MAI-2016-6

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

REPORT OF INVESTIGATION

Surface Non Metal Mine
(Cement)

Fatal Fall of Person
May 10, 2016

at

Ash Grove Cement Company
Midlothian, Texas
Mine ID No. 41-00026

Investigators

Robert Allen Dreyer
Mine Safety and Health Specialist

James Redwine
Mine Safety and Health Inspector

Originating Office

Mine Safety and Health Administration
South Central District
1100 Commerce Street RM 462
Dallas, TX 75242
Michael Davis, District Manager

OVERVIEW

Roderick Barnes, Maintenance Worker, age 46, was fatally injured on May 10, 2016. Mr. Barnes went to the top of the slurry tank to jog the rake system and fell 50 feet through an unprotected 3-foot by 4-foot opening in the walkway into the empty slurry tank below.

The accident occurred because management's policies, procedures, and controls failed to adequately ensure that effective barricades and readily visible warning signs were provided where hazards were not immediately obvious; failed to provide protection around openings through which persons may fall, and failed to use fall prevention and protection devices where there was a danger of falling.

GENERAL INFORMATION

Ash Grove Cement Company (Ash Grove), a surface open pit mine and cement facility, is owned and operated by Ash Grove Cement Company and is located in Midlothian, Ellis County, Texas. The highest level of management at the site at the time of the accident was Matt Kertz, Maintenance Manager and Acting Mine Manager. The facility employs approximately 120 persons and operates three shifts, seven days a week.

Ash Grove contracted Superior Construction Maintenance (SCM), located in Blum, Texas, to provide labor and equipment to install air lines in the #2 Slurry Tank. Additionally, SCM was contracted to provide labor and material to cut out thin sections of the slurry tank wall and weld in new sections of rolled metal, where necessary. SCM's principal operating official is Marshall Hicks II, Owner.

The Mine Safety and Health Administration's (MSHA) last regular inspection at Ash Grove was completed on March 17, 2016.

DESCRIPTION OF ACCIDENT

Roderick Barnes, a Maintenance Worker for Ash Grove began work at approximately 7:18 a.m. on Tuesday, May 10, 2016. A daily shift meeting with the crew was held at 8:00 a.m. Mr. Barnes collected his tools at approximately 8:15 a.m. and proceeded to conduct routine, daily preventive maintenance on various compressors throughout the plant. At about 11:15 a.m., Mr. Barnes was re-directed to assist with maintenance activities at the Dryer Crusher. After a lunch break from about 12:00 to 12:30 p.m., Mr. Barnes returned to the Dryer Crusher where he remained until approximately 1:40 p.m. when he received a call on the radio from Maintenance Supervisor Jason McBride to report to the slurry tanks.

Mr. Barnes met with McBride at the substation near the slurry tanks from about 1:45 to 1:55 p.m. During this time, the two men looked at an air compressor next to the substation. Upon returning to the area just in front of the substation entrance and near the stairway access to the tanks, McBride instructed Mr. Barnes to go to the top of the #2 Slurry Tank to jog the rake system. "Jog the rake" is the common term used to describe the process of slowly turning the system switch on/off so the piece of machinery turns or moves to the desired position. *(Attachment 3)* At approximately 2:00 p.m., the two men parted ways and McBride entered the substation to remove the company lock from the rake system so Barnes would be able to activate the switch located on the platform above the #2 Slurry Tank.

Zechariah Canfield, an employee of SCM, also had been in the substation removing his lock from the rake system and was returning to the #2 Slurry Tank when he heard a noise from inside the tank. He ran to the tank's ground level entrance and observed a man lying on the tank floor. Canfield climbed in through the opening to check the man. When he could not locate a pulse on the man, he ran to get McBride. When notified,

McBride ran to the ground opening and observed Mr. Barnes inside the tank. Calls for help went over the company radio and a call to 911 was placed by Ash Grove at approximately 2:17 p.m. Site personnel continued to assess Mr. Barnes as emergency medical services were dispatched.

