MAI-32-2005

UNITED STATES
DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION
METAL and NONMETAL MINE SAFETY and HEALTH

REPORT OF INVESTIGATION

Surface Nonmetal Mine
(Limestone)

Fatal Powered Haulage Accident
November 4, 2005

Southern Rock and Lime Incorporated
Plant No. 1
Florala, Covington County, Alabama
Mine ID No. 01-03276

Investigators

Larry R. Nichols
Supervisory Mine Safety and Health Inspector

Billy R. Randolph
Mine Safety and Health Inspector

F. Terry Marshall
Mechanical Engineer

Ronny E. Jones
Mine Safety and Health Specialist

Originating Office
Mine Safety and Health Administration
Southeast District
135 Gemini Circle, Suite 212, Birmingham, AL 35209
Michael A. Davis, District Manager

OVERVIEW

Primitivo Cuaquuhua, laborer, age 17, was fatally injured on November 4, 2005, while being task trained to operate a haul truck. The victim was backing the truck down a grade when he lost control and it traveled through a berm and fell 21 feet to a bench below.

The accident occurred because the task training procedures for the newly hired miner were inadequate and did not ensure that he could safely operate the haul truck. The trainee operator had no previous experience operating heavy equipment. He was not wearing a seat belt at the time of the accident.

GENERAL INFORMATION

Plant No. 1, a surface limestone operation, owned and operated by Southern Rock and Lime Incorporated, was located along Alabama Highway 54 east of Florala, Covington County, Alabama. The principal operating official was James E. Clemons Jr., owner.

Limestone was extracted from the pit with a track excavator and transported to the plant stockpile by off road dump trucks. A front end loader was used to feed the material into the plant feeder where it was crushed, screened, and stockpiled. The finished products were sold for use in the construction industry.

The mine operated one 9-hour shift a day, five days a week. Total employment was 15 persons. Eight employees at this mine, including the victim, were provided through a labor pool operated by Fulgenico Castillo of Samson, Alabama. Southern Rock and Lime Incorporated personnel directed all the work assignments at the mine.

The last regular inspection of this operation was completed on December 16, 2004.

DESCRIPTION OF ACCIDENT

On the day of the accident, Primitivo Cuaquuhua (victim) reported for work at 6:30 a.m., his normal starting time. His duties included cleanup work throughout the plant. He began the shift shoveling spillage throughout the plant.

About 8:30 a.m., Leonel Guerra, mechanic and interpreter for the company, approached Cuaquuhua and asked if he wanted to be trained to operate a haul truck. They got into Guerra's pickup truck and traveled to a haul truck parked in a level field at the southeast corner of the quarry.

Guerra started the engine and provided instructions to Cuaquuhua regarding the operation of the haul truck. Cuaquuhua operated the truck in the field, under the supervision of Guerra, for approximately 45 minutes.

Guerra then told Cuaquuhua to operate the truck on an almost level roadway to the dump area to practice backing

up, while utilizing the trucks mirrors, for twenty to thirty minutes.

Guerra then backed the unloaded truck down the ramp, demonstrating the procedure to Cuaquuhua. The victim got back into the truck and backed the truck down the ramp. No problems were encountered during the first trip. During the second trip, the victim had to stop and pull forward because he over-steered the truck. On the third trip, no problems were encountered.

As Cuaquuhua started down the ramp during the fourth trip, he over-steered the truck to the right, riding-up slightly on the edge of the bank. Guerra, who was standing close-by observing, told the victim to re-position the truck. At that time, the truck started picking up speed. Guerra ran to the truck, climbed up the access steps and yelled to Cuaquuhua, both in Spanish and in English, to apply the brakes. The truck continued to travel backwards, traveled through the berm, down an embankment, across a bench, and fell 21 feet to another bench below, landing on its top.

Realizing what had happened, Guerra immediately ran to the truck to assist Guaquuhua. He yelled to Samuel Bailey, excavator operator, to call for help. Bailey telephoned James Stinson, plant manager, who called for emergency medical assistance.

The victim was extricated and pronounced dead at the scene by the County's Assistant Coroner. Death was attributed to blunt force trauma.

