

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

COAL MINE SAFETY AND HEALTH

**REPORT OF INVESTIGATION
(Surface area of a shaft development project for existing underground mines)**

**FATAL ACCIDENT (Hoisting)
November 23, 2009**

at

**Upper Second Creek Portals
Perry County Coal Corporation
Hazard, Perry County, Kentucky
I.D. No. 15-19364
Frontier-Kemper Constructors Inc.,
Contractor I.D. No. A01**

**Accident Investigator
Robert F. Ashworth
Coal Mine Safety and Health Inspector**

**Terence M. Taylor
Senior Civil Engineer
Pittsburgh Safety & Health Technology Center**

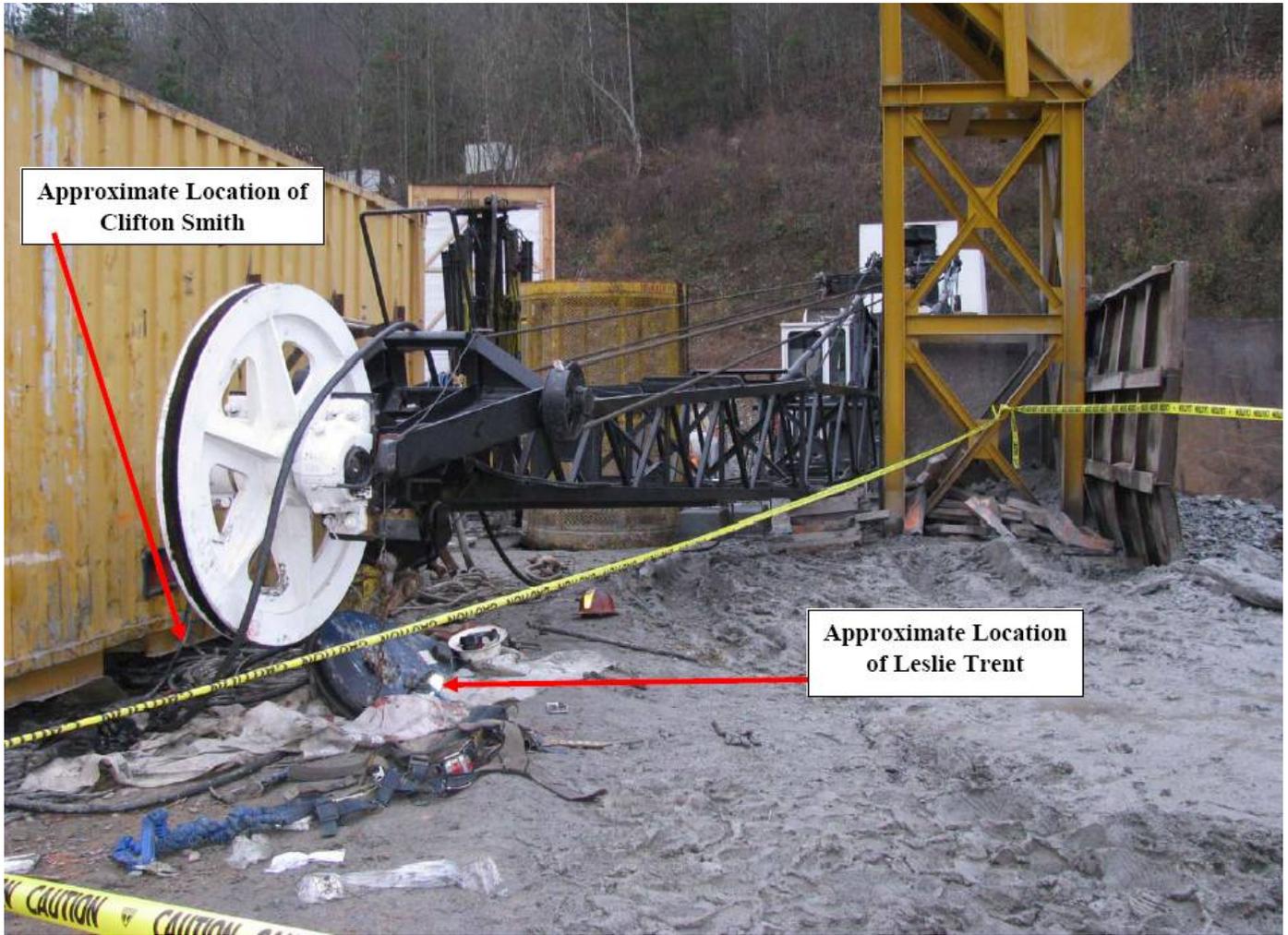
**Deborah K. Combs
Educational Field Services**

