The National Institute for Occupational Safety and Health (NIOSH)

Promoting productive workplaces through safety and health research NIOSH

Timber Cutter Killed by Falling Tree Limb – West Virginia

FACE 9503

SUMMARY

A 49-year-old male timber cutter (the victim) had just completed felling a yellow poplar tree at a rural logging site when he was struck and killed by a falling tree limb. The victim and four co-workers were performing separate logging operations when the incident occurred. Two co-workers (equipment operators) were operating a bulldozer and a skidder, while the victim and two other co-workers (a limber and laborer) were felling and limbing trees within the same work area as the victim. Using a chain saw, the victim made an undercut on one side of a 100-foot-tall yellow poplar tree; he then moved to the opposite side of the tree and made a backcut. As the tree was falling, the victim remained at the base of the cut tree trimming hingewood to further guide the fall of the tree. At the same time, the limber and laborer, who were working within 15 feet of the victim, saw the falling tree contact a limb of another yellow poplar tree. The tree limb was first forced backward, and then as it released forward from the falling tree, it broke off and fell toward the victim. The co-workers shouted a warning, which the victim apparently did not hear because of the noise of the running chain saw, and the tree limb struck the victim on top of the head. The co-workers ran to the victim and the limber provided first aid while the laborer ran to call for assistance. A helicopter arrived about 45 minutes after the incident occurred and transported the victim to the local trauma center. The victim died the following day of multiple head injuries. NIOSH investigators concluded that, to prevent similar occurrences, employers 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 workers prepare adequate escape paths and move a safe distance away from the base of the tree as the tree is falling**
- **ensure that workers are assigned to separate work areas**
- **develop, implement and enforce a written safety program which includes, but is not limited to, worker training in hazard identification, avoidance and abatement**
- **designate a competent person to conduct regular safety inspections.**

INTRODUCTION

On January 13, 1995, a 49-year-old male timber cutter (the victim) was struck on the head by a falling tree limb and died the following day. On January 18, 1995, an official of the U.S. Forest Service contacted the Division of Safety Research (DSR) about this fatality, and requested technical assistance. On January 23, 1995, two DSR representatives, a safety

specialist and a statistician, investigated this incident. The investigators reviewed the incident with the county sheriff, the victim's co-workers and employer, and the landowner. Photographs of the incident site were taken and the medical examiner's report was requested during the investigation.

The employer in this incident was a small logging company with five employees, two of whom were co-owners. The employer did not have a written safety program or established safe work procedures at the time of the incident. All workers had been certified in first aid and cardiopulmonary resuscitation prior to the incident, and one of the co-owners was a certified logger. The victim (co-owner/timber cutter) helped establish the company two days prior to the incident. The victim had about 15 years' experience as a timber cutter. This incident was the first fatality the company had experienced.

INVESTIGATION

The logging company had purchased the timber rights to a 25-acre tract where a variety of hardwood trees were to be selectively harvested. After harvesting, the timber would be cut into saw logs and transported to a local sawmill. The day of the incident was the second day at the work site and also the second day of business for the new logging company. Five workers were present at the work site–one skidder operator, one laborer, one limber, one co-owner/dozer operator, and the other co-owner/timber cutter (the victim). The terrain was a gentle rolling mountain slope with less than a 10-percent grade, and environmental conditions were favorable.

On the day of the incident, the workers arrived early in the morning and commenced their normal work duties. The victim had felled trees until about 2:30 p.m. without incident. At that time, the victim proceeded to a yellow poplar tree about 100 feet tall and 22 inches in diameter at breast height (dbh.). He made a standard undercut and then made an appropriate backcut. The immediate work area contained a number of other trees, including a suppressed yellow poplar tree about 45 feet high and 14 inches dbh. The suppressed poplar tree was located 12 feet away and about 30 degrees northeast from the 100-foot poplar tree that was being cut. The smaller poplar tree also had a limb about 32 feet long and 8 inches in diameter located about 35 feet above ground. The limb extended in the direction of fall of the larger tree (Figure). As the larger poplar tree was cut through, it fell in the direction of the smaller poplar tree. When the larger falling tree contacted the limb of the smaller tree, the limb was forced backward until the larger tree cleared it. The limb sprang forward, completely breaking at the point where it was connected to the tree's main trunk. The limb fell toward the victim, who was still standing at the base of the tree where he was trimming the hingewood to further guide the fall of the tree. The limber and laborer, who were working about 15 feet away from the victim, saw the limb break and fall toward the victim. The workers shouted a warning to "look out," but the victim apparently did not hear the warning over the chain saw's noise. The limb struck the victim on top of the head and knocked him to the ground. The two workers ran to his aid and while the limber provided first aid, the laborer ran to call for assistance. A helicopter arrived about 45 minutes after the incident occurred. The victim was stabilized and transported to a local trauma center where he died the following day. The victim was wearing an approved safety helmet, but the force of the limb striking the helmet caused multiple trauma to his head.

