MAI-2008- 19

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 11, 2008

Lone Star Quarry & Mill
Buzzi Unicem USA
Cape Girardeau, Cape Girardeau County, Missouri
Mine ID No. 23-00134

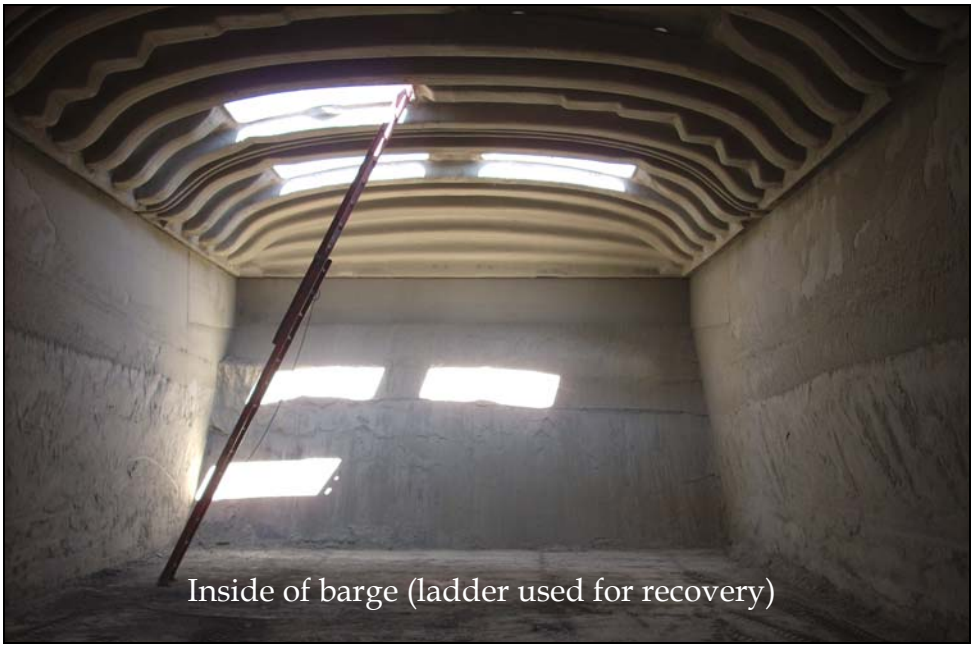
Investigators

Frederick B. Moore
Supervisory Mine Safety and Health Inspector

Laurence D. Sherrill
Mine Safety and Health Inspector

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


victim fell into
this hatch


Inside of barge (ladder used for recovery)

OVERVIEW

On October 11, 2008, Thomas F. Eftink, cement handler, age 67, was fatally injured when he fell through an open hatch on a barge while attempting to cover a dust collection hatch with a tarp. He landed on the barge floor 20 feet below.

The accident occurred because management policies and procedures did not require that persons working on barges wear fall protection while working near open hatches. A risk assessment to identify hazards and establish safe procedures had not been conducted to protect persons loading material on barges.

GENERAL INFORMATION

Lone Star Quarry & Mill, a surface cement plant and quarry owned and operated by Buzzi Unicem USA, was located at Cape Girardeau, Cape Girardeau County, Missouri. The principal operating official was William S. Leus, plant manager. The mine operated three 8-hour shifts per day, seven days per week. Total employment was 152 persons.

Limestone was drilled and blasted from multiple benches in the quarry. Broken rock was transported by trucks to the primary crusher after which crushed rock was conveyed to the plant where it was mixed with other materials to produce cement. Finished products were shipped by truck, train, and barge for use in various construction projects.

The last regular inspection at this operation was completed on April 9, 2008.

DESCRIPTION OF THE ACCIDENT

On the day of the accident, Thomas Eftink (victim) arrived at the plant at 6:00 a.m., his usual starting time. Thomas Knott, assistant shipping supervisor, directed Eftink and Patrick Ryan, cement handler, to load railcars until a barge was delivered to the river dock. The covered barge arrived about 11:00 a.m. Knott and Michael Dirnberger, cement handler, helped position it at the river dock; then prepared it for loading by opening two hatch doors in the barge cover and placing a cement fill spout at one open hatch and a dust collector tube at the other open hatch.

About 11:30 a.m., Knott and Dirnberger drove to the lunchroom to pick up Eftink and Ryan. At 11:45 a.m., Dirnberger took Eftink and Ryan to the river dock to load the barge that he and Knott had just prepared.

Eftink and Ryan loaded material into the barge from an on-shore control booth for about 10 minutes. They noticed dust coming from the open hatch where the dust collector tube had been placed. Eftink donned a life jacket, retrieved a tarp and a few sand bags, and walked down the gangway onto the barge. He intended to place a tarp over the portion of the open hatch not filled by the dust collector tube to contain the dust.

