ADMINISTRATIVE REPORT **DATE: July 2, 1997**
PUBLIC HEALTH SERVICE/CDC/NIOSH/DSR
FACE 97-06

TO: **Director, National Institute for Occupational Safety and Health**

FROM: **Division of Safety Research, NIOSH**

SUBJECT: **Tree Trimming Crew Leader Caught In Wood Chipper - Virginia**

SUMMARY

On April 23, 1997, a 24-year-old tree-trimming crew leader (the victim) died after he was caught and pulled through a wood chipper. The victim and two co-workers, a tree climber and a ground man, were in the process of trimming trees at a residence. While the tree climber and the ground man were at the rear of the house, the victim was located near the wood chipper, in the driveway at the front. The climber had heard the noise of the operating chipper for some time then realized that no wood was being processed. He sent the ground man to the front of the house to check on the victim. When he got to the front of the house, the ground man found the chipper running unattended, and shut it down. He then began to search for the victim and found blood and human tissue in the receiver truck. He notified the tree climber who then went to a neighboring residence and notified police. Police arrived in 2 to 3 minutes. The victim's remains were recovered by police forensic detectives and transported from the site.

NIOSH investigators concluded that to prevent similar incidents in the future, employers should ensure that:

- *ensure that at least two people are present when operating wood chippers, one of whom is positioned to immediately activate safety devices protecting against being caught and pulled into the machine*
- *loose fitting clothing is not worn by workers operating and loading material into wood chippers or other machines with moving nip points*
- *manufacturer's recommended operating procedures are followed when operating machines.*

INTRODUCTION

On April 23, 1997, the 24-year-old leader of a tree-trimming crew was caught and killed by an operating wood chipper. The Division of Safety Research (DSR) learned of the incident through an April 26, 1997, newspaper article. On May 7, 1997, officials of the Virginia Occupational Safety and Health (VOSH) Administration requested technical assistance. On May 13, 1997, a DSR safety engineer reviewed the case with the VOSH compliance officer assigned to investigate the incident. The DSR safety engineer visited a typical jobsite, interviewed the employer and the witnesses, photographed and measured the chipper, and visited the incident site.

The employer in this incident was a small tree-trimming, landscaping and handyman service. The employer had been engaged in this business for 8 years and had 3 employees at the time of the incident. The number of employees varies due to seasonal demands for tree-trimming work. The employer provided task and safety training both on-the-job. Safety policies were unwritten. The necessary Personal Protective Equipment such as hard hats, shoes, gloves, chaps, hearing and eye protection were provided to employees and required to be used. The victim had worked for the employer for several years as a handyman/laborer on an intermittent basis. He had been re-hired as a crew leader 2 weeks prior to the incident. He had been present during training talks and demonstrations of the chipper, and had operated similar machines in the past.

INVESTIGATION

The incident occurred at approximately 5:00 p.m. on April 23, 1997. The crew had been assigned several trimming jobs that morning and by the middle of the afternoon had completed all but one. They arrived at the residence and parked the chipper and receiver truck in the driveway. The climber and ground man went to the rear of the house and began trimming a tree while the victim remained near the chipper. While the co-workers were working in the rear of the house, out of visual contact with the victim, he was feeding cut limbs into the chipper. This operation was ongoing for some time when from the sound of the chipper, the tree climber realized that no branches had been fed into it for some time. He told the ground man to go to the front of the house and check on the victim. When the ground man got to the driveway, he found the chipper running unattended. He went to the control panel at the front of the chipper and shut down the engine. He then noticed blood on the chipper's feed table and on the underside of the cover over the receiver truck's cargo area. He realized that the victim had gone through the chipper. He immediately summoned the tree climber who went to a neighboring residence and notified police. The police responded within 2 to 3 minutes. The victim's remains were recovered from the receiver truck by police forensic detectives and

transported from the site.

CAUSE OF DEATH

The medical examiner determined the official cause of death to be multiple severe injuries from mutilation of body by tree shredder.

RECOMMENDATIONS/DISCUSSION

Recommendation #1: Employers should ensure that at least two people are present when operating wood chippers, one of whom is positioned to immediately activate safety devices protecting against being caught and pulled into the machine

Discussion: The operator's manual for the wood chipper recommends that two people be present in the area when the chipper is operating. The machine in the incident was equipped with a safety bar, located around the feed opening. This bar was mechanically linked to the hydraulic circuit powering the feed mechanism and had three operating positions. Pushing the bar forward caused the feed drum to rotate in the in-feed direction. Pulling the bar back reversed the drum for out-feed. Centering the bar neutralized the circuit, blocked fluid flow, and immediately stopped the feed drum. Due to the location of this bar it may be possible but unlikely that a person inadvertently caught by the feed drum could successfully activate it. A second person located near the bar could immediately control the rotation of the feed drum, either stopping or reversing it.

Recommendation #2: Employers should ensure that loose fitting clothing is not worn by workers operating and loading materials into wood chippers or other machines having rotating nip points.

Discussion: It is not known how the victim may have been caught and pulled through the chipper. However, he was wearing a loose-fitting bulky sweatshirt which was later found inside the cargo bed of the receiver truck. Reportedly, the shirt was not shredded. It is conceivable that the victim's clothing caught on a branch being fed into the machine and the feed roller pulled him through the knives.

Recommendation #3: Employers should ensure that manufacturer's recommended operating procedures are followed when operating machines.

Discussion: The manufacturer's operating/safety manual warns against attempting to feed handfuls of twigs, leaves and other material that has been raked up. Such materials should be thrown into the receiver truck without being run through the chipper. The manual recommends that short materials be laid on top of longer branches as they are fed into the machine. It is conceivable that the victim may have pushed an armload of twigs or short branches

into the feed drum which caught his hands and pulled him into the machine. If this had happened, he would not have been able to reach and activate the safety bar before being pulled through the machine.

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Fatality Assessment and Control Evaluation (FACE) Project

The National Institute for Occupational Safety and Health (NIOSH), Division of Safety Research (DSR), performs Fatality Assessment and Control Evaluation (FACE) investigations when a participating State reports an occupational fatality and requests technical assistance. The goal of these evaluations is to prevent fatal work injuries in the future by studying the working environment, the worker, the task the worker was performing, the tools the worker was using, the energy exchange resulting in fatal injury, and the role of management in controlling how these factors interact.

States participating in this study: North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee, and Virginia.

Additional information regarding this report is available from:

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FACE 97-06