CAUSE OF DEATH

The medical examiner's report listed the cause of death as multiple trauma to the head.

RECOMMENDATIONS/DISCUSSION

Recommendation #1: Employers 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: A suppressed smaller yellow poplar tree with a 32-foot limb, 8 inches in diameter, was located in the fall path of the falling tree. 29 CFR 1910.266(h)(2)(ii) states "Before each tree is felled, conditions such as, but not limited to, snow and ice accumulation, the wind, the lean of tree, dead limbs, and the location of other trees, shall be evaluated by the feller and precautions taken so a hazard is not created for an employee." In this case, an evaluation of the area around the tree being felled may have disclosed the proximity of the limb of the smaller tree in relation to the fall path of the larger tree. Appropriate precaution (e.g., felling the smaller tree first) may have been implemented, thereby eliminating the hazard.

Recommendation #2: Employers should ensure that workers prepare adequate escape paths and move a safe distance away from the base of the tree as the tree is falling.

Discussion: Although it is unknown whether the victim had prepared an escape path, he remained at the base of the tree trimming hingewood to further guide the fall of the tree, and was struck and killed by a falling tree limb from another tree. 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, snag, treetop, unstable windfall, etc. 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 intended direction of the falling tree. Workers must keep at a safe distance from the base of the tree as the tree is falling. In this case, moving away from the base of the falling tree immediately after trimming the hingewood may have prevented this incident from occurring.

Recommendation #3: Employers should ensure that workers are assigned to separate work areas.

Discussion: Three workers, the victim and two co-workers, were all working within 15 feet of one another when the incident occurred. 29 CFR 1910.266(d)(6)(ii) states “Work areas shall be assigned so that trees cannot fall into an adjacent occupied work area.” The recommended distance between workers is twice the height of trees being felled. Although the co-workers were not injured in this instance, the possibility of injury or death exists when more than one person is assigned to the same work area. Therefore, employers should adhere to this regulation whenever possible.

[Note: Currently, OSHA standard 1910.266 applies to pulpwood logging but does not apply to the logging of sawtimber-sized trees, the type involved in this incident. OSHA has revised its logging regulations to include all types of logging operations. The revised regulations will become effective February 9, 1995. Although not enforceable at the time of the incident, sections of 1910.266 of the pulpwood standard, particularly relating to safe work practices, are relevant to this case.]

Recommendation #4: Employers should develop, implement and enforce a written safety program which includes, but is not limited to, worker training in hazard identification, avoidance and abatement.

Discussion: The victim was struck and killed by a falling tree limb broken off by a falling tree that the victim had just felled. Employers should evaluate tasks performed by workers; identify all potential hazards; and then develop, implement, and enforce written safe work procedures addressing these issues. The safety program should include at a minimum, worker training in hazard identification, and the avoidance and abatement of these hazards.

Recommendation #5: Employers should designate a competent person to conduct regular safety inspections.

Discussion: Conducting regular safety inspections of all logging tasks–among other safety-related responsibilities–by a competent person has the authority to take prompt corrective measures to eliminate them. will help ensure that established company safety procedures are being followed. Additionally, scheduled and unscheduled safety inspections of tree-felling worksites clearly demonstrate that the employer is committed to the safety program and to the prevention of occupational injury.

REFERENCE

Office of the Federal Register: Federal Register, Vol. 59, No. 196, 29 CFR 1910.266, pp. 51741-51748, Wednesday, October 12, 1994.

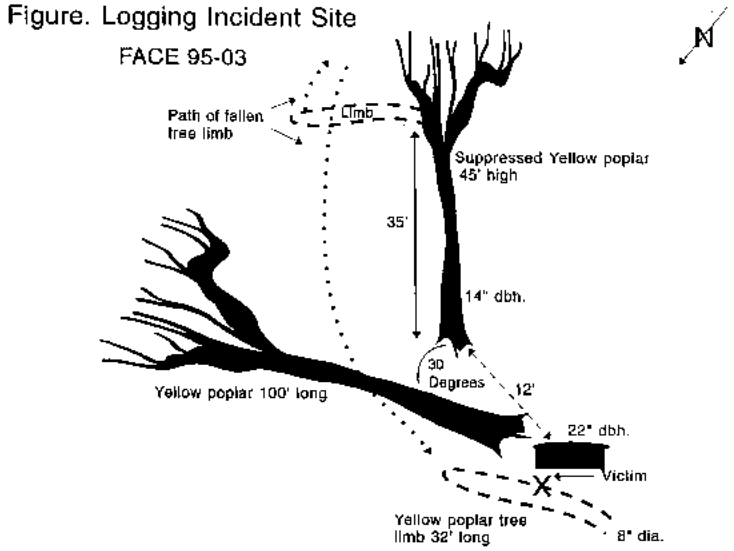

Figure.

Return to In-house FACE reports

Last Reviewed: November 18, 2015