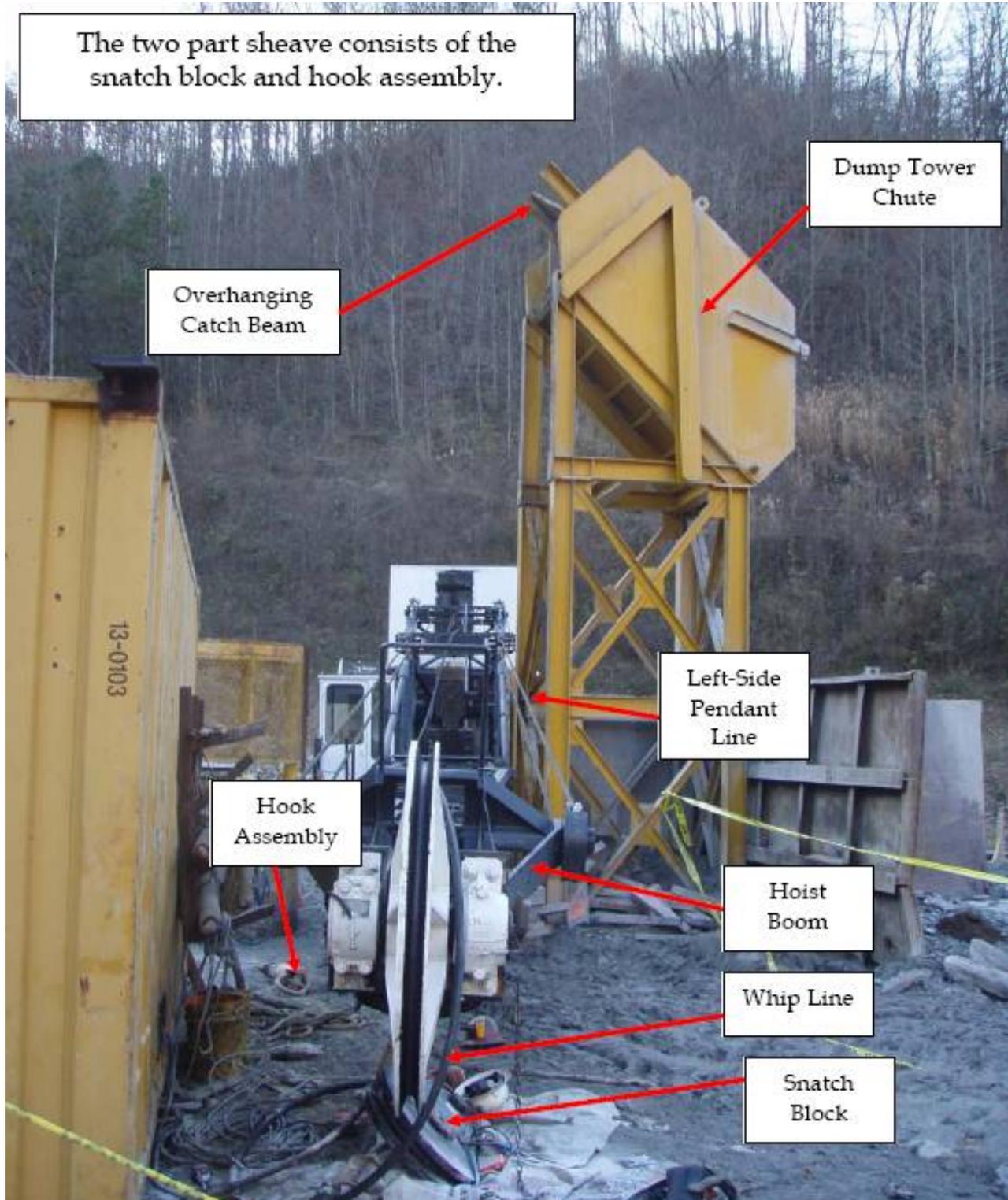
**Originating Office
Mine Safety and Health Administration
District 7
3837 S U.S. Hwy 25E
Barbourville, Ky. 40906
Irvin T. Hooker, District Manager**

