

## LOG TRUCK DRIVER INJURIES AND NEAR MISS INCIDENTS - 1993 and 1994

(Forestry Industry Transport Accident Reporting Scheme Statistics)

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### INTRODUCTION

This report presents information on injuries and near miss incidents involving log truck drivers in 1993 and 1994. The information is extracted from the New Zealand Forest Industry Transport Accident Reporting Scheme (ARS) which is maintained by LIRO.

Only 23 lost time truck driver accidents were reported for 1993 and 1994. As a consequence, information for 1993 and 1994 has been combined together in this report. It is anticipated that as the Forest Industry Transport ARS becomes more widely known, a greater volume of truck accident information will be reported. This information will be of use in reducing the frequency and severity of log truck driver injuries.

*Table 1 - Accidents recorded by the Scheme for 1993 and 1994*

	1993	1994
Fatal accidents	0	0
Lost time accidents	8	15
Minor accidents	1	6
Near miss incidents	8	50

The following definitions are used by the Forest Industry Transport ARS:

lost time - the injury causes the injured person to miss the next full day's scheduled work

minor - first aid or medical treatment is required, but lost time as defined above does not apply

near miss - first aid or medical treatment is not required but the incident could have caused injury; it includes truck crashes where the driver is not injured.

### ACKNOWLEDGMENTS

*LIRO acknowledges the co-operation of the transport drivers and companies that supplied the data used for these analyses.*

### ANALYSIS

#### Lost Time Per Accident

The average ( $\pm$  standard error) number of days lost per accident was  $8 \pm 2.4$ . Nine accidents resulted in one to five days off work. These accidents do not come to the

attention of the Accident Rehabilitation and Compensation Insurance Corporation (ACC) Integrated Information System database. This only records information on injuries resulting in more than five days off work.

A total of 158 work days were lost in 1994. Using 236 working days as a "work year", this equates to one third of a year of lost time. This compares with 0.4 of a year in 1993. Because of the preliminary nature of the data base (only eight lost time accidents reported in 1993) these results must be used with caution. It is expected that the results will have greater validity as the number of reports increases with greater knowledge of the Scheme.

### Time of Day

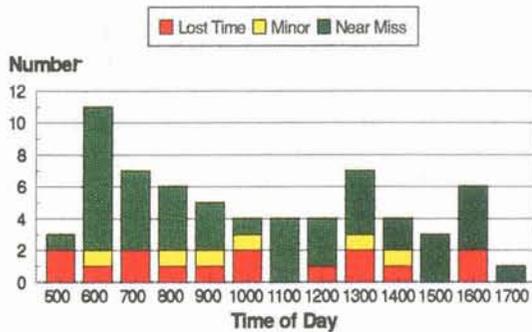


Figure 1 - Injuries and near miss incidents by time of day (1993 and 1994 combined)

Lost time injuries were scattered throughout the day with no particular pattern of occurrence (Figure 1), probably because of the small number recorded. However, the morning and afternoon peaks of lost time, minor and near miss incidents added together were similar to the findings of other motor vehicle accident investigators (Mitler *et al.*, 1988). These peaks closely fit periods of low mental alertness, as governed by the body's internal clock (Mitler, 1996).

Most near miss incidents occurred between 0600 and 0700 hours and 60% of these occurred while it was dark. There were five rollovers involving no other

vehicle, two incidents where trucks were damaged during loading, one collision with an utility vehicle, one near miss with a truck parked in the dark and one incident where a trailer fell off the back of the truck.

Later in the day there were more incidents where trucks and other road users collided, or had near misses.

### Day of Week

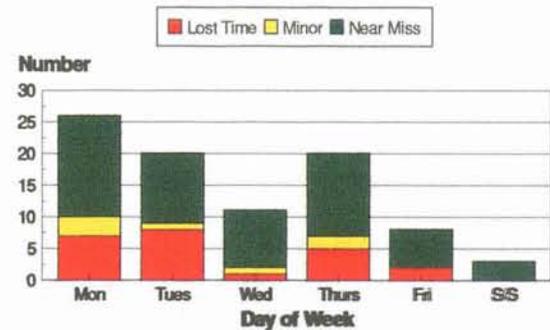


Figure 2 - Injuries and near miss incidents by day of week (1993 and 1994 combined)

More lost time accidents and near miss incidents occurred on Monday, Tuesday and Thursday (Figure 2). There was no daily pattern in the cause of injury or near miss incident.

### Time of Year

A distinct seasonal pattern in accidents and near miss incidents was apparent. Forty-two percent of all injuries and incidents occurred in the Autumn and Winter months of May, June and July (Figure 3). In May, five of the near miss incidents resulted from wet or icy weather conditions. Similarly there were three "slipping" accidents or near misses in July and only one other reported for the year, in October.

