MIFACE Investigation Report: #12MI069

Subject: Business Owner Killed When Pulled Into Wood Chipper

Summary

In summer 2012, a male landscaping and tree trimming company manager/co-owner in his 40s died when he was pulled into a wood chipper. The incident occurred just before dark. The decedent had been drinking. A concerned neighbor was walking over to the decedent when he witnessed the decedent being pulled into the chipper. The decedent's coworker ran to the chipper and turned it off when she heard the chipper make an unusual noise and the neighbor yelling. The neighbor called for emergency response and the decedent was declared dead at the scene.

Figure 1. Wood Chipper involved in incident

Contributing factors:

- Alcohol Intoxication
- No intervention from coworkers to prevent the individual under the influence of alcohol to operate machinery
- Improper work procedure used while feeding brush onto a wood chipper feed table.

RECOMMENDATIONS:

In order to prevent future incidents with wood chippers, tree trimming companies should ensure that:

- Wood chipper operators are not impaired from the use of alcohol or drugs.
- Develop and enforce policies and procedures that allow coworkers to intervene and prevent others from operating wood chippers when impaired from the use of alcohol or drugs.
- Develop and enforce policies and procedures for wood chipper operators that detail safe work practices, including wearing the appropriate personal protective equipment when feeding material into the chipper.

BACKGROUND

In summer 2012, a male landscaping and tree trimming company manager/co-owner in his 40s died when he was pulled into a Bandit 90XP wood chipper. MIFACE was informed of this incident by a newspaper clipping. The MIFACE researcher contacted one of the decedent's family members, who co-owned the business, and an MIFACE site visit was granted. In April 2013, MIFACE interviewed the family member in her home. During the writing of this report, the death certificate, police and medical examiner reports and the MIOSHA file were reviewed. Pictures used are courtesy of MIOSHA. The pictures have been modified by MIFACE to remove identifiers.

The Decedent/Employer

The decedent had been a partner in a different landscaping/tree trimming business since 1991. In 2000, the partner left and the decedent established the current business as the business's sole partner. Due to alcohol issues, he lost his driver's license. The family member indicated that sometime in 2004-2005, the business was transferred to her name (she was the legal owner) due to the driver's license restriction. The family member owned the chipper and the pickup truck used in the incident and was also responsible for maintaining the equipment and truck insurance policies. The family member kept the financials and performed many of the office duties. The decedent performed all of the field work, including procuring new business. The decedent also cut and sold firewood from the felled/trimmed trees.

The family member indicated the following:

- The decedent was familiar with "chipper" operation – he had operated a chipper and stump grinder in his previous business endeavor.
- The firm purchased the Bandit 90SP chipper in 2011 as a used piece of equipment.
- The chipper's operator's manual and maintenance records were included when purchased.
- Did not know of any maintenance issues associated with the chipper.

The decedent didn't work on every job. He trained other workers. He did not climb trees anymore because he fell out of a tree in 2002 and broke his pelvis. He would climb to trim some branches, but would not climb to fell a tree. He would contract other firms to fell and/or trim trees. The decedent's family member labeled the decedent as a "high functioning" alcoholic. The family member characterized the decedent as "despondent" as a result of family issues caused by his alcoholism and business issues.

Written Safety Programs and Training

The firm did not have a safety and health plan nor was the firm a member of a tree trimming association. The chipper's manufacturer representative provided training to decedent. The decedent was shown how to operate the chipper and answered his questions. If there was a problem with the chipper or its operation, the decedent would call the manufacturer representative. The family member indicated that the decedent's coworker never ran the chipper; the coworker was instructed only how to turn the chipper on or off.

Wood Chipper

The chipper involved in the incident was a previously owned refurbished Bandit 90XP, a 9-inch capacity disc-style chipper. Per the manufacturer's website, the Bandit 90XP had a 30" deep by 35" wide infeed hopper. The 90XP could process multiple stems as well as large diameter pieces up to 9 inches due to the 9" by 17" chipper opening and 30" diameter by 1-1/2" thick chipper disc. The distance from the first nip point blade to the edge of the infeed hopper was 65 inches. When the chipper was attached to the truck hitch, the infeed hopper edge/base was 20.5 inches from the ground. The chipper had two 17" wide by 7.5" diameter feed wheels powered by two 15.5 CID hydraulic motors, creating a feed rate of 90 feet per minute. Material could be fed and chipped at 45-degree angle to the chipper disc. The chipper was equipped with "last chance cables" (cables that can be pulled to reverse the infeed rollers). The safety bar and the last chance cables were tested and found to be operational.

