

# Fatality Assessment and Control Evaluation Project

Public Health

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SUBJECT: Bulldozer Operator Killed in Rollover

## SUMMARY

A 56-year-old bulldozer operator was killed while clearing land on a steep hillside. He was self-employed and used the John Deere 450C bulldozer that he owned for logging on his own property, as well as doing work for others when needed. He owned mountain property near his home and he used the bulldozer to clear a series of paths in the hills for logging. At approximately 8 pm on the day of the incident, he was using the bulldozer to clear a path leading downhill where he planned to put a sawmill. As he was grading, he backed the bulldozer to the edge of the path and the soft dirt gave way causing the dozer to overturn and roll several times down the hillside. The bulldozer was equipped with a Rollover Protective Structure (ROPS), but the victim was not wearing a seatbelt. He was thrown out as it rolled and the vehicle came to rest on top of him at the bottom of the hill. A neighbor witnessed the incident and called 911 for assistance. Rescue personnel were dispatched at 8:24 pm and arrived at the scene at 8:48 pm. The county coroner was summoned and pronounced the victim dead at the scene. In order to prevent similar incidents from occurring, FACE investigators recommend that:

- Operators of heavy equipment should wear a seatbelt when using vehicles equipped with a ROPS
- Operators should use extra caution when using heavy equipment on steep terrain

## INTRODUCTION

On 18 April 1997, FACE investigators were informed of the death of a 56-year-old male killed in a bulldozer rollover. An investigation was initiated and a site visit made on 24 April 1997. Interviews were conducted with the deputy coroner and sheriff who were present at the scene, and the neighbor who witnessed the incident. A copy of the report from the sheriff's department was obtained and photographs of the scene were viewed. The coroner accompanied the investigator to the site of the incident; photographs and measurements were taken of the hillside and bulldozer. A local equipment dealer was consulted for information about the bulldozer.

The victim was self-employed as a bulldozer operator and logger. He had done this type of work most all of his life and enjoyed logging on the mountain property that he owned. In addition, he would often do contract work for others who needed an experienced bulldozer operator for logging purposes or clearing land. His health had been generally good.

The John Deere 450C bulldozer was manufactured during 1978-1984 and was reportedly in good condition. It was equipped with a Rollover Protective Structure (ROPS) and seatbelt. The ROPS was intact after the incident and appeared in good condition upon inspection. The vehicle had a four-cylinder, 65hp engine and weighed approximately 14,000 lbs.

## INVESTIGATION

The victim in the fatal incident owned many acres of wooded mountain property that surrounded his home where he lived with his wife and their son who was in his twenties. The mountain property was densely covered with trees, mostly poplar and oak, and appeared to be very steep in many areas. He often worked alone and it was not unusual for him to work into the evening hours.

The victim had recently purchased equipment for a sawmill and planned to put the structure on a level area in front of the hillside, about 100 yards behind their home. Over the years, he had cleared a series of paths through the hills for logging purposes. On the day of the incident, he was working alone as usual although a neighbor who knew him well was outside in the yard and watched him work. Weather conditions were clear and dry that day as he worked on clearing a path approximately 12 feet in width which would lead to the area where he planned to build the sawmill. This new path would extend downhill from a previously graded roadway that ran across the hillside at a distance of approximately 75-100 feet from ground level. The hillside was steep with a slope measuring 30 degrees at one point and appearing to increase in other areas. Trees were cleared and by dusk he was working on smoothing out the pathway. At about 8 pm he was using the bulldozer to fill in an uneven area. With the bulldozer facing uphill and slightly to the right, he grazed over the area with a forward motion, then put the bulldozer in reverse and backed up toward the left side of the pathway. As the bulldozer approached the side of the path, the treads went over a slight drop-off and the soft dirt gave way causing the vehicle to overturn and roll down the hill. Although the bulldozer was equipped with a ROPS, the victim was not wearing the seatbelt and he was thrown from the vehicle. It rolled over several times, landing on its right side at the bottom of the hill, and crushing the victim underneath. The neighbor witnessed the incident and called 911 for assistance. Rescue personnel were dispatched and 8:24

pm and arrived at the scene at 8:48 pm. While waiting for help, family members and neighbors who lived nearby came to the scene and attempted to dig him out from under the weight of the bulldozer. However, his body was nearly split in two by the impact and he was killed instantly. The coroner was summoned at 8:50 pm and pronounced the victim dead at the scene.

## **CAUSE OF DEATH**

According to the coroner, the cause of death was multiple crushing injuries due to bulldozer rollover.

## **RECOMMENDATION/DISCUSSION**

***Recommendation #1:*** Operators of heavy equipment wear a seatbelt when using vehicles equipped with a ROPS.

***Discussion:*** A Rollover Protective Structure (ROPS) is only effective when used in conjunction with a seatbelt. Operators of heavy equipment should wear a seatbelt to keep them within the protected zone of the ROPS in the event of a rollover. In this case, the operator was not wearing a seatbelt and was thrown from the bulldozer when it rolled down the hill. Although it is not known for sure, it is likely that he could have avoided fatal injuries if he had been kept within the vehicle during the overturn.

***Recommendation #2:*** Operators should use extra caution when using heavy equipment on steep terrain.

***Discussion:*** Although using this model bulldozer on a slope such as the one encountered in this case is not unusual and is mechanically acceptable, operators should use extra caution when using heavy equipment on steep terrain. Taking safety precautions such as wearing a seatbelt, not operating equipment after dark, and paying close attention to the terrain of the area can help reduce the risk of injuries due to rollovers and other hazards.