DATE: January 28, 1998

FROM: Minnesota Fatality Assessment and Control Evaluation (MN FACE) Program Minnesota Department of Health

SUBJECT: MN FACE Investigation 97MN047
Worker Dies After Being Run Over By A Caterpillar

SUMMARY

A 46-year-old worker (victim) died of injuries he sustained after being run over by a caterpillar at a construction site. On the day of the incident, workers were preparing the base for new asphalt roadways in a residential housing development. The victim's job was to work near the caterpillar and advise the operator if the material being added was level or not in preparation for laying the curbing. The operator of the caterpillar was aware that the victim was working behind the caterpillar, but he didn't realize how close to the caterpillar he was. The operator of the caterpillar had been driving forward when he looked back and noticed that the victim had been run over. Another coworker placed a 911 call and emergency personnel arrived shortly after being called and pronounced the victim dead at the scene.

MN FACE investigators concluded that, in order to reduce the likelihood of similar occurrences, the following guidelines should be followed:

- mobile equipment should be equipped with an audible back-up alarm as well as sensing units to detect pedestrian workers in the blind spots of the equipment operator;

- employers should ensure that equipment is always maintained in the proper working condition; and

- employers should design, develop, and implement a comprehensive safety program.

INTRODUCTION

On November 24, 1997, MN FACE investigators were notified of a work-related fatal incident that occurred on November 21, 1997. The victim was a construction worker for an asphalt corporation. An interview with the employer was not conducted. During MN FACE investigations, incident information is obtained from a variety of sources such as law enforcement agencies, county coroners and medical examiners, employers, coworkers and family members.

INVESTIGATION

On the day of the incident workers were preparing the base for new asphalt roadways in a residential housing development. The crew foreman had been operating a track-backhoe to dig out frozen areas of the base. A caterpillar pushed the excavated material onto the roadway. The caterpillar was purchased new in the spring of 1997. The caterpillar was equipped with an open sided rollover protective canopy that enabled the operator to have a nearly unobstructed view of the work area. The operator's view of the work area was restricted only in the areas directly beyond the canopy's corner support columns. It was also equipped with a back-up alarm that was not working at the time of the incident. Based upon the manufacturer's brochure the caterpillar had three reverse gears that ranged in speed from 2.5 mph to 7.5 mph.

The victim's job was to work near the caterpillar and advise the operator if the material being added was level or not in preparation for laying curbing. Although it is not known exactly what speed the caterpillar was travelling in reverse, based upon the manufacturer's brochure, it is likely that the operator was using the second gear which has a maximum speed of 4.4 mph. The operator of the caterpillar was aware that the victim was working behind the caterpillar with a level and a string, but he didn't realize how close to the caterpillar he was. The operator of the caterpillar had been driving forward when he looked back and noticed that the victim had been run over. The construction foreman noticed the victim lying on the ground and the caterpillar operator kneeling next to him. The foreman yelled to another worker to call 911. Emergency rescue personnel arrived shortly after being called and pronounced the victim dead at the scene.

Approximately one week prior to the incident the caterpillar operator had notified the crew foreman in writing that the caterpillar's back-up alarm system only worked periodically. During

an investigation immediately after the incident the foreman backed-up the caterpillar to determine if the alarms sounded. The foreman backed-up the caterpillar several times and the back-up alarm did not sound.

CAUSE OF DEATH

The death certificate was not available when this report was completed.

RECOMMENDATIONS/DISCUSSION

Recommendation #1: Mobile equipment should be equipped with an audible back-up alarm as well as sensing units to detect pedestrian workers in the blind spots of the equipment operator.

Discussion: The caterpillar involved in this incident was equipped with a non-functioning back-up alarm that was intended to warn pedestrian workers when it was moving in reverse. While this type of warning device can prevent injury by notifying workers to move out of the way, it is unable to alert equipment operators of the presence of pedestrian workers. In addition, pedestrian workers may become desensitized to audible back-up alarms because they sound whenever the equipment is moving in reverse. Equipping mobile equipment and vehicles with sensing units such as radar activated back-up alarms to detect the presence of pedestrian workers in the blind spots of equipment and warn both the operator and the pedestrian would provide an additional margin of safety.

Recommendation #2: Employers should ensure that equipment is always maintained in the proper working condition.

Discussion: Employers should ensure that equipment is regularly inspected and maintained. Upon inspection, if equipment is found to need repair, the equipment should be taken out of use until it is repaired. In this incident, the audible back-up alarms were not working and the caterpillar operator had notified his foreman of this earlier in the week. If the caterpillar had been regularly inspected and maintained, this fatality may have been prevented.

Recommendation #3: Employers should design, develop, and implement a comprehensive safety program.

Discussion: Employers should ensure that all employees are trained to recognize and avoid hazardous work conditions. A comprehensive safety program should address all aspects of safety related to specific tasks that employees are required to perform. OSHA Standard 1926.21(b)(2) requires employers to "instruct each employee in the recognition and avoidance of unsafe conditions and the regulations applicable to his work environment to control or eliminate any hazards or other exposure to illness or injury." Safety rules, regulations, and procedures should include the recognition and elimination of hazards associated with tasks performed by employees.

REFERENCES

1. Office of the Federal Register: Code of Federal Regulations, Labor, 29 CFR part 1926.21 (b)(2) U.S. Department of Labor, Occupational Safety and Health Administration, Washington, D.C., July 1, 1994.

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