

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

COAL MINE SAFETY AND HEALTH**

**REPORT OF INVESTIGATION
(Surface Coal Mine)**

**Fatal Accident (Power Haulage)
November 23, 2010**

**Rex Strip # 1
Rex Coal Company, Inc.
Grays Knob, Harlan County, Kentucky
MSHA I.D. No. 15-19069**

**Accident Investigator
David A. Faulkner
Surface Coal Mine Health and Safety Inspector**

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

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PHOTOGRAPH OF ACCIDENT SCENE



OVERVIEW

At approximately 12:15 a.m. on November 23, 2010, Rhett Lee Mosley, a 32-year old lube truck operator with 6 years of mining experience, was killed on the Rex Coal Company Inc., Rex Strip # 1, Lowsplint coal seam pit access roadway. The accident occurred on a section of roadway used to provide access for mobile equipment traveling between the Highsplint and Lowsplint coal seam work areas. Mosley lost control of the DM-690-SX Mack tandem axle lube truck while descending the roadway. The truck encountered the outer roadway barrier near the bottom of the roadway, traveled approximately 77 more feet and overturned on its left side, onto back dumped spoil material. Mosley apparently either jumped or was thrown from the truck and was found lying under the service bed of the truck.

GENERAL INFORMATION

The Rex Strip # 1 mine is a multi-seam contour surface mine producing coal primarily from the Highsplint and Lowsplint coal seams. The mine is located near Closplint in Harlan County, Kentucky. The mine operates two production shifts five days per week, employing 21 miners. The day shift operates from 7:00 a.m. to 5:00 p.m. with the night shift operating from 6:00 p.m. to 5:00 a.m. Equipment servicing is conducted prior to the start of the production shifts and continued throughout the shifts. The mining cycle utilizes an excavator, trucks, and dozer combination to produce approximately 500 tons of coal per day. The mine run coal is transported by tandem coal trucks to tipple and load-out facilities throughout the Harlan County area.

The principal officers for Rex Coal Company, Inc. are:

Joseph T. Bennett.....	President
Terrell G. Loving	Mine Manager

The last regular safety and health inspection conducted by the Mine Safety and Health Administration (MSHA) prior to the accident was completed on June 14, 2010. The Non-Fatal Days Lost (NFDL) injury incidence rate for the mine in 2009 was 3.34, compared to a National NFDL rate of 1.21 for mines of this type.

DESCRIPTION OF ACCIDENT

On Monday, November 22, 2010, at approximately 4:30 p.m., Rhett Lee Mosley (victim), a lube truck operator, arrived at the Rex Strip # 1 mine location to begin his shift. Normal production activities continued until approximately 11:30 p.m., when Mosley was observed to have parked the lube truck adjacent to the Highsplint work area and appeared to be taking his lunch break.

At approximately 11:40 p.m. James Chasteen, Foreman, contacted James Muncy, Bulldozer Operator in the Lowsplint work area, by CB radio and reminded him to open the road into the Lowsplint work area before the lunch break at 12:00 a.m. Spoil material was being dumped in the roadway to eliminate the steep grade on the lower portion of the roadway connecting the Lowsplint and Highsplint work areas. The equipment was to be serviced during the lunch break and the access road had to be cleared to provide access for the lube truck.

At approximately 11:55 p.m. Muncy informed Mosley by CB radio that the road was open. Muncy then instructed the loaded haul truck to hold up and allow the lube truck to enter the Lowsplint work area. Muncy next observed the lube truck approximately halfway down the grade, descending the roadway toward Lowsplint work area at a much faster than normal speed, followed by a loud crashing sound.

Muncy contacted Roger Gibson, Haul Truck Driver, by CB radio requesting immediate assistance, stating that Mosley had wrecked the lube truck. Upon arrival at the accident scene, they found that Mosley was located underneath the service bed of the overturned truck and had received fatal, crushing injuries.

