. U/G Mine Insp.
Mitch Pacconi	Bit. U/G Mine Elect. Insp.

Mine Safety and Health Administration

<u>Name</u>	<u>Title</u>
Thomas Light	District Manager, Dist. 2
Ronald Hixson	Asst. Dist. Mgr. Dist. 2
Steve Kotvas	Supervisory CMS&H Inspector
Ken Darby	Electrical Engineer (A&CC)
Juliette Hill	Accident Investigation Program Manager
Joseph Lam	Electrical Engineer (A&CC)
Ronald Gast	Electrical Engineer Tech. (A&CC)
Tom McCort Jr.	Education Field Services
Dennis Zeanchock	Supervisory CMS&H Inspector
Robert Snyder	Coal Mine Safety & Health Inspector
Wayne Pritt	Coal Mine Safety & Health Inspector
Richard Gindlesperger	Coal Mine Safety & Health Inspector
Michael Wess	Coal Mine Safety & Health Inspector

Appendix C Victim Information

Accident Investigation Data - Victim Information

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



Event Number: 4 0 3 1 1 5 6

Victim Information: 1																													
1. Name of Injured/ill Employee: <i>Rick D. Kline</i>				2. Sex: <i>M</i>		3. Victim's Age: <i>43</i>		4. Degree of Injury: <i>01 Fatal</i>																					
5. Date(MM/DD/YY) and Time(24 Hr.) Of Death: <i>a. Date: 01/28/2015 b. Time: 19:45</i>										6. Date and Time Started: <i>a. Date: 01/28/2015 b. Time: 14:20</i>																			
7. Regular Job Title: <i>036 Continuous Miner Operator</i>				8. Work Activity when Injured: <i>041 Moving Miner</i>						9. Was this work activity part of regular job? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>																			
10. Experience																													
a. This			b. Regular			c. This			d. Total			Years			Weeks			Days											
Work Activity:			Job Title:			Mine			Mining																				
<i>4</i>			<i>9</i>			<i>0</i>			<i>0</i>			<i>0</i>			<i>39</i>			<i>0</i>			<i>9</i>			<i>1</i>			<i>0</i>		
11. What Directly Inflicted Injury or Illness? <i>077 Continuous Miner</i>										12. Nature of Injury or Illness: <i>170 Crushing</i>																			
13. Training Deficiencies:																													
Hazard:				Now/Newly-Employed Experienced Miner:				Annual:				Task:																	
				<input checked="" type="checkbox"/>								<input checked="" 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:				First-Aid:				CPR:				EMT:				Medical Professional:				None:									
				<input checked="" type="checkbox"/>								<input checked="" type="checkbox"/>																	
16. Part 50 Document Control Number. (form 7000-1)										17. Union Affiliation of Victim: <i>9999</i>						<i>None (No Union Affiliation)</i>													