INVESTIGATION OF ACCIDENT

MSHA was notified of the accident at 11:35 a.m., on November 4, 2005, by a telephone call from James Clemons Jr., owner, to Karonica Glover, acting assistant district manager. An investigation was started the same day. An order was issued pursuant to Section 103(k) of the Mine Act to ensure the safety of the miners. MSHA's accident investigation team traveled to the mine, made a physical inspection of the accident scene, interviewed employees and reviewed documents and work procedures relevant to the accident. MSHA conducted the investigation with the assistance of mine management and employees.

DISCUSSION

Location

The accident occurred on a ramp at the southeast corner of the quarry where stripping of overburden was to be performed.

The ramp was approximately 21 feet wide and 125 feet long with an approximately 10 percent grade. The ramp had a crushed rock surface and was well compacted and layered with a dirt and clay mixture base.

Haul Truck

The truck involved in the accident was a Crane Carrier Company, Tandem Drive Axle, equipped with a dump body type bed. It was powered by a Detroit Diesel, series 6-71, engine mated to an Eaton, 9 speed manual transmission. The truck was not equipped with a retarder.

The truck was reported to be empty at the time of the accident and would have weighed approximately 26,480 pounds. The weight on the tandem drive axles was about 13,580 pounds, giving a weight distribution of approximately 49 percent/51 percent (front/rear).

There was no tailgate on the dump body. The investigators determined that the truck had a gross vehicle weight of approximately 67,880 pounds.

The truck sustained severe damage to the cab, engine, and transmission during the accident. The engine, transmission, and cab gages and warning lights could not be functionally tested.

Mirrors

Mirrors were mounted on both the right and left side of the operator's cab. Both were 6 inch wide by 16 inch high flat mirrors with 5 inch diameter convex mirrors mounted overtop the flat mirrors. No pre-impact damage or abnormalities were found on the mirror surfaces. The mounting areas for the mirrors on both sides of the truck were damaged during the accident so adjustment positions could not be noted.

Service and Parking Brake Systems

The truck had a single air circuit that provided air for both the steering axle service brakes and the tandem drive axle service brakes. The axle assemblies of the truck were manufactured with air-applied, s-cam operated, expanding shoe and drum brakes at all six wheels. However, the brake actuator assemblies for the steering axle (both front brakes) and the right rear drive axle were missing. The air lines coming from the relay valves for these actuators were plugged off.

The truck had spring-applied, air-released parking brakes on the front tandem, drive axle, wheels.

All of the brake lining thicknesses were visually observed to be between ½ - ⅝ of an inch. A lining thickness above ¼ inch was typically acceptable.

The service brake functions of the three available service brake chambers were functionally tested along with the parking brake functions of two of these chambers that had both features. No pre-existing problems were identified with the three existing brake chambers, pushrod stroke travel, brake controls, or brake valves; however, these components appeared to have sustained damage as a result of the accident.

Tests indicated that the spring applied, air released parking brakes were operating properly. The parking brake valve would automatically apply the parking brakes when the supply pressure for the service brakes fell below approximately 40 PSI.

Steering System

The power assisted portion of the steering system could not be tested because the engine would not operate. However, no problems were identified during visual examinations of the steering linkages that may have prevented the victim from controlling the truck.

Transmission

The truck was equipped with an Eaton, 9 speed manual transmission with nine forward speeds and two reverse speeds.

The shifter assembly had been torn from the transmission housing and the shifting yokes for the speed selections were visible. Investigators could not determine if the transmission was physically in the low range or high range reverse position.

Seat Belt

A functional seat belt was present in the truck.

Training and Experience

Primitivo Cuaguuhua had five weeks of mining experience and completed 5 hours of new miner training in accordance with 30 CFR, Part 46. He was being task trained to operate a haul truck when the accident occurred.

ROOT CAUSE ANALYSIS

A root cause analysis was conducted and the following causal factor was identified:

Causal Factor: Management policies, procedures, and controls were inadequate and failed to ensure that employees received training in the health and safety aspects and safe working procedures relating to operating mobile equipment. The new miner being trained did not demonstrate the skills to maintain control of the equipment where he was assigned to operate. Task training at this mine was inadequate. The new miner assigned to operate the haul truck had no previous experience operating large mobile equipment.

