



Investigation Report
Worker fatally injured from equipment tip over
August 29, 2019

Report No-F-OHS-181721
January 2020
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This document reports Occupational Health and Safety's investigation of a fatal injury incident that occurred in August 2019. It begins with a short summary of what happened. The rest of the report covers this same information in greater detail.

Incident summary

A worker was in the process of abrasive blasting a non-commercially manufactured brush rake when the brush rake tipped over and pinned the worker, fatally injuring them.

Background information

Nor-Weld Steel Works Inc. (Nor-Weld) was a small welding company that employed four workers and had been in business since 2011. Nor-Weld was based out of La Crete, Alberta. Nor-Weld was the only entity involved in the incident.

The owner was a journeyman welder and the owner of Nor-Weld (the owner). The owner had been involved in the welding industry since 2006. The owner's role in the incident was to complete the abrasive blasting of the brush rake prior to painting and delivery to the customer who ordered the brush rake.

The administrator had been employed by Nor-Weld for approximately 13 years. The administrator's normal duties included the day to day administration of the business as well as assisting the owner with any operational tasks. The administrator was the first person on the scene after the incident and had been tasked with the preparation of the paint for the brush rake.

Three other workers were employed by Nor-Weld, and they assisted the owner in the completion of any operational tasks. One of these workers assisted the owner with the moving of the brush rake to the abrasive blasting site. The remaining workers were not present at the time of the incident.

Equipment and materials

Brush rake

The equipment involved in the incident was a brush rake designed to be attached to a D8 Caterpillar for use in clearing fields of brush. The brush rake was constructed of Hollow Structural Section (HSS) square steel pipe, HSS round steel pipe and sheet steel plate. The brush rake was 6.70 metres (m) in width, and 2.36 m in height with an approximate weight of 2800 kilograms (kg) (Figure 1).



Figure 1. Photograph shows the brush rake supported on dunnage.

The brush rake was elevated off the ground on dunnage at an approximate height of 1 m and secured leaning away from an anchor. The brush rake was secured to the anchor with two 8 m sections of 6 millimetre (mm) steel wire cable.

Tractor

The anchor for the brush rake was a Ford 5000 Model E10110 tractor (Figure 2).



Figure 2. Photograph shows the tractor that was used as the anchor.

Sequence of events

At approximately 9:00 a.m., August 29, 2019, the brush rake that had been manufactured by Nor-Weld onsite was moved to the area on the property where the incident occurred for abrasive blasting. The brush rake was moved with a forklift and a Bobcat by the owner and one other worker. The brush rake had been manufactured onsite during the two week period preceding the incident. Once in place at the abrasive blasting area, it was raised up and placed on dunnage for footings. The brush rake was laid face down so that the rear of the brush rake could be blasted. After the abrasive blasting was completed, the work process would be followed by painting in the same location.

The owner proceeded to complete the abrasive blasting on the back side of the brush rake. The administrator was not present during this portion of the work, as they were completing other tasks. Once these tasks were completed, the administrator went to the abrasive blasting area.

The owner and the administrator for Nor-Weld secured two 6 mm steel wire rope cables (cables) to the front axles of the tractor to act as the other end of the anchor system (Figure 3 and Figure 4).



Figure 3. Photograph shows the left cable secured to the left front axle.



Figure 4. Photograph shows the right cable secured to the right front axle.

The cables were then run under the tractor (Figure 5).



Figure 5. Photograph shows the cables running under the tractor and the tiller.

A. Cables running under tractor.

The cables were run under the rear mounted tiller and secured to the top rail of the brush rake (Figure 6).



Figure 6. Photograph shows direction of cables.

- A. Left and right cables secured to top rail of brush rake.
- B. Left and right cables running under rear mounted tiller.

Once the cables were secured to the tractor and the brush rake, the owner mounted the tractor, started it and moved it to balance the cables evenly so that the rake was leaning long edge away from the anchor and held in place by the cables. When this task was done, the owner shut off the tractor with the rear mounted tiller in the raised position and dismounted the tractor. The owner and the administrator discussed the work to be completed. The owner stated that they wanted to finish the abrasive blasting and then move on to painting the brush rake. After the discussion, the administrator left the abrasive blasting area and went to another building to prepare the paint. At approximately 4:00 p.m., the owner resumed the abrasive blasting of the front of the brush rake.

During the time period of shutting off the tractor and resuming the abrasive blasting, approximately 15 to 20 minutes had passed. The weight of the rear mounted tiller overcame the resistance of the hydraulics of the tractor, and the tiller slowly sank downwards to the ground. This placed increasing pressure and tension on the cables that were attached to the brush rake and pulled the brush rake towards the tractor. Once the apex of its positioning was passed, the brush rake fell over, striking and fatally injuring the owner.

The administrator heard the sound of the brush rake striking the ground and returned to the scene. On arrival, they observed the owner pinned under the brush rake. The administrator entered and started a Bobcat that was in the vicinity and then used it to raise the brush rake in order to allow for the removal of the owner. The administrator then exited the Bobcat and removed the owner from under the brush rake.

At 4:13 p.m., the administrator called 911 to report the incident and summon Emergency Medical Services (EMS) and the Royal Canadian Mounted Police (RCMP). EMS attended the scene and attempted resuscitation of the owner, but were unsuccessful. The owner sustained fatal injuries as a result of the incident.

Completion

A review for enforcement action was completed on January 29, 2020, and it was determined that prosecution or an administrative penalty were not appropriate based on the circumstances surrounding this incident.

This investigation was closed on August 10, 2020.

Signatures

ORIGINAL REPORT SIGNED

January 27, 2020

Lead Investigator

Date

ORIGINAL REPORT SIGNED

January 28, 2020

Manager

Date

ORIGINAL REPORT SIGNED

August 10, 2020

Director

Date