Table of Contents

OVERVIEW.....	1
GENERAL INFORMATION	1
DESCRIPTION OF ACCIDENT	2
INVESTIGATION OF ACCIDENT	3
DISCUSSION	4
ROOT CAUSE ANALYSIS	5
CONCLUSION	6
ENFORCEMENT ACTIONS	7
APPENDIX A - List of persons furnishing information and/or present during the investigation	
APPENDIX B - List of persons interviewed	
APPENDIX C - 7000-50b	
APPENDIX D - Basic Overview Drawing of the Accident Scene	

PHOTOGRAPH OF ACCIDENT SCENE





OVERVIEW

An accident occurred at approximately 5:50pm on Monday, November 23, 2009 that resulted in serious injuries to one miner and fatal injuries to another. The two miners were underneath the raised boom of a pivot hoist. The miners were removing a two piece sheave wheel and hook assembly from the whip line. The miners performed this work without first ensuring that the raised boom was securely blocked in position. The hoist boom unintentionally fell approximately eight feet, striking the two miners. Management failed to ensure that the hoist boom was securely blocked in position prior to allowing work to be conducted by miners underneath the boom. The two miners were employed by Frontier-Kemper Constructors Inc.

GENERAL INFORMATION

The Upper Second Creek Portals is a shaft development project located on the Left Fork of Upper Second Creek at Hazard, Kentucky. The mines are operated by Perry County Coal Corporation, but the shaft development project is being conducted by a contractor, Frontier-Kemper Constructors, Inc. The contractor employs 36 miners on three production shifts, five days per week, developing two ventilation shafts which will connect to the existing E3-1 and E4-1 mines. The accident occurred on the surface area where the E3-1 air shaft is being developed.

The principal officers for Perry County Coal Corporation are:

Gary Osborne..... Mine Manager
Michael Joseph..... Manager of Safety

Frontier-Kemper Constructors Inc., Evansville Indiana, Contractor I.D. No. A01

The principal officers for the Independent Contractor are:

Dave Rogstad.....President
Johnny Keene.....Superintendent (at the time of the accident)
George Zugel Corporate Safety Director
Rod Christensen Field Safety Coordinator

The last regular safety and health inspection (E01) conducted by the Mine Safety and Health Administration was completed on June 22, 2009. The mine's Non Fatal Days Lost (NFDL) incident rate was 0.0 at the time of the accident. The contractor's Non Fatal Days Lost (NFDL) incident rate for 2009 was 10.61.

DESCRIPTION OF ACCIDENT

On Monday, November 23, 2009, at approximately 3:00 p.m., thirteen second shift miners employed by independent contractor Frontier-Kemper Constructors Inc. began their work shift on the surface area of a ventilation shaft development project. At approximately 5:45 p.m. six miners, including the foreman, were working at the bottom of the E3-1 shaft, while seven other miners remained working on the surface.

The pivot hoist had been used to remove the drill from the E3-1 shaft, and two miners, Leslie Trent (victim), a mechanic and Clifton Smith (injured), a toplander (a miner who works at the top of the shaft, rigs, handles material and signals the hoist operator), were in the process of removing a large two part sheave from the hoist. The sheave is required to be installed on the whip line when the drill is being lowered into and raised from the shaft due to the weight of the drill. Smith removed the hook from the sheave wheel while the hoist boom was being lowered. At approximately 5:50 p.m., the two miners were working to remove the snatch block from the whip line underneath the elevated hoist boom. The miners did not realize that the hoist boom's left side top pendant line had hung on the overhanging catch beam mounted to the top of the dump tower chute. When the pressure from the hoist's boom descent caused the pendant line to release from the overhanging catch beam, the hoist boom fell approximately eight feet, striking the two miners.

