MAI-2004-16

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

REPORT OF INVESTIGATION

Surface Nonmetal Mine
(Sand and Gravel)

Fatal Slip or Fall of Person Accident

August 21, 2004

Joe Bernert Towing Company, Inc.
Willamette River
Wilsonville, Clackamas County, Oregon
Mine ID No. 35-00807

Investigators

Rickie D. Dance
Mine Safety and Health Inspector

David J. Small
Mine Safety and Health Inspector

Richard C. Larch
Mine Safety and Health Specialist

Originating Office
Mine Safety and Health Administration
Western District
2060 Peabody Road, Suite 610
Vacaville, CA 95687
Lee D. Ratliff, District Manager

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Where victim landed when he fell

Where victim was standing

OVERVIEW

Robert L. Peterson, mine superintendent, age 63, was fatally injured on August 21, 2004, when he fell from an elevated cross beam to the concrete floor below. The victim and two co-workers were attempting to install a new conveyor belt on an elevated conveyor. He was standing on a conveyor leg cross beam, 12 feet off the ground. Peterson was pulling on a rope tied to the new belt when the rope unexpectedly came loose, causing him to fall.

The accident occurred because no safe work procedures were in place to protect persons installing a new conveyor belt on an elevated conveyor. The victim was working at an elevated location without wearing fall protection where there was a danger of falling.

A risk analysis had not been conducted by the three man crew performing the task. No discussion took place between the miners to identify all the hazards associated with installing the new belt. Steps were not implemented to ensure safety belts and lines were worn by the crew while working at elevated areas.

GENERAL INFORMATION

Willamette River, a sand and gravel operation, owned and operated by Joe Bernert Towing Company, Inc., was located in Wilsonville, Clackamas County, Oregon. The principal operating official was Thomas L. Bernert, president. The mine normally operated ten hours a day, six days a week. Total employment was five persons.

Sand and gravel was dredged from the Willamette River. The material was transported on barges to the mine site where it was unloaded, conveyed to a surge pile feeder, and wash plant. The material was washed, sized, and stockpiled. Over size rock was conveyed to a stockpile then fed into a crusher for further processing. The finished product was used at company concrete plants or sold for use in the construction industry.

The last regular inspection of this operation was completed on May 6, 2004.

DESCRIPTION OF ACCIDENT

On the day of the accident, Robert L. Peterson (victim) reported for work at approximately 6:00 a.m. At 6:30 a.m., A. Leroy Pierce, foreman, and Pilar J. Ramirez, plant operator, arrived and noticed that Peterson was standing on a ladder working on removing the tail pulley from the No. 3 conveyor belt. Ramirez went to help Peterson while Pierce worked on the crane located at the unloading dock.

At 7:30 a.m., Pierce returned to the plant and Peterson told him to get everything set up to install the new belt on the No. 6 conveyor belt. Pierce fastened wire to the leading end of the new belt, creating a V-style pulling point, to which he then fastened a rope.

Peterson, Ramirez, and Pierce worked together to install the new belt. Peterson climbed along the outside frame of the elevated conveyor and threaded the rope around the head pulley and over the return rollers to create the path the new belt would travel. He walked along the outside of the conveyor until he came to the coarse material washer (log washer). Holding the rope, Peterson walked on the 4-inch wide top edge of the washer and climbed onto the 3-inch wide cross beam support for the conveyor. The cross beam was horizontally mounted between the legs that directly supported the No.6 conveyor belt. Since the rope was not long enough to reach the ground, Peterson told the others he would stand on the conveyor support cross beam and pull until the new belt was advanced far enough for the rope to reach the ground.

During this time, Ramirez had walked along the top of the No. 6 conveyor belt to the new roll of belting. He was standing with one foot on each side of the channel iron conveyor frame ready to unroll the new belt as it started to thread around the rollers and framework. Pierce placed himself at the head pulley of the No. 6 conveyor belt and helped thread the new belt around the head pulley by turning the v-belt drive system and guiding the belt onto the first return roller.

By 8:15 a.m., they had threaded the new belt around the head pulley when the rope unexpectedly came loose, causing Peterson to lose his balance and fall backwards off the cross beam. He landed on the concrete floor 12 feet below.

Pierce and Ramirez immediately attended to Peterson and found him nonresponsive. Pierce called 911 while Ramirez administered first aid. Peterson was transported by life flight to a hospital in Portland, Oregon, where he died on August 22, 2004. Death was attributed to blunt force head trauma.

INVESTIGATION OF THE ACCIDENT

MSHA was notified of the accident at 10:20 a.m., August 21, 2004, by a telephone call from George E. Adams, general manager, to Ronald S. Goldade, assistant district manager. An investigation was started that day. An order was issued pursuant to Section 103(k) of the Mine Act to ensure the safety of miners.

