

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

REPORT OF INVESTIGATION

**Underground Nonmetal Mine
(Limestone)**

**Fatal Powered Haulage Accident
September 28, 2005**

**Stamper Underground
Hunt Martin Materials LLC
Kansas City, Platte County, Missouri
Mine ID No. 23-02232**

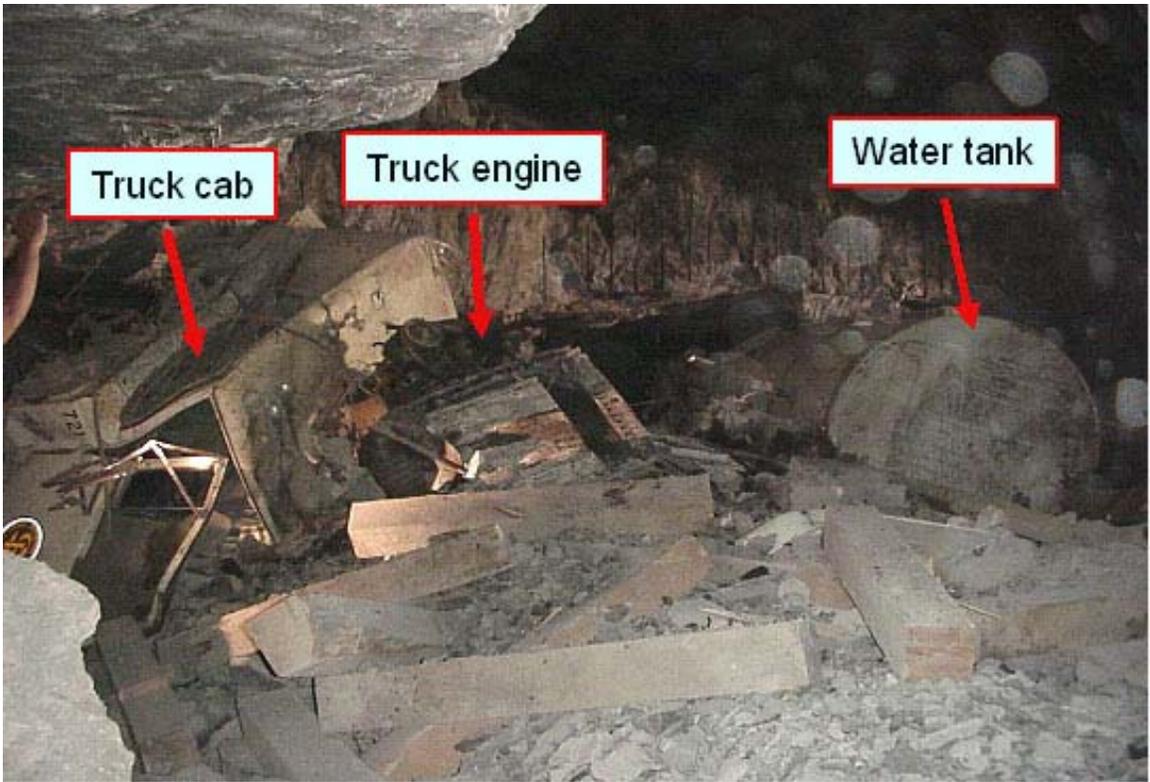
Investigators

**Robert D. Seelke
Supervisory Mine Safety and Health Inspector**

**Steven W. Thompson
Mine Safety and Health Inspector**

**Eugene D. Hennen
Mechanical Engineer**

**Originating Office
Mine Safety and Health Administration
South Central District
1100 Commerce Street, Room 462
Dallas, Texas 75242-0499
Edward E. Lopez, District Manager**



OVERVIEW

On September 28, 2005, James C. Kampert, repairman, age 39, was fatally injured when the water truck he was operating crashed at the bottom of the mine's slope entrance.

The accident occurred because mine management did not adequately direct and control activities on mine property. The water truck, owned by a nearby asphalt plant, was placed in service to address dusty conditions in the mine even though braking systems on the truck had not been maintained in functional condition.

GENERAL INFORMATION

Stamper Quarry, an underground limestone operation, owned and operated by Hunt Martin Materials LLC, was located in Kansas City, Platte County, Missouri. The principal operating official was Gerald Kuper, plant manager. The mine operated two 10-hour production shifts, six days per week. Limestone was drilled, blasted, and crushed underground then conveyed to the surface. Finished products were sold for use in the construction industry. Total employment was 38 persons.

