UNITED STATES DEPARTMENT OF LABOR MINE SAFETY AND HEALTH ADMINISTRATION

COAL MINE SAFETY AND HEALTH

REPORT OF INVESTIGATION

Underground Coal Mine

Fatal Machinery Accident

October 17, 2011

Shoemaker Mine Consolidation Coal Company Dallas, Marshall County, West Virginia MSHA ID No. 46-01436

Accident Investigators

Todd M. Anderson Coal Mine Safety and Health Inspector (Electrical)

Hank Bauer Coal Mine Safety and Health Inspector (Roof Control)

Robert N. Talbert Coal Mine Safety and Health Inspector

Originating Office - Mine Safety and Health Administration 604 Cheat Road Morgantown, West Virginia 26508 Bob E. Cornett, District Manager

TABLE OF CONTENTS

OVERVIEW	3
GENERAL INFORMATION	3
DESCRIPTION OF ACCIDENT	4
INVESTIGATION OF ACCIDENT	6
DISCUSSION	7
ROOT CAUSE ANALYSIS	10
CONCLUSION	11
ENFORCEMENT ACTIONS	12
APPENDIX A - List of Persons Participating in Investigation	13
APPENDIX B - List of Persons Interviewed	15
APPENDIX C - Drawing of Accident Scene	16
APPENDIX D - Photo of Accident Scene	17
APPENDIX E - Victim Information	18

OVERVIEW

On October 17, 2011, Charles McIntire (Victim) was killed after being struck by a track-mounted ditch digging machine, powered by direct current (dc) electric trolley. McIntire exited the mine on the ditch digging machine and stopped at a break on the surface in the trolley wire. The accident location was referred to as the "Jump Area." McIntire dismounted the machine with the forward tram controls set for high-speed and did not set the park brake. He obtained a fused nip, located along the track at the outby end of the jump area, placing one end of the nip on the energized trolley wire. McIntire placed the other end of the nip on the machine's trolley pole, causing the machine to move forward suddenly, running over him.



GENERAL INFORMATION

The Shoemaker Mine, located in Marshall County, West Virginia, is an underground coal mine, owned and operated by Consol Energy. The mine accesses the Pittsburgh No. 8 coal seam by three portals and two slopes: Golden Ridge Portal, Whittaker Portal, the River Portal and slope, and the Dupont slope. Coal is mined from the 76-inch thick Pittsburgh No. 8 coal seam by three continuous mining machine sections and one longwall section. The Shoemaker Mine employs 580 underground employees and 88 surface employees. The average production is approximately 20,000 tons per day. The mine typically operates eight hour shifts, three shifts a day, six days per week. Maintenance of equipment is conducted on any shift, as needed. Coal is removed from the mine by a belt conveyor system. Track haulage is used to transport miners and materials underground. The principal officers at the time of the accident were:

Dave Kelly.......Vice President, Ohio Valley Operations

Mark Fudala.....Mine Superintendent, Consolidation Coal Company

Brian Hough......Safety Supervisor, Consolidation Coal Company

A regular Safety and Health Inspection (E0l) was completed by MSHA on September 30, 2011. Another E01 Inspection was ongoing at the time of the accident. The national Non-Fatal Days Lost (NFDL) incident rate in 2010 for underground mines was 3.58. The 2010 NFDL rate was 2.64 for the Shoemaker Mine.

DESCRIPTION OF ACCIDENT

On Monday, October 17, 2011, Charles McIntire reported to work on the afternoon shift at the Shoemaker Mine, River Portal. At the start of the shift, Section Boss, Joe Ontko conducted a safety meeting with Dan Fox, Timberman; John Bartnicki, Timberman; Vance Rosier, Trackman; James Eden, Wireman; Roger Van Gosen, Trackman; and McIntire. After the safety meeting, Ontko gave work assignments for the shift. Eden, Van Gosen, and Rosier were instructed to replace two track rails in the yard near the shop area. Fox, Bartnicki, and McIntire were instructed to take equipment and clean up material that had fallen at 15+20 Block of the main line haulage, just inby the River Portal. Between 5:00 and 5:15 p.m., Fox and Bartnicki pulled an empty coal car into the mine using a motor (locomotive), followed by McIntire, who was pushing a track cleaning machine with a second motor. Ontko followed the motors by mantrip, to the 15+20 location. The crew arrived at approximately 5:30 p.m. and attempted to clean up and load out the fallen rocks. It was determined that the rocks were too large for the track cleaning machine to load. The men attempted break up the rocks. After approximately fifteen minutes at the work location, McIntire suggested to Ontko that they should go back outside and obtain the ditch digging machine, as it would be better suited for the job.