Corrective Action: Procedures should be established to provide adequate training to employees before they operate mobile equipment. Classroom training, that includes a thorough review of the operator's manual, should be provided prior to operating mobile equipment. Written safety rules and requirements should be made a hands-on part of task training. Monitor employees to ensure they

can demonstrate safe operating procedures at locations where they are not exposed to hazards.

CONCLUSION

The accident occurred because the task training procedures for the newly hired miner were inadequate. The victim did not demonstrate the skills to safely control the haul truck where he was assigned to operate it. The trainee operator had no previous experience operating heavy equipment. He was not wearing a seat belt at the time of the accident.

VIOLATIONS

Order No. 6087365 was issued on November 4, 2005, under the provisions of Section 103(k) of the Mine Act:

> A fatal accident occurred at this operation on November 4, 2005, when a miner lost control of a haul truck in the stripping area of the quarry. This order is issued to ensure the safety of all persons at this operation. It prohibits all activity in the stripping area and quarry until MSHA has determined that it is safe to resume normal mining operations in the area. The mine operator shall obtain prior approval from an authorized representative for all actions to recover and/or restore operations to the affected area.

This order was terminated on November 9, 2005. Conditions that contributed to the accident no longer exist and normal mining operations can resume.

Citation No.7776437 was issued on December 13, 2005, under the provisions of Section 104(a) of the Mine Act for a violation of 30 CFR 46.7(a):

> A fatal accident occurred at this mine on November 4, 2005, when a haul truck traveled through a berm and fell 21 feet to a bench below. The victim, who had no prior experience in the operation of a haul truck, had been given inadequate training in the health and safety aspects of the task including safe work procedures to be employed. The person assigned by management to task train the victim was not provided with specific written information regarding

> operational safety features of the truck. This person was also not provided the Operator's Manual so that all phases of safe operating procedures could be reviewed before training commenced.

This citation was terminated on January 19, 2006. Operator's manuals have been provided for all mobile equipment at the mine. Management has implemented additional written procedures for haul truck operators. All operators have received additional task training on the safe operation of haul trucks.

Citation No. 7776436 was issued on December 13, 2005, under the provisions of Section 104(a) of the Mine Act for a violation of 30 CFR 56.9101:

> A fatal accident occurred at this mine on November 4, 2005, when a haul truck traveled through a berm and fell 21 feet to a bench below. The victim, who was being task trained to operate the truck at the time of the accident, was backing down a ramp and in doing so, failed to maintain control of the truck.

This citation was terminated on January 19, 2006. Management has implemented additional written procedures for haul truck operators. All operators have received additional task training on the safe operation of haul trucks.

Citation No. 7776438 was issued on December 13, 2005, under the provisions of Section 104(a) of the Mine Act for a violation of 30 CFR 56.14131(a):

> A fatal accident occurred at this mine on November 4, 2005, when a haul truck traveled through a berm and fell 21 feet to a bench below. The seat belt provided in the truck was not being worn by the operator at the time of the accident.

This citation was terminated on January 18, 2006. The mine operator has implemented a written program for the use of seat belts which includes procedures to ensure that the seat belts are being worn. All employees have been instructed in the revised procedures.

Approved by: _____ Date:_____

Michael A. Davis
District Manager

APPENDIX A

Persons Participating in the Investigation

Southern Rock and Lime Incorporated

James E. Clemons Jr.	owner/operator
James E. Stinson	front-end operator & plant manager
Samuel D. Bailey	excavator operator
Leonel S. Guerra	mechanic & interpreter
Christopher D. Davis	truck operator
Jorgs Cuevas	truck operator

Covington County Sheriff's Department

Howard West	officer
Scott Conner	investigator

Hispanic Labor Pool

Fulgencio Castillo	provider & interpreter

Mine Safety and Health Administration

Larry R. Nichols	supervisory mine safety and health inspector
Billy R. Randolph	mine safety and health inspector
F. Terry Marshall	mechanical engineer
Ronny E. Jones	mine safety and health specialist