#### CAI-2012-03

### UNITED STATES DEPARTMENT OF LABOR MINE SAFETY AND HEALTH ADMINISTRATION

#### COAL MINE SAFETY AND HEALTH

REPORT OF INVESTIGATION Underground Coal Mine

Fatal Handling Material Accident March 3, 2012

Parton Bros. Contracting, Inc. Timber Tree #9 Cumberland, Harlan County, Kentucky I.D. No. 15-19051

Accident Investigators

Robert Ashworth Coal Mine Safety and Health Inspector

Silas Brock Coal Mine Safety and Health Inspector

Charles Broughton Coal Mine Safety and Health Electrical Inspector

> Dale P. Ingold, P.E. General Engineer Approval and Certification Center

> > Alice I. Blanton Educational Field Services

Originating Office Mine Safety and Health Administration District 7 3837 South US Hwy 25E Barbourville, KY 40906 Irvin T. Hooker, District Manager

# **Table of Contents**

PHOTOGRAPH OF ACCIDENT SCENE POST VICTIM RECOVERYii
OVERVIEW1
GENERAL INFORMATION1
DESCRIPTION OF ACCIDENT2
INVESTIGATION OF ACCIDENT
DISCUSSION
ROOT CAUSE ANALYSIS
CONCLUSION
ENFORCEMENT ACTIONS
APPENDIX A – List of persons furnishing information and/or present during the investigation
APPENDIX B – List of persons interviewed12
APPENDIX C – 7000-50b13
APPENDIX D – Basis overview Drawing of the Accident Scene
APPENDIX E - Picture of the roof bolt plate used to hang the come-along
APPENDIX F – Canopy and canopy mounting dimensions16
<b>APPENDIX G –</b> Action Plan for Installation/Removal of Canopies17
APPENDIX H - Pictures of new device being used to remove and install a canopy

PHOTOGRAPH OF ACCIDENT SCENE POST VICTIM RECOVERY



#### **OVERVIEW**

At approximately 1:30 a.m. on Friday, March 3, 2012, a 32-year-old foreman with eleven years of mining experience was killed when he was struck in the head by a shuttle car canopy that had become dislodged from the mine roof during installation of the canopy onto the shuttle car. The victim was located in the operator's compartment of a JOY Mining Machinery (JOY) shuttle car when he positioned himself underneath the suspended canopy. While attempting to align the canopy posts to complete installation, the canopy became dislodged from the anchor point with the mine roof, resulting in the canopy striking the victim in the head, causing fatal injuries.

#### **GENERAL INFORMATION**

The Timber Tree #9 mine is an underground mine owned and operated by Parton Bros. Contracting, Inc. The mine is located in Harlan County, Kentucky. The mine is being developed in the Harlan coal seam. The mining height ranges from four to six feet, with access to the mine being provided by drift openings. A total of 18 miners were employed at this mine, with one production shift and one maintenance shift, nine hours per shift, five days a week. This mine has one active section with an average production of approximately 550 tons per day. Coal is being extracted from the faces by a continuous mining machine and transported by shuttle cars and belt conveyors to the surface. Materials, supplies, and miners are transported via battery powered rubber-tired mantrips, personnel carriers, and scoops.

The principal officials for the mine are:

John H. Parton	President
David E. Parton	Vice-President
Timothy L. Parton	Vice-President
Shannon D. Holland	Superintendent

The last regular safety and health inspection (E01) conducted by the Mine Safety and Health Administration (MSHA) was completed on December 9, 2011. The Non Fatal Days Lost (NFDL) incident rate for the Timber Tree #9 mine through the 4th quarter of 2011 was 11.57, compared to a National NFDL rate of 3.36.

#### DESCRIPTION OF ACCIDENT

On Friday, March 3, 2012, the second shift maintenance crew arrived at the mine site prior to their 5:00 p.m. starting time. The dayshift crew had completed a normal production shift. Maintenance foreman, James Arthur Bailey (victim) received the crew's assignment from mine superintendent, Shannon Holland. The crew's assignment was to install a protective canopy on the company No. 1 JOY shuttle car and have the car ready for use, clean-up, rock dust, and perform all other necessary work to have the 001 mechanized mining unit (MMU) ready for the following Monday production shift.

At approximately 5:00 p.m., Wendell Cohelia and Paul Rouse, part of the maintenance crew under the direction of Bailey, entered the mine via a rubbertired mantrip. They arrived on the 001 MMU at approximately 5:20 p.m. and began roof bolting the No. 3 right crosscut. Bailey spent 15-20 minutes on the surface gathering supplies and discussing the canopy installation with second shift electrician, Millard Kelly. Kelly, who had been suffering from back pain for the past couple of shifts, was assigned work on the surface. Once Bailey gathered some supplies, he traveled via a rubber-tired mantrip to the 001 MMU. Bailey visited Cohelia and Rouse and instructed them to perform additional spot bolting and to drill a roof test hole in the intersection between the No. 3 right crosscut and No. 4 heading. Bailey informed Cohelia that he was going to the No. 2 left crosscut to use the continuous mining machine to clean-up the last cut taken by the dayshift crew. After the roof bolting was completed in the No. 3 right crosscut, Cohelia went to assist Bailey in the cleanup of the No. 2 left crosscut. Cohelia hauled six or seven loads of cleaned up material with the No.3 shuttle car to the section conveyor belt feeder. After this job was completed, Cohelia and Rouse bolted the No. 2 left crosscut. Bailey began to gather additional materials needed to install a protective canopy on the No. 1 JOY shuttle car at approximately 8:00 p.m.

After roof bolting was completed in the No. 2 left crosscut, the roof bolting machine was relocated in the No. 5 right crosscut. Cohelia began to scoop and clean up loose coal across the section and Rouse went to assist Bailey with the shuttle car canopy installation. While working on the cleanup of loose coal across the section, Cohelia visited the area where the shuttle car canopy was being installed. He was informed by Bailey, that a canopy had become dislodged, almost killing him. Cohelia suggested that the canopy installation could be done on the following Monday, but Bailey insisted that the canopy installation, while Cohelia completed cleanup in the No. 3 and No. 4 entries.

