CAI-2009-05

UNITED STATES
DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION

COAL MINE SAFETY AND HEALTH

REPORT OF INVESTIGATION

Surface Coal Mine

Fatal Powered Haulage Accident
April 2, 2009

Reed Minerals, Inc.
Town Creek Mine
Sipsey, Walker County, Alabama
I.D. No. 01-03376

Accident Investigators

Steven E. Womack
Roof Control Specialist

James Brodeur
Surface Safety and Health Inspector

Ron Medina
Mechanical Engineer
Mine Safety and Health Technical Support
Mechanical and Engineering Safety Division

Originating Office
Mine Safety and Health Administration
District 11
135 Gemini Circle, Suite 213
Birmingham, Alabama 35209
Richard A. Gates, District Manager

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OVERVIEW

At approximately 7:41 a.m. on April 2, 2009, a 29-year old truck driver was fatally injured when he was pinned between the operator's cab outside railing and the truck dump body (bed) of the Caterpillar 777F truck he was operating. The victim, searching for the location of an oil leak, parked the truck on level ground, left the engine idling, and with the dump body in a raised position left the operator's cab. Standing on the walkway outside the operator's cab, he leaned over the 42 inch high railing to observe where the oil leak might be located. The dump body dropped, crushing the victim between the railing and the dump body.

GENERAL INFORMATION

The Town Creek Mine, ID No. 01-03376, is owned and operated by Reed Minerals, Inc. The mine is located in Sipsey, Walker County, Alabama. The mine is a surface operation, utilizing typical drill and shoot methods to break the overburden. The overburden is removed by excavators, dozers, and heavy-duty rock trucks. Once the overburden is removed the coal seam is mined using front-end loaders, excavators, and coal haulage trucks. The mine operates two ten hour shifts per day, Monday through Friday, and two eight hour shifts on Saturday. The mine personnel consist of 29 hourly and 3 management employees. The primary coal bed being mined is the Black Creek seam, which averages 24 inches in thickness. The daily production rate is 620 tons.

The most recent semi-annual safety and health inspection (E01) was completed by MSHA on January 26, 2009. The Non-Fatal Days Lost (NFDL) injury incidence rate at the mine for the previous quarter was 5.77 compared to the national NFDL rate of 1.18 for surface coal mines.

The principal officials of the mine at the time of the accident were:

Robert Reed, Sr……...Chief Executive Officer
Robert Reed, Jr.……President
Bill Brown…….……General Superintendent
Terry West……Mine Superintendent
Allen Scott…… Safety Manager

DESCRIPTION OF THE ACCIDENT

The normal work hours for the day shift (1st shift) are 6 a.m. until 4 p.m. Evening shift (2nd Shift) begins at 4:30 p.m. and ends at 2:30 a.m. This leaves an idle period each day between the hours of 2:30 a.m. and 6:00 a.m. The three Caterpillar 777F haulage trucks, used for overburden removal, are brought to a parking area located near the fuel and lube storage location at the end of each shift. From the parking area, the drivers for the on-coming shift board their trucks and travel to the working pit. The service truck operator for the day shift starts work an hour earlier (5:00 a.m.) than the day shift truck drivers, in order to fuel and lube the trucks prior to the day shift operations.

On Wednesday, April 1, 2009, in order to complete the removal of a small block of coal in the pit, the decision was made to operate the mine without an idle period the following day. On Thursday April 2, 2009, the evening shift continued working until 4 a.m. The day shift crew arrived at 4 a.m., and instead of the truck drivers boarding the trucks in the parking area as normal, they went straight to the pit and relieved the

evening shift drivers at the pit staging area. Tyson Mayall (victim) also began normal activities associated with the operation of his haul truck.

The work area consisted of the pit (where the excavator was removing the overburden), the truck staging area (where the trucks lined up for the next load), and the overburden dump (located only a few hundred yards from the pit). Due to the short haul and quick cycling time, the drivers had but a short lag time between loads. Each driver had a place in the staging area where they would sit while waiting for the truck ahead of them to clear, then back into the pit for their next load (Appendix B). During this cycling, oil spillage was spotted on the ground in the staging area where Mayall had been waiting. It could not be determined if the spillage was coming from a leak on Mayall's truck (company truck # 2511) or from a front-end loader which had been working in the area. Communications (via two-way radio) between the truck drivers concluded that the spillage was coming from the truck Mayall was operating.