Ontko traveled outside on the mantrip, followed by McIntire, who was pulling the track cleaner with a motor, followed by Fox and Bartnicki, pushing the empty car with another motor. After arriving on the surface, McIntire boarded the mantrip with Ontko and proceeded to the No. 2 empty switch in the supply yard, where the ditch digging machine was located. Ontko instructed McIntire to take the ditch digging machine underground to remove the material. McIntire indicated to Ontko that his training for the ditch digging machine may have expired and he would need to be retrained. Ontko asked McIntire if he had operated the ditch digger previously and McIntire indicated he had. Ontko performed the task training. The task training session lasted twenty, to twenty five minutes. Upon completion, Ontko asked McIntire if he was comfortable with operating the machine and McIntire indicated he was.

At approximately 6:30 p.m., the crew headed back into the mine. Ontko proceeded on the mantrip, followed by McIntire, operating the ditch digging machine. Fox and Bartnicki followed McIntire on a motor, pushing an empty car. The crew returned to the 15+20 location. Attempts to load the large rocks with the ditch digging machine were again unsuccessful. After approximately fifteen minutes, and loading only two rocks with the machine, the crew decided to take the ditch digging machine back outside and return with the track cleaner.

Fox and Bartnicki traveled out first, pulling the empty car with the motor, followed by McIntire operating the ditch digging machine. Ontko, on the mantrip, followed the ditch digging machine. The crew arrived outside between 7:35 and 7:40 p.m.

McIntire approached the Jump Area with the ditch digging machine and attempted to coast through the Jump Area, stopping just short of the outby end of the energized trolley wire. Ontko, following on the mantrip, stopped on the inby side (nearest the mine portal) of the jump area. McIntire exited the operator's compartment of the machine, walked around to the opposite side, and swung the trolley pole to the forward (outby) direction, attempting to reach the outby trolley wire. The trolley pole failed to reach the trolley wire by two to three feet. McIntire obtained a jumper wire lying close by and connected one nip to the energized trolley wire, while standing alongside the right front of the machine. He placed the other nip onto the machine trolley pole shunt wire. When the nip contacted the trolley pole shunt wire, Ontko observed an arc flash, then saw the machine surge forward, striking and dragging McIntire. Ontko exited the mantrip immediately, and ran to the trolley wire, removing the nip, thereby deenergizing the machine.

Ontko then called for assistance over the radio and assisted McIntire. Jess Pugh, Mechanic, who was working in the nearby shop, arrived at the accident scene and set the park brake on the ditch digging machine to prevent movement while McIntire was being assisted. Fox arrived at the accident scene, noticing that the tram speed/power control knob was in the high speed (3rd point) position and the tram directional switch

was in the forward position, and he placed both controls in the "off" position. Eden arrived at the scene and assisted Ontko with providing first aid to McIntire. Initially, the victim was conscious and communicating during first aid treatment. Oxygen was obtained and administered to the victim. During the first aid and resuscitation efforts at the accident scene, McIntire lost consciousness. Tri-State Emergency Medical Services (EMS) had been contacted and arrived at the scene at approximately 8:03 p.m. McIntire was transported by ambulance to the Hospital in Wheeling, West Virginia, where he was pronounced dead.

