CHAPTER 1
INTRODUCTION

Justification for conducting the research

This chapter sets out for the reader the reasons for the study and key issues that drove it:

- Background to the study
- Perspective shift by the author
- Author’s interest in the Topic
- TFMS course delivery
- Problematics with the TFMS
- A Dichotomy of Views from Drivers about TFMS courses
- The perception of benefits of the TFMS course
- OH&S Issues in Road Transport compared with the Construction Industry
- Genesis of the Research
- Research Questions Arising
- Perspectives and Perceptions of the Subject Population

Background to the study

Underpinning the original research conducted for this Master of Science (Hons) thesis is an attempt to understand the process and outcomes of fatigue in the ‘long haul’ sector of the road transport industry in Australia. The research has drawn from an extensive pool of research material and literature on fatigue; from surveys and interviews which sought to add an in-depth perspective on the problems caused by fatigue and its lack of proper management. The research is also informed by the Author’s practical experience as a driver and driver trainer/assessor in both the truck and coach industries.

The principal research objectives being:

1) to examine the literature on fatigue and stress
2) to examine possible gaps between rhetoric and reality regarding policies for road safety for long distance drivers
3) to survey drivers about their work and leisure habits in order to establish if any links exist between lifestyle and road trauma
4) to interview managers, supervisors and others with links or input into the road transport industry
5) to examine factors which may contribute to long distance road transport trauma

A survey of drivers was conducted, with 44 drivers responding, and interviews were conducted with 10 transport company managers, Transport Workers’ Union representatives and representatives of relevant government departments and statutory authorities. The driver survey and its responses appear in Chapter 4. One of the purposes of the survey was to test the hypothesis that there is little, if any, involvement of the statutory occupational health and safety authority, WorkCover, in New South Wales, in the investigation and prosecution of offenders under workplace health and safety legislation within the road transport industry... The other main purposes of the survey were to:

- test the findings of the Neville and Quinlan Reports (full titles below) which examined, in depth, many of the issues surrounding driver fatigue and Australia’s road transport industry
- seek the views of drivers about their perceptions of their work conditions

**Perspective Shift by the author**

When this study commenced in May 2000, there was a very clear purpose: to investigate the relationship between regulators, consignors of freight and freight forwarders and the relevant acts and regulations. There appeared, to the author, to be a clear link between the horror road transport "accidents" and a lack of implementation of occupational health and safety laws throughout Australia. During the course of researching this topic, the House of Representatives Standing Committee on Communications, Transport and the Arts report: *Managing Fatigue in Transport: "Beyond the Midnight Oil*, Commonwealth Government 2001, commonly termed the Neville Report after the committee’s chairman, and the *Report of an Inquiry into Safety in the Long Haul Sector of the Road Trucking*
Industry, Motor Accident Authority of NSW, Nov 2001, named the Quinlan Report after its New South Wales government appointed chief investigator, Professor Michael Quinlan, University of New South Wales, were released. The Quinlan Report's main recommendations have not been fully implemented as yet in New South Wales, although some other states, notably Victoria and South Australia, have established multi-enforcement groups to police the transport industry. Little, if anything, has been done to implement the main recommendations of the Neville Report as it related to the road transport industry.

Author’s Interest in the Topic
In 1999, the author started conducting training for truck drivers who wished to be registered in the Transitional Fatigue Management Scheme (TFMS). The TFMS, as it is known, was established, as part of a national strategy, by the Roads and Traffic Authority of New South Wales (RTA) in 1998 to allow truck drivers to drive or be involved in truck related duties up to 14 hours per 24 hour period, to a maximum of 144 hours per fortnight. It was developed by the National Road Transport Commission and operates in New South Wales, Victoria and Queensland. It was designed to have transport companies’ management and drivers involved in the fatigue management training: the intention being that a level of understanding and respect for each other’s positions would develop, if both groups were participating in open discussions of problems and perceptions and realities relating to fatigue, the transport industry and their management. Prior to a company or owner/driver registering for the TFMS, the organisation must sign an agreement with the RTA that it will abide by all the rules of fatigue management. These requirements are comprehensive, and if followed, even generally, would greatly improve the management of fatigue and stress of drivers.

TFMS Course Delivery
The TFMS course comprises two sessions conducted a fortnight apart. Candidates are issued with a workbook with case studies, information on healthy lifestyle, fatigue, alcohol and drugs and some sample “lifestyle changes” that the drivers are meant to put into practice during the two week gap between sessions. An audio tape of instructions on
exercises and rest, complete with restful music and commentary by Mike Whitney (a retired cricketer who seems to have adopted the trucking industry) was issued to any driver who wanted one. The author’s records indicate that he had 320 drivers and 10 manager/supervisors complete the TFMS course. Of these people, not one did not already know about the causes, symptoms and effects of fatigue; not one had not heard, at least once, about healthy lifestyles; everyone was fully aware of the dangers of driving when ill. There were many funny anecdotes noted during these sessions when people discussed strategies for dealing with fatigue:

- Slamming fingers in doors
- Opening windows to get fresh air
- Turning the air conditioner to maximum
- Drinking ever stronger cups of coffee
- Chatting on the radio or mobile phone
- Munching chocolates or other sources of sugar and caffeine
- Banging heads on windows
- Slapping or pinching themselves
- Standing up and wriggling around
- Terrorising other road users

The general reaction to the audiotape was that it was a waste of time, and could easily induce sleep if played while driving. Most tapes were consigned to rubbish bins. The reaction to the workbooks was more positive: drivers enjoyed the case studies in the workbook, and quite a few knew of the incidents or the people involved in the case studies. The reaction to the course was mixed: some resented it because the two sessions were held on their days off; some resented it because they were owner drivers who could have been on the road making money; some enjoyed it because it was a break from their routine and allowed them to get together with their peers and bosses in a fairly informal setting.
Problematics with the TFMS

The author grew to believe that many freight consignors and transport companies saw the TFMS as an opportunity to get another 2 hours of legal driving out of their drivers. However, from the surveys administered and the interviews conducted for this research it must be acknowledged that some companies have taken the TFMS as a starting point to redevelop themselves and their total safety management systems. For example, Arnotts, the biscuit manufacturers, have an enviable reputation for caring for their long distance drivers with sensible and legal driving and rest times, and an attitude that the driver is more important than the biscuits.

There are anecdotal reports that Victorian authorities are refusing to acknowledge the right to drive for 14 hours, and that they are "booking" drivers who exceed the 12 hour driving limit. If this is the case, it will have major implications for the role of the TFMS specifically and the role of the National Road Transport Commission (NRTC), generally. Prior to the introduction of the TFMS, drivers were restricted to a maximum of 12 hours driving plus up to 2 hours of associated duties in any 24 hour period up to 72 hours per week. The theory was that, with TFMS, drivers could safely finish off such trips as Sydney – Brisbane, without having the added inconvenience and expense of overnight stays when they were close to the end of their journeys, or the more common flouting of logbook laws so that the journey could be finished without a stopover. Some contraventions of TFMS and the laws underpinning it were examined for this research and discussed in Chapter 2.

Current discussion in the industry suggests that the NRTC is considering recommending the abolition of the TFMS scheme, to be replaced by a more holistic approach to safety management. The new system is rumoured to include risk assessments, driving plans and safety strategies developed by drivers and supervisors: safety suggestions that have been recommended by earlier studies and reports.

There was quite deal of controversy regarding the two hour per day increase in legal driving/duty hours permitted by completion of a Fatigue Management Course. The
National Roads and Motorists Association (NRMA) campaigned vigorously against its introduction, on the basis of the perceived increase of risks related to the hazards posed by road transport operated by drivers working beyond accepted work time norms. Employers would argue that it is acceptable for 12 hours per day to be regarded as the norm, while most research examined for this thesis suggests that 10 hours per day is probably more appropriate, particularly over an extended period. There was very strong support for the TFMS from transport operators. Interestingly, the Transport Workers’ Union (TWU) maintained an ambivalent approach, probably because it represents owner/drivers as well as employed drivers. As the author conducted more and more training in TFMS, mainly for company drivers and supervisors, as well as a number of owner/drivers and sub-contractors, it became obvious that the nett gain from this scheme was to the consignors and transport companies: not to either the employed drivers or the owner/operators of whom there are a significant and growing number

A Dichotomy of Views from Drivers about TFMS courses
The overall response from drivers in general conversations and interviews, orally, was that the course was a waste of time, designed primarily to show that employers had met their duty of care in relation fatigue management and the requirements of the Occupational Health and Safety Act 2000 (for NSW or its equivalent in other States and Territories) for employers to have safe systems of work. The written responses, however, of the drivers who had completed the TFMS course were very positive about the value of the course. Almost 57% of the respondents had completed the TFMS course and, of those, 83% said it was useful. The conclusions to be drawn from these mixed responses are not clear: perhaps interviewers need to be sceptical about results of group interviews where peer pressure might be a powerful deterrent from honesty, or conversely, written surveys may elicit the responses that the respondents think are required and which will not get them into trouble – at work or with the law.
The Perception of Benefits of TFMS Courses

Probably, the beneficiaries of the TFMS course were employers and their customers, and that little, if any, thought had been given by these people to the long term consequences, on the drivers and other road users and family members, of continuous 10 day cycles of 14 hour days. It was of extreme concern to hear, during the delivery of TFMS courses, examples of consignors and transport companies requiring that goods be delivered within 20 minute time slots after journeys exceeding 1000 kilometres. It was an even greater concern to be shown evidence of fines being imposed by a major manufacturer for late deliveries between Newcastle and Brisbane. This evidence was validated during the research that these revelations spurred me to undertake.

OH&S Issues in Road Transport compared with the Construction Industry

As the author was, contemporaneously, conducting training for occupational health and safety induction in the construction industry, he was interested to find out why there was little or no involvement of WorkCover NSW in the road transport industry, compared to its huge commitment to the construction and manufacturing industries. The author’s work and interest in other aspects of OH&S led to the questions:

- Why the road transport industry was the only industry in New South Wales that did not appear to receive attention from WorkCover NSW.
- Were there some alternative strategies in place to ensure drivers’ safety?
- Was this a case of “putting stuff in the too hard basket”?
- Was there an abrogation of responsibility.

These questions and others elaborated below formulated the design for this research.

Genesis of the Research

The author discussed this matter with staff at the University of Western Sydney and was encouraged to research the topic. The original topic questioned whether there was a relationship between changes to the roles of regulatory authorities, and the privatisation of some of their functions and an increased risk of fatigue related incidents in the long haul sector of the road transport industry. It was realised that it would take the powers of a Royal Commission to establish whether or not there was systemic failure at government
level to care for the health, safety and welfare of long haul truck drivers. With this obstacle in mind the research focus for the thesis was changed to the more pragmatic examination of fatigue and stress in the long haul sector of the road transport industry. One of the prime objectives of the research was to establish what is meant exactly by the term fatigue. This portion of the research also identified the need to examine how fatigue and stress were linked. The state of the research and the associated literature reviewed thus far also demonstrated that there was a need to determine how fatigue and stress can be detected and measured, and whether there is any way of forecasting the onset of fatigue or dangerous stress levels, so that drivers could be warned or put off the road. It also became apparent that it was necessary to examine who policed such matters as fatigue and stress, and if there was a correlation between drug use/abuse and fatigue.

The research draws heavily on submissions:

- to the Neville Committee, properly known as the House of Representatives Standing Committee on Communications, Transport and the Arts: *Managing Fatigue in Transport: "Beyond the Midnight Oil"*, Commonwealth Government 2001


- In addition, it draws on a number of overseas and Australian studies in road transport and in other industries. These include Associate Professor Michael Belzer’s, *Sweatshops on Wheels*, (2001).

The author has drawn on these studies to broaden the understanding of the issues of fatigue and its management in the long haulage industry. This research and its subsequent findings, because of the release of the Neville Report and the Quinlan Report during developmental phase of my research, became less original and not as innovative as originally intended. This research summarises the findings of the Neville Report and the Quinlan Report and supplements their findings in areas which are not well or fully explored in the long haulage industry. However, there is little or no known validated
research on the short haul road transport industry, which this researcher intends to explore beyond the completion of this thesis.

Because of the differentiation of the long haul and short haul transport industries the long haul industry was chosen as the area of research focus for the thesis. The RTA definition is used to distinguish long from short haulage, which is that any journey which exceeds 100 kilometres from the driver or truck base is to be regarded as long haul, requiring the completion of driver logbooks; any journey of less than 100 kilometres from the driver or truck base does not require the use of logbooks. There are various exemptions to the logbook rules: government drivers and primary producers are not required to use them, which is inexplicable in terms of road safety.

Research Questions Arising

The recurring emergent research questions for the long haulage sectors are

- What is fatigue and what are its causes?
- What is stress and what are its causes?
- Are stress and fatigue related?
- How can fatigue and stress be detected?
- Are there any realistic ways of combating driver fatigue if the root cause is beyond the control of the drivers - i.e. the need for trucking companies to survive in a highly competitive market?
- Is the time of day significant?
- If the laws are inadequate, what types of legislative changes might be recommended?
Perspectives and Perceptions of the Subject Population

This thesis has a general summary of the perspectives from the literature and perceptions of drivers and managers (through interviews and survey instrument) of the problems with managing fatigue in the road transport industry, along with supporting evidence from recent studies and reports on these perceptions. These perceptions then formed the lesser research questions which informed and shaped the principal research questions outlined above:

“Fatigue is inherent in the industry”: in a sense this is true. The transport industry works virtually around the clock to survive economically and to provide a "just-in-time" service to other industries. With the progress of economic rationalism has come an accepted practice of holding only those stocks which are immediately required for sale or production. Some industries, such as farming, perishable goods, garbage and other wastes cannot operate with delayed collection and delivery, so the transport operators must be available when required. To provide this kind of service means that transport operators must work the hours demanded by the client, or they will simply be replaced by other operators who are willing to comply. There are many frustrations inherent in client demand/control and drivers know that if they do not perform as required, if they are delayed, even by matters beyond their control, they are at risk of losing their livelihoods. Belzer, throughout Sweatshop on Wheels, and in earlier studies reviewed for this study, makes it very clear that the changes in the road transport industry over the last 20 years have placed higher demands on drivers for lower returns. He claims that stress and fatigue are now inherent in the road transport industry in all industrialised nations. Quinlan's Report outlines the incidence of fatigue related road trauma in the long distance road transport industry and adds weight to the views expressed by Belzer. The Neville Report also addresses this issue, as alluded to by Quinlan:

As indicated in the recent Federal House of Representatives Inquiry, long hours of work and fatigue remain a significant concern in the long haul industry, increasing the risk of collisions and having other health effects. For the years 1993 to 1998 the RTA has estimated that fatigued heavy truck drivers accounted for 80.8 casualty crashes (or 7.6% of total casualty crashes) in NSW and fatigued articulated truck drivers accounted for 58.7 (or 5.6%) casualty crashes. The RTA identified an upward trend in both the numbers of crashes and casualties over
time. These concerns are echoed in a recent national survey of fatigue amongst 1,000 long distance drivers undertaken by Dr Ann Williamson and colleagues and benchmarked against an earlier (1991) survey. The survey found there had been an increase in the work required of long distance drivers, entailing longer trips and with a reported earlier onset of fatigue. Most drivers did some midnight to dawn driving (when there are far higher risks of crashing), over 20% had exceeded the 72 hour working hour limit in the last week and around a quarter admitted breaking driving hours regulations on every trip. In short, many drivers work excessive and dangerous hours and the situation is, if anything, getting worse. Long hours also make it very difficult for drivers to juggle work and family commitments. (Quinlan, MAA Report 2001, executive summary p.4)

“Fatigue is someone else's problem”: the general view of managers and supervisors interviewed for this thesis, or with whom I had informal discussions, was that the pressure on them was to deliver the goods, regardless of constraints. They considered that the blame lay with the shippers/consignors or with the regulatory authorities. Drivers felt it was the fault of the managers and supervisors for not having better staffing and facilities, which would allow better working conditions. They also blamed authorities for not enforcing existing laws (which was contradictory as they also did not like being "policed"). From some reports of major shippers, it appears that they blame the "market forces" for their need to insist that goods are delivered on time, with little room for delays. The statutory authorities represented in New South Wales by the Police Service, WorkCover NSW and the Roads and Traffic Authority (RTA) have, in the past, seen the drivers as the main cause of fatigue related problems, with the Police and the RTA conducting regular "blitzes" on long distance drivers, mainly for logbook and overloading offences. The blame has started to shift in the past five years to the shippers, with the new "Chain of Responsibility" legislation viz the National Road Transport Reform (Driving Hours) Regulations, which is mirrored in each state and Territory. This legislation is intended to target the root cause of the fatigue problem, which is the insistence of the road transport industry’s customers to have their freight delivered “on-time” regardless of extenuating factors. The trucking industry, particularly the drivers, views the new legislation as “stagnant”. An article in the Owner Driver magazine (September 2002) gives voice to a commonly held view:
The issue (of minimum rates) has to be explored properly,’ she (Alannah MacTiernan, WA Minister for Transport) says. “We’ve had report after report (Beyond the Midnight Oil, Quinlan Report) which concludes safety standards are being compromised by economics – so I think the realities are undeniable. Nothing’s been done about it.”

What is particularly significant about this statement is that it was made by a State Transport Minister – obviously frustrated by a lack of change and perhaps an unwillingness to change. The question for this research discussed in Chapters 3 and 4 is how a driver can change his or her driving habits to lessen fatigue and its effects if the bureaucracies and management are not prepared to make significant changes to legislation and work practices. Drivers interviewed and surveyed were generally cynical about the millions of dollars that seem to be spent on meetings, fact finding missions and reports when their perception is that little, if anything, changes for them behind the wheel.

“We don't have enough resources”: this is a general view expressed by shippers, transport operators, managers and supervisors, drivers and statutory authorities from interviews, the survey, the Neville Report, the Quinlan Report and industry literature. It is deemed economically unsound to spend more on the provision of trucks and drivers, on enforcement and stock holdings than any industry is worth. The road transport industry is regarded by some as the perfect example of “open competition in the market place”. There are few controls, if any, over who can enter this industry as a transport operator.

“There isn't enough money in transport to make significant changes”: according to National Road Transport Commission and Bureau of Transport Economics figures, only a small number of road transport operators are profitable. Belzer reports on a similar situation in the United States of America. Most companies are operating with a high debt level as they struggle to maintain the modern fleets of vehicles that their clients demand.
“WorkCover NSW doesn't get involved in road transport matters”: this view is not shared by WorkCover NSW, although it is a strongly held belief among drivers, transport operators and anyone researching road transport working and safety conditions.

“Drivers know about fatigue, they know its symptoms but they are forced to ‘carry on’”: every driver that completed the Transitional Fatigue Management Scheme course made it clear that he (they were exclusively male) understood what fatigue was and what caused it.

“The ‘big operators’ have got the regulators and the governments ‘in their pockets’” (major operators and regulatory authorities disagree): there is a perception among drivers that the "top end" of the trucking industry is beyond the law, because of political donations and an “old mates’ network”.

“Drugs, alcohol, bravado and boredom play significant roles in the behaviour of drivers of trucks”: There seems to be general acknowledgement that these factors are not so significant in coach drivers as they are in truck drivers. The publicity surrounding some major coach accidents which caused significant death and injury has led to a stricter policing of the coach industry, and tougher internal requirements within coach companies. Subsequently, unacceptable behaviour has decreased, at least in terms of reported incidents and collisions involving long distance coaches. The Neville Report and Quinlan Report both allude to the “cowboy” mentality of some truck drivers.

“Excessive speed in heavy vehicles is a factor in fatigue, as it is a causative factor in driver stress levels, and is seen to be especially dangerous when linked to drugs and alcohol”: studies conducted in France, Britain, the USA and Australia all indicate that driving at excessive speed has a negative impact on alertness. Drivers become tired faster, the faster they drive.

“The majority of long distance commercial transport operations take place at night”: overnight haulage from Sydney-Brisbane, Sydney-Melbourne and Adelaide-
Melbourne accounts for a high proportion of Australia's road freight and road passenger transport. Comments in the literature present the Hume Highway, Sydney’s main link with Melbourne, as a “truckers’ road” at night, and one only has to travel between any of the major cities after dark to realise that there are a high number of heavy vehicles on the road from dusk till dawn. This has ramifications related to Circadian Rhythms which are discussed in Chapter 3.

“There is a lack of communication between regulatory authorities both intra- and interstate”: there have been many anecdotes over the last ten years about the inability of the various bureaucracies of the States and Territories to agree with each other about the many issues relating to road safety. Such issues as agreement on Dangerous Goods Transport regulations and implementation of national road transport reforms are just two examples. The common question among drivers and supervisors is: Why does each state or territory need to have different road laws, as this leads to confusion? Although there has been national agreement on road law reforms, the implementation has been phased in over a 9 year period, leaving varying levels of confusion among drivers.

“There is lack of knowledge of the road transport industry by police”: generally, police officers have little or no training or knowledge of the road transport industry. Drivers stated that as police knew nothing about trucks and trucking that they should not be involved in any issues that related to trucks. There seemed to be general agreement that police officers should learn about trucks and the trucking industry, so that they could be more proactive and understanding. Contrary to my expectations, a number of drivers said that there should be more police in marked police cars patrolling the highways and doing patrols on side roads. The reasoning behind this was that if the “cowboys” could be controlled, the industry would be safer and more respected. Some drivers expressed the view that it would be easier to control the freight forwarders’ and consignors’ demands, if the drivers could say that with all the police on the road they could not break the law.
“The States and Territories are not serious about enforcement - they have reduced the numbers of active, on-road officers from Police, WorkCover (or its equivalents) and the Roads and Traffic Authority (or its equivalents)”: many drivers and operators believe that there are fewer officers of all involved agencies “on the road” than there were ten years ago. Newspapers and television shows discuss this topic and it would appear that there are economic and other reasons for this situation. Most drivers were of the view that staffing cuts in all the enforcement agencies had led to a decrease in ongoing enforcement and an increase in highly publicised “blitzes” which look good in the media, but catch only those who are either too lazy, too stoned or too stupid to avoid the “blitz”. Issues such as a reported 30% “stress” leave rate among police officers and “rationalisation” of services in all sectors of governments, has contributed to an observable decrease in “on-road” official presence. The police service has attempted to redress this concern with large recruit intakes, but according to the media reports, they are “not winning”. WorkCover NSW has appointed a number of new inspectors in the past eighteen months in an effort to increase compliance auditing.

Having provided, in Chapter 1 a background to the development of this thesis, in the following chapter, the author examines the methodological concepts which provided a base for this study
Chapter 2

METHODOLOGY

In order to develop an appropriate methodology for this study, it was necessary to consider a number of parameters. Due to the diverse nature of sources for this study – academics, statutory authorities, truck drivers, transport supervisors, company executives, friends and relatives of drivers, union officials, interviews, survey, discussions and literature searches, it was felt necessary to employ a number of methodologies. There is, in the author’s view, no one established methodology that fits this study. The author has synthesised a methodology from those outlined below. Creswell (Research Design; Qualitative, Quantitative and Mixed Methods Approaches 2nd Ed, Sage 2003), examines the use of different methodologies to suit different research parameters, and the author has attempted to state how each of these methodologies has contributed to this research.

• Literature review

A wide range of the literature available in relation to fatigue, sleep deprivation, heavy vehicle accident statistics, the effects of drugs, including alcohol, on performance has been reviewed as part of the methodology as well as to inform the particular methods. Significant oral and statistical evidence is contained in both the Quinlan Report and the Neville Report which gives the views of interested parties on the issues affecting the safe operation of the transport industries in Australia.

It is both informative and depressing to compare the results and recommendations of the recent Quinlan and Neville Reports with similar reports and recommendations by the Federal Office of Road Safety over a decade ago. One such report, Strategies to Combat Fatigue in the Long Distance Road Transport Industry Stage 1: The Industry Perspective, CR108 of May 1992, addressed many of the same issues and enunciated many of the same recommendations. The question for this thesis is whether much has happened in the intervening 10 years
and whether the roads have become safer as a result of extensive consultation and research. Similarly a prime consideration is whether or not the Quinlan and Neville reports will be consigned to the “too hard basket” and be largely ignored. Given the enormous quantity of and good quality research and recommendations that have been made over the last 10 to 15 years, one can only ask who, apart from researchers, reads these reports and who should consider the recommendations.

There are thousands of references to fatigue in general, and hundreds that relate specifically to the road transport industry. In particular the World WideWeb has been a very useful resource to review journal articles, especially in medical journals. Articles in trucking magazines, too, have been consulted extensively: many of these magazines have moved from a “gung-ho” mentality to a position of supporting any strategies which will combat or at least ameliorate driver fatigue. The trucking industry magazines have become very vocal critics of government inaction. From the texts, magazines, web, and newspapers there is a mass of evidence that supports the dangers that driver fatigue poses to the drivers, other road users and to the community generally. The New South Wales Roads and Traffic Authority estimates that the cost of a single fatal road trauma is, at least, $750,000, although figures up to $1.5 million are quoted in some seminars.

Reading has, mostly, been limited to subject matter which is directly relevant to the thesis topic, but fascinating related issues in the maritime and aviation industries emerge where direct parallels can be drawn between fatigued operators and disasters. Studies into fatigue in other industries simply reinforce the notion that humans need sleep and mental rest in order to be able to function properly/efficiently/safely. James Horne (1988) reports on many experiments both of his own and others going back to the 19th century and makes it quite clear that 5 hours per night is a minimum sleep requirement for humans.
The review of legislation for this thesis that relates to driving times would seem to provide adequately for such an amount of sleep – it states quite clearly that a driver must take a half-hour break after 5 hours driving and a 10 hour break after 14 hours, if the driver has completed the TFMS course. (RTA Heavy Vehicle Drivers Handbook 1999) One of the questions for this research is whether drivers actually get 5 or 6 hours of undisturbed sleep

Professor Ron Grunstein’s research at the Department of Medicine, University of Sydney, over the period 1979 to 1999, indicates the higher risk of sleep disturbance with increasing age – he states, as do many other sleep disorder researchers that many sufferers of sleep disorders, and especially sleep apnoea, have no idea that they are suffering from a potentially fatal condition. He reports that indications of sleep apnoea, such as sore throats and headaches on waking are disregarded, or regarded as indicators of other problems such as hangovers or influenza.

Belzer has summarized major influences that economic rationalism has had on the road transport industry in the United States of America. He has given submissions to enquiries in Australia and established that there are many parallels between the parlous state of the USA’s trucking industry and the rapidly deteriorating state of Australia’s road transport industry.

Research conducted by the Walter Reed Army Institute of Research, Division of Neuropsychiatry and reported by Colonel Gregory Belenky examines the lethal consequences of insufficient sleep and rest for troops in the field. His studies have confirmed, in a high intensity/high risk situation, the findings of Horne and other sleep researchers: that depriving humans of sleep prevents them from operating safely. His findings indicate that cognitive function suffers as sleep deprivation increases.
The National Highway Traffic Safety Administration of the USA revealed that, in the USA 1 500 fatalities, 71 000 injuries and 100 000 vehicles crashes can be linked, at a minimum, to fatigue. It predicts that sensing equipment to detect the onset of fatigue will be generally available in 2004 although it has indicated that the cost of such equipment will not be within the scope of many operators, who are struggling to survive:

The study used sophisticated cameras, electroencephalograms, and other devices to precisely measure eye and head movements, pupil diameter and blink rates while simultaneously recording details of driver and vehicle performance. The research suggests predictions can be made about various aspects of driver performance based on the movements of a driver’s eyes. (NHTSA USA 2001)

The Swedish truck manufacturer, Volvo, has such a system already available as an optional extra on its trucks. It has prepared a short video which demonstrates what the monitors record.

Dr Laurence Hartley and his associate Pauline Arnold from Murdoch University in Western Australia define fatigue as “a progressive loss of alertness ending in sleep”. They quote evidence collected by Belenky, Smiley and Mitler in different studies that fatigue, is a progressive state unless something is done to prevent it, by taking a sleep
- alertness is impaired long before sleep intervenes, and this results in poor control of a vehicle
- Drivers do not have to be soundly asleep to have a crash. Drowsiness will impair attention.
- Finally sleep intervenes, initially in very brief microsleeps of which the operator is usually unaware
- The operator may wake spontaneously or from the sound of the vehicle running off the road

Hartley et al in a 1995 study reported that 38% of drivers exceeded 14 hours driving per day, and that other work that drivers do contributes another 10% on top of the driving times recorded in this on-road survey of 638 drivers. They also found that about 33% of drivers worked more than 72 hours a week and 11% worked more than 90 hours a week. Of the drivers surveyed, 30% reported that
they had had less than 6 hours of sleep on at least one day during their driving week.

