

FINAL KY FACE 94KY14401

Date: 19 December 1994

Subject: Retiree Dies After Tractor Overturns Into Creek

SUMMARY

A 58-year-old retired factory worker and part-time farmer was killed when the tractor he was operating overturned into a creek and pinned him. At the time of the incident, the victim was mowing a pasture along a creek bed. The tractor was not equipped with a Roll Over Protective Structure (ROPS) or a seat belt. Attached to the tractor was a five foot bush hog. About 3:00 pm the day of the incident, the victim began mowing a 30 acre bottom land pasture by entering a gate at the east of the pasture. The victim drove in a westward direction across the center of the field toward the west end of the field. Along the south and west edges of the rectangular field was a creek and to the north a fence paralleling a public roadway. Having reached the near western end of the pasture, the victim began a cut parallel to the creek heading west with the left side of the tractor bordering the creek embankment. As the victim began the cut along the creek, the left front wheel went over the edge, causing the tractor to roll over to the left and turn over. The victim was pinned from the waist up under the left fender in six inches of water. The victim was alone at the time of the incident and was discovered two hours later by his father and a farm hand. Investigators concluded that in order to prevent future fatalities tractor owners and operators should:

- Retro-fit tractors with Roll Over Protective Structures (ROPS) and seatbelts
- Maintain equipment in prime working condition
- Assess terrain prior to beginning any operation involving equipment

Additionally, county officials should consider initiating a county-wide 911 emergency service

INTRODUCTION

On November 3, 1994, a 58 year-old-male retiree was killed at his father's farm while bush hogging a pasture. On November 6, the FACE investigator learned of the incident in the newspaper. An investigation was initiated at that time. On November 23, the FACE investigator and the Occupational Health Nurses in Agricultural Communities (OHNAC) nurse traveled to the scene to continue the investigation. The coroner, deputy coroner, Emergency Medical Service (EMS) personnel, and the victim's father were interviewed. Measurements and photographs were taken at the scene. Photos taken by the deputy coroner, the coroner's report, the autopsy and the toxicology reports were obtained.

The victim grew up on this farm and left following high school to live in a large city and pursue a career at a major manufacturing company. He had returned to the farm frequently during his 32 year career with the manufacturing company, to help his father. Twelve months prior the

incident, the victim retired from the manufacturing position and moved back to the farm. Along with his father, he raised two acres of tobacco and a vegetable garden. The remaining 158 acres was leased as pasture land. Repairing fences, barns, equipment and mowing occupied most of the victim's time since his retirement. He was familiar with the equipment and the terrain and had mowed the pasture several times in prior years. This was the second time this year this particular pasture was to be mowed.

The farm has been in the family for over 50 years. It takes about 25 minutes to reach the farm which is located 14 miles from the nearest town. Safety training was not conducted at this family farm. Injury history was not readily available, however the victim's father reported the victim had been in several motor vehicle accidents. His experience on the tractor included many weekends during his manufacturing tenure and more regular since his retirement.

The victim had a history of heart disease and was on Nitro-glycerin and Vasotec. He had a history of alcohol abuse but according to his father had not consumed alcohol for about 16 years. He was a heavy smoker. According to the victim's father, he had lost some of his right arm function due to back surgery some years ago but this did not effect his ability to drive the tractor. The victim was right handed. An autopsy showed a grade IV atherosclerosis of the left anterior descending artery.

INVESTIGATION

On Thursday, November 3, at about 3:00 pm, the victim began mowing the bottom land pasture. Weather conditions were warm and partly sunny. Driving a 1963 Massey Ferguson 35 Diesel Delux (36 hp pto) tractor with a five-foot Woods three point hitch rotary bush hog, the victim entered the pasture at the east end. The rectangular shaped 30 acre pasture is fairly level with a few swampy areas where water does not drain from the field. The south and west edge of the pasture is demarcated by a creek. A nearly vertical, seven foot, irregular shaped embankment parallels the creek. This sandy loam, eroded edge washes out with heavy rains continually changing the shape of the field edge. Only short grass holds the treeless flat surface area. Water flows in a westerly direction through a 15-40 foot wide flat rock creek bottom. Depths vary from 6-24 inches. About 30 head of cattle roam the pasture.

Proceeding length-wise down the center of the rectangular field, the victim drove toward the far west end of the pasture. A path cut by the victim indicates this was the first cut through the pasture. As the victim neared the west end he turned gradually to the north along the embankment. The tractor's left front wheel went over the seven foot embankment causing the tractor to roll over to the left and into the creek. The victim was pinned from the waist up under the left fender of the inverted tractor in about 6 inches of water.