After being loaded and dumping his next load, Mayall pulled into the staging area, exited the truck and completed a walk around inspection of the truck, but could not determine the location of the leak. Mayall, after receiving his next load, proceeded to the dump location and dumped the overburden. Instead of dropping the dump body after discharging the load, Mayall returned to the staging area with the dump body in the raised position. After stopping, Mayall then exited the operator's compartment and went out onto the catwalk which runs alongside the cab. Mayall was bending over the handrail at the rear end of this catwalk, looking to see if he could locate the oil leak, when the dump body came down and crushed him between the bed and the handrail.

Truck driver Billy Handley saw the victim trapped and radioed "Man Down," which was the phrase used to indicate someone was hurt. David Reiad, the service truck operator, came to the site and climbed aboard the truck. Reiad checked the victim at several pressure point locations for a pulse, but none was found. During this time, a 911 emergency call was made and an ambulance was dispatched along with Deputy Kevin Williams of the Walker County Sheriff's Office. Mayall was pronounced dead by the Walker County Coroner at the accident site.

INVESTIGATION OF THE ACCIDENT

MSHA was notified of the accident on April 2, 2009, and Bessemer Field Office Supervisor, Jacky Shubert, issued a verbal §103(k) Order to the mine Safety Supervisor, Allen Scott. A written § 103(k) Order was issued once MSHA accident investigators arrived at the accident scene, to assure the safety of miners until an investigation could be conducted. The accident investigators conducted an examination of the accident scene, interviewed witnesses, and reviewed work conditions relative to the scene.

MSHA conducted the investigation with the assistance of the State of Alabama Department of Industrial Relations Mining and Reclamation Division, miners, and mine management. Ron Medina, Mechanical Engineer with MSHA's Technical Support group in Triadelphia, West Virginia assisted in the investigation. Persons participating in the investigation are listed in Appendix A. Fourteen (14) persons were interviewed during the investigation.

DISCUSSION OF THE ACCIDENT

Pre-operational Checks and Maintenance

Pre-operational checks were performed by the Caterpillar 777F truck operators on the day of the accident. The only problem noted on this day for company truck #2511 was "AC Freezes up." Other problem areas mentioned in pre-operational checks dating back more than a week prior to the accident relate only to tires on the rear of the truck.

Physical Factors

The Caterpillar Model 777F Off-Highway Truck is powered by a twelve cylinder turbocharged diesel engine. The truck has a seven speed forward automatic transmission with one reverse gear.

The hydraulic system on the truck contains a hydraulic reservoir which provides fluid for the Torque Converter/Brake/and Hoist. The hydraulic reservoir has two glass sight gauges used to determine the level of hydraulic fluid in the tank. The lower sight gauge is used only with the dump body in the raised position. The upper sight gauge has a division where the lower portion is read when the hydraulic fluid is cold and the top portion is read when the hydraulic fluid is hot, as when the machine is in operation.

The dump body is operated by a pair of two stage hydraulic cylinders. Inside the operator's compartment directly beside the transmission control is the hoist control lever. A four (4) position control operates as follows: 1. When the lever is placed in the most rear position (RAISE) the dump body is elevated to dump the load of the truck. 2. From the RAISE position, once the lever is released, it will go forward by spring activation to the next forward position (HOLD position). 3. The HOLD position allows the dump body to remain elevated without having to maintain a hand on the control lever. 4. The next position forward is the FLOAT position. This position allows the dump body to lower by gravity through usage of its own weight. The next forward position, which is the most forward placement of the lever, is the LOWER position. This position will lower the bed by gravity feed, plus the force of hydraulic fluid back through the top of the lift cylinders. The time frame to lower the dump body through

either the LOWER or the FLOAT position is 13 to 18 seconds, according to the operation manual.

After the accident occurred, the engine was found to be idling and the hoist control lever in the FLOAT position (Appendix C).

Testing

It was determined that the oil spillage was not from a leak in the hydraulic system itself, but instead came from the hydraulic breather system. The Torque Converter/Brake/Hoist Reservoir, which supplies fluid to the hydraulic system has a breather filter remotely mounted on the truck frame, which is connected back to the reservoir by a hydraulic hose and functions as a protection device designed to relieve pressure in the hydraulic system to prevent system damage. The filter works by allowing excess fluid to exit the filter housing, while preventing air from entering the hydraulic system.

The hydraulic tank was found to be overfilled and hydraulic fluid was present on the truck frame beneath the hydraulic fluid breather filter. NOTE: Although this was the source of what was suspected to be an oil leak, the hydraulic fluid breather filter was functioning as designed.

