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Official Committee Hansard

HOUSE OF REPRESENTATIVES

STANDING COMMITTEE ON COMMUNICATIONS, TRANSPORT AND THE ARTS

Reference: Managing fatigue in transport

MONDAY, 26 JULY 1999

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HOUSE OF REPRESENTATIVES

STANDING COMMITTEE ON COMMUNICATIONS, TRANSPORT AND THE ARTS

Monday, 26 July 1999

Members: Mr Neville *(Chair)*, Mr Gibbons, Mr Hardgrave, Mr Hollis, Mr Jull, Mr Lindsay, Mr McArthur, Mr Mossfield, Mr Murphy and Mr St Clair

Members in attendance: Mr Gibbons, Mr Hollis, Mr Jull, Mr McArthur, Mr Murphy, Mr Neville and Mr St Clair

Terms of reference for the inquiry:

. Causes of, and contributing factors to, fatigue.

. Consequences of fatigue in air, sea, road and rail transport.

. Initiatives in transport addressing the causes and effects of fatigue.

. Ways to achieving greater responsibility by individuals, companies, and governments to reduce the problems related to fatigue in transport.

WITNESSES

Committee met at 11.20 a.m.

CHAIR—I declare open this public hearing of the House of Representatives Standing Committee on Communications, Transport and the Arts in its inquiry into managing fatigue in transport. I welcome everyone here to this first day of public hearings. It is a pleasure to be in Adelaide on the first day. This was chosen for two reasons. The first is because a lot of work has been done in that field by academics here. The second is because of the geography of bringing people from other parts of Australia to one central point.

In opening these proceedings I would like to emphasise that in addressing the terms of reference the committee has not prejudged any of the issues, nor is there any element of a witch-hunt. I have seen in some media stories that we are out to do this or that. That is not the case. We come to this inquiry with a perfectly open mind. Members want to hear a full range of views and consider initiatives which are being or could be developed into better management of fatigue in transport.

Management of fatigue is a very important issue in the workplace and has ramifications for all of us. Under the terms of reference the committee is asked to inquire into and report to the parliament on managing fatigue in transport by focusing on four areas. The first is the cause of, and contributing factors to, fatigue. The second area is the consequences of fatigue in air, sea, road and rail transport. The third is initiatives in transport addressing the causes and effects of fatigue. The fourth area is ways of achieving greater responsibility by individuals, companies and governments to reduce the problems related to fatigue in transport.

Today's program draws witnesses from Western Australia and New South Wales as well as from South Australia. Those giving evidence represent a wide range of fields, including academic researchers working in the field of fatigue management, people directly involved in rail transport, the work of marine pilots and also the state governments' perspectives.

I thank all those who have given generously of their time to come before us today to assist the committee with its inquiry. It promises to be a very interesting and informative day and we hope it will set a good tone for the rest of the inquiry. We have called Professor Laurence Hartley as our first witness but, before proceeding, I wish to advise all witnesses that although the committee does not require evidence to be given under oath, committee hearings are legal proceedings of the parliament and warrant the same respect as proceedings of the House itself. The giving of false or misleading evidence is a serious matter and may be regarded as a contempt of the parliament. For the benefit of Hansard I ask that at the conclusion of your evidence you do not leave the room before Hansard has been able to check with you regarding proper names or quotations which you may have referred to in your evidence.

[11.28 a.m.]

HARTLEY, Professor Laurence Richard, Associate Professor of Psychology, Institute for Research in Safety and Transport, Murdoch University

CHAIR—Professor Hartley, do you have any amendments or additions to your submission?

Prof. Hartley—I am happy to say a few words.

CHAIR—I will come to that but there has been no alteration to the written text?

Prof. Hartley—No.

CHAIR—Would you like to make a short opening statement and then we will throw the matter open to questions.

Prof. Hartley—Mr Chairman, thank you for inviting me. Perhaps I could say a few words to introduce the road transport industry code of practice, since I think it is the first tripartite government, industry and union code of practice in Australia. It is quite a novel approach to managing fatigue in transportation. As the committee is probably aware, until recently Western Australia had really no regulations for managing fatigue in the road transport industry. All of what I say is principally about the road transport industry since I think that is what I am most familiar with.

As a result of our report in about 1994-95, it was clear that there were significant fatigue related problems within the road transport industry in Western Australia. This was no different really from the problems, as far as one could see, in other jurisdictions which have prescriptive hours of service regulations. The committee is probably also aware that there is widespread dissatisfaction with prescriptive hours of service regulations for managing fatigue; not the least is that they target the people with the least discretion in the matter, namely, the drivers themselves. To be frank, the driver has the least discretion since the schedules are usually set by the company concerned. Also, I think many drivers feel that prescriptive hours of service regulations are an encouragement to be dishonest in keeping several logbooks.

We reached the conclusion that it would be much better if we could actually put the onus for responsibility for managing fatigue back on the person who decided the schedule, namely, the company and their clients. That could be quite easily accomplished by using the Occupational Health and Safety Act, which obviously has a duty of care provision built into it for both the employee and the employer. As a result of that, over the last couple of years we have worked with industry, government and the unions in this tripartite fashion to develop a code of practice which was agreeable to those three parties and which could be operated realistically within the transport industry.

The code has now been in operation since it was gazetted in October last year—somewhat over six months or so. The emphasis is again, as I keep stressing, to provide limits to safe operation in the transport industry and guidance on what a company's fatigue

management system should look like. The emphasis in the code is that a company must have a risk management system for fatigue, namely, the fatigue management system, which is part of the company's suite of risk management systems. The code should provide limits, not targets, to the safe operation and guidance on how to achieve them. In doing so, it has incentives to the company to develop a fatigue management system since it provides protection against prosecution, to an extent, for a fatigue related crash. It also provides an incentive in terms of negotiating lower insurance premiums with the company's insurers.

The transport industry is very much a collection of individuals who do not tend to collaborate terribly well together. Since the code has been introduced some companies have had difficulty in understanding the concept of a fatigue management system. They are very much more used to dealing with strict limits, mass limits and so on. I think they would have found it easier to deal with had we introduced a prescriptive hours of service regulation. As I outlined, we think that is an unsatisfactory way to go. It targets the driver and does not help the company.

We are now in the process of running a number of workshops and producing easy guides on developing company fatigue management systems. Since it was introduced, there have been 15 work improvement notices served on companies to develop fatigue management systems, two work prohibition notices on companies dealing with fatigue related problems and presently WorkSafe has one full-time senior inspector dedicated to dealing with the implementation of the code of practice. I think that brings the committee up to date on where Western Australia is in managing fatigue.

CHAIR—You mentioned the code of practice, Professor. Does that apply to trucks of companies that are just based in Western Australia or does it apply to trucks coming into Western Australia? Do you have arrangements, for example, with some company that might be based in Adelaide or Sydney that is bringing trucks into Western Australia, or does it just apply from the border? I suppose the code of practice is not an enforcement but what sort of rigour can you bring to it? Does it apply to subcontractors who subcontract to a company to take a particular load at a particular time to a particular destination, such as an owner-driver arrangement? In that instance, who takes the responsibility, the owner-driver or the company engaging him?

Prof. Hartley—These are important issues. It is my understanding the code applies to all transport operations within Western Australia and thus applies not only to Western Australian registered companies but also to companies registered in other states that operate and usually have depots within Western Australia. I am involved in a prosecution next month of Lach Transport, which I think is a South Australian company, which had a crash in Western Australia.

By the same token it applies to all subcontractors. Subcontractors within the OSHA are viewed as the same as company employees, and their subcontractors likewise. My understanding of the enforcement of the act is that the duty of care would apply to the principal of the company that employed the subcontractor. But by the same token the employee would not escape responsibility.

CHAIR—We see in the broad range of submissions that we have received that it is not always the particular driver who may be at fault, nor sometimes even the particular company but it might be the pressure that company is placed under by someone consigning, for instance, time sensitive fruit and vegetables to market. Does your code work back down the line in that instance to someone who might be a regular consignor of particular goods?

Prof. Hartley—Yes, Mr Chairman, absolutely. The client also has to have a duty of care and should satisfy themselves that the company they are hiring has a satisfactory fatigue management system. Indeed, that is taking place, to my knowledge, with a number of major companies within Western Australia. For example, I know a major grocery chain is working with a major transport company to ensure that the company who is delivering their produce has a fatigue management system. So there is a duty of care on the client to ensure that they know the company is operating safely. This particular produce company has learned the hard way, due to one incident, that there is an issue of corporate responsibility and identity as well involved. The last thing they want to see is a trailer with their corporate logo on it involved in an unpleasant incident of running into the back of a tourist bus or something like that. That is another very important form of incentive for our code of practice.

Mr St CLAIR—Could I just take that point up with you, Professor? On time slot management on behalf of the big wholesalers over in the west, do you see that as part of the fatigue management overall? Do you see it stretching down that far so that we get away from maybe putting too tight schedules for slot management loading?

Prof. Hartley—I do not understand the term 'slot management,' I am afraid.

Mr St CLAIR—Quite often in New South Wales, for example, if you are delivering into a large wholesaling operation, you will actually have a time that your vehicle has to be there.

Prof. Hartley—Like New South Wales and South Australia, unloading time slots are a significant problem and are the main cause of driver fatigue. They are always in the queue having to move up, move up and so forth. Some of our major grain and resource companies have acknowledged that and have taken steps to try and improve what you refer to as the time slot management by simply enlarging the delivery area so that trucks can park, make the delivery and then get away.

Mr St CLAIR—That is what I was trying to get to. It is the same as getting away from this continual moving up when you need to.

Prof. Hartley—Yes. They again, as clients or customers of the transport company, have recognised that they have a duty of care within the operation of the code of practice. They were, I think, fairly reluctant initially to recognise that duty of care. In our meetings with them they initially behaved very arrogantly, as if they were immune to the code of practice. I think finally, having taken legal advice—

Mr St CLAIR—They got the message.

Prof. Hartley—They realised they do have a duty of care too and have responded.

Mr St CLAIR—Getting back to the advertising on vehicles, which of course is a major thing in the way the driver performs within that company truck, there are some well known transporters around with well known brand names. Do you see that as part of fatigue management—in other words, the recognition of a prestigious type of advertising?

Prof. Hartley—Yes, again I think that is very important and certainly a major incentive for the client to require that the companies who are hauling for them have a satisfactory fatigue management system. Having said all that, what we have been talking about are major corporate clients and major transport companies who everyone knows in Western Australia. They do not constitute the bulk of the industry, unfortunately. Nevertheless, I think the small operators—certainly within Western Australia—are developing some coherence and certainly the more responsible ones are behaving responsibly.

We are running, for example, a workshop on Wednesday for smaller operators, to assist them in implementing their fatigue management systems. Typically they are furniture removalists—in fact, they are convening this particular meeting—with half a dozen trucks and so forth. It is a mum and dad type of operation; mum essentially runs the show and dad drives the truck and neither of them are particularly literate or have had experience in developing policies. So we have developed with them a pro forma which I have actually brought with me, if the committee wishes to have it. It is in draft form. That will assist them and the other people who are at the workshop on Wednesday to develop their own particular fatigue management systems.

I should perhaps have stressed in the preamble that the whole purpose of the code is really to give limits to safe operation. It is not to set targets as in a schedule but to give limits to what the schedule could possibly be and to give guidance. Within that there is flexibility to tailor a fatigue management system for one's own operation. The committee obviously would be aware that not having a fatigue management system which is essentially identical to the code of practice is not an offence within the Occupational Health and Safety Act. If you can show that your own fatigue management system is in some way superior to the standards in the code, then that is perfectly okay. One operator, who appeared on nationwide TV about his truck crash, did tell me that his fatigue management system was that he selected drivers who could resist fatigue. Of course, that would be indefensible and I would argue in court that such a system could not possibly manage fatigue.

Mr MURPHY—Professor, at the conclusion of your submission under the heading 'Ways of achieving greater responsibility by individuals, companies, and governments to reduce the problems related to fatigue in transport' you say, inter alia:

> The recognition of the impact of fatigue in a domain, such as at work, where there is a legislative mechanism for controlling its impact should flow through to the driver when not at work. Thus, managing fatigue at work should steadily improve its management in society at large.

I was wondering if you could tell the committee how you believe that could be achieved. If people responsibly manage their fatigue in the workplace, how might they transfer that to their personal life?

Prof. Hartley—One of the problems of managing fatigue is the culture and in particular it may be that the culture of Western Australia is somewhat more extreme than in maybe

Queensland and South Australia. If you have talked to, for example, people who live in the north-west of Western Australia or people who live in the south-east, bordering South Australia, you would discover that it is a matter of personal pride that you can drive to Perth after work on a Friday and do the shopping over the weekend, then drive back to the north-west or the south-east of Western Australia. I think the inappropriate culture—let us call it a very macho culture—is due to ignorance of what constitutes fatigue, what the causes and consequences are and the firm belief that you can overcome fatigue simply by willpower and motivation. I have found through talking at workshops such as the one next Wednesday that the idea of there being a circadian cycle of alertness comes as complete news to 90 per cent of the audience.

In that last paragraph there on the recognition of the impact of fatigue, what I am alluding to is that part of our code of practice is educational in nature. There is within the first half of the code, for example, a somewhat brief but nevertheless targeted description of what we mean by fatigue, what the causes of fatigue are and what the consequences of fatigue are; that unless you follow the limits and the guidance in the statutory part of the code, then you will suffer from fatigue and you will experience the consequences of it.

Now that we have a code of practice for commercial drivers, what the automobile club and my fatigue task force and the Road Safety Council in Western Australia are doing is working towards a code of practice for non-commercial drivers—namely, those who are not for hire or reward—who nevertheless drive as part of their work, such as you and I. The Road Safety Council has also organised at least one workshop, with another coming up, which are corporate in nature, to outline and get the support of corporations whose employees drive simply as part of their work, to ensure that they recognise that they also have a duty of care, as their employees do, to manage fatigue as part of their work.