Cohelia revisited the area where the canopy was being installed and Bailey informed him that the canopy posts were bent slightly in an outward direction or

"toed out," as he called it. Cohelia left again to continue cleaning in the No. 5 entry while Bailey and Rouse attempted to move the canopy posts closer together, by striking the posts with a 4-pound hammer. While scooping in the No. 5 entry, Cohelia's scoop batteries became weak and he placed the scoop on charge. Cohelia then obtained the scoop that had been used to transport the shuttle car canopies, in order to complete cleanup in the No. 5 entry. At approximately 12:50 a.m. (ten minutes prior to the end of a normal shift), Cohelia began to run the hydraulic rock dust machine across the section. Rouse was instructed to begin hanging ventilation curtains across the section, while Bailey continued to work alone on the canopy installation.

After completing the rock dusting and curtain installations, Cohelia and Rouse went to the location of the shuttle car in the No. 3 entry and discovered that Bailey had been struck by the dislodged canopy, causing what appeared to be fatal injuries (See Appendix D). Cohelia immediately went to the mine phone to contact the mine's emergency medical technician, Millard Kelly, who came to the accident scene to assist. Upon arrival at the scene Kelly determined that Bailey had received fatal injuries in the accident. At the time the accident occurred, Bailey was working alone and there were no eyewitnesses to the accident. The victim was later transported to the surface area of the mine, where he was pronounced dead by James Bush, Harlan County Deputy Coroner, at 6:15 a.m.

### INVESTIGATION OF THE ACCIDENT

The MSHA Call Center was notified of the accident at 1:42 a.m. on Friday, March 3, 2012. Initial notification to the call center was made by Marlie Sullivan, Outside/Tracking Person. The call center notified Steve Sorke, Roof Control Supervisor for the Barbourville District Office. Sorke immediately notified Brad Sears, Harlan Field Office Supervisor, of the accident. A 103(j) Order was issued verbally by Silas Brock, Coal Mine Inspector in the Harlan Field Office, at 2:20 a.m., to ensure the safety of the miners and to preserve the accident scene.

Upon arrival of the accident investigation team, the 103(j) Order was modified to a 103(k) Order for the purpose of protecting the safety of all persons at the accident site, including those involved in the recovery operations and the investigation of the accident.

The investigation began at approximately 3:45 a.m., by members of the accident investigation team, which consisted of Robert Ashworth, Silas Brock, and Charles Broughton. Investigators gathered preliminary information, received statements from four miners, and conducted a physical examination of the existing conditions at the accident scene.

Dale Ingold, General Engineer from MSHA's Approval and Certification Center (A&CC), and Alice Blanton from MSHA's Educational Field Services (EFS) also participated in the accident investigation.

Formal interviews were conducted on March 5, 2012, at the Kentucky Office of Mine Safety and Licensing (KOMSL) office in Harlan, Kentucky. See Appendix B for a list of those who participated in the interviews.

The physical portion of the investigation was completed on March 29, 2012.

### DISCUSSION

The investigation determined that on the morning of the accident, Bailey positioned himself underneath a raised shuttle car canopy that was not securely blocked in position. He was attempting to align the canopy and shuttle car so that the protective canopy could be installed on the shuttle car. While located in the operator's compartment of the shuttle car, the suspended canopy became dislodged, striking Bailey and causing fatal, crushing injuries. Interviews conducted with miners, and an agent of the operator, indicated that no one was a witness to the accident. The mine operator failed to ensure that equipment was blocked securely in position prior to work being performed underneath.

The shuttle car involved in the accident was a JOY model 21 SC-03 shuttle car, serial number ET-17336, which had been out of service underground at this mine since September of 2009, as stated by David Parton during the accident investigation. Examination of the manufacturer's nameplate attached to the canopy confirmed it was a match for this shuttle car.

The canopy measured approximately  $77\frac{5}{8}$  inches in length, 28 inches in width, and weighed 690 pounds. The canopy had two support legs, which are located on the inside, and these attach to the shuttle car with  $1 \ge 2\frac{3}{4}$ -inch bolts to mounting plates, located on the ends of the operator's compartment.

#### ACCIDENT SCENE

The accident occurred in the intersection of the No. 3 entry (belt entry) on the 001 section, approximately 60 feet outby survey station number 483. This area was dry at the time of the accident and the mine height throughout the intersection ranges from 76, to 79 inches.

### TRAINING AND EXPERIENCE

Bailey had 11 years of mining experience. Training records and evidence gathered during the investigation indicated that the training for Bailey was not in compliance with 30 CFR, Part 48 training requirements. The victim had no prior experience with the task of installing a canopy and was not provided training in

performing this work task and not specifically trained in the installation and removal of the shuttle car canopy.

## ACTION PLAN

As a result of the accident, the mine operator has established an action plan addressing "Safe Canopy Removal and Installation Procedures." Training was held with all mine employees, addressing this topic prior to resuming work at this mine.

## ACCIDENT SCENARIO

Bailey was working alone and there were no eye witnesses to this accident. The investigators determined that the accident scene was compromised in order to recover the victim, prior to the accident investigation commencing.

Investigators concluded that while installing a canopy for the JOY shuttle car, the victim was most likely tramming the equipment to align the canopy posts, while sitting in the operator's compartment beneath the suspended canopy. While moving the shuttle car for alignment, the front wheel area inadvertently came into contact with the suspended canopy, causing the canopy to become dislodged and strike the victim.