The truck is equipped with dump body retaining pins, which locked properly when tested.

A series of dump body hoist system tests were conducted. All systems performed as described in the service manual.

Environmental and Human Factors

The weather conditions at the time of the accident were fair. A storm front was moving into the area, but not expected until mid to late afternoon on the day of the accident.

On the day of the accident, the day shift started work at 4 a.m., instead of the normal 6 a.m. start time. The day shift (1st shift) drivers, who would normally board their trucks at the parking area, instead relieved the evening shift (2nd shift) drivers at the pit staging area. This required the day shift service truck driver to refuel and lubricate the trucks at the pit staging area. The service truck driver noted that the hydraulic tank for the victim's truck was overfilled, but did not communicate this information to the driver. Later in the shift, when it became light enough to see clearly, the drivers spotted oil spillage on the ground in the vicinity of where the victim had been staging his truck.

Once the leak was determined to be from Mayall's truck, he stopped between loads and completed a walk around inspection of his truck, looking for the source, which was normal procedure for equipment operators. This walk around inspection did not reveal the location of the leakage. It appears he was advised by another truck driver to look for the leak by raising the dump bed, placing the dump bed control lever in the FLOAT position, then quickly going out on the catwalk to look for the leak. After dumping his next load, the victim returned to the staging area with the bed already in a raised position, exited the cab of the truck and walked to the back of the catwalk located along the operator's cab. He was looking for a leak in the frame area of the truck when the dump body lowered, crushing him between the handrail and the dump body frame.

Work Experience and Training

The victim had been operating a Caterpillar 777F rock truck at the Town Creek Mine since September 2008. He had approximately 28 weeks of experience at this task.

The victim received the required Annual Refresher training each year during his employment with Reed Mining, Inc., and First Aid training in 2007 and 2008. He received Task Training for operation of a motor grader, Mack service truck, and a Caterpillar 777 rock truck in 2008. From September 15-19, 2008, he received 40 hours of training at Bevill State Technical College, which consisted of classroom training, plus training on a truck simulator.

Accident Scenario

The evidence obtained through interviews and testing indicates that the victim left the operator's cab with the dump body raised, but not blocked against motion. The hoist control lever was found in the FLOAT position and no problems discovered with the lever mechanism or the hydraulic system. It appears the victim placed the control in this position before he exited the operator's cab in an effort to locate what he thought was an oil leak somewhere within the confines of the dump body and the truck frame.

ROOT CAUSE ANALYSIS

An analysis was conducted to identify the most basic cause of the accident, which could have been corrected through reasonable management controls. During the analysis, a root cause was identified that, if eliminated, would have prevented the accident.

Root Cause: The victim left the operator's cab, with the dump body in a raised position, without the dump body being blocked against motion.

Corrective Action: The operator developed and implemented a program to train truck drivers to never exit the cab of their vehicle with the engine running, and never exit the operator's cab with the dump body raised, until they are certain that the dump body has been properly blocked in place to prevent motion.

CONCLUSION

On April 2, 2009, a 29 year old truck driver was fatally injured when he was pinned between the dump body and a handrail located alongside the operator's cab of the Caterpillar 777F truck he was operating. The victim was investigating the location of a suspected oil leak thought to be located between the dump bed and the truck frame. The accident occurred because the operator failed to ensure that the dump body of the truck was either in the down position, or blocked against motion while in the raised position, before exiting the operator's compartment.

Approved by:

Richard A. Gates
District Manager

7/14/09
Date

ENFORCEMENT ACTIONS

§ 103(k) Order No. 7696359:

A fatal accident occurred at this mine when the dump bed of a Caterpillar 777F truck pinned the operator against the cab hand railing as it was lowering.

This order is being issued to assure the safety of all persons at this operation. The order prohibits all activity in the 001 pit until MSHA has determined that it is safe to resume normal mining operations.

Area or Equipment: 001 pit.

§ 104(a) Citation No. 7696367, for a Violation of 30 CFR, § 77.405(b):

CONDITION: A fatal accident occurred on April 2, 2009, when the driver of company Caterpillar 777F truck, company No. 2511, was pinned/crushed between the truck dump body and a hand rail located outside the operator's cab. With the dump body in the raised position, the victim left the operator's cab, traveled to the end of the hand railing located on a catwalk alongside the operator's cab, and was looking for a suspected oil leak within the confines of the truck frame. The dump body was not blocked against motion, as required by the standard.

