UNITED STATES
DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION
Metal and Nonmetal Mine Safety and Health

REPORT OF INVESTIGATION

Surface Nonmetal Mine
(Trap Rock)

Fatal Handtools Accident

February 2, 2007

ABM Trucking LLC
Contractor I.D. No. Q822

at

Chantilly Crushed Stone Incorporated
Chantilly Crushed Stone Inc.
Chantilly, Loudon County, Virginia
Mine I.D. No. 44-00024

Investigators

Thomas J. Shilling
Mine Safety & Health Inspector

James R. Slick
Mine Safety & Health Inspector

Joseph H. Bosley
Mine Safety & Health Inspector

Ronald Medina
Mechanical Engineer

Originating Office
Mine Safety and Health Administration
Northeast District
Thorn Hill Industrial Park
547 Keystone Drive, Suite 400
Warrendale, Pennsylvania 15086-7573
James R. Petrie, District Manager


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OVERVIEW

On February 2, 2007, Julio A. Fuentes-de-Leon, owner of ABM Trucking LLC, age 38, was fatally injured when the lift axle of a haul truck he was repairing fell on him. Fuentes-de-Leon was lying on a mechanic's creeper under his truck trying to replace the left side axle pivot bolt on the truck's axle.

The accident occurred because the owner of the truck failed to follow the manufacturer's procedures to complete the repair. The truck was not blocked against movement and drifted backward on a slight grade, causing a jack and wooden block to kick out.

The victim was a sole proprietor of an independent trucking company whose trucks regularly hauled finished products from stock piles on the mine site to offsite customers. Neither Fuentes-de-Leon nor ABM Trucking LLC was employed by or contracted by the mine operator to perform any work or service at the mine.

The Federal Register dated September 30, 1999, included mandatory regulations related to training and retraining of miners at surface crushed stone mines such as Chantilly Crushed Stone Inc. The definition of miner, as stated in 30 CFR 46.2(g)(2), excludes customers and commercial over-the-road truck drivers.

GENERAL INFORMATION

Chantilly Crushed Stone Incorporated mine, a trap rock operation, owned and operated by Chantilly Crushed Stone Inc. (Chantilly), was located in Chantilly, Loudon County, Virginia. The principal operating official was John Gudelsky, president. The mine operated one 13-hour shift, five days per week. Total employment was 65 persons.

Trap rock was blasted from multiple benches and transported to the crushing plant by front-end loaders, haul trucks, and conveyors where it was broken and separated into various sized materials. Finished products were sold as construction aggregate.

The majority of deliveries to offsite customers were transported by over-the-road haul trucks owned and operated by 495 Trucking, a subsidiary of Chantilly. The 495 Trucking repair garage was located on mine property. To meet increased demand, the company also used independent truckers to make deliveries to customers.

ABM Trucking LLC (ABM), a sole proprietor, independent trucking company, was located in Manassas, Prince William County, Virginia. The principal operating official was Julio Fuentes-de-Leon (victim). ABM owned four haul trucks that were used on a regular basis to haul stone from Chantilly to its customers. ABM had no formal contract with Chantilly, and based on demand, had been known to leave this property and haul stone from other mine sites.

Fuentes-de-Leon did not work at Chantilly and did not perform any activity on the mine site for frequent or extended periods. His trucks were exclusively involved in hauling processed materials from stockpiles to offsite customers. The mine operator had no knowledge that the victim was attempting to replace the lift axle bolt on his truck.

On the day of the accident, all four ABM trucks were parked at the mine in a staging area provided by Chantilly. The independent truck staging area was located near the entrance to the mine site near the mine's scale house. At the time of the accident, 36 independently owned trucks were parked in this area. Based on customer demand, the scale house dispatcher assigned off site deliveries of crushed stone to the independent truckers on a first-come-first-serve basis.

The last regular inspection of the mine was completed on January 25, 2007.