Ryan watched from the control booth as Eftink positioned one side of the tarp on the open hatch door and placed a sandbag on it. Ryan turned away to look at the fill spout as Eftink started to throw the other side of the tarp across the open hatch. He heard a strange sound and turned back to see that the tarp was pushed into the open hatch. Eftink's hardhat was laying near the back side of the open hatch. Ryan used the public address (PA) system to call for help.

Knott heard Ryan's call and directed Billy Barnett, control room operator, to call for emergency medical services (EMS). Knott then drove to the river dock.

After calling for help over the PA, Ryan donned a life jacket and went to the open hatch where Eftink had fallen. When Eftink did not respond to his calls, Ryan began opening additional hatch doors to provide ventilation into the barge.

EMS arrived at 12:35 p.m. and accessed the inside of the barge with a long ladder. Cardiopulmonary resuscitation (CPR) was administered and the victim was transported to a hospital where he was pronounced dead at 1:31 p.m. by the attending physician. The cause of death was listed as multiple blunt force injuries.

INVESTIGATION OF THE ACCIDENT

On the day of the accident, the Mine Safety and Health Administration (MSHA) was notified at 12:15 p.m. by a telephone call from James Simmons, production supervisor, to MSHA's emergency hotline. Fred Gatewood, assistant district manager, was notified and 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 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 assistance of mine management, employees, and a miners' representative.

DISCUSSION

Location of the Accident

The accident occurred at the barge loading facility located on the west bank of the Mississippi River about 0.5 miles from the plant. The river stage was 18.66 feet, which was slightly higher than average for that location on the river. The weather, which was not a factor in the accident, was clear and calm with a temperature of 72 degrees Fahrenheit.

Barge Loading Facility

The barge loading facility was situated on two piers about 0.5 miles from the plant. A walkway from the river bank provided access to the loading facility. Spiral stairs on the outside of the structure led to a gangway that would lower to the top of a barge docked at the facility.

Cement was transported by conveyor belt to the barge loading facility then loaded into barges through a 24-inch fill spout that was remotely positioned over an open hatch in the barge cover. A dust collector tube was remotely positioned over a second open hatch in the barge cover to capture excessive cement dust escaping from the barge. Both the cement fill spout and the dust collector tube were moved from hatch to hatch as loading of the barge progressed. One person operated the controls for the cement fill spout and dust collector tube while another person opened and closed the doors over the hatches in the barge cover.

The barge loading facility did not have a fall protection system for persons working on the barges. Some barges, referred to as "flat-top" barges, had places where persons could tie-off but persons did not use them at this facility while loading barges. Other barges, referred to as "grain" barges, did not have places for persons to tie-off. Management did require persons to wear a life vest while working on either type of barge.

Barge

The barge involved in the accident was a "grain" barge. It was 35 feet wide, 200 feet long, and had a fill capacity of 1,800 tons. The top of the barge was equipped with 10 removable concave fiberglass sections that formed a cover over it.

The barge cover had nine hatches on one side and eight hatches on the opposite side. Each hatch opening measured 94 inches side to side, 50 inches front to rear, and was provided with a hatch door. Each hatch door was equipped with a single latch on the 94-inch side toward the rear of the barge and two hinges on the 94-inch side toward the front of the barge.

The hatch doors were opened and closed as the cement fill spout and dust collector tube were moved from hatch to hatch during the loading process. The distance from the hatch doors to the inside bottom of the grain barge was 20 feet.

Training and Experience

Thomas Eftink, victim, had 3 years and 3 months of mining experience, including 2 years and 2 months as a cement handler at this operation. He had received all training in accordance with 30 CFR, Part 46.

Patrick Ryan had 13 years and 10 months of mining experience, including 9 years as a cement handler at this operation. He had received all training in accordance with 30 CFR, Part 46.

ROOT CAUSE ANALYSIS

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

***Root Cause*:** A risk assessment was not conducted at the barge loading facility to identify all hazards to protect persons loading material on the tops of the barges. Management did not provide a fall protection system where persons were in danger of falling.

***Corrective Action*:** Management should conduct a risk assessment to identify all possible hazards to protect persons working on the tops of the barges. A permanent fall protection system should be installed at the barge loading facility to protect persons where there is a danger of falling.

CONCLUSION

The accident occurred because management policies and procedures did not require that persons working on barges wear fall protection while working near open hatches. A risk assessment to identify hazards and establish safe procedures had not been conducted to protect persons loading material on barges.

ENFORCEMENT ACTIONS

ORDER No. 6240142 was issued on October 11, 2008, under the provisions of Section 103 (k) of the Mine Act:

A fatal accident occurred at this operation on October 11, 2008, when a miner fell into an open hatch on a barge. This order is issued to assure the safety of all persons at this operation. It prohibits all activity on the barge until MSHA has determined that it is safe to resume normal operations. The mine operator shall obtain prior approval from an authorized representative for all actions before restoring operations to the affected area.