The hoist operator, Dennis Dye, stated that when the hoist boom fell, he saw the boom strike Smith (injured), who was located on the same side as the hoist operator's compartment, but did not realize that the boom had also struck Trent (victim). Albert Brummel, Mike Dumm, and Bob Yingling arrived at the accident scene to assist the injured miners. Dye, realizing the seriousness of the accident, called 911 for additional medical assistance.

Lewis Dumm, a crew supervisor, was working on the surface at the time of the accident. After getting the first-aid kit, he assisted Yingling and Dumm with an initial medical assessment and treatment of the injured miners until the ambulance crew arrived.

Upon arrival of the ambulance at the accident site at 6:06 p.m., the injured miners were transported to the Hazard Appalachian Regional Medical Center. Smith was later transported to the University of Kentucky Medical Center for treatment, and released on November 24, 2009. Trent was airlifted to the University of Tennessee Medical Center, where he was pronounced dead at 2:30 a.m. on November 24, 2009.

INVESTIGATION OF ACCIDENT

The MSHA call center was notified of the accident at 6:31 p.m. on Monday, November 23, 2009. Initial notification to the call center was made by Lewis Kanode, Field Engineer for Frontier-Kemper Constructors Inc. The call center notified Charles Maggard, Supervisory Coal Mine Safety and Health (CMS&H) Inspector in the Barbourville, Kentucky MSHA district office. A verbal 103(j) Order was issued by Charles Maggard at 6:55 p.m. to insure the safety of the miners and to preserve the accident scene. At approximately 7:10 p.m., Kevin Bruner, Supervisory CMS&H Inspector in the Hazard, Kentucky MSHA field office was contacted by Charles Maggard, and notified of the accident. Mr. Bruner contacted Randy Lewis, Electrical Inspector and Robert Ashworth, Coal Mine Inspector / Accident Investigator, who were dispatched to 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.

An investigation was initiated at approximately 8:30 p.m. by the investigation team consisting of Robert Ashworth, Randy Lewis, and Kevin Bruner. Preliminary information was gathered, including initial interviews of five miners. An investigation of the existing physical conditions was conducted.

Terrance Taylor of the MSHA Pittsburgh Safety and Health Technology Center, Mine Waste and Geotechnical Engineering Division and Deborah Combs from MSHA Educational Field Services also participated in the accident investigation.

Formal interviews were conducted on November 25, 2009 at the MSHA field office in Hazard Ky. For a list of those who participated in the interviews see Appendix B.

A non contributory citation was issued to the contractor for failure to comply with 30 CFR, § 50.10, which requires the operator to immediately contact MSHA at once without delay and within 15 minutes at the toll free number 1-800-746-1553 once the operator knows or should know that an accident has occurred. The MSHA hotline was notified of the accident at 6:31 p.m., approximately 41 minutes after the accident occurred.

The physical portion of the investigation was completed on December 09, 2009, and the 103(k) Order was terminated.

DISCUSSION

The investigation found that on the evening of the accident, Leslie Trent (victim) was working directly underneath the boom of a pivoting hoist. He was attempting to remove a 30 ton sheave from the whip line when the boom fell, striking the victim and another miner, resulting in both serious and fatal injuries. Interviews with miners and an agent of the operator, as well as the investigation into the circumstances of the accident, revealed that it was common practice for miners to work underneath the unsecured hoist boom. Further, it was determined that materials were not available in the immediate vicinity to block the hoist boom. The contractor, Frontier Kemper Constructors, Inc., and the mine operator, Perry County Coal, failed to insure that the hoist boom was securely blocked in position prior to allowing any work to be conducted by miners underneath the boom.

PHYSICAL FACTORS

MACHINE INFORMATION: The pivot hoist involved in the accident is a rebuilt hybrid hoist, consisting of the boom and turret from a Northwest Crawler Crane 80-D, vintage 1944. The cab, top deck, DC drawworks, DC electrical control system, Model D Lilly for both overspeed and overwind protection, motor brakes, and control room with programmable logic controls (PLC) controls were installed by Frontier-Kemper in 1996. The pivot hoist is equipped with a 60 foot long, three section lattice boom, and has a turning radius of 30-35 feet. A 48 inch diameter single groove point sheave is attached to the end of the tip section of the boom. The boom and point sheave weigh approximately 10,600 pounds.