Records indicate that Emergency Medical Services were dispatched at approximately 2:18 p.m., and Midlothian Police arrived on site at approximately 2:27 p.m.

INVESTIGATION OF ACCIDENT

Mike Mann, Safety Manager, Ash Grove, notified MSHA of the accident at 2:15 p.m. on May 10, 2016 by a telephone call to the Department of Labor's National Contact Center (DOLNCC). The DOLNCC notified William O'Dell, Assistant District Manager for MSHA's South Central District, and an investigation was started the same day. In order to ensure the safety of all persons, MSHA issued a 103 (j) order and later modified it to section 103(k) of the Mine Act after an Authorized Representative arrived at the mine.

MSHA's accident investigation team traveled to the mine, conducted 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, mine employees, SCM management and SCM employees, and Maxim Crane employees. Maxim Crane was the contracting company operating a tower crane, which was used to supply materials for the slurry tank during the time of the accident.

DISCUSSION

Location of the Accident

The accident occurred at the platform and travelway above the #2 Slurry Tank. *(Attachment 6)* The platform is accessed by climbing several flights of stairs and traversing an inclined catwalk *(Attachment 1)* that ultimately ends at the platform. This platform is the common point by which all six of the area tanks are accessed. The platform above #2 was square in shape, measuring approximately 13 feet x 13 feet, with elevated walkways intersecting all four sides. The drive unit was located near the center of the platform. The open hole, which the victim fell through, was directly behind the drive unit. *(Attachment 2)*

Weather

The weather at the time of the accident was mostly clear with calm winds and a temperature approximately 92 degrees Fahrenheit. Weather was not considered to be a factor in the accident.

Factors Leading to the Accident

There were a number of factors that contributed to the accident. Each one is discussed, separately, below:

Open Hole

On May 2, 2016, SCM per Ash Grove's instruction, removed a 3' x 4' section of floor grating from the platform (*Attachment 4*) above the #2 Slurry Tank to allow the crane basket to be suspended adjacent to the center column and work to be conducted on the air lines directly below the rake drive. SCM employees, equipped with fall protection, worked near this open hole and from the suspended man basket below this opening from May 2 to May 3, 2016 without incident. On May 3, 2016, SCM discussed an additional problem found with the drive unit on the rake system with Ash Grove's Maintenance Supervisor, Jason McBride. It was unclear whether SCM, Ash Grove, or the two working in unison would complete this additional work. Pending this decision, McBride directed SCM to focus their efforts and attention to repairing the tank walls. Neither Ash Grove nor SCM used the unprotected open hole, until May 10, 2016, the date of Mr. Barnes's fatal fall.

Fall Protection

Interviews indicated that each of the SCM employees working on the platform around the # 2 Slurry tank was equipped with and utilized fall protection when around the open hole. Mr. Barnes was found at the bottom of the tank without fall protection on him. A fall protection harness was found in Barnes's locker on the other side of the plant.

Barricades and Warning Signs

A view of the opening in the floor was obstructed to those entering the upper level work via the catwalk. On May 2, McBride directed SCM employees to install a chain and warning tag, provided by Ash Grove, where the elevated catwalk intersected the #2 Slurry Tank platform. (*Attachment 2*) From May 2 to May 10, both Ash Grove and SCM personnel ducked under this chain to gain access to the working area. The chain, tags and direction Ash Grove provided SCM were not in compliance with requirements of 30 CFR 56.20011, Barricades and warning signs.

Training and Experience

Mr. Barnes had over 8 years of mining experience, with more than 6 years as a Maintenance Worker. Ash Grove failed to provide a record of Mr. Barnes initial Miner Training. MSHA issued a non-contributory, recordkeeping citation under a separate event. All other training records were reviewed and found to be in compliance.

ROOT CAUSE ANALYSIS

MSHA conducted a root cause analysis and the following root causes were identified:

Root Cause: Management's policies and work procedures were inadequate and failed to ensure that openings through which persons may fall were protected.