Figure 2. Arrow indicates empty push paddle holder

When safety bar was pushed toward the hopper opening, the feed wheels changed direction as designed. It is unknown if the refurbished chipper was purchased with a wooden push paddle. The decedent had obtained a copy of the operator's manual.

The MIOSHA General Industry Safety and Health Division sent a compliance officer to investigate but it was determined to be non-program related because the firm was a sole proprietorship.

INVESTIGATION

A home owner contracted with the landscaping and tree trimming company to trim and remove maple and spruce trees in the yard. The decedent had hired another firm to fell the trees. The decedent was a member of a two-person crew. The incident occurred on their second day on the site.

The type of clothing and personal protective equipment worn by the decedent is unknown. The family member indicated that the decedent most likely was wearing gloves.

The decedent and his coworker arrived at the site on the incident day at approximately 11:00 a.m. driving a black 1978 Ford F350 open box pickup truck with the Bandit 90XP attached to the hitch.

The coworker stated to responding police that that the decedent had been drinking prior to arriving at the jobsite. Additionally, while his coworker drove to the dump site to empty the first load of wood chips, the decedent, who was the passenger, had a few drinks. The incident occurred just before dark.

An eyewitness to the events leading up to as well as the incident itself stated to the police that he observed the decedent and his coworker at the home. The witness stated he watched the decedent as he worked and he appeared to be drunk, unsteady on his feet and staggering at one point. The witness felt that the decedent was struggling to work due to possible intoxication.

The work crew was cleaning up for the day. At approximately 9:15 p.m., the coworker told the decedent to pull the truck off the grass and up to the pile of brush stacked along the road and chip the brush as the coworker cleaned up the work area in the side yard. After the decedent pulled the truck and chipper to the area, he started up the chipper and fed a large tree into the chipper, then started feeding more spruce limbs and branches into the chipper. The ground where he parked the chipper was level.

The witness then saw the decedent leaning into the hopper/feed area to push the spruce brush and branches into the chipper by hand. The witness became nervous for the decedent's safety due to perceived intoxication and the way in which the decedent was using his hands to push material into the chipper. The witness started to walk toward the chipper to speak to the decedent. As he was walking toward the chipper he saw the decedent reach into the chipper, and was pulled into the chipper.

The coworker, raking the brush in the side/back yard, heard the chipper making a strange sound and heard someone yelling. The coworker ran to the chipper and shut it down. The witness called for emergency response. The decedent was declared dead at the scene.

The coworker also stated that the decedent was a marijuana user. During a search of the vehicle interior, police noted an empty fifth of whiskey, a fifth of whiskey which was half empty, and a water bottle that appeared to have whiskey in it.

Although alcohol was a factor in the incident, other key components were unknown, such as the configuration of branches being fed into the chipper, whether the decedent lost his balance causing him to fall into the chipper, whether his clothing became caught on a limb, whether he may have been startled by the witness approaching the chipper, taking his attention from the task at hand or whether the chipper was incorrectly hitched to the truck which may have caused the chipper unit to move unexpectedly.

CAUSE OF DEATH

The cause of death as listed on the death certificate was multiple traumatic injuries. Toxicological tests showed a blood alcohol level of 0.331%, the active marijuana metabolite (1.2ng/ml), and inactive marijuana metabolites (less than 5.0 ng/ml).

RECOMMENDATIONS/DISCUSSION

In order to prevent future incidents with wood chippers, tree trimming companies should ensure that:

- Wood chipper operators are not impaired from the use of alcohol or drugs.

The ingestion of alcohol most likely contributed to this fatality due to the impairment of the decedent's physical and mental capabilities. Blood alcohol levels can be affected by age, gender, physical condition, amount of food consumed, and number of drinks consumed and by other drugs or medication.

Blood alcohol concentration is defined in terms of the weight of alcohol in a volume of blood; usually grams of alcohol in 100 milliliters of blood. It is often reported as a percent. The victim's blood alcohol level was 0.331 grams alcohol in 100 milliliters blood, the equivalent of 0.331%.

The victim's blood alcohol level was at a level that would severely impair his coordination, judgment and perception. This impairment makes the operation of equipment extremely hazardous to both the operator as well as bystanders. Therefore, equipment operators should not use alcohol or other drugs (including many prescription and over-the-counter medications) that could affect their ability to safely operate the equipment.

