MAI-2004-11

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 Sliding Material Accident

June 19, 2004

Northwest Aggregates
Santosh Pit
Scappoose, Columbia County, Oregon
Mine ID No. 35-00525

Investigators

Rick D. Dance
Mine Safety and Health Inspector

David J. Small
Mine Safety and Health Inspector

Robert Montoya
Mine Safety and Health Specialist

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

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06/20/2004

OVERVIEW

Wendell S. Alden, line maintenance man, age 33, was fatally injured on June 19, 2004, when he was engulfed by sliding material. Alden was attempting to free material which had plugged in a 30-ton transfer hopper. The victim entered the hopper from the top and was standing on the material when it broke free.

The accident was caused by the failure to establish procedures that ensured safe entry into the transfer hopper. Personnel were not using safety belts attached to securely fastened lifelines when entering the hopper.

GENERAL INFORMATION

Santosh Pit, a sand and gravel operation, owned and operated by Glacier Northwest, was located in Scappoose, Columbia County, Oregon. Principal operating officials were Dean McDonald, aggregate manager, and Mark A. Tougas, plant manager. The mine operated two shifts a day, six days a week. Total employment was 27 employees.

Sand and gravel was extracted from a water-filled pond by dragline, blended by front-end loaders with dry pit run material mined above the water table, and transported by conveyor belt to the plant. The material was crushed, screened, stockpiled, and loaded onto barges or trucks for transport. The finished products were sold for use in the construction industry.

The last regular inspection of this operation was completed on May 27, 2004.

DESCRIPTION OF ACCIDENT

On the day of the accident, Wendell S. Alden (victim), reported for work at 6:40 a.m. Alden started the plant and monitored it for continued operation. His normal duties also included maintenance, service, and clean up.

At 9:00 a.m. and at 10:45 a.m., the discharge on a transfer hopper located between two field conveyors became plugged, stopping production. In order to free the material on these occasions, Rodney Thomas, foreman, used a high-pressure water hose from the top of the hopper, while Alden used a 4-foot bar to pound on the side of the hopper.

At 1:10 p.m., the transfer hopper plugged because large rocks covered the hopper discharge. Chris Baker, pit utility man, Thomas, and Alden worked approximately 35 minutes to unplug the blockage. Baker started and stopped the conveyor belt. Thomas used a high-pressure water hose from the top of the hopper. Alden pried the rocks at the discharge point and pounded on the transfer hopper. After unplugging the discharge point, the pit run material, including rocks, sand, and dirt, plugged the top of the hopper. This bridge of material prevented material from falling to the bottom of the hopper and discharging on the conveyor belt.

Attempting to dislodge the bridged material, Thomas continued to spray water from the top of the hopper, while Alden pounded on the outside of the hopper, creating a basketball sized hole. Alden then climbed the stairs to the top work platform, climbed through the outside handrail, and stepped into the hopper. Alden remained there for a short time trying to dislodge the bridge. He climbed out of the hopper and went back to ground level. Apparently Alden went back inside the hopper because at approximately 2:05 p.m., Thomas saw the victim in the hopper as the bridge of material slid in and engulfed him. Thomas pointed the hose away from the hopper as the material covered Alden.

Thomas used a radio to call for help and emergency personnel were summoned. Employees responded to the accident scene, removed the victim, and began cardiopulmonary resuscitation (CPR). Paramedics arrived but found the victim non-responsive. The victim was pronounced dead at the scene by the Columbia County medical examiner. Death was attributed to traumatic asphyxiation.

INVESTIGATION OF ACCIDENT

On June 19, 2004, at 4:00 p.m., Mark Rock, safety manager, Washington Division for Northwest Aggregates, notified Ronald Goldade, assistant district manager, of the accident. An investigation began 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, conducted a physical inspection of the accident scene, interviewed persons, and reviewed conditions and work practices relevant to the accident. MSHA conducted the investigation with the assistance of mine management and employees.

DISCUSSION

Location

The accident occurred at the transfer hopper between field conveyor belts number 10 and number 11 on the feed conveyor pit line.

Hopper

The transfer hopper, installed in early 2004, measured 14 feet, 4 inches from the ground with a 10-foot-square top. The hopper dropped 4 feet, tapering to the bottom discharge point over a 42-inch-wide conveyor. The four-legged, 30-ton hopper was free standing and was fed by another 42-inch-wide conveyor in the pit line that dumped material into the top.