In a 1998 study, Mabbott and Hartley reported that 28% of drivers claimed to have used a stimulant drug to combat fatigue. Amphetamines were the most commonly used drug, followed closely by the prescription stimulant “Duramine”. This study has an interesting correlation with the report of the NSW Police Force on its “Ion Scan” survey of 402 trucks, looking for traces of illicit drugs, which showed 35% of trucks had a positive reading. Mabbott and Hartley also report on some studies of deceased drivers in the USA which have relevance:

- Sweedler, 1992 found that 33% of drivers were positive for drugs of abuse, including alcohol and marijuana (13% each) and cocaine (9%), amphetamines and other stimulants (15%)
- Crouch, Birky, Gust, Rollins and Walsh, 1993 found 33% of deceased drivers were positive for psychostimulants or alcohol; alcohol and marijuana were each found in 13%, cocaine in 8% and prescription and non-prescription stimulants were found in 14% of drivers

They make the point that: “…all studies of bodily samples agree that poly drug use occurs in a large proportion of drivers testing positive for any drug.” Mabbott and Hartley suggest that there is a strong possibility that “downers” are used at the end of trips to counteract the effects of the “uppers”. There is an abundance of literature which supports the view that commercial drivers use stimulant drugs to allow them to stay awake and to complete their jobs. The evidence from forensic analysis is strongly that road transport drivers use drugs, before, during and after work for a variety of purposes. Some of these purposes are legal, but from the evidence, the majority are illegal.

The drivers surveyed and interviewed for this research were asked to comment on their own drug use, and on their knowledge of the drug use among other drivers.

- **What epistemology informs the topic/research?** It appears that objectivism/subjectivism are appropriate bases to proceed from, in that objectivism considers the independence of opinion and assumes the innate worth of a person or their views independent of the views of others and subjectivism
considers that what is known is the product of consciousness (after definitions in the *Penguin Dictionary of Philosophy* 2000) Although it may be argued that all observations are ultimately subjective because the individual’s social reality (in this instance this researcher) is based on subjective observations that an individual can make of being. Perhaps then any observation that engages with knowledge has as much basis in ontology as it does in epistemology.

- **Which is the most relevant theoretical perspective on which to advance the research for this subject?** after review of four classifications of perspective, namely post-positivism, constructivism/interpretivism, advocacy/participatory and pragmatism, it was decided that post-positivism, advocacy/participatory and pragmatism all should be considered and utilised.

**Post-positivism**, according to Creswell (2003), is another term for scientific or quantitative research. It is based on a philosophy of determinism where cause determines effect (Creswell 2003, p. 7), and it seems relevant to this study in that there are a number of known effects or outcomes, such as road trauma and collisions, and by the application of scientific method through surveys, it could be hoped to establish the causes. Creswell quotes Phillips and Vervialle’s 2000 study which states the following about the grounding of postpositive thought:

1. That knowledge is conjectural (and anti-foundational) – absolute truth can never be found (ie, owing to the intervention of subjectivity touched on above). Thus, evidence established in research is always imperfect and fallible. It is for this reason that researchers do not prove hypotheses and instead indicate a failure to reject.

2. Research is the process of making claims and then refining or abandoning some of them for other claims more strongly warranted. Most quantitative research starts with the test of a theory.

3. Data, evidence and rational considerations shape knowledge. In practice, the researcher collects information on instruments based on measures
completed by the participants or by observations recorded by the researcher.

4. Research seeks to develop relevant true statements, ones that can serve to explain the situation that is of concern or that describes the causal relationships of interest. In quantitative studies, researchers advance the relationship among variables and pose this in terms of questions or hypotheses.

5. Being objective is an essential aspect of competent research, and for this reason researchers must examine methods and conclusions for bias. For example, standards of validity and reliability are important in quantitative research. (Creswell 2003, p.8)

**Constructivism/interpretivism** is an almost opposing philosophy to post-positivism, in that it assumes that individuals will attempt to understand the world around them through interpretation of the meaning of the issues and objects around them. Where post-positivism is quantitative, relying on the data to prove a point, constructivism is qualitative by its very nature – it seeks values as understood by participants. This school of thought opens the way to a broad view of issues and an acceptance, indeed a reliance, on the views of the participants. There is an emphasis on the complexity of issues, rather than a reductionist view where only a few issues are dealt with. Of particular relevance to this study is the social “imprint” aspect of constructivism. The nature of behaviour in the road transport industry may well be influenced by the nature and history of the industry itself, as well as by other external measures, such as road law, economic viability and market forces. Because social constructivists focus on the specific contexts in which people live and work in order to understand the historical and cultural settings of the participants, there must be space in this research to incorporate constructivist/interpretivist theory and practice. Creswell quotes Crotty (1998) to illuminate the assumptions of this theory:

1. Meanings are constructed by human beings as they engage with the world they are interpreting. Qualitative researchers tend to use open-ended
questions so that participants can express their views (which must be subjective).

2. Humans engage with their world and make sense of it based on their historical and social perspective – we are all born into a world of meaning bestowed upon us by our culture. Thus, qualitative researchers seek to understand the context or setting of the participants through visiting this context and gathering information personally preferably keeping in mind the subjective nature of existence and hence of value judgments. They also make an interpretation of what they find, an interpretation shaped by the researchers’ own experiences and backgrounds (perhaps importing another layer of subjective reasoning).

3. The basic generation of meaning is always social, arising in and out of interaction with a human community. The process of qualitative research is largely inductive, with the inquirer generating meaning from the data collected in the field.

Advocacy/Participatory Knowledge Claims stem from recent times in the late twentieth century where researchers were not satisfied that the post-positivists, although they acknowledged the fallibility of “fact”, did not include the people on the margins of society and did not “adequately address issues of social justice” (Creswell 2003, p.9). The significant developers of this theoretical base, according to Creswell, ranged from Marx to Freire. Freire had an impact internationally with his concept of empowerment, where oppressed groups should be given the right to determine their own futures, within a set of just and reasonable laws. Working as an Aboriginal adult educator in the Northern Territory during the mid-70’s early 80’s, this author worked with a group of adult educators and senior management who were heavily influenced by the work of Freire. Action research was a model that was adopted by many of these professionals, to determine realistic goals and potential outcomes. The head of the Aboriginal Education Unit in the Northern Territory at that time, Reg Bond, was formerly the head of British Army Education for the South East Asia Region, and during his tenure in that position he had meetings with and attended conferences with Freire and the famous Dr David Suzuki.
Bond had great respect for the works and philosophies of Freire and Suzuki, and each of his staff of field adult educators was influenced to a greater or lesser degree by these proponents of advocacy/participation. Some were influenced to the extent that they were removed from their communities for espousing such dangerous concepts as empowerment and self-determination, both of which were anathema to the practice, if not the policy, of Federal and Territory governments of the time. Having been directly involved in the realities of empowerment and its contentiousness for bureaucrats, this author believes that Freire’s work has a justifiable and essential place in this study.

Unless drivers, most particularly, and transport supervisors and managers generally, can feel and believe that their voices are heard and their needs are met, there may be little or no change in the practices of the road transport industry. Creswell quotes Kemmis and Wilkinson’s 1998 study on this topic, i.e., action learning:

1. Participatory action is recursive or dialectical and is focused on bringing about change in practices. Thus, at the end of advocacy/participatory studies, researchers advance an action for agenda for change.

2. It is focused on helping individuals free themselves from constraints found in the media, in language, in work proceedings and in the relationships of power in educational settings. Advocacy/participatory studies often begin with an important issue or stance about the problems in society, such as the need for empowerment.

3. It is emancipatory in that it helps unshackle people from the constraints of irrational and unjust structures that limit self-development and self-determination. The aim of advocacy/participatory studies is to create a political debate and discussion so that change will occur.

4. It is practical and collaborative because it is inquiry completed “with” others rather than “on” or “to” others. In this spirit, advocacy/participatory authors engage the participants as active collaborators in their inquiries.

**Pragmatism**

(a) **Qualitative research** lends itself to studies where there is either little or no established theory or where a less inductive approach linked to the “perspective of
participants” (Creswell p75) may be desirable. Creswell states that previous studies of qualitative methodology by Moustakas in 1994 also allow for a “personal statement of experiences from the author” to be included in the introduction to the study. He goes on to state that writing may be in the first person, which represents a move away from the traditional 3rd person authorship so often viewed as the “only” acceptable academic standard. Because of the author’s personal involvement in the road transport industry as a driver and driver trainer/assessor, it was felt that a partially qualitative approach is not only justifiable, but necessary. The credibility which Belzer brings to his studies on transport economics stems not only from his academic background, but from his years as a driver of the types of vehicles that he writes about. Whilst not professing any equivalence with Professor Belzer, the author strongly believes that this research is enhanced by his personal experiences of long distance driving and its associated problems; by discussions with other drivers, managers and fleet operators over some 20 years and by involvement as a fatigue management trainer.

One hundred and three interviews have been conducted and forty four drivers completed the survey instrument for the research. Two hundred surveys were distributed to drivers attending fatigue management courses. Some drivers asked if they could fill them in before leaving the training venue, whilst others asked if they could complete them at their own convenience and post them in the supplied, stamped envelope. 68 surveys were returned, giving a response rate of 34%. Unfortunately 24 of the completed surveys were accidentally destroyed in an office move.

(b) Quantitative research is appropriate to deal with the specific issues of fatigue, its effects and causes; with the problems of regulation, legislation and policing of an under-regulated industry. This methodology is particularly apposite for the sections of this study which deal with the mass of literature which has been written about fatigue and its effects on the road transport industry. In dealing with the ‘facts’ as opposed to the concepts and opinions dealt with in the qualitative methodology, the quantitative methodology will be more objective and impersonal. A significant area for this type of
research will be the relationship between occupational health and safety legislation and its implementation in the road transport industry.

**Mixed methodology** will be employed, based on literature reviews, surveys and interviews and data analysis to explore the correlation between driver ages, training and other empirical factors and risktaking behaviour, then seek to determine the beliefs of the drivers in relation to their work and how this may be linked to their behaviour on the road. In a general sense, this research follows the “deficiencies model”, in that it

- poses a number of research questions,
- examines previous significant Australian and overseas studies in this particular area,
- will attempt to outline where the deficiencies are either in the studies or their application subsequent to their publication
- will attempt to engage the audience in the seriousness of the purported weaknesses in the current system
- makes a clear statement of its purpose

The research methods rely on obtaining data from the survey. These data will be collated and analysed using standard research techniques, specifically descriptive statistical analysis. The surveys and interviews contain important qualitative data which will be presented and analysed. It is important to state that while some of the responses can be analysed in terms of quantitative data, much of the material will relate to personal views and perceptions gathered from qualitative questionnaire items and interviews, perhaps even misperceptions. It is important to present this qualitative information, if only to re-affirm much of the previous research, but also to give voice to those drivers and others who so willingly gave their time in the hope of being heard.
CHAPTER 3

FATIGUE?? STRESS?? WHAT ARE THEY AND WHAT IMPACT DO THEY HAVE ON DRIVERS?

Links between different types of fatigue and the work of road transport drivers

There are many definitions of fatigue. In the Neville Report the following were presented:

1) the consequence of inadequate restorative sleep (Centre for Sleep Research, submission, 1999)
2) the progressive loss of alertness ending in sleep (Prof Laurence Hartley, submission, 1999)
3) an all encompassing term used to describe a variety of different experiences such as physical discomfort from over working a group of muscles, difficulty concentrating, difficulty appreciating potentially important signals and problems staying awake (Road Transport Code of Practice, Northern Territory Dept of Transport and Works, submission 2001)
4) a reduction in or loss of physical and/or mental capability as a result of exertion, which may impair all physical abilities, including strength, speed, reaction time, coordination, decision making or balance (Department of Transport and Regional Services, submission 2001)

There are implications for operators, drivers and regulators in what is actually meant by fatigue. Any definition which ignores the psychological causes of fatigue and concentrates solely on “lack of sleep” or “time on the job”, is only dealing with part of the problem. There are, undoubtedly, links between a person’s psychological state and insomnia but a person’s mental state is as relevant in the workplace, as is their physical state. A person’s mental fitness for work, which may be linked to psychological stresses, can dictate if that person should be taking on a task which requires high levels of concentration over a long period of time. Is it reasonable to ask drivers to declare high
levels of psychological stress before they are allowed out on the road? Can an objective measure be made of a driver’s psychological fitness to drive?

With the technology currently available, drivers can be monitored with a variety of sensors and video cameras in order to detect the onset of “microsleeps” Research continues into the most reliable measures of fatigue precursors, so that a self-warning system can be developed. Other strategies electronically link cab-mounted video sensors to alarms, to “back-to-base” alerts, to engine control systems, to braking and steering systems, so that if a driver’s eyes blink rapidly or the lids close, the system will, in theory, provide a failsafe system to protect the driver and other road users. Volvo trucks can be purchased with eye-motion detectors fitted.

If everyone knows what fatigue is and what its symptoms are and how to deal with these symptoms, why are fatigued drivers still crashing?? This concept will be explored in the body of this work.

Fatigue seems to fit into a number of categories:

1) **Physiological Fatigue** which can be examined at:

   (a) the cellular level, where the body's cells use sugars, fats, proteins, vitamins and minerals to do their work and produce wastes as a by-product. When the nutrients are used, the cell can no longer function efficiently, so muscle tiredness sets in, and can only be overcome by the replenishment of the "fuels". Likewise the build-up of wastes, such as lactic acid, can cause cellular malfunction, so an effective waste removal system must be working at the same time as the “fuel delivery”. The replenishment of body fuels is usually rapid. A short rest period is normally sufficient to allow the blood supply to carry nutrients to the cells and remove wastes, so that, as long as a driver is taking in a regular and balanced diet (this can be difficult at some truckstops), and he takes regular short breaks, his cells will be ready to work.
(b) the holistic or macro-level level for the whole body. Where there is a high level of cellular fatigue, then there is an impact on the cells' ability to function cohesively. A person involved in vigorous work will rapidly deplete the available nutrients at the cellular level and these will need to be rapidly replaced from stored or newly digested foods for the high level of vigour to continue. For a person involved in sedentary work, the rate of "fuel burn" is much less than that experienced by a person involved in hard physical activity. A truck driver sitting in his or her cab would be less likely to burn a lot of "fuel" than a builder's labourer digging a ditch by hand would. The chance of physical fatigue is therefore lower for a truck driver than for a labourer, but there is a significantly higher chance of some of nutrients being stored as fats which may lead to another fatigue problem.

Regular rest periods are necessary to allow for the restoration of nutrients at the cellular level: hence "smokos" and lunch breaks. If, as mentioned above, there is a lack of cellular activity and food is being stored by the body as fatty acids and glycerols, the body will have to find a way to cope with the increased mass. Up to a certain level, the body needs to have a store of fatty acids and glycerols so that normal cellular function can continue uninterrupted by irregular or spaced food intake: there are many examples of this activity in nature, from animals storing fats for hibernation to nomadic people indulging in huge feasts often followed by famines. However, too much storage leads to obesity and a decreased ability of the body to function efficiently. There have been many studies which report on the need for the balance of and between food intake and exercise. Most of these studies state clearly that people in occupations where a low level of physical activity is required, such as pilots and drivers, need to carefully measure their food intake against the nutrients usage rate in order to avoid obesity and the fatigue problems which may be linked to obesity. These studies are well summarised by Grunstein when he states that “a number of surveys have shown that truck drivers are more obese than an age match controlled population.” (Neville Report submission, 1999)
One of the major concerns in transport related medicine is about the incidence of sleep apnoea, which has been linked, partly, to obesity. This condition will be dealt with in some detail in this chapter below. Another concern is that a lack of exercise can lead to obesity which in turn can lead to poor cardiovascular function which in turn can lead to increased levels of fatigue: that is, the worse the circulation, the less the nutrient flow to cells, the less activity the cells can conduct. The main point to make here is that both diet and exercise are factors in physiological fatigue.

It must be borne in mind that the cellular level of fatigue operates in the brain cells as much as in any other cell group. Professor James Horne, (Horne, 1988), concluded that humans, as distinct from any other animals, need a period of approximately 5 - 6 hours sleep per night to allow the brain cells to recuperate. Horne stated that the part of the brain responsible for cognition (the cerebrum) needed to rest, in order to refresh itself for effective thinking.

An important point, made by Horne and other researchers, is that higher levels of either physical or mental exercise (work) require appropriate rest periods to allow the “refuelling” of the cells involved in the exercise. In the road transport industry, it is not uncommon for drivers to be physically involved in loading and unloading the truck, washing and cleaning the truck, chasing up loads and carrying out maintenance. These roles are slowly changing, with more recognition being given to the need for the driver to rest, but the provision of support staff, especially in remote areas, is not at a satisfactory level, when the driver’s needs are taken into account.

There is new research that suggests links between interrupted sleep and heart disease. Grunstein, in his submission to the Neville Committee, discusses at length the issues of sleep apnoea and its prevalence in middle aged, overweight men (in particular). As the survey data for this thesis shows below, the average age of the drivers surveyed puts them very squarely in the frame for sleep disorders, and, if the new research is correct, heart disorders. It is frightening enough that a driver might suffer a microsleep, which usually lasts only a few seconds, as a result of disturbed sleep, but is far more alarming
that the same driver is prone to suffer a heart attack from which he will not wake in time to avert a collision.

The types of sleep that a driver has are important, as are the effects of “sleep inertia”. In an article published in *Flight Safety* magazine by the Civil Aviation Safety Authority, De Landre, Boag and Fletcher make several points which have relevance to the road transport industry:

(i) Sleep occurs in four stages
The sleep patterns are explained as:

Stages of sleep

Sleep patterns vary from person to person, however, a well-rested person generally moves through progressive sleep stages, including Rapid Eye Movement (REM), sleep and non REM sleep.

Stage 1 sleep is a transitional phase between wakefulness and sleep. Brain waves become smaller and slower. In this stage, a person is still easily awakened and might even deny having slept.

Stage 2 sleep is a deeper, intermediate stage of sleep and occupies about 60 per cent of an adult's sleep pattern. In this stage, blood pressure, metabolism and cardiac activity decrease. Brain waves are larger with occasional bursts of activity. A person will not see anything even if the eyes are opened, however, can easily be awakened by sound.

Stage 3 sleep is the beginning of deep sleep and is characterised by delta waves — slow brain waves which are about five times the size of brain wave patterns in Stage 2 sleep. A person will be far more difficult to awaken during this stage.

Stage 4 sleep is when the deepest sleep occurs and is characterised by large delta brain waves. If the person is a sleepwalker or a bed wetter, these activities will begin in this phase.

Waking someone from Stages 3 and 4 sleep is quite difficult. A person awakened from these deep sleep stages will probably be groggy, disoriented and confused and experience sleep inertia.

(Flight Safety, Australia Sept/Oct 02 Vol 6 No 5)
And, (ii) make the point that a person disturbed from Stage 3 or 4 sleep will not be alert and will probably be dangerous if placed in a critical situation, at least for the following 30 minutes.

A tired driver, who pulls off the road and falls into a deep sleep, should theoretically be allowed to complete the deep sleep phases before being woken. More commonly someone will wake the driver and the driver will often head straight back out onto the road. De Landre et al claim that a person should have at least thirty minutes to allow them to fully wake, before they undertake operational tasks.

Work done by researchers around the world, including the United States National Aeronautical and Space Agency (NASA), has shown that these uncontrolled sleep events or “microsleeps” as they are now termed can have devastating impacts if the microsleeper is in a control critical situation, such as a pilot (or helmsman or driver). In one set of observations, NASA researchers in 1994 travelled with pilots and recorded sleep, duty and rest periods. The pilots were wired to encephalographs which can detect microsleeps, the 154 microsleeps recorded, 50% lasted 10 seconds or more and 25% were during descent and landing phases: a good reason that commercial jets carry two pilots. (Flight Safety Australia Sept/Oct 02) This finding is alarming in itself, and could have/may have led to disasters where hundreds of people die. Relating it back to road transport, where drivers don’t have co-drivers very often, where diet is probably suspect and working hours are far greater than they are for pilots, this finding is alarming. Many airline pilots may not log more than 100 hours per month, where most truck drivers can legally log 288 hours per month on the road and often exceed that by large margins, either in-truck or “around the truck”...

2) Psychological Fatigue: in the “Neville Report” there is a term “subjective fatigue”. It is defined as

how sleepy a person feels. This is not an accurate measure of an individual’s physiological need for sleep. It can be affected by factors such as physical activity or a stimulating environment.
Boredom, family, financial and personal crises, “road rage”, job related stresses and other factors contribute to drivers or operators or pilots feeling mentally “washed out”. A common comment from drivers interviewed for this thesis is that, regardless of how much sleep they had prior to setting off on a long trip, they would often feel sleepy during the first hour or two. Some reported that the “sleepiness” was so great that they needed to pull off the road and take a short nap, or take some form of stimulant (coffee, chocolates/sweets) before they could continue. The drivers stated that they did not feel sleepy before they started driving, and did not need to sleep. They ascribed this “sleepiness” to their minds telling them that they were tired because of the concept of the planned trip.

Although the following quote from Raggatt and Morrissey has some relevance to this condition, no known literature has been found that specifically addresses this phenomenon. The thought of driving for 12 to 14 hours with only two programmed stops and little external stimuli may well predispose these drivers to “pre-trip boredom”. These episodes are not the same as the “microsleeps” that are more usually associated with sleep debt. Many, if not all, the drivers interviewed and surveyed agreed that they had experienced “microsleeps” as a result of insufficient and broken sleep. Is psychological fatigue the same as stress? The findings from the data and the literature review discussed below in full, contends that is not. Stress can be a stimulating experience, leading to higher levels of performance, due to higher levels of adrenalin being pumped into the system. It can, in excess, lead to psychological and even physical fatigue, but is not necessarily deleterious.

A useful summary of these points is made by Raggatt and Morrissey (1997, vol. 23) where they state:

Psychophysiological changes during long-distance driving may be associated with driving fatigue and morbidity. Measures of stress and arousal, including heart rate, blood pressure, catecholamines, cortisol, state anxiety, and self ratings of stress and arousal were collected from 10
long-distance bus drivers during 12-hour driving shifts and at matched times on non-driving rest days. Cardiovascular and catecholamine data were elevated across the entire work day, compared with rest days. Self-reported stress and state anxiety were elevated only at the preshift measure, and these elevations were interpreted as the result of anticipatory anxiety and additional work demands at the beginning of the shift. Decelerating activation from the 9th to the 12th hours of driving were reflected in the slower heart rates and lower subjective arousal ratings. Suggested explanations for these findings are that drivers experience a release of tension when they anticipate the end of the shift and therefore deactivation is a signal or precursor to the onset of fatigue in physiological adjustment mechanisms.

There are several points of interest in this statement, of which two are of concern and discussed below:

1. the development of stress prior to the start of the shift: if stress can be linked to fatigue, does this account for the “early trip tiredness” phenomenon?
2. knowing that drivers “destress” as they near the end of their shifts is useful knowledge, but only if a practical method of monitoring the “destressing” can be found so that drivers are kept alert.

**What role does stress play in the life of truck drivers?**

As Quinlan showed, stress among truck drivers is higher than average, and for truck drivers on the Hume Highway, stress is at a dangerous level. Most drivers would accept that stress is a part of their daily lives; that worries about on-time deliveries, speeding fines, logbook offences, unloading, backloading plus the usual strains related to family life when one partner is away on the road for long periods are all part and parcel of the job. Stress provides stimulus for the brain and allows high levels of performance to be achieved. Too much stress, either at very high levels or over too long a period of time, causes the consumption of too much energy or will lead to a gradual decline in performance or it may so overload the system that the system goes into shock.

Some examples of mental stress symptoms are that people forget where they are, they may lose their ability to calculate or work with number – these may have little or nothing
to do with “fatigue” as it is generally perceived, but they can still lead to disastrous situations. During interviews conducted for this research many drivers’ related episodes where they were mentally much stressed, but not fatigued. They commonly related how, once the stress was removed, that they felt “exhausted”. If these insights are applicable across the long haulage industry drivers have to operate with two factors, which although related are also distinct:

**Fatigue** – where the body or the mind or both are “too tired” to work efficiently and effectively and

**Stress** – where the body or mind or both are overstimulated or tensioned to a higher than normal level, allowing higher than normal performance over the short term, but leading to long term fatigue or other performance decrements.

Studies carried out in Canada, Europe, the USA, Great Britain and Australia including those by Belzer, Phillip *et al*, Feyer *et al*, Grunstein *et al*, Quinlan and Neville reports all demonstrate that:

- Fatigue is a contributing factor in many crashes, trauma and near misses on the roads, as well as in the air, on the oceans, in trains, factories and all workplaces
- A great deal is known about the causes and symptoms of fatigue, but there are few, if any, methods of “fatigue recognition/detection” which are universally accepted and applied
- Drivers are aware of fatigue related issues and do not enjoy operating in a high risk environment where the risks are exacerbated by the demands of employers, suppliers, manufacturers and shippers. They continue with high risk behaviour, mainly because they have no viable options – this seems particularly the case with small to medium owner/operators, who have big mortgages and feel that “their hands are tied”
- Employers are aware of the increased risks in their industry, but are prepared to take those risks to stay in business, or in some cases they believe that they are “beyond the law”
• The general trend in OECD countries has been towards decreasing legal driving times for commercial drivers (Europe and USA). Australia has been one of the few “developed” economies where the governments have allowed an increase in driving times to a level beyond any accepted norms for safe work.

• Economic Rationalism with its concepts of “just-in-time” manufacture and warehousing, increased wages and incentives for senior executives who can cut costs and increase profits (usually by cutting driver entitlements and conditions), globalisation, profit centres et alia, has determined a course for the road transport industry which puts increased stresses on drivers to deliver the goods regardless of the consequences.

• Many major research projects into road trauma have made recommendations to the relevant governments and statutory authorities – where these recommendations clash with the needs of industry, they seem to be ignored, or referred to an expert committee.

• A high number of road transport crashes are single vehicle, or the direct fault of the truck/bus driver, leading researchers to believe that improvements to roads and vehicles will only go part way to reducing trauma (National Road Transport Commission, Feyer and Williamson).

**In summary**, improvements to road and driver safety will come about with the proper management of fatigue, through the appropriate management of stress by drivers and their managers and through a strongly enforced reduction of driving hours along with improved pay and conditions for drivers. Improvements to roads and vehicles are good; development of fatigue monitoring technology is good; but the reality is that these are only improvements on the margins – they are not core issues. The core issue is the care of the driver.
CHAPTER 4
AN EXAMINATION OF THREE MAJOR STUDIES IN TRANSPORT RELATED FATIGUE AND/OR STRESS

Overview of Literature Search and Other Evidence, including anecdotes

In this chapter, the author reports on the findings of major studies that have been referred to in earlier chapters. The purpose of this chapter is to allow the reader to develop a sense of what work has been done already in this area, and what recommendations have been made about the effects of fatigue and stress in the road transport industry both in Australia and overseas.

Overnight haulage is a fact of industrial life - suppliers want goods delivered for the start of the work day and highways become the province of trucks when night falls. Car traffic has historically been less at night and the truckers claimed the night for themselves. Many of the commodities that they carry are required for early daytime delivery. Many complaints are written as letters to the editors of the NRMA Open Road magazine and various newspapers from time to time to air grievances about the apparent lawlessness and lack of concern for car drivers on major roads like the Hume Highway. Leaving aside the level of terror that many non commercial motorists experience, the concern is for the inability of humans to cope, long term, with irregular disruption of the circadian rhythm.

The Circadian rhythm is a name given to the "internal body clock" that regulates the (roughly) 24 hour cycle of biological processes in animals and plants. (The term circadian comes from the Latin circa, meaning "around" and dies, "day", meaning literally, "around the day").

Humans have been aware of these cycles since pre-history, as an understanding of these rhythms was essential to early hunters. The formal study of this daily rhythm and other biological rhythms (such as seasonal ones) is called Chronobiology.
Circadian rhythms are important in determining the sleep and eating patterns of all animals, including humans. There are clear patterns of brain wave activity, hormone production, cell regeneration and other biological activities linked to this 24 hour cycle.

The Circadian rhythm is neither fully dependent nor fully independent of external cues such as sunlight and temperature. Early researchers identified that some sort of "internal" rhythm must exist, because plants and animals did not react immediately to artificially-induced changes in daily rhythms. However it has been well established that a mechanism for adjustment also exists, as plants and animals will eventually adjust their internal clock to a new pattern (if it is sufficiently regular).

It has also been clearly established that the Circadian rhythm is rigidly linked to the light/dark cycle. Animals kept in total darkness for extended periods eventually demonstrate a "free running" rhythm with no predictable pattern. This research has influenced the design of spacecraft environments, as systems that mimic the light/dark cycle have been found to be highly beneficial to astronauts.

The Circadian "clock" in mammals is primarily located in the suprachiasmatic nucleus (SCN), a distinct group of cells located in the hypothalamus. Destruction of the SCN results in the complete absence of a Circadian rhythm. Contributing to this clock are light receptors found in the retina which have a pathway, (called the retinohypothalamic tract), leading to the SCN.

