Investigation #97WV056-01
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Log Cutter Dies in West Virginia After Being Struck By a Limb From a Dead Tree

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SUMMARY

On July 24, 1997, a 40-year-old self-employed male timber cutter (victim) died of injuries sustained when he was struck by a dead, falling limb. The victim had felled a live 75-foot maple tree when a limb from a dead, standing tree nearby fell with the live tree and struck him in the head. There were grapevines present which may have entangled the live and dead tree branches. A logger working on the same site discovered the victim and went to a nearby home to call emergency medical services. They arrived within eight minutes. The victim was pronounced dead at a local hospital with estimated time between injury and death listed as "immediate". The WV FACE Investigator concluded, that to reduce the likelihood of similar occurrences, employers, including the self-employed, should:

- ***ensure that tree fellers properly evaluate the area around timber to be felled so that potential hazards can be identified and appropriate control measures implemented.***
- ***ensure that tree fellers prepare an adequate escape path and move a safe distance from the base of the tree as the tree is falling.***
- ***develop, implement, and enforce a written safety program which includes, but is not limited to, training in hazard identification, avoidance, and abatement.***
- ***ensure that tree fellers use appropriate personal protective equipment for the work being performed.***

INTRODUCTION

On July 24, 1997, a 40-year-old self-employed timber cutter (victim) was killed when he was struck on the head by a dead limb that was entangled in a live tree he had felled. The WV FACE Program Epidemiologist had read of the incident in the local newspaper and reported it to the Program Coordinator. On July 30, 1997 the WV FACE Program Coordinator and Epidemiologist met with the county deputy sheriff and traveled with him to the logging site where the fatal incident occurred. The sheriff's report, death certificate, medical examiner's report, photographs, and newspaper narratives where obtained during the course of the investigation.

The investigators were able to ascertain that the victim was self-employed and held Certified Logger status in West Virginia. [Note: The West Virginia Logging Sediment Control Act, 1992 requires that each timbering operation in West Virginia must be supervised by a certified logger. To become a certified logger, an individual is required to successfully complete training and pass a test for best management practices (a soil erosion prevention plan), chain saw safety, and also possess a current first-aid card.] No other company-specific information or past employment information was obtained.

INVESTIGATION

On July 24, 1997, a timber cutter was selectively cutting trees on a rural logging site. A dozer operator had made a rough road approximately one-fourth mile into the hardwood forest where a designated number of trees were to be harvested under contract on private land. The trees were not marked. Few trees had been removed at the time of the incident which suggests that the timber cutter may have been on the job only one or two days. The logging site was on a steep hillside and once cut, timber would be dragged up to a landing located at the top of the hill near the landowner's home. From the landing, a short driveway lead to a highway which connected to a community approximately eight minutes away. The harvested timber would be cut into saw logs, dragged up to the landing, and then loaded onto logging trucks for transport to a commercial sawmill. The forest floor had moderate to little brush growth. There were grapevines growing up into the forest canopy. Photographs taken the day of the incident show that the weather was sunny, clear, and calm, and the forest floor was dry in the area where the tree was felled.

The timber cutter and another logger were in the forest for an undetermined time on the day of the incident; however, given that few trees had been cut, it may have been for only a few hours. The hillside sloped approximately 12 percent where other trees had been cut, but the cutting site where the fatal incident occurred was a relatively flat area. The victim had selected a maple which was 75 feet tall and 24 inches in diameter at breast height for cutting. He had made a standard wedge cut and a proper back cut. An escape path to the logging road was clear. There was a standing dead tree (danger tree) 13 feet from the live maple tree located in the opposite direction of the intended fall. The standing dead tree was approximately 45 feet tall, rotted, and had a 35-foot limb extending out toward the maple tree. Grapevines may have entangled the limb of the dead tree with the maple tree. The maple tree fell to the ground, and the 35-foot dead limb fell with it. The butt end of the dead limb was 15 inches in diameter where it struck the victim. Instead of making his cut and moving quickly down his escape path, it appears that the victim remained crouched at the tree stump. While in this position, he was apparently struck on the forehead and thrown backward. No personal protective equipment was worn. A logger working on the same site found the victim and went to a nearby home to call for emergency medical services. Emergency services arrived within eight minutes along with sheriff department personnel. The victim was pronounced dead at a local hospital. The medical examiner's report indicated that death occurred immediately after the injury.

CAUSE OF DEATH

The medical examiner's report listed the immediate cause of death as cardiopulmonary failure due to head and neck injuries.