HAZARD: A hazard exists when miners go underneath equipment in a raised position which is not blocked securely in place.

APPENDIX A

Persons Participating in the Investigation

TOWN CREEK MINE

Allen Scott ……..Safety Manager
Terry West ……..1st. Shift Pit Foreman
Larry McLemore…… Maintenance Manager
David Reiad……Service Truck Driver
Billy Handley…… 777F Truck Driver
Dwight Kimbrell…… 777F Truck Driver
Dyron Brown……....Excavator Operator
Billy Farr…… Front-End Loader Operator
Chad Jett…… Front-End Loader Operator
Corey Trimble…… Dozer Operator
Daniel Kennedy……..... Dozer Operator
Steve Morris…… Dozer Operator
Jon Pate……... Service Truck Driver
Jarrod Steele……... 777F Truck Operator

THOMPSON TRACTOR COMPANY, INC.

Barry Wilson ……...Chief Mechanic
Mark Schropp ……Technical Communicator
Keith Perdue …….....Service Manager
Johnny Wilson …….....Field Service Supervisor
Craig Johnson ……..Private Support Services Representative

STATE OF ALABAMA DEPARTMENT OF INDUSTRIAL RELATIONS MINING AND RECLAMATION DIVISION

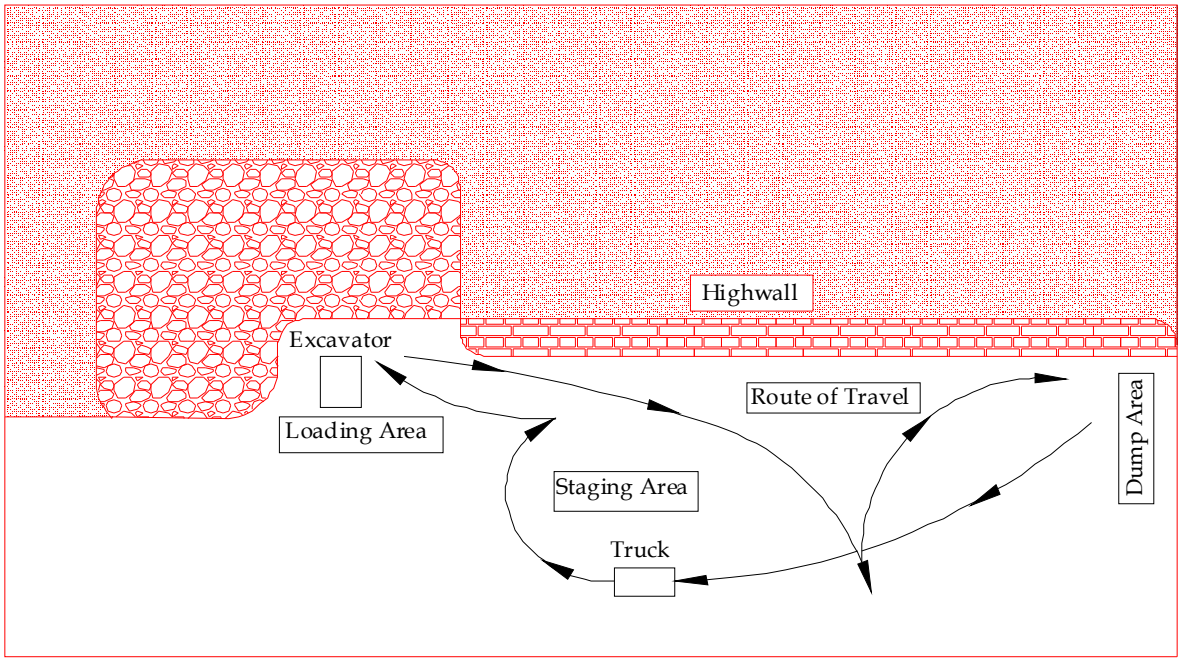
James Rivers ……..Mine Inspection Supervisor
Charles M. Whitson ……Mining Engineer, P.E.