Evidence supporting this scenario includes:

- Bailey was found sitting in the shuttle car operator's compartment, facing in the direction of travel, when struck by the canopy.
- The canopy was wedged tight between the mine roof and the shuttle car, requiring the shuttle car to be pushed back approximately 10 inches to free the victim prior to recovery.
- Fresh scrape marks were found on the shuttle car's right side front wheel area and in the operator's compartment of the shuttle car, indicating possible contact with the canopy support posts prior to the accident.
- Evidence indicated the shuttle car tram pedal was engaged in the forward position.
  - Statements from miners indicated that the shuttle car lights were on in the forward direction.
  - Statements from miners indicated that earlier in the shift, the shuttle car canopy had become dislodged and nearly struck Bailey. When this occurred, it possibly broke the top right side mounting bolt from the control station, allowing the metal face plate to drop, which in turn

was making the shuttle car tram linkage hang down when the tram pedal was engaged.

- A re-enactment of the accident was conducted by MSHA's technical support personnel. A pre-constructed wooden canopy, of the same size as the original canopy, aligned perfectly with a large scratch in the shuttle car cab and an indentation on the rear fender that caused the shearing of the mounting bolt. This re-enactment coincided with witness statements that the canopy had become dislodged prior to the accident.
- Witness statements indicated the shuttle car's pump motor was energized prior to the accident, indicating possible shuttle car movement during the shift.
- The victim had not installed any bolts in the canopy. Three grade-8 bolts, with nuts threaded on them, were found lying above the operator's compartment of the shuttle car
- The shuttle car was found energized, was not locked and tagged, and was not blocked against motion.
- The roof bolt plate used to support the chain and 2-ton come-along broke, indicating that excessive force had occurred, causing the roof bolt plate to spin and break. Testing conducted on a similar plate showed that approximately 3,000 pounds of force would have to be applied to a new plate in order for it to break. The weight of the canopy was 690 pounds.

### **ROOT CAUSE ANALYSIS**

An analysis was conducted to identify the underlying cause or causes of the accident that were correctable through reasonable management controls. Listed below is the root causes identified during the analysis and corresponding corrective action implemented to prevent a recurrence.

**Root Cause:** The mine operator failed to ensure compliance with30 CFR § 75.1726(b) pertaining to work not being performed under machinery or equipment that has been raised until the machinery or equipment has been securely blocked in position. Miners were not trained appropriately in the installation and removal of the shuttle car canopy.

<u>Corrective Action</u>: Management obtained a new device to assist in canopy installation and removal and trained miners in its use.

**<u>Root Cause:</u>** The mine operator failed to ensure that the victim was task trained in shuttle car operation and maintenance work pertaining to safe work practices and work procedures regarding the installation of equipment canopies.

**<u>Corrective Action</u>**: The operator instituted policies and procedures and revised the Approved Training Plan to address this work task. Miners were trained on the proper procedures pertaining to the use of the new device for safe removal of the shuttle car canopy.

#### CONCLUSION

An accident occurred that resulted in fatal injuries to the section foreman on the 001 section due to work being performed underneath the protective canopy, which was in a raised position and not securely blocked. This unsafe practice resulted in the section foreman receiving fatal head injuries caused when the suspended canopy became dislodged, striking the victim. Management failed to ensure compliance of the 30 CFR § 75.1726(b) pertaining to work not being performed under machinery or equipment that has been raised, until the machinery or equipment has been securely blocked in position. A contributing factor was the failure by mine management to assure that the victim was trained to perform the task that led to the fatality.

2. J.

Irvin T. Hooker District 6 Manager

12/12

Date

#### **ENFORCEMENT ACTIONS**

A 103(j) Order, No. 8374448, was issued verbally to Parton Bros. Contracting, Inc. on March 3, 2012 and subsequently modified to a 103(k) action when MSHA inspectors arrived at the mine site.

Condition or Practice: "An accident occurred at this operation on 3/3/2012 at approximately 1:30 a.m. As rescue and recovery work is necessary, this order is being issued, under Section 103(j) of the Federal Mine Safety and Health Act of 1977, to assure 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 at this mine until MSHA has determined that it is safe to resume normal mining operations. This order applies to all persons engaged in the rescue and recovery operation and any other persons onsite. This order was initially issued orally to the mine operator at 2:20 a.m. and has now been reduced to writing."

A 104(d)(1) Citation, No. 8370534, was issued to Parton Bros. Contracting, Inc. for a violation of 30 CFR § 75.1726(b):

Condition or Practice: "Work was being performed on the 001 MMU underneath the protective canopy provided for the Joy 21 SC-03 shuttle car serial number ET-17336 that had been raised but not securely blocked in position. The section foreman, James Bailey, was working directly underneath the raised canopy in an attempt to align the canopy with the shuttle car to mount the canopy on the shuttle car. The raised canopy became dislodged striking Bailey, resulting in a fatal injury. Foreman Bailey engaged in aggravated conduct that constitutes more than ordinary negligence by working directly underneath a raised piece of equipment without having it securely blocked in position. This violation is an unwarrantable failure to comply with a mandatory standard."

A 104(a) Citation, No. 8370535, was issued to Parton Bros. Contracting, Inc. for a violation of 30 CFR § 48.7(c):

Condition or Practice: "The operator failed to ensure that a miner received task training for the positions of maintenance/repairman and shuttle car operator. The training required to be conducted by the mine operator includes a course of instruction for the routine maintenance and safe shuttle car operation and the safety and health aspects of these tasks. A fatal accident occurred at this mine when the foreman, who was conducting maintenance work to install a protective canopy on a Joy shuttle car, failed to securely block the suspended shuttle car canopy from motion. Mine management must ensure that all miners are task trained to use safe work procedures during canopy removal and installation.

This failure by mine management contributed to the fatality that occurred at this mine on March 3, 2012."