The level of the active marijuana metabolite in the decedent's blood at the time of his death indicated that he, most likely was not under the influence of marijuana.

- Develop and enforce policies and procedures that allow coworkers to intervene and prevent others from operating wood chippers when impaired from the use of alcohol or drugs.

In this incident, the decedent's coworker knew the decedent had been drinking and, most likely, aware of his alcohol-induced physical and mental impairment. Although difficult to talk with coworkers, it is vital for the health and safety of everyone working around and with the impaired individual and for the impaired individual for coworkers to take action and address the situation. This incident was compounded by the fact that the decedent was the business owner. Policies and procedures addressing alcohol/drug abuse can provide coworkers the confidence and "cover" to speak with the impaired individual and potentially stop the work being performed by the impaired individual. In this incident, the coworker could have spoken with the decedent about coming back the next day to complete the work based upon his impaired condition instead of permitting the decedent to operate the chipper.

- Develop and enforce policies and procedures for wood chipper operators that detail safe work practices, including wearing the appropriate personal protective equipment when feeding material into the chipper.

Internet resources are available for wood chipper operators to consult and develop safe work practices that include the utilization of appropriate personal protective equipment and tools to insure safety. During the writing of this report, Wood Chippers Info provided a link to Chipper/Shredder Safety for the Landscaping and Horticultural Services Industry produced by Kansas State University Research and Extension and funded by Federal OSHA detailing safe work practices and including safe chipper feeding procedures.

Safe work practices which would have minimized the likelihood of this incident occurring include, but are not limited to: 1) At least two workers be in close contact with each other when operating the chipper; 2) Feed branches from the side of the chute, not in front of it to reduce the risk of the operator being caught and dragged into the machine. Standing to the side of the equipment will also make it easier for the operator to reach the emergency shut-off switch in the event of an accident; 3) Keep hands and feet outside of the feed chute – do not push materials into the chute with your hands or feet; 4) Use a push stick/paddle or a long branch to help feed small pieces and brush through the chipper/shredder to maintain distance from the machine's moving parts. Do not use tools such as rakes or shovels to push material – the metal can become shrapnel when it is "chipped", leaving the chipping process at a high rate of speed as well as cause damage to the chipping blades.

The witness to the incident indicated the decedent was reaching into the hopper/feed area. It is unknown if he was reaching into the hopper/feed area to clear a jam. One of the standard items included on the Bandit 90XP was a wooden push paddle (standard on Bandit hand fed chippers

since 1994) and is intended to keep hands and feet out of the infeed hopper area. When properly used, the wooden push paddle allows the operator to safely push materials from outside of the infeed hopper area and discourages any reaching or kicking into the infeed area. Photographs taken after the incident by the MIOSHA compliance officer indicate that no push paddle was present on the machine.

If materials become hung up in the feed wheels, depending upon the brand/make/model of chipper, operators should either reverse it out of the machine and trim it down, OR shut down the machine entirely and wait for all moving parts to come to a complete stop and remove the key/lockout before attempting to dislodge the materials.

One possible solution to reduce injuries from chippers is to ensure that only trained individuals used chippers. Such training could be required by regulation, regulations could include certification, and/or insurance companies could require such training as part of mandatory liability insurance.

KEY WORDS: Wood Chipper, Tree Trimming, Alcohol Intoxication.

RESOURCES

- FACE Report 8723: *General Maintenance Person Asphyxiated Attempting to Repair Water Leak*. http://www.cdc.gov/niosh/face/In-house/full8723.html
- National Institute of Alcohol Abuse and Alcoholism. http://www.niaaa.nih.gov/
- Bandit Industries, Inc. Internet Website: http://www.banditchippers.com/. Accessed August 18, 2013.
- G Skopp and L Potsch, "Cannabinoid concentrations in spot serum samples 24-48 hours after discontinuation of cannabis smoking," *Journal of Analytical Toxicology* 32: 160-4 (2008).
- OSHA Safety and Health Information Bulletin "*Hazards of Wood Chippers*" SHIB 04-16-2008. https://www.osha.gov/dts/shib/shib041608.pdf
- California NORML. Internet Website: http://www.canorml.org/. Accessed August 19, 2013.
- Wood Chippers.info. Internet website: http://www.woodchippers.info/safety.shtml. Accessed August 19, 2013.

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