MAI-2013-14

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

Report of Investigation

Surface Nonmetal Mine
(Cement)

Fatal Fall of Person Accident

October 17, 2013

Lebec Cement Plant
National Cement Company of California, Inc.
Lebec, Kern County, California
ID No. 04-00213

Investigators

Joshua Love
Mine Safety and Health Inspector

David Reynolds
Mine Safety and Health Inspector

James Fitch
Mine Safety and Health Specialist

Ralph Chavez
Mine Safety and Health Specialist (Training)

Originating Office
Mine Safety and Health Administration
Western District
991 Nut Tree Road
Vacaville, California 95687
Wyatt Andrews, District Manager

OVERVIEW

On October 17, 2013, Fernando Rivera, Journeyman Electrician, age 52, was seriously injured when he fell from a step ladder approximately six feet onto a concrete pad below. Rivera was standing on the ladder pulling electrical cable into a cable tray located on the outside of the building. The cable tray struck the step ladder after a mounting bracket broke loose, causing Rivera to fall onto the concrete pad. Rivera was transported to a hospital where he died on October 18, 2013, as a result of his injuries. Rivera was wearing a hard hat at the time of the accident.

The accident occurred because the two self-tapping screws used to mount the cable tray on the right side were not long enough to support the cable tray when electrical cable was placed in it. Both self-tapping screws on the right side mounting bracket pulled out of the sheet metal. The bottom screw also pulled out of a steel beam. The weight of the electrical cable and the physical loading of the cable put additional stress on the cable tray mounts, causing the mounting bracket screws to separate from the sheet metal and steel beam.

Additionally, the step ladder was positioned parallel to the building and the victim was working perpendicular to the ladder, placing his body at an angle to the ladder while performing the work.

GENERAL INFORMATION

Lebec Cement Plant, a quarry and cement plant owned by National Cement Company of California, Inc., is located 8 miles southeast of Lebec, Kern County, California. The principal operating officials are James Leong, Vice-President of Operations/ Manager/Director and Laurent Meurette, Plant Manager. The mine and cement plant operate two 12-hour shifts a day, 7 days a week. Total employment is 89 persons.

Limestone is drilled and blasted from multiple benches in the quarry. The material is loaded into haul trucks with front-end loaders and transported to the nearby cement plant where it is crushed, dried, heated, and processed into cement. The finished product is stored in silos for bulk shipment to customers.

The Mine Safety and Health Administration (MSHA) completed the last regular inspection at this operation September 16, 2013.

DESCRIPTION OF ACCIDENT

On October 17, 2013, Fernando Rivera (victim) arrived at the mine at 6:58 a.m. and attended a weekly safety meeting conducted by Octavio Escobedo, Electrical Supervisor. Following the meeting, Escobedo told Rivera and Kelly Jiles, Electrician, to remove an air conditioning unit from service and store the electrical cable on the outside of motor control center 21-MCC-F/V (MCC).

Rivera and Jiles arrived at the MCC about 8:00 a.m., disconnected the electrical cable from the air conditioning unit, and started removing the air ducts. At about 8:45 a.m., they completed the task and went to the break room. At 9:20 a.m., they went back to the MCC and began placing the electrical cable into a cable tray.

Rivera was storing the electrical cable, while standing on an eight-foot fiberglass step ladder perpendicular to the cable tray. The ladder was located parallel to the building and the cable tray. Rivera was standing on the ladder six feet from ground level. Jiles was standing on the ground handing the electrical cable up to Rivera.

At approximately 9:40 a.m., Jiles heard a pop/snap and saw the cable tray falling. The cable tray struck the ladder, causing the ladder to fall away from the building. Rivera fell from the ladder onto the concrete pad below.

Emergency personnel were called and responded to the mine. The victim was transported to a hospital where he died on October 18, 2013. The cause of death was attributed to blunt force trauma to the head.

INVESTIGATION OF THE ACCIDENT

MSHA was notified of the accident at 9:52 a.m. on October 17, 2013, by a telephone call to the National Call Center from Kyle Flippo, Maintenance Supervisor. The National Call Center notified James Fitch, Mine Safety and Health Specialist, and an investigation was started the same day. An order was issued pursuant to Section 103(j) of the Mine Act to ensure the safety of miners. Upon arrival of the first Authorized Representative (AR), the order was modified to section 103(k) of the Mine Act.

