

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

REPORT OF INVESTIGATION

Surface Facility
Fatal Powered Haulage Accident
December 12, 2007

Trimac Transportation Service, Inc.
ID No. H5P
at

Bear Canyon
C.W. Mining Company
Huntington, Emery County, Utah
ID No. 42-02395

Accident Investigators

Donald Durrant
Coal Mine Safety and Health Inspector

Richard Boyle
Coal Mine Safety and Health Inspector

Charles Bordea
Coal Mine Safety and Health Inspector

Randy Gunderson
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VIEW OF ACCIDENT SCENE

**VICTIM WAS CRUSHED AGAINST FRONT OF TRUCK BY
FRONT-END LOADER**

TRUCK WAS ON 8-9% UPHILL GRADE



OVERVIEW

On Wednesday, December 12, 2007, at approximately 6:00 a.m., David Whiting, a 31 year old contract coal truck driver employed by Trimac Transportation Service, Inc., was fatally injured at C.W. Mining Company Bear Canyon surface facility in a powered haulage accident. Whiting was in the process of hooking up a tow chain to the front of his Kenworth tractor and double belly-dump trailers, which had lost traction and became stuck on the road to the loadout, when the accident occurred. An employee for C.W. Mining Company brought a Komatsu front-end loader to the site to tow Whiting's truck. While installing the tow chain, the loader began moving downgrade, bumped the loader operator out of the way and crushed Whiting between the rear bumper of the loader and the front bumper and grill of the truck, causing fatal injuries.

The cause of the accident was a failure in the parking brake system of the loader, which did not allow the parking brakes to apply. Moisture had frozen in the air lines due to outside temperatures of approximately 20 degrees Fahrenheit. This prevented the required air pressure needed to operate the park brake valve, which causes the brake spring to apply the brakes. Contributing factors were the failure to block the wheels of the loader to prevent accidental movement when the loader was left unattended on a grade, the lack of a pre-operational inspection by the loader operator to examine for safety defects, the condition of the roadway, which caused the haul truck to become stuck needing towing assistance, and the failure of the mine operator to provide hazard training to the victim.

GENERAL INFORMATION

Bear Canyon is a surface facility, operated by C.W. Mining Company. It is located approximately nine miles from Huntington, Emery County, Utah. The facility was placed in surface facility status in November 2004. Prior to that time, it was part of the Bear Canyon No. 1 Mine, an underground coal mine that was sealed and is no longer active. The Bear Canyon surface facility supports the Bear Canyon No. 3 and No. 4 underground coal mines with its tipples and loadout facilities.

At the time of the accident, the facility employed 51 persons and operated seven days per week, utilizing 12 hour shifts. The principal officers are: Charles Reynolds, CEO and President; Ken Defa, Safety Director; and Kevin Petersen, Surface Foreman.

Prior to the accident, the last Mine Safety and Health Administration (MSHA) regular safety and health inspection was completed on June 27, 2007. A regular safety and health inspection, which had started on October 20, 2007, was ongoing at the time of the accident. The non-fatal days lost (NFDL) incidence rate for the facility for 2007 was 2.31. The national incidence rate for surface coal facilities for 2007 was 1.78. The NFDL incidence rate for Trimac Transportation Service, Inc. for 2007 was 0.00 compared with a national rate of 2.00.

DESCRIPTION OF ACCIDENT

David Whiting, a contract coal truck driver employed by Trimac Transportation Service, Inc., began his shift just shortly after 5:00 a.m., December 12, 2007. He operated a Kenworth tractor that pulled two belly dump coal trailers. Whiting had been assigned to haul coal from the Bear Canyon surface facility on the morning of the accident. On his first trip to the mine that day,

Whiting became stuck on the mine road just beyond the scales and weigh building where loose gravel was present. Whiting apparently radioed the weigh building attendant, who then made contact with Ivan Ortega, loader operator, to have him provide assistance to tow Whiting's truck. Ortega had just begun his shift at about 5:50 a.m.