INVESTIGATION OF ACCIDENT

The MSHA Emergency hotline operator was notified of the accident on October 17, 2011, at 7:59 p.m., who then contacted Gregory Fetty, District 3 Staff Assistant at approximately 8:12 p.m. Fetty issued a 103(j) Order verbally via the telephone. Fetty notified Joe Facello, St. Clairsville Field Office Supervisor, who directed Robert Talbert, Coal Mine Inspector, to go to the mine and issue the appropriate control orders and secure the accident scene. The verbal order was reduced to writing and modified to a 103(k) Order by Talbert upon arrival at the mine site. Fetty notified Bob E. Cornett, District Manager; Carlos Mosley, Assistant District Manager for Technical Programs; and Ronald Tulanowski, Assistant District Manager for Inspection Programs. Fetty then notified MSHA Headquarters in Arlington, Virginia.

Talbert initiated the investigation on the night of October 17, 2011. The investigation was then assigned to Todd Anderson, Coal Mine Safety and Health Specialist (Electrical), and Hank Bauer, Roof Control Specialist, who began their investigation on the morning of October 18th, 2011. The investigation was conducted in cooperation with mine management, the United Mine Workers of America (UMWA), and the West Virginia Office of Miners Health, Safety and Training (WVOMHS&T).

Upon their arrival at the mine, Talbert briefed Anderson and Bauer about the accident and the preliminary interviews. Talbert stated that he had instructed Fox to return the pump/tram speed control and the directional control to the positions found at the time of the accident. Fox later returned the controls to their original position as instructed by Talbert. The accident investigation team traveled to the accident site and continued the investigation. The investigation team took digital photographs, measurements, and collected relevant information at the accident site.

The mine operator agreed to prepare a scale drawing of the accident scene. The investigation team requested the following from the mine operator: training records for all miners trained to use the ditch digging machine (including the victim), electrical prints of the machine, an outline drawing of the trolley power system, the Safe Work

Instruction (SWI) form for the machine, and the weekly electrical examination record book. All information was provided as requested.

The 103(k) Order was modified to allow the removal of the trolley pole swing limiter and electrical panel covers for examination of the electrical controls and contactors. The order was modified later to allow the application of DC power to the machine for testing the electric tram, hydraulic tram and controls, and the machine park brake.

DISCUSSION

Ditch Digging Machine

The ditch digging machine (Approval number 326) was manufactured by Jeffrey Manufacturing Company in 1937. The machine was designed as a self propelled, track-mounted cutting machine. The machine was modified by Shoemaker Mine, in the 1970's, by removing the cutter bar and replacing it with a back hoe.

The ditch digging machine had both electric and hydraulic controls. A push/pull slide bar in the operator's compartment was used to select electric tram (fast) or hydraulic tram (slow) and hydraulic bucket controls. The electric tram is actuated when the slide bar is pulled to the back position. The bucket controls and hydraulic tram are actuated when the slide bar is in the forward position. Electric tram was controlled by two rotating dials, located on the left side of the machine within reach of the operator's compartment. Both of the control dials were the self-sustaining type. The top control dial served as a combination start and tram speed control switch. Rotating the control in clockwise direction would turn the machine on by applying power to the electric tram motor. The four switch positions available on this control were: 1. Off (top center), 2. Slow tram (first point, clockwise), 3. Medium tram (second point, clockwise), and 4. High tram (third point, clockwise).

The lower control dial was used to select the direction of travel for the electric tram. This switch had three positions: 1. Neutral (top center), 2. Forward (counter clockwise, 90 degrees) and, 3. Reverse (clockwise, 90 degrees). Interdependence existed among the start/tram speed switch, the directional switch, and the push/pull (hydraulic/electric) slide bar. Placement of the electric/hydraulic slide bar in the hydraulic position (forward) prevented operation of the electric (fast) tram with application of dc power, regardless of the positions of the other controls. Placement of the directional control in neutral position prevented electrical or hydraulic tramming of the machine with application of dc power, regardless of the position of the other controls. Placement of the start/speed control in off position (top center) prevented starting of the machine with the application of dc power, regardless of the position of the other controls. No identification markings or labels were provided for the directional control, the start/speed control, the hydraulic bucket controls, and hydraulic tram controls.

