UNITED STATES
DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION

REPORT OF INVESTIGATION

Facility
(Cement)

Fatal Hoisting Accident
December 3, 2019

Alimak Hek Elevator Company (Z674)
Webster, Texas

at

Holcim (US) Inc. Holly Hill Facility
Holcim (US) Inc.
Holly Hill, Orangeburg County, South Carolina
ID No. 38-00014

Accident Investigators

Stanley K. Stevenson
Supervisory Mine Safety and Health Inspector

Bryan L. Deaton
Mine Safety and Health Inspector

Originating Office
Mine Safety and Health Administration
Southeastern District
1030 London Drive, Suite 400
Birmingham, Alabama 35211
Samuel K. Pierce, District Manager

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OVERVIEW

Lennox Hinckson, a 65-year-old contract elevator technician, who had been servicing the plant's elevator for the past seven years, died on December 3, 2019. The victim was performing a limit switch adjustment when the elevator car descended without warning, causing him to strike the elevator platform.

The accident occurred because Alimak Hek Elevator Company did not have an effective procedure to block the elevator against motion while performing work.

GENERAL INFORMATION

The Holcim (US) Inc. (Holcim) owns and operates Holly Hill Facility (Holly Hill), employs 160 miners and operates two twelve-hour shifts per day, seven days per week. Bulldozers uncover limestone then front-end loaders load the limestone into haul trucks. The haul trucks deliver the product to a crusher, and it is then transported by conveyor belt to the plant for processing into cement.

The principal officers for this facility at the time of the accident were:

Jamie Gentoso .....President & CEO
Ian Johnston..... Chief Financial Officer
Eric Ervin..... VP, Manufacturing South

Holly Hill contracts Alimak Hek Elevator Company (Alimak) to service and maintain the Alimak elevators.

The principal officer for this contractor at the time of the accident was:

Dale Stoddard……..President

The Mine Safety and Health Administration (MSHA) completed the last regular inspection on September 15, 2019. The non-fatal days lost (NFDL) incident rate for Holly Hill for 2018 was 0.66, compared to the national average of 1.54 for mines of this type.

DESCRIPTION OF ACCIDENT

On December 3, 2019, at 6:49 a.m., Lennox Hinckson arrived at the mine and met Wayne Mobley, Maintenance Planner. Mobley informed Hinckson that a delegation of upper management from Holcim would be onsite during the week and Hinckson should also be onsite in the event of elevator problems.

At approximately 8:00 a.m., Richard Simmons, Maintenance Technician; John Kinlaw, Maintenance Technician; and Leonard Harrison, Maintenance Supervisor; met Hinckson at the elevator on level 1. Harrison, Simmons and Kinlaw were going to clean up on level 4 and replace grating on level 5. Simmons informed Hinckson the elevator had been stopping between floors. Hinckson earlier had identified a loose limit switch located on the right corner of the elevator car, which faces the pre-heater tower, as the probable cause of the stopping.

Hinckson proceeded to level 4 with Simmons, Kinlaw, and Harrison. Harrison and Kinlaw exited the elevator car. Harrison closed both doors on the elevator and Hinckson began to repair the limit switch on level 4 with Simmons' assistance.

Hinckson showed Simmons where to hold the wrench on the bolt for the limit switch. Hinckson then went to the top of the elevator car and shut the hatch door, while Simmons remained inside the elevator car and positioned himself on the access ladder to reach the bolt nuts. They proceeded to tighten the top

bolt of the limit switch. According to Simmons, the top bolt was almost tight when he heard a click and the elevator car started descending. Investigators determined that someone pressed an elevator call button on one of the levels, but did not determine who it was.

Simmons twice yelled to Hinckson, "Are you ok?" He then actuated the emergency stop button located inside the elevator car.

Simmons called the control room for help over the two-way radio. Harrison heard the distress call and went to the elevator car landing at level 4 and saw the elevator car stopped between levels 3 and 4. He saw Hinckson on level 3 and went down the stairs to him.

Harrison checked Hinckson and found no pulse. He secured the area and told Simmons to remain in and not move the elevator car.

Orangeburg County Emergency Medical Services arrived at 8:51 a.m. and were unable to resuscitate the victim. Vallencia Golden, Orangeburg County Coroner, arrived at the mine at 10:07 a.m. and pronounced Hinckson dead at 10:47 a.m.

INVESTIGATION OF THE ACCIDENT

On December 3, 2019 at 9:03 a.m., Adan Posly, Production Manager, contacted the Department of Labor National Contact Center (DOLNCC). At 9:19 a.m., the DOLNCC contacted Judith Etterer, Mine Safety and Health Staff Assistant, and she dispatched Jeff Phillips, Supervisory Mine Safety and Health Inspector, and Ben Adams, Mine Safety and Health Inspector, to the mine. Upon arrival at the mine, Phillips issued a 103(k) order to ensure the safety of the miners and began the investigation. At 2:42 p.m., Stanley K. Stevenson, Supervisory Mine Safety and Health Inspector, and Bryan L. Deaton, Mine Safety and Health Inspector, arrived at the mine site.

MSHA's accident investigation team conducted a physical inspection of the accident site, interviewed miners, reviewed conditions and work procedures relevant to the accident, and found the elevator in proper working condition. MSHA conducted the investigation with the assistance of mine management, contractor management, and miners. See Appendix A for persons participating in the investigation.