Ortega took the Komatsu Model WA600 front-end loader to the area where Whiting was stuck, backed the loader to within about six feet of the truck's front bumper, and applied the parking brake. He placed the bucket on the ground and exited the operator's compartment to help Whiting with the tow hook-up. After hooking one end of the ½-inch by 20-foot chain to the rear of the loader, Ortega turned to check on Whiting's progress in hooking the chain to the truck. At this time, the loader began moving backwards, pushing Ortega out of the way. Ortega tried to warn Whiting, but was unsuccessful. Whiting was crushed between the rear bumper of the loader and the front bumper and grill of the truck. The loader had not been blocked against movement and Ortega indicated that a block or chocking device was not provided for the machine.

Ortega climbed into the loader and moved it forward to free Whiting. Ortega radioed for help but received no response. At that point, he exited the loader and ran to the mine shop, which was about 200 yards away, in search of help. There he found Chris Peterson, the graveyard shift supervisor and an emergency medical technician (EMT). Peterson went directly to the accident site where the victim was in somewhat of a seated position on the ground. Once there, he checked Whiting for responsiveness and a pulse. Peterson stated that Whiting was non-responsive and had no pulse. Cyril Jackson, a C.W. Mining Company supervisor and EMT, arrived at the mine following a telephone call from Safety Director Ken Defa, requesting his assistance. Jackson traveled to the accident site and also found the victim unresponsive and with no vital signs. A call was also placed to the Emery County Sheriff's office requesting an ambulance be dispatched to the mine site. The ambulance arrived at approximately 6:30 a.m. Whiting was pronounced dead at the scene.

INVESTIGATION

William Taylor, MSHA field office supervisor, Price, Utah, was notified of the accident at approximately 6:25 a.m., December 12, 2007, by C.W. Mining Company Safety Director, Ken Defa. Defa informed Taylor that there had been a serious accident on the surface and that the victim was unconscious, adding that it may turn out to be a fatal accident. Taylor instructed the mine to secure the location of the accident to prevent further injury pending an investigation by MSHA. MSHA personnel were dispatched to the mine site and at approximately 8:10 a.m., Donald Durrant, Coal Mine Safety and Health Inspector, Price, Utah, issued a Section 103(k) order to ensure the safety of persons at the mine until an investigation could be conducted and the area deemed safe. The accident scene was examined, measurements and photos were taken, documents were obtained and tests were conducted on the Komatsu Model WA600 loader. A list of persons participating in the accident investigation is contained in Appendix A.

DISCUSSION

Machine Information: The rubber-tired front-end loader involved in the accident was a Komatsu Model WA600, Serial Number A10273, Company Number 4.

Parking Brake System Design: The parking brake system consisted of a spring-applied,

pneumatically released system that was activated by a two position toggle switch on the console to the operator's right. When the toggle switch was moved to the "off" position, full air pressure was delivered to the parking brake valve. The air flow pushed down a spool in the parking brake valve and allowed air to release the spring applied brake. With the toggle switch moved to the "on" position, the air pressure delivered to the parking brake valve was shut off and a spring moved the spool back, stopping the air flow to the parking brake release chamber allowing the parking brakes to engage by spring force.

Parking Brake System Test Summary: Post accident testing of the loader's parking brake revealed that the system was not operable. Whether the toggle switch in the operator's compartment was placed in the "on" or "off" position had no effect. The parking brake would not apply. Investigators determined that the parking brake system had frozen up. De-icing component was introduced into the air system and on the next attempt, the brakes held the machine on the 8 to 9 percent grade at the accident site. The loader was then moved to another area on the surface, where no hazards existed due to a grade or dip, where further testing was conducted on the braking system. Initially, the systems drain valves were found to be frozen in the closed position. A propane torch was used to heat and thaw the valves so that they could be opened, but even then, only two of the three valves would open. At that time, the fitting was removed from the bottom of the air tank with the frozen valve. When that occurred, water and a "sludge" material were blown from the tank. The system was contaminated with water, mixed with what appeared to be oil from the air compressor system.