The hydraulic pump is directly coupled to the electric tram motor. Hydraulic pressure to the bucket controls and hydraulic tram is applied by pushing the slide bar forward. Also, the tram directional switch had to be placed in the forward direction to activate the hydraulic tram and hydraulic bucket controls. The electric start/speed control dial also controlled the hydraulic pressure due to the direct coupling. The bucket is controlled by a hydraulic valve bank located on the front left side of the machine. In order to use the bucket, the equipment operator would be required to stand on the side of the machine. Also located near the valve bank was the hydraulic slow tram control used for tramming the machine in the forward and reverse direction.

Testing was performed of the hydraulic tram and bucket controls. The hydraulic tram and bucket controls functioned normally with the slide bar in the forward (hydraulic) direction. These controls were non-functional with the slide bar in the back (electric tram) position. Testing was also performed on the electric tram and directional tram controls. The electric start/speed control dial functioned properly to apply power and control the speed of the electric tram. The directional switch functioned to control the direction of tram. No interlock of the electric start/tram speed control was provided. This allowed the machine to immediately tram with the application of 300 Vdc trolley power if the switch was in first, second, or third point position and the directional switch was in the forward or reverse direction. The machine was not provided with a "man-in-place" switch, which would prevent starting and/or movement of the machine without an operator present.

The ditch digging machine was equipped with a lever-activated park brake. No service brake was provided on the machine. The lever park brake capability was tested by setting the brake and tramming the machine in both the hydraulic and electric tram modes. The park brake provided adequate braking force, as evidenced by reduced machine acceleration in all tram settings. Interviews with machine operators indicated the brake was capable of holding the machine on all grades or slopes encountered in the mine.

Jump Area

The Jump Area had been in existence at the yard area of River Portal surface area since the circa 1950's. This is a section of track, with a gap in the trolley wire, which measures forty-five feet in width. The portion of the Jump Area where the accident occurred is on relatively flat ground. An access road crossed the track in the area of the trolley wire gap. General practice when crossing the Jump Area was to pick up speed, grab the trolley pole before it came off the wire, continue coasting through the gap in the trolley wire, and then replace the trolley pole onto the trolley wire. Most track-mounted vehicles were able to cross the Jump Area with relative ease, due to their speed and momentum. Depending on speed and track conditions, the ditch digging machine would not always coast across the Jump Area. A fused nip (power cord) was kept

along the track on the outby end of the Jump Area to provide power to any track mounted machine that failed to cross the Jump Area completely.

The ditch digger was known to stop part way through the Jump Area, requiring the use of the dc power cable (nip). Interviews with ditch digging machine operators indicated that the normal practice when using a nip to cross the Jump Area was to set the brake, turn the power switch to the off position, and then connect the nip by connecting to the machine first followed by connection to the trolley wire. Interviews also revealed that other track mounted equipment would sometimes be used to push the ditch digger across the Jump Area.

With the control settings as described, the machine would suddenly tram forward with the application of dc power. No "man-in-place" switch or other controls were incorporated or interlocked to prevent movement of the machine upon the application of power.

Training and Experience

A review of the training records by MSHA's Educational Field Services (EFS) personnel revealed that McIntire was an experienced miner with approximately nine years and ten months of total mining experience, including 5 years and ten months with Consol Energy. McIntire's training records were current.

On the day of the accident, Ontko provided an approximate 25-minute Task Training session with McIntire for operation of the ditch digging machine. The Task Training session included a warm up of the machine, raising the boom, operation of the bucket controls, tramming, and operation of the machine lights. After completion of the training, an MSHA 5000-23 Task Training Form was completed by Ontko and signed by McIntire. McIntire was an experienced machine operator and had operated the ditch digging machine previously, but he told Ontko that he was unsure if the training had expired. McIntire mentioned his concern about the training being expired prior to operating the machine, which prompted Ontko to provide the Task Training to McIntire before he operated the machine. No additional task training records existed for McIntire with respect to the ditch digging machine.

ROOT CAUSE ANALYSIS

An analysis was conducted to identify the most basic cause of the accident and how to prevent a reoccurrence of a similar accident.