MSHA's accident investigators traveled to the mine, made a physical inspection of the accident scene, interviewed employees, and reviewed conditions and work procedures relevant to the accident. MSHA conducted the investigation with the assistance of mine management and employees.

DISCUSSION

Location of Accident The accident occurred at the wash plant which was located on the level above the main office. The weather conditions were partly cloudy and about 60 degrees.

The conveyor tail pulley was estimated 20 feet above ground level, inclined to a height of 25 feet at the head pulley. The rope attached to the end of the new belt being installed was 3/4 inches in diameter and was constructed of a nylon and cotton blend. Reportedly, the rope was triple knotted to the wire on the end of the new belt.

The No. 6 conveyor belt, where the accident occurred, was 40 feet long and 30 inches wide. No work platforms or walkways were provided adjacent to the No. 6 conveyor belt. Portable man lifts or scaffolds were not available at the mine. Safety belts and lines were hanging on a wall in the control room located with in 50 feet from the accident scene. A 25 foot extension ladder was leaning against an adjacent conveyor about five feet from where the victim fell.

Training and experience Robert Peterson had 45 years mining experience and had received training in accordance with 30 CFR, Part 46.

ROOT CAUSE ANALYSIS

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

Causal Factor: A risk assessment was not conducted with the crew prior to starting replacement of the conveyor belt. No steps were taken to identify possible hazards. Controls were not in place to protect persons installing a new conveyor belt on an elevated conveyor.

Corrective Action: Conduct a risk assessment and establish safe procedures prior to performing any maintenance work. Miners should analyze all tasks to identify possible hazards. Thoroughly train employees in safe job procedures and hazard recognition before any work begins.

Causal Factor: Policies and controls were inadequate and failed to implement work procedures to ensure persons wear fall protection when working at elevated positions. The three man crew had not taken safety belts and lines to the location where they were working.

Corrective Action: Management should require that employees wear fall protection when working at elevated positions where there is a danger of falling. Management should monitor safety controls for effectiveness.

Causal Factor: The rope was not properly attached to the device installed on the end of the new conveyor belt. As the belt was being pulled by the victim, the connection failed.

Corrective Action: To prevent the rope from loosening, clamps should be used to permanently attach the rope to the wire on the conveyor belt.

CONCLUSION

The accident occurred because safe procedures were not established to protect persons installing a new conveyor belt on an elevated conveyor. The victim positioned himself at an elevated location without wearing a safety belt secured to a line to protect himself from the hazard of falling.

ENFORCEMENT ACTIONS

Order No. 6350961 was issued on August 21, 2004, under the provisions of Section 103(k) of the Mine Act:

A fatal accident occurred at this operation on August 21, 2004, when three miners were attempting to install a new conveyor belt on an elevated conveyor. This order is issued to assure the safety of all persons at this operation. It prohibits all activity around Conveyor #6 both on the conveyor and below it on ground level until MSHA determines that it is safe to resume normal operations as determined by an Authorized

Representative of the Secretary of Labor. The mine operator shall obtain approval from an authorized representative for all actions to recover and or restore operations in the affected area.

The order was terminated on August 23, 2004. The conditions that contributed to the accident have been corrected and normal operations can resume.

Citation No. 6350962 was issued on September 08, 2004, under the provisions of Section 104(d) (1) of the Mine Act for violation of 30 CFR 56.15005:

A fatal accident occurred at this mine on August 21, 2004 when a superintendent fell twelve feet from an elevated cross beam of the No.6 conveyor. The victim and two co-workers were attempting to install a new conveyor belt on the elevated conveyor. The victim was pulling on a ¾ inch diameter rope tied to the new belt when the rope came loose. The victim was not wearing fall protection and fell from the elevated area backwards to the concrete floor below. Failure to ensure fall protection was used by employees constitutes more than ordinary negligence and is unwarrantable failure to comply with a mandatory safety standard.

This citation was terminated on September 08, 2004. Management implemented a written safe work procedure that included the use of fall protection and the proper equipment and tools, including man-lifts, scaffolding, etc. All employees have been instructed on the use of fall protection while working in elevated positions where there is a danger of falling.

Approved by:

_____ Date: _____

Lee D. Ratliff
District Manager

APPENDIX A

Persons Participating in the Investigation

Joe Bernert Towing Company., Inc.

Thomas L. Bernert	president
George E. Adams	general manager

Mine Safety & Health Administration

Rickie D. Dance	mine safety and health inspector
David J. Small	mine safety and health inspector
Richard C. Larch	mine safety and health specialist

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