MAI-2002- 41

UNITED STATES
DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION

REPORT OF INVESTIGATION

Surface Nonmetal Mine
(Phosphate)

Fatal Machinery Accident

Date of Accident
November 1, 2002

Date of Death
June 17, 2003

Pierce
IMC – Agrico
Mulberry, Polk County, Florida
Mine I.D. No. 08-00388

Investigators

Clyde R. McMillian
Supervisory Mine Safety and Health Inspector

Jose J. Figueroa
Mine Safety and Health Inspector

Originating Office
Mine Safety and Health Administration
Southeast District
135 Gemini Circle, Suite 212; Birmingham, AL 35209
Michael A. Davis, District Manager

MAI-2002- 41

UNITED STATES
DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION

REPORT OF INVESTIGATION

Surface Nonmetal Mine
(Phosphate)

Fatal Machinery Accident

Date of Accident
November 1, 2002

Date of Death
June 17, 2003

Pierce
IMC – Agrico
Mulberry, Polk County, Florida
Mine I.D. No. 08-00388

Investigators

Clyde R. McMillian
Supervisory Mine Safety and Health Inspector

Jose J. Figueroa
Mine Safety and Health Inspector

Originating Office
Mine Safety and Health Administration
Southeast District
135 Gemini Circle, Suite 212; Birmingham, AL 35209
Michael A. Davis, District Manager

OVERVIEW

Calvin Taylor, machinist, age 54, was seriously injured on November 1, 2002. He was using a horizontal band saw to cut a groove in a wooden hammer handle so he could insert a wedge to hold the hammer's head. Taylor was holding the handle vertically, with his right hand positioned under the saw blade. While cutting the groove, the saw blade grabbed the handle, forced Taylor's hand into contact with the blade, and severed three fingers on his right hand. On June 17, 2003, Taylor died of complications resulting from traumatic amputation.

The accident occurred because the wooden hammer handle was not secured in place before the band saw was started to cut a groove in the handle. The use of a blade designed to cut thick metals also contributed to the accident.

The Pierce operation, a central maintenance facility, owned and operated by IMC-Agrico (IMC), was located south of old State Road 37, about 3 miles south of Mulberry, Polk County, Florida. The principal operating official was Thomas W. Fuchs, general manager. The maintenance facility normally operated two, eight-hour shifts a day, five days a week. Total employment was 50 persons.

The central shops provided required maintenance and repair to machinery and equipment used to perform mining at open pit phosphate mines located nearby. The mining equipment and machinery was transported to the shops by over-the-road tractor trailers.

The last regular inspection at the central shops facility, prior to the date of the accident, was completed on June 4, 2002.

DESCRIPTION OF ACCIDENT

On the day of the accident, Calvin Taylor (victim) reported to work at 2:30 p.m., his normal starting time. At about 5:00 p.m., he began repairing a co-worker's hammer. Taylor took the handle out of the hammer head and cut off the worn area of the wooden handle with the horizontal band saw, using a blade designed for cutting thick metal. Taylor was intending to saw a groove in the handle to insert a wedge. As he was holding the hammer handle vertically, with his right hand under the blade, the blade grabbed the handle, forcing Taylor's right hand to hit part of the rotating saw blade. His middle, ring, and little finger were severed.

Taylor covered his wounded hand with a piece of cloth and went to Neil Miller, machinist, to ask him to call 911. When emergency medical personnel arrived, Taylor was transported to a regional hospital where he underwent surgery.

The next day Taylor was airlifted to a different hospital where he underwent additional surgery to reattach the severed fingers. The surgery was successful and Taylor remained hospitalized until November 9, 2003. Taylor's injury was complicated by an infection which required intravenous antibiotics. Taylor continued on prescription medication throughout his recovery period.

Taylor's injuries had healed enough and on November 21, 2002, he started physical therapy. He continued under medical treatment with follow-up visits each month.

Taylor was released to return to work on restricted duty in mid-April 2003. However, mine management could not provide other than full-duty work so Taylor remained on workers' compensation.

After experiencing flu-like symptoms, Taylor went to a local hospital for treatment on June 11, 2003. Taylor was admitted to the hospital that same day and was diagnosed with severe pancytopenic (deficiency of all cell elements of the blood).

During the next few days, Taylor became very unstable and his condition deteriorated. Eventually, he was transferred to the intensive care unit where he died on June 17, 2003, as a result of multiple organ failure caused by an infection.

INVESTIGATION OF THE ACCIDENT

On October 17, 2003, MSHA was notified by the company of Taylor's death. The mine operator learned that the cause of death was attributed to the amputation injuries that Taylor suffered on November 1, 2002. After reviewing documentation submitted by the company, MSHA began an investigation on October 21, 2003.

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 the Accident

The accident occurred in the machine shop that was part of central shops facility.

Band Saw
The band saw involved in the accident was a Wellsaw, model #1270, manufactured by Wells Manufacturing Corporation. The hydraulic pump motor used for positioning was ½ HP, 110-volts, 50 Hz, and single phase. The blade motor was 1½ HP, 460 volts, 60 Hz, and 3-phase.

The saw blade was a Lenox Super/Plus blade, 13 feet, 6 inches long; 1 inch wide; 6 teeth per inch; 0.035 inches thick; with bi-metal construction (M-42 cobalt high-speed steel cutting edges). It was designed for cutting thick metal.

Training and Experience
Taylor had received training in accordance with 30 CFR, Part 48. He had approximately 28 years experience as a machinist.

ROOT CAUSE ANALYSIS

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

Causal Factor: The handle was not properly secured in place before the band saw was started.

Corrective Action: Machine hazards should be identified and discussed with employees prior to persons being assigned to work with the machinery. Employees should be properly trained in the operation of the machinery and made aware of the safety precautions necessary to utilize the machinery safely.

Causal Factor: The band saw blade being used was designed to cut thick metal. The victim was using the saw to cut a wooden hammer handle.

Corrective Action: Procedures should be established that assess the job being performed and the associated hazards. The wooden handle should have been secured in a bench vice and sawed utilizing the proper tool.

CONCLUSION

The accident occurred because the wooden hammer handle was not secured in place before the band saw was started to cut a groove in the handle. The use of a blade designed to cut thick metals also contributed to the accident.

Approved by: _____ Date: _____
Michael A. Davis
District Manager

APPENDICES

A. Persons Participating in the Investigation
B. Persons Interviewed

APPENDIX A

Persons Participating in the Investigation

IMC-Agrico

James E. Hurtte	safety manager
Larry Rials	senior safety specialist
Michael Miller	central shops superintendent
Louise M. Dandridge	health services manager
Neil Miller	machinist

Mine Safety and Health Administration

Clyde R. McMillian	supervisory mine safety and health inspector
Jose J. Figueroa	mine safety and health inspector

APPENDIX B

Persons Interviewed

IMC-Agrico

Louise M. Dandridge	health services manager
Neil Miller	machinist