

UNITED STATES
DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION

REPORT OF INVESTIGATION

Surface Nonmetal Mine
(Cement)
Fatal Machinery Accident
January 25, 2005

Artesia Quarry and Mill
Holcim (US), Incorporated
Artesia, Lowndes County, Mississippi
Mine I.D. No. 22-00313

Investigators

Terry G. Lingenfelter
Mine Safety and Health Inspector

Donald H. Daniels
Mine Safety and Health Inspector

Dale P. Ingold
General Engineer

Ronny E. Jones
Mine Safety and Health Specialist

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



OVERVIEW

Randy G. Vibrock, quarry operator, age 49, was fatally injured on January 25, 2005, while working or traveling under the moving primary crusher conveyor belt. He became entangled in an unguarded return idler.

The accident occurred because a guard had not been installed on the conveyor belt return idler to protect miners from the hazard of contacting this moving machine part. Operating procedures were inadequate and controls had not been implemented to prohibit persons from traveling through or working in this area.

GENERAL INFORMATION

The Artesia Quarry and Mill, a crushed limestone operation, owned and operated by Holcim US Incorporated (Holcim) was located off Alternate Highway 45 about seven miles south of Artesia, Lowndes County, Mississippi. The principal operating official was James Boyd, plant manager. The mine was normally operated two 12-hour shifts a day, seven days per week. Total employment was 92 persons.

Limestone was drilled and blasted utilizing a multiple bench mining method. The broken rock was loaded into haulage trucks by front-end loader and fed into the primary crusher. The crushed rock was conveyed to the plant where it was mixed with other materials to produce cement. Finished cement was shipped by rail or truck to customers.

The last regular inspection at this operation was completed on August 25, 2004.

DESCRIPTION OF THE ACCIDENT

On the day of the accident, Randy Vibrock (victim) reported for work about 6:45 a.m. for his normal starting time of 7:00 a.m. Vibrock went into the crusher control room where he met Billy Phillips, crusher operator. After talking with Phillips, Vibrock began his normal routine by conducting workplace examinations on the primary crusher conveyor in the tunnel. He operated the water truck and wet down the plant roadways. Mickey Kuykendall, quarry supervisor, observed Vibrock operating the water truck, at approximately 8:15 a.m.

When Vibrock finished watering the roadways, he returned to the crusher control room where he took a short break with Phillips. At 9:00 a.m., Vibrock went to his locker and got his raincoat, hip wader boots, and a two-way radio. He walked down three flights of stairs from the control room to the tail pulley area of the crusher conveyor. He turned on the sump pump and, using a water hose, removed the dust and small rocks that had accumulated on the floor under and around the tail pulley of the conveyor.

About 10:00 a.m., Phillips left the control room and went to an area of the crusher deck where he observed Vibrock cleaning in the basement below. At 12:50 p.m., Phillips went back to the crusher deck, saw the water hose hanging over the handrail and the sump pump was off, and assumed Vibrock had finished cleaning at the tail pulley area.

About 1:15 p.m., Phillips phoned Carl Beard, mechanic, to ask him if he had seen Vibrock, but Beard had not. At 1:25 p.m., Phillips asked Tony Chandler, truck driver, to go downstairs and check on Vibrock. Moments later Phillips heard Chandler call from the basement that Vibrock was entangled in a return idler. The conveyor was immediately de-energized, tension was released on the idler, and the victim was removed. Emergency medical personnel arrived and assisted Vibrock but were unable to detect any vital signs. At 2:32 p.m., the County Coroner arrived and pronounced the victim dead. Death was attributed to mechanical asphyxiation.

INVESTIGATION OF THE ACCIDENT

MSHA was notified of the accident at 1:30 p.m. CST on January 25, 2005, by a telephone call from Edward Theirry, safety manager, to Joel Richardson, acting assistant district manager. An investigation was started that day. An order was issued under the provisions of Section 103 (k) of the Mine Act to ensure the safety of the miners. MSHA's accident investigators traveled to the mine, made a physical inspection at the accident scene, interviewed employees, and reviewed conditions and work procedures relevant to the accident. MSHA conducted the investigation with the assistance of management and employees at the mine.

DISCUSSION

Location of the Accident

The accident occurred in the conveyor tunnel where it intersected the basement of the primary crusher at a point approximately 9 feet above the basement floor and 47 feet below the surface. The tunnel was approximately 10 feet wide, 8 feet high and 150 feet long. The walkway alongside the conveyor was located on the right side of the tunnel walking toward the tail pulley. It was approximately 39 inches wide from the tunnel wall to the pull cords. Lighting in the tunnel was provided by sodium vapor lamps that provided adequate illumination.

The concrete floor under the conveyor belt was wet and covered with small loose rocks. The wash down hose, connected to the steel waterline in the tunnel, was shut off and found lying on the side of the steps in the walkway leading to the tail pulley.

A broken, long handled shovel was found at the accident site. The broken end of the shovel was curved in a manner that fit the curve of the conveyor return idler. A six inch broken piece of the end of the handle was found floating near the sump.

Equipment

The primary crusher conveyor belt, installed on a 16 degree incline, was 581 feet long and was powered by a 125 horsepower electrical motor. It was rated at 326 feet per minute and conveyed approximately 600 tons of material per hour. The conveyor belting measured approximately 40 inches wide. Since the drawings specified a 42 inch wide conveyor belt, it appeared that the width reduction was caused by edge wear.