Chasteen contacted Terrell Loving, Mine Manager, via telephone and informed him about the accident. Loving then contacted emergency personnel, the MSHA Call Center, and the Kentucky Office of Mine Safety and Licensing (OMSL). Life Care ambulance service responded to the accident site. Jim Rich, Deputy Coroner, pronounced Mosley's time of death at 02:15 a.m. on November 23, 2010.

INVESTIGATION OF ACCIDENT

Dennis J. Cotton, Staff Assistant for MSHA's District 7 Office at Barbourville, Kentucky, was notified of the accident at 12:44 a.m. by the MSHA Call Center. MSHA personnel from the Harlan and Barbourville offices were immediately dispatched to the mine site. A 103(j) Order was issued to the mine operator, and later modified to a 103(k) Order.

The accident investigation was conducted in cooperation with the Kentucky Office of Mine Safety and Licensing (OMSL), with assistance from the mine operator and employees. A list of persons participating in or present during the investigation is included in Appendix A.

MSHA accident investigators, along with Kentucky OMSL personnel, gathered preliminary information and conducted an investigation of the existing physical conditions. Photographs and relevant measurements were taken.

A mechanical engineer from the MSHA Mechanical & Engineering Safety Division, Technical Support Branch, arrived on November 24, 2010, to conduct a detailed mechanical evaluation of the truck involved in the accident.

Interviews were conducted with employees and management personnel of Rex Coal Company, Inc. deemed to have knowledge of the facts regarding the accident. The interviews were conducted at the Kentucky OMSL office at Harlan, Kentucky on November 24, 2010. A list of persons interviewed is included in Appendix B.

The physical portion of the investigation was completed on November 29, 2010. The 103(k) Order was modified entirely to the Mack lube truck.

DISCUSSION

The tandem drive fuel and lube truck was a 1988 Mack model DM 690SX, VIN 1M2B198C2JW002173, equipped with a bed-mounted fuel tank and multiple bed-mounted lube tanks. The truck had a Mack EM6-300L diesel engine, a Jacobs engine brake, a Mack TRXL107 six speed transmission, and a 6.34 to 1 drive gear ratio. The truck had a gross vehicle weight rating (GVWR) of 66,240 pounds. The gross vehicle weight (GVW) of the truck at the time of the accident was estimated to be approximately 55,000 pounds. The maximum estimated gross vehicle weight with the lube tanks completely full was approximately 62,500 pounds.

The pit road from the Highsplint to the Lowsplint work area was relatively straight throughout the entire descent. It was approximately 524 feet in length, 21 feet wide, and had an overall grade of approximately 22 percent. The outer edge barrier (berm) averaged 54 inches in height. The road was constructed of compacted spoil material and road conditions were dry at the time of the accident.

The engine brake control system was tested and it was determined that this control system electrically functioned.

The truck transmission was controlled by two gearshift levers. One lever provided 1st to 5th gear selection positions, while the second lever provided reverse, low forward, and high forward selections. During the field investigation, both gearshift levers were found in the neutral position. Impact damage to the cab floor prevented the speed selector gearshift lever from being put into the 2nd and the 4th gear positions. When the cab floor was remediated, both selector levers could be put into any of their gear positions.

The drive train was visually inspected and there were no catastrophic failures of any of the drive shafts, the front drive axle through shaft, or any of the tandem drive axles' axle shafts.

The truck had a functional dual-circuit air brake system with s-cam type drum brakes at all six wheels. The primary air system supplied air to the four tandem rear drive axle service brakes, while the secondary air system supplied air to the steering axle service brakes. Both the primary and secondary air circuits supply air to the parking brake system on the tandem rear drive axles.

All five of the intact service brake chambers cycled when tested with the service brake foot valve.

The truck's parking brakes operated within the specifications stated in the Mack service manual information.

The low air warning circuit for the primary brake supply system functioned and sounded when the air pressure fell to approximately 65 pounds per square inch (PSI). This is within the Mack service manual specifications.

