MAI–2005-16

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

REPORT OF INVESTIGATION

Surface Nonmetal Mine
(Crushed Basalt)

Fatal Machinery Accident
June 27, 2005

Morse Brothers, Inc.
Angell Quarry
Portland, Multnomah County, Oregon
Mine I.D. No. 35-03465

Investigators

Rick D. Dance
Mine Safety and Health Inspector

David J. Small
Mine Safety and Health Inspector

Eugene D. Hennen
Mechanical Engineer

Originating Office
Mine Safety and Health Administration
Western District
2060 Peabody Road, Suite 610
Vacaville, California 95687
Ronald S. Goldade, Acting District Manager

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OVERVIEW

William C. Jobin, dozer operator, age 70, was fatally injured on June 27, 2005, when the dozer he was operating backed over the edge of a quarry bench and fell 45 feet to the floor below, landing on its tracks. The victim was cleaning the bench in preparation for drilling.

The accident occurred because the victim had to maneuver a large dozer on a narrow, elevated bench, and was unable to maintain control.

GENERAL INFORMATION

Angell Quarry, a crushed basalt operation, owned and operated by Morse Brothers, Inc., was located in Portland, Multnomah County, Oregon. The principal operating official was Brian Gray, manager. The mine operated one shift per day, five days per week. Total employment was 10 persons.

Basalt was drilled and blasted from multiple benches in the quarry and hauled by front-end loaders to a crusher. Crushed material was screened and stockpiled. The finished products were used for Morse Brothers, Inc., projects or sold for commercial use.

The last regular inspection of this operation was completed on June 22, 2005.

DESCRIPTION OF ACCIDENT

On the day of the accident, William C. Jobin (victim) arrived for work at approximately 5:40 a.m., his normal starting time. Jobin checked and started the dozer he would operate. At 6:00 a.m., he went to the shop for a tool box safety and planning meeting conducted by Charles P. Robbins, superintendent. After the meeting, Jobin maneuvered the dozer up the access ramp to the first bench.

About 6:30 a.m., Donald Lucas, front-end loader operator, entered the quarry and got a bucket of rock to feed the crushing plant. He noticed the dozer traveling backwards on the quarry floor just below the first highwall bench. Lucas did not notice anything wrong with the dozer. He went to the crusher and dumped rock into the feeder. When Lucas returned to the area to get more rock, he saw that the dozer was trying to travel backwards up a slope of loose rock. Lucas attempted to contact Jobin by radio but got no response. When Lucas got closer to the dozer, he noticed broken glass and other debris on the quarry floor so he radioed for emergency medical assistance.

Lucas went to the dozer and found Jobin, non-responsive in the cab. Three other crew members arrived, shut down the dozer, unbuckled the victim's seat belt, removed him from the dozer cab, and administered first aid. Emergency medical personnel arrived and the victim was pronounced dead at the scene by the county medical examiner. Death was attributed to blunt force trauma.

INVESTIGATION OF THE ACCIDENT

MSHA was notified of the accident at 7:55 a.m., on June 27, 2005, by a telephone call from Lynn Gullickson, safety manager, to Randy Cardwell, supervisory mine inspector. An investigation was started the same day. An order was issued under the provisions of Section 103(k) of the Mine Act to ensure the safety of the miners.

MSHA's accident investigation team traveled to the mine, conducted a physical inspection of the accident site and equipment involved, interviewed persons, and reviewed documents and work procedures relevant to the accident. MSHA conducted the investigation with the assistance of mine management and employees.

DISCUSSION

Location of the Accident

The bench that the victim was cleaning was located 45 feet above the quarry floor. From the north end of the quarry, the bench was 40 feet wide for a distance of 125 feet. The bench turned right turn, to the west, narrowing to 25 feet for a distance of 60 feet where it tapered to the edge.

The dozer entered the bench, moved forward, turned around on the wide section of the bench, and traveled around the corner in reverse. The dozer was parallel to the edge of the bench on the left side and the highwall on the right side.

Near the end of the bench, where it tapered to the edge, the right front corner of the dozer made minimal contact with the highwall in two spots. Two slight directional changes, made by the operator, put the dozer at an angle to the edge rather than parallel to it. Since the dozer was traveling in reverse and at an angle, most of the ripper was sticking over the edge of the bench. The dozer traveled a few more feet before it went over the edge.

The weather was cloudy with intermittent rain and a temperature of approximately 55 degrees Fahrenheit. The visibility was checked at the same time as the accident, revealing that natural light provided sufficient visibility.

Equipment

The 1998 Caterpillar Model D8R track dozer was equipped with a U-blade on the front and a single-shank ripper on the rear. It was powered by a six cylinder Caterpillar Model 3406 diesel engine rated at 305 horsepower. The dozer had a fully enclosed falling object protection systems (FOPS) cab with an external roll-over protection system (ROPS), and weighed approximately 84,000 pounds. The track width of the dozer was 8 feet, 8 inches, with an overall length of 22 feet, 8 inches.

Examination and testing of the transmission power train, steering, and braking systems showed there were no defects involving these systems. The seat belt showed no sign of visible damage and latched and unlatched when tested. The cab's FOPS was dented indicating the dozer had rolled over at least once and the ROPS had several scratches but no visible structural damage.

Training

William C. Jobin had received training in accordance with 30 CFR, Part 46. He had 41 years of mining experience as a driller and equipment operator and had operated the dozer involved in the accident for two years.

ROOT CAUSE ANALYSIS

A root cause analysis was performed and the following causal factor was identified:

Root Cause: The procedures used to clean off the bench in preparation for drilling were inadequate. The victim had to maneuver a large dozer on a narrow bench.

Corrective Action: Management should plan site excavations to eliminate areas with tight clearance. Equipment should be used that is compatible with the size of the work area.

CONCLUSION

The accident occurred because the victim had to maneuver a large dozer on a narrow, elevated bench, and was unable to maintain control.

ENFORCEMENT ACTIONS

Order No. 6378637 was issued on June 27, 2005, under the provisions of Section 103(k) of the Mine Act:

A fatal accident occurred at this operation on June 27, 2005, when a dozer operator was cleaning the 1st bench off and over-traveled and fell to the pit floor. This order is issued to ensure the safety of all persons at this operation. It prohibits all activity on the pit floor from the toe of the slope and bench to 50 yards out, the top of the first bench, and the Caterpillar D8R dozer 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.

This order was terminated on June 29, 2005. The conditions that contributed to the accident no longer exist and normal operations can resume.

Citation No. 6371066 was issued on July 26, 2005, under the provisions of Section 104(a) of the Mine Act for violation of 30 CFR 56.9101:

A fatal accident occurred at this mine on June 27, 2005, when a track dozer over-traveled a 45 foot high bench and fell to the quarry floor below. The miner operating the Caterpillar track dozer did not maintain control of the equipment while in motion. The operator was backing up on a narrow section of the bench which resulted in the over-travel of the bench.

This citation was terminated on July 26, 2005. All employees received training regarding procedures to safely operate dozers on highwalls.

Approved By:

_____ _____

Ronald S. Goldade Date
Acting District Manager

APPENDIX
Persons Participating in the Investigation

Morse Brothers Inc.

Dave Bull	president
Steve Mote	manager
Brian R. Gray	manager
Lynn L. Gullickson	safety manager
Dennis W. Druery	superintendent
Manuel L. Milby	safety director

Mine Safety & Health Administration

Rickie D. Dance	mine safety and health inspector
David J. Small	mine safety and health inspector
Eugene D. Hennen	mechanical engineer