There were two emergency stop pull cords located along the walkway side of the belt line. The emergency stop cords were found to be functioning properly. The operating controls for this conveyor included an integral start-up alarm which was found to be functional when tested.

The return idler, which measured 44 inches long and 5 inches in diameter, was located about 5 1/2 feet from the tail pulley. The distance from the floor to the pinch-point created by the return idler was 44 1/2 inches. See figure No. 1.

Training and Experience

Randy Vibrock had 15 years, 2 weeks, and 6 days mining experience, all at this operation. He had received training in accordance with 30CFR, Part 46.

ROOT CAUSE ANALYSIS

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

Causal Factor: Operating procedures and controls were inadequate and failed to ensure that the examination of this work area identified all possible hazards. Inspections conducted in and around the primary crusher conveyor belt failed to identify possible exposure to the return idler. A guard had not been provided to protect miners from contacting the return idler on the primary crusher conveyor belt.

Corrective Action: Management should implement procedures to include recognition of all identifiable hazards. Policies should prohibit miners from performing work underneath operating conveyors.

CONCLUSION

The accident occurred because safe operating procedures were inadequate. Controls had not been implemented to prohibit persons from working underneath the primary crusher conveyor. A guard had not been provided to protect persons from contacting the exposed return idler.

VIOLATIONS

Order No. 6093472 was issued on January 25, 2005, under the provisions of Section 103(k) of the Mine Act:

A fatal accident occurred at this operation on January 25, 2005, when a miner became entangled between a return idler and the bottom conveyor near the conveyor tail pulley, located in the primary crusher basement. This order is issued to assure the safety of all persons at this operation. It prohibits this conveyor from being operated until MSHA has determined that is safe to resume normal operations in this 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 January 27, 2005. The conditions that contributed to the accident have been corrected and normal mining operations can resume.

Citation No. 6093474 was issued on February 17, 2005, under the provision of Section 104(a) of the Mine Act for a violation of 30 CFR 56.14107(a):

A fatal accident occurred at this operation on January 25, 2005, when an employee became entangled in a return idler of the basement tunnel conveyor. The idler was located about 42 inches above floor level. The employee was cleaning up spillage and pumping around the conveyor tail pulley area. A guard was not provided to protect persons from contacting the moving machine parts.

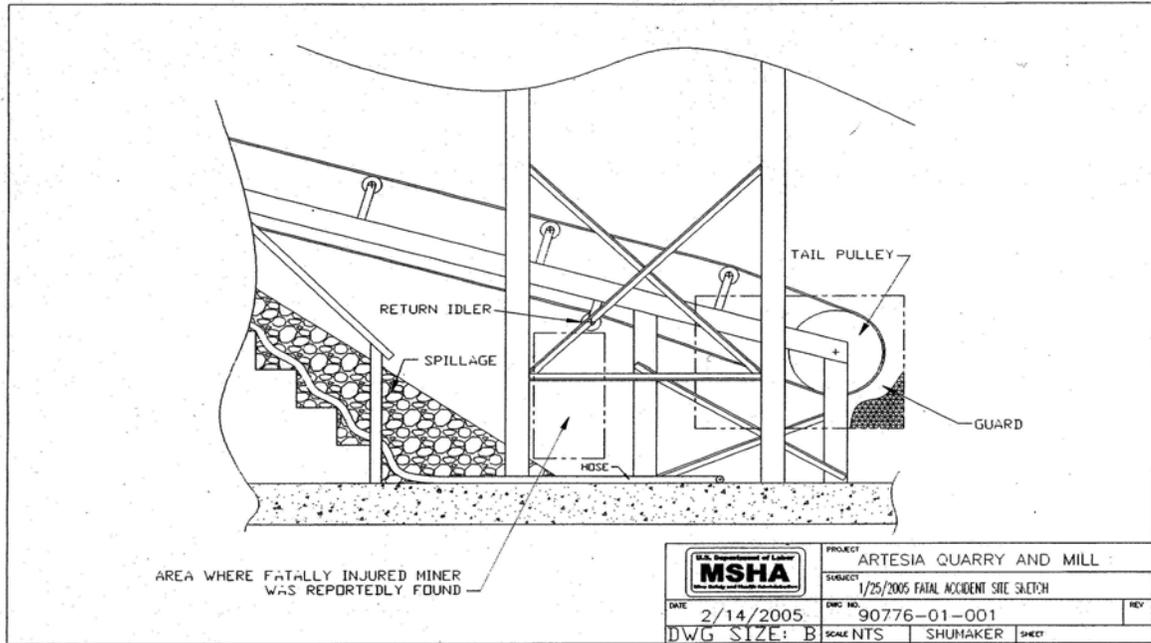
This citation was terminated on February 18, 2005. The mine operator has installed a guard under the moving conveyor belt preventing access under the conveyor belt.

Approved by: _____

Michael A. Davis
District Manager

Date: _____

Figure No. 1



APPENDIX A

Persons Participating in the Investigation

Holcim (US), Incorporated

James Boyd	plant manager
Ray Pumphrey	production supervisor
Edward Thierry	safety manager
Mickey Kuykendall	quarry supervisor
Billy Phillips	crusher control room operator
Tony Chandler	truck driver
Ed Hines	quarryman

Mine Safety and Health Administration

Terry G. Lingenfelter	mine safety and health inspector
Donald H. Daniels	mine safety and health inspector
Dale Ingold	general engineer
Ronnie Jones	mine safety and health specialist