To summarise, I think we need to change the culture in society. The way of doing that is educational in nature and introducing a code of practice for employers whose employees drive as part of their work is a way of turning that around. Also, getting the community to recognise—as they singularly fail to do at the moment—that they too will experience fatigue and its consequences; that it cannot be overcome simply by motivation and good intentions.

Mr MURPHY—Professor, you also talked about consulting with Comcar to develop a code of practice and fatigue management system for their operation. You mention that in the penultimate paragraph of your submission. Where are you up to with that? Would we be able to get a copy of the papers, or a report?

Prof. Hartley—I do not know how confidential that is. In broad terms, at the present time we have collected a lot of data from Comcar operations. We have visited their operations in Sydney and Canberra. We have submitted to them a draft fatigue management system for them which at the present time is in the process of being considered. All fatigue management systems have to be a little bit different, tailored according to the nature of the operation. Comcar operates differently from the road transport industry. The fatigue management system we have submitted to them for their consideration involves many of the principles in the transport industry code of practice plus other material which relates to their particular mode of operation, so there are some refinements. As I say, Comcar management is in the process of considering it at the moment.

Mr JULL—In terms of the code of practice in Western Australia, is there no formal audit of the companies in terms of its recognition or acceptance?

Prof. Hartley—WorkSafe, the OSHA agency, has written to all known transport companies in Western Australia, reminding them of their obligation to have a fatigue management system. They may be visited by a WorkSafe inspector at any time and that failure to have a fatigue management system in place will result in a work improvement notice on them, if not eventually a work prohibition notice. At the present time WorkSafe is basically under-resourced, so there is no formal mechanism in place for transport companies to submit their fatigue management systems, for example, to Transport or to WorkSafe.

At the present time there is a formal auditing process in place but it is not a comprehensive one. I believe I have in my briefcase the WorkSafe audit document or checklist, which is very similar to the checklist I developed at the back of the code of practice here, with some variations to it. The companies who are audited by WorkSafe using the checklist are those which are rumoured to be problematic or have had an incident that has been reported.

Mr JULL—I think you say in your submission that in fact there have been some cowboy outfits which, if they have not told you to get lost, have tended to ignore the whole situation.

Prof. Hartley—There always have been responsible operators, mainly the larger operators in the transport industry, who have been represented on the tripartite working party that drew up the code. Nevertheless, there was a general view which has come through the union to the committee that the code was going to be pretty much a white elephant and it would go away and it would not have any teeth to it. The rumours that come back, largely from South Australia, are that—hey, big surprise—in fact something is happening and we are being serious about it. And WorkSafe is serving work improvement and work prohibition notices on companies that fail to have an appropriate fatigue management system.

Mr JULL—What is the next move from here? How do we get this greater acceptance? Should we be looking to introduce a nationally unified system?

Prof. Hartley—The next step is certainly not an immediate one but one over, we think, the next three years. It is an evaluation, in all forms and ways of being able to do it, of the impact of the code on the industry. We need to know how extensively the code has penetrated; in other words, whether everyone has a fatigue management system. As I said, it is not an easy concept for a lot of small companies to understand what a fatigue management system is. They are used to the mass limit type of approach, dealing with concrete variables such as mass rather than something that is much more nebulous such as fatigue. We need to obviously find out whether it has been successful in reducing fatigue related hazardous incidents. We need to know whether it is successful in improving the driver's quality of life. We need to know something about its economic impact on the industry and we will be doing that over the next three years.

Therefore, since this is obviously a totally novel approach to management fatigue, which has always relied on prescriptive hours of service, I would have thought it was a little bit

pre-emptive and early to adopt an OSHA system universally across Australia. Nevertheless it should be regarded as being trialled as an approach within Western Australia. I think it would be appropriate for NRTC, for example—and I am sure they are examining this—to adopt some of the guidance material in the code of practice that makes sense.

One of the things we have tossed around with Comcar is putting a value on work at different times of day. Night work must go on, of course; you cannot turn the clock back and the value of work at night is, for example, 1½ times the value of work during the day or maybe twice as much as during the day. Putting that value or multiplier on to the value of work at night or during the day, you can automatically adjust the safe working limits to work at night versus work in the day. You can apply the same value to sleep during the day versus during the night.

I am sure the National Road Transport Commission is examining some of those ideas with a view to suggesting them as guidance material. As I said, I would have thought it was probably a bit premature to adopt the OSHA approach universally, but keep an eye on it.

Mr JULL—What other side issues do you pick up? Do you have much to do with drug usage? Is there any evidence that through your work there has been any reduction in the use of drugs by long-haul drivers?

CHAIR—That is a very important question and one I was going to ask. I think it is a seminal issue. Can you measure some effects of the code at this early stage, especially in that field?

Prof. Hartley—Again, we are commencing the evaluation of the code.

CHAIR—What is your anecdotal evidence on drugs at this stage?

Prof. Hartley—I did report in a recent survey we have done, which gives you a ballpark figure of 28 to 30 per cent or so, which is pretty much the same as it is over in the east and pretty much the same as it seems to be in the US as well. Anecdotally, I am told that drug use has been declining. Drug use is, of course, not just taking uppers to keep going but also taking downers to get off the uppers when you have finished driving. But anecdotally, I am told that drug use is diminishing. I do not think we can give an answer to that formally yet because it will be part of the evaluation process over the next three years or so.

We have probably only got, as I have indicated, the major transport companies to complete development of their fatigue management systems. The smaller companies are still only in the process of tackling the issue.

Mr McARTHUR—You talk about the duty of care and I presume you mean the movement of responsibility from the employer to the truck driver. Could I just raise the issue of the subcontractors and the enormous commercial pressures that they face in meeting their obligations. It has been suggested in other forums that the bigger road operators do contract some of their more difficult work to these smaller contractors, so in the whole area of driver fatigue, maintenance and driving hours, the smaller contractors have a much less responsible

approach. How would you handle that problem and what is your recommendation as to the way in which you might address that problem?

Prof. Hartley—Subcontractors are treated under OSHA as employees of the company and the principal cannot sign away his responsibility for duty of care for the subcontractor/employee. Under OSHA the principal has to assure themselves that the subcontractor has their own personal fatigue management system. At the very least they have to get written confirmation about the hours of work of the subcontractor before they employ them for a task.

Mr McARTHUR—The commercial pressures will have every tendency to overcome these formal written statements. That is the evidence in the field, isn't it?

Prof. Hartley—Yes.

Mr McARTHUR—It is the smaller trucking operators, who are trying to meet debt repayments and personal commitments, who will push the limit of hours of driving.

Prof. Hartley—All I can say is that the principal must assure themselves and, if requested by the enforcement agency, must produce written evidence that they have done so and that they know something of the hours of work of the subcontractor. By the same token the subcontractor also is required to keep documentary records of, for example, their hours of work, schedules and rosters and provide those to WorkSafe on request.

Mr McARTHUR—We noticed in another inquiry in relation to shipping that the insurance arrangements were a very key feature of quality of seamanship and quality of vessels. Do you think there might be some merit in looking carefully at the insurance arrangements of the smaller contractors to ensure they meet these rules you are setting down?

Prof. Hartley—I take the point. That is an interesting spin on it. Insurance companies have a very important role to play in fatigue management. I know some companies we have dealt with, such as NTI, take that responsibility very seriously. NTI have negotiated lower premiums with companies that have identifiable fatigue risk management policies in place. So in a sense it is outsourcing part of formerly government responsibility for managing fatigue to insurance companies to play their role in doing so.

Mr MURPHY—The transport companies are driven to make greater profits, the drivers are driven to work longer hours or make a decision to work longer for greater remunerative reward. Is it realistic to expect that the culture of the industry can change to place fatigue management first—and secondary to the economic arguments? I know it is a difficult one but this industry is clearly driven by the dollar, whichever angle you come at it. All of us here believe strongly that fatigue management is essential. What can we do to change that?

Prof. Hartley—It would not change at all unless we made some educational enforcement effort to do so. I can say from my experience in dealing with transport companies that the culture change has already started. Certainly there are major transport companies I have dealt with—and I have personally audited their schedules and rosters as well—who have been

making the effort to implement more appropriate schedules and rosters. This also applies to the subcontractors employed by those major companies whose schedules are audited. The change is taking place.

It will be a very long process. Education about what fatigue is, the cause of fatigue and the consequence of fatigue is really vital. There is, maybe truthfully or untruthfully, a lot of misattribution that goes on about fatigue, particularly fatigue crashes. The variety of explanations about why the driver had a crash are varied and can make very entertaining reading. I do not know the extent to which the drivers themselves begin to believe these misattributions about why they really had a crash.

Mr McARTHUR—The research papers I have read certainly indicate that only seven per cent of those are attributed to fatigue, which is astonishing to me.

Prof. Hartley—Some of the more plausible explanations, which drivers apparently believe, are that they have some allergic reaction to something that makes them fall asleep. It stresses the importance of education on the one hand and enforcement on the other hand. We know from the success of RBT that you always need both.

CHAIR—Professor, on that note we will have to wind up your segment of evidence today. I would like to thank you for coming, particularly for bringing us up to date with the Western Australian experience. If we have any further questions we will let you have those and might I trust you to respond in like fashion?

Prof. Hartley—Of course, yes.

CHAIR—We will be sending you a proof copy of the evidence as soon as it is compiled and the *Hansard* will also be available on the parliamentary web site. So, once again, thank you for your attendance.

[12.06 p.m.]

HALL, Captain Robert, Managing Director, Fremantle Pilots

CHAIR—You are aware of the caution about these being proceedings of parliament?

Capt. Hall—I am, yes.

CHAIR—We would like to thank you for the trouble you have gone to in coming so far today; fatigue with pilots is an issue. I think we have received submissions from four different groups, so we look forward very much to hearing your evidence.

Capt. Hall—Thank you. I would like to make a brief summary of the fatigue issues pertaining to Fremantle Pilots and which is applicable in varying degrees to other pilotage service providers. I will be quite specific with these, unlike our submission which did not get into the detail.

The contributing factors which have resulted in fatigue being a serious issue for us have been increasing individual pilot shifts from eight hours to 12 hours per day to provide greater flexibility for the scheduling of shipping movements; a change of shifts altered from a fixed time to a transparent changeover with the result that pilots may work as many as three hours over the end of their 12-hour shift; no allowance for meal breaks or rest provisions throughout the 12-hour shift; monthly peaks in pilotage 74 per cent above the average levels established in 1992-93, resulting in pilots conducting significantly more consecutive pilotage services per shift than was previously possible.

Other factors are pilots being recalled from rostered days off to handle peaks in shipping schedules; a 41 per cent increase in pilotage services over the last five years, compared to the forecast maximum of 15 per cent increase; inadequate contractual provisions to increase funding to employ more pilots to maintain previously agreed work levels; the introduction of a 24-hour port operation resulting in pilots frequently working between the hours of 2300 and 0500; the inability of shippers to accurately forecast accurate cargo completion times which results in scheduled movement times, more often than not, being changed an average of three or four times per ship visit; increased job related stress caused by commercial pressure to reduce the number of tugs used and at the same time being encouraged to manoeuvre larger vessels into facilities which were designed for smaller ships.

Average vessel size has increased significantly over the past five years, which has resulted in pilotage services taking much more time to complete because of size, draught, and under keel clearance considerations. There are no agreed standards for determining manning levels, numbers of jobs or hours of pilotage per shift or the numbers of consecutive days or nights worked. There are difficulties achieving adequate levels of good quality sleep whilst on roster in order to properly combat the short-term and long-term effects of fatigue.

The consequences of fatigue for Fremantle Pilots are: the already high risk operation managed by the pilot is put at greater risk and this is not in the public interest; workplace and family relationships are severely strained when a pilot is suffering from fatigue; the serious detrimental health aspects of the pilotage profession, already well documented in a

number of studies, are exacerbated when fatigue levels are increased. As an example, a pilot can be rostered to conduct a long pilotage and berthing of a large tanker, gas carrier or container ship at the end of 12 hours of night shift. It is our opinion that in this case safety is compromised to some degree due to fatigue.

The greatest initiative, which has helped Fremantle Pilots to address fatigue issues, has been the use of Sleep Research Centre software. That has been developed here in Adelaide. It has shown that Fremantle pilots do, on numerous occasions, exceed .05 and .08 per cent blood alcohol performance levels. Until the introduction of the software, claims of fatigue and work overload could not be substantiated. The software is designed to protect the employer and ensure the employee has had sufficient time off. The software has not been modified to reflect the nature of pilotage work and may be more generous than it should be. It does not show that the individual has had sufficient sleep to offset fatigue.

There are a number of initiatives that would assist Fremantle Pilots to ensure fatigue was maintained at a safe level. They involve setting standards which define the maximum hours of day and night pilotage per pilot per day and per month; define the maximum number of consecutive working days and nights; define minimum rest periods between shifts; define the maximum ratio of days worked and days rostered off and define the minimum annual leave requirements. The establishment of such criteria would greatly assist in determining adequate manning levels independent of commercial pressure.

Finally, sleep research software should be modified to take account of the type of work and the environment in which the pilot works. For example, the pilot stands on his feet for the entire duration of the pilotage act, which can take up to four hours to complete. His work requires high levels of concentration resulting in peak heart rates, exceeding those of air traffic controllers, and he does not have regular meals. New software should be developed to be used by the employee to determine whether he has achieved sufficient sleep before commencing work. As an example, is one to two hours of sleep between 2.00 p.m. and 4.30 p.m. and three to four hours of sleep between 8.00 p.m. and 12.00 p.m. sufficient to combat fatigue in a pilot who is due to commence work at 1.00 a.m.? This scenario is very common and we believe that four to six hours of broken sleep is not sufficient to satisfactorily combat the build-up of fatigue. From the employer's perspective he has met his obligation by providing 12 hours between shifts—namely, 12.00 p.m. to midnight—for the pilot to obtain adequate rest.