Conveyor Belt Line Controls

The conveyor belt line was computer controlled from a control tower located above the jaw crusher. While the victim and another employee attempted to unplug the hopper, a third employee, stationed in this control tower, started and stopped the belts as needed. The employees used company radios to communicate.

Experience and Training

The victim had 3 years and 3 months of mining experience. He had received training in accordance with 30 CFR, Part 46; however, he had not received Part 46 new task training.

ROOT CAUSE ANALYSIS

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

Causal Factor: Procedures had not been established to ensure employees were protected from sliding material hazards when they entered the transfer hopper. Miners entered the hopper routinely to clear blockages of material without wearing fall protection.

Corrective Action: Management should develop a written procedure that requires miners to use safety harnesses and lanyards securely anchored when working in the transfer hopper. The procedures should ensure that miners are protected from hazards when working in hoppers or bins where there is a danger of becoming engulfed in sliding material.

Causal Factor: The electrical circuit supplying power to the field conveyors was not de-energized, locked out, and tagged out prior to entering the transfer hopper.

Corrective Action: Management should implement procedures that ensure supply and discharge controls are shut off and locked out prior to persons entering hoppers or bins.

Causal Factor: A risk assessment was not conducted with the crew before work began to unplug the transfer hopper.

Corrective Action: Miners should discuss a task before beginning work and initiate actions to ensure they are protected from possible injury. Management should monitor safety controls for effectiveness.

CONCLUSION

The accident occurred because safe work procedures had not been established for unplugging material from the hopper. The victim entered the hopper from the top and was not wearing a safety harness and lanyard securely anchored to ensure he was protected from the hazards of sliding material. The victim had not received training in the health and safety aspects and safe work procedures to clear blockages in hoppers.

ENFORCEMENT ACTIONS

Order No. 6350945 was issued on June 19, 2004, under the provisions of Section 103(k) of the Mine Act:

A fatal accident occurred at this operation on June 19, 2004, when a miner was attempting to clear a plugged hopper. This order is issued to assure the safety of persons at this operation and prohibits all activity at the conveyor line between the transfer hopper of field conveyor number 10 and field conveyor number 11 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 prior approval from an authorized representative for all actions to recover and or restore operations to the affected area.

The order was terminated on June 23, 2004. The conditions that contributed to or were caused by the accident have been corrected and normal operations can resume.

Citation No. 6350946 was issued on June 20, 2004, under the provisions of Section 104(d) (1) of the Mine Act for violation of 30 CFR 56.16002(c):

A fatal accident occurred at this mine on June 19, 2004, when a maintenance man was engulfed by sliding material. The miner was attempting to unplug material that had been discharged into a transfer hopper. The victim climbed into the hopper and stood on the material without using a safety belt or harness attached to a lifeline suitably fastened. It was an established practice for miners to enter this hopper to clear blockages of material. Failure to ensure that ladders, platforms, or staging were provided and to require the use of safety belts attached to suitably fastened lifelines constitutes more than ordinary negligence and is an unwarrantable failure to comply with a mandatory safety standard.

This citation was terminated on June 23, 2004. A written confined space entry policy has been implemented and training has been given to all miners at this mine.

Order No. 6350947 was issued on June 20, 2004, under the provisions of Section 104(d) (1) of the Mine Act for a violation of 30 CFR 46.7(a):

A fatal accident occurred at this mine on June 19, 2004, when a maintenance man was engulfed by sliding material. The miner was attempting to unplug material that had been discharged into a transfer hopper. The victim had received no specific task training on how to safely unplug the hopper nor could any training records be located on confined space entry training for this task. The company had no specific task training on safely unplugging any hoppers or confined spaces on this site. Failure to ensure that task training was given to miners doing this task constitutes more than ordinary negligence and is an unwarrantable failure to comply with a mandatory safety standard.

This order was terminated on June 22, 2004. All miners were task trained on safe entry procedures and the safety and health hazards associated with entering hoppers or bins.

Approved by:

_____ Date: _____

Lee D. Ratliff
District Manager

APPENDIX A

Persons Participating in the Investigation

Northwest Aggregates

Edward J. Owens .....vice president
Mike W. Durbin.....safety manager, Oregon division
Mark W. Rock.....safety manager, Washington division
Mark A. Tougas .....plant manager

Mine Safety and Health Administration

Rick D. Dance.....mine safety and health inspector
David J. Small.....mine safety and health inspector
Robert Montoya.....mine safety and health specialist