It appears that the SCN takes the information on day length from the retina, interprets it, and passes it on to the pineal gland (a pea-like structure found behind the hypothalamus), which then secretes the hormone melatonin in response. Secretion of melatonin peaks at night and ebbs during the day. The SCN does not appear to be able to rapidly react to changes in the light/dark cues.

Disruption to Circadian rhythms usually has a negative effect in the short term. Many travellers have experienced the condition known as jet lag, with its associated symptoms of fatigue, disorientation and insomnia. A number of other sleep disorders are associated with irregular or pathological functioning of the circadian rhythms.

Horne (1988) has written at length about the way that humans appear to be different from other animals in their need for sleep for several parts of the brain. Circadian rhythms seem to be a vestigial hangover from humankind's earliest days, and there are many reports regarding circadian rhythm studies in many lower order animal forms. Evidence cited by Williamson, Feyer (May 1992) of studies conducted in Australia indicates very strongly that alertness and cognition are at their lowest between approximately 2 am and 5 am, with two hours either side of these times still considered a danger zone, as alertness starts to decline about midnight and does not start to increase until after 6 am. A similar,
but less pronounced, “Circadian dip” occurs approximately twelve hours later. Research in the outer space industry confirms this condition:

Humans are hard-wired with a genetically determined biological need for sleep and with a circadian pacemaker that programs us to sleep at night and to be awake during the day on a 24 hour schedule. Twenty four hour operations challenge these basic physiological principles. (Rosekind, M, Gander, P, Gregory, K, Smith, R, Miller, D, Oyung, L, Webbon, L, Johnson, L. 1996 p 157)

As the early morning is in the later part of the "danger zone" where drivers are nearing the end of a thousand kilometre, twelve to fourteen hour journey, which they probably make several times a week, the combination of the circadian trough, tiredness, boredom and stress about unloading or backloading make for a lethal "fatigue cocktail". The Quinlan Report attempted to quantify the stress levels of drivers with the following result:

The survey also assessed driver psychological well being using the General Health Questionnaire (GHQ), an internationally recognised medium for measuring stress. The survey results revealed an overall mean score of 10.3, which is in the high range (a score of 8.59 is relatively normal), with owner/drivers having the highest mean score (11.5) and especially those working on the Hume Highway (mean of 13.1). Nearly 16% of drivers had scores of 14 or more (almost half were owner/drivers), which is deemed to constitute an extreme risk to health. In short, long distance truck drivers operate under considerable stress. Evidence presented to the Inquiry suggesting an abnormally high suicide rate amongst drivers provides additional cause for concern. (p 3)

A study by the Highway Research Center at the University of North Carolina in 1999 and quoted in the New York Times on January 04, 2000 made the following findings:

- Drivers who had been in fatigue-related accidents were four times as likely to work at night as members of a control group of drivers who had had accidents not tied to fatigue
- Twenty seven percent worked 60 or more hours a week (compared with 17 percent in the control group), and those in accidents were almost twice as likely to work more than one job
- Sleeping less than six hours a night, being awake more than 20 hours or driving from midnight to 6 a.m. were all associated with crashes

The safety center interviewed 1,403 North Carolina drivers who had been
in crashes, including 467 in which fatigue or falling asleep had been blamed.

While researchers acknowledged that many people could do little to change factors like working at night, they said they wanted drivers to know how important it was not to drive when they were tired. *They even suggested roadside naps in extreme situations.*

Italics are added as the researchers suggest that naps be taken only in extreme circumstances. Other research suggests that drivers should be encouraged by regulators, employers, their families and colleagues to take naps before fatigue becomes extreme. The researchers at the Highway Research Center also stated that “anyone who was chronically sleep-deprived was at risk.” This is supported by other researchers, including Horne, (1988) who raises the issue of “sleep debt”, being a build-up of fatigue when people do not get a minimum of 5 hours sleep per night.

The cost of fatigue related incidents has been great in human cost, in terms of environmental damage and in purely financial terms. One need only consider the impact of the oil tanker, “Exxon Valdez”, running aground when the helmsman should have been relieved and off duty and missed a crucial course alteration. The Bureau of Transport Economics in its Report 102 issued in 2000: “Road Crash Costs in Australia” states that the cost of road transport accidents is $15 billion with approximately 20% of these costs being directly related to fatigue: $ 3 billion per annum. Its data shows that 10% of road accidents are heavy vehicle related, so the Bureau’s figures give a cost of $300 million per annum directly attributable to fatigued heavy vehicle drivers. More conservatively, the Department of Transport and Regional Services, in its submission to the House of Representatives Standing Committee chaired by Paul Neville, showed that it calculated the cost of heavy vehicle fatigue related accidents at $100 million per annum.

These are the financial costs, but there are also disruptions and pain caused to families and friends and colleagues when someone dies or is permanently disabled as a result of a fatigued driver “accident”. These costs cannot be easily quantified, but they are none the less real costs to the community. An Occupational Health and Safety Training Video
called “The Secret Syphon” examines the demise of a successful car part manufacturer subsequent to the death of a forklift driver. Another training video, “Ken’s Story: Not What If, but If Only” examines the personal costs to individuals linked to Ken, a process worker in a soft drink manufacturing plant who decided at the end of a shift at the end of the week to carry out some work for which he was neither trained nor experienced. It is useful for regulators to bear in mind that any cost must be measured in human terms as well as the financial terms that have come to dominate our lives in this post-industrial era.

The time of day is, according to the literature, especially significant. In much of the literature on fatigue which I have reviewed for this research there are clear links between the body’s circadian rhythms and fatigue related incidents. Anne-Marie Feyer, formerly the Director of the New Zealand Environmental and Occupational Health Research Centre, states in her article in the *British Medical Journal* of 7 April 2001 (Vol 322) that:

> In other words, commonly experienced levels of sleep deprivation - one extended day for a well rested individual- had a profound effect on performance. At around 22.30 –24.30, well before reaching the circadian trough in alertness, performance levels were low enough to be considered incompatible with safe driving in many countries. (italics added)

Circadian troughs, compounded with any form of performance modifying drug, including alcohol, cause the level of risk to rise. Philip, Verviale, Le Breton, Taillard & Horne, *British Medical Journal* vol 322 2001, p.829) make an important statement as a result of their investigation of French truck accident statistics: "There was also a strong relation between time of day and cause of crash, with many alcohol related crashes occurring at night."

In Australia the ability to detect performance modifying drugs used by truck drivers is limited. Roadside tests are currently restricted, in the main, to blood alcohol content, although research is continuing on various tests for common drugs, such as marijuana, cocaine and amphetamines. The most widely reported tests for these substances involve the "swipe" of a sample of sweat, which can then be analysed in a portable device. There
are electronic monitors available for the detection of various drugs, the most accurate of which take saliva samples. As mentioned above, it is reported in Quinlan’s Report that NSW Police have used “Ion Scan” technology to determine if certain drugs have been present in vehicles.

But there is no readily available, in-truck technology that can actually measure fatigue. Video devices, actigraphs and other monitors can detect the symptoms of fatigue, but cannot detect fatigue itself. As mentioned above some truck manufacturers, such as Volvo, have taken the step of fitting, as optional extras, "eye/face motion sensors" in some of their vehicles to detect the early onset of fatigue symptoms. These sensors can be linked to vehicle mounted alarms, base monitors or the vehicle engine management system to help alert the driver and thus reduce the potential damage.

Anecdotal evidence from drivers, and occasionally quoted in trucking magazines, is that the use of cocaine and marijuana is quite high among "some" drivers at roadside stops, and that the same drivers then travel at speeds well in excess of the speed limits to maintain schedules. For this evidence to be substantiated, there obviously needs to be valid drug testing and enforcement of drug restrictions on commercial drivers. A Road Safety Task force established in Victoria, during the month of October 2000, found only three drivers under the influence of drugs (no reference is given in the statistics to the kind of "drugs") out of 705 drivers intercepted. This low number, while paling in significance compared with the excessive hour/logbook offences (41%) and unroadworthy defect offences (22%), could well be indicative of the inability of agencies to test for or assess drug impairment. (Australian Transport News, 23 February 2001).

Compare this data to results, mentioned elsewhere in this document, from NSW Police ion scanning of 402 trucks in one extended operation. The highly sophisticated scanners detected the presence of illegal drugs in 35% of the vehicles tested. This did not mean, necessarily, that the drivers at the time of testing had carried or used any illegal substances, but it did indicate that some drivers do carry illegal drugs in their trucks. My own research indicated that drivers were aware of drug use in their industry, but all of my
respondents claimed not to use illegal drugs for work purposes or at work. Other drivers that were interviewed for this thesis were aware of the ion scan testing in New South Wales and the saliva testing in Victoria. Most of the drivers interviewed claimed that carefully wiping the cab surfaces with certain cleaning/disinfectant products, particularly citrus based cleansers, would remove all trace of any drugs. This hypothesis would be an interesting one to test.

A major collision near Albury on 13/14 June 2001 occurred at or near midnight involving seven trucks and resulted in major damage and injury. The section of road where this collision occurred is unremarkable in its construction and layout. A coach driver who was commenting on the possible causes of this accident claimed that one causative factor may have been that the road is two-lane, two-way in this section, as opposed to the divided road which makes up much of the Hume Highway; the counter argument to this point is that many roads are two lane/two way and competent drivers should have no difficulty in negotiating these roads. These underlying complications require competent driving and alertness. The question of whether fatigue was a factor in this incident remains unanswered. Yet what is known about the scheduling of long haulage consignments would suggest that in all probability it was a significant factor.

On 2 September 2002 there was a ‘rollover’ at Rockdale, New South Wales, which occurred at 1.30 in the morning. The road at "Sevenways" requires low speed entry and exit for safe passage, but thousands of vehicles including heavy vehicles, use this section of road daily. The evidence, in this instance indicates that the driver approached the intersection too quickly, clipped a kerb and lost control of the vehicle.

Weekly, and sometimes more often, there are reports of truck crashes on highways. A recent crash near Grafton New South Wales in early December 2003 involved a B-Double crossing the centre line of a four lane divided road and swiping the rear section of another B-Double travelling in the opposite direction. One driver was killed and the Pacific Highway was closed for half a day while investigations were done and the wreckage cleared. One of the drivers was aged 68 years, the other was in his 30’s – it
was early morning when it happened, with one rushing towards Sydney and the other towards Brisbane.

These are typical incidents which the long haulage and short haulage have in common in which fatigue and the lack of its management have a role. There are many examples in the literature of road, rail, maritime and aviation disasters which have been blamed wholly or partly on operator fatigue. The Roads and Traffic Authority has been running a radio and television campaign, with Dr Karl Kruszelnicki to convince people of the reality of fatigue and microsleeps. Graphic footage is aimed at grabbing attention, but the questions remains as to how many truck drivers think it applies to them and how many truck drivers can afford to take the time to “Stop, Revive, Survive”.

Some statistics from the Federal Office of Road Safety (FORS Australia 1999) indicate that while the number and proportion of truck driver fatalities has decreased, from 232 to 151 over the period 1984 to 1998, the number of "Serious Injury Crashes" has remained relatively stable over the collection period. Federal Office of Road Safety data from Monograph 18 of 1997 indicates that fatal crashes involving heavy rigid trucks result in the high number of fatalities to car drivers and car passengers. Of the persons killed in road crashes involving heavy rigid trucks during 1995
- 38% were car drivers,
- 12% were car passengers –
totalling 50% of all these fatalities, while.
- 16% of the victims were truck drivers in this collection period.

For articulated vehicle fatal crashes during 1995 similar statistics were presented.

From the FORS 1999 data, 165 truck drivers were killed during 1995 and, if this number represents 16% of the total fatalities for 1995 (FORS 1997 Monograph 18), the total fatalities involving trucks must, by extrapolation, have been 1 031, of whom 50% were either car drivers or passengers. This is a frightening statistic, as it represents approximately 50% of annual deaths on the roads in Australia. This data needs further
investigation relative to the short haulage industry, especially as there appear to be several different and differing sets of road transport trauma statistics currently in use.

**Alcohol, other Drugs and Fatigue**

Other research by FORS published in its Monograph 15 of 1997, indicates that risk taking increases with the intake of alcohol. 65% of highly intoxicated drivers involved in fatal crashes during 1992 were driving too fast, driving without seatbelts or both driving too fast and without wearing seatbelts. For moderate levels of intoxication, the statistics for speeding and non-wearing of seatbelts dropped only marginally to 55%. For sober drivers, the statistics for speeding and non-seatbelt usage fell to 20%.

It would appear obvious from these data, that when a driver's mind is affected by alcohol, he or she is likely to take more risks. Although little research appears to have been done on the specifics of risktaking as a road transport crash factor, it would seem to be logical that drivers who are under the influence of alcohol would be more likely to take risks than those who are completely sober. Due to the lack of statistics in long haulage or short haulage transport, no conclusion can be drawn about the relative effects of other drugs on truck drivers' risktaking. It seems reasonable to assume that any drug, legal or illegal, that affects the central nervous system as either a depressant or stimulant could increase risktaking. The issue of substance abuse is one area of investigation intended for later research on short haulage transport. A table from the Federal Office of Road Safety Monograph 15 of 1997 shows a direct correlation between levels of intoxication and risktaking:
Table 1  Risk taking amongst sober and intoxicated drivers involved in fatal non-pedestrian crashes, 1992

<table>
<thead>
<tr>
<th>Risk taking</th>
<th>Sober</th>
<th>Moderately Intoxicated</th>
<th>Highly Intoxicated</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>Neither driving too fast or unbelted</td>
<td>81</td>
<td>48</td>
<td>38</td>
</tr>
<tr>
<td>Driving too fast</td>
<td>12</td>
<td>27</td>
<td>28</td>
</tr>
<tr>
<td>Unbelted</td>
<td>5</td>
<td>17</td>
<td>20</td>
</tr>
<tr>
<td>Both driving too fast and unbelted</td>
<td>2</td>
<td>9</td>
<td>14</td>
</tr>
<tr>
<td>All drivers</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

Number of drivers

|               | 1228 | 94  | 168  |

Notes:
-Drivers aged 16 or older in passenger cars and light commercial vehicles to 3.5t gvm.
-Driver sobriety has been classified as follows:
  - Sober: BAC below 0.050 gm/100ml or unknown
  - Moderately intoxicated: BAC of 0.050 gm/100ml to 0.149 gm/100ml
  - Highly intoxicated: BAC of 0.150 gm/100ml or greater.
-“Too fast” represents either speeding or driving too fast for the conditions
-The driver has been given the benefit of the doubt in cases of unknown speed or unknown belt use.
(Note: BAC = Blood Alcohol Content)

from FORS Monograph 15 1997

Whilst these statistics do not relate to heavy vehicle crashes/fatalities, they do very clearly make the point that drivers who drink excessive amounts of alcohol are more likely to pay the ultimate price, because of their higher levels of risktaking. There is a great deal of anecdotal evidence about the effects of cocaine and amphetamines (uppers) causing aggression and high levels of risktaking behaviour in truck drivers. There is quite a deal of anecdotal evidence that a person who is fatigued and under the influence...
of "uppers" will "hit the wall" when the effects of the drugs wear off. This generally means that the driver will rapidly develop severe symptoms of fatigue and fall into a deep sleep, even if still at the wheel. This anecdotal evidence needs to be validated and incorporated into the proposed future research design.

The interviews and the surveys for this research indicate that drugs including alcohol were commonly used in some sectors of the industry, although not one driver who responded to the survey admitted to using drugs for work purposes. Some drivers were quite open about discussing the use of various substances, most commonly "uppers" to keep awake and "downers" for relaxation after a trip, and to reduce or remove the effects of the "uppers". As with their understanding of fatigue, drivers were generally highly aware of the short and long term effects of the drugs that they are available, or which were available to them, but which they chose not to take.

Some transport companies have very strict policies in relation to the use of stimulants and depressants by their drivers. Some companies actually enforce those policies as best they can within the latitude that they are allowed by the Transport Workers Union. In 1995, a major trucking company introduced a breathalyser system so that drivers had to take a breath test as they clocked on. As soon as a driver was dismissed on the grounds of being under the influence of alcohol, the Transport Workers Union mounted a strong industrial campaign against the company and the company was forced to "back down". Instead of fostering road safety the Union was fostering workers' rights to drive trucks when they may have been under the influence of alcohol. The TWU is in an invidious position – it has to “protect” its members from the employers, or risk losing membership, but it makes strong public calls for improvements in road transport safety. There is considerable evidence from studies conducted in Australia and overseas that alcohol is a contributing factor to fatigue related road trauma (Phillip et al, 2001; FORS, 1996).

The issue of bravado is a concern, mainly among younger drivers who feel that they have something to prove. This ‘macho’ approach can exhibit itself in such behaviours as driving when tired, because they don't want to appear "woosses"; using drugs to show
that they are part of the group; speeding; "bunnyhopping" which is the quaint practice of causing the second trailer of a "B-Double" to whiplash: this is evidently thrilling for the driver, especially when the vehicle that he is "bunnyhopping" at (usually a family car) is caused to take violent evasive action. Driving trucks can and does get stultifyingly boring, especially for those drivers who do the same runs to maximum hours, day after day. Boredom is regarded by many authors as a significant factor in the development of fatigue (Feyer, Williamson 1996, 2001). Long straight roads, comfortable, quiet cabins, repetition, very powerful engines requiring fewer gear changes all contribute to the boredom that drivers suffer. Quite a few of the drivers interviewed for this research also claim that unrealistically low speed limits make the trips longer and thus more boring.

The Quinlan Report evinces great concern about the level of drug use/abuse in the road transport industry. As yet, this research has not found much empirical evidence of widespread drug use, apart from the NSW Police submission to the “Neville Enquiry”. From the questionnaires and the interviews there is enough anecdotal evidence to convince the author that drug use/abuse is a significant factor in this industry and with a strong correlation between drug use and fatigue. Quinlan’s report states:

The weight of evidence presented to this Inquiry is that drug-use by long distance drivers is widespread and such practices are tolerated or at least not actively discouraged by companies to the extent that might be expected. This situation, which exposes both drivers and other road users to an avoidable risk, must be addressed. (p. 80).

In a submission to the Quinlan Inquiry, the New South Wales Police Service Traffic Services Branch stated:

The absolute involvement of drugs within the Heavy Vehicle industry is unknown. However, we know they are there and we know they are used to overcome the symptoms of fatigue. Police are active in the area of detecting drug affected driving by heavy vehicle drivers. Recent operations have seen Police participating with other government agencies specifically targeting the heavy vehicle industry. In one four day period 402 heavy vehicles were stopped. Areas of those trucks were swabbed and then underwent an Ion Scan. 141 or 35% of those vehicles scanned
returned positive swabs for amphetamines or other drugs. In another four day period of similar operations 38% of heavy vehicles swabbed returned positive readings for drugs. (p. 77)

This is revealing evidence when compared with the Victorian Vicroads/Police operation which actually tested the drivers rather than the vehicles, and returned very low positive responses.

In terms of attitudes to other road users, there are many submissions to both the Neville and Quinlan inquiries that indicate that older, more experienced and possibly saner drivers tend to avoid the Hume Highway and leave it to the “Young and the Reckless”. Some of the reasons stated by older drivers were that the pressure to complete the Sydney – Melbourne trip or its reverse within 10 hours was huge, and that the 1 000 kilometre trip was regarded as too short for any substantial stops. Given the attitude of the consignors and of many freight forwarders that this trip can always be done in 10 hours or 12 hours at a stretch, the pressure is on drivers to stay awake and complete the trip. Add to this pressure the availability of drugs at truck stops and from some employers and roadside purveyors, and a generally youthful driver population then perhaps it is no wonder that the level of bravado increases.

Phillip et al in their French study (British Medical Journal Vol. 322, 2001), found a very strong correlation between the use of alcohol, some types of other drugs and speeding; they also found a strong correlation between drugs-induced speeding and road trauma. Commonly, the drivers interviewed or surveyed for this research agreed that the use of drugs was more likely to be a factor in road trauma. They were also in agreement that speeding was more likely to take place, along with other illegal or anti-social activities, if the driver involved had been taking drugs including alcohol. The most common perception was that “uppers”, especially cocaine and amphetamines, would get drivers speeding, and that “downers”, especially marijuana, would get them slowing down, and alcohol would initially get them driving faster, then slower then erratically. Most informants were of the view that marijuana was OK as a social drug off the road, but was a time losing annoyance on the road, unless someone was especially stressed and might
benefit from the supposed calming effect of "whacky baccy". The Quinlan Report used RTA statistics to illustrate the significance of speed and fatigue in death and injury related to heavy trucks and articulated vehicles:

In 1999 figures supplied by the RTA indicate that of 1595 persons killed or injured on NSW roads in heavy truck crashes, truck driver speeding was seen to contribute to 170 casualties, truck driver fatigue to 98 casualties and insecure loads to 25 casualties. Of 830 persons killed or injured in crashes involving articulated trucks, truck driver speeding contributed to 130 casualties, driver fatigue to 70 and insecure loads to 15 deaths or injuries, (p.2)

At this stage of the discussion it can be concluded that a combination of fatigue and drugs is likely to increase risk-taking behaviour and collisions in the long haulage sector. It seems obvious that the same factors would play a significant role on the health and safety of short haul drivers, and the proposed research will explore this in detail.
The Quinlan Inquiry was funded by the NSW Motor Accident Authority. The terms of reference of the Inquiry were:

1. Impact of clients' and consignors' requirements on the drivers including:
   - Industry tendering practices;
   - Transport contacts between road transport companies and major clients;
   - Methods of pricing;
   - Lack of client responsibility for driving hours, driver performance and remuneration for drivers;
   - Client/consignor requirements as to delivery times.

2. Extent of proper enforcement in the industry of driving hours, speeding and drug use.

3. Current forms of regulation in the industry, whether a self-regulation or external regulation model is most appropriate for the road transport industry and what forms this should take.

4. Whether current regulatory bodies with responsibility actually fulfil that responsibility.

One of Quinlan’s statements contained within the executive summary, and referred to in Chapter 1, is a typical reflection of other studies conducted in Australia and overseas:

As indicated in the recent Federal House of Representatives Inquiry, long hours of work and fatigue remain a significant concern in the long haul industry, increasing the risk of collisions and having other health effects. For the years 1993 to 1998 the RTA has estimated that fatigued heavy truck drivers accounted for 80.8 casualty crashes (or 7.6% of total casualty crashes) in NSW and fatigued articulated truck drivers accounted for 58.7 (or 5.6%) casualty crashes. The RTA identified an upward trend in both the numbers of crashes and casualties over time. These concerns are echoed in a recent national survey of fatigue amongst 1,000 long distance drivers undertaken by Dr Ann Williamson and colleagues and benchmarked against an earlier (1991) survey. The survey found there had been increase in the work required of long distance drivers, entailing longer trips and with a reported earlier onset of fatigue. Most drivers did some midnight to dawn driving (when there are far higher risks of crashing), over 20% had exceeded the 72 hour working hour limit in the
last week and around a quarter admitted breaking driving hours regulations on every trip. In short, many drivers work excessive and dangerous hours and the situation is if anything, getting worse. Long hours also make it very difficult for drivers to juggle work and family commitments. (p. 19 Quinlan Report).

Quinlan follows this statement with a comment about the prevalence of drug use in the trucking industry. As mentioned above, there is a great deal of anecdotal evidence about drug use, but, as mentioned above too, a policing exercise conducted in Victoria by Vicroads and the Victoria Police produced very few positive drug test results. There are many explanations for this apparent discrepancy; the most plausible of which is that drivers were alerted to the presence of the testing units and avoided them if they were concerned about their drug levels. The report makes it clear that although evidence has been collected over more than 20 years on the impact of commercial requirements on road safety, very little has been done by regulators or by the industry itself to develop a balance between the safety of road users and the needs of business to be profitable.

The Quinlan Report and other studies, including that of Belzer, make it clear that the road transport industry has changed over the last twenty or thirty years from one which produced good profits and was almost a "closed shop" to a "free for all" where profits are small or non-existent and competition is absolutely fierce. Belzer and Quinlan both posit that these changes in themselves have increased the demands on drivers to work longer hours, drive bigger trucks faster, "cheat" on driving hour regulation and in some cases use drugs simply to stay awake long enough to do what is demanded of them. Earlier studies conducted in Australia by Williamson, Feyer and others support this position.

As in Australia, Belzer found the result of the changes in economic rationalisation was strong incentives for drivers to violate rules designed to encourage safe operations. Belzer also identified problems endemic to the Australian trucking industry, notably unpaid waiting time, low pay (he labelled trucks as sweatshops on wheels) and excessive hours of work. Further research by Belzer of the second largest trucking company in the USA demonstrated a clear link between pay levels and safety/crashes. Belzer et al found that the more wasted (ie unpaid) time drivers have the more likely they are to squeeze too
many hours into a day, forcing schedule irregularity and excessive hours. (p. 21 MAA Report)

The Quinlan Report recommended to the New South Wales Motor Accident Authority that there should be the following improvements made:

- Develop an industry Code of Practice which focuses on the causes of problems in the industry and not on the symptoms
- Establish a Long Distance Trucking Safety Authority or Taskforce (commonly referred to as Quinlan’s Cops) to coordinate safety strategies and authorities and to have its own investigative and compliance activities
- Compulsory licensing of transport operators, freight forwarders, consignors, brokers and agents
- Abolish the existing driver logbook system and require all trucks on long haul to carry a specific Safety Management Plan for that trip
- Ensure that employee driver wages and owner/driver rates are set at a minimum that will ensure compliance with safety requirements
- Prohibit bonus/penalty system that relate to delivery times
- Ensure that statutory regulators cannot be sued for losses incurred when they impound or “ground” a vehicle which has failed to comply with safety laws/code of practice
- Remove any anomalies in OH&S legislation that provides comfort to law breakers
- Provide protection for contractors and drivers who refuse to engage in illegal or unsafe work practices
- Upgrade truck driver rest areas and try to encourage the provision of better food and facilities at truckstops
- Review the current driver training and assessment system to enhance the outcomes and consider the ongoing assessment of drivers at regular intervals
- WorkCover NSW to ensure that information, education and compliance with Workers’ Compensation requirement is at an acceptable standard
• Develop education strategies for other road users so that they can better understand the requirements of heavy vehicles and their drivers

WorkCover NSW have appointed a large number of new inspectors to enforce the Occupational Health and Safety Act and Regulation: some of these inspectors have been allocated specifically to the road transport industry, as WorkCover NSW policy regarding road transport has, according to its spokesperson, been revised to be more proactive in this industry sector. The question for this research is which resources are lacking. Several submissions to both the Neville and Quinlan inquiries make it obvious that there is an oversupply of drivers, meaning that if a driver doesn’t comply with any requirement of the employer or contractor or freight forwarder or consignor, he/she will be out of that job/contract and rapidly replaced by another. This is not a new phenomenon, but applied differently, the excess of drivers provides a resource pool which could be used to have more drivers “on the road” with each driver spending less time on driving tasks.

When WorkCover NSW launched a prosecution against the managing director of a small trucking company for breaches of the Occupational Health and Safety Act 2000 and Regulation 2001 on 1 September 2001, the response of the trucking industry body, NATROADS, was to open an appeal to its members for funds to support the managing director in his legal fight against WorkCover NSW. The stated reason for this support, “… was to ensure that WorkCover NSW did not come to regard the roads as "places of work” This position indicates both a contravention of the Occupational Health and Safety legislation as it applies in New South Wales and an unfortunate, but accurate, understanding of the historical role of WorkCover NSW in relation to the road transport industry. A WorkCover spokesperson stated very clearly, in 2001, that the Transport Industry Reference Group within WorkCover NSW was working towards major prosecutions in New South Wales and the abovementioned case is the first case that has been launched under the new “Chain of Responsibility” legislation. Prosecutions were so rare prior to 2001 in New South Wales and other jurisdictions in Australia, that the International Transport Workers’ Federation (ITWF) issued a press release on 8 September 1998 entitled “Fatigue Kills: cut drivers’ working hours now” to correspond with International Action Day on Drivers’ Hours. Part of the press release states:
Company owners are not often prosecuted for fatigue-related accidents. In Victoria, Australia, a case was brought to court in May 1998 when the company Don Watson Transport was charged under the Occupational Health and Safety Act after the passenger in one of its vehicles was killed in a crash. The driver had worked for 17 hours a day in the four weeks preceding the crash. *This is only the second time in history that an Australian trucking operator has faced criminal proceedings following a fatal accident.*

These italics are added to emphasise how little the regulators of workplace safety have involved themselves in the trucking industry. As mentioned above, the first prosecution of this type was only brought in New South Wales in 2001, and by early 2004 had still not been finalised. The previous prosecution referred to in the ITWF’s statement was brought in South Australia against a truck owner (WRB) who allegedly insisted that a driver who claimed to be too tired to do any further driving take another run, as the rostered driver was ill. It was claimed that the company owner told the driver that he could get some “stuff that would help keep him awake” from the office before he left the depot. The driver crashed and killed a number of people.