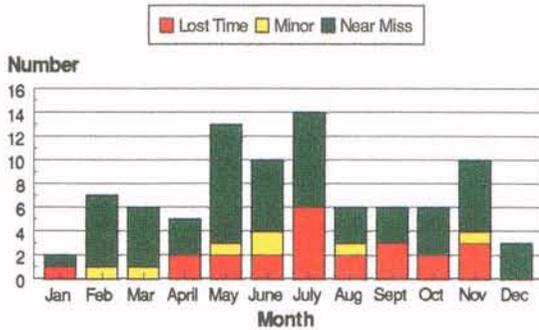


Figure 3 - Injuries and near miss incidents by month (1993 and 1994 combined)

### Part of Operation

Fifty-two percent of all lost time injuries (12 of 23) occurred while the driver was preparing the truck and trailer for loading (Figure 4). The single most hazardous operation was raising stanchions, and inserting extension pins.

All three lost time injuries sustained during loading or unloading were the result of being hit by a log (total of 15 days lost).

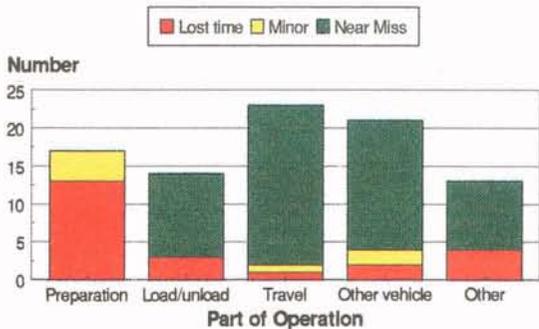


Figure 4 - Injuries and near miss incidents by part of operation (1993 and 1994 combined)

There was one log truck driver injured in a road accident which did not involve another road user - "travelling too fast, rolled over bank". The driver sustained multiple injuries, however lost time was not stated.

The categories "travel" and "other vehicle" had a very high proportion of near miss incidents (Figure 4). Near miss

reports are important because they provide valuable information about the potential for injury in trucking operations. There were 18 truck or trailer rollovers reported where no injuries were sustained (in addition to one lost time injury and one minor injury). Six rollovers were attributed to moving off the road to avoid some obstacle, or to allow traffic to pass. Four rollovers were described as the result of driver error.

The other large group of near miss incidents involved interaction between trucks and other road users. There were 12 reported incidents where other road users collided with trucks, and eight incidents where collision was avoided.

Four lost time injuries were attributed to "other" activities including "standing by stack, log fell off", (crushed lower leg, five days lost) and two back injuries.

### Part of Body Injured and Type of Injury

The hands of truck drivers were the most frequently injured part of the body accounting for 30% of all lost time injuries (Figure 5). Of the seven lost time hand injuries, six were to the right hand and one to the left hand. Three right hand injuries resulted from stanchions falling on to the hand (Figure 6). One injury resulted in an amputated finger and 20 work days lost.

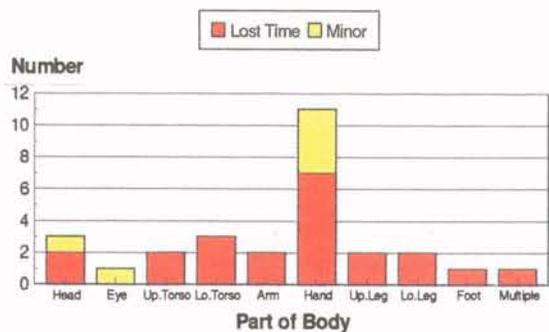


Figure 5 - Injury and incidents by part of body (1993 and 1994 combined)

The other two injuries resulted in fractured fingers. While putting in an extension pin, a driver crushed his thumb (one day lost). Other hand injuries resulted from being hit by a log being loaded (left hand, four days lost) and trapping a finger between the truck and excavator grapple during loading (right hand, number of lost days not reported). Three days were lost in a crush injury where the driver caught his hand in the turntable.

The four minor hand injuries were all to the right hand and all while preparing the truck/trailer for loading or unloading: "jammed finger in pin hole of slide pole - crushed", "trailer on gantry, chain slipped and caught finger", "cut hand when climbing off back of truck" and "thumb caught in tongs lifting trailer - poor communication".

All three lower torso injuries were strains to the back. One driver slipped while climbing from the back of the truck (three days lost), another report stated "back went out - off indefinitely" and the third report simply stated "back injury - strain, unknown lost time". Back injuries often result in long periods of lost time.