ACCIDENT SCENE: The scene of the accident was on the surface near the development area for the E3-1 ventilation shaft, directly adjacent to the Top Shack in close proximity to the drill steel rack mounted to the outside wall of the Top Shack, and directly underneath the pivot hoist boom. The ground at the accident scene, at the time of the accident, was damp to wet and muddy.

WEATHER CONDITIONS: At the time of the accident the skies were overcast, the temperature was 48 degrees Fahrenheit, and the winds were calm.

SHAFT SINKING PLAN: Frontier-Kemper's Shaft Sinking Plan, which was in effect at the time of the accident, was approved on May 21, 2009. The content for approval of Slope and Shaft Sinking Plans is regulated by 30 CFR § 77.1900(a).

EXAMINATIONS: The preshift, onshift, and daily hoist examinations required by 30 CFR Part 77 were conducted by employees of Frontier Kemper Constructors, Inc. On the date of the accident, no hazardous conditions were

recorded. The onshift examination was ongoing by the shift foreman at the time of the accident.

SAFETY PROGRAM: The contractor, Frontier Kemper Constructors, Inc., has an established safety program in place which addresses company safety and health rules and federal regulations pertaining to slope and shaft construction. At the time of the accident, the established program was general in nature and did not address specific work practices.

TRAINING: Training records were reviewed for all employees during the investigation and it was determined that employees of Frontier Kemper Constructors, Inc. were in compliance with Part 48 training requirements.

ROOT CAUSE ANALYSIS

An analysis was conducted to identify the most basic causes of the accident that were correctable through reasonable management controls. During the analysis, root causes were identified that if eliminated would have either prevented the accident or mitigated its consequences. Listed below are the root causes identified during the analysis and the corresponding corrective actions intended to prevent a recurrence of the accident:

Root Cause: Management did not have a policy in place to require and ensure that equipment in a raised position was securely blocked in position prior to miners being allowed to work underneath the raised equipment.

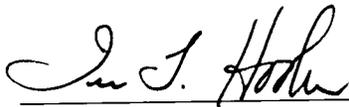
Corrective Action: Management developed and trained all employees on an action plan implemented as company policy that will require equipment in a raised position to be securely blocked in position prior to miners working underneath the raised equipment.

Root Cause: The operator did not ensure compliance of MSHA regulations by the independent contractor, Frontier Kemper Constructors, Inc., with regard to practices related to blocking the raised hoist boom prior to miners being allowed to work underneath the raised equipment.

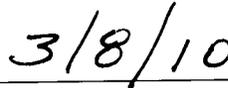
Corrective Action: The existing crane was removed from the mine site and was replaced by a different crane. The new crane does not require replacement of the sheave wheel as part of the normal work routine.

CONCLUSION

An accident occurred that resulted in serious injuries to one miner and fatal injuries to another because mine management allowed the two miners to place themselves underneath the raised boom of a pivot hoist. They were removing a two piece sheave wheel and hook assembly from the whip line, while the raised boom was not securely blocked in position. The hoist boom fell approximately eight feet, striking the two miners. Management failed to insure that the hoist boom was securely blocked in position prior to allowing any work to be conducted by miners underneath the boom.



Irvin T. Hooker
District Manager



Date

ENFORCEMENT ACTIONS

Order No. 8359213 issued to Frontier-Kemper Constructors Inc. (A01) on November 23, 2009 under the provisions of Section 103(j) of the Mine Act:

An accident occurred at this operation on 11/23/2009 at approximately 17:50. As rescuer and recovery work is necessary, this order has 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 the area approximately 100 feet around the shaft sinking operation for the E3-1 shaft portal until MSHA has determined that it is safe to resume normal operations in this area. This order applies to all persons engaged in the rescue and recovery operation and any other persons on-site. This was initially issued orally to the mine operator by Electrical supervisor Charles Jasey Maggard at 18:55 and has now been reduced to writing.