### **APPENDIX A**

List of persons furnishing information and/or present during the investigation

## Parton Bros. Contracting Incorporated

David E. Parton	Vice-President
Timothy L. Parton	Vice-President
David R. Parton, Jr.	Foreman
Michael Warren	Chief Electrician
Kevin Robbins	Outby Foreman
Shannon D. Holland	Superintendent
Millard A. Kelly	
Wendell E. Cohelia	Roof Bolter/Scoop Operator
Paul W. Rouse	Laborer/Roof Bolter Operator
James L. Akers	
Luke C. Woodward	Shuttle Car Operator
James Gambrell	Section Foreman
Marlie R. Sullivan	Outside Man/Tracking

# Kentucky Office of Mine Safety and Licensing

Greg	Goins	Deputy	Chief	Accident	Investigator
Tracy	Stumbo		Chief	Accident	Investigator

### Mine Safety and Health Administration

Irvin T. Hooker	District Manager
Clayton E. Sparks	Assistant District Manager
Charles J. Maggard	Staff Assistant/Accident Coordinator
Samuel R. Creasy	Accident Investigator Supervisor
Robert F. Ashworth	CMS&H Inspector/Accident Investigator
Silas G. Brock	CMS&H Inspector
Charles E. Broughton	
Alice I. Blanton	Educational Field Services
Dale P. Ingold, P.E.	General Engineer/Triadelphia, WV
_	Approval and Certification Center
Thomas Grooms	Office of Solicitor

## **APPENDIX B**

## List of Persons Interviewed

Shannon D. Holland	Superintendent
Millard A. Kelly	Electrician
Wendell E. Cohelia	Roof Bolter/Scoop Operator
Paul W. Rouse	Laborer/Roof Bolter Operator
James L. Akers	Shuttle Car Operator
Luke C. Woodward	Shuttle Car Operator
James Gambrell	Section Foreman
Marlie R. Sullivan	Outside Man/Tracking