DESCRIPTION OF ACCIDENT

On the morning of the accident, inclement weather conditions created a slow business day. The four ABM drivers were gathered with numerous other drivers in the independent truckers' trailer located in the staging area. Fuentes-de-Leon arrived about 11:00 a.m. to work on haul truck #3 which was empty and parked between other trucks in the staging area. At 1:45 p.m., Eric O. Moran, truck driver for Aquia Trucking, was going into the scale house to get a trip ticket and observed Fuentes-de-Leon walk around the truck carrying tools. About 2:20 p.m., Edmundo Tomas Torres, driver of truck #3, went to the truck to see if Fuentes-de-Leon had completed

repairs. When Torres arrived, he found Fuentes-de-Leon pinned and unresponsive under the truck's lift axle.

Torres ran to the scale house to get help. A call was made for emergency medical assistance. Rick Hoffman, mine superintendent, went directly to the scene to lend assistance and found that Fuentes-de-Leon had been pulled from under the truck and was lying on a mechanic's creeper. At 2:45 p.m., the victim was pronounced dead at the scene by the responding emergency medical personnel. The cause of death was attributed to crushing injuries.

There were no witnesses to the accident. Chantilly had a written policy prohibiting major truck repairs by independent truckers on mine property. Reportedly, Fuentes-de-Leon had attempted to make the same repair two days earlier but had brought the wrong diameter bolt to the staging area.

INVESTIGATION OF ACCIDENT

The Mine Safety and Health Administration (MSHA) was notified of the accident at 2:38 p.m. on February 2, 2007, by a telephone call from Steven Herzberg, safety director, to the National Call Center. Joseph Denk, acting assistant district manager, was called and an investigation was started the same day. An order was issued under the provisions of 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; inspectors from the Virginia Department of Mines, Minerals, and Energy; and independent truckers.

DISCUSSION

Location of the Accident

The accident occurred on mine property at an area located about 60 feet west of the scale house. Chantilly permitted independent truck drivers to park their trucks overnight in this location.

Weather

On the day of the accident, the weather was cloudy and cold with intermittent periods of sleet and snow.

Equipment

The truck involved in the accident was an over-the-road 2001 Western Star Model 4964F haul truck, equipped with a steering axle, two rear tandem drive axles, and four Watson & Chalin SL-1187TT series lift axles. It was powered by a turbocharged Caterpillar Model C15, 475 horsepower diesel engine through an eighteen speed Eaton-Fuller transmission. The truck was

equipped with a Phase II truck body. The outside dimensions of the container were 8 feet wide, 5 feet 4 inches high, and 19 feet 8 inches long.

Brake System

The service brakes were applied by pushing a foot pedal in the cab. The service brake system consisted of an air-operated, two-shoe, internal-expanding drum type arrangement at each wheel. The steering axle and the lift axle brake chambers were all single-compartment chambers which provided only service braking capability. Each drive axle brake chamber was a dual-compartment chamber. The forward compartment provided service braking capability and the rear compartment provided parking brake capability. The parking brakes could be applied manually with the push-pull parking brake valve in the operator's cab, or automatically from loss of air system pressure.

Tests conducted during the investigation showed the air system leakage rate did not exceed the manufacturer's allowable air leakage rates and no audible air leaks were found. When the rear tandem tires were firmly on the ground, the parking brake had the capability to hold the empty truck.

After the accident, the empty truck was found with the center two lift axles down and the other two lift axles up. This condition was duplicated during testing and investigators determined that the rear tandem drive axles lifted from the ground. Even though it was applied, the parking brake system was ineffective because only the rear tandem axles had parking brake capability.

Axle Design

The rear tandem drive axle assembly was equipped with a high density, solid rubber spring, walking-beam type suspension system. The Gross Axle Weight Rating (GAWR) of each of the two drive axles was 23,000 pounds and the GAWR of the steering axle was 18,000 pounds.

The truck was equipped with four Watson & Chalin lift axles located between the steering axle and the rear tandem drive axles. The air-lift, air-ride, lift axles were self-steering and each one had a GAWR of 13,200 pounds. The self-steering feature allowed the axles to track the road, improved handling, and increased tire life.

