Alberta Government

Investigation Report

Worker fatally injured when crushed between tractor trailer unit and locked gate

November 24, 2019

The contents of this report

This document reports Occupational Health and Safety's (OHS) investigation of a fatal incident in November 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 sustained fatal injuries when they were crushed between a locked chain link gate and the bumper of a tractor trailer unit. The worker was pronounced deceased at the work site.

Background information

557638 Alberta Ltd., operating as DB Kidd Transport (DB Kidd), is an active Alberta numbered company that provides specialized trucking services in the Fort McMurray area. It is a family owned and operated business that has been registered in Alberta since 1993. DB Kidd had 12 employees at the time of the incident.

The DB Kidd Poplar Creek Yard (Poplar Creek Yard) serves a dual purpose as a laydown location and where worker 1 and some other DB Kidd staff stayed in trailer residences during their stretch of days on duty. Poplar Creek Yard is located at coordinates 56.9542, -111.5241 along Aostra Road.

Williams Scotsman of Canada Ltd. (Willscot) entered into a business agreement with DB Kidd in March of 2019, to provide transportation services for the delivery and return of modular office trailers to and from its customers. Willscot provides sales and leasing of modular offices and related equipment to oilfield and mining sites in northeastern Alberta. Willscot was incorporated on April 22, 1998. The incident occurred at the Willscot Ruth Lake Yard (Ruth Lake Yard) where operations had been ongoing since May of 2004 (Figure 1).