On 3 August 1996 a semi-trailer (the prime mover being federally registered) belonging to WRB Transport Pty Ltd that had been travelling erratically for some time collided with two cars near Blanchetown, South Australia resulting in the death of six people. The semi driver, who survived the smash, was later found to have drug residues (Phentermine - a derivative of amphetamine, Ephedrine and Tetrahydrocannabinol - found in Cannabis). The Coroner found that a number of company personnel (named in the inquest) had knowingly supplied drugs to the driver and this was a common practice in response to the 'ludicrous hours many of the drivers spent at the wheel' (Coroners Court of South Australia, 1999:32). During the Inquest the Coroner undertook the time-consuming and almost certainly unusual step of interviewing many of the drivers for WRB enabling him to corroborate the existence of the practice (and despite an unsuccessful appeal by the company to have the Supreme Court rule the evidence inadmissible) (Quinlan Report, p. 79).

In response to a multiple truck pile-up at Albury NSW in 2001, Tony Sheldon, the State Secretary of the Transport Workers’ Union called for WorkCover NSW to take over investigation of trucking accidents or risk “continued carnage on the roads”. Sheldon was quoted in the Bigpond Newsdesk on 15 June 2001 as saying that;
trucking accidents had left 202 people dead in the year to April, and it was time WorkCover took responsibility for the truck drivers’ workplace. WorkCover currently does not consider the cabin of a truck to be a workplace and unions say this leads to slack standards by trucking companies to ensure driver safety. If WorkCover investigated the reasons why these incidents were occurring, then perhaps we would have a chance of preventing or at least reducing some of these accidents.

The issue at hand is that WorkCover as the designated enforcement agency of the Occupational Health and Safety Act 2000 New South Wales is required to investigate ‘accidents’ at all workplaces. The Act states in its definitions:

“place of work means any premises where persons work”
and “premises includes any place, and in particular includes:
(a) any land, building or part of any building, or
(b) any vehicle, vessel or aircraft, or
(c) any installation on land, on the bed of any waters or floating on any waters, or
(d) any tent or movable structure

Section 5 of the Act states that the Act applies to all places of work, except as otherwise provided. Legal dispute as to the OH&S legislation’s applicability to trucks, drivers and roads, hinges on Section 6 of the Act, which refers to employees being at work when they are “at his or her place of work, but not otherwise”. The Transport Workers’ Union wants the Act clarified on this technicality, although how it could be construed that the truck and road are not the drivers’ “place of work” is disingenuous. Although the wording has changed a little in the 2000 Act, the intent of previous legislation (the Occupational Health and Safety Act, 1983) was the same and there is little doubt that trucks and buses are workplaces if people are working in them. There is not much doubt that the legislation relates to the roads or transport depots. There should be absolutely no doubt that WorkCover NSW has, by its own legislation, total responsibility for truck and bus drivers’ occupational health and safety.

WorkCover NSW’s view on their responsibility was put to this author rather succinctly by Jenny Thomas who heads WorkCover NSW Transport Industry Reference group:
Let me emphasise that it is a simplistic assumption to make that just because OHS legislation has the capacity to cover some of these issues that it should be the legislation utilised. Because the safety of the entire road-using community warrants the same concern as those who are driving in the course of their work, the road safety imperative exists in its own right entirely independent of the work safety imperative. Your research should tell you that the fatigue regulation exists under Road Safety law, not OHS, specifically because fatigue is an issue for all road users.

In matters you raise, it is more instructive to approach the issue from the viewpoint of risk. The NSW road safety legislation is specifically designed to account for certain kinds of risks that are prevalent in road environments. The fact that this is the intention on the NSW Parliament was clearly demonstrated when the road safety framework was broadened in 1999 to ensure that participants engaged in the road freight industry (such as goods and freight consignors) bear a share of the responsibility for ensuring safety under the framework.

WorkCover does not generally respond to the scene of Motor Vehicle (or other transport) Accidents. The NSW Government Departments, which are responsible for the administration of the road safety legislation & which provide the initial responses to Motor Vehicle Accidents, are the NSW Police and Roads & Traffic Authority (and the EPA when Dangerous Goods are being transported.) They have the specific expertise and resources to provide the most effective primary response. You have already named the other regulators [sic] responsible for the other transport investigations.

Nevertheless, WorkCover recognises that, as an occupational health and safety regulator, it has an important supporting role to perform in the development of strategies aimed at risk prevention in the interests of truck drivers and others driving in the course of their work. Accordingly, WorkCover’s Retail, Wholesale, Transport and Storage (RWTS) Team is currently implementing a strategy for ensuring a coordinated effort amongst all relevant agencies to address the risks facing these drivers. One of the objectives is to devise a sensible & practical approach to addressing the risks confronting drivers and others.

After the notification of any injury, incident or dangerous occurrence, WorkCover would make a judgement about its involvement after consultation with other relevant agencies. In MVA’s, for WorkCover to pursue an investigation, it is necessary to demonstrate a direct link between the risk faced by the driver and the failure of the employer to provide a safe system of work. It would also be guided by whether or not the laying of criminal charges by another agency is likely ….. (e-mail from Jenny Thomas of WorkCover NSW to the author on 21 May 2001).
This response, and a paper presented by Ms Thomas to a national heavy vehicle safety conference in October 2002 (Appendix B), clearly states that WorkCover NSW believes that other agencies have the primary responsibility for occupational health and safety in the road transport industry. It seems that the road transport industry is unique as a recipient for this special treatment. There is no evidence that any other industry group is exempted from the strict provision of the OH&S legislation which still has the harshest penalties, especially in terms of dealing with corporations, managers and supervisors.

In addressing this issue, Quinlan introduces the concept of “supercops” who would have powers under the various legislative streams that apply to the roads and traffic:

First, there is a pressing need to address a serious coordination problem amongst regulatory agencies responsible for safety in the long distance trucking industry to achieve a more coordinated, strategic and effective compliance program. The preferred recommendation of the Inquiry is that a Long Distance Trucking Safety Authority be established in New South Wales with the responsibility of coordinating safety strategies in relation to the industry and undertaking its own investigative and compliance activities. The Authority should include a small inspectorate to undertake targeted compliance programs under the NSW OHS Act. Inspectors will also have powers under Road Transport and Industrial Relations legislation. The Inquiry recognises that, while a statutory authority is its preferred option, another structural arrangement may achieve the same outcome, namely establishing a Permanent Taskforce chaired by the Motor Accidents Authority and with representatives of all the relevant government agencies to carry out the role identified in relation to the Authority. If the latter option is pursued then suitable safeguards (including meaningful benchmarks and reporting requirements) should be put in place to ensure the Taskforce can and does carry out its task of facilitating a more coordinated and proactive approach to regulation. Further, if the Taskforce rather than Authority option is pursued then suitable arrangements will need to be made for administering the licensing system, inspectorate and other compliance measures proposed below. As the New Zealand experience all too clearly shows, if the compliance regime is not suitably resourced and implemented then it will amount to little more than tokenism (p. 30).

Although Victoria and South Australia have set up trial multi-authority teams to deal with the complex legislative issues, the current New South Wales government has chosen to
ignore these recommendations. Whether the team that Jenny Thomas referred to within WorkCover NSW will provide what Quinlan has suggested still remains to be tested. In the meantime, truck fatalities which could be linked to fatigue are still occurring. In 2001, WorkCover NSW mounted a prosecution against Jim Hitchcock, the owner of a truck involved in a fatal smash at Grafton NSW in September 1999. WorkCover’s claim is that Hitchcock failed in his duty of care to his employee who was killed in the two truck crash and in his duty of care to a non-employee who could have been injured in the collision. In an interlocutory decision in June 2003, Justice Walton of the Industrial Relations Commission had only found that some of WorkCover’s technical evidence was admissible:

In the present trial before the Industrial Relations Commission's vice-president, Justice Michael Walton, Mr Hitchcock is charged with failing to ensure that long-haul drivers took sufficient rest stops or that driving rosters adequately took into account the effects of fatigue and sleep deprivation.

It also alleges that he failed to warn employees of the hazards of taking drugs to counter fatigue.

Mr Hitchcock's counsel, Bruce Hodgkinson, SC, said he denied the charges, adding that the case was the State's first under the Occupational Health and Safety Act. The trucking industry has written to the Premier, Bob Carr, concerned that if the prosecution succeeds it will affect all commercial users of roads. The industry body NatRoad is asking members to contribute to a fighting fund to help Mr Hitchcock.

Justice Walton has provisionally allowed to be admitted as evidence computer records of RTA Safe-T-Cam sightings of the truck Mr Haynes drove in the months before his death.

The 21 cameras log the time it takes trucks to pass through locations, indicating whether speed limits and rest breaks have been complied with.

But a witness yesterday, Royce Everingham, a truck driver, said that during the time he worked for Hitchcock Haulage he had “bodgied” the logbook, and did not take prescribed breaks.

He was given a certificate by Justice Walton so that his evidence cannot be used against him in any criminal prosecution.
Under questioning by Peter Skinner, for WorkCover, Mr Everingham said he had been required to drive after exceeding his allowable driving hours.

Mr Skinner asked: "What if you said no?"

Mr Everingham replied: "You wouldn't have a job, the freight has to go through; that's the job"

Mr Everingham said that falsifying the logbooks was an “occupational hazard. You have to do it; if you don't you don't get the job done."

Questioned by Mr Hodgkinson, Mr Everingham agreed that the company had a no-drugs policy, adding: "I have rung Jim when I was tired and the freight had to be in, and said, 'I can't hold my head up', and he said, 'Go to bed'." The trial continues today (Sydney Morning Herald, 19 June, 2003)

As the police in each state and territory are the most frequent and likely “road law enforcers” it seems odd that are not more proactively involved in heavy vehicle drivers’ road safety. They do attend truck accidents, and they issue speeding and logbook infringement notices, but this appears to be the limit of their involvement. If police officers had more training of and understanding of the road transport industry, they would be better positioned to ensure that issues such as driver fatigue were far better addressed. Part of the problem appears to be the “carving up” of responsibilities of road law enforcement, in NSW with the RTA taking the trucks and the police everyone else. Whilst this is a generalisation, it is what appears to happen in practice. As noted by Quinlan, amongst others, the WorkCover Authority is noticeable by its absence from the roads. It is not suggested that police officers should have to have an encyclopaedic knowledge of the road transport industry, but rather should be members of multi-agency teams of well trained and resourced officers dedicated to education and enforcement on the roads. This would be far more beneficial to all road users, but especially those in the road transport industry who are exploited by a consumer driven system. As Paul Neville, the Chair of the “Beyond the Midnight Oil” Committee notes in his foreword:

We live in a world where commerce is conducted around the clock and by the click of a mouse. A world where goods and services are expected to be available when and where the customer wants. Human ingenuity has created these expectations. And for the most part, they are met.
But they come at a cost. One of these costs is human fatigue (Chair’s Foreword, p.1).

The Neville Report took a broad look at all facets of the transport industry in Australia. This committee was established in the Australian Parliament’s House of Representatives because of growing community concerns about the increasing blame being laid on fatigue as a cause of horrendous collisions and related trauma. The committee held open meetings around Australia and invited submissions from anyone with an interest in transport-related fatigue issues. The choice of the sub-title, “Beyond the Midnight Oil” reflects the concern that much of the fatigue involved in crashes, trauma and near-misses could be blamed on excessive hours of work, especially in the circadian trough times of midnight to dawn.

It is a commonly held belief that New South Wales’s bureaucrats and politicians regard their political objectives over the other jurisdictions as being paramount, as New South Wales is the biggest state, thus the most important. When the National Road Transport Commission was trying to get uniform national legislation for the road transport of Dangerous Goods passed in 1998, New South Wales’ representatives from the Environment Protection Authority (EPA) apparently told the delegates from other states and territories that they would not agree to the overall package unless some of their requirements were met. One of their main issues, it seems, was that there should be no requirement for drivers of loads of “packaged dangerous goods” to be specifically licensed as was already required in Queensland, and as all the other states and territories had agreed was necessary for road safety. Evidently, the New South Wales’ rationale was that there were already a large number of drivers holding “bulk dangerous goods’ drivers’ licences” therefore it was potentially a big problem for the EPA’s bureaucracy. This anecdote was relayed by the Northern Territory’s representative on the relevant steering committee, Mr Robert Fischer. Although this issue is not directly related to fatigue, it serves to illustrate how institutional or state/territory based “ideologies” can influence issues of national significance, such as road safety. There are anecdotes
aplenty about the dogmatic stances of various legislatures in relation to changes to state and territory road laws which are required under the national model.

The reluctance of other states and territories to adopt the “SafetyCam” model developed by New South Wales’ Roads and Traffic Authority (RTA) and Telstra is a classic example of an inability of regulators to work together for the common good: if all states and territories adopted this system of road overhead mounted cameras linked to a central database, it would be far easier to monitor the movements of vehicles and the work hours of drivers. The stated excuse is the cost, but if the Federal government took the lead and made it a road funding requirement, every jurisdiction would soon fall into line.

Submissions were received from truckers, truck owner/operators, major transport companies, insurance companies, government departments, researchers and bio-medical companies. The wives/partners of truck drivers had their say, as did regulators and enforcers. It was entirely clear that the demands of modern existence mean that somewhere, at any time, there will be a driver or pilot or helmsman out there, delivering the people and the goods. There are additional demands placed on the practitioners in whatever field of transport to cope with vast distances and poor rest facilities.

The financial imperatives outlined by Belzer and others mean that as competition grows, returns to organisations and individuals decrease proportionally. Very few transport organisations have actually improved conditions for their drivers or pilots or helmsman. Most organisations have been making concerted efforts to minimise conditions and maximise returns.

The Chairman, Paul Neville MP, in his foreword to the report states:

Goods don’t just materialise at our doorstep or on the supermarket shelves, they need to be delivered – by road, rail, air and sea. People drive these trucks, trains, planes and ships. People maintain these vehicles. People make decisions about scheduling, dispatch and delivery.
Sometimes these vehicles are driven and maintained by people who have worked long hours, often through the night, and have had inadequate rest breaks. The longer they have worked, the more they have worked at night and the less they have rested the greater the risk of fatigue. The more the fatigue, the greater the risk of an accident occurring (p. vii).

One of the issues that became more and more obvious as the Committee drew its evidence was that the road transport industry was outstanding in terms of the number and severity of fatigue related incidents. From reading the submissions to this inquiry, it was clear that the road transport industry need not be so dangerous. An example of a small to medium size successful operator is Bagtrans. This is a family owned business that sets realistic freight rates and does not offer discounts or unrealistic tenders for big contracts. As a company, it has grown steadily over the last eight years and has a very low turnover of drivers and low accident rates. As a result of their policies of caring for drivers and maintaining good equipment, they have lower than industry standard insurance and maintenance costs. Unfortunately, this company is not representative of the industry. Hensher et al (1992) state:

The current rates have not internalised the negative externalities rampant in this industry, which have spawned a lifestyle encouraging pill taking in order to stay awake long enough to improve the financial situation. The use of stimulants is as widespread in the employee driver sector as it is in the owner drivers and is regarded by many drivers as an acceptable practice.

In an earlier paper, Hensher and Battelino (1991) concluded:

…this confirmed our initial hypothesis that the underlying economic conditions in the industry are a significant contributor to the on-road behaviour of drivers. These conditions, which manifest themselves in declining freight rates, tightening schedules and increasing competition confront drivers daily as they try to forge a living on the road. If the problem of safety on our roads is to be addressed, and solved satisfactorily, it is important to look beyond the symptoms of speeding, infringement of driving time regulations, and driver fatigue and consider the underlying causes which result in this behaviour. The data collected in the pilot survey has provided a start in analysing the relationship between these symptoms and possible causes which we believe will add to the understanding of the
structure and the operations of the trucking industry in Australia and form the basis for recommendations for changes which will contribute to improving safety on the roads.

The bulk of the committee’s recommendations are for the Road Transport industry. Among the main recommendations for the Road Transport industry were:

- Rest Opportunities in the road transport industry to incorporate “time of day” considerations into allowable driving and rest periods and to increase the allowable rest periods accordingly
- National adoption of the “Safe-T-Cam” system, including the use of personal electronic tags by commercial drivers
- Development of a National Occupational Health and Safety standard and Code of Practice on fatigue
- Development of Codes of Conduct for the transport industry
- Development of specific driver fatigue management strategies for each major interstate transport route
- Development of vehicle cabin gas monitoring equipment
- Develop education programs for transport operators to improve business skills, with a reasonable level of government subsidy
- Meetings between government bodies and transport operators to determine the degree by which economics impacts on public safety, and to develop models to improve the economic returns to operators and drivers
- Require the Employment Advocate to include fatigue and its management in the development of Australian Workplace Awards (AWAs)
- Require the Australian Industrial Relations Commission to ensure that fatigue and its management are included in the development of Enterprise Bargaining Agreements (EBAs)
- Require relevant Ministers to review AWAs and EBAs to ensure compliance with accepted fatigue management strategies
- Develop a National Operator Accreditation Scheme, along with a national agency to supervise it
• Promote the development of laws which make driving while fatigued an offence and concurrently develop fatigue measuring technologies

• Introduce mandatory drug testing in the workplace for drivers

• Disseminate information on best practice in Fatigue Management, legal responsibilities in relation to fatigue and management

• Fatigue management training should be a requirement of all transport managers and bureaucrats involved in transport management

Recommendation 21 of the Australian House of Representatives Standing Committee on Transport, Communications and the Arts (the Neville Report) states:

The Minister for Transport and Regional Services should:
• Examine the feasibility of issuing drivers with a personal electronic tag to complement the Safe-T-Cam system; and
• Seek Australian Transport Council approval for the Australia-wide introduction of the Safe-T-Cam system, (Ch II, p, 80)

There is continuing cynicism among road users in general and road transport bodies in particular that funds from road offence fines go into consolidated revenue, and not back into improving road safety. There has been much discussion on the value of “speed cameras” – the public and the transport industry perception is that they are purely used as revenue gathering devices. The RTA strongly defend their use as safety devices, but some recent academic research, discussed in the Sydney Morning Herald during November 2003 and on ABC Radio programs during the same period, but not reviewed for this study, in the United Kingdom and Australia indicates that they have little or no impact on road safety, and may possibly have a negative impact. The research indicates that drivers slow down at the known speed camera locations, causing “bottlenecks” and frustrations and collisions, then speed up knowing that their chances of being “booked” are minimal. Much more research needs to be conducted in this field, and governments should be prepared to make changes. The minimum change would be to redirect the revenue from speed cameras into the development of safer systems of monitoring driver behaviour and, most particularly, fatigue.
As yet, few of the Neville Report recommendations have been implemented. Drivers and other people who went to a great deal of effort to make submissions feel disillusioned that little has changed: the mangoes are still getting to the Sydney Markets within 38 hours of being picked in Bowen, North Queensland – a distance of approximately 3,000 kilometres! This practice comes as no great surprise, as recommendations emanating from the Federal Office of Road Safety in the early nineties are still to be implemented – many of these recommendations have been replicated in the reports of Neville and Quinlan. There are, with good reason, common recommendations in the Neville and Quinlan Reports, and while the “Chain of Responsibility” legislation goes some way to address some of these issues, there seems to be very little will on the part of either Federal or State/Territory governments to tackle the big issues.

As competition has increased and the major companies have become “globalised”, the margins in the road transport industry have decreased regularly over the past twenty years, as indicated by various economic studies into road and other industries, and reported widely in the Neville and Quinlan Reports. Operators are loathe to increase their expenditure on extra drivers and better driving conditions, if it means an end to their businesses. Amalgamations, takeovers and buyouts have become the order of the day in the road transport industry, with very few small, family operated businesses able to compete with large multinational corporations, and although there are many owner/operators, they are often contractually bound to the “major players” who use their size to control the markets, and decrease their exposure by reducing their fleet size and employing contractors. Quinlan states that statistics from the Bureau of Transport Economics indicate a preponderance of small owner operated fleets in the long haul sector. This perception is based on “smoke and mirrors” as control of the road transport industry is centralised in a very small number of transport companies, to whom almost everyone else subcontracts. As examples, Ruttleys Freightlines and Lawsons Transport based in Sydney and Byrnes Transport based in Taree NSW are cited: These are family owned and run small to medium sized trucking companies, but they rely on contracts with the “majors”, such as Toll Holdings for their survival. Statistically they would prove the BTE’s conjecture, but in reality they are bound to the requirements of large and
Belzer’s seminal study *Sweatshop on Wheels* informs that this is not a purely Australian phenomenon. His book left the deep impression that Australia had followed the lead of the United States of America, rather than learning from the mistakes caused by its chaotic deregulation of the transport industry. The main difference appears to be that Australia has never had a strictly controlled road transport industry, although as both Quinlan and Neville point out, the other transport industries in Australia are highly regulated.

As a former long haul truck driver, Belzer brings a very practical perspective to his academic work in Economics. Belzer contributed to both the main studies (Neville and Quinlan) reviewed above. *Sweatshop on Wheels* examines the USA experience of opening the road transport industry up to all comers, and allowing market forces to dictate the terms and conditions. Previously, the union movement worked closely with the truck operators to determine who could drive, what they would be paid and the rates that should be charged. It appears, from Belzer’s perspective, that this was a corrupt system, but that it worked and drivers were well cared for. With the process of deregulation and globalisation that has been occurring since the USA’s Interstate Commerce Commission commenced a restructure of the USA’s trucking industry in 1977, competition has forced rates down and reduced conditions to the point of his book’s title – mobile sweatshops. In another publication, Belzer states:

> Increased competition reduced rates, especially for larger manufacturers and shippers, but thousands of carriers went bankrupt and the wages of non-supervisory trucking employees fell by 26.8% between 1978 and 1990 (Belzer, 1994, p.1).

Belzer presents evidence, supported by other studies that he quotes, that recruitment into the long haul sector of the road transport industry is limited to people with little chance of obtaining employment elsewhere. The conditions and their outcomes are parallel to the experiences of the drivers of Australia’s long haul fleets. He discusses the decreasing relevance of the union and the increasing flouting of safety related laws:
Since economic deregulation, hundreds of thousands of owner-operators and drivers working for small, unregulated carriers have become harder to locate, supervise, train and monitor……the highly competitive market fostered by regulatory restructuring provides a daily incentive to violate rules designed to encourage safe operations” (Belzer, 1994, p. 20).

In *Sweatshop on Wheels* he takes his earlier findings further and states that the cause of the poor recruitment into the road transport industry is the direct result of the “collapse of wage rates in trucking” (pp. 148 -151).

It is common for trucking companies in the USA to have a driver turnover rate approaching, or in some cases exceeding, 100% per annum. Belzer and other researchers, including Cynthia Engel (1998) of the USA Bureau of Labor was quoted by Belzer “Increasing workloads and less attractive pay have led to high labor turnover and persistent driver shortages”. Belzer and his colleagues conducted follow-up research on this, by looking at the outcomes of wage condition improvements by the USA’s second largest trucking company, J.B. Hunt. The results of Hunt’s decision to increase wage rates for drivers above the industry standards has been a measurable decrease in crashes and labor turnover. It also allowed the company to be more selective in its recruitment strategies – offering better conditions, allowed them to choose better drivers. (Belzer et al 2000a)

In a further study for the Office of Motor Carriers conducted during 2000, Belzer’s team found that the longer drivers were kept waiting to load or unload, on unpaid time, the more likely they were to exceed their 60 hour per week driving hour limit – by approximately the number of “wasted” hours (Belzer et al 2000b). Belzer, in all of his writings, has suggested that if drivers are given a reasonable wage and conditions, they will be less likely to breach driving hour and other regulations. In their second 2000 report, Belzer and colleagues calculated that a 25% reduction in unpaid waiting time would cover the costs of complying with driving hour regulations, or the payment of waiting time as normal duty time could be levied on the shippers, thus removing the
necessity of drivers working exceedingly long hours to make a decent wage. (Belzer et al 2000b)

Each of the studies reviewed here make mention of the effects of “just in time” marketing and storage philosophy. Several submissions to the Neville and Quinlan inquiries spoke of trucks as “mobile warehouses” to make the point that retailers do not want to carry large amounts of stock. This issue is especially significant for the perishable goods industries, where markets, wholesalers and retailers only want to hold as much produce as they anticipate selling in a given period. The above reference to the mangoes travelling from Bowen to Sydney, Melbourne and Canberra at average speeds of 90 kilometres per hour underlines this point. Belzer, Neville and Quinlan all make similar recommendations to each other, about how the long haul industry can be made safer for the drivers and other road users. Their recommendations are apparently logical and within the powers of the governments concerned. Such issues as the regulation of the road transport industry, minimum pay rates which are not linked to performance, more proactive and targeted policing, better training and conditions – none of these is, in itself unattainable. Even in total, they are achievable.

However they are not new recommendations. They have all been made before in reports by the Federal Office of Road Safety, the Australian Road Research Bureau and others. If there was to be one outcome from this research that I would most like to see come about, it would be that all the interested parties: governments, the TWU, the statutory authorities, the trucking companies and organisations could sit down together and determine that there has been too much carnage and that the recommendations of the last decade or so could or should be immediately enacted. – There would be financial implications to these implementations but, with an estimated cost of one road fatality at between $750 000 and $1 million, and hospitalised injured road users costing $300 000 each (RTA NSW Traffic Controllers Training Manual, 1999), just in terms of dollars saved, it is justifiable. This calculation does not and cannot put a cost on the intangibles of lost life – the flow-on effects to other family members, friends, and other parties involved in the crashes.
It costs a lot of money to keep officers patrolling the roads and highways. Conversely, if an increasing presence of patrols is obvious, offences decrease and so does revenue. The police are not particularly proactive in law enforcement, they are reactive. When asked why they are reactive, most police officers will state that they have no power to do anything unless an offence has been committed or a complaint made. This may be true under much of existing road and traffic legislation that the police have to use. There is, in New South Wales at least, a set of legislative provisions which allow for proactive policing: the Occupational Health and Safety Act 2000 and the Occupational Health and Safety Regulation 2001. If, as suggested by Quinlan, Police, RTA and WorkCover officers all worked together under the existing legislation, cost efficiencies could be achieved with more effective and efficient use of resources, both physical and human. Governments are stretched to find enough money to meet the ever increasing demands on their budgets, but can any government or agency seriously contemplate a “laissez faire” attitude to road safety. If, as is generally conceded, fatigue is a genuine safety issue for road users, shouldn’t the resources needed to police the road users be increased and streamlined for better results?

Currently, there is a major police/political campaign to stamp out gun deaths and gun crime in New South Wales. However, not many people die of gun related crimes in New South Wales each year. New South Wales Bureau of Crime statistics data for the year 2000 show that 17 deaths were attributable to firearms (which includes spearguns) in New South Wales (August 2003). Using estimates that RTA and police officers have provided (there is no empirical way of measuring fatigue, particularly in a corpse) for the period 1993 to 1998, an average of 28 heavy truck and articulated vehicle related deaths occur each year, which can be linked to fatigue (from Quinlan and Neville Reports). One can only surmise that gun deaths are somehow more important (perhaps politically more “sexy”) than truck related deaths. One can only wonder why it is so easy to establish “Taskforce Gain” to fight gun crime in Sydney’s South Western Region, and wonder equally why it is so difficult to mount a major offensive against driver fatigue. If the public knew that it was statistically >68% more likely to die from a fatigued driver than a
person firing a handgun, there might be a bit less posturing and more action against the perpetrators of fatigue related deaths.

**Colonel Gregory Belenky’s research** into USA military incidents contains many examples of “friendly fire” and other disasters which were linked directly to fatigue. During one incident, soldiers in a squadron of Bradley Armoured Fighting Vehicles were on active duty in Operation Desert Storm. The troop commander ordered a stop in defensive positions as the soldiers had not rested in 38 hours. One of the sentries noticed vehicles approaching, on the infra red sensor screens. The vehicles were approaching from the enemy’s direction. Almost immediately gunners were ordered to open fire on the approaching column. They were devastatingly accurate. One small problem was that it was a column of their own soldiers returning from an operation.

Several issues arose from this for the Army research team headed by Belenky, among them:

- At what level of fatigue did soldiers become dangerous to themselves and others?
- Why was the fire so accurate from troops who were very fatigued?

Belenky’s subsequent research indicated that the cognitive part of the brain, which would ask relevant questions like “who are we about to shoot?” malfunctions significantly when it is deprived of sufficient rest. His findings concurred with those of Horne in the mid 80’s, that humans need “brain sleep” (Belenky web report May 2001). The psychomotor skill and actions of the troops were little impaired by fatigue, especially in the first few minutes when high adrenaline levels would have provided the “rush” needed to bring fire to bear. It is entirely possible that a tired driver can operate his vehicle reasonably well as long as nothing changes that will require cognition, up to the point where the brain simply shuts down and things go awfully wrong.

The data reviewed for this thesis indicates that there are entrenched attitudes in each of the key groups in the road transport industry: mainly that “it is just the way it is – it won’t change”. Interviewees and survey respondents were assured that any information given
would be treated with the strictest confidence, and assurance was given that any records kept could not be identified as coming from an individual or company. Some participants were concerned, almost to the point of paranoia, that information such as their postcode might be used to identify them for prosecution.