Three toggle switches in the cab allowed the driver to raise and lower the lift axles. The left toggle switch controlled the front lift axle; the center toggle switch controlled the center two lift axles; and the right side toggle switch controlled the fourth lift axle located in front of the rear tandem drive axles. When a toggle switch was moved to the "up" position, the lift spring was pressurized and vented any air in the ride spring to the atmosphere. This caused a lift arm to rotate on a pivot bolt and lift the axle off the ground. When the toggle switch was placed in the "down" position, air pressure was dumped from the lift spring, the ride spring was pressurized, and the axle was pushed down against the road.

Pivot Bolt Replacement Procedure

A lift arm pivot bolt, a "huck fastener," was originally installed which required specialized tools for installation. According to the manufacturer, an acceptable replacement would be a grade 8 fine thread bolt with a lock nut. At the time of the accident, the victim was driving a 10-inch long, 7/8-inch diameter piece of all-thread-rod into the pivot hole to push out the broken huck bolt. No specialized tools were found at the accident scene.

According to the manufacturer, the air pressure to the lift spring and ride spring should be completely vented before attempting to replace the pivot bolt. Following the accident, coworkers found the lift axle being repaired in the down position. The corresponding toggle switch control for this lift axle was also found in the down position. The resultant downward pressure from the ride spring on the axle would have placed a binding load on the pivot bolt.

Summary

The center two lift axles on the empty truck were down and the other two lift axles up. When this condition was duplicated during testing, investigators determined that the rear tandem drive axles lifted from the ground. This made the parking brake system ineffective, even though it was applied, because only the rear tandem axles had parking brake capability. No other air system, braking, or lift axle control system deficiencies were found.

Training and Experience

Julio A. Fuentes-de-Leon was a sole proprietor of an independent trucking company whose trucks hauled finished products from stockpiles to offsite customers. MSHA's definition of miner as stipulated in 30 CFR 46.2(g)(2) does not include over-the-road truck drivers. Chantilly had provided the victim with site-specific hazard awareness training in accordance with 30 CFR, Part 46.

ROOT CAUSE ANALYSIS

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

Root Cause: Policies and procedures were inadequate. The owner of the truck failed to conduct an assessment of the risk involved in the task.

Corrective Action: Procedures should be established that require the manufacturer's recommendations to be followed when repairs are completed.

CONCLUSION

The accident occurred because the owner of the truck failed to follow the manufacturer's procedures to complete the repair. The truck was not blocked against movement and drifted backward on a slight grade, causing a jack and wooden block to kick out.

ENFORCEMENT ACTIONS

Chantilly Crushed Stone Inc.

Order No. 6044850 was issued on February 2, 2007, under the provisions of Section 103(k) of the Mine Act:

A fatal accident occurred at this operation on February 2, 2007, when an independent truck driver was crushed under a haul truck while performing maintenance work. A 103(k) order was issued to assure the safety of persons at this operation and prohibits any work in the affected area until MSHA determines that it is safe to resume normal operations as determined by an authorized representative of the Secretary of Labor. The mine operator shall obtain approval from an authorized representative for all actions taken to recover and/or restore operations in the affected area.

The order was terminated on February 6, 2007. Conditions that contributed to the accident no longer exist and normal operations can resume.

ABM Trucking LLC

Julio A. Fuentes-de-Leon was the owner of ABM Trucking LLC. Upon Fuentes-de-Leon's death, the limited liability company ceased to exist. There was no entity to cite for any violations of mandatory standards attributable to Fuentes-de-Leon.

Approved: _____ Date: _____

James R. Petrie
District Manager

APPENDICES

A. Persons Participating in the Investigation
B. Victim Data Sheet
C. Schematic and Photos of Independent Truck Staging Area

APPENDIX A

Persons Participating in the Investigation

Chantilly Crushed Stone Inc.