MSHA's accident investigation team traveled to the mine, made a physical inspection of the accident site and equipment involved, interviewed persons, and reviewed necessary documents and work procedures relevant to the accident. MSHA conducted the investigation with the assistance of mine management, employees, miners' representative, and the California Occupational Safety and Health Administration, Mining and Tunneling Division.

DISCUSSION

Location

The accident occurred outside the west door of motor control center, 21 MCC-F/V. The step ladder had been placed on the concrete pad below the cable tray and in front of the sliding door. The work area was flat, dry, and free of any other material.

Cable Tray

The cable tray involved in the accident was installed by Electrical Systems and Instrumentation Inc. in 2012. The cable tray was installed to allow storage of the air

conditioner's electrical cable above the doorway of the MCC. The cable tray was positioned 11 feet above ground level, directly over the west door of the MCC. The steel cable tray, a Cablofil model, manufactured by Legrand was 20 feet long and weighed 105 pounds.

The cable tray was mounted to the building with two brackets. The brackets were constructed of a 19¼ inch section of Unistrut welded to a 2-inch wide by 15-inch long, 3/16-inch thick flat steel mounting plate. Three mounting holes were drilled into the mounting plate. A 15-inch steel brace was welded at a 60 degree angle between the Unistrut and mounting plate. The steel brace was screwed onto the outside of the building above the doorway of the MCC.

The left side mounting bracket was attached to the building with three, #10 x 1 inch long self-tapping screws. The right side mounting bracket was attached by two screws, one #10 x 1-inch self-taping screw on the top and one ¼" x 1½" self-tapping screw on the bottom. The top screw for the bracket was screwed into 22 gauge sheet metal and the bottom screw was screwed through the sheet metal and into a steel support beam. Both self-tapping screws for the right side mounting bracket pulled out of the sheet metal, with the bottom screw also being pulled out of a steel beam.

Ladder

The ladder involved in the accident was an 8-foot fiberglass step ladder. The ladder was inspected and no deficiencies were found.

The ladder was placed parallel to the building and cable tray. The victim was working from the ladder while facing the cable tray and wall. He was working about shoulder height to the cable tray and was handling a 1/0 AWG, four-wire electrical cable from below, simultaneously placing the electrical cable into the cable tray.

TRAINING AND EXPERIENCE

Fernando Rivera (victim) had 5 years and 24 weeks of mining experience at this mine and performed electrical work the entire time. A representative of MSHA's Educational Field Services staff conducted an in-depth review of the mine operator's training records and determined Rivera had received all required training, including task training and annual refresher training. Rivera's training was found to be in compliance with MSHA requirements.

ROOT CAUSE ANALYSIS

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

Root Cause: Management did not ensure that the cable tray was secured to the wall of the MCC building when it was installed.

Corrective Action: The cable tray has been removed from the MCC building.

Root Cause: The step ladder was positioned parallel to the building and the victim was working perpendicular to the ladder, placing his body at an angle to the ladder while performing the work.

Corrective Action: All persons were re-trained regarding ladder safety.

CONCLUSION

The accident occurred because the two self-tapping screws used to mount the cable tray on the right side were not long enough to support the cable tray when electrical cable was placed in it. Both self-tapping screws screw on the right side mounting bracket pulled out of the sheet metal. The bottom screw also pulled out of a steel beam. The weight of the electrical cable and the physical loading of the cable put additional stress on the cable tray mounts, causing the mounting bracket screws to separate from the sheet metal and steel beam.

Additionally, the step ladder was positioned parallel to the building and the victim was working perpendicular to the ladder, placing his body at an angle to the ladder while performing the work.

ENFORCEMENT ACTIONS

Issued to National Cement Company of California, Inc.