There is an almost innate sense of distrust of authorities, especially among older drivers who have dealt with bullying and harassment by both police officers and RTA inspectors. There is a strong “us and them” attitude, which means that most drivers and supervisors do not regard the representatives of their controlling regulatory authorities as people that they can turn to for advice and assistance. Interviews and conversations conducted for this thesis did not evoke a sense from government representatives that their job was to help – very strongly they saw their jobs as enforcement, and definitely not as proactive prevention. One police officer stated that he could not act on information given that a crime might occur; he would have to wait until the crime occurred then use the information he had previously been given to abbreviate his investigation and, hopefully, make an arrest. WorkCover NSW provided a thumbnail sketch of how they perceive their role in regulating the road transport industry. Up until the major embarrassment caused by the release of the Quinlan Report, they had not completed one successful prosecution against individuals or organisations in the road transport sector, related to road activity. The irony is that because the Occupational Health and Safety Act is not a criminal code, but a penal code, inspectors can investigate and prosecute potential hazards before injury or harm occurs: further, after an injury or fatality occurs they can prosecute without requiring criminal intent or without requiring the proof that is necessary under criminal codes. Under the OHS Act the very fact that someone has been injured or killed ensures that negligence on the employer’s part is almost automatically deemed to have occurred unless the employer can invoke the doctrine of due diligence, ie, that he or she took all reasonable care or that the circumstances were beyond their control.

**Summary:** From the main studies that have been reviewed, the author contends that there is a major body of evidence available regarding fatigue and stress and their impact
on safety in the road transport industry. That the evidence has been collected internationally should give weight to its value, and lead legislators and law enforcement agencies to develop sets of rules for all levels of the road transport industry that balance out the needs for financial stability and for the health and safety of workers.

In the following chapters, the author presents the research findings and relates the findings to the other research cited. There are recommendations for further research and for the introduction of safe working practices for this industry.
CHAPTER 5
ANALYSIS OF THE SURVEY DATA:
A review of the data collected during the research

Analysis of data collected in a survey of truck drivers in New South Wales. Responses to a survey instrument from 44 drivers and 103 interviews, some of whom chose not to give information that might indicate their hometown or employer, or which they felt might incriminate them in some way. All respondents were assured of total confidentiality in relation to written or verbal information that they might chose to give during the survey.

The interviews were informal and were conducted with respondents from most sectors of the road transport industry, from WorkCover NSW and with Occupational Health and Safety experts. The interviews were conducted with drivers and transport company supervisors, who were willing to share their views. There was quite a deal of cynicism about the outcomes, as indicated above. Many of the participants had been surveyed or interviewed previously, most recently for the Neville and Quinlan Reports. Most, if not all, had read of the results of previous studies and the most common belief among the participants was that, while they didn’t mind sharing information with me, as long as they wouldn’t lose their jobs or got arrested as a result, they didn’t think that governments had a genuine commitment to change.

Q1) Age ___________years

Average age: 41.2 years

The comment of Quinlan and Belzer about the age of drivers is borne out by this relatively high average age. Both Quinlan and Belzer claim that recruitment to the road transport industry is low because rewards are not seen to balance effort or risk. This has
ramifications for driver health issues, as many researchers have established that the prevalence of sleep disorders, especially sleep apnoea, is greater in middle aged men than in other age group. Young people simply do not see the benefits of driving in the long haul sector for poor rewards and high risks. The recruitment of young drivers is inhibited by the inability of transport operators to obtain the requisite insurances for any driver under 25 years of age. A further factor which became obvious during interviews and informal discussions during Fatigue Management Training courses, was that drivers with young families are more likely to want work which allows them to spend more “quality time” with their families.

There is still some “romance “ attached to the concept of “line haul” driving operations, but drivers soon realise that the East Coast inter-capital trips are becoming more of a sprint and less of an endurance event. There has been much discussion in various parts of the road transport industry about the difficulty of recruiting into the industry and the long term ramifications of this lack of drivers. Authorities have recognised that an older workforce is more likely to suffer from a range of illnesses and disabilities than their younger colleagues.

Q2) Gender: M/F

100% of respondents were male

Discussion: Very few women are attracted to the long distance sector of the road transport industry. This is not peculiar to this sector of the industry: there are very few pilots, captains or long distance train drivers in other transport sectors who are female. There have been historic reasons for this gender divide, to do with raising families and simply the perception that such occupations were not proper places for women. There has been and still is a “boys’ club” atmosphere about truckies and their haunts; transport company recruiters make no particular endeavours to recruit women for long distance work. Trucks and coaches have become physically easier to drive, and there is no
physical reason that women should not be behind the wheels of big rigs: for example, in NSW, the State Transit Authority has many female bus drivers.

As a heavy vehicle driver licence assessor, the author has assessed only two women for Heavy Combination licences in the past 10 years. As most of the long haul industry uses either Heavy Combination (HC) or Multi-Combination (MC) class vehicles, this would indicate an almost non-existent recruitment into this sector of the industry.

In discussions with other heavy vehicle licence assessors at three road transport conferences in 2001, 2002 and 2003, it was clear that other assessors have experienced similar low interest by women in the heavy vehicle sector. There is one female heavy vehicle licence assessor in private practice in New South Wales. There are many inferences that might be drawn from this gender imbalance: one of the more intriguing is whether or not the recruitment of more women into the heavy vehicle, long haul sector of the industry would bring about behavioural changes of a positive nature.

From direct experience in mining and construction environments, the author has witnessed a much reported fact: that women, generally, are less inclined to “risktaking behaviour” and more inclined towards caring for themselves physically and mentally, and caring for the equipment under their control. There is an opportunity for a longitudinal study to be conducted in this area, with potentially positive outcomes leading to changes in recruitment and conditions.

Q3) Post code of residence: ________________

<table>
<thead>
<tr>
<th>Base</th>
<th>No. of drivers</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sydney</td>
<td>21</td>
<td>47.7</td>
</tr>
<tr>
<td>NSW Country</td>
<td>20</td>
<td>45.4</td>
</tr>
<tr>
<td>Interstate</td>
<td>1</td>
<td>2.2</td>
</tr>
<tr>
<td>Not stated</td>
<td>2</td>
<td>4.5</td>
</tr>
</tbody>
</table>

Discussion: Most of the drivers lived close to their employer base, although some drivers had to travel over an hour to get to work. This need to travel to work occurred in
both urban and rural areas, with some drivers also being farmers who lived up to 70 kilometres away from their driving base. This extra distance has implications when a driver returns from a 14 hour working day, then has another hour to drive home. Any crashes/fatalities which occur during the drive to or from work are rarely reported as work related. There are implications for fatigue and stress conditions to be exacerbated by drivers living a long distance from their workplace, but this is an issue not restricted to the long haul sector of the road transport industry. The added travel time, the extra dealing with traffic and other road hazards are of particular concern for all truck drivers, because the chances of their not getting the recommended minimum interrupted sleep are high and the potential for road trauma greatly increases. Various studies quoted elsewhere in this thesis outline the link between performance decrement in direct proportion to sleep loss. Another issue which seven drivers raised after completing the survey, was that living close to the transport depot often resulted in their being called in for extra work, in emergencies or when freight volumes suddenly increased.

Q4) Class of licence

<table>
<thead>
<tr>
<th>Licence class</th>
<th>No. of drivers</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>MC (multi combination)</td>
<td>20</td>
<td>45.4</td>
</tr>
<tr>
<td>HC (heavy combination)</td>
<td>19</td>
<td>43.2</td>
</tr>
<tr>
<td>HR (heavy rigid)</td>
<td>3</td>
<td>6.8</td>
</tr>
<tr>
<td>MR (medium rigid)</td>
<td>1</td>
<td>2.2</td>
</tr>
<tr>
<td>LR (light rigid)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>C (vehicle &lt; 4.5 t gvm)</td>
<td>1</td>
<td>2.2</td>
</tr>
<tr>
<td>Not stated</td>
<td>1</td>
<td>2.2</td>
</tr>
</tbody>
</table>

Comment: The number of licences (MC) for drivers of B-Doubles and Road Trains reflects a change in the industry. Until the industry acceptance of B-Doubles in New South Wales 10 years ago, there were relatively few MC class licences, because there simply were not many vehicles for which that class of licence was applicable. With the
rationalisation of transport modes over the last decade, more operators have introduced B-Doubles, which use the same tractor unit as a Heavy Combination rig, but can pull two trailers instead of one. The overall length of the B-Double may be 23 metres, with 25 metres rigs being trialled and exempted at present. They can gross up to 65 tonnes. This compares more than favourably with a Heavy Combination rig limited to 19 metres and 42.5 tonnes. A study conducted by the Australian Bureau of Transport Economics in 1998 demonstrated that at current freight rates and good backloading, a B-double returned almost double the profit of a Heavy Combination. Heavy Rigid trucks were found to be unprofitable, unless carting specialised freight at higher than normal rates. Drivers of B-Doubles have a significant responsibility – they are driving vehicles grossing up to 65 tonnes on very busy roads. At the end of their journeys they are usually driving into major cities to discharge their freight. Trip times from Brisbane and Melbourne to Sydney result in the drivers arriving in Sydney between 5 am and 8 am, when traffic is building up to its peak.

As all of the surveyed drivers in the HC and MC class vehicles are required by their employers to complete the Transitional Fatigue Management System, they can legally drive up to 14 hours in any 24 hour period. So, having left Brisbane or Melbourne or any other transport hub within 1000 kilometres of Sydney in the late afternoon or early evening, the drivers put in between 10 and 14 hours on the road. They must, by the nature of driving through the night and their circadian troughs, be fatigued, ergo not alert. Driving in heavy traffic with all the traffic control devices and a plethora of other distractions when they are tired can only lead to stressful situations. The conclusion from the responses to this question is that the combination of very heavy, long and wide vehicles being manoeuvred through high volume traffic by drivers at the end of 12 to 14 hour trips would almost inevitably lead to high stress levels, compounding the incipient fatigue.

Q5) Years of driving experience ____________ years

(a) Average years: 21.8
(b) Driving ≥ 20 years: 27 drivers 61.3%
(c) Driving > 10 years but < 20 years: 10 drivers 22.7%
(d) Driving ≤ 10 years: 6 drivers 13.6%
(e) Not stated: 1 driver 2.2%

Discussion: This result again emphasises the poor level of recruitment into the road transport industry. People want more than the life of a rover, if it is not well rewarded. Evidence for this desire for a “better lifestyle” has not been quantified in this thesis, but there is ample discussion in drivers’ rest rooms, trucking magazines and occasionally the popular media of aspirational change. Over the past 20 years of involvement of this author in heavy vehicle driver training and assessment, there has been only one driver who stated that he wanted the lifestyle of the long haul driver. Other candidates wanted money or simply a job, but were not drawn to a life that keeps them away from home, away from friends, away from commitments. As mentioned above, there are difficulties with insurance for drivers under 25 years of age, which deters employers from recruiting younger drivers. The traditional method of driver training was for a young man (in an exclusively male province) to work alongside an experienced driver as an “offsider”, learning all the skills needed to move into the driver’s seat when he became old enough to hold a truck driver’s licence. With the growth of award wages and the above mentioned insurance issues, coupled with the decrease in profitability in the transport industry, it has become rare for drivers to have offsiders. An unintended consequence of the disappearance of offsiders has been that there is no-one in the cab to monitor the driver’s performance and assist in the prevention of fatigue related incidents. Often, people go into the road transport industry as drivers because they are bored with their trades, or because they have no alternatives (discussions with drivers on training courses is my source for this). It is my observation that these people have a “romantic” view of driving, and are not really cognisant of the long hours, the boredom, the stress and the cutthroat nature of the industry. Belzer and others discuss the poor level of recruitment into the road transport industry because of poor pay and conditions. These results support their findings.

Another issue which was discussed on three occasions was that younger drivers tended to have other qualifications and drifted back out of the industry after relatively short
periods, whereas the older drivers tended to have only driving qualifications and were thus “locked in”. This issue was not tested, but should be included in any future study of heavy vehicle driver recruitment.

Q6) Years held current licence class: __________

(a) Average time on current licence: 11.3 years
(b) Licence held ≥ 20 years: 13 drivers 29.5%
(c) Licence held > 10 years but < 20 years: 7 drivers 15.9%
(d) Licence held ≤ 10 years: 23 drivers 52.2%
(e) Not stated: 1 driver 2.2%

Discussion: This data reflects the changing need for more drivers to hold MC class of licence so that they can hold their jobs with companies that are turning to more cost efficient equipment to maintain some degree of profitability. If this is linked to the aging of the driver pool, there is the inescapable conclusion that older drivers are required to upgrade their licences to retain employment. More responsibility is being placed on the shoulders of older drivers to maintain profitability in an increasingly marginal enterprise. Belzer provides ample evidence of this matter in several of his books and papers. In submissions to the Quinlan and Neville inquiries drivers, or their partners, made very clear statements about the added stress of driving B-doubles or other multi-combination vehicles. While there is a certain cachet involved in driving bigger and more powerful trucks, there is also an extra 20 to 60 tonnes pushing or pulling behind the driver. An obvious issue is that drivers with relatively little experience in heavier class vehicles are experiencing the stresses that both Belzer and Quinlan discuss, but with less time behind the wheel in an upgraded size of vehicle. Further study needs to be conducted in this particular field to establish if there is a direct link between years of driving experience in a specific class of vehicle and the involvement in road trauma.
Q7) Years with current employer: ____________

(a) Average time with current employer: 5.0 years
(b) Current employer ≥ 20 years: 0 0%
(c) Current employer > 10 yrs but < 20 yrs: 10 22.7%
(d) Current employer ≤ 10 years: 33 75%
(e) Not stated: 1 2.2%

Discussion: The numbers speak clearly: very few drivers stay in the same company for very long. There is a high degree of dissatisfaction among drivers with the level of concern that their employers have for them as opposed to the concern for meeting freight deadlines. Based on discussions with drivers and managers during TFMS training sessions, it became obvious that few drivers are content with their employers and that employers/managers are not very content with their drivers. A general comment from both drivers and supervisors was that anyone who “whinged” about conditions should either move on or be moved on. From previous experience in the long haul road transport industry, the author believes that 30 or so years ago, it was common for drivers to stay with one company for a long period of employment. Belzer alludes to this change in the USA where family run companies that benefited from close personal relationships between employers and employees have given way to corporations run by accountants, who are interested in bottom line profits and not interested in drivers as people. The data confirms drivers do not stay very long with one employer and discussion with drivers on this topic lead the author to believe that “company loyalty” is not a significant factor in driver recruitment, except in a small number of companies which are openly discussed by drivers as being very hard to obtain employment with, but are very desirable places to work.
Q8) Have you had any driving convictions? YES/NO

(a) YES 31 70.4%
(b) NO 11 25%
(c) Not stated 2 4.5%

Discussion: This is a very high percentage of offences, far exceeding the general community standard for driving offences. Quinlan points out that driving offences in the road transport industry are far higher than the general driving population. Belzer is very clear on this subject when he states that drivers are paid on a performance basis, so they are more inclined to break driving laws to achieve their hoped-for level of income. The only conclusions that can be drawn from this survey result are:

Transport industry drivers are forced to break the law to get their jobs done and to retain their jobs.

Transport industry drivers are far worse than the general population of drivers in their understanding of road law and their ability to control their vehicles. The road transport industry draws its drivers from the general population, so it is difficult to accept that, as a group, they are worse than the general group from which they came. The evidence, cited by Belzer, Neville, Quinlan, Feyer, Williamson and many others, lends weight to the former conclusion, rather than the latter.

It would appear from the data that the drivers who participated in the survey were far more likely to be convicted of driving offences than other drivers, but this in itself is not all that unusual, as these drivers are on the road up to 70 hours per week, as opposed to the general population where drivers would drive for no more that 12 to 15 hours a week, and often far less than this amount of time. As the delivery of the freight “on time” has always been a major force in driver behaviour, with obedience to road law taking a lower priority, it is more likely that heavy vehicle drivers will speed or falsify driving hour records.
Q9) Driving offences and penalties? ____________________________

<table>
<thead>
<tr>
<th>Offence</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speeding</td>
<td>7</td>
<td>15.9%</td>
</tr>
<tr>
<td>Logbook infringement</td>
<td>5</td>
<td>11.3%</td>
</tr>
<tr>
<td>Overload</td>
<td>1</td>
<td>2.2%</td>
</tr>
<tr>
<td>Traffic lights</td>
<td>6</td>
<td>13.6%</td>
</tr>
<tr>
<td>Negligent or careless driving</td>
<td>9</td>
<td>20.4%</td>
</tr>
<tr>
<td>Incorrect lane use</td>
<td>4</td>
<td>9.0%</td>
</tr>
<tr>
<td>Driving under the influence</td>
<td>6</td>
<td>13.6%</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td>2.2%</td>
</tr>
<tr>
<td>No offences</td>
<td>3</td>
<td>6.8%</td>
</tr>
<tr>
<td>Not stated</td>
<td>1</td>
<td>2.2%</td>
</tr>
</tbody>
</table>

**Discussion:** There is a strong possibility that (a), (b), (d), (e) and (f) could be put down to fatigue or employer pressure. Evidence given to both the Neville and Quinlan committees indicated that this is true. Quinlan summarises the findings of many when he states that:

> Again, at the risk of belabouring the point, this is yet another survey that found evidence that pressure from customers was a factor in the long hours worked by drivers. In short, evidence that pressure from customers/clients induces hazardous practices in the road transport industry is not confined to Australia and it is certainly more than anecdotal. (Quinlan, p. 175).

There is conjecture that simply improving drivers’ wages and conditions would not stop all illegal activity by drivers. Risktaking, including the use of drugs and alcohol, is a part of many peoples’ personalities. Sometimes, according to a number of drivers interviewed, they do illegal acts for fun or bravado. At least 20 drivers spoke about the “speed run” near Tarcutta NSW where trucks can attain speeds in excess of 160 km/h. From discussions with drivers after the surveys, and in informal interviews, some drivers reported using backroads so they could “blow the soot out”, again attaining speeds well in excess of the theoretical limit of 100 km/h. Truck driving can be boring, and when people are bored they usually find a way of alleviating that boredom: some drivers listen to music, some chat on the phone or two-way radio, some day dream, while others snort cocaine, speed, and “bunnyhop”. It is probably impossible to legislate against stupidity,
but there are root problems that can be addressed by laws and law enforcement. Most drivers that spoken to, formally and informally, on this issue, maintain that fixed speed cameras don’t deter them from speeding, except at the camera locations. They are far more concerned about marked and unmarked police highway patrol cars, and they are more likely to slow down to the speed limit if they are advised that there is a “smokey” in the area. As the data reveals that infringements due to “negligence” are more common than speeding or logbook infringements, further study needs to be done on what the causes of these infringements might be.

Q10) Have you been convicted for any drug related offence? YES/NO
Details: _____________________________________________________

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</thead>
<tbody>
<tr>
<td>YES</td>
<td>1</td>
<td>2.2%</td>
</tr>
<tr>
<td>NO</td>
<td>43</td>
<td>97.7%</td>
</tr>
</tbody>
</table>

Discussion: drivers do not regard driving under the influence of alcohol as being a drug related offence, Q9) (g) shows 6 drivers admitting to DUI. There is an inconsistency here, between (i) the results claimed by NSW Police of 35% of trucks tested revealing traces of illegal drugs and the statements made in the Quinlan Report that strongly suggest that drug use is very high in the road transport industry and (ii) what these drivers are claiming. The drivers were confident that their responses would not be used against them, yet almost all of them were quite clear on not using drugs. As in other responses they appear to be representative of the industry and their peers. It is possible that the companies chosen for the surveys may have “weeded out” offenders or those drivers using drugs either already had completed the Transitional Fatigue Management Scheme training course or were absent. The joint Vicroads/Police operation, mentioned above, produced remarkably similar results to this survey – there is a major anomaly here that needs further investigation:
Q11) Have you been convicted for any alcohol related offences? YES/NO

Details: ____________________________________________________

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<tbody>
<tr>
<td>YES</td>
<td>11</td>
<td>25.0%</td>
</tr>
<tr>
<td>NO</td>
<td>33</td>
<td>75.0%</td>
</tr>
</tbody>
</table>

Discussion: This result was surprising, as over the last 12 years I have read about 200 driver licence printouts from the RTA for drivers who were seeking employment, licence upgrades or dangerous goods licences. Although I did not record any statistics, my recollection is that the majority of the printouts recorded very few convictions, generally, with very low convictions for DUI. Since the introduction of random breath testing, the incidence of DUI charges has dropped and is at fairly stable level of about 16% (RTA NSW 2001). The question could have been made apply to the last 5 years, for a broader response.

In discussions with drivers it became obvious that most drivers accept that DUI convictions will make it very difficult for them to gain employment with a reputable company, where they can expect reasonable conditions. From this, I would conclude that the DUI convictions recorded for the survey may have been historical in nature, and do not reflect current practice. It is a matter of public concern that 25% of these drivers, and if we were to extrapolate these results to the broader heavy vehicle driver population, then 25% of all HV drivers, have been charged and convicted of alcohol related offences. It is a moot point that people turn to alcohol for solace and escape in times of stress; further study would help determine if drivers are seeking escape from work related stress through excessive alcohol consumption.
Q12) Were any of the drug/alcohol related convictions driving related? 

YES/NO

Details: _____________________________________________________

<table>
<thead>
<tr>
<th></th>
<th>total</th>
<th>drivers</th>
<th>offenders</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES</td>
<td>6</td>
<td>13.6%</td>
<td>54.5%</td>
</tr>
<tr>
<td>NO</td>
<td>3</td>
<td>6.8%</td>
<td>27.2%</td>
</tr>
<tr>
<td>Not stated</td>
<td>2</td>
<td>4.5%</td>
<td>18.2%</td>
</tr>
</tbody>
</table>

Discussion: Only a small number of the respondents acknowledged driving convictions related to drugs or alcohol. In discussions with the drivers surveyed, it was clear that most of the Yes responses were for offences in cars, not in trucks. The question should have been worded more specifically. The interviews and the surveys for this research indicate that drugs including alcohol were commonly used in some sectors of the industry, although not one driver who responded to the survey admitted to using drugs for work purposes. Some drivers were quite open about discussing the use of various substances, most commonly "uppers" to keep awake and "downers" for relaxation after a trip, and to reduce or remove the effects of the "uppers". As with their understanding of fatigue, drivers were generally highly aware of the short and long term effects of the drugs that they are available, or which were available to them, but which they chose not to take. It is difficult to know if all the drivers were being totally honest with the author. There is an inbuilt suspicion among many drivers that information from surveys can find its way into the hands of their nemeses, ie, employers, consignors and government regulatory authorities. These results are in stark contrast to statements made by representatives of the Transport Workers’ Union to the effect that long haul drivers are forced to take drugs to stay awake and complete their runs. The author tends to the view that the survey results are an accurate reflection of the group surveyed, but that different results may be obtained with a wider industry base for surveys. The issue of driving related drug and alcohol offences and their relationship to fatigue and stress has been commented on by Philip, Verviale et al., Quinlan, Belzer, Williamson, Feyer et al. A follow-up study of drug and alcohol offences and abuse by
drivers, correlated to fatigue and stress needs to be completed using sophisticated technology and a far wider driver base.

Some transport companies have very strict policies in relation to the use of stimulants and depressants by their drivers. Some companies actually enforce those policies as best they can within the latitude that they are allowed by the Transport Workers Union. In 1995, a major trucking company introduced a breathalyser system so that drivers had to take a breath test as they clocked on. As soon as a driver was dismissed on the grounds of being under the influence of alcohol, the Transport Workers Union mounted a strong industrial campaign against the company and the company was forced to "back down". Instead of fostering road safety the Union was fostering workers' rights to drive trucks when they may have been under the influence of alcohol. The TWU is in an invidious position – it has to “protect” its members from the employers, or risk losing membership, but it makes strong public calls for improvements in road transport safety. There is considerable evidence from studies conducted in Australia and overseas that alcohol is a contributing factor to fatigue related road trauma (Phillip et al 2001; FORS, 1996).

Q13) Do you use drugs or alcohol for recreational purposes? YES/NO
Details: _____________________________________________________

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>drivers</th>
<th>users</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES</td>
<td>18</td>
<td>40.9%</td>
<td></td>
</tr>
<tr>
<td>NO</td>
<td>25</td>
<td>56.8%</td>
<td></td>
</tr>
<tr>
<td>Not stated</td>
<td>1</td>
<td>2.2%</td>
<td></td>
</tr>
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</table>

Of those who answered yes, the drugs nominated were:

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>drivers</th>
<th>users</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol</td>
<td>16</td>
<td>36.3%</td>
<td>88%</td>
</tr>
<tr>
<td>Others (medication)</td>
<td>4</td>
<td>9.0%</td>
<td>22.2%</td>
</tr>
</tbody>
</table>

Discussion: This result is consistent with community norms for alcohol and other legal prescribed/over the counter medication consumption in the general community. However, this response does not fit with studies cited by Quinlan and Belzer, nor with
submissions to the Neville inquiry. This researcher can only conclude that the drivers were hesitant to tell the truth for fear of repercussions with their employers or authorities or this research project had a ‘squeaky-clean’ group of drivers. Slightly over one third of the drivers surveyed admitted using alcohol for recreational purposes, almost 10% stated that they used drugs in the form of medication, but no-one admitted or stated that they used illegal drugs for recreational purposes. Perhaps the question was worded in such a way as to detract from legitimate responses, or perhaps follow-up study is needed to determine the actual situation in relation to the recreational use of all classes of drugs, including alcohol among heavy vehicle drivers.

Q14) Do you use drugs or alcohol to help you do your work? YES/NO

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<th></th>
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<tbody>
<tr>
<td><strong>YES</strong></td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td><strong>NO</strong></td>
<td>41</td>
<td>93.2%</td>
</tr>
<tr>
<td>Not stated</td>
<td>3</td>
<td>6.8%</td>
</tr>
</tbody>
</table>

**Discussion:** The three drivers who chose not to answer this question may represent the proportion of drivers who do use drugs at work, but this is only conjecture. The result shows that the vast majority of drivers are not prone to use drugs at work. The results, again, are very similar to those obtained in the Vicroads/police operation in Victoria. The only way to ascertain the truth of drug use amongst truck drivers is to drug test all of them using acceptable, modern technology which is non-invasive – either sweat-swipe or saliva sampling. Testing vehicles for drugs is generally interesting but is specifically useless, because it does not show who actually brought the drugs to the truck, who may have used them or how long they had been there. As the drivers surveyed were not running the Hume or Pacific Highways, they represent a distinct sub-group. They are, on average, mature age, family men who may be more stable and less inclined to drug abuse than their younger counterparts who do run the major routes. It is difficult to dismiss the fact that these results so closely mirror the Victorian Police/VicRoads results detailed above.
Q15) Do you use drugs or alcohol to help you sleep? YES/NO

Details: ________________________________________________________

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<th></th>
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<tbody>
<tr>
<td>YES</td>
<td>4</td>
<td>9.0%</td>
</tr>
<tr>
<td>NO</td>
<td>40</td>
<td>90.9%</td>
</tr>
</tbody>
</table>

Discussion: all four of the respondents who responded with yes said that they had a few beers to help them sleep, which would indicate that the survey group do not fall into 35% of drivers who, supposedly, use “downers” to overcome the effects of “uppers”. There is no reason to suspect that respondents were being untruthful. When I queried some of these results, drivers said that they used to use drugs and alcohol more frequently in the past, but had changed because of health concerns and increased RTA/Police surveillance and monitoring of their industry. Belzer’s studies have indicated that the pressure of the industry does encourage drug use, and submissions to both Australians inquiries cited here indicate that drug use is prevalent. However, here is a group of fairly typical drivers who claim that substance abuse is, for them at least, a thing of the past. Alcohol is burned off at the rate of 0.016% per hour by the liver (previous research and TFMS materials), so after a 6 hour sleep, a driver would show over-limit readings only if he/she had exceeded 0.1% (5 standard drinks in a very short period) by the time he/she turned in after 4 hours of “recreation”. Because these drivers tend to drive more stable and less stressful routes, the data may be a simple reflection of the fact that less stressed drivers tend to use less drugs and alcohol.

Q16) Have you completed a Fatigue Management Course? YES/NO

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</thead>
<tbody>
<tr>
<td>YES</td>
<td>30</td>
<td>68.2%</td>
</tr>
<tr>
<td>NO</td>
<td>14</td>
<td>31.8%</td>
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Discussion: The yes response represents close to the proportion of respondents who are long haul drivers (61%) in this study. As there is no requirement for the maintenance of logbooks in the short haul sector of this industry, drivers in the short haul sector generally have not chosen to do the TFMS course, nor have their employers felt any compunction to have their drivers attend these courses or for their companies to be registered for TFMS. The fact that there is a high attendance at TFMS courses is expected, as employers want to get trips completed without costly stopovers or delays, and drivers want to get the extra pay and opportunity to get home at the end of the trip, rather than having to overnight only 200 kilometres away.

