

DATE: April 24, 1998

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

SUBJECT: MN FACE Investigation 97MN04501
Farmer Dies After Becoming Entangled In A Power-Take-Off Shaft

SUMMARY

A 48-year-old male farmer (victim) died after he became entangled in a power-take-off shaft. The victim, his father and another worker were operating a small privately owned sawmill that was used to produce rough cut lumber. At the time of the incident the saw was powered by the power-take-off shaft of a 65-70 horsepower farm tractor. The horizontal power-take-off shaft was approximately 30 inches above the ground and was completely unguarded. The workers had placed an uncut log on the sawmill carriage to begin the process of squaring the log prior to cutting it into individual boards. After the tractor's power-take-off shaft was engaged, the victim stepped across the rotating shaft. His clothing became entangled in the rotating shaft and caused him to sustain multiple trauma as he was thrown against the ground by the rotating shaft. The coworkers disengaged the tractor's power-take-off and immediately placed a call to emergency personnel. They arrived shortly after being notified and pronounced the victim dead at the scene prior to freeing him from the power-take-off shaft. MN FACE investigators concluded that, in order to reduce the likelihood of similar occurrences, the following guidelines should be followed:

- all rotating shafts should be covered by shields to prevent workers from becoming entangled.

INTRODUCTION

On November 7, 1997, MN FACE investigators were notified of a farm work-related fatality that occurred on November 5, 1997. The county sheriff's department was contacted and a releasable copy of their report of the incident was obtained. A site investigation was not conducted by a MN FACE investigator. 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, the victim, his father and another worker operated a small privately owned sawmill located on a farm that was owned by the victim's father. The sawmill was used to produce rough cut lumber for personnel use for farm buildings, fences, gates and other projects that did not require commercial grade lumber. It used a circular blade that was 36-40 inches in diameter but was not designed to produce large quantities of commercial grade lumber for sale. The sawmill was originally belt driven but had been modified to enable it to be powered by a power-take-off shaft. At the time of the incident the saw was powered by the power-take-off shaft of a 65-70 horsepower farm tractor. The horizontal power-take-off shaft was approximately 5 feet long, was approximately 30 inches above the ground and was completely unguarded. Although the tractor was equipped with a standard 8-10 inch long master shield for connecting a portable power-take-off shield to the tractor, the sawmill had not been modified to enable a shield to be connected to the sawmill frame.

The workers had placed an uncut log on the sawmill carriage to begin the process of squaring the log prior to cutting it into individual boards. The speed of the power-take-off shaft at the time of the incident was estimated to be between 350-500 revolutions per minute. After the tractor's power-take-off shaft was engaged, the victim stepped across the rotating shaft. His clothing became entangled in the rotating shaft and caused him to sustain multiple trauma as he was thrown against the ground by the rotating shaft. The coworkers disengaged the tractor's power-take-off and immediately placed a call to emergency personnel. They arrived shortly after being notified and pronounced the victim dead at the scene prior to freeing him from the power-take-off shaft.

CAUSE OF DEATH

The cause of death listed on the death certificate was multiple trauma.

RECOMMENDATIONS/DISCUSSION

Recommendation #1: All rotating shafts should be covered by shields to prevent workers from becoming entangled.

Discussion: Exposed rotating shafts are hazardous situations that can cause serious injury or

death to workers. All rotating shafts that workers are exposed to should be covered by properly designed guards and shields. In this incident, a sawmill was being driven by the power-take-off shaft of a farm tractor. Although the tractor was equipped with a standard master shield, the sawmill had not been modified to enable a shield to be connected to the sawmill frame. As a result, the horizontal shaft between the tractor and the sawmill was completely exposed. If the sawmill had been modified to enable a shield to be connected to it's frame and the rotating shaft had been provided with a shield to cover the entire shaft, this fatality would have been prevented.

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