OREGON FATALITY ASSESSMENT AND CONTROL EVALUATION
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Oregon Institute of Occupational Health Sciences
OREGON HEALTH & SCIENCE UNIVERSITY

Fatality Investigation Report

OR 2014-1-1

Driver killed when ejected from logging truck

SUMMARY

On January 2014, a 39 year-old driver was killed when he was ejected from the cab of a logging truck after it veered off the haul road into a canyon. The driver had left a landing with a load of logs at about 5:30am. There were reports of dense fog in the area until about 7:30 am. Shortly thereafter, about ½ mile from the landing, another truck driver noticed tire tracks that trailed off the main haul road into a steep canyon. He then saw the wrecked truck and trailer below. The driver was found next to the rear axle of the truck, approximately 150 yards below the road. There were no skid marks or steering corrections indicated by the tire tracks suggesting that the driver inadvertently drove off the road after encountering the dense fog condition.

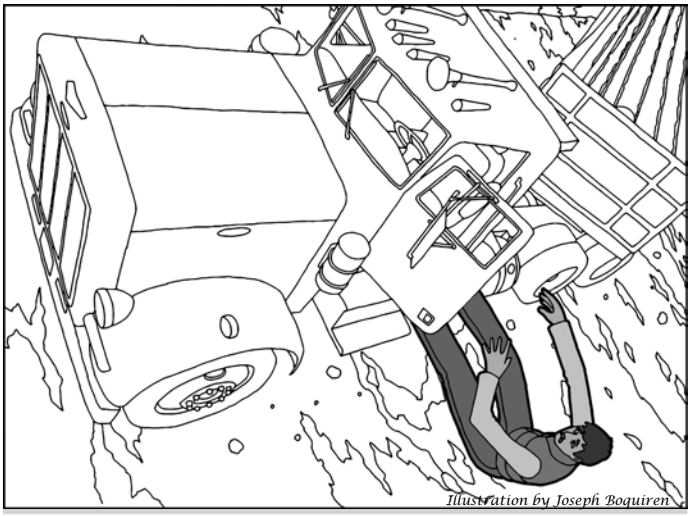

Figure 1. An illustration of the incident.

RECOMMENDATIONS

- **Employers should train truck drivers to recognize unsafe driving conditions and to stop operations when conditions are unsafe**
- **Logging truck fleet owners that require operation under fog conditions should install front fog lamps in trucks and ensure that lights are working and windshields and cab windows are clean.**
- **Drivers should use seat belts when operating a logging truck and employers should enforce existing seat belt use policies.**
- **Drivers should clean their windshields as often as needed and conduct regular vehicle inspections to ensure that brakes are working correctly.**

OR-FACE supports the prioritization of safety interventions using a hierarchy of safety controls, where top priorities are hazard elimination or substitution, followed by engineering controls, administrative controls (including training and work practices), and personal protective equipment.

INTRODUCTION

On the day of the incident the logging truck driver's trailer was loaded with logs at approximately 5:30 am. He was to transport the logs from the logging site to a mill. On the way, ½ mile from the landing, it is speculated that he encountered thick, dense fog, drove off the edge of the road, and was killed when he was ejected from the cab. This was the driver's seventh day on this particular landing site.

OR-FACE became aware of the incident after notification from OR OSHA. This report is based on information contained in the OR OSHA investigation and an OR FACE interview with the manager of the trucking company. There were no eye witness accounts of the accident.

The employer was a medium sized trucking company that provides log truck services on a contractual basis. The company had been in business for 54 years and employed 45 employees. This incident resulted in the first fatality for the company. The employee had 11 years of previous driving experience in "over the road" hauling operations. He was hired and trained as a log truck driver by the company approximately six months prior to this accident. Upon being hired, he drove with another driver for eight to nine days before he was released to drive solo. During the training period, it was noted that he had difficulty shifting gears.

The employer utilized a safety committee to address safety issues and to disseminate safety related information. Due to non-standard start times, the employer relied upon the truck supervisor, wall postings, as well as bi-annual safety meetings for sharing safety related information. Random inspections at the mill and landing were conducted by the truck supervisor to observe driver compliance with company policies and practices that included seat belt use. The employer's safety policy states, "EVERY Employee shall: ...utilize a safety (seat) belt at all times while driving company vehicles." Additionally, a sign posted at the entrance to the landowner property stated that seat belts must be worn at all times. Prior to the incident, the employer requested and obtained OR-OSHA consultation services.

A program is used by the company where the shop personnel train the drivers on truck inspection procedures. Particular emphasis was placed on brake inspections. Records indicated that shop personnel immediately repaired items upon written notice from drivers.

INVESTIGATION

The driver had been hauling logs from this landing for a week. On the day of the incident, he left the truck shop at 3:45 am. He arrived at the landing around 5:00 am. It was his first load of the day. The trailer was loaded at approximately 5:30 am. The truck driver was the fourth in a string of six trucks. The gravel road, where the incident occurred, was relatively flat with gentle curves and a

sharp drop off on the left side of the road, heading away from the landing. The right side was a steep embankment with a minor ditch between it and the road surface (see Figure 2).

Figure 2. White bold arrows point to the tire tracks on the road leading off the edge. White line shows the trucks direction of travel.

On the morning of the incident, the other drivers, whose trucks were loaded at the same landing, commented on the dense fog and discussed it on their CB radios. One driver remarked that at one point he had to get out of his truck to find the upper cut bank of the road.

Figure 3. Photograph with red arrow showing where logging truck came to rest on the hillside.