Service Brake Test Summary: When testing the machine's service brakes, application of the brake pedal (pumping motion) caused the oil level in the hydraulic fluid sight glass to lower about ¼ of an inch each time the brake pedal was pumped. After further investigation and over a short amount of time, the fluid level would elevate back to normal in the sight glass. Because of this, it was thought that air was present in the hydraulic system of the service brake. The brake system was checked for the presence of air but none was present. The loader was then restarted, placed in 2nd gear and a stall test was performed. In both forward and reverse, the service brakes held the machine as required.

Pre-Operational Inspection: According to the loader operator, a pre-operational inspection on the Komatsu Model WA600 loader was not conducted prior to putting the machine into service on December 12, 2007. Other citations that were deemed to be non-contributory to the accident were issued on the loader under a different inspection code.

Training and Experience: David Whiting had not received the required 30 CFR Part 48 hazard training for the Bear Canyon surface facility, nor had any of the other Trimac Transportation Service, Inc. coal truck drivers hauling from the Bear Canyon facility. Trimac had been hauling at the mine for approximately four months. Whiting had approximately 4 years 6 months experience as a truck driver.

Accident Location and Conditions: The accident occurred just beyond the scales and weigh building on the unimproved roadway leading to the loadout. The area had received snowfall and inclement weather for several days preceding the accident. The snow, freezing and thawing made travel for the coal trucks very difficult and the loader operators stated that during a 12-hour shift, they assisted the tractor/trailers to the loadout 15 to 16 times. The roadway at the accident site was sloped approximately 8 to 9 percent uphill where Whiting's truck became stuck. A layer of loose gravel had recently been placed on the roadway in the accident location.

Summary: Post accident park brake testing revealed that moisture had contaminated the pneumatic portion of the braking system and with the addition of the cold weather, caused freezing in the system, thus, not allowing the brakes to set once the toggle switch was placed in the “on” position. Management had an ineffective maintenance protocol that allowed water to accumulate in the system, causing the accident. Additionally, the loader was left unattended on the 8 to 9 percent grade and was not blocked from movement or turned into a bank or berm. Had this requirement been followed, the accident would have been avoided. Statements from mine workers indicated that chocking/blocking devices are not routinely kept and maintained on the surface loading and haulage equipment.

ROOT CAUSE ANALYSIS

A root cause analysis was conducted. Root causes were identified that could have mitigated the severity of the accident or prevented loss of life. Listed below are root causes identified during the analysis and their corresponding corrective actions to prevent a recurrence of this type of accident.

1. *Root Cause:* Mine management did not have an effective program in place to ensure that all equipment operators conducted an inspection of their equipment prior to placing the machinery into operation and reported defects affecting safety.

Corrective Action: The mine operator must train employees and ensure that pre-operational inspections of equipment are conducted and defects affecting safety are reported and corrected prior to use.

2. *Root Cause:* Ineffective maintenance procedures allowed water to accumulate in the parking brake system, thus, causing freezing in the system and not allowing the parking brakes to apply.

Corrective Action: The mine operator must revise and enforce equipment maintenance procedures to require that air tanks be drained according to manufacturer’s recommendations.

3. *Root Cause:* Management did not have an effective program to ensure that when loading and haulage equipment is left unattended, the machine shall be turned into a berm or bank or shall be blocked when parked on a grade.

Corrective Action: The operator must reinforce and provide additional training to all equipment operators regarding the importance of positioning an unattended machine against a berm or bank, or that it must be blocked against movement, which would include, that an appropriate blocking device be provided on all loading and haulage equipment.

