

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

REPORT OF INVESTIGATION

Surface Coal Mine

Powered Haulage
December 4, 2010

Medford Trucking LLC. (B106)
Charleston, Kanawha County, West Virginia

at

Republic Energy
Elk Run Coal Company
Mahan, Fayette County, West Virginia
ID No. 46-09054

Accident Investigation

Andrew Sedlock
Coal Mine Health and Safety Inspector

Ronald Medina
Technical Support

Originating Office
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Mount Hope, West Virginia 25880
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OVERVIEW

At 4:58 p.m., on Saturday, December 4, 2010, a 32-year old coal truck driver with ten years of driving experience, four years with Medford Trucking, was fatally injured at the Republic Energy Mine, ID No. 46-09054, Elk Run Coal Company. The accident occurred when the victim lost control of the Kenworth coal truck he was operating. He ran up the side of an axle berm, turned over on the haulroad, and was trapped beneath the cab.

The accident occurred because:; (1) there were mismatched brake chambers on the drive axle of the truck; (2) the trailer brakes were not properly maintained and failed to operate effectively; (3) unsafe operating conditions were overlooked due to a failure of the pre-operational inspection policy/procedure; and (4) the victim was not wearing a seatbelt at the time of the accident.

GENERAL INFORMATION

The Republic Energy mine, I.D. No. 46-09054, is located near Mahan, Fayette County, West Virginia. The principal officers for the mine at the time of the accident were:

James V. WoodPresident
Bryan K. Anderson Superintendent
Doug Robinson..... Safety Director

The principal officers for Medford Trucking at the time of the accident were:

Kevin Medford Owner
Dale Medford.....Manager

Prior to the accident, the Mine Safety and Health Administration (MSHA) completed its last regular safety and health inspection on September 29, 2010. The mine's Non Fatal Days Lost (NFDL) rate for 2009 was 0.0, compared with the National Average of 1.21 for this type of mine. A regular safety and health inspection was ongoing at the time of the accident.

DESCRIPTION OF THE ACCIDENT

Charles R. Qualls, victim, arrived at the Republic Energy Mine at 4:00 p.m., on Saturday, December 4, 2010. He drove a Kenworth coal truck to the mine from his home. Mr. Qualls was the only miner to drive this truck, and only on the evening shift. When the victim performed the pre-operational inspection using the 59 point daily inspection of coal haulage trucks checklist, no defects were found. The truck, a 1993 Model W900B Kenworth with a 2006 model Benson 35 foot dump trailer, was operated by Medford Trucking LLC, ID No. B106, leased from Johnny Clark Trucking LLC.

Shortly after arriving at the mine, Mr. Qualls drove up the mountain haulroad to the loading area. After being loaded, he and another driver, John Tate, also a Medford driver, proceeded to the brake check area near marker No. 55, where brakes are checked and walk around inspections are conducted prior to descending the haulroad. Walk around inspections consist of a visual and audible check for defects such as oil leaks, air leaks, broken springs, tire wear, etc. No defects were observed and the truck appeared to be in operable condition. The two drivers waited for approximately 50 to 55 minutes for road maintenance equipment to clear snow from the road and spread gravel chips. Once cleared, they began their descent down the two lane road with the victim following two other trucks down the haulroad. At Marker No. 52, the victim was moving slowly and came to a complete stop to increase the distance between the two trucks. At Marker No. 46 the road was wet. Tate, who was following the