An air leak was identified in the service brake portion of the left rear drive axle brake chamber. The air leak occurred only when the service brakes were applied and only affected the primary brake supply system pressure.

The brake evaluations indicated that five of the six service brakes, along with three of the four parking brakes, were ineffective or compromised.

The left side steering axle brake was not functioning. The s-cam rollers were dislodged from their seats and the drum's contact surfaces had visible surface rust.

The left rear and right rear drive axle brake chambers were above the readjustment limit and did not have any effective reserve stroke. Neither of these brakes could produce any effective braking.

The right side steering axle brake would not have produced any effective braking and the left front drive axle brake would have produced limited braking. While both had reserve stroke, both were compromised due to varying degrees of grease-like material contaminating the contact surfaces of the brake shoe linings.

Five of the six service brake chamber pushrod strokes for the truck exceeded the maximum allowable pushrod stroke.

The truck had a lap type seat belt in the driver's side seating position. The latching mechanism (buckle and latch plate) for this seat belt assembly latched and unlatched when tested. The seat belt was installed incorrectly. The seat belt sections containing the buckle and latch plate were each anchored to the floor of the cab instead of the seat frame. During the accident investigation and interviews of company employees, it could not be determined when or by whom the seat belt was installed or modified.

Records of recent pre-operational examinations were provided by the operator. No defects affecting safety were recorded prior to the accident.

Inspection of company training records revealed that Rhett Lee Mosley was a Certified Surface Miner and had received the required training for this mine location. Mosley had a total of five years mining experience and 1 ½ years at this mine as a truck driver.

Weather data obtained for the mine location at the approximate time of the accident indicated the temperature to be 57 degrees, the dew point 46 degrees, relative humidity 67%, winds south, to southwest at 16 miles per hour, clear conditions, and visibility 10 miles.

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. The following root causes were identified during the analysis and their corresponding corrective actions intended to prevent a recurrence of the accident:

1. *Root Cause:* The service brakes were not properly maintained on the Mack lube truck. Management did not have an effective procedure to ensure that mobile equipment brakes were properly maintained.

Corrective Action: Management shall implement and follow a written procedure to provide for regular mobile equipment examinations, maintenance, and repairs of braking systems for each machine. Defects found that affect safety shall be reported to the foreman and shall be corrected before the machine is placed in service.

2. *Root Cause:* The victim was not wearing a seat belt or had disconnected the seat belt after he lost control and the truck turned over.

Corrective Action: Mine management will train and instruct all drivers not to operate a truck or any type equipment without wearing a seat belt. A record will be made to document completion of the training.

3. *Root Cause:* Management did not have a policy in place to ensure that adequate pre-operational checks were performed and to ensure that equipment safety defects were corrected prior to equipment use.

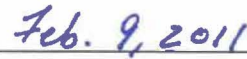
Corrective Action: Management shall establish a written procedure to assure that adequate pre-operational checks are conducted on mobile equipment and to assure that any safety defects identified are corrected prior to operation.

CONCLUSION

The accident occurred because the operator failed to ensure the truck was maintained in safe operating condition. Defects affecting safety were not corrected before the truck was put in service. Brake system defects on the truck rendered the service brakes inadequate and insufficient to maintain control of the truck on the observed 22 percent slope. The mine operator failed to ensure that the seat belt system in the truck was properly installed, and the victim was wearing a properly installed, functional seat belt.



Irvin T. Hooker
District Manager



Date

ENFORCEMENT ACTIONS

Order No. 8349256 was issued to Rex Coal Company, Inc. on November 23, 2010, under the provisions of Section 103(j) of the Mine Act:

An accident occurred at this operation on 11/23/2010 at approximately 00:15 hours. 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 the investigating the cause or causes of the accident. It prohibits all activity at (The entire mine site) except to the extent necessary to rescue an individual or prevent or eliminate an imminent danger until MSHA has determined that it is safe to resume mining operations in this area. This order applies to all persons engaged in the rescue and recovery operation and any other persons on-site.

Modified to 103(k) Order at 02:30 hours.