CHAIR—Captain Hall, just looking at your submission and some notes we have taken on the Port of Fremantle, you have had an increase of 18 per cent in traffic since the privatisation of the port and you have 4,000 movements a year to 29 different berths. You say here that the length of your pilotage can vary from as little as 30 minutes up to as much as four hours. If you have that sort of throughput and if you have that sort of flexibility, why is fatigue an issue? Putting it bluntly, why are you not managing it yourselves? Is it commercial pressure from the Fremantle Port Authority or from the shipping companies? The other question which follows from that is: if you do have these 30-minute to four-hour shifts, can you not manage rest periods between for the particular pilots? Do they go straight from one vessel to the next or are there periods where they might be able to have facilities for a catnap of some sort?

This morning we went to a fatigue laboratory and the point was made that catnaps under appropriate conditions at appropriate times of day can help people manage their level of fatigue. I just ask on those points because I am at a loss to understand why Fremantle should be an example of this.

Capt. Hall—We have an arrangement with the Fremantle Port Authority which was, if you like, a privatisation but it is probably more like an enterprise based agreement called privatisation. We agreed to a manning level at the beginning and for that manning level we receive a remuneration. Then on top of that we receive a variable fee for work that is done. The remuneration for the numbers of people and the amount of availability does not reflect the level of shipping we are now at.

It has been very difficult contractually to come to an agreement about the shipping level. There is an agreement as to what the shipping level has become but there is no agreement that we should put on more pilots and we should receive more remuneration. It is a difficult one but basically from where we started five years ago our calculations are that we should operate with 14 pilots. The contract only allowed us to have 11 pilots. We are only paid for 11 pilots, plus one under training.

CHAIR—Does the port authority seek to exempt itself from the duty of care responsibilities?

Capt. Hall—It does. In our contract it shows we are responsible for managing fatigue. But the intent of the contract is not where we are at now and that is the problem. The shipping has grown. Instead of three per cent a year it has increased eight per cent per year and we have had an increase of 41 per cent in that same period instead of what was estimated to be 15 per cent. The manning levels were designed for up to a 15 per cent increase. There is no agreement on what the manning level should be above that. I have consistently requested 14 pilots. Because there is nothing laid down as to what is an agreed level of work, it is very hard to convince the authority that we need more people.

The intention of going from an eight-hour shift to a 12-hour shift was to provide flexibility in the use of pilots that we—

CHAIR—But it must be obvious to them from the days when they controlled the port directly.

Capt. Hall—Their big desire is to contain costs, to be competitive with the rest of Australia. That seems to have a greater importance than the occupational and health focus.

CHAIR—It is a state government appointed port authority, is it?

Capt. Hall—Yes, but it has been commercialised.

CHAIR—Commercialised—it pays a dividend to the state government?

Capt. Hall—Yes.

CHAIR—Is there a code of practice for the various pilotage areas of Western Australia, the various groups of pilots along the Western Australian coast?

Capt. Hall—Not as such, no.

CHAIR—Even though the state government is obviously backing a similar idea in road transport?

Capt. Hall—There is a new port authorities bill and there is a new marine act that is being developed which hopes to control, to some degree, the licensing of pilots. I do not think it is going to license the amount of work, but it will allow them to investigate accidents and then make recommendations.

CHAIR—It is not a code of practice per se.

Capt. Hall—No.

Mr JULL—Captain, are there any international comparisons we can make with the situation in Fremantle or the rest of Australia with what happens overseas in terms of the pilots?

Capt. Hall—I think there probably are. My information is that in other pilotage services, particularly in Britain—and I have been to the last three international marine pilot conferences—without getting specific figures, my feeling is that they are doing much less pilotage than Fremantle Pilots are at the moment. I cannot speak for the other pilotage services in Australia, but that is certainly my impression, although I have no hard facts. I would think that if you went to a port like Rotterdam you would get a different figure because they have sea pilots who bring the ships into the port and then they transfer to inner harbour pilots. When I was last there they operated something like 36 berthing pilots on shift at any time. They operated three eight-hour shifts. They moved an enormous amount of shipping but they were only there for the final half mile of the voyage.

We have, as you have already heard, a very big range of shipping and if there are ships to be moved we have an agreed time slot that it takes each job to be completed and an amount of time to get to the next location that a job might start. That is all within our contract and we have to be able to meet that. If we go to a particular long pilotage job, we do that job and then we have an agreed amount of time to tie the ship up and to get to the next ship, wherever it might be. That can happen for the entire 12 hours the pilot is on shift. It is hard in some respects to equate one pilotage place with another. I would think that Sydney and Fremantle are fairly similar, although we do have a lot longer pilotage than they have, but we also have the relatively short pilotages that they have.

CHAIR—Have you any formal figures on complaints of fatigue or what increase there may have been in the complaints of fatigue since you have gone to the 12-hour shifts?

Capt. Hall—I do not have specifics but I generally have a lot of complaints about fatigue. There is another problem in that pilots do not want to lose their current remuneration. If I say to my colleagues, ‘Okay, we’re going to put on another pilot because

fatigue is becoming an issue but you are now going to give away 20 per cent of your income to do it,' that is not very attractive to them.

CHAIR—Is that one of the problems, though? We have sort of traded money for fatigue, if you like?

Capt. Hall—That is exactly what has happened. That is the bottom line. The reason we can do that is because nobody is drawing a line in the sand to say, 'That is what a pilot should do.' We had an understanding some years ago—and I believe the Western Australian Department of Transport had an understanding for its outports—of what a reasonable number of pilotage movements should be. It was of the order of 300 per year per pilot. But we have gone way beyond that now and also our pilotage is much longer. We have actually set up a system of units and each job is given a number of units. A longer job gets more units than a shorter job. Using that criteria gives us an indication of how our work has increased. That is where we get our figure of a 41 per cent increase in work, whereas the port authority might say it has only been a 30 per cent increase because they are using ship numbers. All the pilotage is getting longer because the ships are getting bigger, deeper and slower and that is not being accounted for. If you only look at ship numbers, it does not give you the total story.

Mr JULL—So would it be unfair to say that, as in road transport, we almost need a cultural change in your industry, too?

Capt. Hall—I think we do. We look to the airline industry for many of our improvements. We have been doing that using bridge resource management, which is based on the airlines' cockpit resource management. My understanding is that in the airline industry it is quite well documented how many hours a pilot can fly for, how many hours' rest he should have, what hours he should work, how many days off a month and whatever. I believe that is what we are missing in our industry. Until you have that it is very hard to convince people that we should put in a tender or be paid this amount of money because we need this many pilots. How do you define that you need that many pilots if you do not have somebody defining what that figure should be? I think in the airline industry it has been defined but it has not in the marine industry.

CHAIR—When you went from eight-hour shifts to 12-hour shifts, was that a decision of your new corporate group or was that imposed on you by the port authority?

Capt. Hall—In a way it was imposed. There were 10 pilots to be privatised and the port wanted to go from 40 hours of pilotage a day to 60 plus hours of pilotage a day. They now have 66 hours of pilotage using those 11 pilots.

CHAIR—Is there an overtime or additional payment factor at all for the pilots working between the ninth and the 12th hours?

Capt. Hall—No.

CHAIR—They just do that as part of their normal weekly hours.

Mr McARTHUR—This new arrangement is totally unreasonable, is it?

Capt. Hall—What has made it unreasonable has been the fact that shipping has gone up far more than was predicted and it has been difficult to reflect that. The contract has not reflected that so we have found it difficult. I have to say, in fairness, that we are in a tender process now and the port authority will be changing the way we operate. I have not actually seen the tender documents so I cannot comment on that but there will be a change. I suspect that a lot of the contractual problems will be removed but there will still be this desire to maintain costs and you can only maintain costs by—

Mr McARTHUR—Some of the points that we have raised here might be taken into account in this new negotiation. Are you hopeful?

Capt. Hall—Yes.

Mr GIBBONS—What method do you use to transport the pilot from base out to the vessel that is coming in? Is it by another boat or helicopter?

Capt. Hall—It is normally by a boat provided by the port authority.

Mr GIBBONS—So the pilotage service does not provide them?

Capt. Hall—We are purely involved with the provision of the act of pilotage. We are responsible in our operation to provide land transport, which is normally done by the use of taxis, but the port authority is responsible for all waterborne or airborne transport. Occasionally we use helicopters and they are provided by the port authority.

CHAIR—So virtually you have only contracted the labour.

Capt. Hall—Yes. What happened there was that the pilot boat crews and the unions were very resistant to the boats coming with the pilotage service, so they have at this stage been maintained within the port authority.

Mr St CLAIR—Captain, has the increase in new technology on the ships that you pilot helped? Has it been an advantage to the pilot or not?

Capt. Hall—As far as fatigue is concerned?

Mr St CLAIR—Yes.

Capt. Hall—No, I do not believe so. In fact there is a requirement for increased knowledge, increased alertness, which involves much more mental work, if you like. The pilot has to look after that, as well as looking after the physical business of making sure the ship is heading in the correct direction or is operating at the correct speed. That still goes on and you have this added requirement to operate machinery. Obviously in reduced visibility the newer equipment is very worthwhile but in Fremantle we are blessed with good weather so, whilst we practise low visibility operations, we do not for most of the time need that electronic equipment.

Mr St CLAIR—I wonder whether you could just explain this to me, because I am not up on these things: you say that the length of pilotage varies between 30 minutes and, say, four hours. What control have you got? What physically happens when the pilot has finished a four-hour or a two-hour or a 30-minute stint? They get off the ship. Do they then go back to a—

Capt. Hall—It depends. If there is another movement for them to complete, they will then proceed via taxi or boat or a combination of both to the next ship's location, which can be 20 miles away or can be at the berth next door.

Mr St CLAIR—Can you regulate whether they do two four-hour jobs?

Capt. Hall—No.

Mr St CLAIR—In other words, can you mix it up for them?

Capt. Hall—The most control that we have is, if there are low levels of shipping, we try to balance the numbers of ships that each pilot does. If somebody starts early in the morning and the shipping is such that he does not have to continue working until midday, then we will try and relieve him as soon as we can and bring another pilot in who has had more sleep. When that happens, that is not a problem. But shipping is not like that, unfortunately; shipping comes in fits and starts. As I said in my introduction, last December and January we had levels which were 74 per cent above our 1992-93 level and, I imagine, within those months probably 100 per cent plus increases over a number of days where pilots were working their full 12-hour shifts and just going from ship to ship, non-stop.

Mr St CLAIR—What sort of warning do you get on ship arrivals? Is it a day?

Capt. Hall—Ship arrivals are not a major problem. We have two days notice and then 24 hours notice and then we are advised, as a company, at 5 o'clock at night what the shipping for the next day is. Weather affects arrivals to some degree but generally arrivals are reasonable, although in recent bad weather we had a car carrier that took three days to do the last 120 kilometres; he was coming in every day and his time was changing all the time. It is generally more the ships that are sailing that create the problem.

Mr St CLAIR—Because of loading times?

Capt. Hall—Because they are unable to predict when they are going to complete—it does not matter whether it is container ships or grain ships—and the times just continuously change. A pilot can be rung six times while he is still at home before he has even commenced his shift, or once he has commenced his allocated shift he could be rung half a dozen times with changes. It is most disturbing, to be quite honest, and it is not like an airline industry or a rail industry where you have a schedule and you know when you are working; you do not really know when you are working.

CHAIR—So his 12-hour shift starts from the time he takes the first job for the day? Is that it?

Capt. Hall—No, it does not, actually; it is a nominated time, Mr Chairman.

CHAIR—How do you reconcile that with what you just said? You said to Mr St Clair that he might be rung up eight or nine times before he gets his work roster for the day. When does the clock start ticking?

Capt. Hall—The clock starts ticking when his shift starts, as far as our company is concerned. We operate that way because that is the cycle that the particular pilot is in. I will give you an example. We have a pilot that does midday to midnight and another one does midnight to midday and we have another pilot that starts at 2 a.m. and goes through to 2 p.m. and another one goes from 2 p.m. to 2 a.m. Then there is another pilot that does pilotage from 5 o'clock in the morning until 8 o'clock at night, which is longer than a 12-hour shift. He is the duty pilot. He is on call all night. So there are five pilots on shift at any time to provide 66 hours of availability.

CHAIR—Out of 11.

Capt. Hall—Out of 11.

Mr JULL—I suppose in theory you could go for days on end where you do not get a ship near the place.

Capt. Hall—It is not like that. I suppose on a very quiet day we might be down to six movements or something like that. I would say the average is about 15 to 18 movements a day. On a busy day there can be 30 to 40 movements.

Mr MURPHY—Captain, you identified in your report that the commercial pressures to reduce costs are tending to drive down the safety standards. The question obviously is: if safety standards are falling, how can the standards be maintained or improved in the face of those commercial pressures?

Capt. Hall—I think it goes back to what I was saying before. We have to try and define what is a reasonable level of work and what is a reasonable level of rest. That, to me, is the problem at the moment. Where is that line where it is safe or no longer safe? Obviously there is a benefit in commercial pressure but how far does it go? We have been very fortunate in Fremantle that in the last five years we have not had a major accident that has been attributed to fatigue from the pilotage point of view but that does not say that tomorrow there will not be a grounding of an oil tanker carrying 100,000 tonnes of crude oil in Cockburn Sound. That is what I am fearful of, if we do not manage this.

Mr JULL—So are we.

Capt. Hall—I have to be quite honest and say that the software that has been provided by the sleep research centre in South Australia has given us more power—if that is the word—to convince people that fatigue is an issue. Up until we had that software we were unable to convince anybody that fatigue was an issue. So I believe the use of that software is paramount. From the port authority's perspective, they do not want their pilotage company to come to them at 2 o'clock in the morning and say, 'Look, that pilot has been very busy.