4. *Root Cause:* The condition of the unimproved mine road leading to the loadout facility had become muddy, rutted and slippery, causing the coal haul trucks to loose traction and need assistance to get to the loadout.

Corrective Action: The mine operator must initiate a program that assigns specific

responsibilities to mine supervisors should coal haul trucks need assistance (towed) in the future. In essence, the program requires supervision to be at the site of the disabled coal haul truck.

5. *Root Cause:* The mine operator had not made certain that David Whiting and the other Trimac Transportation Service, Inc. coal truck drivers had been provided with the requisite site specific hazard training.

Corrective Action: The Trimac Transportation Service, Inc. coal truck drivers must be provided with the requisite hazard training prior to resuming their duties at the mine site.

CONCLUSION

The cause of the accident was a failure in the parking brake system, which did not allow the parking brakes to apply. Moisture had frozen in the air lines, preventing the required air pressure needed to operate the park brake valve, which causes the brake spring to apply the brakes. Contributing factors were the failure to block the wheels of the loader to prevent accidental movement when the loader was left unattended on a grade, the lack of a pre-operational inspection by the loader operator to examine for safety defects, the condition of the roadway, which caused the haul truck to become stuck, needing towing assistance, and the failure of the mine operator to provide hazard training to the victim.

Approved by:

Allyn C. Davis
District Manager

Date

ENFORCEMENT ACTIONS

1. A 103(k) order, Number 7288005, was issued to C.W. Mining Company to ensure the safety of persons at the Bear Canyon surface facility until an investigation could be conducted to determine that coal haulage operations could resume.
2. A 104(a) citation, Number 7288092, was issued to Trimac Transportation Services, Inc. for a violation of 30 CFR 48.31(a). Site specific hazard training had not been provided to David Whiting, who had been assigned coal haul duties at the Bear Canyon surface facility by his employer, Trimac Transportation Services, Inc. David Whiting suffered fatal crushing injuries on the morning of December 12, 2007, at the Bear Canyon surface facility.
3. A 104(a) citation, Number 7288124, was issued to C.W. Mining Company for a violation of 30 CFR 77.1606(a). The Komatsu WA600 loader, Serial Number A10273, Company Number 4, had not been inspected by a competent person prior to being put into operation on the morning of December 12, 2007, where shortly after, a fatal accident occurred due to a park brake failure. First hand information was provided by the equipment operator (Ortega) who stated that he had not taken the time to conduct the inspection on the surface loader prior to putting it into service.
4. A 104(a) citation, Number 7288125, was issued to C.W. Mining Company for a violation of 30 CFR 77.404(a). The Komatsu WA600 front end loader, Serial Number A10273, being operated on mine property on December 12, 2007, was not maintained in safe operating condition. Following a fatal accident and subsequent inspection by MSHA personnel, it was obvious that the parking brake system failed to operate, as designed, due to a build up of moisture and debris in the system and subsequent freezing, thus not allowing the spring applied portion of the mechanism to set the parking brake. All of the drain valves from the tanks were found to be frozen. The machine was removed from service immediately.
5. A 104(a) citation, Number 7288126, was issued to C.W. Mining Company for a violation of 30 CFR 77.1607(n). The Komatsu, Serial Number A10273, Company Number 4, operating on December 12, 2007, when a fatal accident occurred, did not have the wheels turned into a bank or berm, nor was it blocked against motion while being parked on the 8 to 9 percent grade, when the equipment operator left the machine running and unattended. Had the loader been blocked against movement, failure of the parking brake would not have resulted in fatal injuries to the coal truck driver.
6. A 104(d)(1) order, Number 7288127, was issued to C.W. Mining Company for a violation of 30 CFR 48.31(a). Site specific hazard training had not been provided for David Whiting, who had been assigned coal haul duties at the Bear Canyon surface facility by his employer, Trimac Transportation Service, Inc. C.W. Mining officials at the Bear Canyon surface facility acknowledged that the responsibility to provide the required hazard training was theirs to do so, but failed to provide the required training and could offer no rationale for the oversight. Additionally, the mine operator was cited

for not providing hazard training to thirty-six other Trimac Transportation employees, who were withdrawn from the mine property until the hazard training was provided. For reference, also see citation #7288128, issued on 2/06/2008, event #4474392, which identifies these thirty-six other Trimac transportation drivers. David Whiting suffered fatal crushing injuries on the morning of December 12, 2007, at the Bear Canyon surface operation. The mine operator demonstrated reckless disregard for the well being of these miners.