victim at Marker No. 44, heard the victim on the C.B. radio state that, "Something is wrong, the trailer brakes won't grab." Tate saw that the brake lights were on. At Marker No. 43, Henry Ferrell, a Medford driver in front of the victim and traveling loaded in the same direction, heard the victim on the radio say, "I got to get around you, I'm sorry." Ferrell realizing Qualls (victim) was in trouble, moved over into the left lane to allow him to pass without having to change lanes. After the victim passed, Ferrell saw him steer to the left toward an axle berm. Axle berms are a mound of chipped stone/sand approximately 100 feet long and 4 feet high designed to slow/stop trucks when they are centered down the length of the berm. The victim missed centering the berm between the two front wheels and ran the left side tires up onto the berm for a distance of 93 feet before the truck overturned. Tate ran to the overturned truck and found the victim pinned beneath the right side exhaust stack and passenger door. Ferrell retrieved a hammer from another truck and Tate broke the windshield, turned the engine off, and tried unsuccessfully to remove the victim from the truck. Ferrell called 911 by cell phone. Emergency responders from the mine were unable to free the victim. Emergency personnel arrived at the mine at 5:15 pm and 5:30 pm. Air bags were utilized to raise the truck cab off the victim who was pronounced dead at the scene.

INVESTIGATION OF THE ACCIDENT

Doug Robinson, safety/security director at Republic Energy, was in Mt. Hope at 4:58 p.m., for a company function when he was informed that an accident had occurred and an ambulance was called. He immediately left for the mine. At 5:25 p.m., Robinson was notified by Jimmy Wood, president of Republic Energy, that the accident was possibly a fatality. At 5:35 p.m., Robinson notified the MSHA Hotline of the possible fatality. A noncontributing violation was issued for failure to notify MSHA within 15 minutes.

A 103(j) Order was issued at 5:45 p.m., by Luther Marrs, assistant district manager, District 4, to prevent the destruction of any evidence. MSHA accident investigators were immediately dispatched to the mine.

The 103(j) Order was modified to a 103(k) Order to ensure the safety of all persons at the mine. The investigation was conducted with the assistance of the mine operator, the contractor, miners, and the West Virginia Office of Miners' Health, Safety and Training (WVOMHS&T).

Photographs and relevant measurements were taken and an engineered drawing of the accident scene was made. Interviews were conducted at the Republic Energy training office with persons who had knowledge about the accident. Those persons who were interviewed and/or participated in the investigation are listed in Appendix A of this report.

The physical portion of the investigation was completed on December 17, 2010, and the 103(k) Order was terminated.

DISCUSSION

The truck involved was a 1993 Kenworth tractor, Model W900B, with a 35 foot Benson dump trailer, built in 2006. The tractor was equipped with a six cylinder, Caterpillar 3406 turbocharged and after cooled diesel engine, and an Eaton-Fuller, Model RTLO18918B, 18 speed manual transmission. The tractor had two drive axles and was provided with an engine compression release brake (Jake Brake). The odometer showed 886,497 miles. The maximum Gross Vehicle Weight Rating (GVWR) for the tractor was 57,120 lbs. The Benson trailer had three axles, each with a Gross Axle Weight Rating (GAWR) of 25,000 lbs. The total GVWR for the complete tractor/trailer combination was 132,120 lbs. Based on the weight tickets for the truck, when it last hauled from the same location on December 3, 2010, the estimated GVW for the truck at the time of the accident was 124,980 lbs. This was within the rated GVWR of 132,120 lbs. for the tractor/trailer combination. The tare weight (empty) of the tractor trailer combination was 41,720 lbs.

The haulroad average downgrade for the last 7,120 feet prior to the point of the accident was approximately 9.1%. The road is approximately two miles long. There are seven axle berms and one escape ramp constructed for emergency use along this portion of the road. The curves in the haulroad are numbered from No. 13 at the guard post to No. 55 near the top of the mountain at the brake check point. Drivers call out the numbers and direction of travel as they approach markers to alert one another of their position on the road.

While air pressure was maintained at 100 psi, the brake pushrod strokes at all the wheels were measured during a full brake application. Following the pushrod stroke measurements, the wheels were removed and the inside diameters of all the drums were measured.