## APPENDIX C 7000-50b

lictim Information: 1									-
Name of Injured/III Employee: 2 Sex 3 Victim	's Age [4.1	ast Four Di	ats of SSN:	5. Degree of k	njuny:			1000 C	
James A. Balley M 3	2	0873		01 Falal					
Date(MM/DD/YY) and Time(24 Hr.) Of Death:		7.00	te and Time Starte	d:					
a. Date: 03/03/2012 b Time: 6:15			a. Date: 03/02/2	012 b. Time: 1	7:00				
Recular Inh Title	9 Work Activity	i shen inisred			10 Was this	work activ	ity part of n	icular iob?	
A40 Parties Former	039 Machine C	enony instal	allos				ter lar		
Crea Section - Dremen		aropy mona			12	Tes	NOX	land at the	
1. Experience Years Weeks Days & Recula	Years Wee	ks Day	S Years	Weeks	Days	Total	Years V	Veeks	Days
a mis	0 82		C: Ents		1 L	tolan de			
2 Lithose Dissective Inflictant Johnson or Ulinases?	0 92		13 binkurs of inise	wer Biness'					
677 shullis our commu shuck wintim in hand			t70 miner m	makes bluet from	a brauma to bas	ad			
Training Deficiencies:			TTO PRODUCT	FORTY MUTH FORG	a aranarina cu inar				
Hazant   } New/Newty-Employed Experie	nced Miner:		Annual	E E	Task:	rt			
5 Company of Employment (II dillarant from production oper	etori			1 1	· / ``	1			
Operator	(101)			Independent C	ontractor ID: (if	applicable	)		
8. On-sile Emergency Medical Treatment:									
Nol Applicable:     First Ald	CPR	MT I	Martinal Brok	assignat 1	None 13				
7 Red \$0 Document Control Mumber Norm 7000.41	vin.	40.14-1	Addition of 14-1		Alere di	1 10 10 - 0.000	lindin at	10.00	
Tentes counter server runner, (orm runs-1)		18. UM	AT AT THE OT OF VICE	att. <b>2999</b>	None (No	Union Am	HABOR)		-
ictim Information:			1.441	10.0					
Name of Injured/III Employee: 2. Sex 3. Victor	m's Age 4. L	ast Four Dig	RE OF SSN.	5. Degree of in	HUNY:				
		1							
Date(MM/DD/YY) and Time(24 Hr.) Of Death		7.0	ate and Time Starts	ed;					
Regular Job Title:	8. Work Activity w	hen injured:			10. Was this	work activ	ity part of r	eoular job?	
						Vas I	Incl 1		
Evneriessee							Two		
This Years Weeks Days b. Regul	iar Years Weel	us Days	c: This Year	s Week	Days d.	Total Ya	ars Wei	eka Day	
fork Activity Job Title									
	DC		Mine:		Mi	ning:			
2. What Directly Inflicted Injury or Illness?			Mine: 13.Nature of Injury	or liness:	Mi	ning:			
2. What Directly Inflicted Injury or Ilineas?			Mine: 13.Nature of Injury	or liness:	M	ning:			
What Directly Inflicted Injury or Illness?     Inflicted Injury or Illness?     Inflictencies			Mise: 13.Nature of Injury	or liness.	M	ning:			
2. What Directly Inflicted Injury or Illness? 4. Training Deficiencies Hazard: NewNewly-Employed Experie	nced Miner;		Mine: 13.Nature of Injury Annual:	or liness.	Mi Taak:	ning:			
What Directly Inflicted Injury or Illineas?     Training Deficiencies     Hazard: NewNewly-Employed Experie     Company of Employment. (If different from production open	nced Miner;		Mine: 13.Nature of Injury Annual:	r or liness.	Mi Taok:	ning:			
What Directly Inflicted Injury or Illness?     Training Deficiencies     Hazard:   NewNewly-Employed Experie     Company of Employment. (If different from production open	nced Miner:		Mine: 13.Nature of Injury Annual: Independent C	ontractor ID: (ff	Mi Task:   applicable)	ning:			
What Directly Inflicted Injury or Illness?     A. Training Deficiencies     Hazard: I New/Newly-Employed Experies     Company of Employment. (If different from production oper     On-site Emergency Medical Treatment:	nced Miner;		Mine: 13.Nature of Injury Annual: Independent C	r or Kiness:	Mi Task:   applicable)	ning:			
What Directly Inflicted Injury or Illineas?     Training Deficiencies     Hazard: New/Newly-Employed Experie     Company of Employment: (If different from production open     On-site Emergency Medical Treatment:     Not Applicating: First-Add: CP	nced Miner;     ator) R:   E	MT:	Mine: 13.Nature of Injury Annual: Independent C Medical Profe	r or lines:	Mi Taak:   applicable)   None	ning:			
What Directly Inflicted Injury or Illineas?     Intaining Deficiencies:     Hazard:   New/New/y-Employed Experie     Compeny of Employment. (If different from production open     On-site Emergency Medical Treatment:     Not Applicable:   First-Aid:   CP     .Part 60 Document Control Number: (form 7000-1)	r. nced Miner.     ator) R:   E	MT:	Mine: 13.Nature of Injury Annual: Independent C Medical Profe	ror liness:	Mi Task:   applicable)   None:	ning:			
What Directly Inflicted Injury or Binass?     Training Deficiencies:     Hazard:   New/Newly-Employed Experie     Compeny of Employment. (If different from production open     On-site Emergency Medical Treatment:     Not Applicable:   Pirst-Nid:   CP     Part 50 Document Control Number: (form 7000-1)     Victim Information:	nced Miner:     ator) R:   E	MT:	Mine: 13. Nature of Injury Annual: Independent C Medical Profe on Atiliation of VIcti	r or liness:	Mi Task:   applicable)   None	ning:			
What Directly Inflicted Injury or Biness?     Arraining Deficiencies     Hazard: NewNewly-Employed Experie     Company of Employment. (If different from production open     On-site Emergency Medical Treatment:     Not Applicable: First-Nd: CP     Part 50 Document Control Number: (form 7000-1)     Victim Information:     Name of Information: 2 Sav. 3 Vict	ncad Miner.     ator) R:   E	MT:	Mine: 13. Neture of Injury Annuel: Independent C Medical Profe m Alfillation of Victi alte of SSM	r or liness:	Mi Task:   applicable)   None	ning:			
What Directly Inflicted Injury or Illineas?     A. Training Deficiencies     Hazard:   NewNewly-Employed Experie     Company of Employment. (If different from production open     On-site Emergency Medical Treatment:     Not Applicable:   First-Nd:   CP     Part 80 Document Control Number: form 7000-1)     Victim Information:     Name of Injured/Ill Employee: 2. Sex 3. Vict	r	MT:	Mine: 13. Nature of Injury Annual: Independent C Medical Profe on Alfiliation of Victi gila of SSN:	or liness: ontractor ID: (f ssionet: m: 5. Degree of	Mi Task:   applicable)   None   Injury:	ning: 			
2. What Directly Inflicted Injury or Binese? 3. Training Deficiencies 3. Company of Employment. (If different from production open 4. On-elits Emergency Medical Treatment: 3. Not Applicable: Pirst-Nid: CP 4. Part 50 Document Control Number: (form 7000-1) 4. Victim Information: 5. Name of Injured/III Employee: 2. Sex 3. Vict 5. Deter(MM/DD/YY). and Time(24 Mr 10 Pinetit)	r.cad Miner:     ator) R:   E Im's Age 4.	MT:	Mine: 13. Nature of Injury Annual: Independent C Medical Profe m Allifetion of Victi gits of SSN ate and Time Runt-	r or liness: ontractor ID: (f asionat: m: §. Degree of ) ad:	Mi Task:   applicable)   None:   Injuny:	ning: 1			ند مدت مدت مدت
What Directly Inflicted Injury or Illineas?     A Training Deficiencies     Hazard: New/Newly-Employed Experie     Company of Employment. (If different from production open     On-elia Emergency Medical Treatment:     Not Applicable: First-Nd: CP     Part 50 Document Control Number: (form 7000-1)     Victim Information:     Name of Injured/III Employee: 2. Sax 3. Vict     Date(MM/DD/YY) and Time(24 Hr.) Of Death:	r. nced Miner:     ator) R:   E Im's Age   4.	MT:   18. Unit Last Four Di 7. D	Mine: 13. Nature of Injury Annual: Independent C Medical Profe in Alfiliation of Victi gila of SSN; ste and Time Startu	r or kiness:	Mi Task:   applicable)   None:   injuny:	ning:			