RECOMMENDATIONS/DISCUSSION

Recommendation #1: ***Employers, including the self-employed, should ensure that tree fellers properly evaluate the area around timber to be felled so that potential hazards can be identified and appropriate control measures implemented.***

Discussion: Two potential hazards existed which contributed to this incident. A danger tree was located 13 feet behind and slightly uphill of the tree selected for cutting. Grapevines were present throughout the forest and entangled in many trees. Though self-employed persons are not required to comply with OSHA regulations, the WV Virginia FACE Program uses OSHA regulations to formulate recommendations which may benefit the self-employed. OSHA regulations 29 CFR 1910.266(h)(1)(vi) and (h)(2)(ii) require that each danger tree shall be felled, removed, or avoided. Each danger tree, including lodged trees and snags, shall be felled or removed using mechanical or other techniques that minimize the logger's exposure before work is commenced in the area of the danger tree. Also, before each tree is felled, conditions, such as, but not limited to, snow and ice accumulation, the wind, the lean of the tree, dead limbs, and location of other trees, shall be evaluated by the feller and precautions taken so a hazard is not created. In this case, it appears the victim may not have evaluated the area around the tree to be felled. Appropriate precautions (e.g., removing the danger tree first) may have been implemented, thereby eliminating the potential hazard. Given the height of the danger tree, the presence of long dead limbs extending in the direction of the tree to be felled, and the grapevine entanglement, an appropriate decision may have been to eliminate the maple tree from those chosen for cutting.

Recommendation #2: ***Employers, including the self-employed, should ensure that tree fellers prepare an adequate escape path and move a safe distance from the base of the tree as the tree is falling.***

Discussion: Preparing an adequate escape path before felling any tree is imperative for a safe felling operation. Doing so will allow the feller to quickly reach a safe distance from the falling tree. A way of escape must be planned before felling a tree and must be kept free of brush, tools, or other obstructions. The route of escape must be clear of the path of the falling tree. Workers must keep a safe distance from the base of the tree as it is falling. Although there was an escape path clear to the road, the victim may not have recognized the hazard and did not move immediately away from the base of the tree as it fell.

Recommendation #3: ***Employers, including the self-employed, should develop, implement, and enforce a written safety program which includes, but is not limited to, training in hazard identification, avoidance, and abatement.***

Discussion: The evaluation of tasks to be performed at the worksite form the basis for the development, implemenation, and enforcement of a safety program. The key elements of the program should include, at a minimum, training in hazard identification and the avoidance and abatement of these hazards. In this incident, the victim was struck and killed by a falling tree that he had cut. Safety precautions including proper tree cuts and the establishment of an escape path were made; however, hazards created by dead limbs and grapevine entanglement should have been recognized and addressed to ensure maximum safety for workers.

Recommendation #4: ***Employers, including the self-employed, should ensure that tree fellers use appropriate personal protective equipment for the work being performed.***

Discussion: Considering the hazards to personal safety that tree felling operations may create, tree fellers should wear head, hand, leg, eye, face, and foot protection. In this incident, the victim wore no personal protective equipment, and given the force of the blow he received, its use may not have affected the fatal outcome. It is important to stress the availability and use of appropriate personal protective equipment for all tree felling operations, as lives have been saved and severity of injury reduced because of its use. [Note: OSHA requires the use of appropriate personal, protective equipment in logging where employees are present {29CFR 1910.266(d)(1)(i-vii)}].

REFERENCES

Office of the Federal Register: Federal Register, Vol. 59, No. 196, 29 CFR 1910.266, p. 51746, Wednesday, October 12, 1994.

West Virginia Logging Sediment Control Act, 1992.

FATALITY ASSESSMENT AND CONTROL EVALUATION PROGRAM

The WVU Center for Rural Emergency Medicine, through a contract with the West Virginia Department of Health and Human Resources, conducts investigations on the causes of work-related fatalities within the state. The goal of this program is to prevent future fatal work-place injuries. West Virginia FACE intends to achieve this goal by identifying and studying the risk factors that contribute to workplace fatalities, by recommending intervention strategies, and by disseminating prevention information to employers, employees, trade associations, unions, equipment manufacturers, students, teachers, and others with an interest in workplace safety.

Please use information listed on the Contact Sheet on the NIOSH FACE website to contact In-house FACE program personnel regarding In-house FACE reports and to gain assistance when State-FACE program personnel cannot be reached.