Edward Hoy, vice president
Steven Herzberg, safety director
Rick V. Hoffman, superintendent
Terry Combs, dispatcher

ABM Trucking LLC

Luis A. Caballero, truck driver
Edmundo Tomas Torres, truck driver
Efrain Eduardo Eguizabal Serrano, truck driver
William A. Esquivel, truck driver

Others

Joel Flores, self-employed truck driver
Edwardo Estrada, self-employed truck driver
Eric O. Moran, truck driver, Aquia Trucking Inc.
Ray Martin, manager, 495 Trucking Garage

Loudon County Sheriff Department

J. M. McClintic, deputy specialist
Steve Angelo, investigator

Virginia Department of Mines, Minerals, and Energy

David K. Benner, supervisor
Willie Cochran, inspector

Mine Safety and Health Administration

Thomas J Shilling, mine safety and health inspector
James R. Slick, mine safety and health inspector
Joseph H. Bosley, mine safety and health inspector
Ron Medina, mechanical engineer

APPENDIX B

Victim Data Sheet

Accident Investigation Data - Victim Information

Event Number: 0 8 9 3 0 7 0

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:
Julio A. Fuentes DeLeon	*M*	*38*		*01 Fatal*

6. Date(MM/DD/YY) and Time(24 Hr.) Of Death:	7. Date and Time Started:
a. Date: 02/02/2007 b.Time: 14:10	*a. Date: 02/02/2007 b.Time: 11:00*

8. Regular Job Title:	9. Work Activity when Injured:	10. Was this work activity part of regular job?
176 Owner/Operator	*039 Replacing pivot bolt on pony axle*	Yes | X | No |

11. Experience	Years	Weeks	Days		Years	Weeks	Days		Years	Weeks	Days		Years	Weeks	Days
a. This Work Activity:	*8*	*0*	*0*	b. Regular Job Title:	*8*	*0*	*0*	c: This Mine:	*8*	*0*	*0*	d. Total Mining:	*8*	*0*	*0*

12. What Directly Inflicted Injury or Illness?	13. Nature of Injury or Illness:
105 Tractor and trailer	*170 Crushed when truck body fell on him.*

14. Training Deficiencies:

Hazard: | | New/Newly-Employed Experienced Miner: | | Annual: | | Task: | |

15. Company of Employment:(If different from production operator)
ABM Trucking LLC

Independent Contractor ID: (if applicable) *Q822*

16. On-site Emergency Medical Treatment:

Not Applicable: | | First-Aid: | X | CPR: | X | EMT: | | Medical Professional: | | None: | |