At about 7:30 am (7:40 am sunrise), the fog had lifted and the first truck in the string was returning to the landing for his second load. He noticed tire tracks leading off the road. He then saw logs strewn down the hillside, a trailer about 50 feet from the road and the truck lying on its side about 150 yards from the road. By CB radio he contacted the logger loading the trucks and asked if he was aware of a truck going over the hill. Neither the loader operator, or two drivers who left the landing after the victim had departed were aware of the incident. In other words, neither of the drivers of the fifth or sixth trucks saw any indication of the wreck on their way out that morning.

The driver and his truck were discovered below the log strewn slope. The truck was resting on a flat spot on the steep embankment, with the driver lying next to the drive wheels. It is speculated that the truck had rolled up to five times down the canyon wall. At some point during the tumble the driver was ejected from the cab and caught up in the debris rolling down the hill. It is unknown if the driver had attempted to jump from the truck or if he was ejected while not using his seat belt. The seat belt remained attached to the cab mounts but was not buckled. There was no damage to the belt or buckle. The seat belt was inspected later and shown to be fully functional. Additionally,

the investigator's notes indicated that there were dents in the roof of the cab and were likely the result of rollover. However, the cab and the driver's seat remained intact.

During the investigation, other truck drivers expressed in interviews that there were no concerns about the driving capabilities of the truck driver. Two of them stated that fog lights may have prevented the incident.

CAUSE OF DEATH: Multiple blunt force head trauma.

RECOMMENDATIONS/DISCUSSION

Recommendation # 1: Employers should train truck drivers to recognize unsafe driving conditions and to stop operations when conditions are unsafe.

- The employer should emphasize in training and during observations that drivers should stop whenever unsafe conditions occur, (e.g., losing sight of the road in fog, fatigue, etc.) and alert other drivers in the area.
- There are numerous reasons for losing sight of the road. It is important to emphasize that drivers should never push the bounds of his/her limited sight distance. With dark conditions, heavy fog, and an unfamiliar gravel road, and steep embankment, the risks are significant.

Recommendation # 2: Logging truck fleet owners that require operation under fog conditions should install front fog lamps in trucks and ensure that lights are working and windshields and cab windows are clean.

- Investigation facts revealed that fog was a major contributing factor. Based on the facts, it was likely that poor visibility for the drivers in dark and foggy conditions may have been improved with the use of front fog lamps. Flannagan (2001) reviewed several studies on front fog lamps and stated, "one of the most widely recognized advantages of fog lamps is the increased lane guidance that they allow by providing illumination that is very wide in comparison to low beams." Furthermore, he cited a study where the results indicated that fog lamps provided greater visibility than low-beam lamps at short range ($\leq$10 meters). Although the studies were for highway traffic, log trucks that operate at slow speed on narrow roads may benefit from the wide illumination of fog lamps within a short range.
- A special problem in logging truck operations is dust and damage to wind shields, which may impair driver visibility. After many miles of road debris, hours of windshield wiper use and the development of small cracks or stars, it is important to replace windshields when the visibility becomes poor or obstructed. In low light and heavy fog conditions, high transparency is critical for safe operations.

Recommendation # 3: Drivers should use seat belts when operating a logging truck and employers should enforce existing seat belt use policies.

- Anecdotally, loggers and off road truck drivers may be less compliant with seat belt use. Washington FACE issued a Fatal Fact in 2003, "Hazards on the Road for Log Truck Drivers." Eleven log truck drivers lost their lives between 1998 and 2002. Seatbelts were not worn

by seven of these log truck drivers (SHARP 2003). In 2005 MSHA reported 10 fatal incidents involving mobile equipment in the metal/nonmetal sector and reported, "Investigators found that the victims in seven of the fatalities were not wearing their seat belts. These deaths might have been prevented if the victims had been restrained and protected by a seat belt." (MSHA 2005). Some log truck drivers were trained to not wear their seat belts when driving in off road conditions and may be based on early years of brake failures and structurally insufficient cabs. It isn't known in this case that a seat belt would have saved the driver's life, however, the cab, seat and seat belt were found intact after the incident.

- Oregon OSHA requires employers to ensure employees use seat belts when operating a vehicle equipped with seat belts (OR-OSHA 437-007-0560). The employer provided training and documented requirements for seat belt use while operating employer trucks. The employer also conducted random inspections at mills and at landing sites to observe driver practices. The landowner posted a sign requiring seat belt use onsite.
- For effective implementation of a seat belt policy/procedure (CDC NIOSH 2003), employers should communicate the importance of wearing a seat belt and "enforce safety policy with fairness and vigilance."

Recommendation # 4: Drivers should clean their windshields as often as needed and conduct regular vehicle inspections to ensure that brakes are working correctly.

- The employer trained, observed and approved the truck driver's routine inspection and brake adjustment process. Even though the employer's truck shop found no evidence of brake failure, it is a highly recommended practice to check the brakes regularly. The process of loading logs could potentially damage air lines and/or air valves. Before leaving the landing check to make sure the system is holding air and that the brakes are working. Apply the brakes and check for any significant loss of air pressure. Even with modern air driers, it is important to drain air tanks on a daily basis, and check all slack adjusters for excess play. If the self-adjusting type of slack adjuster is found to have excess slack it should be replaced immediately. Many drivers are miss-informed about proper maintenance of self-adjusting slack adjusters. They are designed with an adjustment bolt similar to the manual type. Drivers assume that they simply adjust these automatic adjusters like the manual type. If you have to adjust the self-adjusting type, they are defective. The adjustment bolt on the automatic adjuster is to allow a driver to temporarily adjust them so that they can proceed to having them serviced (NIOSH 2009).
- Oregon statute 815.220, "Obstruction of vehicle windows" implies that a penalty may be issued if material on the front windshield "impairs the ability to see into or out of the vehicle. Drivers should clean the windshield regularly, daily and as needed.

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