Every driver surveyed for this research has no doubts about fatigue, its causes or effects. Other trainers/instructors and consultants in the transport industry that were interviewed on this topic were all of a similar view - that ‘everyone’ involved in the industry knew about fatigue. Many of those involved in this industry believe that the legally extended driving hours were a cynical exercise by various segments of the industry to get "more blood out of the stone". The drivers interviewed for this research and the drivers who participated in the Transitional Fatigue Management Scheme have varied backgrounds and domestic situations: some were single and not too concerned about jobs; some were married with children and mortgages and were extremely worried about job security; others were divorced and "just wanted to keep on truckin’". Many of these drivers admitted that they had broken various laws, especially logbook and speeding laws, to get their job done, many of them knowing that failure to do so would result in dismissal. Some trucking companies have very high driver and other staff turnovers, which is put down to a number of causes, depending on who is telling the story. Management will state that the staff are unreliable, always “whinge”, and won’t make an extra effort “in these tough financial times”. These comments have been gathered in interviews with company owners, managers and fleet supervisors. Drivers will state that they are pushed "beyond the limits" to get the job done. The expectation of management is generally that the goods will be delivered on time, and that if drivers don’t like it, they should get out of the industry. During the training of hundreds of drivers for the Transitional Fatigue Management Scheme the author asked participants why they continued to break the laws
governing their driving. The author’s recollection of the responses is that 100% of drivers affirmed the concept that if drivers don’t do “what they have to do” to get the job done on time, then they should seek alternative employment.

Overall, the response was that the issues of fatigue and its management are well known, but it is unrealistic to expect drivers to act unilaterally at the risk of their livelihoods, homes and families. It is also unrealistic to expect operators to risk offending major clients by insisting on solutions such as “changeover drivers”/shuttles, because these cost more money. An interesting comment from several of the older (>60 years of age) drivers surveyed and interviewed for this research was that they have been asked these questions many times before, they have been promised better regulations, sensible pay rates and reasonable working conditions, but there have been very few real changes. Trucking companies come and go, but the pressure from manufacturers, wholesalers, retailers and importers just gets more intense. The data confirm that transport companies insist on their long haul drivers’ completion of the TFMS, but discussions with operators suggested to the author that the requirement to have all drivers operating under the TFMS rules had more to do with gaining 2 extra hours of driving time per day and little to do with actually helping the drivers manage their fatigue.

Q17) If yes, was the course useful? YES/NO

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<tr>
<th></th>
<th>Total</th>
<th>drivers</th>
<th>attendees</th>
</tr>
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<tbody>
<tr>
<td>YES</td>
<td>25</td>
<td>56.8%</td>
<td>83.3%</td>
</tr>
<tr>
<td>NO</td>
<td>0</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>Not stated</td>
<td>5</td>
<td>11.4%</td>
<td>16.6%</td>
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Comment: As stated above, while attending the TFMS course, or having a few social drinks after the course, there was a great deal of criticism and cynicism about the TFMS course. Yet, in the surveys, drivers were overwhelmingly satisfied with the course. Is there bravado in front of their peers and honesty in their written responses, or is there a fear that answering this question negatively may reflect poorly on them or perhaps they
did not want the trainer to feel bad. It is difficult, in any qualitative survey, to determine the veracity of responses. The author is genuinely puzzled over the disparity in statements in an informal setting and written responses to a questionnaire. If the written response is genuine, which could only be discovered by further interviews and surveys, then the TFMS indeed positive. One of the issues that kept being raised at session after session was that the drivers accepted that the RTA was genuine in wanting to assist drivers and supervisors to manage fatigue successfully, but the employers and freight forwarders saw TFMS as a way of getting more work done for less outlay. The issue of how many hours constitute safe working hours is a complex question. An issue that arises is that drivers who complete a 14 hour shift then have to go home, if they are not sleeping in the cab or a nearby motel, have a meal, relax and get some sleep, often to be up to a few hours later to prepare for the next run. It is common for drivers to refuel, check and wash their vehicles before they take time off, and although this is supposed to be counted as “duty time” it rarely is, so the drivers could easily be exceeding 16 hours per day.

Horne (1988) states that 5 to 6 hours is the minimum amount of sleep that the brain requires for proper function. The driving pattern for most long haul work is 5 hours then half hour break followed by another 5 hours and a half hour break followed by 4 hours driving then a main break of 9 hours. Usually during these 9 hours drivers will take a meal, shower, chat and carry out maintenance and refuel. If all goes to schedule, the driver can have at least 7 hours sleep before waking, carrying out checks, breakfasting, showering and getting back on the road.

The problem occurs when drivers become fatigued during the driving periods, which many of them feel compelled to complete without any stops.

The issue addressed here is the relevance and integrity of the TFMS. Do drivers really think that it improves their ability to manage fatigue? The RTA in the policy formation certainly expected that it would, as would each of the relevant authorities in the other states and territories where TFMS has been introduced. Far more research needs to be conducted on the purpose, integrity and implementation of the TFMS.
Q18) If YES, how was it useful?

(a) Allows extra driving hours 3 6.8% 10%
(b) Better fatigue management 9 20.4% 30%
(c) Better informed 8 18.2% 26.7%
(d) Not stated 12 27.2% 40%

Discussion: Over a third of the respondents felt that the TFMS course gave them better strategies to cope with fatigue; it is interesting to note that more than a quarter of participants did not state why they thought it was useful. Very few felt that the extra driving time allowed was of any benefit to them, because of pressure to complete trips regardless of levels of fatigue. Drivers were interested in the concept of circadian rhythms, and felt that the course had alerted them to the biological need to sleep at certain times. Almost every driver wanted to be able to pull over and have a sleep, as would happen if they and their companies obeyed the written agreement with the RTA about fatigue management: that is, if drivers are tired they should be encouraged to stop, report in and then have a sleep. A follow-up study should be done in this area to determine exactly who benefits and how the benefits accrue.

The small proportion who claimed the main benefit is increased driving time is important: it reflects the scepticism with which drivers view the TFMS and it also reflects the recognition by most of the drivers surveyed that managing their fatigue is a genuine priority and that driving more hours is not.

Q19) If NO, what was wrong with it?

No responses
Q20) Have you been involved in a work related vehicle accident?

YES/NO

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<tr>
<td>YES</td>
<td>15</td>
<td>34.1%</td>
</tr>
<tr>
<td>NO</td>
<td>28</td>
<td>63.6%</td>
</tr>
<tr>
<td>Not stated</td>
<td>1</td>
<td>2.2%</td>
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Discussion: That two thirds of the workforce surveyed claim not to have been involved in an accident in the workplace, over an average of 24 years on the job is difficult to believe. In discussions with drivers and in some interviews, it became clear that accidents that would be reported in most workplaces are not reported in the road transport industry, because employers do not want workers’ compensation claims made. There is a culture, “… that if you injure yourself, or get bashed at work, that is normal.” There is a culture that you don’t report minor “events” or near misses because the employer will regard you as “high risk” and get rid of you.” Evidence for this is quite clear in that Quinlan and Belzer both discuss the issues of compliance with an industry accepted “code of silence” in relation to minor injuries. Another difficulty for drivers is that employers, at least anecdotally, have a black list operating: if anyone makes a claim, word filters around to other prospective employers. The author believes that the data support this view, although no effort was made in this study to explore this practice. As Quinlan and Belzer have presented evidence from both the USA and New South Wales that verifies this view, there is little to be gained from reinvestigating this issue, unless a major, well funded study could be established to determine if coercion, either overt or covert, exists in the road transport industry to cover up workers’ injuries, . The only purpose that such coercion could serve is to protect the operators from increased workers’ compensation claims.

There is little doubt that the drivers interviewed were very unlikely to make a claim for injuries; some of them did not think that they were covered by workers’ compensation insurance. One driver thought that this kind of insurance was not applicable in the road transport industry. The TWU has made some effort to increase drivers’ understanding of
their rights and responsibilities under current workers’ compensation laws. WorkCover NSW, as the authority responsible for the implementation of workers compensation law in New South Wales should take a much more proactive role in the road transport industry generally, but with urgent emphasis on the workers’ compensation. Another issue which may have a bearing is the level of stoicism that many drivers bring to their work. As it is accepted that fatigue is a part of the industry, for many, injury and illness may also be accepted. This issue should be followed-up with further research, but informal discussion with other drivers over many years leaves no doubt in the author’s mind that drivers have come to accept these issues as part of their working existence, and they can be quite critical of anyone who seems to “break ranks”.

The question could have been better worded, and perhaps broken into two questions about collisions and about injuries. There may be some confusion in drivers’ minds about exactly what constitutes a work related accident.

**Q22) Did any of the following attend the accident?**

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<tr>
<th></th>
<th>Attendance</th>
<th>Percentage</th>
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<tr>
<td>RTA</td>
<td>1</td>
<td>2.2%</td>
</tr>
<tr>
<td>WorkCover (involved a forklift)</td>
<td>1</td>
<td>2.2%</td>
</tr>
<tr>
<td>Police</td>
<td>12</td>
<td>27.3%</td>
</tr>
<tr>
<td>Employer’s representative</td>
<td>1</td>
<td>2.2%</td>
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**Discussion:** Of the drivers who reported being involved work related/on-road collisions, 80% had the police attend. The instance where WorkCover NSW attended was where a driver was assisting with the unloading of a truck and was crushed between the truck and a forklift. This was a “factory incident” warranting WorkCover’s attendance. In the one instance RTA and the employer’s representative attended, it was a serious collision involving the truck and a car. WorkCover did not attend this incident. This data verifies what Quinlan found in his Motor Accident Authority report: WorkCover NSW, which has the legislative responsibility, have not regarded the roads and trucks as its responsibility. As Jenny Thomas from WorkCover NSW relayed: “the
road safety imperative exists in its own right entirely independently of the work safety imperative”. If this is the main basis for WorkCover NSW argument that they should leave the safety management of the road to the Police and the RTA, then the obvious conclusion is that WorkCover NSW does not comply with or enforce its own legislation. In Division 1 of the OH&S Act 2000, Section 8 Duties of Employers (2) Others at workplace it states:

“An employer must ensure that people (other than employees of the employer) are not exposed to risks to their health and safety arising from the conduct of the employer’s undertaking while they are at the employer’s place of work”

Section 9 puts the same onus on self-employed persons, so it relates directly to owner/drivers as well as employers. The data collected in this survey and statements from WorkCover NSW demonstrate that there is a confused approach to workplace safety in NSW. On the one hand, construction sites and factories are regularly visited by WorkCover NSW inspectors to ensure compliance with OH&S laws, on the other hand, WorkCover NSW state that they have no responsibility to ensure the safety of either the transport industry workers or the other people who are on near the roads.

Lawyers may make a great deal out of the phrase “at the employer’s place of work”. WorkCover NSW may like to hide behind what it, apparently, sees as a legal loophole, but it ignores, at great risk to the community, its legal obligations to ensure that both workers and the public are protected.

Quinlan’s suggestion of an overriding authority or taskforce, while unpalatable to WorkCover, is perhaps the only realistic way of attacking a problem which has been recognised and studied and researched and recommended on for more than 20 years. Since the release of the Quinlan Report there has been no overt effort on the part of WorkCover NSW to regulate the road transport industry in any way, other than the single court action commenced in 2003 and commented on elsewhere in this thesis. The data collected for this survey confirms the other major studies. One of the key issues is that WorkCover NSW have determined that it will wait for reports from the RTA and Police before deciding if it conduct an investigation or launch a prosecution. Given
WorkCover’s own regulation about “non-disturbance occurrences” this is anomalous, and inexcusable.

**Q22) What caused the accident that you were involved in?**

(a) Single vehicle - own fault 2 4.5% 13.3%
(b) Other vehicles – own fault 3 6.8% 20%
(c) Car drivers fault 10 22.7% 66.7%
(d) Pedestrians’ fault 1 2.2% 6.6%

**Discussion:** This response is in line with discussions held with drivers and their supervisors, that car drivers simply do not understand road laws or how large vehicles such as trucks and coaches perform. The common point made in discussion about this question was that “own fault” collisions were all attributed to inattention or fatigue. Submissions to both the Quinlan and Neville inquiries, and discussions with accident investigators and insurers and the results of this survey all point to the lack of awareness, understanding or compliance by car drivers. A common observation by many truck drivers was how little car drivers understood the physics of stopping a heavy vehicle, fully laden – even under ideal road conditions. It was stated that car drivers would cut in front of trucks, often leaving little or no room for braking safely. A common example was how, on approach to traffic lights, car drivers would move across into the lane occupied by a truck, sometimes when there was no traffic in the lane occupied by the car. Why car drivers do this is a mystery, but it is a situation that can lead and has led to trucks being forced to run off the road or onto centre islands to avoid collisions. Several drivers reported “rear-end shunts” which were technically their fault, but which they ascribed to car drivers pulling in front of them at the last moment. Fatigue can play a major role in any road incident. This topic has been explored by authors in military (Belenky 2001), and civilian situations (Philip, Vervialle et al. 2001) and there is no intention to pursue this matter, except to reiterate that any person who is fatigued lacks the cognitive ability to make critical decisions and has a reduced psychomotor and affective function.
Another issue which caused anger amongst truck drivers was that car drivers travelling below the posted speed limit when there was no chance of being passed, but speeding up to or above the limit when they reached a passing lane situation. This causes frustration and stress among truck drivers who are required to keep to strict schedules, and need to stay as close to the speed limit as they can. Several drivers commented that they would adopt dangerous strategies such as tailgating or passing in unsafe situations if they were “stuck” behind a slow car for what they considered too long a time. Other poor car driver performances included running red lights and disobeying stop or give way signs. As stated above, fatigue has a direct influence on cognitive, psychomotor and affective functions, so drivers will not react as quickly or appropriately as they should. They may also demonstrate increased anger or adopt careless behaviour as a result of fatigue.

It is possible to suggest that if drivers did not have heavy pressures on them to adhere to strict timeslots; they would not exhibit aggressive behaviour towards errant car drivers. There is an attitude, clearly and frequently expressed by most of the drivers surveyed or interviewed that car drivers are the “enemy”: incompetent fools who should not be on the roads. From this it is more probable to conclude that truck drivers will continue to see car drivers as “fair game” at least for criticism, if not physical action. The data shows that the reported incidents mostly involved car drivers. Whether or not this can be borne out by investigation is another matter. It is the perception that is important – truck drivers see the car drivers as causing incidents. As long as the current regime of little or no regulation of the road transport industry continues, as long as truck drivers are forced to drive long hours and compete for road space with people who they perceive to be less competent, then it is likely that car drivers will be blamed.

Q23) What do you think are the main causes of heavy vehicle accidents?

(a) Fatigue 22 50%
(b) Speeding 4 9%
(c) Other vehicles/drivers 12 27.2%
(d) Road conditions 2 4.5%
(e) Employer pressure 6 13.6%
(f) Inattention (HV driver) 3 6.8%
(g) Mechanical failure 1 2.2%
(h) Inexperience (HV driver) 4 9%
(i) Drugs and alcohol 3 6.8%
(j) Road rage 2 4.5%

Discussion: With half of the respondents blaming fatigue for heavy vehicle accidents, there is obviously a perception among the drivers that fatigue is a significant issue. While truck drivers have blamed car drivers in the preceding question for the majority of accidents, there is a strong correlation between the percentage of blame apportioned to car drivers. When asked directly in this question if fatigue is a cause of truck crashes, half of the drivers interviewed stated it is. The flawed regulations allowing drivers to drive for 14 hours a day, day after day, must be challenged and changed. There is no safety rationalisation that can be applied to TFMS - its main benefits are extended driving time, as stated above. Simply understanding fatigue doesn’t make it not happen. The data and interviews indicate that drivers do understand fatigue and its effects, so the TFMS model can only be of benefit if it is implemented in its totality – that is operators abide by their signed agreements with the RTA, supervisors and drivers enforce it in a practical way.

Circadian rhythms cannot be ignored; sleep debt (caused by uncomfortable accommodation, excessive noise, stress, need to carry out maintenance and repairs “on the run” and just the general lifestyle of long distance drivers) will not be relieved without adequate and good quality sleep; sleep inertia from being woken out of a deep sleep cycle will not convert into some form of useful energy. A significant factor is that production and service industries demand that products be delivered on time, wherever they must go. As cited elsewhere in this thesis, a number of companies, including BHP Newcastle, would stamp the delivery dockets with a date/time for delivery of their products with a statement that late delivery would result in a financial penalty on the driver. In the case of BHP Newcastle the amount stated was $300, which amounted to more than one day’s pay for the driver. This practice is still, according to other drivers,
in vogue in some companies, yet it is a dangerous practice, and probably in breach of OHS laws. It does not take into account the need for rest, for illness, for tyre blowouts, floods, traffic jams or any of the incidents that occur daily on the roads and delay trucks.

Allowing drivers to work and/or drive for 14 hours a day legally is not reasonable in terms of the drivers and other road users’ health and safety. Every report that has been commissioned in the area of workplace fatigue, and specifically in relation to road transport, has come up with workable solutions. There have been the recommendations from drivers in the FORS report of 1992 which seem to be commonsense, but have not been implemented:

- Greater flexibility in hours
- Easing tight schedules
- Better off-road rest facilities
- More efficient loading/unloading

Driver respondents, while about half thought that more pay would help, were much more interested in being able to stop and rest when they knew that they were tired; they wanted other people to be responsible for loading and unloading their trucks so that they could be resting; they wanted somewhere decent to stop and have a break. Very few, in fact almost none of the respondents to the FORS study, wanted a ban on driving between the hours of 2 am and 6 am. Many drivers, in this study, regard this as “their time” when the roads are mostly free of those ‘dangerous” car drivers, who they blame for a lot of their collisions. Circadian rhythms would dictate that this is the most dangerous time to be carrying out any activity. The data collected for this study reflected that the wants of the drivers need to be balanced with the needs of industry timelines and those balanced with the requirements of human physiology. Any observer who has driven past the truck rest areas on the Hume Highway for example, would have to wonder how anyone could sleep or relax there.

At present, drivers don’t have many options – either they keep driving when they know they should be resting, or they lose their jobs. Quinlan in 2002 recommended the abolition of driver logbooks in New South Wales: his reason was that drivers are forced to stop when they are not fatigued, but can drive when they are fatigued. Currently, if
they stop and take a rest that doesn’t coincide with their logbook hours it could mean that the number of hours available to them in the 24 hour period, in which the RTA works, will decrease and reduce their chances of arriving at their destination at a reasonable time.

Discussions with drivers in cafes, in bars, in trucks and in the training room, in formal interviews, as well as from open ended items in the questionnaire administered for this research, evinced that there is a widespread belief that large transport company owners such as Lindsay Fox, Ron Finemore, the late Peter Abeles and others have been held up as the epitome of good management, whilst at the same time their companies/managers/supervisors expect their drivers to break the law on a daily basis to ensure that deliveries are made on time.

An example is of a Finemores' petrol tanker which was totally destroyed along with its driver on the Newell Highway north of Forbes in 1998. Evidence gathered by RTA and police investigators showed that the truck had been fitted with a device to override the speed limiter (heavy vehicles are meant to be limited by tamper-proof devices to a maximum of 100 km/h). When interviewed after the tragedy, Ron Finemore, then the managing director, stated categorically that he was against the fitting of such law breaking devices, but some Finemore drivers, who attended training courses that the author conducted, claimed that these devices were regularly fitted to vehicles and drivers were shown how to quickly remove them to prevent their detection. This claim has never been tested in court, and may well be apocryphal, but it illustrates the belief of drivers that their bosses or large corporations, if they have enough political and social influence can get away with anything, even manslaughter. In conversations, drivers joke about "Trucksafe", a self-regulating system that allows accredited companies to be responsible for their own vehicle safety and for the safe behaviour of their drivers, including the provision on "mandatory" driver training on an approved annual basis.

Most of the comments are very derogatory, with drivers citing example after example of how the system is not even ‘rorted’ - it is simply ignored. Quinlan is quite critical of the
operation, rather than the concept of Trucksafe. (p. 24, 25). Whereas these claims may be apocryphal, they are indicative of the distrust that drivers have of any systems that allow their bosses to be responsible for the safety of the drivers and their trucks under self regulation. In 2001, a spokesperson for WorkCover NSW related, during an interview (May 2001), that the Industry Reference Group was working towards a prosecution of a "big player". The only prosecution that has come about is a small to medium size operator, charged over a death of one of his drivers. While this may just be the start, drivers generally don't see that it makes much difference. Many drivers interviewed for this research are concerned that WorkCover NSW will "go after them" as easy prey. Drivers also cite the construction industry, where many of the fines seem to be directed at the workers and few at the bosses. This perception stems from the fact that the workers tend to “cop” a high number of on-the-spot fines, which they know about and discuss among themselves, while very few of the cases against employers are reported in the media – workers simply don’t get to hear about prosecutions against employers, be they successful or not. In a recent discussion, for an unrelated project, with some workers, this topic arose and the workers were very surprised to learn that their employer had been fined $250 000 for a serious incident two years previously. There was no way for the workers to easily access this information. In the executive summary of the Quinlan Report it is noted that:

The NSW Occupational Health and Safety Act covers the road transport industry and contains arguably the most effective remedies for dealing with very serious offences by operators, consignors or clients. *However, no real effort has been made by the responsible agency, WorkCover, to investigate or prosecute such offences even though this has support not only from the RTA but the union, industry associations, insurers and other parties.* As this Inquiry has shown, there is evidence of a depressingly large number of cases where there are indications of corporate criminality warranting serious investigation. It should be noted that OHS agencies in other jurisdictions like Victoria are becoming more active in undertaking prosecutions in the trucking industry. (italics added) (MAA Report p. 8)

Note: Some drivers gave more than one cause, hence the 59 responses
Q24) How do you think that the number of heavy vehicle accidents could be reduced?

(a) More training for car/truck drivers  15  34.1%
(b) Better management    14  31.8%
(c) Stricter enforcement       6  13.6%
(d) Shuttle drivers      1  2.2%
(e) Controlled freight rates       2  6.8%
(f) Nothing can be done       6  13.6%

Discussion: In the 1992 FORS study, 26% of drivers across all industry sectors felt that more education and training would be beneficial. In the company-employed drivers this percentage rose to 33% which reflects a similar result to the current study. There was also a strong correlation between the need for better management/stricter enforcement results in the two studies, Quinlan and Neville, and supported by data and interviews in this study. Driver attitudes have probably not changed that much in the past 10 years; unfortunately neither have the regulatory requirements. A general observation by many of the participants in the driver survey was that they had commented on all these issues before and that little had changed. They agreed that some of the roads were getting better; and that trucks were getting more comfortable and more reliable; and that there is a traineeship system in place for transport drivers, but that so far it has been mostly a “tick and flick” exercise that has recognised drivers’ current skills and has not taught them much that is new. Almost every driver and most of the supervisors stated their belief that there were measures that could make the roads safer places for both work and leisure (as they stated in response to this question), but that governments do not want to “take on” the big guys – the captains of industry; the large sponsors of political parties. There was a resigned attitude that drivers are expendable and their importance is secondary (if that) to the demands of industry. The Neville Report acknowledges that Australians live in a globalised, high demand economy, but it also points out that meeting those demands for instant delivery comes at a cost – in dollars, in equipment and most importantly, in
human lives and social devastation. Some key organisations which have input into this research are the Transport Workers Union, the various industry associations (eg Tiptruck Owners Association), driver hire companies, as well as the regulatory authorities. The TWU has been proactive in attempting to have companies accept their responsibilities towards drivers and owner/operators; recently they have started a media campaign to force WorkCover NSW to act in road related industrial matters. The industry associations are providing their members with information about regulatory requirements and how to achieve compliance. They are urging members to be proactive in developing safe systems of work which will meet OH&S legislative requirements, if the regulator of OH&S in NSW ever gets around to accepting its primary function in the road transport industry.

Industry bodies were generally wary about WorkCover NSW becoming involved in road transport – generally for the same reasons as drivers and supervisors stated: their members will be prosecuted by yet another government agency.

Q25) Have you, in the last 5 years, been asked to do something illegal in your vehicle? (eg falsify logbook to drive extra hours, take “stay awake drugs”, and modify vehicle speed limiter)  YES/NO

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<th></th>
<th>YES</th>
<th>15.9%</th>
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<td>NO</td>
<td>37</td>
<td>84.1%</td>
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(a) falsify logbook  4  9%  57.1%
(b) not specified     3  6.8%  42.8%

Discussion: This was an interesting and totally unexpected response. After listening to hundreds of drivers complain about how they are forced to break the law every day that they are on the road, the expectation would be that at least 90% of the respondents would have answered yes. Perhaps the response is accurate because the companies employing these drivers were among the first to register for TFMS and to have their drivers and
supervisors complete TFMS training – sometimes at considerable expense: the results may be skewed towards companies which in most respects comply with the law. It was not surprising that over half of the drivers who answered yes admitted to falsifying logbooks. Most drivers interviewed claim that logbook falsification is common, particularly for some companies and on some runs. The other main studies researched for this thesis both had strong evidence that logbook infringements were so commonplace as to make the logbook system farcical. There are trial systems currently operating in New South Wales and Queensland to do away with logbooks and use self management combined with computer management systems (in-truck). Most of the drivers that discussed this issue were strongly in favour of doing away with logbooks because they saw them as creating a system of resting when not tired and having to push on when tired. They would much rather manage their own fatigue levels.

Whether or not they would flout the system if logbooks were removed is open to conjecture, but there is no statistical evidence that drivers from the Northern Territory or Western Australia where logbooks are not required are any more prone to crash than those from the highly regulated states. Quinlan and Neville both refer to this matter.

Q26) Do you do anything illegal in your vehicle? YES/NO

| YES     | 7 | 15.9% |
| NO      | 30 | 68.2% |
| Not stated | 7 | 15.9% |

Discussion: Comments here would echo those for Q25), except that 16% of the drivers chose not to answer this question. This response possibly indicates that their answer would have been yes, except that they were concerned about their employment/licences. In informal discussions, many drivers stated that they exceeded the speed limit and ran red traffic lights quite regularly, but that they did not consider these acts to be illegal. One driver commented that it was a bit like filling in tax returns – you were expected to cheat a bit. There was one group of drivers from south western NSW who claimed that
many road laws didn’t make any sense, such as limiting truck speeds on good roads to 100 km/h; they felt that these laws were stupid and so drivers were entitled to ignore them. They even brought a road safety aspect into this argument: that the quicker they delivered to market, the quicker they got home and the quicker they got off the road. Although this has been the subject of driving jokes and cartoons for many years, there is more than a little subscription to its veracity. This argument was followed by a discussion on the relative merits of higher speed limits and abolition of logbooks as positive ways of reducing driving hours and having rest when it is needed. Most of the drivers who discussed this topic were fully aware of the “demerit point” system, the financial penalties and delays for court time. Most would rather not have to break the law to do their jobs.

Q27) IF YES, what types of illegal activities?

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<th>Type</th>
<th>Count</th>
<th>Percentage</th>
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<tr>
<td>Falsify logbook</td>
<td>1</td>
<td>2.2%</td>
</tr>
<tr>
<td>Speed</td>
<td>6</td>
<td>13.6%</td>
</tr>
<tr>
<td>Overload</td>
<td>1</td>
<td>2.2%</td>
</tr>
<tr>
<td>Not specified</td>
<td>3</td>
<td>6.8%</td>
</tr>
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**Discussion:** It was surprising that speeding offences were more common than logbook infringements. This finding was consistent with the rest of this survey’s results, but does not fit with the results obtained by FORS 1992 study or the Quinlan or Neville Reports. In the FORS study, 62.2% of drivers from small and medium transport companies reported exceeding their logbook hours on more than half their trips. From discussions in informal settings, most drivers stated that they had cheated on their driving hours quite frequently. One of the most common, and almost undetectable, methods of cheating is to drive and deliver locally, ie within 100 km of the truck/driver base, then drive long haul or vice versa. The only way this practice might be detected is through perusal of pay records, or through admissions made after a crash. From the data, the author can only conclude that further study needs to be undertaken to determine the reality of these supposedly common driving offences. From informal discussions and observations, the
author believes that the figures obtained in the FORS study of 1992 are more accurate. There is the possibility that some companies which are party to the TFMS encourage safer and legal driving. Some drivers stated that they carried out more than one illegal activity, from which it might be deduced that drivers who break one law are more likely to break another, and vice versa.

Q28) How often do you do these illegal activities?