17. Part 50 Document Control Number: (form 7000-1)

18. Union Affiliation of Victim: *9999* *None (No Union Affiliation)*

APPENDIX C

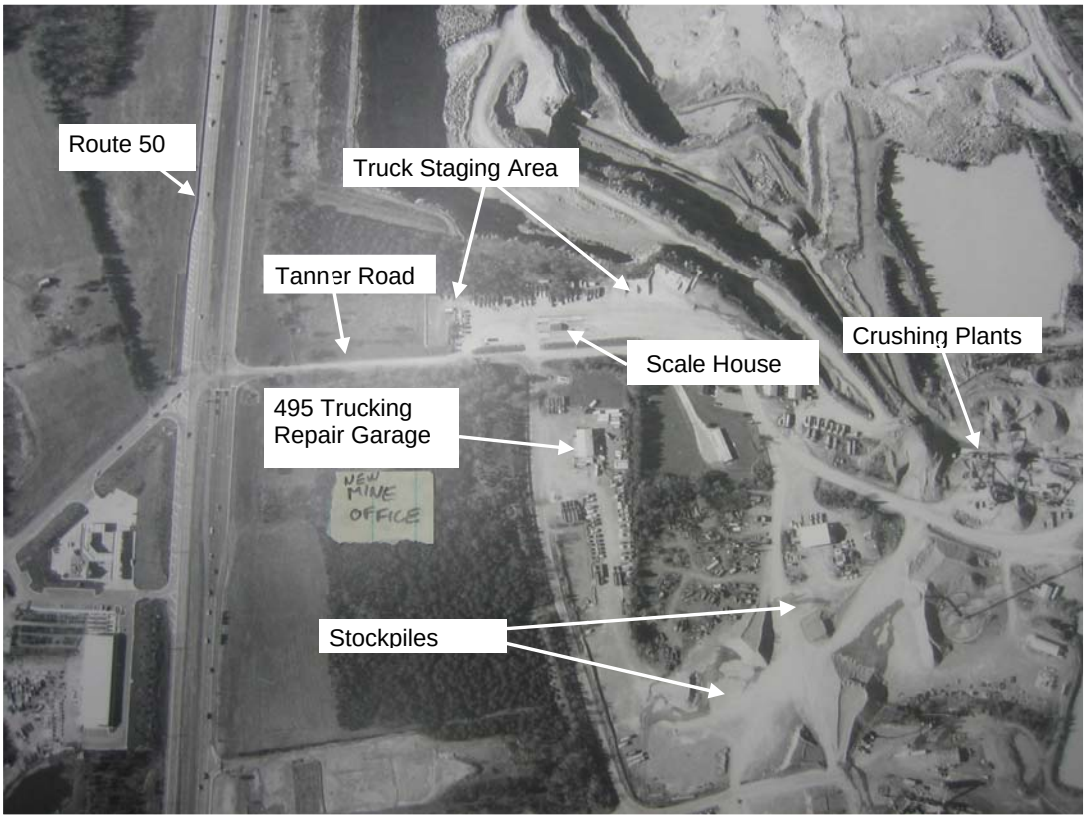

Figure 1 – Aerial view of the Chantilly Crushed Stone Incorporated

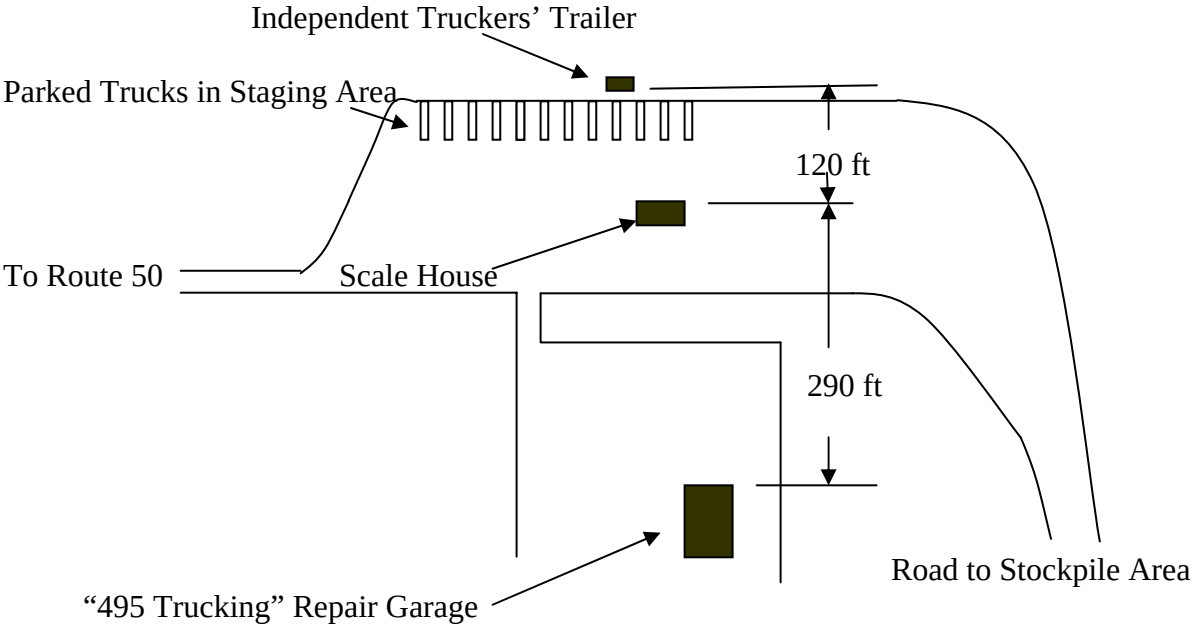

Figure 2 – Schematic of Independent Truck Staging Area

Figure 3 – View of Independent Truck Staging Area looking east toward Mine Scale House

Figure 4 – View of Independent Truck Staging Area looking west from Mine Scale House