Corrective Action: The open hole was covered and Management established the following mandatory policies and controls:

- Hazardous Opening Protection Plan
- Hazardous Opening & Handrail Removal Permit
- Working at Heights Permit Program

Root Cause: Management's policies and work procedures were inadequate and failed to ensure that barricades and warning signs were provided where hazards were not immediately obvious.

Corrective Action: Management established the following mandatory policies and controls:

- Substantial barricades to prevent entry
- Readily visible & legible warning signs posted at all approaches displaying the nature of the hazard and protective action required

Root Cause: Management's policies and work procedures were inadequate and failed to ensure the use of fall prevention and protection were used where there was a danger of falling.

Corrective Action: Management developed a written fall protection policy and trained all affected miners on the use of appropriate fall protection and the mandatory policy for use of those systems.

CONCLUSION

The accident occurred because management's policies, procedures, and controls failed to adequately ensure that effective barricades and readily visible warning signs were provided where hazards were not immediately obvious. Additionally, management failed to provide protection around openings through which persons may fall and failed to ensure the use of fall prevention and protection devices where there was a danger of falling.

ENFORCEMENT ACTIONS

Issued to Ash Grove Cement Company

Citation No. 8861002 was issued on June 27, 2016, under provisions of Section 104(a) of the Mine Act for a violation of 56.11012:

No protective devices were provided to protect persons or materials from falling into the 3' x 4' opening in the floor. It was neither unreasonable nor impractical to provide any number of protective devices at this opening. The operator directed the removal of the grating and gave no direction to cover this hole or otherwise protect persons from this hazardous opening. Subsequent to directing this activity the operator visited the area and observed the open hole, and again gave no direction towards protecting this opening. On May 10, 2016 the operator directed their employee to enter the area to jog the slurry tank #2 rakes. This miner suffered fatal injuries when he fell through this opening to the steel floor approximately 50 feet below. This violation is an unwarrantable failure to comply with a mandatory standard.

Citation No. 8861036 was issued on June 27, 2016, under provisions of Section 104(a) of the Mine Act for a violation of 56.20011:

The operator directed a contractor to remove a section of floor grating resulting in a 3' by 4' open hole on May 2, 2016 and did not ensure barricades and warning signs were provided. View of the open hole was obstructed and not immediately obvious to employees entering the area. A barricade and warning sign was not provided. Fully aware of the hazard, the operator failed to ensure that barricades and adequate warning signs were provided. On May 10, 2016 the Maintenance Supervisor directed a mine employee to enter this area to jog the slurry tank #2 rakes. This miner suffered fatal injuries when he fell through this opening to the steel floor approximately 50 feet below.

Citation No. 8861051 was issued on June 27, 2016, under provisions of Section 104(a) of the Mine Act for a violation of 56.15005:

On May 10, 2016 a mine maintenance worker tasked with jogging the rakes at the slurry tank fell through a 3' by 4' opening to the steel floor approximately 50' below. The miners assigned tasked placed him 18" from this unprotected open hole. The miner was not found with fall protection nor was his fall protection, safety belt or safety line present in the work area. The operator's failure to ensure the use of fall protection in this hazardous environment resulted in fatal injury.

Issued to Superior Construction and Maintenance

Citation No. 8861028 was issued on June 27, 2016, under provisions of Section 104(a) of the Mine Act for a violation of 56.11012:

No protective devices were present to protect persons or materials from falling into a 3' x 4' opening in the floor. The contractor removed a section of grating resulting in the open hole on May 2, 2016. It was neither unreasonable nor impractical to provide protective devices at this opening. No attempt was made to cover the hole or protect persons from this hazardous opening. On May 10, 2016 a mine employee entered the area to jog the Slurry Tank #2 Rakes. This miner experienced fatal injuries when he fell through this opening to the steel floor approximately 50 feet below.