You've now got a tanker that you want to bring in at 2 o'clock in the morning but we believe he's too fatigued to do it.' They do not want us to do that; they want us to do that ship. And nor does our company want to do that because it reflects badly on us.

Mr St CLAIR—But surely someone must accept the responsibility to say yes or no?

Capt. Hall—At the moment I regret to say we do it, basically, unless a pilot comes to me and says, 'I can't do the job because I believe I'm fatigued.' To be honest, the person who is fatigued is the wrong person to make the decision because when he is fatigued he is actually well past being fatigued. He is like the person under the influence of alcohol and he does not know that he is fatigued until it is too late. But at the moment that is the way the system operates: it is up to the individual pilot to say, 'I am too tired to keep going.'

Mr JULL—Captain, you say that the software needs to be improved. What further developments need to happen?

Capt. Hall—It needs to reflect the type of work we do, I believe, because at the moment it is just general. It also is only designed at the moment to protect the employer. It does not tell the employee if he really has had enough sleep. Just because the employer says, 'You've had a 12-hour break,' is a 12-hour break from 10 o'clock in the morning until 10 o'clock at night sufficient? I do not know. How much valuable sleep did the person have? I believe if we had software that also could be used by the employee, he could say, 'These are the hours I've done and I've actually slept. Is this going to be sufficient for these times of the day?' Whether he will use it or not is another thing but the software is purely designed at the moment to protect the employer, it is not designed to find out if that person is really fatigued. That is what concerns me about the software.

Mr MURPHY—Captain, in terms of the minimum standards, guidelines and code of practice, you said on page 7 of your submission:

Development of minimum standards, guidelines and a fatigue management code of practice require a holistic approach. The process should be consultative and have the support of all stakeholders in the industry, particularly the pilots and port authorities.

How do you think you can achieve that?

Capt. Hall—With great difficulty, I think, to be honest. To be quite blunt, managing fatigue is going to cost money. At the end of the day the ships are going to pay, if we are going to manage it properly, and that is what people are fearful of.

Mr MURPHY—That is the very reason we are having this inquiry.

Capt. Hall—Yes, I understand that.

Mr MURPHY—That is why we are talking to people like you. We are trying to get some answers—

Capt. Hall—It is very difficult.

Mr MURPHY—to something which is very difficult because we live in a world that is driven by economics.

Capt. Hall—Yes.

Mr MURPHY—People tend to classify issues of safety as secondary considerations when they are looking at their balance sheets.

Capt. Hall—Definitely. I am not saying we should not do it, I am just saying it is going to be very difficult to do it. I am glad that we are having this hearing because hopefully there will be now some government support.

CHAIR—How many pilotage groups are there along the Western Australian coast?

Capt. Hall—There are about five major ones. Some of those are employed directly by their companies.

CHAIR—Do you meet annually?

Capt. Hall—No. We have a Western Australian Marine Pilots Association, which is not very active of late, and we have the Australian Marine Pilots Association, which is much more active. We certainly talk but we do not meet annually.

CHAIR—You heard Professor Hartley's evidence earlier that a code of practice applies to the transport industry. It seems extraordinary that the state government, which is demanding that code of practice for the transport industry, as the beneficiary of the port authorities and, by extension, the pilots, would resist—firstly from the point of view of logic and perhaps secondly from the point of a duty of care—imposing the same sort of thing on its own pilots.

Capt. Hall—Yes. My feeling is that the port authorities, and certainly our port authority, in the long term will want to get rid of that responsibility. I have not seen the document yet but I believe under the new tendering process fatigue will be our problem totally. But to justify the numbers I believe we need, we need some guidelines. I do not think it is in the port authorities' interests, unless they are fearful of a major accident, to force those standards because they control pilotage costs and pilotage fees. They charge the fees at the moment. It is not in their interests for those fees to go up for a fatigue management system. It is much simpler for them to offload that onto the pilotage company. That was not done in our current arrangement.

CHAIR—Within that contract you took the port authority's word that there would be minimal expansion but it was not contracted that if it went beyond that there would be—

Capt. Hall—No.

CHAIR—Does the 15-hour duty pilot have any facilities for catnapping? Is there a rest area or a quiet room where they can have a sleep?

Capt. Hall—There is a lounge but certainly not facilities where you can properly sleep. You certainly cannot shut out the light or noise. It is just like a normal recreation room with a microwave and a sink.

CHAIR—Surely it would not be difficult to create a room.

Capt. Hall—It probably would not be but we are contained within the port authority's building and the facilities we currently have do not allow us to do that. We would need our own facility to do it. I think it is a very useful suggestion.

Mr St CLAIR—Captain, what is the position with tugboat trials? Do they come under your control for managing fatigue?

Capt. Hall—They are operated by two private companies in Fremantle. I am not sure what fatigue management systems, if any, they have in place. I am sure fatigue is a major issue with them. Indeed, I was involved in an incident with a tug where a seaman was seriously injured. The finding from the marine incident investigation unit was that it was at least partially due to the fatigue of the master, who had been operating all night. This was 5 o'clock in the morning, if I remember correctly, and the seaman was very seriously injured as a result of that incident. There was no major damage to any infrastructure but certainly somebody was seriously injured, such that he can never work again.

Mr McARTHUR—I am reasonably familiar with the Port Phillip pilots' operation into Port Phillip Bay through the Heads. I wonder if you could comment on the fatigue involved in travelling the pilot to and fro. In that particular instance there is a fair bit of travel involved in getting to the Heads and then getting out into Bass Strait. There is a lot of danger in actually boarding the ship in difficult conditions. Sometimes they have lost pilots. There is a very heavy responsibility over a fair length of time in that particular pilotage from the Heads to Melbourne. Could you make a comment on those three areas—how they contribute to fatigue possibilities—because of the different nature of your activities?

Capt. Hall—Yes. In our long pilotage we have a trip in a boat which will take up to an hour. In good conditions in a fast boat it is half an hour to three-quarters of an hour but in rough conditions it takes over an hour, with the boat heaving. In fact it can take as long as an hour and a half in really bad conditions. There is no doubt at the end of that, when you then have to climb up on a ship, you are not in a very conducive state to take charge of a large vessel. It does take some time to settle down from that. There are fatigue issues involved in that. Although it is not as long as for the Port Phillip pilots, we do drive to or from Kwinana, which is at least a 30-minute drive. It is either in a taxi or self-drive if we have our own car located in that part. At 2 o'clock in the morning, after you have been working for some hours, there is definitely fatigue involved in driving at night. I would think it is worse in Port Phillip.

My understanding is that in Port Phillip generally they will sail one ship out, then have a rest period in their facilities down by the Heads and then will normally sail a ship back to Melbourne. Then they will take a number of days off. The fact that they have long pilotage simplifies the rostering of pilots to some degree. You can then operate a ladder system where, once you have completed those two movements, you are off for a number of days.

Our shipping, as you have already heard, has short and long which is all mixed up and comes in peaks and troughs. We cycle through our 11 pilots some days 1½ times if we have some arrangement like that. It would be very difficult to operate a ladder system. We looked at it and have gone back to the fixed shift system as the most sensible way of handling our people. We may be shown by the scientists that we do not operate in the most efficient way but we have spent a lot of time trying to adjust rosters.

Mr McARTHUR—Referring to my comment on the responsibility contribution, the high degree of concentration required for the various pilotage tasks, how much do you think that contributes to fatigue development?

Capt. Hall—I believe it contributes a lot. There are only short amounts of our pilotage in open water. A lot of our pilotage is in fairly restricted water.

Mr McARTHUR—What is the personal evidence on that? Do people end up like the jet pilots—a piece of chewed up string when they have finished a shift if they have been on a very tough assignment of pilotage?

Capt. Hall—Yes, I think so. I believe the exacting pilotage of the larger ships being squeezed into the existing port requires a lot of concentration and is very draining. For instance, tomorrow morning we have the American aircraft carrier USS *Kitty Hawk*, which is a very large ship, proceeding into the inner harbour. The pilots will go to Perth airport and be flown out on a helicopter to join the ship, then bring that ship into the inner harbour. Until probably four years ago that manoeuvre was never carried out. The ship was considered too large to enter the inner harbour, with a turning basin of 420 metres—less when there are ships alongside each side.

This ship is nearly 320 metres long, 75 to 80 metres wide and is brought into the inner harbour through a narrow entrance channel to be berthed. On its departure it is swung and taken out. Such a movement is very exacting. We try to ensure that people have experienced and observed it. Tomorrow we will have pilots who are off duty going in to observe this ship so they become more familiar with it in order to reduce the stress of doing the job. The person who is doing the job tomorrow has done it before. He was supposed to start at midnight but I have changed his shift so he now does not start until 2 a.m. The person who was starting at 2 o'clock is going to start at midnight and will try to do as much of the early morning work as he can to keep the other pilot as fresh as possible for the *Kitty Hawk*. If it is a busy shipping program, I will not have that luxury. The man will still have to work and then go to do this exacting ship. There is no doubt the larger and more complicated ships are very draining because the margins for error are significantly less.

Mr McARTHUR—Are you doing any log work on that? Would you log some of this experience for your negotiations or even for the benefit of this sort of inquiry as to what the pressure on that particular assignment could be?

Capt. Hall—We do log incidents. We log problems that we have.

Mr McARTHUR—The description you are giving us now sounds a very reasonable assessment of the problem but do you do that in a more formal way? Do you say, 'Look,

this is a real problem. We've got a very big mess' or, 'We've got a lot of problems. We've got people observing'? Why isn't that being put down on the record for your own benefit and then for negotiation with the Fremantle port?

Capt. Hall—It is understood by all parties that it is very exacting. But it is amazing; the largest container ship that used to come into Fremantle was 263 metres. We now have regular callers of 290 metres. It was never considered before that that would be feasible. I have no doubt in the next two or three years we will be asked on a regular basis, night and day, in all weather, to do a 300-plus metres long container ship. Unfortunately, this is another area away from fatigue, but who sets the limit and says enough is enough?

CHAIR—It is a dimension of fatigue, isn't it, if it puts someone under pressure?

Capt. Hall—Yes.

CHAIR—I would like to ask you one question from left field before we finish. Your pilots observe a lot of vessels coming to Australia, both Australian flag vessels and others. Your pilots obviously do pick up a lot of anecdotal evidence. Some of the worst maritime accidents in Australia in recent times have occurred on the West Australian coast. In fact our committee in previous inquiries has received evidence of that. What is your observation of the alertness and the level of fatigue on visiting vessels?

Capt. Hall—The level of fatigue on some vessels is very high, especially when the ship may have had a cargo, let us say, of clinker or cement beforehand and they have tried to clean the ship to then take grain before the vessel arrives in Fremantle. You could find that those seamen have been working all hours of the day and night to have the vessel ready. My observation is that the fatigue level is worse on departure than it is on arrival, in general terms. That is the nature of loading ships very quickly and sailing them again. In one of our berths in particular the ship has to be moved all the time because the loader is fixed, which is a very ancient system. The vessel is being moved each time the hatch is loaded or part loaded. In windy conditions this is enormously difficult for the crew, especially with minimum manned vessels.

Certainly, out of the Alcoa berth fatigue is a major issue with crews, with helmsmen making mistakes, with exempt Australian masters making mistakes when they have taken ships out because they have been so busy throughout the loading program. Then as soon as they have completed loading they are expected to sail, whether they are rested or not. I believe fatigue is a major problem.

CHAIR—We might look into that a bit further. Thank you for your comments on that. This committee has taken a great deal of interest in maritime safety and I just wanted to hear your view on it. Thank you very much, Captain, for your evidence. It was very stimulating, as you can tell by the interest of my colleagues. If we require any more information, I trust we can request that of you in writing and you will respond in like fashion.

Capt. Hall—Yes, Mr Chairman.

CHAIR—You will get a copy of the *Hansard* draft and shortly it will also be available on the parliamentary web site.

Proceedings suspended from 12.51 p.m. to 1.46 p.m.

AFFLECK, Dr Fred Norman, General Manager, Corporate Affairs, National Rail Corporation Ltd

GRAHAM, Mr Vincent John, Managing Director, National Rail Corporation Ltd

CHAIR—I welcome to the table Vince Graham, Managing Director of National Rail Corporation Ltd, and Dr Fred Affleck, General Manager, Corporate Affairs. I would like to thank you very much for appearing before us today. You are well known to the committee. I think Mr Graham has appeared before for a private briefing and Dr Affleck appeared in our last inquiry. So thank you for coming, we value your contribution very much.

You have appeared before us before but I would just like to issue the caution that evidence taken before the committee is taken to be evidence presented to the parliament and therefore any false or misleading evidence is taken to be a contempt of the parliament. Would either or both of you like to make an opening statement?

Mr Graham—What we would like to do is just make a few brief introductory remarks and then both Dr Affleck and I will speak very briefly. We would like to take the opportunity to maximise the amount of time in responding to the committee's questions on our written submission, if that is okay with the committee.

CHAIR—Certainly.

Mr Graham—I think in overview the issue of fatigue management is something that the National Rail Corporation has been on the learning curve with for the past two years. We come from an environment where fatigue is a serious safe- working risk, given the nature of our operations, but also from an environment where historically it has been controlled basically through industrial agreements, through enterprise agreements, through awards. Those awards have been specific in terms of maximum length of shift and time between shifts. They have prescribed periods of rest between shifts, whether that is at home or away at a barracks location.

Our progressive experience with the prescription in enterprise agreements has been that they are not fatigue oriented in their outcomes. Indeed, there is an incentive under some of our awards for a train crew, in particular, to get their week's or fortnight's work done very quickly and maximise the time they have off. Of course, that depends on what they are doing with their time off. We need also to be up-front about saying that it is not unusual for drivers in the rail industry to have second jobs. It is obviously a concern, when one thinks train crew are at home resting, that there is a possibility that may not be the case. It is a reasonably difficult thing to control.