Upon inspection of the truck tractor, only one of the brake chamber pushrod strokes was beyond the readjustment limit. The right front steering axle brake chamber stroke was $2 \frac{1}{16}$ inches. The limit for this type 24 chamber is $1 \frac{3}{4}$ inches. However, this chamber was damaged during the accident which could have resulted in the long stroke. The steering axle (front) did not have matching brake chambers. The left was a type 20 while the right was a type 24. A mismatch in brake chamber sizes on the steering axle is considered an "out of service criterion" by Commercial Vehicle Safety Alliance (CVSA) North American Standard Out-of-Service Criteria.

On the left side of the intermediate trailer axle, although the pushrod travel of 2 inches was within the allowable limit, the brake linings did not contact the drum

when the service brake was fully applied at 100 psi. Therefore there was no effective braking at this wheel. A brake chamber defect caused a limited stroke due to the pusher plate assembly not fully retracting into the spring brake portion. In addition, two of the four bolts that held the cam shaft support tube in place were missing, allowing the cam shaft to move approximately $\frac{1}{16}$ inch when the brakes were applied. The braking at this wheel was completely ineffective.

The right intermediate trailer axle brake chamber pushrod travel was $2\frac{1}{2}$ inches. This exceeds the maximum allowable limit of two inches for a type 30-30 brake chamber. The right intermediate trailer axle brake drum inside diameter was measured at 16.773 inches. This is beyond the maximum allowable diameter stamped on the drum of 16.620 inches, which compromised the braking capacity of this wheel.

The right side rear trailer axle brake chamber pushrod travel was measured at $2\frac{7}{16}$ inches, which exceeds the maximum allowable limit of two inches for a type 30-30 brake chamber, compromising the braking at this wheel. All of these defects reduced the braking capacity of the trailer and the ability of the driver to control the loaded vehicle.

Due to an almost identical fatality on February 6, 2009, on this same section of haul road, Medford Trucking had upgraded pre-operational inspections to include a detailed list of 59 required checks including a static brake pull through test. As concluded in the February 6, 2009, Medford Trucking fatality, had this test been properly conducted, brake defects would have been detected. A review of pre-operational examination records for the previous ten shifts revealed that the defects had not been detected. Medford Trucking had also been cited on July 28, 2009 because they could not provide evidence that pre-operational inspections had been conducted on a coal truck operating on this site. The truck had been involved in a non-fatal injury accident on July 23, 2009.

The truck overturned onto the passenger side. The victim was found lying on the passenger side door (opened) and beneath the right exhaust stack outside of the cab. At the time of the rollover the victim was not wearing a seatbelt. This is also true of the February 6, 2009 accident. The seatbelt on the driver's seat was examined and latched/unlatched when tested. On rollover, the truck speed was estimated by witnesses at 20 MPH or less. The rollover resulted in little damage to the truck cab. (The top of the cab was removed by EMS to extract the victim.)

Educational Field Services audited the operator's training program. Training records were reviewed and no deficiencies were found. Toxicology reports were reviewed and indicated nothing that would impair the victim was present.

ROOT CAUSE

An analysis was conducted to identify the most basic causes of the accident that were correctible 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 root causes identified during the analysis and their corresponding corrective actions implemented to prevent a recurrence of the accident.

1. Root Cause: An adequate pre-operational check was not conducted. Also, unsafe operating conditions were missed by the examiner during pre-operational inspections because it would require two persons to conduct an adequate inspection of brake chamber stroke and steering components.

Corrective Action: All of Medford's personnel, plus five Republic Energy Inspectors, were given eight hours of DOT truck inspection training by MCS (Motor Carrier Solutions). The mechanics were certified in brake adjustments. As part of the training, Medford obtained a complete axle and brake training assembly. Also, as part of the training, a 100 question test was developed for mechanics. All oncoming mechanics will also be required to take the training and pass the test. All Medford drivers who take trucks home as part of their work schedule are now required to report to the shop for their pre-operational inspection rather than go directly to the haul area. Medford has instituted a twice weekly buddy check (two examiners) to verify brake operation, air system, and steering linkage. Republic/Medford has instituted a twice monthly idle Sunday complete inspection of all trucks by the five Republic inspectors and four Medford mechanics. Mechanics are measuring brake drums every time they change out brake shoes (to ensure they are within wear specs).