A 104(a) Citation, No. 8365953, issued to Rex Coal Company, Inc. for a violation of 30 CFR, § 77.1607(b).

As a result of a fatal accident investigation at the Rex Coal Company, Inc.'s, Rex Strip # 1, it has been determined that the operator of the 1988 Maroon Mack tandem lube truck, Model DM-690-SX, VIN #1M2B198C2JW002173, failed to maintain control as the lube truck was descending the mine haul road, connecting the Highsplint and Lowsplint coal seam work areas. The overall grade of this section of the mine haul road was 22 per cent. Mobile equipment operators shall have full control of the equipment while it is in motion. The overturned truck resulted in fatal injuries to the operator.

A 104(a) Citation, No. 8365954, issued to Rex Coal Company, Inc. for a violation of 30 CFR, § 77.1605(b).

As a result of a fatal accident investigation at the Rex Coal Company, Inc.'s, Rex Strip # 1, it has been determined that the brakes were inadequate on the 1988 Maroon Mack tandem lube truck, Model DM-690-SX, VIN #1M2B198C2JW002173. The brake evaluations indicated that five of the six service brakes, along with three of the four parking brakes were ineffective or compromised. Five of the six service brake chamber pushrod strokes for the truck exceeded the maximum allowable pushrod stroke readjustment limit. This

condition contributed to the occurrence of this fatal accident.

A 104(a) Citation, No. 8365955, issued to Rex Coal Company, Inc. for a violation of 30 CFR, § 77.1606(a).

The results of a fatal accident investigation at the Rex Coal Company, Inc.'s, Rex Strip # 1, revealed that an inadequate pre-operational examination was conducted for the 1988 Maroon Mack tandem lube truck, Model DM-690-SX, VIN #1M2B198C2JW002173, on Monday 11-22-2010, prior to the accident. During the investigation and interviews the following defects affecting safety were revealed to exist on the truck, without recording or correcting the conditions: (1) Five of the six service brake chamber pushrod strokes for the truck exceeded the maximum allowable pushrod stroke readjustment limit. (2) Three of the four parking brakes were ineffective or compromised. (3) The operator seat belt was improperly installed. (4) Both sections of the front windshield were cracked prior to the accident. An adequate pre-operational examination would have revealed these defects affecting safety.

APPENDIX A

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

Rex Coal Company, Inc. Officials & Employees

Joseph T. Bennett.....	President
Terrell G. Loving	Mine Manager
Ray Alred	Safety Director
Hobert C. Hayes	Mine Superintendent
Michael Boggs.....	Day Shift Foreman
James R. Chasteen II	Night Shift Foreman
Davis Clark	Excavator Operator
Jason J. Collett.....	Dozer Operator
Adam M. Miller	Haul Truck Driver
Roger Gibson	Haul Truck Driver
Cobern L. Kirby	Haul Truck Driver
James W. Muncy.....	Dozer Operator
Matthew J. Blanton	Lube Truck Driver/Day Shift
Kent Hendrickson	Attorney at Law
John M. Williams.....	Attorney at Law
Ronnie L. Brock	Technical Assistant

Kentucky Office of Mine Safety & Licensing

Tracy Stumbo.....	Chief Accident Investigator
Greg Goins	Deputy Chief Accident Investigator
Jim Owens	Inspector Principal
Todd Middleton	Inspector

Mine Safety and Health Administration

David A. Faulkner.....	CMS&H Surface Inspector/ Accident Investigator
Argus Brock	CMS&H Surface Specialist
Robert W. Rhea.....	Supervisory CMS& H
William B. Sears.....	Supervisory CMS&H
Larry B. Boggs	CMS&H Surface Inspector
Alice Blanton.....	Educational Field Services
F. Terry Marshall.....	Mechanical Engineer/ Technical Support
Dennis J. Cotton.....	District 7 Accident Investigation Coordinator
Jim Langley	Assistant District Manager
Irvin T. Hooker	District Manager