Superior-Bowen Asphalt Company, a subsidiary of Clarkson Construction Company, owned and operated two asphalt plants at Stamper Quarry. One of these plants was located a few hundred yards from the slope entrance into the mine. The other plant was located across the road from the mine entrance.

The last regular inspection of the mine was completed on August 4, 2005.

DESCRIPTION OF THE ACCIDENT

On the day of the accident, James Kampert (victim) and Jesus Balderaz, loader operator, reported for work at 6:00 p.m., their normal starting time. Their normal duties at the beginning of the shift were to service the underground mobile equipment and start the underground primary crusher. Gerald Kuper, plant manager, was out of state that day. Kelly Wilson, day shift assistant plant manager, had left the mine after his shift ended at 5:00 p.m. Larry Hudgins, night shift assistant plant manager, normally came in about 6:30 p.m. but arrived about 6:15 p.m. on the day of the accident.

Kampert and Balderaz went underground and returned to the surface for the nightly staff meeting at 7:00 p.m. Hudgins typically did not offer much direction to his employees because he believed they all knew what to do. However, Hudgins did tell Kampert, who had worked at the mine less than three months, to assist him later in the shift with repairs to one of the mine's two water trucks, both of which were out of service and located at the surface shop. He also read aloud a note from Wilson stating that the day shift had borrowed a water truck from Superior-Bowen that day to water the mine's surface roads. Hunt Martin was unable to produce Wilson's note but it reportedly did not specify which water truck was borrowed or who had driven it.

Superior-Bowen typically filled their water trucks at Stamper Quarry's fresh water pond. Their water truck drivers sometimes watered the mine's surface roads as they left the property. Superior-Bowen sometimes loaned mobile equipment, with a driver, to the mine but did not usually send equipment underground even though they had done so two days in June 2005. On the day of the accident, a Superior-Bowen truck and driver had been sent from the asphalt plant to water the mine's surface roads during the day shift.

In spite of the work Superior-Bowen did on mine property, there were no records of new miner training, task training, or hazard training for any of their water truck drivers. There were also no records of pre-operational inspections of the Superior-Bowen water trucks.

After the staff meeting, Kampert drove a service truck underground and worked on a mechanical scaler before helping Brad Kossen, drill operator, strike a center line. Airborne dust was especially bad that day but the mine didn't have a water truck available to water the underground roadways. One day prior to the accident, Kampert had discussed the dusty conditions with Todd Vandiver, drill operator, and told Mike McLanahan, equipment operator, that they needed some water on the roadways. Had there been a water truck available, Kampert or one of several other employees, depending upon who was available, would have used it to water the roadways.

About 7:40 p.m., Kampert left Kossen and drove out of the mine and traveled a few hundred yards to the asphalt plant, where he parked his service truck and got into a water truck owned by Superior-Bowen (Hudgins thought this was the same water truck referred to in Wilson's note but investigators determined that it was not). The asphalt plant was closed for the day but the water truck keys had been left in the cab even though Superior-Bowen reportedly locked them in the office every evening. Representatives of both Superior-Bowen and Hunt Martin said Kampert had not been authorized to use the truck.

Kyle Johnson, night shift plant operator at the mine, saw the water truck pass through the screening plant and travel toward the fresh water pond about 8:00 p.m. Kampert apparently filled the water truck at the fresh water pond and drove it down the slope entrance into the mine. The evidence at the bottom of the slope indicated that the truck was going at a high rate of speed when it traveled through a pile of wooden timbers and onto a rock berm. The impact of the crash separated the cab and water tank from the truck frame.

Kevin Curtis, Ponciano Flores, and Merle England, members of the powder crew, heard a loud noise and went to the accident scene. Hudgins was called to the area and located the victim among the wooden timbers just south of the berm. Hudgins traveled to the surface and called for emergency medical assistance. Kampert was pronounced dead at the scene by a representative of the Office of the Jackson County Medical Examiner. Death was attributed to blunt force injuries.

INVESTIGATION OF THE ACCIDENT

MSHA was notified of the accident at 10:30 p.m. on September 28, 2005, by a telephone call from Jeff Hall, superintendent, to Mitchell Adams, 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 help of mine management and employees.