Order No.8781204 - issued on October 17, 2013, under the provisions of Section of 103(j) of the Mine Act. An Authorized Representative modified this order to Section 103(k) of the Mine Act upon arrival at the mine site:

> *An accident was reported at this operation on 10-17-2013 at approximately 10:45. This order is being issued under section 103(j) of the Federal Mine Safety and Health Act of 1977, to assure the safety of all persons at this operation. This order is also being issued to prevent the destruction of any evidence which could assist in the investigating the cause or causes of the accident. It prohibits all activity at the accident scene until MSHA has determined that it is safe to resume normal mining operations in this area. This order applies to all persons on site. This order was initially issued orally to the Safety Manager by the acting field office supervisor Danny Partridge at 10:45, and has been reduced to writing.*

Citation No. 8702549 – Issued under provisions of Section 104(a) of the Mine Act for a violation of 30 CFR 56.11001:

> *A serious accident occurred at this mine on October 17, 2013, when an electrician fell six feet from an eight-foot fiberglass step ladder onto*

a concrete pad. He was hospitalized and died on October 18, 2013, as a result of his injuries. The victim was standing on the ladder, lifting electrical cable into a cable tray. The mounting bracket for the cable tray broke loose from the wall and the cable tray struck the step ladder. The ladder was positioned parallel with the building and the victim was working perpendicular to the ladder, placing his body at an angle to the ladder while performing the work.

Citation No. 8702550 – Issued under provisions of Section 104(a) of the Mine Act for a violation of 30 CFR 56.14100(b):

An accident occurred at this mine on October 17, 2013, when an electrician fell six feet from an eight-foot fiberglass step ladder onto a concrete pad. He was hospitalized and died on October 18, 2013, as a result of his injuries. The victim was standing on the ladder, lifting electrical cable into a cable tray. The mounting bracket for the cable tray broke loose from the wall and the cable tray struck the step ladder. The cable tray was supported by two brackets that were installed using two self-tapping screws in each bracket. The top screws were driven into the 22 gauge sheet metal, but not driven into structural steel. The bottom screws had been driven into the sheet metal and had contacted the steel support beam, but the holes became enlarged, allowing the screws to pull away from the wall.

Approved by: _____ Date: 2/28/2014

Wyatt Andrews
District Manager

APPENDICES

APPENDIX A Persons Participating in the Investigation

APPENDIX B Victim Data Sheet

APPENDIX A

Persons Participating in the Investigation

National Cement Company of California, Inc

Mike Oman ……Safety Manager

Greg Milburn ……. Miners' Representative

ESI – Electrical Systems and Instrumentation Inc

Marty Esqueda ……. General Manager

Mine Safety and Health Administration

Joshua Love ……. Mine Safety and Health Inspector

David Reynolds ……. Mine Safety and Health Inspector

James Fitch …….. Mine Safety and Health Specialist

Ralph Chavez …….. Mine Safety and Health Specialist (Training)

California Occupational Safety and Health Administration

Jim Henze …….. Senior Engineer, Mining and Tunneling Division

APPENDIX B

Accident Investigation Data - Victim Information

Event Number: 6 5 9 4 9 4 6

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. Degree of Injury:
Fernando P. Rivera	M	52	01 Fatal

5. Date(MM/DD/YY) and Time(24 Hr.) Of Death:	6. Date and Time Started:
a. Date: 10/18/2013 b.Time: 19:10	a. Date: 10/17/2013 b.Time: 7:00

7. Regular Job Title:	8. Work Activity when Injured:	9. Was this work activity part of regular job?
102 Journeyman Electrician	020 Storing Cable	Yes X No

10. Experience	Years	Weeks	Days		Years	Weeks	Days		Years	Weeks	Days		Years	Weeks	Days
a. This Work Activity:	5	24	0	b. Regular Job Title:	5	24	0	c. This Mine:	5	24	0	d. Total Mining:	5	24	0

11. What Directly Inflicted Injury or Illness?	12. Nature of Injury or Illness:
010 Concrete Pad	140 Blunt Head Injuries

13. Training Deficiencies:
Hazard: | New/Newly Employed Experienced Miner: | Annual: | Task:

14. Company of Employment: (If different from production operator)
Operator
Independent Contractor ID: (If applicable)

15. On-site Emergency/Medical Treatment:
Not Applicable: | First Aid: X | CPR: | EMT: X | Medical Professional: X | None:

16. Part 50 Document Control Number: (form 7000-1)
17. Union Affiliation of Victim: 2605 United Steel Workers of America