



The National Institute for Occupational Safety and Health (NIOSH)

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# Tree Trimmer Dies After Falling 65 Feet From Tree in Virginia

## FACE 9130

### SUMMARY

A 34-year-old male tree trimmer died after falling 65 feet from a tree. The victim was limbing and topping the three forks of a large oak tree with a chain saw in preparation for felling the tree. The victim had limbed and topped two of the forks and had started on the third. As the limbs fell to the ground, the victim's brother and a general contractor were cutting them into pieces. The victim's cousin looked up to check on the victim, then began to cut the branches when he noticed the victim's belt rope falling. He looked up to see the victim falling to the ground. The victim's climbing cradle had failed. An investigation revealed that the connectors on both ends of the climbing cradle rope were fastened with wire and electrical tape. NIOSH investigators concluded that, in order to prevent similar occurrences, employers should:

- ensure that proper fastenings are used at the connectors for all climbing cradle ropes
- ensure that workers inspect all fall protection equipment each day prior to use
- evaluate the feasibility of a redundant fall-arresting system.

### INTRODUCTION

On September 3, 1991, a 34-year-old tree trimmer died after falling 65 feet from a tree. On September 5, 1991, officials of the Virginia Occupational Safety and Health Administration notified the Division of Safety Research (DSR) of this fatality, and requested technical assistance. On September 18, 1991, a DSR safety specialist traveled to the incident site to conduct an investigation. The incident was reviewed with the investigating police officers, the county coroner, and the OSHA compliance officer. Photographs of the site were obtained during the investigation.

The victim was employed full time as a tree trimmer by a tree care service. However, during off-duty hours, the victim and his brother performed tree trimming and tree removal jobs on their own. There were no written safety rules or safe work procedures for the work that the victim and his brother were performing on their own time.

### INVESTIGATION

The victim, with his brother, had been contracted by a general contractor to remove a large oak tree from the yard of a private residence on their own time during a weekend.

The large tree had three main forks. The victim decided that he would limb and top each of the forks before felling the tree, while the victim's brother and the contractor would remain on the ground and cut up the limbs as they fell. The victim climbed the first fork and tied a rope around it near the top. He would use this rope to assist him as he made his way up the fork, cutting off the limbs as he went. The victim wore a body harness, tree climbers, and a climbing cradle (a length of rope with connectors on each end that is placed around the tree and snapped to the "D" rings on each side of the body harness) as he ascended the tree. The climbing cradle assisted the victim while climbing and held him in place while he made his cuts with the chain saw. The victim also had a tool rope hanging from the harness with which he could raise and lower tools.

At the time of the incident, the victim had completed work on the first two forks and was approximately three quarters finished with the third fork (60 feet above ground). The contractor looked up to check on the victim, then began to cut branches on the ground. The contractor then noticed a rope falling to the ground and looked up to see the victim falling to the ground. The victim landed on his head and right shoulder. The owner of the residence immediately called the emergency medical service (EMS). EMS personnel arrived 5 minutes after being dispatched and transported the victim to the hospital, where he was pronounced dead by the attending physician.

Investigation into the incident revealed that the connectors on both ends of the climbing cradle ropes were fastened with wire and electrical tape. While the victim was leaning back making a cut, the pressure caused the rope to pull loose and the victim fell to the ground. The connector was still attached to the D-ring on the harness.

## CAUSE OF DEATH

The medical examiner listed massive internal trauma as the cause of death.

## RECOMMENDATIONS/DISCUSSION

**Recommendation #1: Employers should ensure that proper fastenings are used at the connectors for all climbing cradle ropes.**

Discussion: All rope connectors should be interwoven or mechanically clamped in compliance with manufacturer's recommendations to ensure that the integrity of the connections is continually maintained.

**Recommendation #2: Employers should ensure that workers inspect all fall protection equipment for defects each day prior to use.**

Discussion: In this instance, the victim, working as a self employed tree trimmer, did not inspect the connectors on the climbing harness prior to use. If a visual inspection of the harness had been conducted, the loose connector might have been identified and could have been repaired. Any defective equipment should be immediately repaired or removed from service.

**Recommendation #3: Employers should evaluate the feasibility of a redundant fall-arresting system.**

Discussion: In this instance, the victim relied solely on the climbing cradle as the fall arresting system. When the connector on the cradle failed, there were no other system components present to prevent the fall. The victim had tied a rope to the top of the forks prior to beginning the limbing work. This rope could have doubled as a lifeline. A lanyard attached to the body harness and the rope would have provided a second suspension point.

[ A "rope grab"—a friction activated deceleration and locking device—could have been fitted onto the lifeline; this would have slowed and stopped the victim's fall. Several design configurations are available for these devices—inelastic locking, cam/lever locking, or both—and each is effective against this kind of fall hazard. An alternative safety device would be a self-retracting lanyard; this is another kind of deceleration and locking device, which contains a drum-wound line. The line can

be wound and unwound within certain limits to accommodate normal worker movements; however, during a fall, centrifugal force activates locking devices which stop drum rotation and arrests the fall. Either a rope grab or a self-retracting lanyard would have protected the victim when the cradle connector failed.]

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