Appendix A

List of persons participating in the investigation:

C.W. MINING COMPANY OFFICIALS

Charles Reynolds	President and CEO
Ken Defa	Safety Director
Kevin Petersen	Surface Foreman
Chris Peterson	Shift Supervisor
Ralph Anderson	C.M. Coordinator
Randy Defa	Shift Supervisor
Cyril Jackson	Longwall Section Foreman

C.W. MINING COMPANY EMPLOYEES

Shiree Reynolds	Weigh Building Attendant
Andrew Brown	Loader Operator/Tipple
Josh Atwood	Shop Foreman
David Medina	Loader Operator/Tipple
Vern Michael Brown	Loader Operator/Tipple

MINE SAFETY AND HEALTH ADMINISTRATION

Richard Boyle	Coal Mine Safety and Health Inspector
Charles Bordea	Coal Mine Safety and Health Inspector
Donald Durrant	Coal Mine Safety and Health Inspector
Randy Gunderson	Coal Mine Safety and Health Inspector
Kent Norton	Educational Field Services Specialist
Ronald Paletta	Coal Mine Safety and Health Inspector
James Pruitt	Coal Mine Safety and Health Inspector Trainee

Appendix B

View of Komatsu Loader and Kenworth Tractor



Appendix C

View of Truck and Loader on Access Road



Appendix D

View of Loader Moved after Accident with Tow Chain Attached



Appendix E

Victim Information

Accident Investigation Data - Victim Information

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



Event Number: 4 4 7 8 5 5 5

Victim Information: 1															
1. Name of Injured/Ill Employee: David L. Whiting				2. Sex M		3. Victim's Age 31		4. Degree of Injury: 01 Fatal							
5. Date(MM/DD/YY) and Time(24 Hr.) Of Death: a. Date: 12/12/2007 b. Time: 6:00								6. Date and Time Started: a. Date: 12/12/2007 b. Time: 5:00							
7. Regular Job Title: 176 Truck driver						8. Work Activity when Injured: 098 Attaching tow chain to truck						9. Was this work activity part of regular job? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			
10. Experience a. This				b. Regular				c. This				d. Total			
Years	Weeks	Days	Job Title	Years	Weeks	Days	Job Title	Years	Weeks	Days	Job Title	Years	Weeks	Days	Job Title
4	24	0		4	24	0		0	0	1	Mining	4	24	0	
11. What Directly Inflicted Injury or Illness? 076 Surface front-end loader								12. Nature of Injury or Illness: 170 Crushing injuries							
13. Training Deficiencies: Hazard: <input checked="" type="checkbox"/> New/Newly-Employed Experienced Miner: <input type="checkbox"/> Annual: <input type="checkbox"/> Task: <input type="checkbox"/>															
14. Company of Employment: (if different from production operator) Trimac Transportation Service, Inc. Independent Contractor ID: (if applicable) H5P															
15. On-site Emergency Medical Treatment: Not Applicable: <input type="checkbox"/> First-Aid: <input checked="" type="checkbox"/> CPR: <input type="checkbox"/> EMT: <input checked="" type="checkbox"/> Medical Professional: <input type="checkbox"/> None: <input type="checkbox"/>															
16. Part 50 Document Control Number: (form 7000-1) 220073550024 17. Union Affiliation of Victim: 9999 None (No Union Affiliation)															