We have been pursuing a two-pronged strategy over the last two years. The first step in that strategy is to take the work that Drew Dawson of the University of South Australia has been developing and to apply that work to the construct of our rosters. We have developed, along with other railways, a system whereby we are able to measure the fatigue of any roster. As a point of principle we do not allow our rosters to be constructed in such a way that a fatigue index would exceed 90. In moving into driver only operation, that is single train crew operation, we are proposing not to exceed a fatigue index of 80 in the initial years

of implementation so that we can better come to realise the fatigue issues associated with driver only operation. That is the first prong.

The second prong, Mr Chairman, is to couple that with random alcohol and urine based drug testing in the workplace and our submission contains the results of that. That has been a difficult initiative to implement in an industrial environment. Nonetheless we have done it and I think the results of having done it, particularly in the urine based drug testing, means that fundamentally we have a far safer operation as a result of pursuing that initiative. I suppose in concluding my introductory remarks the one point I would make very strongly to you is that I think those two initiatives do go hand in glove.

Fatigue management, whether you are in rail, road, bus or maritime, is only one of the suite of initiatives that needs to be put in place, the second of those being some reasonable measure to ensure that if you have fatigue you should not really be in need of any stimulants or any other drug used in the course of your occupation. I might pass over to Dr Affleck to make a few introductory remarks about the specific content.

Dr Affleck—I would like to talk very briefly about the content of our submission. We have addressed the terms of reference under four major headings: what are the causes and contributors to fatigue; the consequences; the initiatives in transport, addressing the causes and effects; and ways of achieving greater responsibility by individuals and companies and so forth. In broad terms, the things I would highlight in the submission are first of all it is our view, having been exposed in some detail to the work that has been done by the South Australian Centre for Sleep Research run by Dr Drew Dawson, that the approach he has taken to designing his fatigue index and to analysing work patterns in order to come up with a fatigue index for any particular roster or pattern of work is the right approach to use. It takes account of the natural circadian rhythms that most people experience and it is our view that, given a practicable interval, fatigue management based on those principles should somehow be mandatory for all modes of transport.

The second point I would make is that within the rail sector probably the starting point for that is to amend the standard AS4292 to include reference to fatigue management and to make that a requirement for accreditation of rail organisations by various state and federal safety authorities. It has been put to me by other sources that it would be quite useful for the committee to provide background and underpinnings to its findings, if there were an assessment of the costs of accidents caused by fatigue. Therefore obviously accident investigation procedures should include a requirement that these take account of and find out whether the causes of that accident relate in some way to fatigue. It seems to me that if fatigue is adjudged to be a significant factor in safety in all of these types of organisations, then whenever incidents occur, the part that fatigue might have played in that ought to be investigated and highlighted.

There are other organisations, for example the National Occupational Health and Safety Commission, who possibly should be drawn into this. One of the proposals we have made is that they ought to investigate fatigue as a possible declared risk or declared hazard—I think is the term that they use—which I think would give it a greater amount of status or highlight it to a greater degree when such things as standards for workplace safety are being put in place.

Obviously, we will leave the committee to read our submission—and perhaps on that point I should mention that our submission really consists of about 10 pages. There is a fair amount of attached material designed to illustrate the way in which we have gone about documenting procedures in our organisation, which is quite thorough. It is designed to ensure that there are procedures laid down for these things and that they are in fact enforceable procedures used in all cases.

The other remark I mentioned I was going to make is if road transport—road freight transport particularly—uses different fatigue standards which involve a lower cost of implementation than rail does, partly in response to the different structures and different work patterns of the two industries, this does have implications for competition between the two industries. It would be my objective to point out to the committee that it was not with that motive that we came along here because we are doing this anyway. But I do think the competitive implications need to be taken account of because if road is allowed to go its way while we go our way, it will definitely have an impact on competition between the two modes.

The cost of labour is considerably affected by the methods of fatigue management that are implemented in each mode. As we understand it, the road transport industry is moving more and more towards a fatigue management model for its own industry and our view is that for a variety of reasons, both health and safety reasons and competitive reasons, that needs to be encouraged.

CHAIR—Strangely, that was the point where I was going to take off for questioning. Do you favour a prescriptive form of control of the hours of work as a dimension of fatigue control or do you like the code of practice method? To what extent do you believe that as we move towards some form of control—and you just hinted at it in your closing comments—it could become anticompetitive if there was not some form of cross-modal activity? In other words, if one mode of transport goes out and has a very prescriptive code and another one has a fairly generalistic code of practice, how do you balance those? How would you like to see it occur?

Dr Affleck—Obviously, the characteristics of the two industries need to be taken into account. Enforcing any sort of management regime on the road transport industry, similar to what we have in rail, is difficult, although not by any means impossible. We would certainly favour moving towards the fatigue management approach. In other words, not prescriptive hours but a method of regulating hours of work and hours of rest which takes into account the total cyclic effect of both hours of work or hours of rest over a week. Therefore we are not in favour of the prescriptive hours similar to what has traditionally been used. I think that is the first part of your question.

With respect to the second part of the question, if the two modes go in different directions and road transport remains with what is essentially a prescriptive hours approach and we go more and more towards a fatigue management approach, I have no doubt that it will have competitive implications simply because the cost of the fatigue management approach in terms of labour cost is definitely higher. It constrains the number of hours that the individual driver, for example, can work and therefore constrains you in the number of drivers you are required to employ to do the work you have to do. If, on the other hand,

another mode is not constrained in the same way, they will definitely need fewer drivers to accomplish the same task. That is evident very clearly out there on the road and on the rails at the moment.

Mr Graham—Chairman, perhaps an example to give weight to Dr Affleck's point: under the current regime for road transport operators, and indeed under our current enterprise agreement, it is possible for a road operator to work up to 72 hours a week. It is possible for a road operator to work, therefore, six continuous 12-hour night shifts with 12 hours off during daylight hours as nominally the rest period. It is quite possible under our enterprise agreement to do exactly the same. However, because of fatigue management, in a practical sense we could not couple three 12-hour night shifts back to back without starting on the fourth one to breach our index of 90.

If you apply exactly the same measurement to six 12-hour night shifts for a road transport operator, completing 72 hours, the fatigue index gets up to 240 but is quite able to be done under the current road regulation. I think that underscores the difference between a prescription of the number of hours per week as opposed to fatigue management, which is looking at that part of the week that the hours have been worked. Under the fatigue management model, working night shift takes far more debit fatigue points than working the same period of time in day shift. Any of us who have ever attempted to do that in some other part of our career would understand it.

Mr McARTHUR—I have two issues. One is that I am aware you have changed your rostering quite considerably—for instance, the Melbourne and Adelaide run where you have to have a change of drivers at Bordertown. Could you make a comment on the fatigue arrangements that emerged from the change of rosters by National Rail, getting them more sensible and rational? Secondly, could you give a comment to the committee about the downsides of fatigue management in the rail industry compared to the road industry? We would observe that the downside of fatigue in road transport is that half-million dollar rigs fall off the road and people get killed. But in the rail industry, if fatigue is excessive, what actually happens? Presumably trains do not hit one another except in extreme cases, so could you just make a comment about those issues?

Mr Graham—I think on the second issue first, fatigue in rail does potentially result in a higher incidence of what we refer to as 'signals passed at danger'. You will hear the term 'SPADs' in the rail industry and a SPAD is actually where a driver fails to observe a stop signal that is in front of him and because of lack of concentration, fatigue or some other cause, takes the train past a signal that is at red or is at danger. The implication of that, taken to its extreme, is head-on collision, as has occurred in railway operations. It has occurred in National Rail over our short seven-year history.

The competitive implications—I think the first part of your second question—are that we are imposing a discipline in rail on hours of work and we are back-to-backing that with a drug testing regime. Whenever that is not happening in a competitive mode of transport there are two implications. You have fatigued drivers on the road and clearly, on the basis of Dr Dawson's work, even operating legally within the current prescribed hours, there is an authorised risk and potentially authorised accidents waiting to happen. If the human body

cannot cope with fatigue indexes up above 100, then how does one adjust the body so it can? The answer to that is very simple: the use of uppers and downers in order to control it.

Mr McARTHUR—Mr Graham, my question was really arguing about the road. How did National Rail come to understand the implications of fatigue management, having in mind your quite dramatic change of the rostering procedures, as I understand it, especially on these interstate runs? That, I presume, led to a better understanding of the fatigue arrangements. Historically there were two drivers and there were changes for industrial relations reasons and now that has been changed quite dramatically, as I understand it.

Mr Graham—Yes, it has. I think the most simple example of that is probably on the Nullarbor run in Port Augusta across through Cook to Kalgoorlie. Whereas prior to National Rail there would have been three changes of crew across there—one at Tarcoola, one at Cook, one at around Rawlinna and one at Kalgoorlie—we only do the one crew change across there now at Cook. In order to do that our crews are doing 11- and 12-hour shifts across there. At the point of introducing those we started to become very aware of the need to get a little more science behind our rostering of crews on those corridors. That is the one part of the national network where we are consistently running crew shifts up to that 11- and 12-hour limit.

Mr McARTHUR—And are you finding that okay? Does your own research find that the fatigue is under control on those long, straight runs across the Nullarbor?

Mr Graham—Yes. On our critical measurement of SPADs we have certainly had, over the last three years, a significant reduction in those incidents. But bear in mind that at the same time as introducing fatigue management principles we have also introduced to our operation what the airline industry will refer to as a 'check pilot system', where we are up on board, continuously looking at the behaviour, the habits, the techniques, the two-way radio protocols of our trained crew by a supervisory driver.

Mr JULL—I was just wondering if you could give some background because when you were introducing the protocols you involved the families of the drivers. Tell us how that worked and whether it was effective and what sort of reaction you received from the drivers.

Mr Graham—As part of fatigue management we introduced managing shiftwork for the families of our train crew. I am the son of a train driver and grew up with the implications of shiftwork and not being able to play cricket in the backyard in case you woke dad up. They are the significant issues for the families of shiftworkers, whether you are in our industry or other industries. We developed this program so that the families could collectively understand the needs of the shiftworkers and could try to adjust the family lifestyle to fit in with them so that during periods of rest it was not only adequate but it was reasonable rest.

Mr JULL—What reaction did you get from the families? Were they willing to cooperate?

Mr Graham—It was very strong. I think the partners of our train crew have been very interested and very supportive of the program.

Mr GIBBONS—You have suggested that the reports of investigations of rail accidents should be published. What organisation would be opposed to that and why would they oppose it? Why does it not happen automatically?

Dr Affleck—I am not sure that any rail organisation across the country is opposed to this. It is the subject of a standard which is being drafted at the moment, AS4292.7, I think it is. All of the rail organisations have been cooperating in that. It is not far from going out for public comment, as I understand it, as part of the standard-writing process. The difficulty, as I understand it, has always been that there is no legal framework in place which gives witnesses and members of inquiries the legal protection against law suits for defamation, for example, as a result of anything that might be contained either in the findings or in the evidence taken in those inquiries.

The ATC, the Australian Transport Council, at its last meeting—which was back in March, I think—agreed that the industry would go forward to produce the necessary wherewithal to ensure that reports could be published. The view that we have taken is that the more information about individual incidents and their causes and circumstances in the public domain, the more likely the rest of the industry is to be able to understand what is going on out there—fatigue amongst other contributing factors.

CHAIR—Why is it a problem with rail? I mean, BASI publish their reports.

Dr Affleck—I am not an expert on this but, as I understand it, there are protections in the air navigation regulations and the Air Navigation Act which provide the basis upon which they can publish their reports and get adequate legal protection in so doing.

Mr Graham—Chairman, I think there is an added issue here. Under our commercial insurance policies—and you will find most railway organisations now have moved from self-insurance into commercial insurance—a condition of those insurance policies is that you are not able to publicly or in any other way accept liability without the agreement of your insurer. A get-out in the insurance provisions of that is that you are legally required to do so. If there is a legislative requirement to supply particular information, respond to an accident investigation or publish a particular report, then it overrides that commercial clause in insurance policies.

CHAIR—Presumably that would have to be federal-state legislation.

Mr Graham—Yes.

CHAIR—Certainly in the short term anyhow.

Mr St CLAIR—Just carrying on Mr Jull's discussion on the family issue, how do you get a level of responsibility to the employee who has had fatigue management while they are at work but then may go out and do another job? How do you cope with that? How do you manage that?

Mr Graham—Fundamentally you cannot ever be sure. You can have a company policy, as we have, on secondary employment issues but you can also ensure by your rostering

practice that you are not creating the difficulty for yourself. I will give an example: if someone can work 36 hours a week and do it in three 12-hour shifts and start Monday night and be finished by Wednesday night, you have really opened the opportunity up for them three days a week to go and pursue alternative employment. Whereas by taking more of a fatigue management approach to that roster, it is a lot more sensible to give a spread of that work, particularly if the three shifts are back shifts, night shifts. Thereby you actually diminish the bank of hours in one block that may be available for secondary employment. But you simply cannot live the lives of the people. You can educate them but that is about the extent to which you can interfere in their off-duty life.

Mr St CLAIR—It just worries me that if we start to look at bringing in regulations or legislation to start to limit hours of working, et cetera, and fatigue management, it does not take into account the fact that somebody can go and get a part-time job somewhere else and therefore disrupt the program the company has in place.

Dr Affleck—I think, gentlemen, the fatigue management approach is certainly one which, as Mr Graham has said, limits the opportunities because it spreads the work more thinly across the week and leaves very few opportunities for alternative work, if that is thought to be undesirable. In some occupations it may not matter very much but typically, if you are a locomotive driver for 36 to 38 hours of the week and you are a farmer for the other however many hours, which is also a fairly strenuous occupation, you may not be all that fit for work on Monday morning. A fatigue management approach will regulate that fairly well, whereas a prescriptive hours of work approach—the reasons for which have been pointed out earlier—may well not because it leaves open the opportunities.