2. Root Cause: Management failed to ensure that the correct parts were utilized to properly maintain the equipment. A mismatch of drive axle brake chambers resulted in the truck not being maintained in safe operational condition. This compromised the driver's ability to stop or control the truck.

Corrective Action: Every coal truck owned or leased by Medford Trucking LLC has undergone an inspection for mismatched steering axle brake chambers. A record of all trucks inspected and any mismatches found and corrected has been maintained.

3. *Root Cause:* The company failed to enforce its seat belt policy. The driver of the overturned coal truck was not wearing a seatbelt at the time of the rollover.

Corrective Action: A safety meeting was held to reinforce the seatbelt policy and discuss the two fatalities at this operation in which neither of the victims were wearing seatbelts at the time of the accident. Medford will observe seatbelt use for every driver on every shift to assure the seatbelts work and fit properly. In cooperation with Republic, Medford installed bright orange seatbelts (that also have a longer reach) in all trucks. Republic has installed a Security Watchdog Camera Computer system at the guard houses that verifies seatbelt use both entering and exiting the area. The highly visible seatbelts were necessary to facilitate the use of this system. Republic security people are enforcing speed limits with radar guns and Medford drivers have been instructed that third gear is the maximum allowable gear on the declining roadway on this property. Drivers already have to call out curve numbers as they go up or down the haul road. Now, they are also required to call out each escape ramp and axle berm to ensure that drivers are always aware of the (berms and ramps) locations.

Safety meetings have been held with all employees, all shifts, to discuss this fatality and these corrective actions. Rosters were kept of these meetings.

CONCLUSION

The accident occurred because: (1) there were two mismatched brake chambers on the drive axle of the truck; (2) the trailer brakes were not properly maintained and failed to operate effectively; (3) unsafe operating conditions were overlooked due to a failure of the pre-operational inspection policy/procedure; and (4) the victim was not wearing a seatbelt at the time of the accident.

Approved by:



Charles E. Carpenter
District Manager
Coal Mine Safety and Health, District 4



Date

ENFORCEMENT ACTIONS

1. A 103(j) Order, No. 8101364, was issued to Republic Energy on December 4, 2010, to prevent the destruction of any evidence which would assist in the investigation. The 103(j) Order was modified to a 103(k) Order to protect the safety of all persons on site.
2. A 104(d)(1) Citation No. 8129254, was issued to Medford Trucking LLC, for a violation of 30 CFR 77.1606(a). An adequate pre-operational inspection was not performed on the Kenworth Coal Truck, Company Number 300, operating on the mine property, prior to placing the truck into operation. Medford was aware that at least two miners were needed to conduct an adequate pre-operational inspection, but did not provide a miner to help the driver when conducting a pre-operational inspection. An adequate inspection would have revealed that the trailer brakes were ineffective.
3. A 104(a) Citation, No. 8101374, was issued to Medford Trucking LLC, for a violation of 30 CFR 77.404(a). The 1993 Kenworth Coal Truck model W900B, VIN No. 2XKWDBOX4PM598635, operating on the mine property, is not being maintained in safe operating condition. The steering axle was equipped with a type 20 brake chamber on the left side and a type 24 brake chamber on the right side.

This truck was involved in an accident resulting in a fatality. The driver lost control when the brakes failed to slow down and stop the truck while descending the haulroad loaded.

The operator, Medford Trucking LLC, removed the truck from service.

4. A 104(a) Citation, No. 8101375, was issued to Medford Trucking LLC, for a violation of 30 CFR 77.1710(i). The driver of the 1993 Kenworth Coal Truck model W900B, VIN No. 2XKWDBOX49M598635, operating on the mine property, was not wearing a seatbelt where there was danger of overturning. The truck was involved in a rollover, fatal accident, when the driver was ejected out of the passenger side door and was pinned beneath the truck exhaust stack. When inspected, the seatbelt was in proper working order.