A driver sustained crush injuries to both upper legs (14 days lost) when the trailer rolled while he was lining up the drawbar.

There were two lost time injuries to the lower legs: "slipped over while putting the trailer down" (fracture, 30 days lost) and "standing by stack, log fell off" (crush, five days lost). A near miss incident was reported where a driver was almost hit with a log being loaded by an inexperienced operator.

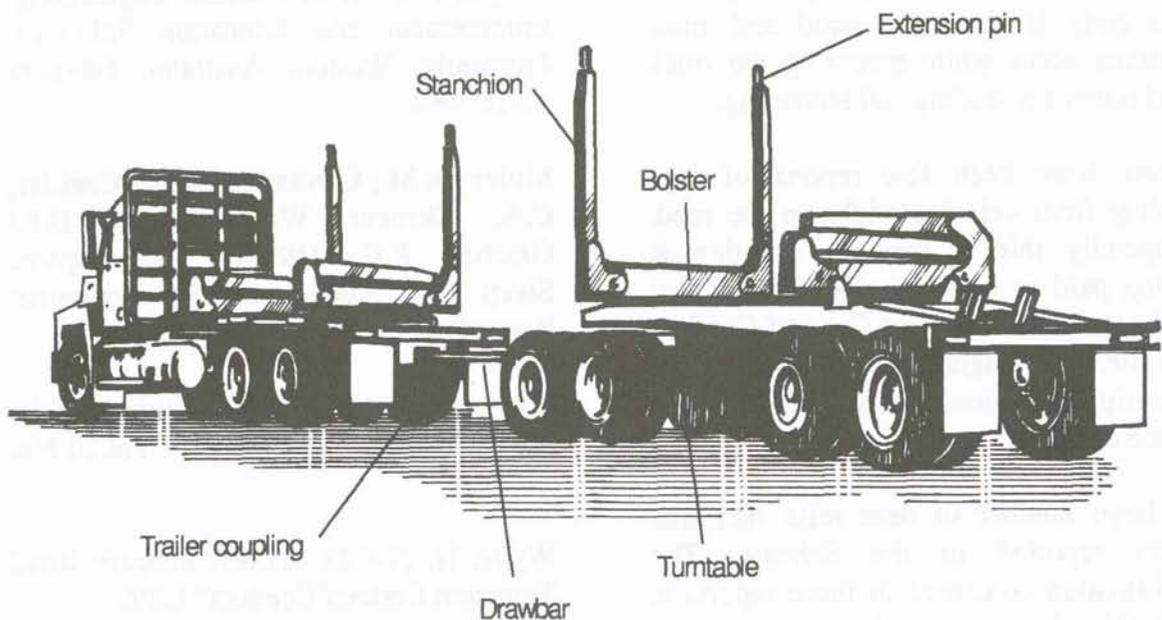


Figure 6 - Parts of truck and trailer. Most injuries occurred while raising stanchions and inserting extension pins.

While twitching down a load, a driver slipped and the handle hit him in the jaw resulting in one day lost. Another driver was knocked unconscious when hit on the head by a log during loading, with one day lost.

Other lost time injuries were both feet bruised after falling from the truck (two days lost) and a crushed arm (10 days lost) when hit by a log while connecting air lines to a trailer being loaded.

## DISCUSSION AND CONCLUSIONS

Only a small number of accident and incident reports have so far been collected by the New Zealand Forest Industry Transport ARS. Therefore, the results presented should be considered as indicative only of the injury and near miss situation currently existing in the New Zealand forest transport industry.

However, trends do exist in this small data set. The most frequently injured part of the body is the right hand and most injuries occur while preparing the truck and trailer for loading and unloading.

There have been few reports of logs falling from vehicles while on the road. Hopefully this is because attention is being paid to load security. The Forest Industry Road Transport Code of Conduct (Wylie, 1994) highlights the importance of pre-trip inspection of load security and loose debris.

A large number of near miss incidents were reported to the Scheme. The information contained in these reports is valuable because it is used in the assessment of trends in accident type and severity. Problem areas such as raising stanchions, inserting extension pins, and avoiding being hit by logs being loaded or unloaded are identified.

To avoid injury, it is recommended that the driver pin each stanchion in place before raising the next stanchion or an alternative is to modify the stanchions. Work by Sullman (1995) has identified simple modifications to the bolsters by Patchell Industries Limited, Rotorua. Patchell's have fitted bolsters with spring assisted stanchions and remote extension pins which enable both stanchion and extension pin to be raised while the driver remains on the ground.

It is important that the industry continues to report lost time and minor accidents and near miss incidents so the New Zealand Forest Industry Transport ARS can continue to focus research and training efforts in log transport safety.

## REFERENCES

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