What Directly Inflicted Injury or Binese?     Arraining Deficiencies     Hazard:   NewNewly-Employed Experie     Compeny of Employment. (If different from production open     On-site Emergency Medical Treatment:     Not Applicable:   First-Nd:   CP     Pert 80 Document Control Number: (form 7000-1)     Victim Information:     Name of Injured/HI Employee     2. Sex 3. Vict     Dete(MM/DD/YY) and Time(24 Hr.) Of Desith:	r.     E	MT:	Mine: 13. Nature of Injury Annual: Independent C Medical Profe Medical Profe	r or liness: ontractor ID: (ff esionet: m: [ 8. Degree of ) ed;	Mi Task:   npplicable)   None   injury:	ning:			
What Directly Inflicted Injury or Binese?     Hazard: NewMeethy-Employed Experie     Gompeny of Employment. (If different from production open     On-site Emergency Medical Treatment:     Not Applicable: First-Md: CP     Part 50 Document Control Number. (form 7000-1)     Victim Information:     Name of Injured/III Employee: 2. Sex 3. Vict     Dets(MM/DD/YY) and Time(24 Hr.) Of Desth:     Regular Job Title:	r. Age 4.	MT: 18, Unk 18, Unk Last Four Di 7, D	Mine: 13. Nature of Injury Annual: Independent C Medical Profe Medical Profe Medical Profe Medical Profe Medical Profe Medical Profe Medical Profe Medical Profe Medical Profe Medical Profe	r or liness: ontractor ID: (ff estonet: m: §. Degree of ) ad:	Mi Teak:   applicable)   None   injary: 10. Was this	ning:	ity part of n	ngular job?	
What Directly Inflicted Injury or Illineas?     Hazard:   NewNewly-Employed Experie     Company of Employment. (If different from production open     On-site Emergency Medical Treetment:     Not Applicable:   First-Nd:   CP     Part 80 Document Control Number: (form 7000-1)     Victim Information:     Name of Injured/III Employee: 2. Sax 3. Vict     Dete(MM/DD/YY) and Time(24 Hr.) Of Death:     Regular Job Title:	Innoad Miner:	MT: 18. Unit 18. Unit 18. Unit 18. Unit 19. Unit 1	Mine: 13. Nature of Injury Annual: Independent C Medical Profe m Allillation of Victi gits of SSN: ate and Time Startu	r or kiness:	Mi Taak:   applicable)   None:   	s work activ	ity part of m	ngular job?	
What Directly Inflicted Injury or Illness?     Aratining Deficiencies     Hazard:   New/Newly-Employed Experie     Compeny of Employment. (If different from production oper     On-elts Emergency Medical Treatment:     Not Applicable:   Pirst-Nd:   OP     Part 50 Document Control Number: (form 7000-1)     Victim Information:     Name of Injured/Ill Employee: 2. Sex 3. Vict     Dete(MM/DD/YY) and Time(24 Hr.) Of Death:     Regular Job Title:     Experience: Years Weeks Dava	I: Inced Miner: I ator) R: E Im's Age 4. B. Work Aclivity 1 Years Wee	MT:	Mine: 13. Nature of Injury Annual: Independent C Medical Profe in Allifiction of Victi gits of SSN; ale and Time Startu Vas	r or kiness:	Mi Taak:   applicable)   None:       None:         None:   	ning:	ity part of r	agular job?	
What Directly Inflicted Injury or Binase?     Training Deficiencies:     Hizard:   New/Newly-Employed Experie     Compeny of Employment. (If different from production open     On-site Emergency Medical Treatment:     Not Applicable:   First-Nd:   CP     Part 50 Document Control Number: (form 7000-1)     Victim Information:     Name of Injured/III Employee: 2. Sex 3. Vict     Dete(MM/DD/YY) and Time(24 Hr.) Of Desith:     Regular Job Title:     Experience: Years Weeks Days     This	Inced Miner:	MT:	Mine: 13. Nature of Injury Annual: Independent C Medical Profe on Alfiliation of Victi gila of SSN: ate and Time Startu c: This Yea	r or liness:	Mi Task:   applicable)   None         None   	I vork activ Yes   Total	ity part of r	ngular job?	
What Directly Inflicted Injury or Blease?     Training Deficiencies     Mazard:	Inris Age 4.	MT:	Mine: 13. Nature of Injury Annual: Independent C Medical Profe Medical Profe Medical Profe Medical Profe Medical Profe Medical Profe Medical Profe C: This Mine: Yea	r or liness: ontractor ID: (ff esionel:   m: [ 8. Degree of   ad: rs Week	Mi Task:   applicable)   None         None         None   	ning:	rity part of n	agular job?	
What Directly Inflicted Injury or Binese?     Training Deficiencies     Hazard:   New/Newly-Employed Experie     Compeny of Employment: (If different from production oper     On-site Emergency Medical Treatment:     Not Applicable:   First-Add:   CP     Part 50 Document Control Number: (form 7000-1)     //ctm Information:     Name of Injured/fil Employee: 2. Sex 3. Vict     Date(MW/DD/YY) and Time(24 Hr.) Of Death:     Regular Job Title:     Experience: Years Weeks Days     This     ork Activity: Job Title What Directly Inflicted Injury or Illnese?	Inris Age 4. B. Work Activity 1 B. Work Activity 1 Inris Age 4.	MT: 18. Unit Last Four Di 7. D 7. D 7. D 8. Days	Mine: 13. Nature of Injury Annual: Independent C Medical Profe m Allillation of Victi alte and Time Startu C: This Mine: 13. Nature of Injury	ror liness:	Mi Task:   applicable)   None:       None:         None:   	ning:	rity part of r  No  Bara We	egular job?	
What Directly Inflicted Injury or Binese?  Training Deficiencies  Hazard:   New/Newly-Employed Experie Compeny of Employment. (If different from production oper On-site Emergency Medical Treatment: Not Applicable:   Pirat-Ald:   CP Part 50 Document Control Number: (form 7000-1)  //cthm Information: Name of Injured/III Employee: 2. Sax 3. Vict Dete(MW/DD/YY) and Time(24 Hr.) Of Desith: Regular Job Title:  Experience: Years Weeks Days This b. Regu KActivity: Job Title	Im's Age 4, Im's Age 4, B. Work Aclivity 1 Iar Yeans Wee B:	NT:   18. Unit Lest Four Di 7. D shen injured ks Days	Mine: 13. Nature of Injury Annual: Independent C Medical Profe in Alfiliation of Victi gits of SSN: ale and Time Startu C: This Mine: 13. Nature of Injury	r or liness:	Mi Taak:   applicable)   None:     injury:   10. Was this Days d M	I work activ Yes   Total Your State of the second s	rity part of rr No Bars We	ngular job?	
What Directly Inflicted Injury or Illness?     Training Deficiencies     Mazard:   NewMewly-Employed Experie     Company of Employment. (If different from production oper     On-site Emergency Medical Treatment:     Not Applicable:   Pirst-Add:   CP     Part 50 Document Control Number: (form 7000-1)     //schm Information:     Name of Injured/III Employee: 2. Sax 3. Vict     Dete(MM/DD/YY) and Time(24 Hr.) Of Death:     Regular Job Title:     Experience: Yaars Weeks Days     Tha 0 Title:     Detectly Inflicted Injury or Illness?     Training Deficiencies:	r. Age 4. Im's Age 4.	MT: 18. Unit 18. Unit East Four Di 7. D shen Injured ks Days	Mine: 13. Nature of Injury Annual: Independent C Madical Profe on Alfiliation of Victi gila of SSN: ate and Time Startu c: This Mine: \$3. Nature of Injury	ror liness:	Mi Taak:   applicable)   None   	ning:	rity part of r	egular job?	
What Directly Inflicted Injury or Binese?     Training Deficiencies     Mazard: NewMewly-Employed Experie     Company of Employment. (if different from production oper     On-site Emergency Medical Treatment:     Not Application: First-Add: CP     Part 50 Document Control Number: (form 7000-1)     //cthm Information:     Name of Injured/RI Employee     2. Sex     3. Vict     Date(MM/DD/YY) and Time(24 Hr.) Of Death:     Regular Job Title:	Inris Age 4. Inris Age 4. Inris Age 4. Inris Age 4. Inris Age 4.	MT: 18. Unk Lest Four Di 7. D 9/10 19. 19. 19. 19. 19. 19. 19. 19.	Mine: 13. Nature of Injury Annual: Independent C Medical Profe m Alfillation of Victi gits of SSN: ate and Time Startu c: This Mine: 13. Nature of Injury Annual	r or liness: ontractor ID: (ff esionet:   m: 8. Degree of   ed; rs Week ry or liness: t:	Mi Task:   np:licable)   None   	ning:	rity part of r  No  sars We	egular job?	