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<tbody>
<tr>
<td>(a) Daily</td>
<td>6</td>
<td>13.6%</td>
</tr>
<tr>
<td>(b) Irregularly</td>
<td>1</td>
<td>2.2%</td>
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Discussion: as stated above in the comments on Q26) & Q27), drivers, generally, regard logbook and speeding offences as a part of their normal days’ work. A follow-up study could look at these issues with “Actigraph” monitoring of daily and weekly activities. Vehicle computer records, which are now quite common, and which have legal status, could be used to verify vehicle speeds, times on the road and times of and between breaks. From discussions with drivers, it became obvious that boredom was a factor in many of the illegal activities: many of the drivers simply wanted to get home. Other medical and transport related research, including Horne 1988, Hensher and Battelino 1991, found that boredom is regarded as a causative factor in both driver stress and driver fatigue, there is a need to develop with the drivers, effective strategies to deal with boredom, especially in long distance driving. The norm, now, is for one driver operations because paying an “offsider” is not economic with the level of competition. It was a common thread of discussions, and in Belzer, Quinlan and Neville that the need to complete a specified number of trips or kilometres in each day so that reasonable wage could be earned was a major motivating factor in speeding and logbook offences.
Q29) Can you explain why you did these illegal activities?

(a) Management pressure 3 6.8%
(b) Human nature 3 6.8%
(c) Inattention 1 2.2%

Discussion: The responses to this open ended question were more informative when respondents were asked the question, but not asked to write a response. Many of those who had claimed not to indulge in illegal activities were quite vocal about pressure from “bosses”. At one plant, where the transport supervisors were in attendance, they asked drivers who it was specifically who had asked or told the drivers to speed or falsify logbooks. There was considerable grumbling and comments like “you know who it is, but I’m not gonna get in the shit by saying his name”. Many drivers and supervisors believed that if people think that a law is not very important and that they can get away with breaking it, they probably will. Whether or not this is true for the community at large, I have had many discussions with drivers who I have been assessing for driver’s licence upgrades who I have observed speeding (5 to 10 km/h over the limit in an 80 km/h zone). Almost without exception, the response to my commenting on this activity is that it is a stupid speed limit for that area and/or there is no chance of getting caught because they know where the police cars are, via their radios.

Q30) Is there a better way to control driver fatigue and heavy vehicle road accidents than the rules and regulations that are enforced by the Police and RTA?

(a) Make companies more accountable 5 11.4%
(b) Allow self-regulation 7 15.9%
(c) Better pay and conditions 2 4.5%
(d) Better roads 1 2.2%
(e) Better trucks 1 2.2%
(f) Refresher training 2 4.5%
(g) Cooperation (drivers/management) 1 2.2%
(h) More police and RTA 3 6.8%
(i) Increase driving time 1 2.2%
(j) more rest 2 4.5%
(k) No suggestions 19 43.2%

Discussion: the calls for self-regulation and making transport companies more accountable were consistent with other research in Australia. It was disappointing but not surprising that there was such a high number of drivers and supervisors who could think of no way to improve their lives on the road, or the lives of those in their charge. In follow-up conversations with many of the respondents, it was obvious that they thought that the system could only get better if governments worked together to develop a realistic and workable solution. There was a high degree of understanding about how general freight rates had fallen in dollar terms and in relative terms. They knew that many trucking businesses were marginal or worse in terms of profitability. Almost all felt that there were forces beyond the control of the small to medium operators that caused the financial squeeze.

Many felt that the concept of a tightly regulated industry, as proposed by both Quinlan and Neville (and others before them), where similar restrictions were placed on entry into the freight market, as currently apply in coastal shipping or airlines would prove highly beneficial. Controls over entry into the road transport industry, controls over freight rates, driving hours and conditions could greatly improve efficiency, and reduce road trauma. A significant number of these drivers and supervisors had read about these reports and their recommendations in trucking magazines and had discussed them and dismissed them – not because they could not work, but because, in their minds, governments would not introduce them, or if they did introduce them, they would fail to police them.

As stated above, there is an air of resignation about the comments these respondents made and they continue to drive trucks under sub standard conditions knowing that in all likelihood little will change. They think they know how to make the roads safer places,
but they don’t believe that there is the political will to make it happen. One company’s drivers had attended a Transport Workers Union meeting not long before I ran their second TFMS session. The Quinlan Report had been discussed, because the TWU had contributed to it and union representative was on the report steering committee. The TWU delegate had been quite positive about the results, because the report had been commissioned by the NSW Government itself in response to continuing carnage on the roads and public concern about tired drivers of long haul trucks and coaches. There was a great deal of disillusionment when the minister responsible for the Motor Accidents Authority, John Della Bosca, “sat on” the report for almost a year and then ignored most of its key recommendations.

Q31  Most respondents ignored this question as they assumed that it was the same as Q3. The author had intended to compare respondents’ residential postcode with their work postcode to ascertain if some, many or most of the respondents had to travel long distances between work and home. As so few answered this question, it has been regarded as irrelevant. It should have appeared directly under the work question Q3 so as to avoid confusion.

Q32) Type of Work (eg Long haul, courier, tiptruck, local delivery)

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<tbody>
<tr>
<td>(a)</td>
<td>Long haul</td>
<td>27</td>
</tr>
<tr>
<td>(b)</td>
<td>Courier</td>
<td>1</td>
</tr>
<tr>
<td>(c)</td>
<td>Local delivery</td>
<td>16</td>
</tr>
</tbody>
</table>

Discussion: This result reflects the nature of many of the small/medium and large transport companies. They have fleets for both long and short haul, so that they can offer an integrated service. It also allows a lot of “juggling” of times for driving: drivers do local or short haul for a few hours then head off on long haul, often, especially at peak times of the year, exceeding their legal driving times by several hours – as the local times are not logged. Quinlan has collected a mass of statistics regarding the make up of the national trucking fleet, with the majority of trucks being owned by businesses or
government departments which have specific tasks for the vehicles. The above example of Arnotts is a good illustration of this situation: their extensive fleet is devoted to the carriage of their products, with the majority of their fleet on short haul.

Most of the drivers that were surveyed and interviewed were from companies that specialised in long haul/for hire work, so the results are not unexpected. Most of the drivers involved in this study would only operate in one facet of the industry most of the time: either they were driving long haul or short haul/delivery. A significant number, probably about 15% claimed to do both, sometimes doing short haul either directly before or after long haul. This has significance, and is discussed by both Neville and Quinlan, in that short haul work is not logged, so drivers can easily exceed 14 hour days.

As mentioned above, there is little reason for short haul/delivery/courier drivers to complete fatigue management training because there is almost no checking on company records for driving hours/wages nor is there any requirement to carry or complete a logbook for trips less than 100 kilometres from the driver base. From discussions with some drivers and managers, the only time the records are checked by the RTA is if there has been a major trauma. It was not surprising that WorkCover NSW was not quoted as ever having checked driver records. Given the high proportion of truck movements on short haul operations, it is a major concern that there is relatively little checking of driving hours and duty times for the short haul drivers. This problem is far greater than it seems, because many studies concentrate on the road transport industry and do not include organisations which use trucks for their core business, but which are not classified as transport operators. Such organisations would include power supply companies and their contractors, water authorities, even the RTA itself. After five years training and assessing drivers for a major utility authority, the author still has not learned if one of their truck drivers has had his driving/duty hours checked by RTA, Police or WorkCover NSW.
Q33) Details of normal weekly work, including non-driving duties.

(i) = <12 hours per day
(ii) = 12 to 14 hours per day
(iii) = >14 hours per day

<table>
<thead>
<tr>
<th>Day</th>
<th>(i)</th>
<th>(ii)</th>
<th>(iii)</th>
</tr>
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<tbody>
<tr>
<td>Sunday</td>
<td>3 = 6.8%</td>
<td>5 = 11.4%</td>
<td>0</td>
</tr>
<tr>
<td>Monday</td>
<td>26 = 59.1%</td>
<td>17 = 34.1%</td>
<td>1 = 2.2%</td>
</tr>
<tr>
<td>Tuesday</td>
<td>22 = 50%</td>
<td>19 = 43.2%</td>
<td>1 = 2.2%</td>
</tr>
<tr>
<td>Wednesday</td>
<td>23 = 52.3%</td>
<td>20 = 45.4%</td>
<td>1 = 2.2%</td>
</tr>
<tr>
<td>Thursday</td>
<td>24 = 54.5%</td>
<td>19 = 43.2%</td>
<td>1 = 2.2%</td>
</tr>
<tr>
<td>Friday</td>
<td>23 = 52.3%</td>
<td>17 = 34.1%</td>
<td>1 = 2.2%</td>
</tr>
<tr>
<td>Saturday</td>
<td>5 = 11.4%</td>
<td>2 = 4.5%</td>
<td>0</td>
</tr>
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Note: None of the drivers surveyed claimed to work more than 5 days a week.

Discussion: This response was unusual, compared to results obtained by Atkinson 1999, Hensher and Battelino 1990 and Williamson, Feyer, Coumarelos and Jenkins 1992, in that few of the drivers did weekend work, and a small majority worked less than 12 hours per day, although a fair proportion of the drivers worked between 12 and 14 hours per day. The lone driver with consistent driving hours in excess of 14 hours per day was the same respondent who gave no response to questions on illegal activities and drug use. Many of these drivers were asked about the actual hours worked, and for those who worked less than 12 hours a day, their regular days were about 10 hours, with the occasional longer day. Most of the drivers in (i) column were on runs of up to 300 kilometres eg Sydney – Newcastle - Sydney, while those in (ii) column were on interstate runs eg Newcastle - Brisbane – Newcastle or long intrastate runs eg Griffith – Sydney – Griffith. The lone driver respondent in (iii) stated that he mostly did Sydney – Perth – Sydney, although he could be sent anywhere at anytime, and even if he was working locally he still did “heaps of hours” because he likes the very large pay packets he receives – he claims that he is paid a wage with payslips for regulation hours plus large
cash payments with no tax or payslips for his excessive overtime. Many researchers have reported that the industry has many and varied ways of encouraging drivers to drive in excess of logbook times and at excessive speeds: The results from the survey indicate that the drivers are holding stable jobs with regular hours over reasonable routes. From discussions and wide reading, this is not the industry norm – it is more common for drivers to be in relatively insecure employment, working irregular shifts over a multiplicity of routes. Further:

- Time and/or kilometre related bonuses, where arriving at a place at a particular time carries a cash bonus, or where exceeding a certain number of kilometres in a day, week or whatever time period will also attract a cash payment
- Payment by kilometres travelled on a sliding scale, so that the more kilometres driven, the higher the rate per kilometre
- Local drivers, on bulk waste runs to a waste management centre, paid cash for completing more than a minimum number of trips per day; if the set number is five trips per day, drivers will then receive a cash payment for the sixth and subsequent trips

These are three of the more common methods of encouraging drivers to get more out of their time, not supported by these findings, possibly due to the nature of the transport activities work that the companies were doing. Few of the drivers were involved in general freight, which tends to be highly competitive and “cutthroat”. Quinlan strongly recommended that any bonus or incentive system that encourages illegal or dangerous acts, especially if it involves driving when fatigued, should be banned, and that these bans should be strictly enforced. Drivers would resent any chipping away at their conditions, and companies would feel hampered in obtaining efficiency or productivity gains. Belzer makes it clear, and this is echoed in both the Neville and Quinlan reports that the problems of fatigue in the road transport industry are not peculiar to this industry, although they are more obvious and can have more publicly obvious effects. There is little evidence from the sample for this survey that the companies which employed the surveyed drivers were regularly involved in forcing their drivers to break the law. The author had anticipated that the problems that were researched in depth by Quinlan and
Neville would be common across all sectors of the industry. What the data does reveal is that companies that operate within the law and provide reasonable care of their drivers are less likely to employ drivers who break the law.

**A general overview of the survey:**
The most outstanding response as a result of the survey, of interviews and discussions with drivers and supervisors is a feeling of frustration. The main causes of this frustration are:

- The drivers know that to make a “decent” wage, drivers need to drive long hours and any move to reduce their driving times would simply reduce their incomes to the point where all but the most committed drivers would leave the industry.
- Their ‘bosses’ tell them that there is no money for extra drivers or to allow them to rest when they are tired – “we’ll lose the bloody contracts”; yet they see their bosses driving $200 to 300 thousand dollar cars, taking regular trips to great destinations, owning racehorses and generally giving the impression of living the life of Croesus.
- Politicians setting up studies, commissions, reports etc etc etc and asking for “input from the concerned stakeholders” then doing little or nothing that makes driving a trade which returns a reasonable wage and still allows a relatively normal life.
- The drivers believe that if they complain to almost anyone in a position of power about their conditions they will be labelled troublemakers and whingers and probably lose their jobs. As many of the drivers stated, they could be dismissed on a whim and if they made any form of formal complaint, they would often find it hard to gain employment with another firm because of the “network”.

There was ambivalence inherent in the drivers’ attitudes:
On the one hand they empathise with their employers because:

- they understand how their employers were being “screwed” by the competition to offer lower rates and faster services.
• they understand that the cost of trucks has risen from about $150,000 for a really top line rig in the early nineties to $400,000 plus for an average B-Double
• they know that fuel prices have gone up, tyres have become much dearer; repairs and maintenance costs are greater; registration and insurances have skyrocketed
• they understand that contract or employee mechanics have to be used for much of the regular truck servicing and maintenance because of OH&S concerns, so driver maintained trucks are becoming part of road transport history
• they know that Coles, Woolworths, Sarah Lee, Flemington Markets, BHP and many other manufacturers, importers, wholesalers and retailers are competing in a highly competitive market and they will not tolerate anything less than “perfect” performance
• they know that most of the users of the road transport industry will perhaps pay lip service to the health and safety needs of drivers, but they don’t want to know about flat tyres, or flooded roads, or unscheduled fatigue, or any of the thousand and one things that can and do go wrong on short and long haul trips
• they read the statement squeezed out of the CEO of a major retailer that he would be very cross with people in his organisation who caused drivers to break the law or drive while fatigued – they also know that the same company has the same time slots at its distribution warehouses and still does not treat late arrivals with any sense of concern or understanding for the drivers
• they know that contracts are awarded and removed at the whim of the “big players” and if their bosses want to stay in the business, they must comply with the “norms”
• they acknowledge that their wages have gone up and some of their conditions are much improved.

On the other hand, they would like to see their industry improved because:
• young drivers are not attracted to the industry because it has a bad reputation for long hours, lousy pay and conditions
• there is general acknowledgement that long haul on interstate runs is not conducive to a good family life
their ideas about reform are rarely if ever acknowledged, and even more rarely acted upon
they believe that their bosses, generally, have forgotten what life is like “on the road”
they resent their companies being run by “bean counters” with no understanding of the transport industry
they would like to be paid at a level where they can live the “great Australian dream” without having to work half as much time again as almost anyone else in the workforce
they know about fatigue but they are not allowed to manage it
they want to see freight rates increased so that they (and their bosses) can benefit – they feel that this would also benefit the public as there would be less stressed and fatigued drivers on the road.

Some drivers were perfectly happy with their lot. They had good employers, good trucks, good conditions and once they were on their way to Perth or Darwin or wherever, they were, pretty much, their own bosses. They were happy to have GPS tracking and engine control systems in operation, because they felt it added to their safety and could save their companies money. Many of these reasonably contented drivers thought that the legal systems of control were a poor joke and could be easily improved – what they didn’t want was more bureaucracy ruling their lives.

Summary: The survey confirms some of the findings of previous researchers. There is a common perception, often espoused by the “shockjocks” of commercial radio and their colleagues in some sections of the print media, that truck drivers are drug crazed maniacs, setting out to kill and maim members of the public. This survey does not confirm this “belief” at all; the survey results indicate the opposite: that the majority of drivers are concerned about safety and when they break the law, or drive when fatigued, it is generally about job security. It could be that the sample of drivers and supervisors was biased by the fact that there companies, voluntarily, became involved with fatigue
management. The only way to test this issue is to conduct a census of all long haul road transport drivers, rather than relying on samples.

In the following chapter, the author compares the recommendations of the two major Australian reports quoted in this study: the Quinlan and Neville Reports. The author also presents some recommendations for consideration.
CHAPTER 6
RECOMMENDATIONS AND FIELDS FOR FURTHER STUDY

In Chapter 4, the recommendations from the Quinlan Report are listed, as are those from the Neville Report which impacted directly on the road transport industry. Some of these recommendations overlap, or can fit together into categories. Below this table comparing the common ground of Neville’s and Quinlan’s Reports are some other recommendations based on the findings of this author’s research.

Quinlan/Neville Commonalities:

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<th>topic</th>
<th>Quinlan</th>
<th>Neville</th>
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<tr>
<td>Flexible hours</td>
<td>Abolish logbook system; require long haul trucks to carry safety management plans</td>
<td>Incorporate time of day considerations into allowable driving times and rest periods; increase allowable rest periods</td>
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<tr>
<td>Code of Practice</td>
<td>Code of practice to focus on the causes of the problems not symptoms</td>
<td>Develop a National OHS Safety Standard and Code of Practice</td>
</tr>
<tr>
<td>Safety Management Systems</td>
<td>All long haul to develop and carry specific SMS for each long haul trip</td>
<td>Develop specific driver fatigue management strategies for each major interstate route</td>
</tr>
<tr>
<td>Education</td>
<td>Education programs for other road users for HV awareness</td>
<td>Education programs for transport operators to develop business skills</td>
</tr>
<tr>
<td>Regulation/licensing</td>
<td>Compulsory licensing of transport operators, freight</td>
<td>National Operator Accreditation Scheme with a</td>
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<tr>
<td>Forwarders, consignors, brokers and agents</td>
<td>National agency to supervise it</td>
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<td><strong>Wages</strong></td>
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<td>Ensure employee driver and owner/driver rates are set at a minimum to ensure compliance; prohibit bonus/penalty system that relate to delivery times</td>
<td>Include fatigue management in all employment awards</td>
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<td><strong>Laws</strong></td>
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<td>Remove anomalies in OHS legislation that provide comfort to law breakers; provide protection for contractors and drivers who refuse to engage in unsafe work; WorkCover NSW to ensure information, education and compliance at an acceptable level</td>
<td>Develop laws which make driving while fatigued an offence; develop fatigue measuring technologies; review impacts of economic policy and practice on drivers and other road users; mandatory drug testing for drivers while at work</td>
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These recommendations echo those made over the past 10 to 15 years by other researchers and committees

**The recommendations based on this research are complementary to those of the Neville and Quinlan reports:**

1) that the State, Territories and Federal governments immediately redevelop the roles and functions of the National Road Transport Commission to:

- review all previous reviews and studies on the issues relating to fatigue in the road transport industry
- prepare legislation that will bring regulation and transport safety management into all jurisdictions
- prepare a strategy for the federal government to establish a nexus between transport safety management and funding
• design and develop, with genuine consultation with drivers, national standard truckstops with good quality facilities and safety being paramount
• immediately enact the recommendations of the Neville Report, and ensure the implementation of these in all jurisdictions, starting with the national Safe-T-Cam system
• develop a template, along with the National Occupational Health and Safety Commission, for nationwide legislation with direct and clear relevance to the road transport industries

2) that the New South Wales Government direct WorkCover NSW to:
• immediately revise the Occupational Health and Safety Act of 2000 and any relevant regulations made under that Act, to remove any possibility of confusion about the intent of the act in making trucks and roads the workplaces of drivers and other road users
• consequent to the above revisions, develop and deploy educational/informational strategies to inform all stakeholders in the road transport industry of their obligations under OHS legislation
• deploy inspectors with relevant qualifications and experience to all sectors of the road transport industry to ensure compliance with the requirements of the employers’ duty of care, initially by providing guidance, improvement notices and then prohibition notices and prosecutions

3) that the New South Wales Government establish a coordinating body and provide cross-training and relevant accreditation for officers from WorkCover NSW, the EPA, Police Service and RTA to proactively control the operations of the road transport industry

4) that tax relief be provided to any transport operator to compensate for the fitting and proper usage of fatigue detection monitors
5) that there be immediate development of national strategies for self-regulation coupled with strict enforcement of relevant OHS and Traffic laws

6) that the Commonwealth, State and Territory governments nationally establish 10 hours per day up to 6 days per week as the maximum for regular driving with an allowable increase up to 12 hours per day on no more than 3 days per week

7) that a national framework be implemented for the immediate deregistration of transport industry employers or users who cause drivers to flout driving and OHS laws – “3 strikes and you're out”.

8) that the NRTC commence an immediate investigation of all facets of the short haul road transport industry to ensure that driving times are not exceeded, that drivers are not required to carry out short haul work prior to commencing or after completing long haul work, unless the short haul work is properly included in the safety management plan for the long haul trip and that OHS laws are complied with

9) that tax relief or other rewards be made to employers for maintaining a stable workforce

10) that compulsory driver medicals be introduced to national standards every 5 years up to 50 years of age, every 3 years from 51 years of age up to 60 years of age and annually thereafter, with 65 years of age as the maximum allowable for a commercial heavy vehicle driver, unless specific health requirements are developed and assessed

11) that compulsory driver retesting on both theory and practical driving be introduced every 5 years for commercial drivers and every 10 years for all other drivers and riders
12) that action be taken by the NRTC to ensure that recognition is given by authorities, operators and drivers that sleep inertia, sleep debt, sleep apnoea, narcolepsy and everyday stresses all impact on the ability of drivers to safely do their work. As the driving workforce ages, the prevalence of sleep apnoea will increase; with increasing job insecurity drivers will feel more stress as they worry about raising a family and paying off a house. Employers should heed that part of the OH&S legislation that gives them responsibility for the welfare of their workers. Supervisors need to be trained to identify the symptoms of sleep apnoea, of stress and of fatigue generally and be empowered by employers to appropriate proaction. There needs to be increasing education of all road users about the dangers of driving while tired or overstressed.

**Some questions that arise:**

1) Should all commercial drivers have to undergo sleep disturbance assessments as part of an annual or biennial medical?
2) What impact would or should poor assessment results have on their right to hold any form of driving licence, but particularly a heavy vehicle licence?
3) Does the industry allow time for:
   (a) recovery from “sleep debt”?
   (b) recovery from “sleep inertia”? 

**Fields for Further Study:**

1) An Indepth Study of the Practice of Medical Certification of Commercial Drivers
2) The Effects of Fatigue and Stress on Short Haul Road Transport Drivers
   (a) Truck drivers
   (b) Bus drivers
3) The Impact on the Road Transport Industry of Legislative Changes including the “Chain of Responsibility” legislation
4) The Impact of WorkCover NSW Policy Change in Relation to Road Transport
Summary
The author has endeavoured to set out some of the issues which impact on the development of fatigue and stress as factors in long distance road transport incidents and trauma. There have been significant changes in legislation and in the application of the legislation in the last three years, including the first prosecution by WorkCover NSW of a trucking company manager for failing to exercise duty of care. This case, WorkCover NSW v Hitchcock, has now been concluded (21 October 2004), with a guilty verdict being brought down. The verdict is subject to appeal. An unexpected finding of this research was that there have been many important studies of the road transport industry conducted over the past twenty years, but many of the recommendations arising from these studies have never been enacted.
ANOTATED BIBLIOGRAPHY

http://www.ntsb.gov/publictn  
Atkinson examines NTSB statistics which among other details reveal that 31% of all truck driver fatalities and 58% of all single truck crashes are fatigue related. Some of his other statistics show that fatigue is extremely prevalent in the road transport industry in the United States. He examines models for dealing with fatigue in a realistic manner, solutions which are similar to those now in place in most Australian states.

Colonel Belenky examines a number of factors that relate to the performance of soldiers in the field. He draws on a wide pool of research, much of which is military in origin. His main conclusion, backed up with evidence from the Gulf War, is that while recognition remains reasonably accurate, the speed at which reaction occurs is reduced in direct relationship with sleep deprivation. Some of his experimental data show that psychomotor skills, such as gun aiming and firing, remain high, cognitive ability is so slow as to be dangerously unreliable. He cites as evidence a "friendly fire" incident where a group of soldiers in armoured fighting vehicles destroyed a returning column of their own troops. The soldiers had been on manoeuvres for about 38 hours without rest.

(c) **Belzer, Michael H.**, *Sweatshop on Wheels: Winners and Losers in Trucking Deregulation*, Oxford University Press, New York, 2000  
Belzer examines the historical context of the road transport industry in the USA. From the perspective of an economist/ex-truck driver, he leads the reader through the intrigues of State and Federal US politics, the machinations of the trucking union movement and the deleterious effect of deregulation of an industry that was previously highly regulated and profitable for those "on the inside". He cites studies into the effects of low freight prices/low margins on the owners, owner/operators and drivers who need to work longer and longer hours simply to survive. An interesting problem is raised: the lack of recruitment into the road transport industry, as young people see the work as poorly paid for long and dangerous work. This has resonance with issues raised by the Transport Workers Union movement in Australia.

(d) **Belzer, Michael H.**, *Paying the Toll: Economic Deregulation of the Trucking Industry*, Economic Policy Institute Washington 1994  
Belzer makes his first major examination of the impact of deregulation on the trucking industry in the USA. There is an in-depth look at the changes that deregulation brought, including the bankruptcy of many businesses, and the fall in wages for truck drivers, both in real terms and in relation to other comparable industries. His main point is that the costs of deregulation are borne mostly by the carriers who cannot pass these costs on to
their clients, so must find ways to cost-cut internally, usually to the detriment of the drivers.

(e) **Chain of Responsibility - More than Just a Good Idea**, *Truck Australia*, September 2000.
This article examines the legislative model which takes responsibility for road transport back to the consignor. One of the main aims of this legislation, which has been adopted in most Australian states, is to "go after" the big players and have a few successful high profile prosecutions. The strategy is that it will drive the message of responsibility "along the chain" home to the big organisations which in the past have been, apparently, above the law.

(f) **Civil Aviation Safety Authority**, When the Shift Hits the fan, *Flight Safety Australia*, November/December 2000 Civil Aviation Safety Authority (Australia)
This article is adapted from a US Department of Health and Human Services article "Plain Language about Shiftwork". It examines the needs for regular sleep, the importance of circadian rhythms, the effects of alcohol on "sound" sleep, the problems of shift change and the value of "napping". A sobering finding was that 29% of regional aircraft maintenance engineers reported that at the end of long shifts they were so tired "that they could not perform their tasks properly".

(g) **Corbett, Roger**, CEO Woolworths, "Owner Driver", PSA, St Pauls Terrace, Fortitude Valley, Qld December 2000
Due to agitation prior to the Woolworths AGM of 2000, the CEO Roger Corbett made assurances to the Transport Workers Union and to his AGM that Woolworths would not tolerate transport companies breaking the law to deliver to his stores. He made a plea in this article for any instances of excessive driving hours, speeding or low pay rates should be reported.

Creswell examines the various methodologies available to researchers and comments on their appropriateness for differing styles of research. This book is easily readable and provides a realistic perspective on the development of academic authorship.

The author reports on a number of studies carried out in France, UK, USA and New Zealand. She makes a point that there is no objective measure of fatigue as there are for drugs and alcohol. Using performance tests, her research showed that being awake from 6 am for 17 - 19 hours leads to an impairment level equivalent to, or worse, than a blood alcohol level of 0.05%. That is the legal limit for blood alcohol levels in Australian light vehicle drivers and more than double the allowable level for heavy vehicle or public transport drivers.
(j) **Hensher, D. and Battellino, H.** (1990), ‘Long-distance trucking: why do truckies speed?’, Papers of the Australasian Transport Research Forum, 15(2):537-554. The authors examine the pressures drivers to deliver goods within a narrow timeframe. Their findings, from the early 90’s are remarkably similar to those of Belzer and various other researchers of the current era.

(k) **Hensher, D., Fildes, B., Cameron, M., Parish, R., Taylor, D. and Digges, K.** (1991), *Long distance truck drivers on road performance and economic reward*, Federal Office of Road Safety, Canberra. Possibly the most important aspect of this paper is that it recognises that drivers know what they are doing and why they are doing it, but are caught in the ever tightening noose of “economic rationalism”!

(l) **Horne, James A.**, *Why we sleep: the functions of sleep in humans and other mammals*, Oxford Medical Publications OUP New York 1988. Horne reviews the literature and research over the previous century. His conclusions have a significant bearing on any discussion about the safety of workers who may be required to work long hours and/or broken shifts. He states that the core sleep requirement for the cerebrum to function correctly is about 6 hours, with very noticeable effects on cognitive function noted when less than 4.5 hours of sleep is allowed. He looks at the functions of the various parts of the brain in relation to activities and sleep.

(m) **House of Representatives Standing Committee on Communications, Transport and the Arts: Beyond the Midnight Oil, Report into an Inquiry into Managing Fatigue in Transport**, Parliament of the Commonwealth of Australia October 2000 (The Neville Report) This major report, which called for submissions from all interested parties throughout the Commonwealth, provides an enormous amount of information and recommendations on the state of the transport industry in Australia. While it does not deal exclusively with the road transport industry, many of its findings are of a general nature and can be applied to any sector. There are specific recommendations relating to road transport, which will be examined in detail in the body of this research.