Mr St CLAIR—Does a driver drive for 12 hours? In the case of a road transporter they rest every five hours for a half-hour rest. How does that happen with rail?

CHAIR—Could you just enlarge on that as to which method of resting you use? With crewing do you have any on-board resting facilities? Do you use the back-to-back method? Do you work out at depots what is done? Could you flesh out Stuart's answer a bit more?

Mr Graham—Yes. Specifically we work up to a maximum of 12 hours only for our driver-driver combinations. We have two drivers in the cab at any one time. They are both equally qualified and they take it in turn, over that period of time, being in the driver's seat. When not in the driver's seat their duty is to observe safe working signals, et cetera.

All of our locomotives that operate around the country are fitted with a device called a vigilance control, which needs to be pressed every 60 seconds by either of the two drivers up the front. If they fail to press it every 60 seconds a light flashes, subsequently a siren sounds and, if neither of those are responded to, the brakes of the train are automatically applied. But from the point of the start of a cycle to the brakes being applied it can be 90 or 100 seconds of elapsed time and, of course, a train can go a fair distance in that period of time.

Mr St CLAIR—Is there a record of those?

Mr Graham—Yes, there is a black box equivalent, if you like, that downloads all of that data. In the modern locomotive it is simply a matter of going in and downloading it onto a

card, along with a whole lot of other performance information. So we are able to tell the throttle notches, the braking applications and the speed from the data log. But not all of our duty cycles require up to 12 hours. For example, on the Melbourne-Dimboola-Adelaide corridor, a normal shift length is nine hours. So it depends on where you are in the country.

With regard to the methods of rest that we use, it is predominantly barracks rest. The crew works from their home location, for the shift goes into a rest facility, which these days is normally a commercial motel that we have specifically contracted that is fitted with dark curtains, double glazing and all of the things that are generally necessary to ensure adequate rest. The exception to that is out on the Nullarbor where we use the Cook rest house, which has subsequently been upgraded for that purpose.

CHAIR—The crew taking the train out brings the other one back?

Mr Graham—After a 12-hour rest in barracks. So a crew that works a train from Port Augusta to Cook will basically have an 11- or 12-hour shift working out there, will sign off and rest for generally around 12 hours. It is a minimum of eight hours but generally it is more than that. Then they will come back on and work a train back to home base. They must have a minimum of 12 hours off back at home base. The one exception to that is the once-a-day slow, heavy steel train services on the Nullarbor which take 15 hours to get from Port Augusta to Cook. We use a three-up crewing practice with a mobile crew van on those trains and there are two drivers up front at any one time, with the third back in the rest van. Once they arrive at Cook all three of that crew have a mandatory period off in barracks. So we do not immediately turn them around.

Mr MURPHY—Mr Graham and Dr Affleck, I am very interested in this table you have produced on your drug and alcohol testing program on page 7 of your report. I acknowledge, as the report indicates, that your testing program is in its infancy. Accepting, as you say, that National Rail's employees represent a reasonable cross-section of Australian transport workers, I find it rather amazing that in a random sample of employees tested only three out of 2,855 employees would get a reading for alcohol and in the area of the drug test 32 out of 990. I would not mind, for the benefit of this committee, some background as to why, particularly in the area of alcohol, you suspect that that is very low.

I say that because I am cognisant of all areas we are looking at for transport fatigue, because in those people who are tested or who are interviewed in relation to accidents, the research we have today suggests only seven per cent are admitting or attributing it to transport fatigue. So we seem to be operating in a climate of obfuscation or projection where everyone is pointing the finger somewhere else. So accepting that a lot of Australians like a drink, I would like some comment first on the alcohol testing.

Mr Graham—I think specifically on the alcohol testing, I would attribute that to, over many years, the education program of the community more generally, with the alcohol levels at 0.05 and 0.08. I think that is very much ingrained in the psyche of the community. Bear in mind that we not only random test but any time there is any safe working incident, irrespective of cause, we as a matter of procedure would do alcohol testing. So you are seeing the randomness there but you are also seeing any tests that have occurred after some

form of safe working incident. As you can see, I think we have performed very well. I have other comments on the drug test side, if you are going to move on to that next.

Mr MURPHY—Just before getting to that, those figures are terrific—no doubt about it—and I hope they are 100 per cent accurate. But when I contrast them—and I have not got the figures here before me—with random breath testing of police in New South Wales, they are significantly higher than that. I cannot give you the exact figures. Now, people who get into a car are cognisant, when they drive if they are affected by alcohol, of the consequences if they are caught. Bearing in mind your introductory comments, or your explanation to my question, I am still curious that the figures are so low. That is not reflecting at all on anything you have said, because I think it sends a very positive message to the community about National Rail's program if those results are true and accurate.

Dr Affleck—In the first place, I think it would be unrealistic of us to suggest that those are not typical of the rail industry as a whole. We do not know but we have no reason to believe that they are not typical. The second thing is that, as Mr Graham mentioned, the community attitude to mixing alcohol with driving has changed considerably over the years. You have to take into account that these people being tested are people who are either presenting for work or who are at work and, therefore, I think their attitude is a little different from those coming home from the pub on a Friday night, when a lot of the police records are generated.

The other thing to take account of is that because our drivers, particularly, work two-up on a locomotive most of the time, they are conscious that by attempting to drive when they are under the influence they are putting a mate at risk as well and that mate is not going to be very happy about that. So there is a fair bit of peer pressure involved as well. I should say that program of alcohol testing goes up and down the organisation from the very top to the very bottom. It is not just drivers and terminal operators, it is everyone. I have not actually been in the office when one has happened but I know Mr Graham has on a couple of occasions.

Going back a number of years, the attitude was that you could go out for lunch and have a glass of wine and come back to the office and make a stab at working for the afternoon. People do not do that any more. In the first place, I suppose there is the threat of being tested. There is also the attitude of mind which says that that is not an acceptable practice in business any more and, while not everybody takes that attitude, I think it is more and more widespread. We do not have alcohol on the premises in our organisation. Going back 10 years, that would not have been the case. So I think these community attitudes have a good deal to do with it.

Mr MURPHY—Could we just very briefly move to drugs, because the figure there is much higher. I would like some indication of what sort of drugs are being detected with the testing.

Mr Graham—Of those 32 positive results, a good three-quarters of those results would be positive to marijuana. Bear in mind, this is not simply National Rail train crew, this is right across the organisation including our terminal operators. Over the course of the last 12 months we would probably have a dozen of those 32 people who are no longer working with

us, simply because our process is that once you have recorded a positive test you go on two weeks compulsory annual leave and before you are allowed back on the job you must undergo a retest. If you fail the retest, then it is obviously an indication of habitual usage. Can I say, if you have been unlucky enough to have been at two parties over a fortnight where you have just inhaled somebody else's marijuana, it does not produce the sort of results that we are likely to produce out of these tests. So at that point in time we have serious career choice discussions with those employees. For lifestyle reasons, a number of employees have decided to seek other employment as a result of that.

I think we do not as yet have the broader community attitude to the social use of marijuana which we do on the use of alcohol. The fact that it is decriminalised in some parts of the country imposes on those of us who manage the safety operation a greater burden to ensure that the community's attitude—and I make no judgment of that—is left at the gate, because we simply cannot afford it inside the gate.

Mr MURPHY—Thank you.

Mr McARTHUR—Could you give us the characteristics of a good train driver and one who is not so good and what are the commercial imperatives that might be involved. I understand that acceleration and braking are important commercially.

Mr Graham—Yes. I must say that, like any other employer, there are a whole lot of fundamentals in terms of attitude and professionalism and the ability to work in the team, whether you are a train driver or a terminal operator, which are important. I think very specifically, train crews these days are very conscious of their fuel/driving technique. For every hour that a train operates out on the track, it costs us twice as much for fuel as it does for the labour of the train crew, so the ability of that train crew to drive in a fuel-efficient way is a very important cost outcome for us. Of course, in modern locomotives, with all of the computerisation and instantaneous fuel consumption readings, we have now got the tools to improve the skill of the train crew in that respect.

Mr McARTHUR—So if they were fatigue impaired, would they lack the skill to control these driving characteristics after a 12-hour shift across the Nullarbor?

Mr Graham—I have no objective evidence on that but subjectively I would have to agree that once you become fatigued your ability to concentrate is diminished and it is the concentration that is required in order to maintain the fuel-efficient driving technique.

CHAIR—We have heard a lot of talk and in submissions, both in the transport industry and perhaps in the maritime industry, about the chain of command, chain of responsibility and the linking of that to competitive neutrality. To what extent do pressures on the rail system come from outside forces, getting time-sensitive materials or produce to market? To what extent does that impinge, or would they like it to impinge perhaps, on your crews and in turn, by implication, on fatigue and safety?

Mr Graham—I think the pressure that is always on from the market is for reliability, to have the product there when you say the product is going to be there. There is always the temptation to put the schedule—that is, on-time arrival—before a range of safety

implications. We are not the only transport operators that face that. I am sure Qantas faces that every day. But what has to be paramount in the culture of the organisation is to reflect the priority of safety first and schedules second. There is no doubt that that puts those operators who do that at a competitive disadvantage in the eyes of the customer. Where you do sacrifice your schedule for safety reasons and there is another operator who does not make that trade-off then clearly, in the eyes of the customer, they may be seen to be more reliable in some circumstances.

Some customers are far more involved in your safety record than others. BHP Transport, for example, works exceptionally closely with us in terms of our safety record and performance, particularly where we interface with their terminals. They are constantly interested in our overall safety performance. But I would struggle to give you the name of any other significant customer who would make it a condition of business that we have any form of accredited safety arrangement.

CHAIR—Just returning to our earlier report, *Tracking Australia*, we recommended a safety authority. What is your view on that?

Mr Graham—I think we continue to strongly support the concept of a national safety authority, converting an organisation like BASI into a multimodal investigator similar to the safety structure that exists in the United States. I think that would be a gigantic step forward for Australia.

Mr McARTHUR—The road operators are sure to support you on that, do you think?

Mr Graham—I think those who are competent, professional and safety conscious would. That would not be an exclusive list of all road operators, I would not think. But those who think about their duty of care, particularly those who may be directors of road transport companies who have an obligation to reflect that duty of care in their governance of their organisations, are becoming increasingly concerned about having good safety regulations, safety structures.

CHAIR—Thank you very much, Mr Graham, Dr Affleck, for your evidence today. As on previous occasions it has been excellent. I trust that if we wanted any follow-up material we can write to you and you would respond in like manner.

Mr Graham—We would be delighted.

CHAIR—As is our custom you will receive a *Hansard* draft of your evidence today and you would probably be aware that today's proceedings will shortly be available on the parliamentary web site. So once again thanks for your attendance.

[2.35 p.m.]

HILL, Mr David Welbourn, Research Officer, Australasian Railway Association Inc.

WILLIAMS, Mr Bryan Paul, Manager-Programs, Australasian Railway Association Inc.

CHAIR—We welcome you. As you are aware, these are proceedings of the House of Representatives and they always carry the caution that any false or misleading evidence is considered a contempt of the parliament. Do you have any additional written material to add or would you just like to make an opening statement?

Mr Williams—No additional written material, Mr Chairman.

CHAIR—Would you like to make a brief opening statement?

Mr Williams—Yes, I would, thanks, Mr Chairman. The ARA submission is intended to embrace comments based on an industry wide basis. It relates to what initiatives have been undertaken by the rail industry to address fatigue management. It does not specifically address the day-to-day implications of fatigue management adopted by the individual operators.

The ARA represents a diverse membership within the rail industry which includes 30 private and government owned passenger and freight operators. These operators are involved with the carriage of passengers and freight over interstate and intrastate journeys. The intrastate operators are also involved in either urban or country movements. In 1997-98 Australia's railways carried 487 million tonnes of freight, 577 million urban passengers and 10 million non-urban passengers.

Until recent years the Australian rail industry was totally government owned and the management of fatigue has been self-regulated within the framework of industrial awards and agreements. The rail industry has statutory obligations for the safety and occupational health of its employees and operating practices and procedures which provide for the safe transport of passengers and freight. However, privatisation and open access has created the need for a more vigorous rail safety regime.

The public has demanded and has been provided with safe rail operations by governments through a self-regulation process. Under the changed third party regime, overall responsibility for ensuring safe operation of rail transport is vested with new accreditation agencies which are generally located within the various state transport departments. There is an intergovernmental agreement to provide for a national approach to rail safety which ensures that there are no barriers to entry.

Rail is a demonstrably safe transport mode. The cost of road accidents in Australia is estimated to be just over one per cent of the total $6.5 billion annual cost of transport accident costs in Australia. In contrast, road transport accidents in Australia account for $6 billion or 92 per cent of this cost. Rail freight transport is seven times safer than road transport with only 0.55 fatalities per billion tonne kilometres compared with road freight's

3.8 fatalities per billion tonne kilometres. By way of note, the proportion of truck related road fatalities has not declined in over a decade despite an overall decrease in road fatalities.

The Australian rail industry is at the forefront of research into shiftworker fatigue and the application of research to rosters and work conditions. In late 1993, representatives of various state and national rail authorities and the Public Transport Union discussed shiftwork and the workload in the Australian rail industry. It was agreed by all parties that shiftwork was emerging as an important occupational health and safety issue. It was also agreed that historically decisions on the health and safety risks associated with rosters and workload have been based on theory rather than practice. It was agreed that rostering practice at that time was not based on any systematic approach to evaluating the specific demands associated with particular shift schedules. Finally, it was agreed that industry stakeholders should endeavour to assess the potential impact of alternative rostering systems on the health and welfare of train crews and on the cost recovery of rail transport.