What Directly Inflicted Injury or Illness?     Training Deficiencies     Hazard:   New/Newly-Employed Expanse     Compeny of Employment. (If different from production oper     On-site Emergency Medical Treatment:     Not Applicables:   First-Add:   CP     Part 50 Document Control Number. (form 7000-1)     Victim Information:     Name of Injured/III Employee: 2. Sex 3. Vict     Date(MM/DD/YY) and Time(24 Hr.) Of Death:     Regular Job Title:     Experience: Years Weeks Days     This or A Activity: Job Title     What Directly Inflicted Injury or Illness?     Training Deficiencies:     Hazard:   NewNewly-Employed Expanse	Inced Miner:	MT: 18. Unit Lest Four Di 7. D 7. D 8/hen injured ks Days	Mine: 13. Nature of Injury Annual: Independent C Medical Profe m Allillation of Victi Medical Profe m Allillation of Victi atte and Time Startu C: This Mine: 13. Nature of Injur Annual	ror liness:	Mi Taak:   applicable)   None:       None:   	ning:	rity part of r  No  sars We	ets De	
What Directly Inflicted Injury or Illness?     Training Deficiencies: <u>Mazard:   NewNewly-Employed Expanie</u> Company of Employment. (If different from production oper     On-site Emergency Medical Treetment:     Not Applicable:   Pirst-Aud:   CP Part 50 Document Control Number: (form 7000-1)     Victim Information:     Name of Injured/III Employee: 2. Sex 3. Vict     Date(MWDD/YY) and Time(24 Hr.) Of Desith:     Regular Job Title:     Experience: Years Weeks Days     b. Regu     Training Deficiencies:     Max Activity: Job Title:     Vitat Directly Inflicted Injury or Illness?     Training Deficiencies:     Mew/Newly-Employed Expan Company of Employment.(If different from production operated	Inced Miner:	NT: 18. Unit 18. Unit 18. Unit 17. D arhen Injured ks Days	Mine: 13. Nature of Injury Annual: Independent C Medical Profe in Alfiliation of Victi gits of SSN; ale and Time Startu C: This Mine: 13. Nature of Injur Annual Independent Co	r or liness: intractor ID: (fr asionat   fs. Degree of   ad: rs Week ry or liness: it     entractor ID: (if a	Mi Taak:   applicable)   None:   	I work activ Yes Y Total	rity part of rr No Bars We	ngular job?	75
What Directly Inflicted Injury or Binass?     Training Deficiencies:     Hizzard:   New/Newly-Employed Experie     Company of Employment. (If different from production open     On-site Emergency Medical Treatment:     Not Applicable:   First-Add:   CP     Part 80 Document Control Number: (form 7000-1)     Victim Information:     Name of Injured/HI Employee: 2. Sex 3. Vict     Dete(MM/DD/YY) and Time(24 Hr.) Of Desith:     Regular Job Title:     Experience: Years Weeks Days     Tha     Directly Inflicted Injury or Illness?     Training Deficiencies:     Hizzard:   New/Newly-Employed Experie Company of Employment.(If different from production operation)	Inced Miner:	MT: 18. Unit Last Four Di 7. D shen injured ks Days	Mine: 13. Nature of Injury Annual: Independent C Medical Profe on Allitetion of Victi gila of SSN; ate and Time Startu C: This Mine: \$3. Nature of Injur Annual Independent Co	r or liness:	Mi Taak:     None     None     10. Was this   Days d   M   Taak:     pplicable)	ning:	ity part of r No	agular job?	75
What Directly Inflicted Injury or Biness?     Hazard: NewNewly-Employed Experie     Hazard: NewNewly-Employed Experie     Company of Employment. (If different from production oper     Nor Applicable: First-Nd: CP     Part 80 Document Control Number: (form 7000-1)     Victim Information:     New of Injured/BI Employee     2. Sex     3. Vict     Dete(MM/DD/YY) and Time(24 Hr.) Of Death;     Regular Job Title:     Experience: Years Weeks Days     b. Regu     fork Activity: Job Title     What Directly Inflicted Injury or Illness?     Training Deficiencies:     Hazard: NewNewly-Employed Experie     Company of Employment (If different from production operation)	Inris Age 4. Inris Age 4. Inris Age 4. Inris Age 4. Inris Age 6. Inris Age 7. Inris Age 7. In	MT: 18. Unk Lest Four DI 7. D Phon Injured ks Days EMT:	Mine: 13. Nature of Injury Annual: Independent C Medical Profe in Alfiliation of Victi gits of SSN: ate and Time Startu C: This Mine: 13. Nature of Injury Annual Independent Co Medical Profe	ror liness:	Mi Task:   applicable)   None     10. Was this d Mi Task:   pplicable)   None:	ning:	rity part of r  No  bars We	ngular job?	· · · · · · · · · · · · · · · · · · ·
What Directly Inflicted Injury or Illness?     Training Deficiencies     Hazard:   NewWeeky-Employed Experies     Compeny of Employment. (If different from production oper     On-sits Emergency Medical Treatment:     Not Applicable: First-Add: CP Pert 80 Document Control Number. (form 7000-1)     //ctim Information:     Name of Injured/III Employee     2. Sax 3. Vici     Dete(MM/DD/YY) and Time(24 Hr.) Of Death:     Regular Job Tile:     Experience: Years Weeks Days     b. Regu     ork Activity: Job Tile:     Training Deficiencies:     Hazard:   NewNewly-Employed Experie Company of Employment.(If different from production operat     On-site Emergency Medical Treatment:     Not Applicable:   First-Add:   CP     Part 80 Document Control Number. (form 2000-1)	Inced Miner:	MT: 18. Unit 18. Unit 18. Unit 7. D 7. D 7. D 7. D 8. Days ks Days EMT:	Mine: 13. Nature of Injury Annual: Independent C Medical Profe of BSN: ate and Time Startu C: This Mine: 13. Nature of Injury Annual Independent Co Medical Profe	r or liness: ontractor ID: (ff asionat: m: 5. Degree of I ad: rs Week ry or liness: I: ontractor ID: (if a assional: (cite)	Mi Task:   applicable)   None:     10. Was this d M Task:   pplicable)   None:	ning:	rity part of r  No  sars We	egular job?	· · · · · · · · · · · · · · · · · · ·
What Directly Inflicted Injury or Binese?         Training Deficiencies:         Hazard:       NewMewly-Employed Experie         Company of Employment. (If different from production oper         On-site Emergency Medical Treatment:         Not Applicable:       First-Aud:         On-site Emergency Medical Treatment:         Not Applicable:       First-Aud:         Part 50 Document Control Number: (form 7000-1)         Part 50 Document Control Number: Job Tile:         Regular Job Tile:         Experience:       Years         Weeks       Days         Training Deficiencies:       NewMewly-Employed Experi         Hazard:       MewMewly-Employed Experi         Company of Employment.(If different from production operat         On-site Emergency Medical Treatment:       Not Applicable:         Not Applicable:       First-Aid:       C         Part 50 Document Control Number: (form 7000-1)       Not Applicable:	Imre Age 4.  Imre Age 7.  Imre	MT:   18. Unit 18. Unit 18. Unit 17. D 19. Unit EMT:   10. U	Mine: 13. Nature of Injury Annual: Independent C Medical Profe on Atiliation of Victi gits of SSN: ate and Time Startu- c: This Mine: 13. Nature of Injur Annual Independent Co Medical Profe	ror liness: intractor ID: (ff asionat   ff. Degrae of   ad: fs. Degrae of   ad: rs. Week ry or liness: it:   intractor ID: (if a lessional:    icitm.	Mi Taak:   applicable)   None:     10. Was this   Days d   M Task:     pplicable)   None:	ning:	/ity part of r	egular job?	

