The National Institute for Occupational Safety and Health (NIOSH)

Promoting productive workplaces through safety and health research

Timber Cutter Killed by Falling Tree Limb – South Carolina

FACE 9504

SUMMARY

A 56-year-old male timber cutter (the victim) died as a result of being struck by a tree limb. The victim, at the site with a co-worker, felled a forked poplar tree and as the tree fell, one fork split in half and lodged in a standing tree while the other half fell to the ground. The victim signaled to a co-worker (skidder operator) to pull the lodged fork from the standing tree. As the suspended fork was pulled away from the standing tree, the victim, located near the fallen half, was observing the skidder. After the co-worker had pulled the lodged fork and trunk from the standing tree, he could not locate the victim. He left the operator's seat on the skidder and climbed onto one of the skidder's tires. He observed the victim in a kneeling position, face down against the felled tree. The skidder operator yelled to the employer for help and went to a nearby house to notify the local EMS. Investigation indicated that a tree limb had struck the victim at the base of the skull, breaking his neck and causing basal skull fracture. The limb could have broken from the lodged fork, the fallen fork, or the standing tree as the lodged fork was being pulled from the standing tree. The victim was pronounced dead at the scene by the county coroner.

NIOSH investigators concluded that to prevent similar occurrences, employers should:

- ensure that when lodged trees are being removed by mechanical means, observers remain in the clear, a safe distance away from the operation.
- conduct an initial and daily jobsite survey to identify hazards and implement appropriate controls.

INTRODUCTION

On December 15, 1994, a 56-year-old male timber cutter (the victim) died as a result of being struck by a falling tree limb.

On December 16, 1994, officials of the South Carolina Occupational Safety and Health Administration (SCOSHA) notified the Division of Safety Research (DSR) of the incident and requested technical assistance. On January 24, 1995, a DSR safety engineer reviewed the SCOSHA investigation file. On January 25, 1995, the safety engineer interviewed the employer and traveled to the incident site. Photographs and measurements of the site were taken.

The employer in this incident was a small logging company, with three employees in operation for 44 years. The company owner also worked with the logging crew. The company harvested various kinds of timber, including pulp wood and saw timber, using manual-felling methods. At the time of the incident, the company was harvesting a natural-poplar stand on a privately owned 1-acre parcel. The company had been harvesting on this parcel for 2 weeks, on the day of the incident. The employer's safety policies and safety program were unwritten. Safe work procedures were established and communicated verbally through safety meetings conducted on an irregular basis. Regular jobsite inspections were performed by the employer's insurance carrier. Personal protective equipment, including chaps, hearing protectors, hard hats, face shields, and safety shoes, were provided for the employees.

The victim had worked as a timber cutter for the employer for 36 years. This was the company's first fatality.

INVESTIGATION

On December 15, 1994, the victim and a co-worker (skidder operator) began work at 8:30 a.m. Logging and yarding operations proceeded normally until just before 9:45 a.m., when the victim completed cutting a 36-inch-diameter poplar tree. This tree, between 60-and 70-feet tall, forked about 46 feet from the butt. As the tree fell, one of the forks lodged in the crotch of a standing tree, located about 55 feet from the stump. When this happened, the felled tree split from the fork to the base, a distance of about 46 feet. After the fall, one fork and the split half of the felled trunk remained lodged in the standing tree. The other fork and split half fell to the ground. The victim signaled the skidder operator to free the lodged portion of the tree. The operator hooked the skidder to the lodged fork and trunk and began to pull. When he did, the lodged fork dropped and lodged on a lower limb of the standing tree. The skidder operator stopped and looked toward the victim who was standing 30 to 35 feet away, observing the pull. The victim signaled to continue pulling. The skidder operator resumed pulling and the lodged fork and trunk dropped to the ground. The skidder operator pulled it about 70 feet away from the felled stump. The skidder operator then turned around in the seat of the machine and looked toward the victim. Unable to see the victim, the skidder operator 'Left the machine's seat and climbed onto one of the tires; from that position he saw the victim in a kneeling position against the felled tree.

He called to the employer who had just arrived at the site. The employer went to the victim and checked for vital signs. The skidder operator left the area to notify the local EMS, who responded within 7 minutes. The coroner was notified and the victim was pronounced dead at the scene. It was later learned that the victim had been struck at the base of the skull by a 4-inch-diameter by 7-foot-long tree limb. The exact origin of the limb could not be determined, however there were at least three possible sources. It could have broken from the branchwood of the split-half as it was being pulled from the standing tree. It may have broken from the standing tree, or it may have broken from the felled split-half.

CAUSE OF DEATH

The autopsy results indicated that death was due to a broken neck and basal skull fracture.

RECOMMENDATIONS/DISCUSSION

Recommendation #1: Employers should ensure that when lodged trees are being removed by mechanical means, observers remain in the clear, a safe distance away from the operation.

Discussion: The victim in this incident was acting as an observer during mechanical removal of a lodged tree. OSHA regulations, 29 CFR 1910.266(h)(vi) requires that:

Each danger tree, including lodged trees and snags, shall be felled or removed using mechanical or other techniques that minimize employee exposure before work is commenced in the area of the danger tree ....

Indications are that while the victim was not exposed to hazards from movement of the skidder, which was between 30 and 35 feet away, he may have been too close to the lodged tree while it was being pulled. The origin of the 4-inch diameter by 7-foot long limb which struck the victim could not be determined. It is known, however, that at some point during the pull,

the victim was located adjacent to the fallen split half of the felled tree, which was proximate to the lodged split half being moved. There are several possible origins for the falling limb.

- The lodged split-half was 60 to 70 feet in length with at least 14 feet of branchwood. When it was removed from the standing tree, a limb could have broken from the branchwood.
- The limb could have broken from the standing tree.
- The limb could have been broken from the felled split-half when the lodged split-half fell from the standing tree.

The standing tree, the felled split-half, and the lodged split- half were identical species and exhibited numerous broken limbs which could have been propelled toward the victim by the movement of the lodged tree. While the presence of a ground observer during removal of lodged trees could be a benefit to safety, observations should be made prior to equipment movement and the observer should remain in a clear area during the actual movement of the equipment and load.

Recommendation #2: Employers should ensure that initial and daily jobsite surveys are conducted to identify hazards and implement appropriate controls.

Discussion: Evaluation of the jobsite after the incident indicates that the sequence or direction of felling may have contributed to the incident. Since it was intended that the standing tree be harvested, a survey to evaluate the potential for creation of lodged tree conditions might have concluded that the standing tree be harvested first, eliminating the potential for lodgment. Further, an area of the jobsite to the right of the standing tree, when viewed from the stump, was clear of lodging hazards. Although the felled tree was dropped in this general area, it fell near enough to the standing tree to lodge. Evaluation of the site, focusing on lodgement hazards, might have indicated that the direction of felling should have been altered.

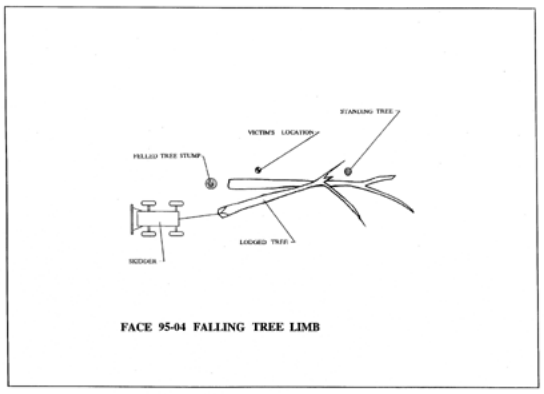

Figure.

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Last Reviewed: November 18, 2015