Fatigue and fuel

Fatigued train drivers use more fuel – is there a lesson for the trucking industry? Dr Kathy de Luc discusses the effect of fatigue on fuel economy in the transport industry.

The impact of driver behaviour and fuel usage has been the subject of recent research in Australia. A study undertaken by The Centre for Sleep Research, University of South Australia, showed how large amounts of money could be saved by minimising fatigue in train drivers. It found that the more fatigued a train driver is, the more fuel is used.

The study found that fatigued driving becomes less well-planned, resulting in reduced efficiency with increased fuel consumption, heavier braking and more speed violations. The extra cost to the railway at the centre of the study was calculated at AUD$3,512 per week. In addition Peter Baas (TERNZ) made the point in last month's *New Zealand Trucking* magazine that engine speeds at which gears are changed, aggressive use of the accelerator and road speeds affect fuel consumption for truck drivers and are linked to safety. We would extend that argument and say that one of the causes of heavy use of the accelerator is tired drivers.

The Australian research indicated that highly fatigued drivers used approximately 9% more fuel than drivers in the low fatigue group. If you used 9% as a basis for your calculation – how much fuel does that mean you could save per week/month?

In addition to fuel savings, the potential benefits of managing fatigue risk include safer driving. Driver fatigue has been identified in 11% of fatal crashes and 6% of injury crashes per year between 2002 and 2004 in New Zealand and it is believed this is an underestimation of the true number of cases of fatigue. The Sleep/Wake Research Centre in 2004 identified driver fatigue in one in six truck crashes. If you were to identify all your accidents, incidents and mistakes that have cost your business money – do you know how many of them are caused by fatigue?

Other research has confirmed that the effect of fatigue on driver performance is similar to drinking alcohol. It is estimated that if you drive after staying awake for 17 hours, you will behave as if you had a blood alcohol level of 50 ml, and if you drive after staying awake for 24 hours it is the equivalent of 100ml (NZ limit is 80ml). In other words, the phrase "drunk tired" is not a myth.

So the reality is that, given our excessive working hours culture in New Zealand and the increasing financial pressures on the individual to work more hours, there may be drivers who are behaving as if they had been drinking, simply due to their tiredness. This will affect both individual performance and the overall financial performance of the company.

The police and ACC have launched a safety campaign where education is the focus. In addition to receiving an infringement notice for things like speed, red light running and lane drift, drivers will receive a leaflet about fatigue and the driver's employment/contractor will be notifed in a letter highlighting fatigue as a road safety risk.

So how can you best avoid or minimise the effects of fatigue? One approach is to look at the person directly involved in the mistake/accident/incident – i.e. the driver. This approach puts all the responsibility for safe driving and safe fatigue risk management practices onto the driver. It implies that drivers have a choice about whether to employ safe or unsafe practices. The problem with this is that fatigue impairs judgement – so you cannot rely on a fatigued driver to make safe choices. In other words, asking a driver "is he OK to do that extra trip" won't cut it! Yes, there is a level of individual responsibility in terms of turning up for work fully rested, but we believe in taking a more systematic approach, to look at the whole organisation and the safeguards that are in place within that organisation to minimise the risks of mistakes. In our experience this is much more beneficial and will deliver the greatest performance gains. In other words, steps need to be introduced which will reduce the chances of relying on someone who is fatigued and likely to have impaired judgement to make an important decision. This systematic approach involves developing Fatigue Risk Management Systems. One can take this a step further and include everyone in the supply chain in developing a fatigue risk management system. This would include the employer of the driver, the prime contractor of the driver, the scheduler of goods and driver, the loading manager etc.

The first step in developing a Fatigue Risk Management System is to recognise fatigue as a hazard. There are many causes of fatigue including:-

- hours of work/roster design
- common medical conditions like sleeping disorders
- lifestyle factors including balancing home and work life
- stress
- poor diet

Over the coming months in future editions of *New Zealand Trucking* we will be looking at the solutions to these common fatigue issues.

View our commercial driver performance resource on our web site – follow the link from our home page. You can also email us to receive a free checklist to assess your fatigue risk management systems.

Symptoms of fatigued driving and their consequences

Reduced reaction times – heavy braking and aggressive acceleration result in increased fuel use plus greater wear on tyres and brakes
Reduced concentration – drifting over the centre line in the road
Muddled thinking – the wrong load is put on the truck
Micro-sleeps – driver fails to negotiate corner and causes accident
Reduced motivation – driver not keeping his/her log book up to date
Impaired judgment – excessive road speeds – again resulting in increased fuel use
Increased risk taking – not taking the required breaks
Increased mistakes – not securing the load properly

Dr Kathryn de Luc is a Director of Shiftwork Services Ltd, a consultancy and training organisation specialising in providing fatigue, risk management, rostering solutions and wellness programmes for the 24/7 workplace. Visit us at www.shiftwork.co.nz or contact: kathy@shiftwork.co.nz