Root Cause:

Mine management's failure to implement engineering controls to prevent automatic movement of a machine upon application of electric power was a contributing factor to this accident.

Corrective Action:

The mine operator was required to install and maintain an electrical interlock circuit or self-centering tram controls to prevent automatic or sudden movement of any self propelled, track-mounted equipment used at the Shoemaker Mine. Alternatively, or in addition to an interlock circuit or self centering tram controls, the operator may use a "man-in-place" switch to prevent automatic or sudden movement of track-mounted equipment.

Root Cause:

The mine operator failed to provide labels or other markings on the ditch digging machine, to identify tram functions and power switch positions.

Corrective Action:

The mine operator is required to provide indicating labels or markings, which identify the function of all tram and power switch positions on the ditch digging machine and all self propelled, track-mounted equipment.

CONCLUSION

The victim was killed when he was run over by a track-mounted ditch digging machine. The mine operator failed to implement engineering controls to provide a "man-in-place" switch or other means to prevent sudden starting and moving of the machine. In addition, the mine operator failed to provide labels or other markings on the ditch digging machine, to identify tram functions and power switch positions.

The victim did not place the machine controls in the proper position to prevent movement of the machine. When the victim placed an energized nip onto the machine trolley pole, while he was standing in close proximity to the machine, the machine surged forward, striking and dragging him.

Bob E. Cornett

District Manager

Sob & Cowitt

Date

ENFORCEMENT ACTIONS

- 1. A 103(k) Order, No. 7102519, was issued to ensure the safety of the miners and protect the accident scene.
- 2. A 104(a) Citation was issued, citing § 75.1403, based on existing Safeguard No. 7128881 at the mine, for failure to provide two separate and independent braking systems on all track-mounted haulage equipment.
- 3. A Safeguard Notice was issued under Section 314(b) of the Mine Act, requiring the operator to install and maintain an electrical interlock circuit or self centering tram controls to prevent automatic or sudden movement self propelled, trackmounted equipment used at the Shoemaker Mine. Alternatively, or in addition to an interlock circuit or self centering tram controls, the operator may use a "man in place" switch to prevent automatic or sudden movement of trackmounted equipment. Also, this Safeguard requires that all self propelled, trackmounted equipment will be provided with indicating labels or markings, which identify the function of all tram and power switch positions.

APPENDIX A

Persons Participating in the Investigation

MINING COMPANY OFFICIALS

Coal COO, Consol Energy
VP, Ohio Valley Operations
Superintendent, Shoemaker Mine
Corporate Safety, Consol Energy
Corporate Safety, Ohio Valley Operations
Corporate Safety, Consol Energy
Maintenance Manager, Ohio Valley Operations
Corporate Safety, Consol Energy
General Manager, Maintenance, Consol Energy
Electrical Engineer, Consol Energy
Safety Supervisor, Shoemaker Mine
Safety Official, Shoemaker Mine
Shoemaker Shop Supervisor
Safety Official, Shoemaker Mine

WEST VIRGINIA OFFICE of MINERS' HEALTH, SAFETY, and TRAINING (WVMHST)

Ed Peddicord	Inspector at Large
John Meadows	Assistant Inspector
Colin Simmons	Inspector
John Hall	Inspector (Electrical)
James Stucky	Inspector
Danny Burguyne	Inspector

MINE SAFETY and HEALTH ADMINISTRATION

Gregory W. Fetty	Staff Assistant, District 3
Joseph Facello	St. Clairsville Field Office Supervisor
Todd M. Anderson	Coal Mine Safety & Health Specialist (Electrical)
Hank Bauer	Coal Mine Safety & Health Specialist (Roof Control)
Robert Talbert	Coal Mine Safety & Health Specialist (Roof Control)
Jeff Hoblick	MSHA Educational Field Service
Thomas McCort	MSHA Educational Field Service