DISCUSSION

Location

The accident occurred between levels 3 and 4 of the pre-heater tower. The victim then fell onto level 3 after striking the elevator platform.

Weather

The weather on the day of the accident was sunny and the temperature was approximately 40° F. Investigators did not consider weather to be a factor in the accident.

Equipment Involved

Alimak manufactured the rack-and-pinion elevator (Model No. 8039; Serial No. 28 /37). The elevator has a maximum rated load capacity of 6,200 pounds or 31 passengers with the counter weight attached. The elevator services a total of eight levels or landings and travels approximately 150 feet per minute.

The elevator car is approximately 12.5 feet long, 8.6 feet tall, and 5.2 feet wide. The elevator car is an enclosed unit with an outer vertical sliding door and an inner vertical sliding bi-parting door. The elevator car doors are equipped with mechanical locks and electrical interlocks. The clearance between the elevator car and the pre-heat tower is approximately four inches. The elevator car's top has a handrail, mid-rail and toe board around the perimeter.

The elevator controls include three methods to prevent motion. The emergency stop button prevents all operation of the elevator car. The normal/inspection switch restricts operation of the elevator car to the car top only when set to inspection. Last, the disconnect switch for the conveyance motor removes power which prevents movement of any kind. Investigators found the switch in normal mode which Hinckson may have engaged prior to transporting the three Holly Hill maintenance employees.

Not all miners were aware the elevator was undergoing repairs on the day of the accident. Power to the elevator was not turned off to block it against motion prior to the accident. MSHA investigators, with the assistance of Paul Stevens, Alimak's Service Coordinator, checked all interlocks, switches, emergency stop devices, and safety features, including the "normal" and "inspection" operation switch located on top of the elevator car and found no defects.

Holcim has a Lockout/Tagout policy in place for their facility but it doesn't specifically address the operation of the Alimak elevator. Holcim is updating this policy to include the operation of the Alimak elevator.

TRAINING AND EXPERIENCE

Hinckson had 33 years of experience servicing and erecting Alimak elevators. Hinckson had received significant training on safety procedures for servicing the elevators during his career. Hinckson received training on Alimak's policy that states "technicians leaving the car/elevator without having completed the service work or to carry out service, the main switch must be switched off, locked and tagged. Failure to follow this warning can cause death or personal injury." Hinckson also received hazard training from Alimak on March 27, 2018. Investigators reviewed the PowerPoint used in the hazard training and found a significant amount of material on lockout/tag out requirement and pinch point hazards. MSHA'S Educational Field and Small Mine Services (EFSMS) conducted a review of the contractor's training plan and records. EFSMS determined Hinckson had received all required training.

ROOT CAUSE ANALYSIS

The accident investigation team conducted a root cause analysis to identify the underlying cause of the accident. The team identified the following root causes and the contractor implemented the corresponding corrective actions to prevent a recurrence.

Root Cause: Alimak did not have an effective procedure to prevent the elevator from moving while work was being done.

Corrective Action: Alimak has installed lock boxes on the call buttons on each level of the plant. Alimak has revised its training plan to require the locking of call buttons prior to performing any maintenance on the elevator. Also, the contractor reinstructed their maintenance staff on the requirement to turn off the power to the elevator while performing maintenance.

CONCLUSION

Lennox Hinckson died while adjusting a limit switch on an elevator car when the elevator car descended without warning, causing him to strike the elevator platform. The accident occurred because the Alimak Hek Elevator Company did not have an effective procedure to block the elevator against motion while performing work.

Approved by: _____Date:_____
Samuel K. Pierce
Southeastern District Manager

ENFORCEMENT ACTION

Issued to Holcim (US) Inc.

A 103(k) Order No. 8816576 was issued on December 3, 2019,

> A fatal accident occurred at this operation on December 3, 2019 when a contract miner was performing maintenance on the pre-heater tower elevator at the 4th level when he fell from the top of the elevator to the 3rd floor level. This order is issued to ensure the safety of all persons at this operation. All persons are prohibited from using the elevator and entering the 3rd and 4th floor elevator area. The mine operator shall obtain prior approval from an authorized representative for all actions to recover and/or restore operations in the affected area.

A 104(a) Citation No. 6505851 was issued to Alimak Hek Elevator Company for violation of 30 CFR 56.14105 on February 04, 2020.

> A fatal accident occurred at the mine on December 3, 2019 when the Elevator Technician was going to tighten bolts on a limit switch on top of the elevator car located at the 4th level pre-heater tower. The victim positioned himself between the car and the landing. When the elevator car moved downward, the Technician suffered fatal crushing injuries. The contractor did not remove power from the elevator to block the elevator against hazardous motion.

APPENDIX A

Persons Participating in the Investigation

Holcim (US) Inc.

Sheetalnath Mahalungkar.....Maintenance Manager
Falon Petty .....Senior Regional Health and Safety Manager
Deborah McKinney.....Area Health and Safety Manager
Richard Simmons.....Maintenance Technician
David Legette.....Instrumentation and Electrical Electrician
Leonard Harrison .....Maintenance Supervisor

Alimak Hek Elevator Company

Dale Stoddard ……...President
Pedro Mercado .....Safety Director
Paul Stevens ..... Service Coordinator

Mine Safety and Health Administration

Stanley K. Stevenson ..... Supervisory Mine Safety and Health Inspector
Bryan L. Deaton.....Mine Safety and Health Inspector

APPENDIX B

(View from the Level 4 with the elevator car stopped at Level 3)