

## Case Report

# Commercial Woodchipper Fatality

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**Abstract:** This paper discusses collecting, sorting, cataloging, and identifying the remains of a person killed in a woodchipper incident. Also, the manner of death is determined to be an accident.

## Background

The decedent and one employee were trimming trees on private residential property. The decedent was disposing of cut limbs via a commercial woodchipper; his employee was in an aerial bucket-lift, trimming and dropping limbs. The employee observed that the decedent appeared to be drawn into the feeding mechanism of the woodchipper by a gloved hand. At that time, the employee began a descent and then jumped from the bucket-lift at approximately 10 to 12 feet from the ground. By the time he reached the decedent (approximately 22 feet away), only the decedent's feet were visible as they were being drawn into the woodchipper. The employee went to the residence and requested that 911 be called.

The commercial woodchipper was a Vermeer 2001 BC1250A Brush Chipper. Its only safety device was a bar to reverse the intake gears, located at the sides and traversing across the top. The intake feed opening was 12" x 12", with two vertical 16"

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diameter intake gears (with opposing rotations to pull limbs into the cutting wheel). The cutting wheel was 41.25" in diameter and 1.5" wide, with four hardened steel blades. The intake rate was 0 to 150 feet per minute. The employee indicated that the speed had been set at the equivalent of approximately 75 feet per minute. (Given this estimated rate and the decedent's height, the estimated elapsed time of this incident was less than seven seconds.) Information from Vermeer also supported that a 1" to 2" limb could be stuck or pulled through the machinery mostly intact because of the gap distance between the gears and cutting blades versus the machine itself.

There was no other information to confirm that only one person was involved in the incident or that this was an accident (versus suicide or homicide). One concern was that someone may have attempted to help the decedent and also had been drawn into the woodchipper.

On-scene tentative identification of the decedent to this point was based only on the statements of the employee. There was personal identification within the remains; however, positive identification of any person(s) was not possible at the scene.

## **Investigation**

The original plan was to collect en masse the remains and continue the investigation at the morgue. However, the decision was made to continue securing the scene, to obtain assistance from the fire department for lighting, and to conduct a thorough scene investigation and logging of the evidence.

### *Sorting the Remains: The Ground*

Beginning with the remains on the ground between the woodchipper and the product truck (Figure 1), and working from those nearest the woodchipper to nearest the product truck, the remains and associated evidence were photographed, collected, cataloged, and sorted by categories into clothing, property and evidence, remains for identification (e.g., DNA, dental, fingerprints), and then remaining body parts. These bags were individually marked and sealed on scene. The area containing remains on the ground measured approximately 68" by 22" at its widest point.



*Figure 1*

*The woodchipper and product truck.*

Two fingers (later identified as the right middle and right little fingers), an intact and circumcised penis, a nipple, parts of the heart and spleen, brain matter, pieces of scalp and head hair, and multiple unidentified bone fragments were recovered.

Pieces of clothing were recovered, including pieces of dark denim material, pieces of red and black plaid cotton material, and white cotton material. Personal property that was recovered included pieces of a lip balm product, pieces of currency (later determined to be from a five-dollar bill), and the frame of the right eyeglass lens.

Also in this area was a 1.5" diameter tree limb measuring approximately 70" in length. This was broken into three sections of approximately 22" to 24" each.

#### *Sorting the Remains: The Product Truck*

The same process was repeated to gather the remains in the product truck, working from the tailgate toward the cab. The area containing the remains in the product truck measured approximately 110" by 22".

Four fingers, encased in a brown leather glove, were recovered. These included two that were attached to portions of the palm (later identified as the left index and middle finger) and the left ring and left little fingers. The left big toe was recovered, as well as a large part of the right foot that included the three smaller toes (Figure 2). The remaining nipple; large sections of the scalp; parts of the heart, lung, and diaphragm; and brain matter were also recovered in greater quantity than those recovered from the ground. Additional pieces of skin and scalp with short brown hair were also recovered. The largest intact piece of skin measured approximately 8" by 14".

The clothing that was recovered included dark denim material that included a partial zipper, red and black plaid cotton material that included two black buttons, white cotton material (including a piece that was identified as medium cotton briefs), and a heavy gray shirt with an intact logo (decedent's business).

Personal property included an intact credit card (found on the top of the remains), a Colorado driver's license, a damaged wallet with mostly intact contents (a brass house key, business cards, Colorado driver's license physical exam certificate, seven one-dollar bills, a partial attorney's business card, a bank business card, and a partial medical clinic business card), and additional pieces of a lip balm product. These were all within a 12" to 18" diameter area in the center of the remains and approximately 50" from the tailgate.

