The National Institute for Occupational Safety and Health (NIOSH)

Promoting productive workplaces through safety and health research

Tree Feller Dies After Being Struck by Chain Saw-South Carolina

FACE 9302

SUMMARY

A 33-year-old male tree feller (the victim) was fatally injured after being struck in the throat with a chain saw. The victim and three other fellers, who were felling and limbing trees at a logging site in a rural part of the state, had been instructed to fell, limb, buck (cut into 6-foot sections), and load long-needle pine trees onto the transport truck. The victim had felled a pine tree and was limbing the tree when the incident occurred. There were no witnesses to the incident, but evidence suggests that while limbing the tree, the victim cut through a 2-inch spring pole (a section of tree, sapling, or limb which is, by virtue of its relation to other materials, under tension) using a 16-inch bow-bar chain saw. As the tension on the remaining section of spring pole was released, the recoiling limb caused the chain saw to kick backwards, striking the victim in the throat. The victim was transported by the co-workers to the nearest hospital where he was pronounced dead on arrival. NIOSH investigators concluded that, in order to prevent future similar occurrences, employers should:

- **ensure that tree fellers limb trees according to safe methods specified in 29 CFR 1910.266 for pulpwood logging**
- **develop, implement, and enforce a written safety program which includes worker training in recognizing, avoiding and abating hazards such as spring poles and the safe use of bow-bar chain saws**
- **provide first aid equipment at jobsites and pertinent training in the use of first aid equipment**
- **designate a competent person to conduct regular safety inspections.**

INTRODUCTION

On October 9, 1992, a 33-year-old male tree feller (the victim) died after being struck in the throat by a chain saw. On October 21, 1992, officials of the South Carolina Occupational Safety and Health Administration (SCOSHA) notified the Division of Safety Research (DSR) of this fatality, and requested technical assistance. On October 30, 1992, a safety specialist from DSR conducted an investigation of this incident. The investigator reviewed the incident with the SCOSHA compliance officer assigned to the case, and the local county coroner. The coroner's report was obtained during the investigation.

The employer in this incident was a small pulpwood and firewood logging company that had been in operation for about 25 years. The employer had four employees, all of whom were tree fellers. The employer did not have a written safety program nor established safe work procedures. First aid training was not provided to employees and no first aid equipment was

available at the jobsite at the time of the incident. The victim had been employed by the company for 1 year prior to the incident, but had approximately 15 years of logging experience, most of which was as a feller. This incident was the first fatality the company had experienced.

INVESTIGATION

The employer had purchased the timber rights on a tract of land and had been selectively cutting timber to be sold for pulpwood to a local paper company. The employer had been working at the logging site for about 3 weeks prior to the incident. The victim and his co-workers had been instructed to fell, limb, buck (cut into sections), and load long-needle pine trees onto the transport truck. The jobsite where the victim was working at the time of the incident was level and dry, with sparse underbrush. Although there were no eyewitnesses to the incident, evidence suggests the following sequence of events.

According to the owner, the victim began his assigned duties about 7 a.m. on the day of the incident. He was felling, limbing, and bucking trees (mostly long-needle pine trees) with a 4-horsepower, 16-inch bow-bar chain saw (Figure) that was approximately 1 year old. About 10 a.m., the victim felled a long-needle pine tree that was 30 to 40 feet tall and approximately 17 inches in diameter at the base. After the pine tree fell to the ground, the victim began limbing the tree. The victim used the chain saw to cut through a spring pole. Apparently when the saw cut through the spring pole, tension was released and the remaining section of limb recoiled. The recoil caused the chain saw to kick back toward the victim, striking him in the throat.

The nearest co-worker was clearing brush about 20 feet away from the victim when he heard a change in the pitch of the chain saw. He looked over toward the victim and saw him collapse to the ground. He ran to the victim, rolled him over from his stomach onto his back, and discovered that he had been severely cut around the throat area. The worker contacted another co-worker and they loaded the victim into the back of a pick-up truck and transported him to the nearest hospital, 15 minutes away, where the victim was pronounced dead on arrival.

CAUSE OF DEATH

The coroner’s report listed the cause of death as transection of the trachea and great vessels of the neck.

RECOMMENDATIONS/DISCUSSION

Recommendation #1: Employers should ensure that tree fellers limb trees according to safe methods specified in 29 CFR 1910. 266 for pulpwood logging.

Discussion: Methods specified in the pulpwood logging industry standard 29 CFR 1910.266(e)(3)(ii) state that “Spring poles and limbs under stress shall be cut so that the employee is clear when tension is released. (This is accomplished by cutting under the bend.)” In this incident, the victim was probably not aware of the spring pole tension and therefore had not positioned himself in a safe location

Recommendation #2: Employers should develop, implement, and enforce a written safety program which includes worker training in recognizing, avoiding, and abating hazards such as spring poles and the safe use of bow-bar chain saws.

Discussion: In this incident, the victim had cut through a limb under tension, using a chain saw equipped with a bow-bar. When the tension was released, the remaining section of limb recoiled to its “at rest” position, causing the chain saw to kick back. 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 worker training in recognizing hazards (e.g., spring poles), and following specific procedures in the safe performance of assigned duties. Additionally, according to manufacturer recommendations and a state insurance carrier representative, bow-bars were designed for bucking trees into sections (logs or bolts), not for limbing. The design of a bow-bar, that is, with an

exaggerated cutting tip (Figure), increases the hazard of kickback by exposing more tip cutting surface than a standard bar. Chain saw kickback often occurs as a result of cutting with the upper edge of the blade, by cutting with the tip of the blade, or catching the tip on an object while the saw is running. Therefore, employers and operators of chain saws equipped with bow-bars should be more cognizant of safety precautions recommended for this type of equipment.

Recommendation #3: Employers should provide first aid equipment at jobsites and pertinent training in the use of first aid equipment.

Discussion: First aid equipment was not available to the employees, although such equipment is required at the jobsite by 29 CFR 1910.266(c)1)(vii). It is uncertain whether or not the lack of first aid equipment at the jobsite was a factor in this incident. However, first aid equipment and pertinent worker training in first aid should be available in the event of any job-related injury.

Recommendation #4: 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 will help ensure that established company safety procedures are being followed. Additionally, scheduled and unscheduled safety inspections of tree feller jobsites clearly demonstrate that the employer is committed to the safety program and to the prevention of occupational injury.

REFERENCES

Office of the Federal Register: Code of Federal Regulations, Labor 29 Part 1910.266, pp. 678, 680. July 1, 1989.

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