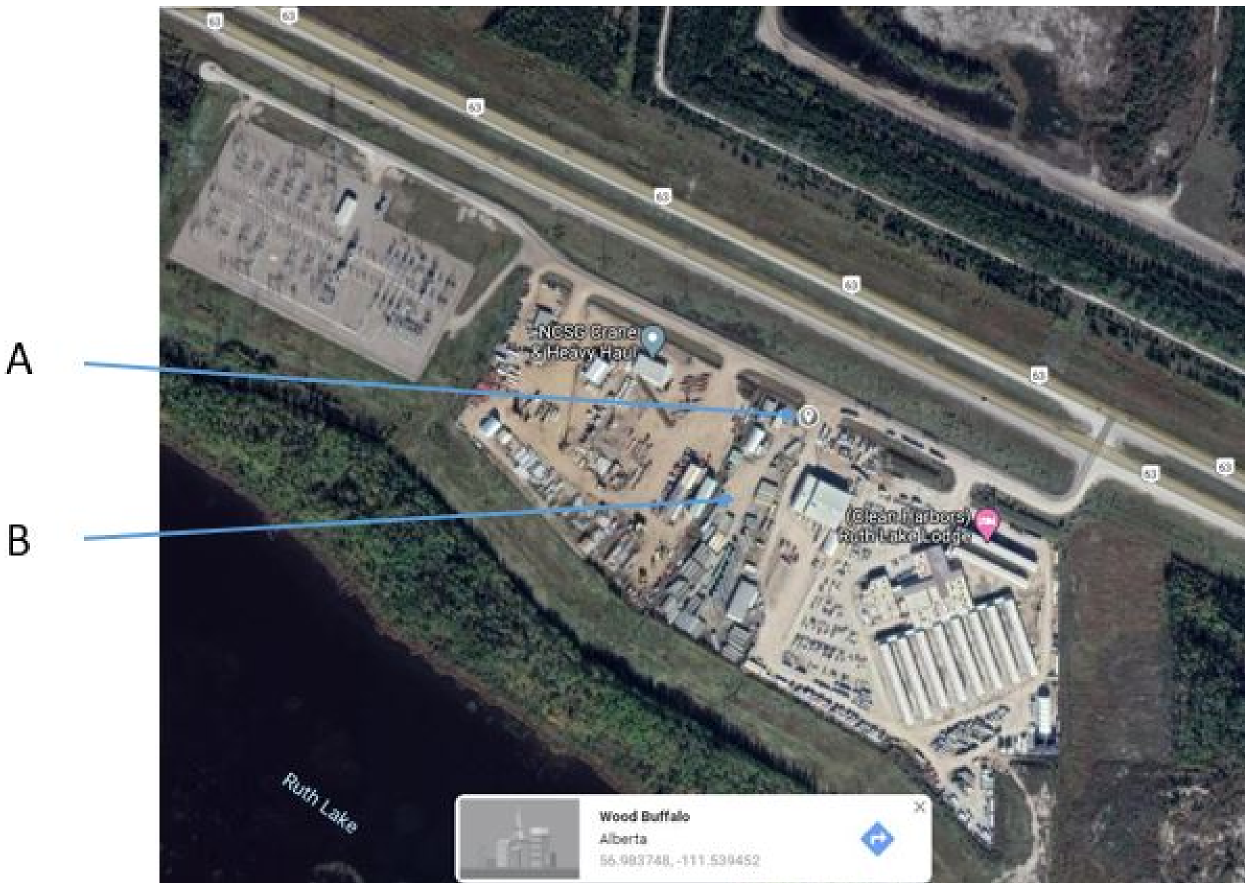

Figure 1. Aerial photograph of location. Photograph courtesy of Google maps.

A. *Driveway*
B. *Willscot Ruth Lake Yard*

The worker involved in the incident (worker 1) was a class one driver and had four to five years' experience working as a winch truck operator with DB Kidd. Overall, worker 1 had approximately ten years of trucking experience. Worker 1 was familiar with the incident location, having worked there approximately 40 times over the past six months. The task of exiting the truck and unlocking the gate was a routine after-hours activity.

Equipment and materials

Tractor (truck)

The tractor (commonly referred to as a truck) involved in the incident, operated by worker 1, was a 2007 Kenworth C500 heavy-duty winch truck (Figure 2). The winch capability of this large truck would be used to load and unload large cargo safely and efficiently.

The truck was equipped with air brakes for parking the truck and a separate air brake system for parking the trailer. The driver would deploy the air brakes on the tractor by pulling a yellow plunger located in the cab of the truck. Without any other driver intervention, this action would also deploy the trailer air brakes, typically operated by a red plunger beside the yellow one (Figure 3). The driver could bypass the trailer air brake deployment by holding their thumb against the red plunger while pulling the yellow plunger; this action would set the air brake on the tractor only. The bypass of trailer brakes was common practice in winter conditions as trailer brakes often froze up and required driver intervention to free up the drum brakes on the trailer. This could occur when snow and ice melted in the trailer brake drums and then froze while the brake was activated. The driver would typically have to lay underneath the trailer with a hammer to break the ice in the drum to allow the wheel to turn freely before commencing travel after parking.

This particular tractor also had hand operated service brakes, also known as spike brakes (Figure 4) on the steering column for additional control of the truck and/or trailer while loading and unloading cargo. Both spike brake levers were clearly marked “not for parking”.

A scuff mark on the ice in front of the tires after the truck had been towed away from the gate post incident serves as confirmation of the tractor air brakes being applied at the time of the incident (Figure 5).

Figure 2. Kenworth C500 Winch Tractor.

A. *Steer axle*

B. *Drive axles*

Figure 3. Brake controls at the time of the incident. Photograph courtesy of the Royal Canadian Mounted Police (RCMP).

A. *Trailer brake off*
B. *Tractor brake on*

Figure 4. Spike brakes. Photograph courtesy of the RCMP.

A. *Trailer spike*
B. *Tractor spike*

Figure 5. Passenger side of tractor, post tow.
A. Ice scuff mark.

Trailer

The trailer attached to the truck was a 1996 Alco trombone tri-axle lowboy trailer. The trombone style of trailer had the ability to lengthen or shorten to aid in the loading and unloading of large cargo (such as the 60 foot long modular office trailer being moved for Willscot). The trailer could be shortened from its full length by disengaging the locking pins and backing up the tractor and forepart of the trailer while the trailer axles remained air braked. This would result in the end of the cargo overhanging the rear of the trailer and less of the load weight being distributed to the drive axles on the tractor. Long loads would never be transported any significant distance with this trailer configuration. The shortened trailer (Figure 6) would only be used for the loading and unloading of large cargo. Tri-axle referred to the three heavy axles at the rear of the trailer. Lowboy was a configuration or layout of the deck whereby the deck would stay low, close to the wheels, and allow for transportation of tall cargo.