OSHA conducted a separate investigation at Superior-Bowen, at the request of MSHA, because Superior-Bowen would not participate in the MSHA investigation.

DISCUSSION

Location of the Accident

The accident occurred at the intersection of the 0 entry and the 2 north crosscut in the underground mine. The intersection was 116 feet north of the slope bottom and was about 40 feet long and 40 feet wide. Rock berms had been constructed 8-10 feet high at each entrance to the intersection to prevent exposure to loose ground in the intersection. Several dozen wooden timbers were stored just south of the intersection of the 0 entry and the 2 north crosscut. Each of the timbers was six inches square and four feet long.

Slope Entrance

The slope entrance into the mine was 1800 feet long, 40 feet wide, 15-80 feet high, and declined 17 percent from south to north. There was a 42-inch conveyor along the west (left) side of the slope. The east (right) side of the slope was used for personnel and equipment to enter and exit the mine.

Water Truck

The truck involved in the accident was a 1986 Ford, model LT-8000, that had been retrofitted with a 3000-gallon (24,000 lbs.) water tank. The truck had a single front axle, dual rear axles, and a gross rated capacity of 48,800 pounds. The truck was owned by Superior-Bowen Asphalt and was parked, with the keys in it, at the asphalt plant, a few hundred yards from the mine.

Brake System Description

The truck was equipped with expanding shoe drum brakes, which were activated by air applied brake chambers, on both sides of the truck's front steering and rear tandem axles. Both sides of the front tandem axle were equipped with expanding shoe drum brakes that were activated with combination air and spring applied brake chambers. The Ford L-series chassis for this water truck was originally manufactured with type 30-30 maxi-brake chambers on both tandem axles and type 24 air chambers on the steering axle. The maxi-brake chambers had both a spring applied park brake actuator and an air applied service brake actuator. The brake system on the truck was designed to use the spring brake to make a modulated spring brake application when the air supply to the primary brake system was low or exhausted.

The air to activate the service brake system was supplied by a dual, foot-operated, control which kept the primary and secondary service system isolated during normal braking. When the foot-operated control valve was engaged, air from the secondary brake circuit was supplied directly to the front brake air chambers. The foot-operated control supplied pressure from the primary brake circuit to activate two relay valves which supplied air from the primary brake system to the four air chambers on the rear axles.

As originally manufactured, the park brake system was provided with four spring-applied air-released maxi-brake actuators located at each wheel on the tandem axles. The air pressure to the park brake control valve came from a double check valve, which received air pressure from both the primary and secondary air system. The park brake air control

valve was controlled by a toggle switch. This valve was not designed to dump the pressure in the park brake system to fully apply the park brake when the pressure in the air system pressure lowered to 35-40 psi.

Brake Chambers

Prior to the accident, the original type 24 air activated chambers on the front steering axle had been replaced with type 16 air activated service brake chambers. These smaller chambers on the steering axle reduced the available braking force when the service brake was applied.

The front tandem axle had mismatched combination park-service brake maxi-brake chambers. The type 30-30 combination, park-service brake, maxi-brake chamber spring brake on the right side of the front tandem axle had been replaced with a type 30-24 combination, park-service brake, maxi-brake chamber. This change reduced the available service braking force at the right wheels on the front tandem axle.

The 30-30 combination, park-service brake, chamber on the rear tandem axle had been replaced with type 20 air activated service brake chambers. Replacing the maxi-brake chambers on the rear axle with type 20 air only chambers reduced the braking force of the parking brake system by 50 percent. Using the type 20 air chambers on the rear axle rather than the type 30-30 maxi-chambers also reduced the available braking force when the service brake was applied.

Brake Drum and Lining Evaluation

The brake drums were removed from each wheel and the drum diameter and the brake lining thickness were checked. None of the brake drums exceeded the manufacturer's maximum in service diameter. Each of the brake linings had at least ¼ inch of friction material. There was no oil or grease on the drums or brake linings.

Brake Adjustment Checks

The push rod strokes of the front axle were measured by applying 110 psi shop truck air to the brake chambers. This shop air simulated service braking during operation. The right side had a stroke of 2 inches which exceeded the maximum allowable stroke of 1 ¾ inches for a type 16 brake chamber by ¼ inch. The stroke on the left side was 2 ½ inches which exceeded the maximum allowable stroke by ¾ inches. One of the chambers on the front steering axle had a significant air leak when air pressure was applied during the test.