Standard 77.1710(i) was cited one time in two years at mine No. 46-09054, (0 to contractor B106).

5. A 104(d)(1) Order, No. 8101376, was issued to Medford Trucking LLC, for a violation of 30 CFR 77.404(a). The 1993 Kenworth Coal Truck model W900B, VIN No. 2XKWDBOX4PM598635, with a 35 foot long Benson dump trailer,

VIN No. 5DMDSAGC16M001186, operating on the mine property, was not maintained in safe operating condition. When examined, it was found that:

- (a) The pushrod travel on the right side brake chamber of the intermediate trailer axle was $2\frac{1}{2}$ inches and the pushrod travel on the right rear trailer axle was $2\frac{7}{16}$ inches. This exceeds the maximum allowable limit of 2 inches for a type 30-30 brake chamber.
- (b) There was no effective braking at the left intermediate trailer axle due to an internal brake chamber defect and the cam shaft support has 2 of 4 bolts (which hold it in place) missing, allowing the shaft to move approximately $\frac{1}{16}$ inch when the brakes are applied.
- (c) The right intermediate axle brake drum was measured at 16.773 inches, which exceeds the allowable diameter of 16.620 inches stamped on the drum. All of these defects reduced the braking capacity of the tractor/trailer and the ability of the driver to control and safely stop the loaded truck. The operator, Medford Trucking LLC, removed the truck from service.

Citation 8079384 was issued as a contributing factor in the almost identical fatality that occurred on February 6, 2009.

APPENDIX A

Persons furnishing information and/or present during the investigation:

Medford Trucking LLC

Kevin Medford Owner
Dale Medford.....Manager
John Bland Safety Director
Johnny Clark (Johnny Clark Trucking LLC) Leaser
Henry Ferrell..... Driver
John Tate..... Driver

Republic Energy

Jimmy Wood President
Doug Robinson..... Safety Director

West Virginia Office of Miners' Health, Safety and Training

Gary Wolfe Inspector
Gary S. Syner Inspector-At-Large
Randy Smith Assistant Inspector-At-Large
Eugene White..... Deputy Director
Elaine Skovich Assistant Attorney General

APPENDIX B Victim Information

Accident Investigation Data - Victim Information
Event Number: **6 2 9 7 1 1 0**

APPENDIX B

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



Victim Information: 1											
1. Name of Injured/Ill Employee: <i>Charles R. Qualls</i>			2. Sex: <i>M</i>	3. Victim's Age: <i>32</i>		4. Last Four Digits of SSN:			5. Degree of Injury: <i>01 Fatal</i>		
6. Date(MM/DD/YY) and Time(24 Hr.) Of Death: <i>a. Date: 12/04/2010 b. Time: 16:58</i>						7. Date and Time Started: <i>a. Date: 12/04/2010 b. Time: 16:00</i>					
8. Regular Job Title: <i>176 coal truck driver</i>				9. Work Activity when Injured: <i>026 hauling coal</i>				10. Was this work activity part of regular job? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
11. Experience: a. This Work Activity: <i>10 0 0</i>			b. Regular Job Title: <i>8 0 0</i>			c. This Mine: <i>4 0 0</i>			d. Total Mining: <i>10 0 0</i>		
12. What Directly Inflicted Injury or Illness? <i>104 Kenworth coal truck/rollover</i>						13. Nature of Injury or Illness: <i>170 Pinned beneath truck cab</i>					
14. Training Deficiencies: Hazard: _____ New/Newly-Employed Experienced Miner: _____ Annual: _____ Task: _____											
15. Company of Employment: (if different from production operator) <i>Medford Trucking LLC</i> Independent Contractor ID: (if applicable) <i>B106</i>											
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: <i>9999 None (No Union Affiliation)</i>					

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:			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 <input type="checkbox"/> No <input type="checkbox"/>			
11. Experience: 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:					