This order was terminated on October 17, 2008, after conditions that contributed to the accident no longer existed.

CITATION No. 6240143 was issued on November 4, 2008, under the provisions of Section 104(d)(1) of the Mine Act for a violation of 30 CFR, 56.15005:

A fatal accident occurred at this operation on October 11, 2008, when a miner fell through an open hatch on a covered barge. The victim, who was not wearing a safety belt and line where there was a danger of falling, fell about 20 feet to the bottom of the barge. The mine operator engaged in aggravated conduct constituting more than ordinary negligence in that miners were routinely required to perform work around open hatches on covered barges without using fall protection. This was an unwarrantable failure to comply with a mandatory standard.

This citation was terminated on November 5, 2008, after the operator established procedures to open and close the hatches on barges. A system to provide fall protection has been implemented. All persons working on the barges have been trained regarding the new procedures.

Approved:_____ Date:_____

Edward E. Lopez
District Manager

APPENDIX A

PERSONS PARTICIPATING IN THE INVESTIGATION

Buzzi Unicem USA

Timothy L. Adkins	director of corporate safety and health

Lone Star Quarry & Mill

William S. Leus, Jr.	plant manager
Ronnie Fowler	safety and health manager
Richard Gentry	shipping superintendent

United Steel Workers of America, Local 2605

Billy Macke	union representative

Bradshaw, Steel, Cochrane & Berens, L.C.

Jeffrey L. Spray	attorney

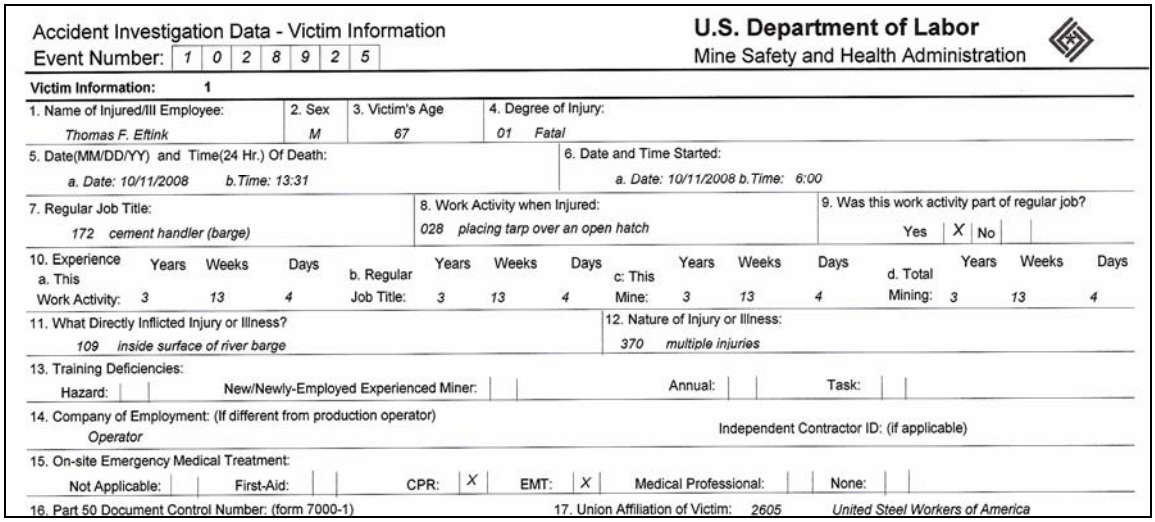
Preis & Roy, PLC

David M. Flotte	attorney

Mine Safety and Health Administration

Frederick B. Moore	supervisory mine safety and health inspector
Lawrence D. Sherrill	mine safety and health inspector

APPENDIX B



Accident Investigation Data - Victim Information
Event Number: 1 0 2 8 9 2 5

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:
Thomas F. Eftink	*M*	*67*	*01 Fatal*

5. Date(MM/DD/YY) and Time(24 Hr.) Of Death:	6. Date and Time Started:
a. Date: 10/11/2008 b.Time: 13:31	*a. Date: 10/11/2008 b.Time: 6:00*

7. Regular Job Title:	8. Work Activity when Injured:	9. Was this work activity part of regular job?
172 cement handler (barge)	*028 placing tarp over an open hatch*	Yes X No

10. Experience	Years	Weeks	Days		Years	Weeks	Days		Years	Weeks	Days		Years	Weeks	Days
a. This Work Activity:	*3*	*13*	*4*	b. Regular Job Title:	*3*	*13*	*4*	c: This Mine:	*3*	*13*	*4*	d. Total Mining:	*3*	*13*	*4*

11. What Directly Inflicted Injury or Illness?	12. Nature of Injury or Illness:
109 inside surface of river barge	*370 multiple 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: | CPR: X | EMT: X | Medical Professional: | None:

16. Part 50 Document Control Number: (form 7000-1)

17. Union Affiliation of Victim: *2605* *United Steel Workers of America*