UNITED MINE WORKERS OF AMERICA

Jim Lamont	UMWA, International
Larry Vucelich	UMWA, International
Dennis Pickens	Local 1473 President
Cliff Ward	Chairman, Safety Committee
Ernie Ward	Safety Committee
Robert Bandy	Safety Committee
Brad Wolfe	Safety Committee
Charles Cenkus	Mechanic
Bill Spielvogel	Safety Committee
James Marley	Equipment Operator

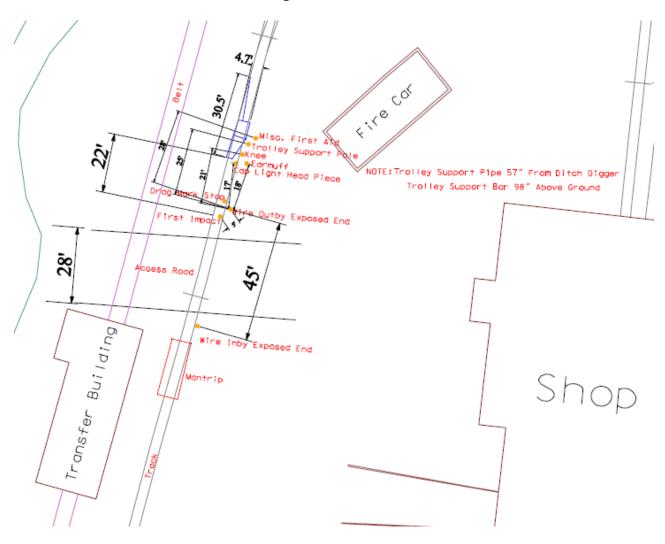
APPENDIX B

Persons Interviewed

Joeseph Ontko	Section Foreman, Shoemaker Mine
Harold Butch Lewis	Equipment Operator
Jess Pugh	Shop Mechanic
Charles Taylor	Equipment Operator
James Richard Eden	Wireman
Roger L. Van Gosen	Trackman
Charles Vance Rosier	Trackman
John Bartnicki	Trackman
Roger D. Fox	Safety Committee

APPENDIX C

Drawing of Accident Scene



APPENDIX D Photo of Accident Scene



APPENDIX E **Victim Information**

Accident Investig	gati	on l	Dat	a - '	Vict	im	Info	rmatior
Event Number:	6	2	6	1	9	4	2	



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

Victim Information:	1														
 Name of Injured/III Emplo 	yee:	2. Sex	3. Victim's	m's Age 4. Last Four Digits of SSN: 5.				Degree of In	. Degree of Injury:						
Charles McIntire		м	62						01 Fatal						
6. Date(MM/DD/YY) and T	ime(24 Hr.) O	f Death:				7. Date	and Tim	e Started:	:						
a. Date: 10/17/2011	b.Time: 1	9:41					a. Date:	10/17/20	11 b.Time: 16	:00					
8. Regular Job Title:				9. Work Acti	vity when I	njured:				10. Was this work activity part of regular job?					
010 Timberman				051 Modifi	ed cutting	machin	9				Yes	No	x		
11. Experience Years a. This	Weeks	Days	b. Regular	Years	Weeks	Days	c: This	Years	Weeks	Days	d. Total	Years	Weeks	Days	
Work Activity: 0	0 1		Job Title:	3 1	12	0	Mine:	5	44	0	Mining:	9	45	0	
12. What Directly Inflicted In	jury or Hiness?	?					13. Nature	of Injury	or Illness:						
077 Modified cutti	ng machine						170	Run over	by machine						
14. Training Deficiencies:															
Hazard:	New/New/	ly-Employe	d Experien	ced Miner:				Annual:		Task:					
 Company of Employment Operator 	t:(If different f	rom produc	ction operat	or)				,	ndependent Co	ontractor ID:	(if applica	ble)			
16. On-site Emergency Med	ical Treatment	t:													
Not Applicable:	First-Aid	: x	С	PR:	EMT:	X	Medi	cal Profes	ssional:	None:					
17. Part 50 Document Contr	ol Number: (fo	rm 7000-1)		1	8. Unio	n Affiliatio	of Victin	n: 2555	United N	line Work	ers of Ame	er.		