Some of the 112 submissions were downloaded from the Parliament website: http://www.aph.gov.au/house/committee/cta. The submissions which were chosen were representative of the position held by the various stakeholders, and provide a good "feel" for the views of the transport industry, road users groups, insurers, academics, bureaucrats and the public in general. They are:

1. **Dr Laurence R Hartley and Pauline Arnold**
   Institute for Research in Safety & Transport,
   The University Company, Murdoch Uni WA

40. **Professor Ron Grunstein**
   Department of Medicine University of Sydney on behalf of Centre for Respiratory Failure and Sleep Disorders, Royal Prince Alfred Hospital, Sydney, Sleep Research Group, Institute of Respiratory
Medicine, Royal Prince Alfred Hospital, Sydney Sleep Disorders Service, St Vincent's Health Care Campus, Sydney

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<tr>
<td>41</td>
<td><strong>John M. Bain</strong></td>
<td>16 Waratah Crescent Bunbury WA Mid-rank national road transport operator, with a very practical perspective</td>
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<tr>
<td>44</td>
<td><strong>Australiawide Loading Pty Ltd</strong></td>
<td>830 Lorimer Street Port Melbourne</td>
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<td>48</td>
<td><strong>David Healy</strong></td>
<td>Manager Road Safety Transport accident Commission of Victoria</td>
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<td>73</td>
<td><strong>National Road Transport Commission</strong></td>
<td>PO Box 13105 Law Courts Melbourne</td>
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<td>74</td>
<td><strong>Australian Council of Trade Unions</strong></td>
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<td>75</td>
<td><strong>Murray Criddle</strong></td>
<td>Minister for Transport Western Australia</td>
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<td>76</td>
<td><strong>Michael Apps</strong></td>
<td>General Manager, Government Relations Australian Trucking Association</td>
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<td>77</td>
<td><strong>Kathryn Heiler</strong></td>
<td>Research Fellow ACIRRT University of Sydney</td>
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<td>80</td>
<td><strong>Charles S Barnes</strong></td>
<td>Chief Information Officer ResMed Ltd 97 Waterloo Rd North Ryde</td>
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<td>87</td>
<td><strong>Northern Territory Department of Transport and Works</strong></td>
<td>GPO Box 2520 Darwin</td>
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<td>93</td>
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<td><strong>Roads and Traffic Authority</strong></td>
<td>Elizabeth St Sydney NSW</td>
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<td>107</td>
<td><strong>Professor Ashley Craig</strong></td>
<td>Department of Health Sciences, Faculty of Science University of Technology Sydney</td>
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<td>111</td>
<td><strong>Norman Marshall</strong></td>
<td>Chief Executive Australian Drug Management &amp; Education</td>
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<td>112</td>
<td><strong>Dean Croke</strong></td>
<td>Allianz Risk Consultants of Australia MMI General Insurance Limited</td>
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Nagourney reports on data from the Highway Safety Research Center at the University of North Carolina. Some of the data have profound implications for the recently introduced Transitional Fatigue Management Scheme for long distance drivers in Australia:

- Drivers who work at night are 4 times more likely to be involved in fatigue-related accidents
- 27% of drivers involved in fatigue-related accidents worked 60 or more hours per week had less than 6 hours sleep per night, being awake for more than 20 hours or driving between midnight and 6am were predisposing factors in fatigue-related accidents


Reforms in Progress

This is a summary of the legislative reforms which have occurred or are occurring around Australia, in relation to:

- Regulated Driving Hours
- Transitional Fatigue Management
- Fatigue Management

It raises the interesting problem of states and territories in Australia choosing to go their own way with driving hour regulations (Northern Territory and Western Australia allow self-regulation of driving hours, whereas the other states and territory have mandated driving hours/logbooks)

Third Heavy Vehicle Reform Package

This is a summary of specific reforms currently on the national agenda. One of these suggested reforms follow international leads in the planned introduction of Performance-Based Standards and Guidelines. Any legislation in this area is proposed to be additional to current prescriptive legislation.


This report examines causes of fatigue-related incidents in the long distance coach industry in the US and focuses on the potential dangers of "inverted duty-sleep periods". The NTSB made 15 recommendations to the Department of Transportation, the National Highway Traffic Administration, the American Bus Association and the United Motorcoach Association. One of the more interesting recommendations was that "adverse vehicle or driver performance-based data alone are sufficient to result in an overall unsatisfactory rating for the carrier".


The researchers removed a large number of complicating factors from road trauma causality and examined single vehicle crashes that occurred during good weather and
road conditions on roads unrestricted by junctions. This methodology follows the criteria established by J. A. Horne and L.A. Reyner in "Sleep Related Vehicle Accidents" also published in the British Medical Journal, 1995, Vol 310. Their findings show that fatigue, especially if combined with alcohol, is a major cause of accidents. They make the interesting observation that police officers often disregard fatigue as causal or part-causal, and tend to prefer the view that alcohol is often the sole factor in collisions.


In this major report, Professor Quinlan examines the commercial realities of the road transport industry in New South Wales, with supporting evidence from other states and territories. Issues of drug abuse, speeding and fatigue are put into a context of the pressures of "economic rationalism". The report makes strong recommendations on methods to combat OH&S issues in the long distance road transport industry. This report re-examines issues with modern research that have been raised and documented over the last two decades.

(s) Raggatt, Peter T.F. and Morrissey, Shirley, A Field Study of Stress and Fatigue in Long Distance Bus Drivers, Behavioral Medicine, Washington, Fall 1997, Volume 23.

In this article the authors, from James Cook University in Queensland, examine the changes in arousal levels at different shift times. Their research reinforces notions of the significance of circadian rhythms in human behaviour. From a study of hormone and cardiovascular data collected from 10 long distance bus drivers the researchers concluded that the drivers experienced a heightened level of arousal, especially during the pre-shift period but most importantly, a decreasing level of activation towards the end of the shift. This lead them to suggest that the "deactivation is a signal or precursor to the onset of fatigue".

(t) Rodgers, Mike, Safety Nets, Flight Safety Australia, Civil Aviation Safety Authority (Australia) December 2000

Mike Rodgers's articles are complementary to the article abstracted above. He examines strategies for dealing with the fatigue associated with shiftwork; he quotes research conducted by the Centre for Sleep Research in Adelaide. He also discusses the workplace attitudes to fatigue, complacency, distraction and lack of communication as having a direct bearing on the effects of fatigue.


Although it does not seem to rate much prominence in the current crop of Transport Industry Fatigue research documents, this report took an in-depth look at the problem of fatigue in the long distance sector of the transport industry. Almost 1000 drivers responded to a lengthy survey; as did most of the organisations which have direct
dealings with road transport. Contact was made with a wide range of overseas sources.
The authors rated possible fatigue preventative strategies. The strongly favoured were:

• Information and training
• Improving roads
• Greater flexibility in driving hours
• More efficient loading/unloading
• Staged driving
• Reducing economic pressures on drivers

The "strongly opposed" strategies were:

• Banning driving between 2am and 6am
• Stricter driving hours

There were some interesting differentials between what drivers perceived as being acceptable and effective and what bureaucrats and managers thought would be useful: drivers were not for "information and training" but all other respondents were.
REFERENCES

Assessing Fitness to Drive, Austroads Sydney NSW 1998


Australian Bus and Coach, Publishing Services Pty Ltd, Melbourne Vic


de Brito, G. (1997) 'Culprit or Scapegoat?', Truck and Bus, October, 55-56.


Flight Safety Australia, Civil Aviation Safety Authority Canberra Australia


National Road Transport Commission Australia, Various articles obtained from NRTC website http://www.nrtc.gov.au/progress/reformsall

National Transport Commission Australia, Updates on legislative and proposed changes obtained from NTC website http://www.ntc.gov.au. Note the National Transport Commission replaced the National Road Transport Commission

National Transportation Safety Board (1990), Fatigue, alcohol, other drugs and medical factors in fatal-to-the-driver heavy truck crashes, Report NTSB/SS 90/02, Transportation Safety Board, Washington DC.

Owner Driver, Publishing Services Pty Ltd, Melbourne Vic


**Sydney Morning Herald**, Fairfax Publications Sydney NSW

**Truck and Bus Magazine**, Publishing Services Pty Ltd Melbourne Vic

**Truck Australia**, FPC Magazines, Sydney NSW

**Truckin’ Life**, FPC Magazines Sydney NSW


APPENDIX A

Human Research Ethics Committee

APPLICATION FORM
(ISSUE AUGUST 1999)

Proposed Research Project
Responses to the following questions must be typed

1. **Title of Project:** THE CAUSES OF FATIGUE AND FATIGUE MANAGEMENT IN THE ROAD TRANSPORT INDUSTRY

2. **Aims of Project:** Briefly describe the aims or purpose of the project
   - To examine the links between commercial pressures (on the part of major consignors), Statutory Authorities, Transport Operators and the incidence of Fatigue and Fatigue Related Incidents in the Road Transport Industry.
   - To examine Fatigue Management models currently utilised in the Road Transport Industry and their Efficacy.

3. **Division of Responsibilities:** (Note that the Principal researcher has the primary responsibility for ensuring the carriage of the research is carried out in a manner consistent with the ethical protocol. In the case of a postgraduate student, the Principal supervisor has a responsibility to supervise to the best of their ability the student’s research in a way consistent with this ethical protocol):
   - Name of Principal Researcher: Peter McKinnon
     Position: Postgraduate student
     Department: Healthy Futures
     UWSH Extension: na
   - If a postgraduate student, name of the Principal supervisor: Dr D. Dingsdag
     Position:
     Department: FEMA
     UWSH Extension: 1263
   - Name of associates: nil

4. **Other Personnel** (e.g. technicians, interpreters, transcribers):
   Name: na
   Position:

5. **Funding** Is this protocol the subject of a grant application? NO
   If YES, state name of organisation: na
   Has this protocol been funded? NO
Will there be any financial remuneration offered to the Researcher from any company or institution?

No

Are there any constraints imposed by the funding body or sponsor as to the release of research data?

na

6. **Proposed date of commencement:** August 2000

7. **Duration and estimated finishing date:** March 2001

8. **Number of participants to be recruited** *(Give a minimum and maximum number, if a precise number is inappropriate.)*:

   Male: 50
   Female: 25

9. **From what population will you seek to recruit participants/subjects?**
   Roads and Traffic Authority NSW, Transport Operators, WorkCover NSW, Road Transport Drivers, NSW Highway Patrol (Police), Australian Transport Safety Bureau, Transport Workers Union

10. **How will you recruit your participants/subjects?**
    Initially by letter requesting their assistance; this will be followed up by a letter with more detail and then a questionnaire.

11. **Is any financial remuneration or other reward being offered to participants?**
    NO

    If YES, state how much will be offered and why (eg. travelling expenses, inconveniences incurred, etc.)

12. **Will any of the following groups be participants?**

    * Children, ie., those under 18 yrs of age
    * Persons with a mental illness
    * Persons with a disability
    * Persons in vulnerable situations
    * Persons in dependent relationships
    (eg. patient/doctor; teacher/student)
    * Indigenous Australians

    NO
(If Yes, to the category ‘Indigenous Australians’ it is highly recommended that prior to submitting this application that you first contact the Wyung Indigenous Australian Education Unit located on Richmond Campus)

If YES to any of the above, give details.

13. **Will any of the following be used?**

   * Chemical compounds  NO
   * Drugs  NO
   * Ionising or non-ionising radiation  NO
   * Other biological agents  NO
   * Special diets or modified foods  NO

If YES to any of the above, give details.

14. **Summary of proposed research methodology and procedure** (attach an extra sheet if necessary; attach draft questionnaires, interview format or surveys if appropriate):
   a) Literature search
   b) Review of submissions to current enquiries eg House of Representatives Inquiry into Fatigue Management in the Transport Industry
   c) Review of current study by Dr M. Quinlan UNSW into Long Distance Road Transport
   d) Precis of current information to be presented to Dr D. Dingsdag for discussion
   e) Refine questionnaire/survey in line with information gleaned from reviews
   f) Seek participants consent to proceed
   g) Conduct interviews, face to face where possible, otherwise by telephone or e-mail
   h) Extract data and collate
   i) Analyse data and develop preliminary findings
   j) Discuss with supervisor
   k) Develop report for review
   l) Complete any required amendments
   m) Final submission

15. **Please indicate which, if any, of the following ethical issues, are involved in this research.**

   (a) Is deception to be used?  NO
   (b) Does the data collection process involve access to confidential participant data without their prior consent?  NO
(c) Will participants be photographed by camera or video?  NO
(d) If interviews are to be conducted, will they be tape recorded?  YES
(e) Will any treatment be used with potentially unpleasant or harmful side effects?  NO
(f) In this study are there any applications of a treatment known (or thought) to be beneficial to one group of participants (EXPERIMENTAL) being WITHHELD from another group of participants (PLACEBO)?  NO
(g) Do your methods involve blood or tissue sampling or any other invasive procedures?  NO

16. Identify any risks or burdens which this research might pose for your participants/subjects: (e.g. does the research involve intrusion upon privacy? This might include asking personal questions which could cause embarrassment, or questions on topics which may bring up distressing memories or associations for participants):

There is a potential risk that informants may feel compromised by providing confidential information. As an example, drivers may feel constrained in their comments if they perceive a threat to their employment, or Transport Operators may feel that contracts will be in jeopardy if they reveal that they are unduly pressured to “cut corners” to get a delivery made on time.

17. Does this research involve subject matter of a particularly sensitive nature (e.g. participant’s sexuality; participants’ knowledge of, or participation in, illegal activities; issues deemed particularly sensitive by the cultural community of which the participants are members, etc.):

I anticipate that there could be information relating to:
- Drug abuse by drivers
- Speeding offences by drivers
- Logbook offences by drivers
- OH&S breaches by Transport Operators
- Breaches of Duty of Care by Statutory Authorities

18. If the research involves interviews with participants, briefly explain what mechanisms (if any) will be in place to respond to foreseeable eventualities such as: a revelation of illegal activity by or involving the participant; disclosure of institutional mismanagement; a participant becoming distraught because of the subject matter of the interview, etc (e.g. Are interviewers trained for this project? Will interviewers have names and contact numbers of appropriate referral services? Is it appropriate for some arrangement to be made to respond to disclosures of harm or illegal activity involving participants?):

- All interviews will be conducted in confidence.
- Participants will be advised that interviews will be tape recorded.
• Participants will be offered anonymity in any published work
• Participants will be advised that they can terminate the interview at any time and withdraw from the project
• Where an obvious illegal activity has taken place, participants will be advised to discuss the matter with a lawyer or counsellor
• Where institutional mismanagement appears to have occurred, the matter will be brought to the attention of the appropriate authority (ICAC, Ombudsman, etc)

19. **What steps will you take to obtain agreement of your participants/subjects to take part in the research?** *(Attach plain language statements and consent forms if appropriate; alternatively, describe the process by which agreement to participate will be secured):*

• Initial phone contact explaining the Context and Value of the Project
• Follow up letter explaining the project in detail and containing advice on confidentiality, potential for reports to ICAC, Ombudsman etc and seeking their written authority to proceed

20. **Are potential participants in this research in dependant relationships which may limit their belief that they are free to refuse participation?** *(If so, give details of the steps you will take to preserve their right to refuse participation.):*

NO

21. **In your opinion, are there any other ethical issues involved in this research that have not been covered above?**

NO

If YES, please specify:

22. **Confidentiality of records**

   (a) How will the confidentiality of records be maintained during the study?
   All documents, tape recordings and other materials gained in the course of this project will be kept in locked security at my home.

   (b) Please confirm that the records are to be preserved after the study is completed? YES

   (c) As records are to be maintained for 5 years after the study completion, how will the confidentiality of the records be protected during the period of their preservation? Documents and other materials obtained during the course of this study will be either kept in locked storage at my home or lodged with the University for safekeeping if this is considered necessary.
23. **Conformation to accepted guidelines for Human Research Projects.** Please indicate whether the protocol conforms to:

(a) Principles of ethical conduct other than the *NH&MRC National Statement on Research involving Humans, (1999) and Supplementary notes 5 and 7 (1992) as appropriate. **NO**


24. **Signatures of responsible investigator and associates:**

I/We certify that the proposed project will conform to the NH&MRC National Statement on Research involving Humans, (1999) and Supplementary notes 5 and 7 (1992) as appropriate and other guidelines as indicated in Question 23.

Principal Researcher: _________________________________ Date:

______________

If postgraduate student, Principal supervisor: __________________________ Date:

______________

Associates __________________________________________ Date:

______________

______________

I certify that the information given in this application is correct to the best of my knowledge. I acknowledge that I must notify the Committee if there is any ethically relevant variation or if the project is discontinued prematurely. I have read and agree to abide by, the relevant code of practice for experimentation involving humans.

Signature of Dean / Research Centre Director / Research Group Coordinator____________________

Faculty / Centre / Group of: __________________________ Date: ______________

Comments, if thought necessary.
The following information is provided to enable researchers to construct Disclosure and Informed Consent forms. Further advice may be had from the Secretary of the Committee.

NOTE: Where strict anonymity is called for, the form must be prepared and presented to participants in such a manner as to ensure this can be observed.

Each investigator is required to prepare a written statement describing the project so that the potential participant, after reading it, may choose whether or not to participate. A copy of the statement should be made available to participants for their records. The statement should include the following:

1. a clear explanation, in terms the participant can understand, of the purpose of the investigation, and the procedures to be followed including identification of those which are experimental;

2. a description of any discomfort and possible hazards involved;

3. an indication of how much time will be needed;

4. confirmation that the participant is free to withdraw consent and to discontinue participation in the activity at any time;

5. confirmation, where relevant, that a participant's further care, if a patient, or academic progress, if a student, will not be prejudiced in any way by their refusal to participate;

6. an offer to answer any questions the participant has concerning the procedures. The following form of words may be taken as a guide on this point:

   Any questions concerning the project entitled

   ...................................................................................................................................................

   can be directed to (Principal Investigator)

   ........................................................................................................................................................

   of (Department)

   on (Telephone No)................................................

7. a signed agreement to take part in the following suggested terms:

   I (the participant) have read the information above and any questions I have asked have been answered to my satisfaction. I agree to participate in this activity, realising that I may
withdraw at any time. I agree that research data gathered for the study may be published, provided my name is not used.*

* The University requires that all subjects are informed that if they have any complaint concerning the manner in which a research project is conducted it may be given to the researcher or if an independent person is preferred, to the Executive Officer, Human Research Ethics Committee, Research and Consultancy Unit, University of Western Sydney, Hawkesbury 2753, telephone 02-45701688.

**HREC MEETING DATES FOR 2000**

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All applications to be considered at the above meetings must be received by the Executive Officer, Research & Consultancy Unit, H3 by the close of agenda.

Applications must be typed and preferably stapled in the top left hand corner only.
Appendix B

Extract from WorkCover NSW paper at National Heavy Vehicle Seminar October 2002

Supporting the Road Transport Legislation framework—How OH&S Law Can Help Achieve Road Safety Outcomes

Jenny Thomas
Team Manager - Retail, Wholesale, Transport & Storage Team, WorkCover NSW (22 October Day 1)

Abstract
This paper discusses how OH&S law can help achieve road safety outcomes. It raises a number of key challenges to achieving these outcomes. It concludes by proposing a list of actions to move the development of a heavy vehicle safety strategy forward.

Introduction
It has been accepted amongst road safety professionals and workplace safety professionals alike that general road safety outcomes can be improved by targeting, through a range of strategies, the percentage of the road user population who are driving in the course of their work. Occupational Health & Safety (OH&S) legislation has the capacity to provide a sound supporting structure for road traffic legislation because it adopts an holistic approach to achieving workplace safety outcomes by placing an absolute obligation on those in control of the workplace, and therefore work systems, to ensure the health, safety and welfare of their employees and others affected by their business undertaking.

Challenges in achieving road safety outcomes
It should be noted that OH&S law cannot achieve the same level of road safety outcomes that road traffic legislation can, since it cannot be applied to all road users, given that the majority are not driving in the course of work. Nevertheless, application of the legislation has particular appeal with regard to the Heavy Vehicle strategy when bearing in mind that almost everyone involved in that particular sector of the Transport industry could be considered to be at work. It is also possible under OH&S law to hold accountable those in control of premises and work systems, which has particular appeal when scrutinising the supply chain in road freight. One of the most appealing features of OH&S legislation in regard to achieving long-term change in Heavy Vehicle safety are the underlying principles – the expectation that all workplace risks will be managed using a systems-based approach in consultation with employees.

It is self-evident that those who create safety risks through their business undertaking should be the ones ultimately responsible for managing those risks to their employees and others. Clearly this is most effectively achieved through adopting a risk management approach to all workplace risks. It also makes good business sense.

The consultation provisions of OH&S legislation form a basic foundation of the legislation - those who do the job best know the hazards, risks and most effective controls and, consequently, consultation with workers is considered a critical component of any OH&S risk management process. In NSW, recent legislative changes have seen the imposition of a general duty on employers to consult with workers before, during and after the risk management process is undertaken.
Appendix C  Driver Survey

Draft questionnaire
Fatigue Management Project
Driver Survey

Note to Participants:

- Participation in this survey is voluntary
- All personal information, or information which may identify an individual or corporation, will be treated in the strictest confidence
- Anonymity of participating individuals or corporations will be maintained
- Access to any responses or other documentation will be restricted to academic supervisors for verification purposes
- Material collected during this project will be stored for a period of 5 years, then destroyed
- Participants can withdraw from the project at any time
- Participants may request the removal of any information which they have supplied at any time
- Participants will be supplied with a draft copy of findings, if they request it
- No fee is payable to participants for completing this questionnaire or for providing other information for this project

Personal Information

1) Age _____ years

2) Gender M/F

3) Post Code of Residence _____

4) Licence Class C/LR/MR/HR/HC/MC

5) Years of Driving Experience _____

6) Years Held Current Licence Class _____

7) Years with current employer _____
8) Have you had any Driving Convictions? YES/NO
9) Driving Offence/s and Penalties


10) Have you been convicted for any drug related offences? YES/NO Details:


11) Have you been convicted of any alcohol related offences? YES/NO Details:


12) Were any of the alcohol or drug convictions driving related? YES/NO Details:


13) Do you use drugs (legal or illegal, prescription or non-prescription) or alcohol for recreational purposes? YES/NO Details:


14) Do you use drugs or alcohol to help you do your work? YES/NO Details:


15) Do you use drugs or alcohol to help you relax or sleep? YES/NO Details:
16) Have you completed a Fatigue Management Course? YES/NO
Details:

17) If YES, was the Fatigue Management Course useful to you? YES/NO

18) If YES, how was it useful?

19) If NO, what was wrong with it?

20) Have you been involved in a work related vehicle accident? YES/NO
Details:

21) Did any of the following attend the accident? RTA YES/NO
WorkCover YES/NO
Police YES/NO
Employer or employer's representative (eg company accident investigator) YES/NO

22) What caused the accident in which you were involved?

23) What do you think are the main causes of Heavy Vehicle Accidents?

24) How do you think the number of Heavy Vehicle accidents could be reduced?
25) Have you, in the last 5 years, been asked to do something illegal in your vehicle?
   (eg. falsify logbook to drive extra hours, take "stay awake drugs", modify speed limiter)
   YES/NO
   Details:
   ____________________________________________________________
   ____________________________________________________________
   ____________________________________________________________

26) Do you do anything illegal in your vehicle?  YES/NO

27) If YES, what type/s of illegal activity
   ____________________________________________________________
   ____________________________________________________________
   ____________________________________________________________

28) How often do you do these illegal activities?
   ____________________________________________________________
   ____________________________________________________________
   ____________________________________________________________

29) Can you explain why you did the illegal activity?  YES/NO
   Details:
   ____________________________________________________________
   ____________________________________________________________

30) Is there a better way to control driver fatigue and heavy vehicle road accidents than
    the rules and regulations which are enforced by the Police and RTA?  YES/NO
   Details:
   ____________________________________________________________
   ____________________________________________________________

31) Post Code of Workplace or Main Depot

32) Type of Work
    (for example: Long Haul Truck Driver, Courier, Tipper Driver, Local Delivery Driver)
33) Details of your normal weekly work: include any non-driving duties

Sunday

Monday

Tuesday

Wednesday

Thursday

Friday

Saturday

34) Do you have any comments on your work or how your safety at work could be improved?

__________________________________________________________

__________________________________________________________

__________________________________________________________

Thank you very much for taking the time to complete this survey. The information that is gathered in this survey may be useful in bringing about changes in the Road Transport Industry that will reduce accidents, injuries and fatalities.

If you have any other comments that you wish to make, I can be contacted on 0418 299 750, fax 02 45 721 932 or e-mail: mekit@bigpond.com.

Regards

Peter McKinnon
July 2000
Road now a workplace as boss blamed for truck driver's fiery death.

Natasha Wallace

In the two days before long-haul truck driver Darri Haynes crashed his semi-trailer on the Pacific Highway and burnt to death, he had not slept at all. Mr Haynes, 37, had been making deliveries up and down the coast, fuelled by methamphetamine, and was struggling to adhere to a timetable imposed by his employer, afraid he would lose his job if he complained. In a test case that has confirmed that a driver's truck is his workplace, the NSW Industrial Relations Commission found yesterday that Mr Haynes's employer, Jim Hitchcock, had failed to provide safe conditions. Hitchcock denied the charges. He faces a $55,000 fine after he was found guilty under the Occupational Health and Safety Act. It was the first prosecution by WorkCover NSW of its kind. In the week before Mr Haynes collided with another truck at Tyndale, near Grafton, on September 1, he had done more than 5400 kilometres. He died within three minutes and was little more than a "sack of ashes", but the other driver, Neville Walker, was uninjured. Hours before Mr Haynes died, he had told a friend he was hearing voices. In handing down his judgement yesterday, the commission's vice-president, Justice Michael Walton, said the case "painted a sobering picture of the risk for long-distance truck drivers of driving when fatigued". He said Hitchcock's company "paid very little, if any, heed to the risk, either to its employed drivers or to anyone else at risk of an accident" due to fatigue. "Mr Haynes was exposed to this risk of driving when fatigued by an employer guilty of numerous serious failures," he said. These included no policy on hours or rest breaks, apart from drivers keeping log books, many of which were false, and deciding for themselves if it was safe to continue driving. The system also "provided incentives through pay to increase driving hours", he said. He said the company failed to ensure rosters allowed enough time for breaks and sleep, did not keep watch for fatigued drivers, or provide training on the issue. "The company pressured its drivers to meet delivery deadlines resulting in breaches of the log book ... the system it operated had the effect of increasing the risk to Mr Haynes. "Drivers risked their jobs or incomes if they failed to comply," he said. "I have found ... that Mr Haynes was, in fact, fatigued at the time of his accident, and consequent death, and that this fatigue significantly impaired his ability to drive safely." But he said there was not enough evidence to show that it was the direct cause of Mr Haynes's death. The chief executive of WorkCover NSW, Jon Blackwell, said yesterday it was "an extremely important judgement". "It demonstrates that there is a clear responsibility on employers to ensure that there are safe systems of work in place which ensure that the drivers do not suffer from fatigue," Mr Blackwell said. Hitchcock will be sentenced next month.
TIRED OF DYING:

FATIGUE AND STRESS IN LONG DISTANCE ROAD TRANSPORT

P. L. McKinnon BEd, GDE

MASTER OF SCIENCE (HONOURS)
2004

UNIVERSITY OF WESTERN SYDNEY
ABSTRACT

In this thesis, the author has drawn on a large body of international research and his own surveys, interviews and experience to examine the interrelated issues of Fatigue and Stress in the long distance sector of the Australian road transport industry.

Two major Australian studies are studied in some detail:


A book written in the United States of America:

**Belzer, Michael H.**, *Sweatshop on Wheels: Winners and Losers in Trucking Deregulation*, Oxford University Press, New York, 2000,

has direct relevance to this study, especially as it relates to the underlying causes of much of the fatigue and stress suffered by long distance drivers.

An extensive literature review was undertaken to help form an understanding of the issues and developments relating to workplace fatigue and stress, in several different settings, including the military, aviation and general industry.

The author has surveyed a number of long distance drivers and interviewed managers and others linked to this industry, analysed their responses and reported on the findings.

There are a number of recommendations and fields for further study which stem from this research included in the final chapter.

Since the commencement of this study, several significant changes have occurred in the relevant legislation and its application, and where possible these have been incorporated into the study.
CERTIFICATION

This is to certify that

- this document is the original work of the author, Peter Laurence McKinnon, excepting for acknowledged references from other authors
- this document has not been submitted for a higher degree to any other institution.

Signed: ...........................................

Peter Laurence McKinnon  - Author

Dated: .............................................
ACKNOWLEDGEMENTS

This thesis owes its genesis to the heavy vehicle drivers of Australia; to the bureaucrats and entrepreneurs who fail to understand that life is more important than freight and to the academics who have tried to get the message across that fatigue and stress are major contributors to death, mental and physical injury and economic loss.

I would like to thank my supervisors, Professor John Macdonald and Dr Don Dingsdag of the University of Western Sydney, and officers of the Transport Workers Union, drivers, supervisors and owners in the trucking industry.
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