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

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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 rubber-tired 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 was a priority. Rouse stayed to assist Bailey with 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 77⅝ 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 x 2¾-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.

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

Root Cause: 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.

Corrective Action: 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.

Irvin T. Hooker
District 6 Manager

9/12/12
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 on-site. 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 ..... 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

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 ..... CMS&H Electrical Inspector
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

Accident Investigation Data - Victim Information
Event Number: 6 4 2 6 3 4 6

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

Victim Information: 1

1. Name of Injured/Ill Employee:	2. Sex	3. Victim's Age	4. Last Four Digits of SSN:	5. Degree of Injury:
James A. Bailey	M	32	0873	01 Fatal

6. Date(MM/DD/YY) and Time(24 Hr.) Of Death: a. Date: 03/03/2012 b. Time: 6:15

7. Date and Time Started: a. Date: 03/02/2012 b. Time: 17:00

8. Regular Job Title: 049 Section Foreman

9. Work Activity when Injured: 039 Machine canopy installation

10. Was this work activity part of regular job? Yes | | No | X |

11. Experience

	Years	Weeks	Days
a. This Work Activity:	0	32	5
b. Regular Job Title:	0	32	5
c. This Mine:	2	6	3
d. Total Mining:	11	0	0

12. What Directly Inflicted Injury or Illness? 077 shuttle car canopy struck victim in head

13. Nature of Injury or Illness: 170 miner receive blunt force trauma to head

14. Training Deficiencies:
Hazard: | | New/Newly-Employed Experienced Miner: | | Annual: | | Task: | X |

15. Company of Employment:(If different from production operator)
Operator

Independent Contractor ID: (If applicable)

16. On-site Emergency Medical Treatment:
Not Applicable: | | First-Aid: | | CPR: | | EMT: | | Medical Professional: | | None: | X |

17. Part 50 Document Control Number: (form 7000-1)

18. Union Affiliation of Victim: 9999 None (No Union Affiliation)

Victim Information:

1. Name of Injured/Ill Employee:	2. Sex	3. Victim's Age	4. Last Four Digits of SSN:	5. Degree of Injury:

6. Date(MM/DD/YY) and Time(24 Hr.) Of Death:

7. Date and Time Started:

8. Regular Job Title:

9. Work Activity when Injured:

10. Was this work activity part of regular job? Yes | | No | |

11. Experience:

	Years	Weeks	Days
a. This Work Activity:			
b. Regular Job Title:			
c. This Mine:			
d. Total Mining:			

12. What Directly Inflicted Injury or Illness?

13. Nature of Injury or Illness:

14. Training Deficiencies:
Hazard: | | New/Newly-Employed Experienced Miner: | | Annual: | | Task: | |

15. Company of Employment. (If different from production operator)

Independent Contractor ID: (If applicable)

16. On-site Emergency Medical Treatment:
Not Applicable: | | First-Aid: | | CPR: | | EMT: | | Medical Professional: | | None: | |

17. Part 50 Document Control Number: (form 7000-1)

18. Union Affiliation of Victim:

Victim Information:

1. Name of Injured/Ill Employee:	2. Sex	3. Victim's Age	4. Last Four Digits of SSN:	5. Degree of Injury:

6. Date(MM/DD/YY) and Time(24 Hr.) Of Death:

7. Date and Time Started:

8. Regular Job Title:

9. Work Activity when Injured:

10. Was this work activity part of regular job? Yes | | No | |

11. Experience:

	Years	Weeks	Days
a. This Work Activity:			
b. Regular Job Title:			
c. This Mine:			
d. Total Mining:			

12. What Directly Inflicted Injury or Illness?

13. Nature of Injury or Illness:

14. Training Deficiencies:
Hazard: | | New/Newly-Employed Experienced Miner: | | Annual: | | Task: | |

15. Company of Employment:(If different from production operator)

Independent Contractor ID: (If applicable)

16. On-site Emergency Medical Treatment:
Not Applicable: | | First-Aid: | | CPR: | | EMT: | | Medical Professional: | | None: | |

17. Part 50 Document Control Number: (form 7000-1)

18. Union Affiliation of Victim.

MSHA Form 7000-50b, Dec 1994

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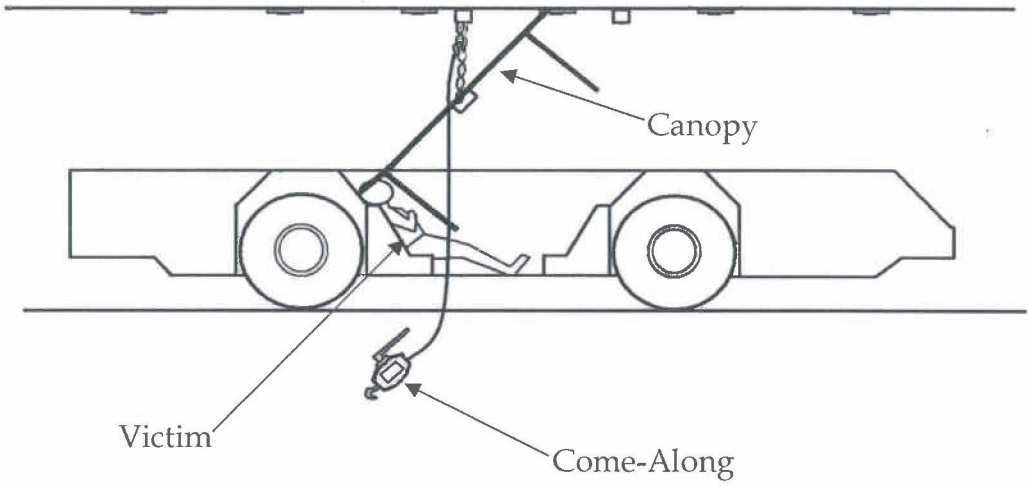
APPENDIX D

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 ¼'" TO 69 ¾" (INSIDE TO INSIDE)

ACTION PLAN
For Installation/Removal of Canopies

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

1. At NO TIME will any person be directly underneath the canopy being installed or removed.
2. At NO TIME will anyone be in the operating compartment of the equipment that the canopy work is being performed on.
3. 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.
5. Proper equipment and/or tools and cribs will be present, ready and used in the performance of this task.
6. 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.

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