Citation No. 8861050 was issued on June 27, 2016, under provisions of Section 104(a) of the Mine Act for a violation of 56.20011:

The contractor, directed by the mine operator, removed a section of floor grating resulting in a 3' by 4' open hole on May 2, 2016. The contractor failed to provide barricades and adequate warning signs at this unprotected open hole. View of the open hole was obstructed and not immediately obvious to employees entering the area. On May 10, 2016 the operator's Maintenance Supervisor directed a mine employee to enter this area to jog the slurry tank #2 rakes. This miner suffered fatal injuries when he fell through this opening to the steel floor approximately 50 feet below.

Approved: _____ *Date:* 12/16/16

Michael A. Davis
District Manager

Appendix A

Persons Participating in the Investigation

Ash Grove Cement Company
Mike Mann, Safety Manager

Ogletree Deakins
William Doran, Attorney for Ash Grove Cement Company

Superior Construction & Maintenance
Bobby Cox, Supervisor

Mine Safety and Health Administration
Robert Allen Dreyer, Safety and Health Specialist
James Redwine, Mine Safety and Health Inspector

Attachment #1 (Approach to work site)

Attachment #2 (Entrance to work site)

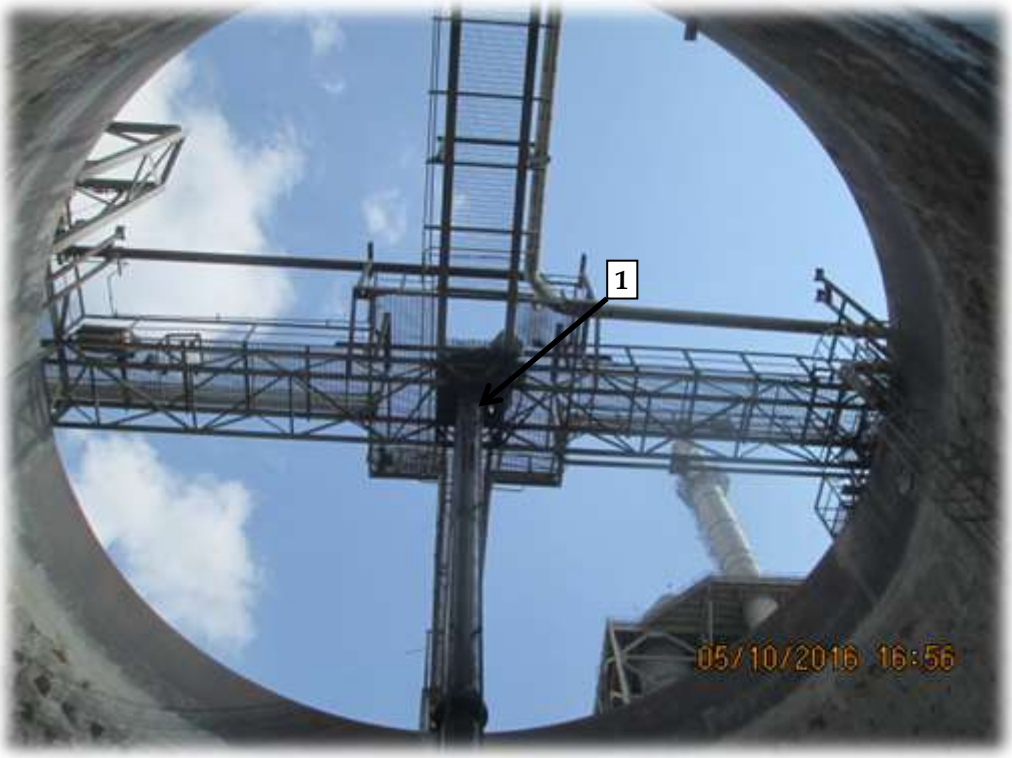
Attachment #3 (Left Side of drive unit)

1. Unprotected opening in travelway
2. Control Switch Mr. Barnes was tasked with activating

Attachment #4 (Right Side of Drive Unit)

1. Unprotected opening

Attachment #5 (Looking up about 50' to opening)



1. Unprotected opening

Attachment #6 (Sketch of tank area on 5/10/2016)