Out of this, several state and national rail organisations and the Public Transport Union established a consortium and commissioned the University of South Australia's Centre for Sleep Research to undertake a study into the effects of shiftwork and fatigue on employees, particularly operational train crews. It was considered that there would be significant benefits to the rail industry if a program was implemented to develop and validate field based measures of the impact of specific roster systems and workload on driver health, safety and wellbeing and also to develop and validate an educational initiative to improve organisation awareness of the impact of shiftwork on all aspects of the rail industry.

The three-year study commenced in 1995 and it involved field testing of more than 250 train drivers from 14 rail depots across Australia who were engaged in many different types of passenger and freight train operations. The results of the study provided an impetus for the Australian rail industry to change its approach to managing rosters and conditions for shiftworkers. Improving the health, safety and working conditions of employees through better management of rosters not only benefits the employees but also benefits the financial performance of rail operators through more efficient rostering practices.

Rail operators involved in this initiative are now in varying stages of developing training and awareness packages using materials developed from the study. This project has recently been extended for a further three years, which will build on the results that have already been found through the first study.

New regulations are soon to be introduced in Western Australia concerning noise dosage levels, which Westrail, the government operator in Western Australia, considers also has an effect on fatigue. Westrail intends to monitor the noise dosage exposure to drivers of the various classes of its locomotives. Fatigue can then be measured using the fatigue score model.

The rail industry recognises that it has occupational health and safety obligations to provide a safe working environment for its employees and that its employees are required to be equipped with lifestyle skills to manage the necessary shiftwork conditions under which they work. This also requires the employee to take greater responsibility for managing their personal lifestyles to balance work and requirements and personal activities within safe

fatigue levels. This involves the employee's family, particularly the partner, who is seen to be an integral part of adopting any fatigue management program and understanding the effects of non-work activities on fatigue levels.

CHAIR—Mr Williams, I do not want to interrupt you, everything you say is interesting but do you have a lot more of that?

Mr Williams—No, I am leading into a comparison with the road industry.

CHAIR—All right.

Mr Williams—The rail industry has therefore shown a commitment to investing in fatigue management. Rail operators are required to provide their accreditation agency with details of accidents and incidents in accordance with Australian Standard 4292. In contrast to the rail industry's accident safety record, the community has expressed its concern about safety on our highways and roads, with the ever increasing number of bigger and heavier trucks and their safety implications. Driver fatigue was identified as a major challenge to the road industry in 1997, being a major causal factor in at least one in five fatal single vehicle crashes involving medium and heavy trucks and about one in 20 instances where the driver of a medium or heavy truck is at fault in collision with another vehicle.

The National Road Transport Commission suggests that fatigue was a factor in 70 per cent of truck accidents. In a 1998 Newspoll survey conducted by the ARA, 92 per cent of respondents agreed that rail freight is safer for the community than larger trucks and 70 per cent of respondents also agreed that there are too many large and heavy trucks currently on the road. Although the road industry has developed new schemes aimed at improving driver fatigue management, the rail industry has researched and developed far more sophisticated programs.

Taxpayers are subsidising fatigue management in the road transport industry, including massive road funding to prevent collisions between road users. Road transport fatigue management schemes focus on regulatory hours of drivers but lack rigorous requirements for compliance and enforcement. At a September 1998 Fatigue in Transport Seminar in Melbourne, a Victoria Police spokesman argued that it was up to the owners and managers of Australia's 15,000 trucking companies to take responsibility for the drivers' on-road behaviour. These conditions also apply to commercial bus operators who also compete with the rail industry for the carriage of passengers. The Australian trucking industry has recently been reported as providing editorial comment on road safety which has been used on commercial radio and for which a fee has been charged.

Rail operators are bound by the strict conditions of their accreditation and must provide their accreditation agency with details of accidents and incidents in accordance with the Australian Standard 4292. Reports of investigations of rail accidents should be published, subject to any legal safeguards. This would ensure that the managers of all rail organisations are able to make use of the findings of investigations where fatigue is found to be a factor. There is a need to adopt a uniform application of fatigue management principles between all transport modes, including the bus and truck operators. There is also a requirement for

consistent compliance procedures. I apologise for being too long, but I was trying to develop the two sides of the coin.

CHAIR—Yes, I just did not want you to repeat your submission, but I wanted the members to come to grips with some of the issues you raised. Mr Murphy is going to kick off the questions.

Mr MURPHY—Mr Williams, the taxpayer bears a very large burden of the consequences of accidents. Do you think there is any room for those who are specifically responsible for accidents to bear that cost?

Mr Williams—In what context, Mr Murphy?

Mr MURPHY—I am just thinking the taxpayers who pay the bills ultimately wear the consequences of some of the major disasters that may relate to negligence, for example, on the part of management, on the part of individuals. Have you any views on that?

Mr Williams—I do not have any views. Mr Hill may have.

Mr Hill—I think the accidents, like a lot of other issues to do with road transport, are externalities for which, as you quite rightly point out, the taxpayers do bear a significant burden. If, for example, someone is involved in an accident with a truck and they are hospitalised or crippled or whatever, there is an immediate cost associated with the hospitalisation and there may be an ongoing cost associated with the treatment of their trauma. As we see it, we do not see those kinds of costs borne by the cause of that accident where it is the truck operator, so you do have a significant external cost for which taxpayers, who have nothing to do with that accident, end up paying for it. Consequently there is a significant cost to the community from that. We would prefer to see those kinds of externalities reflected in higher charges to the people responsible for those accidents, whether that is the truck companies, drivers or whatever. The costs, in other words, are not internalised to the users of the system.

Mr JULL—Just listening to Mr Williams's preamble, it was fairly obvious there is absolutely no cooperation between the different forms of transport—road, rail, air or sea—in terms of addressing issues like this. I would have thought there might be some advantage in trying to get all those forms together. In terms of your membership, what sort of cooperation is there between the different rail bodies? My understanding is you also include New Zealand in your membership. Have they done much work on this?

Mr Williams—Just to go back to the first point, there is a meeting being planned with the Australian Trucking Association. I think that is scheduled for 1 September. No doubt that will provide an opportunity for further discussions on issues such as this. That will be the first time we have sat around the table with that association and other bodies.

Mr JULL—In terms of the membership of your association, have they a uniform approach, or what form of cooperation have you got? Does New Zealand come into play?

Mr Williams—New Zealand is a member of ours but, as far as this particular submission is concerned, we have not sought input from New Zealand.

Mr JULL—To your knowledge, is New Zealand doing much in terms of fatigue research?

Mr Williams—I really cannot answer that; I am sorry.

Mr St CLAIR—You mentioned during your talk, Mr Williams, that rail has developed far more sophisticated programs in fatigue management than road. What are they?

Mr Williams—We started working with Dr Dawson at the South Australian sleep centre back in 1993 and, as I mentioned in my preamble, the program that was finally agreed upon did involve extensive testing across the country. The rail industry is made up of many different components, as you would appreciate. There are many different types of operations within the freight area and even within the passenger area. So that we got a feel for what was happening right across the country in rail operations, there were something like 14 different depots decided upon, together with the union movement, as to which would be studied. They were then the subject of extensive field tests throughout the study.

Mr St CLAIR—Was there a different form of testing between the long-haul rail as against, say, metropolitan rail?

Mr Williams—No, it was the same. It was a wristwatch that was worn and, if I may, I will perhaps go through some of the different operations. There was National Rail, looking at Kalgoorlie-Cook, Kalgoorlie-Kewdale. In the days prior to Australian National being privatised, it was Port Augusta-Alice Springs, and also in the Adelaide depot. In Victoria it was the Public Transport Corporation, looking at a suburban depot as distinct from a diesel locomotive operation. Similarly in Sydney there were intercity operations where drivers could be working up to 160 kilometres from Sydney; there were the suburban electrics, which involved single drivers; there was the Grafton depot, which had three different types of operation; then there were freight operations out of the main Sydney depot at Enfield; and there were the coal operations in the Hunter Valley. Similarly with Queensland we looked at a coal depot and another depot at Hughenden and one in Bundaberg which operated mixed freight and passenger trains.

Mr St CLAIR—So it was a widespread look at what actually happens in the field.

Mr Williams—Yes.

Mr Hill—You mentioned degrees of sophistication between rail and road. I think the point was made quite eloquently by the National Rail representatives who pointed out that the rail fatigue index is based on literally a fatigue measurement—a measurement of fatigue—rather than the road approach, which is purely based on hours worked. I might add that the road industry is moving towards performance based standards and other things but they are poorly policed and not rigorously enforced. If I may quote from an article from the *Daily Commercial News* of 13 May 1998, a truck driver involved in an accident told the court, ‘We regularly work 20 hours a day. I didn’t fill in my logbook accurately; I filled it in

to suit the workload.' In the rail industry that simply could not happen because, as was pointed out, there is a black box there to regulate or to record hours and a rigorous system of roster enforcement. So that simply highlights the different levels of sophistication between fatigue management in both modes.

Mr St CLAIR—Could it be, though, in the case where you have two-driver trains that one does all the work? How would you then differentiate between the two?

Mr Hill—That may well occur. There is no way of knowing when a crew is on a train who does how much driving. However, as the National Rail representatives pointed out, there is a degree of peer pressure between the employees and I do not think one employee would appreciate doing all the work while the other one did less work. And there is an understanding amongst crews that they will swap over halfway through a shift and that is generally what happens. But there is no way to know that that is exactly what happens. If there is an accident, then that would be looked at.

Mr McARTHUR—You say that the rail industry has a very good safety record, especially on the tonne-kilometre basis, which is an interesting comparison which rail uses, compared to the road operators. I just raise the issue that, if you have a major rail disaster, that becomes headlines; yet, if the road operators have a few cumulative bad smashes, that does not create the same public outcry. Would you care to make a comment on that? The second observation is: has the Australian railway system been obsessed with safety over the last hundred years and has the system been almost retarded because of an obsession with these safety type practices?

Mr Hill—I will answer the first part and I will defer to my colleague for the second part. You are absolutely right, rail does attract an unwarranted degree of media attention when there is an accident. I suppose that is because they are so few and far between and when they do happen they are of a fairly catastrophic nature. I think it reflects our general view of the world at large in that road transport industry—cars, buses and everyone else in road transport—costs, as we pointed out, $6 billion in road accident costs. I hesitate to say, but if that was some other man-made industry we would probably ban it. But because it is the road transport industry we just accept that as a normal part of society. Consequently, all the other things that go along with that are then relegated to page 3 or 4 or whatever.

We put up with something like 1,800 deaths on the road each year. As I say, if that was some other activity we would look at more seriously policing it. We have a lot of measures to try to minimise road trauma and fatalities but still they go on each year. Yet 500 Australians died in the Vietnam War, for example, and that was a major tragedy. Three times that number die on the roads each year and we just tolerate it. Consequently, there is a sort of cultural acceptance of road trauma which tends to find its way to the back of the paper rather than the front, unless there is a major truck accident or major bus accident or some such thing when there are a lot of lives lost and then it tends to make the front page but certainly not to the same extent that rail accidents do.

When there is a level crossing accident the headline is 'Train hits car', not 'Lunatic drives around level crossing gates and gets hit by train and causes the train driver significant

loss of sleep and worry for the rest of his life.' So it is the way we accept these things and the way they are reported; it is the whole understanding and it is a cultural bias, I think.

Mr McARTHUR—Can you respond to the comment that rail has been dominated by safety issues for a hundred years.

Mr Williams—Dominated by safety?

Mr McARTHUR—Issues, not the reality.

Mr Williams—Yes, rail has always been. And I guess the public demands that we have a safe railway. I am not sure that I have answered your question.

Mr McARTHUR—Part of the working practices, as I understand it, are dominated by safety procedures which in the modern age are not altogether relevant, so there is a culture of safety mechanisms, safety awareness.

Mr Hill—There has been, simply because the trains are running on tracks and cannot avoid each other, so you need to ensure that there are mechanisms to prevent that happening. So it is inevitable that there has been a system of rigorous safety procedures which have dominated the industry—and to its credit, I think—and it is unfortunate that those sorts of principles have not applied in other industries.

CHAIR—One question we are going to probe with the aviation industry which I would like to hear your comment on is: have you done any studies into fatigue in your workshops? While I recognise that you do not have the same level of sensitivity perhaps in a railway workshop or a railway servicing bay that you have, say, for a 747, nevertheless, safety is an important consideration. Have you had any examples of fatigue or different styles of rostering in your workshops or your service bays where fatigue might in any way impinge on the safety of the vehicles?

Mr Williams—I am not aware of any directly. My colleague may be.

Mr Hill—Are you getting at things like cab designs and that kind of stuff?

CHAIR—No. I make the point I made before: I recognise that the sort of instrumentation and calibration that goes on in an aircraft is quite different than that required for a train engine. Nevertheless, we received a lot of evidence suggesting that engineers in aviation workshops were put under unrealistic pressure. What sort of rostering do you undertake in your own workshops and servicing bays for engines? Is that a pressured business? Are you confident of the level of maintenance? Are there any fatigue aspects with your engineering staff that might impinge on safety?

Mr Hill—Most maintenance crews and engine depots and so on are rostered around day, afternoon and night shift on a regular sort of eight-hour basis and are subject to the alcohol and drug testing that all the other employees are.

CHAIR—They are subjected to that testing too?

Mr Hill—Yes, that is National Rail's position. Certainly I cannot comment on the other systems but for operators that do have those practices they go right throughout the system. The maintenance employees operate on a regular rotational shift basis. Because the job is in a fixed location and they are doing fixed tasks it is easier to do that than for train crews who work, as you know, variable sorts of hours. But to the extent that if it is 2 o'clock in the morning and a maintenance crew has to repair a locomotive's brakes or something, you hope the employee is doing that job properly. Then again, the train crew has to test the brakes before they leave anyway, so if there is a fault they would find that out. There are generally secondary measures to ensure that before a train leaves the depot the crew has tested it but on a superficial basis because they do not have time to do much more than that.