# APPENDIX D

Drawing of the Accident Scene



## APPENDIX E



#### **APPENDIX F**

CANOPY DIMENSIONS – 77 5/8" L x 28" W x 1" THICK

**CANOPY WEIGHT -** 690 POUNDS

CANOPY POSTS – 23" L x 68 ¼" W (OUTSIDE TO OUTSIDE) x 1 ½" THICK

**CANOPY POST MOUNTS IN OPERATOR'S CAB –** RANGING FROM 69 <sup>1</sup>/<sub>4</sub>'" TO 69 <sup>3</sup>/<sub>4</sub>" (INSIDE TO INSIDE)

### **APPENDIX G**

#### ACTION PLAN For Instaliation/Removal of Canopies

The following safety precautions will apply when performing the task of installing and removing canopies on mobile equipment.

- At NO TIME will any person be directly underneath the canopy being installed or removed.
- At NO TIME will anyone be in the operating compartment of the equipment that the canopy work is being performed on.
- Two employees experience in the task of installing and removing canopies will be used to demonstrate and train employees selected to perform this task.
- 4. At all times during the performance of this task will there be no less than 2 persons performing and/or assisting with this task.
- Proper equipment and/or tools and cribs will be present, ready and used in the performance of this task.
- The following is the procedure for installing canopies on scoops/shuttle cars.
  - a. Locate scoop/shuttle car in suitable location with at least 48" or preferably 60" or more in heighth. Remove power from scoop/shuttle car and block from motion.
  - b. Measure the canopy to insure that it is the correct canopy and that the canopy is not damaged. If the canopy is damaged, take measures to correct it.
  - c. Set the canopy jig in place. Weld and adjust pads in place or install boss blocks to bolt jig in place.
  - d. Place the canopy on the jig with a scoop.
  - e. Secure canopy with a chain hoist or cable pulleys across the operators compartment until the desired location is met. Have enough cribs/headers to support the jig on the raising of the canopy to complete the hoisting of the canopy in position.
  - f. If available, a bolt, not in the bolting cycle, can be used or installed for hoisting the jig and a lifting device can be used to hoist the jig into position. Also, a jack can be used to hoist the jig, a notch will be placed in the center of the jig to prevent a kick out of the jack.
  - g. Block the jig as jig is raised with materials such as crib blocks and headers.
  - h. Once the jig is leveled, the canopy than can be hoisted into position over the car/scoop by lifting devices, pulleys, chain hoists, ropes or a suitable device or the canopy can be tethered and be pulled across the car/scoop by two men.

#### APPENDIX G

- i. Adjust the jig as needed to fit the designated area by jacks provided on the jig. Lower the canopy into position. Install bolts not less than two to a side. At NO time will anyone be under the canopy until this task is accomplished. Then remove the jig.
- j. Insert the bolts in all safety posts on the canopy before removing the jig. Insert at least two bolts in all safety posts on the shuttle car canopy and one bolt on the safety posts on the scoop canopy where required.
- k. Reverse the procedure for canopy removal.
- Note: The jig will be stored outside and made available to trained personnel.



APPENDIX H Pictures of jig being used to remove and install a canopy