Order No. 8359213 Modification from 103(j) to 103(k)

The initial order is modified to reflect that MSHA is now proceeding under the authority of Section 103(k) of the Federal Mine Safety and Health Act of 1977. This Section 103(k) Order is intended to protect the safety of all persons on-site, including those involved in rescue and recovery operations or investigation of the accident. The mine operator shall obtain prior approval from an Authorized Representative of the Secretary for all actions to recover and/or restore operations in the affected area. Additionally, the mine operator is reminded of its existing obligations to prevent the destruction of evidence that would aid in investigating the cause or causes of the accident.

Citation No. 8359425 104(d) (1) issued to Frontier-Kemper Constructors Inc.
(A01) 30 CFR § 77.405(b)

The contractor failed to insure that the raised boom on the Northwest pivot hoist model number 027001 was securely blocked in position. Two miners were conducting routine work directly underneath, and in very close proximity to the raised pivot hoist boom to remove a two piece sheave wheel and hook assembly from the whip line. The two piece sheave wheel and hook assembly is required to be attached and unattached to the whip line every time the drill is either lowered into or raised out of the ventilation shaft. The hoist boom fell, striking the two miners that were working directly underneath the boom, resulting in serious injuries to one miner and fatal injuries to another. It was common practice for miners to work underneath the unsecured hoist boom. The contractor engaged in aggravated conduct that constitutes more than ordinary negligence by allowing miners to continually work directly underneath the hoist boom while the boom is in a raised position without having the hoist boom securely blocked in position. This violation is an unwarrantable failure to comply with a mandatory standard.

Citation No. 8359463 104(a) issued to Perry County Coal Corporation 30 CFR § 77.405(b)

The operator failed to ensure that the raised boom on the Northwest pivot hoist model number 027001 was securely blocked in position. Two miners were conducting routine work directly underneath, and in very close proximity to the raised pivot hoist boom to remove a two piece sheave wheel and hook assembly from the whip line. The two piece sheave wheel and hook assembly is required to be attached and unattached to the whip line every time the drill is either lowered into or raised out of the ventilation shaft. The hoist boom fell, striking the two miners that were working directly underneath the boom, resulting in serious injuries to one miner and fatal injuries to another. It was common practice for miners to work underneath the unsecured hoist boom.

APPENDIX A

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

Frontier-Kemper Construction Inc

George Zugel Corporate Safety Director
Brian Hendrix Company Attorney
Johnny Keene..... Superintendent
Rod Christensen..... Field Safety Coordinator
Brad EddingsEngineer
Lewis KanodeField Engineer

Kentucky Office of Mine Safety and Licensing

Tim Fugate Accident Investigator

Mine Safety and Health Administration

Irvin T. HookerDistrict Manager
Jim Langley Assistant District Manager
Ronnie L. BrockDistrict 7 Accident Investigation Coordinator
Kevin D. Bruner..... Supervisory CMS&H/ Accident Investigator
Charles J. MaggardSupervisory CMS&H Electrical Inspector
Robert F. Ashworth..... CMS&H Inspector/ Accident Investigator
Patrick A. StanfieldCMS&H Electrical Inspector
Randall L. Lewis.....CMS&H Electrical Inspector
Lantre CombsCMS&H Inspector
Terence M. Taylor Senior Civil Engineer PS&HTC Mine
Waste and Geotechnical Engineering Division
Deborah K. Combs..... Educational Field Services
Marty Turner.....Office of the Solicitor

APPENDIX B

List of Persons Interviewed

Mike A. Dumm.....Crew Mechanic
Lewis H. Dumm..... Crew Superintendent
Anthony HaysShift Foreman
James Ramsey 1st Shift Hoist Operator
Dennis Dye..... 2nd Shift Hoist Operator
Clifton L. Smith2nd Shift Toplander