Also found were parts of a white plastic hardhat, parts of black plastic ear protectors, inner parts of a watch, a black rotating watch bezel, the remaining parts of eyeglass frames, and the right tinted lens of eyeglasses. At the farthest upper-left of the remains was the inner sole of a left shoe and at the farthest upper-right was a mostly intact and matching right climbing shoe (gray and black with laces). At the nearest lower-left were parts of a black mesh face shield. Toward the center of the remains were the fragments of an orange safety vest. In the product truck was a tree limb, also approximately 1.5" in diameter and consistent with the limb found within the remains on the ground. This was located primarily above the remains (one clean section measuring approximately 26") and one section within the remains (approximately 14"). The remains of the gloved left hand, with pieces of a limb entwined in the palm, were in the same general area as the latter limb section.



*Figure 2*

*Some of the remains recovered from truck bed.*

### *Autopsy*

An autopsy revealed the following information:

- The remains had a retrieved weight of 135 pounds and consisted of extensively morselized pieces of tissue and bone.
- Pieces of skin were identifiable as Caucasian.
- Results were negative for alcohol, prescription medications, over-the-counter medications, and illicit drugs.
- The left thumb and mostly intact tongue were recovered during the autopsy.
- The decedent's antemortem documented weight was 150 pounds (approximately 90% recovered), accounting for an estimated 10 pounds of blood (five liters) and unrecovered macerated organs. It was apparent that all recoverable remains were accounted for.

The decedent was described by his wife and employee as last seen wearing the clothing, shoes, gloves, prescription eyeglasses, and watch that were found. The safety equipment he was reported wearing included a white plastic hard hat with a black mesh face shield and integrated black ear protectors, leather work gloves, and an orange safety vest. All of these items corresponded to the materials found within the remains. Likewise, the lack of rings and necklaces that were not found in the remains corresponded to reports that, as a safety precaution, the decedent did not wear these items.

## **Identification**

Positive identification was made by comparison of two recovered thumbs and six recovered fingers. That this accident involved only one individual was confirmed by careful collection and cataloging of the remains, as well as by identifying eight recovered digits as belonging to the decedent.

Additional identification methods could have included dental records, medical records, and DNA. DNA would have been viable via any of the recovered morselized tissue, sufficient long bone fragments, or hair. There was no discernible dentition, and the lack of large bone fragments precluded using x-ray imaging records for identification. Of importance was that there were no remains or personal effects identifiable to additional persons.

## **Determining Manner of Death**

There are five manners of death (homicide, suicide, natural, accidental, and undetermined). All were considered in this investigation. Undetermined would be when the evidence is unclear between two or more manners of death (e.g., accident versus suicide). This was the actual starting point for this case.

It was considered whether a natural event could have preceded and contributed to the decedent's being drawn into the woodchipper. However, the remains were macerated and the autopsy was unable to make any determination. Toxicology and the victim's medical history did not support a natural event.

Homicide was a consideration. However, the employee witness was credible and there were no other credible witness accounts. No motive could be established to implicate the employee, and no other evidence supported homicide as a manner of death.

Of considerable importance was the possibility of suicide. One scenario considered was the possibility that the decedent had double-indemnity accidental death and dismemberment life insurance. He did have such a policy, which was not extraordinary and not recently endorsed. Of importance to this was the financial and social background of the decedent. The local law enforcement agency reviewed the financial background of the decedent. There was no indication that he had any excessive financial obligations, debts, or personal or business dealings that were extraordinary. The decedent and his wife had been separated for two months, but they were reconciling and she had moved back into the marital home the previous week. By report, the decedent did not use illicit drugs, had no prescription drugs that would affect operating machinery, and did not abuse alcohol, although he would socially drink at home. There was no personal or family history of suicides, attempts, or ideations.

A review of similar past incidents, as reported to OSHA, consisted primarily of the victim using unsafe practices to load the product into a woodchipper or remove debris and impacted items from the blades. All commercial woodchippers are equipped with mandated safety equipment, including master kill switches and bars to disengage the rotors. The information gathered on scene, a neighborhood canvas, and interviews with family and co-workers of the decedent were the primary considerations in determining the manner in which the decedent would conduct himself when operating the machinery. During the course of the investigation it was reported by other arborists that the decedent was safety conscious of employees but less conscientious of his own actions. In the preceding 8 to 14 months, he had been involved in two accidents. In one, he had mishandled a chainsaw and suffered a severe, but non-limb-threatening, laceration to a hand. In another, he had a piece of clothing caught on a limb. Both events were witnessed and the latter was otherwise unremarkable. As noted, personal protection equipment was recovered from the remains.

On the basis of the scene investigation and evidence, as well as information of past incidents provided by the woodchipper manufacturer, it is plausible that the decedent had been holding the branch and had been pulled in by his gloved left hand. After careful consideration of all aspects of this case (e.g., medical evidence, exclusion of a natural death or a death caused by homicide or suicide, sum of the scene, continuing investigation, autopsy, and toxicology), it was concluded that this death was an accident.

## Discussion and Conclusion

Research has shown that this type of industrial accident is infrequent. The Center for Disease Control reports only 21 fatalities in the United States from 1992 through 2002 [1].

Because of the nature of the event and condition of the remains, the scene and investigation were treated similar to a mass casualty investigation. The systematic collecting, sorting, and cataloging of the remains provided the necessary information to support a final determination for the manner of death.

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