MINE SAFETY AND HEALTH ADMINISTRATION

Steven E. Womack …….District 11 Roof Control Specialist, Lead Investigator
Russell Weekly ……District 11 Supervisory Coal Mine Safety and Health Inspector
James Brodeur ……District 11 Surface Mine Safety and Health Inspector
Ron Medina ……Mechanical Engineer, Mine Safety and Health Technical Support, Mechanical and Engineering Safety Division

APPENDIX B

Accident Scene

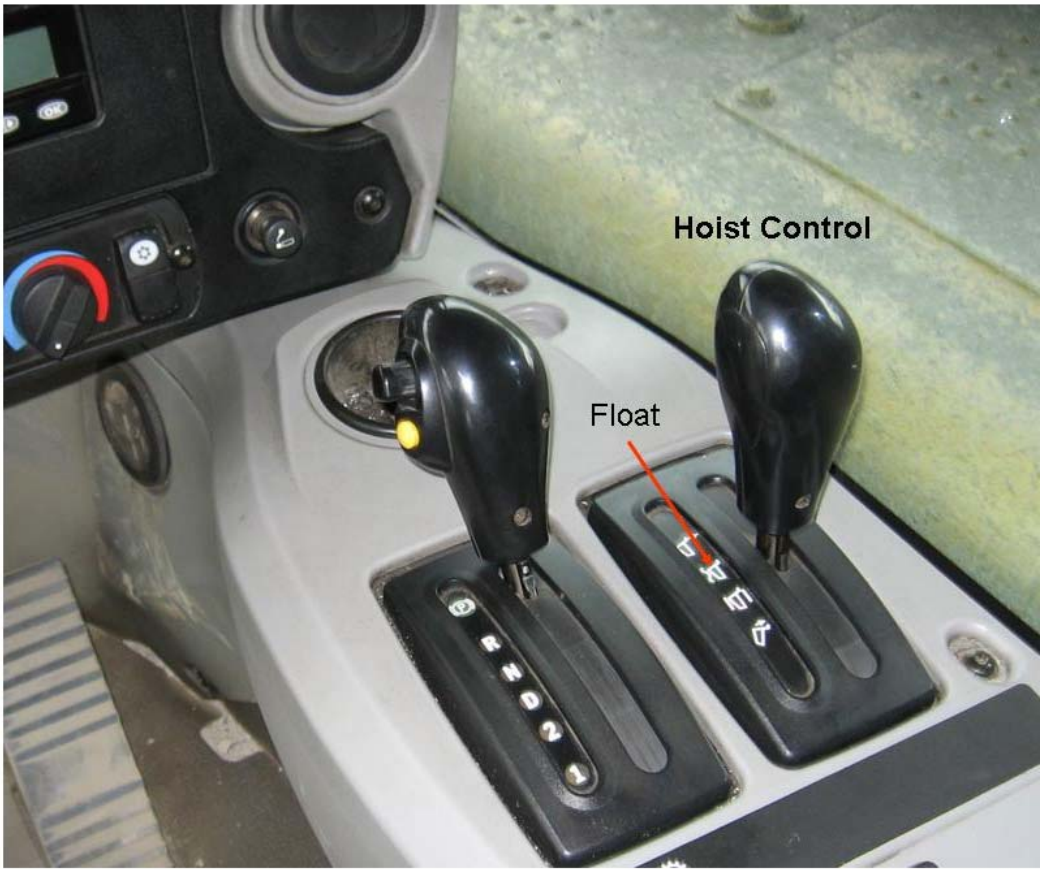


Not to scale

Note: Arrows indicate route of travel by victim.

APPENDIX C

Hoist Control Lever



APPENDIX D

Victim Information

Accident Investigation Data - Victim Information
Event Number: 4 4 9 2 0 3 7

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:
Tyson J. Mayall	*M*	*29*	*3156*	*01 Fatal*

6. Date(MM/DD/YY) and Time(24 Hr.) Of Death: *a. Date: 04/02/2009 b.Time: 7:41*

7. Date and Time Started: *a. Date: 04/02/2009 b.Time: 4:00*

8. Regular Job Title: *176 Rock Truck Driver*

9. Work Activity when Injured: *055 Rock Truck Driver*

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

11. Experience	Years	Weeks	Days		Years	Weeks	Days		Years	Weeks	Days		Years	Weeks	Days
a. This Work Activity:	0	27	4	b. Regular Job Title:	0	27	4	c: This Mine:	0	31	4	d. Total Mining:	1	36	4

12. What Directly Inflicted Injury or Illness? *076 Dump Body of Rock Truck*

13. Nature of Injury or Illness: *170 Crushing of upper abdomen*

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

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		Years	Weeks	Days		Years	Week	Days		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		Years	Weeks	Days		Years	Week	Days		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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