APPENDIX B

List of Persons Interviewed

Davis Clark	Night Shift Excavator Operator
Jason J. Collett.....	Night Shift Dozer Operator
Adam M. Miller	Night Shift Haul Truck Driver
Roger Gibson	Night Shift Haul Truck Driver
Cobern L. Kirby	Night Shift Haul Truck Driver
James W. Muncy.....	Night Shift Dozer Operator
Matthew J. Blanton	Day Shift Lube Truck Driver
James R. Chasteen II	Night Shift Foreman
Michael Boggs.....	Day Shift Foreman
Terrell G. Loving	Mine Manager

APPENDIX C

MSHA Form 7000-50b

Accident Investigation Data - Victim Information

U.S. Department of Labor

Mine Safety and Health Administration



Event Number: 4 4 4 2 7 7 9

Victim Information: 1

1. Name of Injured/ill Employee: Rhett L. Mosley 2. Sex: M 3. Victim's Age: 32 4. Degree of Injury: 01 Fatal

5. Date(MM/DD/YY) and Time(24 Hr.) Of Death: a. Date: 11/23/2010 b. Time: 0:15 6. Date and Time Started: a. Date: 11/22/2010 b. Time: 17:00

7. Regular Job Title: 105 Oiler/Greaser 8. Work Activity when Injured: 071 Operate Utility Truck 9. Was this work activity part of regular job? Yes ☒ No ☐

10. Experience: a. This Work Activity: 5 Years 0 Weeks 0 Days b. Regular Job Title: 1 26 0 c. This Mine: 1 26 0 d. Total Mining: 6 0 0

11. What Directly Inflicted Injury or Illness? 110 Vehicle Overturned 12. Nature of Injury or Illness: 370 Multiple Injuries

13. Training Deficiencies: Hazard: New/Newly Employed Experienced Miner: Annual: Task:

14. Company of Employment: (if different from production operator) Operator Independent Contractor ID: (if applicable)

15. On-site Emergency Medical Treatment: Not Applicable: First Aid: CPR: BMT: Medical Professional: None: ☒

16. Part 50 Document Control Number: (form 7000-1) 17. Union Affiliation of Victim:

Victim Information:

1. Name of Injured/ill Employee: 2. Sex: 3. Victim's Age: 4. Degree of Injury:

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

7. Regular Job Title: 8. Work Activity when Injured: 9. Was this work activity part of regular job? Yes ☐ No ☐

10. Experience: a. This Work Activity: b. Regular Job Title: c. This Mine: d. Total Mining:

11. What Directly Inflicted Injury or Illness? 12. Nature of Injury or Illness:

13. Training Deficiencies: Hazard: New/Newly Employed Experienced Miner: Annual: Task:

14. Company of Employment: (if different from production operator) Independent Contractor ID: (if applicable)

15. On-site Emergency Medical Treatment: Not Applicable: First Aid: CPR: BMT: Medical Professional: None:

16. Part 50 Document Control Number: (form 7000-1) 17. Union Affiliation of Victim:

Victim Information:

1. Name of Injured/ill Employee: 2. Sex: 3. Victim's Age: 4. Degree of Injury:

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

7. Regular Job Title: 8. Work Activity when Injured: 9. Was this work activity part of regular job? Yes ☐ No ☐

10. Experience: a. This Work Activity: b. Regular Job Title: c. This Mine: d. Total Mining:

11. What Directly Inflicted Injury or Illness? 12. Nature of Injury or Illness:

13. Training Deficiencies: Hazard: New/Newly Employed Experienced Miner: Annual: Task:

14. Company of Employment: (if different from production operator) Independent Contractor ID: (if applicable)

15. On-site Emergency Medical Treatment: Not Applicable: First Aid: CPR: BMT: Medical Professional: None:

16. Part 50 Document Control Number: (form 7000-1) 17. Union Affiliation of Victim:

Appendix D

Sketch of Accident Scene

Rex Coal Company Inc.
Fatal Accident