APPENDIX C

7000-50b

Accident Investigation Data - Victim Information

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



Event Number: 0414200

Victim Information: 1

1. Name of Injured/ill Employee: <u>Leslie D. Trent</u>		2. Sex: <u>M</u>	3. Victim's Age: <u>37</u>	4. Last Four Digits of SSN: <u>9957</u>	5. Degree of Injury: <u>01 Fatal</u>											
6. Date(MM/DD/YY) and Time(24 Hr.) Of Death: a. Date: <u>11/24/2009</u> b. Time: <u>2:30</u>				7. Date and Time Started: a. Date: <u>11/23/2009</u> b. Time: <u>16:00</u>												
8. Regular Job Title: <u>004 mechanic at shaft development project</u>			9. Work Activity when Injured: <u>016 uncoupling a sheave from hoist rope</u>		10. Was this work activity part of regular job? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>											
11. Experience a. This Work Activity:		Years	Weeks	Days	b. Regular Job Title:	Years	Weeks	Days	c. This Mine:	Years	Weeks	Days	d. Total Mining:	Years	Weeks	Days
		<u>0</u>	<u>11</u>	<u>3</u>		<u>0</u>	<u>11</u>	<u>3</u>		<u>0</u>	<u>11</u>	<u>3</u>	<u>4</u>	<u>16</u>	<u>0</u>	
12. What Directly Inflicted Injury or Illness? <u>063 hoist boom fell striking victim</u>					13. Nature of Injury or Illness: <u>370 Multiple blunt force trauma injuries</u>											
14. Training Deficiencies: Hazard: <input type="checkbox"/> New/Newly-Employed Experienced Miner: <input type="checkbox"/> Annual: <input type="checkbox"/> Task: <input type="checkbox"/>																
15. Company of Employment: (if different from production operator) <u>Frontier-Kemper Constructors Inc.</u>						Independent Contractor ID: (if applicable) <u>A01</u>										
16. On-site Emergency Medical Treatment: Not Applicable: <input type="checkbox"/> First-Aid: <input checked="" type="checkbox"/> CPR: <input type="checkbox"/> EMT: <input type="checkbox"/> Medical Professional: <input type="checkbox"/> None: <input type="checkbox"/>																
17. Part 50 Document Control Number: (form 7000-1) <u>220093370016</u>						18. Union Affiliation of Victim: <u>9999 None (No Union Affiliation)</u>										

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 <input type="checkbox"/> No <input type="checkbox"/>											
11. Experience a. This Work Activity:		Years	Weeks	Days	b. Regular Job Title:	Years	Weeks	Days	c. This Mine:	Years	Weeks	Days	d. Total Mining:	Years	Weeks	Days
12. What Directly Inflicted Injury or Illness?					13. Nature of Injury or Illness:											
14. Training Deficiencies: Hazard: <input type="checkbox"/> New/Newly-Employed Experienced Miner: <input type="checkbox"/> Annual: <input type="checkbox"/> Task: <input type="checkbox"/>																
15. Company of Employment: (if different from production operator)						Independent Contractor ID: (if applicable)										
16. On-site Emergency Medical Treatment: Not Applicable: <input type="checkbox"/> First-Aid: <input type="checkbox"/> CPR: <input type="checkbox"/> EMT: <input type="checkbox"/> Medical Professional: <input type="checkbox"/> None: <input type="checkbox"/>																
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 <input type="checkbox"/> No <input type="checkbox"/>											
11. Experience a. This Work Activity:		Years	Weeks	Days	b. Regular Job Title:	Years	Weeks	Days	c. This Mine:	Years	Weeks	Days	d. Total Mining:	Years	Weeks	Days
12. What Directly Inflicted Injury or Illness?					13. Nature of Injury or Illness:											
14. Training Deficiencies: Hazard: <input type="checkbox"/> New/Newly-Employed Experienced Miner: <input type="checkbox"/> Annual: <input type="checkbox"/> Task: <input type="checkbox"/>																
15. Company of Employment: (if different from production operator)						Independent Contractor ID: (if applicable)										
16. On-site Emergency Medical Treatment: Not Applicable: <input type="checkbox"/> First-Aid: <input type="checkbox"/> CPR: <input type="checkbox"/> EMT: <input type="checkbox"/> Medical Professional: <input type="checkbox"/> None: <input type="checkbox"/>																
17. Part 50 Document Control Number: (form 7000-1)						18. Union Affiliation of Victim:										

APPENDIX D