Because the accident and recovery caused damage to the air chambers and the air chamber mounts, the strokes could not be checked on the front and rear tandem axles.

Rust and dirt on the wear surfaces of the rear tandem axle drums indicated the shoes were not touching the drums when the service brakes were applied. The rollers on the brake shoes had been rolling on the s-cams, indicating air was getting to the rear brake assemblies and operating the s-cams. However, the brakes were out of adjustment to the point the shoes did not contact the wear surfaces of the brake drums on the rear tandem axle.

The brake shoes had been contacting the wear surfaces of the brake drums on the front tandem axle indicating the brake was working on both sides of this axle.

Air Supply System Description

The air for the brake system was supplied by an engine driven air compressor. The air from the compressor was stored in two tanks. The air tanks included a combination supply-secondary tank and a primary tank. The air system had check valves to isolate the primary and secondary air system from each other, so a loss of air in one system would not deplete the air in the other system.

Transmission

The truck had an Allison Model MT653RM 5-speed automatic transmission which was controlled by a gear shift lever to the right of the operator. The gear shift was connected to the shift lever on the outside of the transmission by a push-pull cable. During the accident, the transmission separated from the rest of the truck. The top cover was taken off the transmission to observe the gears. No damage was found on the gears inside the transmission. The transmission gear shift lever was found in first gear.

Training and Experience

James Kampert had 1 year and 34 weeks of mining experience. He had worked 12 weeks at this mine. Kampert had received training in accordance with 30 CFR, Part 48.

ROOT CAUSE ANALYSIS

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

Causal Factor: Management's policies and procedures failed to ensure that all activities on mine property were adequately overseen by supervision.

Corrective Action: Management should establish policies and procedures to ensure that employees are adequately supervised.

Causal Factor: Management's safety process failed to ensure that miners were provided a safe and healthy working environment.

Corrective Action: Management should establish a safety process that ensures miners do not have to work in excessively dusty conditions.

Causal Factor: Management's policies and procedures failed to ensure that self-propelled mobile equipment with defective brakes was not utilized by employees.

Corrective Action: Management should establish policies and procedures to ensure that safety defects are identified and corrected before self-propelled mobile equipment is placed in service.

CONCLUSION

The accident occurred because mine management did not adequately direct and control activities on mine property. The water truck, owned by a nearby asphalt plant, was placed in service to address dusty conditions in the mine even though braking systems on the truck had not been maintained in functional condition.

ENFORCEMENT ACTIONS

Order No. 6239163 was issued on September 28, 2005, under the provisions of Section 103(k) of the Mine Act:

A fatal accident occurred at this operation on September 28, 2005, when a miner was driving a water truck down the slope into the mine. This order is issued to ensure the safety of all persons in this mine. It prohibits all activity in the underground area until MSHA has determined that it is safe to resume normal mining operations in the area, as determined by an authorized representative of the Secretary of Labor. The mine operator shall obtain prior approval from an authorized representative for all actions to recover and/or restore operations in the affected area.

This order was terminated on December 5, 2005, after the conditions that contributed to the accident no longer existed and normal mining resumed.

Citation No. 6220492 was issued on December 5, 2005, under the provisions of Section 104(a) of the Mine Act for a violation of 30 CFR 57.14101(a)(3):

A fatal accident occurred at this mine on September 28, 2005, when a water truck crashed at the bottom of the slope entrance into the mine. Braking systems on the truck were not maintained in functional condition.

This citation was terminated on December 5, 2005, after the water truck was removed from service.

Approved: _____
Edward E. Lopez
District Manager

Date: _____

APPENDIX A

PERSONS PARTICIPATING IN THE INVESTIGATION

Hunt Martin Materials LLC

Larry Hudgins.....assistant plant manager, night shift
Darrel Jensen.....human resources/safety director
Gerald R. Kuper II.....plant manager
Kelly Wilson.....assistant plant manager, dayshift

Mine Safety and Health Administration

Eugene D. Hennen.....mechanical engineer
Robert D. Seelke.....supervisory mine safety and health inspector
Steven W. Thompson.....mine safety and health inspector

APPENDIX B

DIAGRAM OF THE SLOPE BOTTOM AND ACCIDENT SCENE