Figure 6. Willscot office trailer loaded on lowboy trailer. Photograph courtesy of the RCMP.
A. *1996 Alco trombone tri-axle lowboy trailer*

Driveway
The approach driveway was included with the Willscot Ruth Lake Yard. Willscot leased the property from a neighbouring business (NCS Properties Ltd.). Under the terms of the lease agreement, the tenant (Willscot) was responsible for maintenance of the property. At the time of the incident, the 4 to 5 percent sloped driveway (Figure 7) was ice covered. Recent weather data from a nearby station included a freeze/thaw cycle that occurred during the night prior to the incident (after the staff at Willscot had left work for the weekend - on the afternoon of Friday, November 22, 2019).

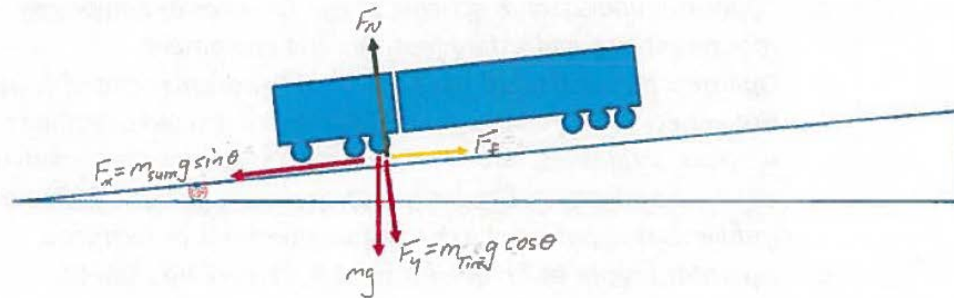

Figure 7. Slide calculation diagram showing the driveway slope of 2.3 to 2.9 degrees (4 to 5 percent) (not to scale). Diagram courtesy of OHS Specialized Professional Services branch.

Sequence of events

On the evening of November 23, 2019, the DB Kidd dispatcher notified worker 1 via text that a trip from Willscot Ruth Lake Yard to go south the following day was available, and worker 1 accepted the job. The dispatcher instructed worker 1 to "Take shack from our yard to willscot yard then load shack go south" to which worker 1 acknowledged with a "K".

The next morning, November 24, 2019, worker 1 used the tractor and trailer described above to winch load a modular office from the laydown area at the Poplar Creek Yard.

Worker 1 then drove approximately 15.6 kilometres from Poplar Creek Yard to the Ruth Lake Yard and parked on the road near the entrance. At approximately 10:00 a.m., worker 1 prepared the trailer and load for drop off which included removing chain boomers from the modular office and shortening the trailer.

Worker 1 then drove the tractor and loaded trailer down the driveway to the entrance gate and deployed the tractor air brake. Worker 1 left the engine running and exited the tractor to retrieve the gate lock key from the combination code key box. The key box was attached to the gate within arm's reach from the padlock that secured the gate pin. After retrieving the padlock key from the combination code key box, as they were about to unlock the gate, worker 1 had their back to the tractor trailer unit. The tractor trailer unit lost grip on the sloped icy driveway and slid into the worker 1's back, pinning them against the locked gate.

Several minutes later, a worker from a neighbouring business passed by and noticed worker 1 pinned against the gate; they pulled into another neighbouring business to get help and call for emergency medical services (EMS). First responders were not able to detect a pulse and EMS personnel pronounced the worker deceased at 10:31 a.m., November 24, 2019.

Completion

A review for enforcement action was completed on April 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 May 8, 2020.

Signatures

ORIGINAL REPORT SIGNED	August 10, 2020
Lead Investigator	Date
ORIGINAL REPORT SIGNED	August 13, 2020
Manager	Date
ORIGINAL REPORT SIGNED	January 18, 2021
Director	Date