After two hours it was nearing dusk so the victim's father and a farm hand began a search. They followed the trail cut by the victim to the creek edge at the south west corner of the field. Discovering the victim under the tractor they went to summon help. Emergency Medical Service (EMS) received the call at 5:44 pm. One EMT and one paramedic arrived at the scene at 6:06. The rescue squad arrived about 5 minutes after EMS. A call was made by EMS personnel to

hospital dispatch to notify the coroner of the incident. The coroner received the call at 6:15 and arrived at the scene at 6:40. The victim was pronounced dead at the scene.

A Caterpillar 416 backhoe loader (62 hp, 13,572lbs.) was driven into the creek about 1500 feet from the incident site where a road passes over the creek. The backhoe has a boom lift capacity of 2600 pounds. With the assistance of the rescue squad, the tractor was lifted off the victim. He was loaded and strapped to a back board and lifted up the embankment. From there he was transferred by truck to an awaiting funeral home vehicle on the main road. He was later transferred a state medical facility for an autopsy.

The tractor suffered moderate damage in the roll over. Its air intake stack was bent and the exhaust, having been modified to point upward to accommodate tobacco setting, was broken off. Two fenders were crumpled and the hood dented in the roll over. Wheel measurements indicate front and rear wheels were spread the same distance. There was no ROPS, Slow Moving Vehicle (SMV) placard, or power take off shield. No weights were attached to the brush guard on the front of the tractor. The left rear tire was fluid filled, the right air filled. According to the victim's father, the fuel tank was full at the time of the incident. When checked by the FACE investigator the brakes and steering functioned well. The two-year-old five-foot-wide Woods bush hog was not damaged in the roll over. It was equipped with a pto shaft guard.

CAUSE OF DEATH

The cause of death was listed as compression asphyxia sustained in a farm vehicle accident with roll over into body of water. Injuries include bilateral rib fractures, pulmonary congestion, cutaneous petechiae of the superior chest, neck and head. The autopsy was negative for alcohol and drugs.

RECOMMENDATIONS/DISCUSSIONS

Recommendation #1: Tractor owners and operators should contact their county extension agent, local equipment dealer or equipment manufacturer to see if retro-fit rollover protection and operator restraint systems are available for their equipment.

Discussion #1: The tractor in this incident, manufactured in 1963, was not equipped with a ROPS or an operator restraint system, which protects the operator in the event of a roll over. ROPS first became available as optional equipment on farm tractors in 1971. These safety features were not required on tractors until 1976, when OSHA standard 29CFR 1928.51 went into effect. This standard required employers to provide ROPS and safety belts for all employee-operated tractors manufactured after October 25, 1976. However, this standard does not apply to family farms or farms employing fewer than 11 employees. Since 1985, as a result of voluntary agreements by tractor manufacturers, all new tractors sold in the US have been equipped with ROPS and safety belts. (MMWR Jan.29, 1993) On this 1963 tractor, retro-fit ROPS and operator restraint systems are available. Tractor owners should contact dealers, manufacturers or county extension agents for information on sources of retro fit ROPS and operator restraint systems. The cost to retro-fit this tractor is about \$750.00.

In Kentucky since January 1994, there has been only one documented death where an operator was killed in a tractor roll over on a tractor equipped with ROPS. In this case, the operator was not wearing a seat belt. There have been 22 deaths from non ROPS equipped tractor rollovers during the same period. In all of these cases, ROPS would have saved the life of the operator.

Recommendation #2: Equipment should be kept in prime working condition.

Discussion #2: In this case the 1963 Massey Ferguson was in fair condition for its age. However, the rear tire weight distribution was unequal. The left rear tire was fluid filled, the right air filled. Two-hundred fifty pounds of additional weight on the left side may have influenced the handling of the equipment. Equal distribution of lateral weight by fluid filling both rear tires is recommended. Although this in itself would not have eliminated the fatal nature on this incident, it could have had a bearing on the tractor handling properties.

Recommendation #3: Tractor owners should evaluate the terrain before beginning any operation that includes machinery.

Discussion #3: Operators should evaluate the terrain and select a suitable path considering slope, land conditions and attachments. In this case, the pasture was level ground with a hazard along the south and west edges. The irregular nature of the bank due the erosion would suggest that the precise shape would change between mowings. Even with prior experience in this particular field, the victim may not have been aware of these changes. Evaluation the conditions prior to starting the laying out procedures may have informed the operator of potential hazards.

REFERENCES

Effectiveness of Roll Over Protective Structures for Preventing Injuries Associated with Agricultural Tractors. *MMWR* 42(03); 57-59.

National Safety Council (1978). "Tractor Operation and Roll-Over Protective Structures." Occupational Safety & Health Data Sheets. I-622-Reaf. 85.

National Institute for Occupational Safety and Health (Jan 29, 1993). "NIOSH Reports on the Preventability of Tractor Rollovers." Centers for Disease Control and Prevention. DHHS (NIOSH) publication No. 93-119.