CHAIR—So you are not aware of any complaints of fatigue in the workshops or servicing bays?

Mr Hill—Not at our level but that does not mean those things do not occur. I would suggest you might need to contact different rail operators to find out that, or occupational health and safety records of state governments and so on.

CHAIR—Yes. Mr Williams and Mr Hill, thanks very much for that evidence. It is, as ever, very helpful. We trust that if we have any other questions we want to put to you in writing you will respond in a like manner.

Mr Hill—We will.

CHAIR—You will receive a draft of the *Hansard* record of today's meeting and that information will also be available shortly on the parliamentary web site. Thanks once again for your attendance.

[3.03 p.m.]

AFFLECK, Dr Fred, General Manager, Corporate Affairs, National Rail Corporation Ltd

CHAIR—For the sake of balance, in your capacity as operations guru for your company, have you found any incidence of fatigue in workshops or engineering operations? We intend to pursue this issue fairly heavily in the aviation section of this inquiry.

Dr Affleck—Perhaps I should start with the caveat that I am not sure whether our operations people would like to hear me described as an operations guru. Nevertheless, I will try to answer your question. I have just been taking some notes and, to be quite honest, I do not know the answer to the question but I was going to attempt to find out. As you are probably aware, a good deal of our maintenance is outsourced. That particularly applies to locomotives and therefore it does not arise so much for us internally. I agree with the answer that Mr Hill gave, that this activity takes place in a given location and the hours are very much more easy to regulate. They tend to follow the traditional industrial relations pattern of limitations of hours of work. But I think it is a good question and I will see what I can find out about it.

CHAIR—Would you like to come back to us in writing on that?

Dr Affleck—Yes, I will. Another question which you asked, if I can be so bold, was: does the black box tell you who is driving the locomotive? In other words, can one driver out of the two drive the train for the full 12 hours while the other fellow snoozes? I do not know the answer to that question. I suspect it does, but I will give you an answer to that one as well.

CHAIR—Thank you.

Proceedings suspended from 3.05 p.m. to 3.30 p.m.

DAWSON, Professor William, Director, Centre for Sleep Research, University of South Australia

FLETCHER, Mr Adam, Researcher, Centre for Sleep Research, University of South Australia

HUSSEY, Mr Franklin, Consultant, Centre for Sleep Research, University of South Australia

CHAIR—We are now to receive a submission from the Centre for Sleep Research who have been called to the table. They will be represented today by Professor Drew Dawson, Mr Adam Fletcher and Mr Frank Hussey. Thank you, gentlemen, for coming. I would like to say on behalf of the committee and to all present what a fascinating and interesting time we had this morning at the Centre for Sleep Research. I do thank Professor Dawson and his staff for their great courtesy and helpfulness. I am sure it will provide a lot of background colour for the committee in their deliberations for this inquiry.

You were not here earlier today but I trust you understand that, while you are not required to take an oath, the committee hearings are legal proceedings of the parliament and warrant the same respect as proceedings of the House itself. The giving of false or misleading evidence is a serious matter and would be regarded as contempt of the parliament. Would you like to start now with a brief opening statement, Professor Dawson?

Prof. Dawson—Yes, thank you. I would like to summarise the submission that we have made to the inquiry. There are a number of key points which emerge from that submission. The first is that at the moment the way fatigue has been managed in Australia, in our opinion, is in need of substantive revision and, in particular, we think it is critically important that the distinction between hours of work and their contribution to fatigue as an industrial issue is separated from its basis. We believe it is an occupational health and safety issue.

I think that is probably the single biggest issue facing the management of fatigue in Australia at the moment and it would help, in our opinion, to resolve the major dilemma; that is, there is an emerging consensus in the courts that, under occupational health and safety law, an organisation—both employers and employees—has a duty of care to provide a safe system of work. Under that duty of care obligation, there is a dilemma that a number of organisations face; that is, they can schedule staff to work hours that are consistent, for example, with some of the department of transport requirements in some of the states, yet those constructions of shifts which are compliant with the department of transport regulations are clearly unsafe with respect to occupational health and safety law.

So at the moment we have this paradox whereby organisations are in a dilemma about what constitutes a legal and safe system of work with respect to hours of work and fatigue. What we would argue is that at the moment that fatigue is underrecognised as a cause of accidents and injuries in Australia. Some of the data we have presented in our submission indicates that somewhere between 20 per cent and 30 per cent of all road accidents in the heavy transport sector, according to international and Australian studies, are due to fatigue either as a primary or contributory cause.

We think that lack of understanding of fatigue is a major source of accident and injury in Australia. It is a critical issue. But we also think that, in order to manage fatigue in the industry, we do not need to reinvent the wheel. What we would suggest is that the provisions of occupational health and safety legislation in each jurisdiction in Australia have clear and binding regulations with respect to managing fatigue, primarily under the global provisions of health and safety legislation, which says that the employer has a duty of care to inform employees of the risks associated with an identified workplace hazard and has a duty of care to take all reasonable steps to inform employees of the risks and to minimise those risks.

We would argue that the currently existing legislation would provide an ideal framework to manage fatigue within the Australian transportation sector. We would also argue that at the moment fatigue is an underrecognised issue and, given that the consequences to the community are not dissimilar to the effects of alcohol, there should be a major initiative towards determining the social cost of fatigue and then allocating funds to reduce the costs associated with fatigue related accidents in a manner similar to what has been done for alcohol and speed. Australia has led the world in rewriting alcohol related impairment in the transport sector, particularly on the roads, and I think we now have an ideal opportunity to do that with respect to fatigue.

Fatigue is probably the last great untouched area creating impairment on not only the roads in Australia but also rail or aviation or transport. What we would like to see is a major initiative towards understanding the problems and developing techniques for lowering the social cost attributed to that. But first of all we need to define the social cost and then invest in a process of minimising those costs. We would see the newly created Australian Transport Safety Board as an ideal mechanism. It is cross-modal; it is new and does not have the baggage that many of the older transport department committees have. They would be an ideal group, in our opinion, to underlie the changes in legislation and in auditing and monitoring industry based initiatives in that area. That basically sums up the position we have.

Mr MURPHY—Professor, in your opening remarks you talked about fatigue being clearly underestimated. I would accept that. There was a study done by the New South Wales Roads and Traffic Authority in 1998 which suggested that only seven per cent of total accidents was attributable to driver fatigue. I find that astonishing because other research shows it is alcohol or drug related, but when you get information in those areas, too, it is not always clear. So what do you think this committee could do to strengthen what you are saying—that fatigue is underestimated—by getting the data that is required? I would agree with you that it is probably much higher but somehow or other the systems we have for gathering that information are inadequate. What do you think we could do to get the right information?

Prof. Dawson—I think there is a very clear strategy we can have. We need to collect that information, in the same way as WorkSafe Australia, as the National Occupational Safety and Health Commission, has developed a number of reporting mechanisms for collecting information on identified workplace hazards. Exactly the same process could be put into place. As we have stated in our submission, we have now developed software management systems for determining the fatigue associated with particular shift schedules or work practices. What we would argue is that the requirement to actually report the fatigue

scores associated with any occupational health and safety incident should be a stipulated part of health and safety reporting systems within organisations for whom shiftwork and fatigue are identifiable workplace hazards.

We would see that the setting up of a national database and setting up a set of guidelines for how organisations would report that data would enable us to accurately track that over time and into the future and start to make some very sensible, rational decisions about what levels of fatigue are associated with what social cost and what increase in the incidence of accidents and injuries.

Mr Hussey—I would add that the rail industry has made a start on that. There has been nothing conclusive to emerge at this stage but probably for the last 18 months certainly all serious rail incidents and, in some rail systems, incidents per se—for example, anything that has been reported that way—automatically carry an examination for fatigue of the staff involved. Their shifts over the last 14 days, for example, are examined to either identify or eliminate fatigue as a factor.

Mr McARTHUR—In your earlier discussions today informally with the committee, you suggested there may be a major problem with shiftworkers and truck drivers who operate from midnight until 6.00 a.m. or, more particularly, from 3.00 a.m. until 6.00 a.m., because of the biological shift. This committee also found similar evidence in their Ships of Shame inquiry; a number of the accidents occurred at that time of the 24-hour cycle. Given that there is a movement towards 24-hour shiftwork, with bigger industries and more capital intensive industries and also with the transport, what are you recommending to the committee on how we might overcome this fundamental human problem—that it is dangerous to operate from 3.00 a.m. until 6.00 a.m.?

Prof. Dawson—The key thing to understand is that, when we are reaping the benefits of 24-hour shift systems and the better capital utilisation, we also have to carry an awareness of what the economic and social costs are. In a sense we need to have full accounting. We suggest that any legislation or any regulation of hours of work that fails to consider the time of day at which shifts occur or the breaks between shifts occur, fails to acknowledge the biological and human aspects of shiftwork and therefore is likely to leave out those factors. What we have seen over the last 40 years of prescriptive hours legislation based merely on the duration of shifts or the duration of breaks is that they do not provide a mechanism for managing fatigue. The only way you can manage fatigue through a prescriptive hours system based on duration of shifts is, in the modern world, industrially restrictive. It makes it an untenable situation for organisations to maintain their competitiveness.

An effective way of managing fatigue in the workplace should encompass both the length of shifts, the time of day at which they occur and the particular context in which those shifts occur. So it may not be just the individual shifts that are managed; it should be the whole context of the shifts that surrounds that particular workplace. To say that we could eliminate night work is non-tenable in this day and age. But we can actually start to understand how fatigue impacts on performance and start to do what we call fatigue proof workplaces against the potential consequences of fatigue. The first step to doing that is to acknowledge the biological, social and psychological factors that determine fatigue in the workplaces.

Mr McARTHUR—What practical measures would you have, though, to encourage people who undertake this 'dangerous' shift? Is there some way in which they can work less hours if they are working from 3.00 a.m. until 6.00 a.m.? Since the legislators have had trouble in formulating a prescriptive answer, what would you recommend a practical answer to be?

Prof. Dawson—You are absolutely right; there are some complicated factors determining how fatigued people are. But I think the research has brought us to a point where there are certainly software based systems that enable us to plug in the hours of work and determine how tired a particular schedule will make people. What we need to do now is to start to shift our emphasis away from prescriptive hours towards a model that says, 'As an organisation you have a duty of care to provide a safe system of work. You sit down and think about fatigue and shiftwork and those issues and construct what we refer to as an operator formulated or an organisation formulated fatigue management plan.'

Then the role of the regulator should not be to specify the hours but to ensure that there has been due diligence exercised in the process of putting together a fatigue management plan. On that basis, we can have the flexibility to operate different levels of fatigue and different environments as appropriate.

At its most extreme we would argue that the level of fatigue that you would permit somebody operating a photocopier in an office would be fundamentally different to the level of fatigue for a pilot landing a jumbo jet at a busy airport. I think that is the problem with prescriptive hours legislation: this principle of one size fits all. I think what we need to do is move to a model where we say, 'Yes, we acknowledge that you need flexibility as an organisation but we also need to say that if we give you that flexibility you have a responsibility to exercise your duty of care to ensure that what you are proposing is subject to more than just the industrial argy-bargy of the commercial arena.'

Mr McARTHUR—So you think there will be a cost to the community and to the commercial organisations to manage fatigue and allow for that factor in their operations?

Prof. Dawson—On the contrary. I would say that in many cases the community and society is bearing the cost of the failure to manage fatigue.

Mr McARTHUR—So there is a cost but it is being transferred to the community, not to the organisation?

Prof. Dawson—I think that is very clear. The research would suggest that the amount of fatigue related accidents and injuries associated with the transport sector, perhaps particularly in the road transport sector, are costs that are differentially borne by the community. It would be reasonable to argue—and in fact we have done this in position papers before—that that constitutes an indirect subsidy to road transport relative to other modalities. If you wanted to draw a very long bow, you could argue that that is anti-competitive under the Hilmer legislation; that is, it is providing an indirect subsidy to one industry relative to the other. We have certainly put that argument forward. I am not sure everybody would agree with us, but I think it is a reasonable argument to make. If the taxpayer is picking up the costs of accidents and injuries in one sector relative to another then it is an indirect subsidy.

CHAIR—Should it perhaps be linked to quality assurance? I know it is not quality assurance per se but we now insist on just about every industry having quality assurance. If you want to participate in government contracts, you must be quality assured to various levels and standards. If the matter of fatigue was a dimension of that, or a parallel type of requirement, then you just could not bid for government contracts or a lot of firms would perhaps not look at you unless you had that fatigue management plan as part of your company or your business structure. What do you think of that, or some idea like that?

Mr Hussey—I think it is certainly an option. I know that National Rail, which is a quality accredited company in the rail industry, certainly has its fatigue management procedures as part of its quality documentation and therefore subject to the audit process. That certainly is an option. However, I think it needs to move beyond the area of self-regulation. I do not think we can avoid the fact that there needs to be some area of regulation which needs, at the very least, to point to the fact that, either in the quality assurance process or in the occupational health and safety process, there needs to be some recognisable fatigue management component. I think the CASA draft regulations do this. I think they say, 'We will want to see that you have a fatigue management program. We will want to see that you are routinely reporting the hours of airline pilots. We will want to see that there is a collaborative approach taken to the formation of pilot and flight crew rosters.' I think that is a way forward.

Mr Fletcher—As a step before that, a lot of organisations are not even acknowledging that fatigue is a big problem and, until it is actually defined clearly as an OH&S problem or as an OH&S challenge, there are not really any steps that can be taken to say it needs to be addressed under that sort of position. If shiftwork and fatigue can be clearly defined to come under OH&S, then there is a clear path that people can follow in a risk management sense to actually address those issues. But a lot of people still do not acknowledge that it is the problem that it is.

Prof. Dawson—If it is defined as a health and safety issue, then having a safe system of work is part of the quality assurance process under ISO9000 and ISO9002 and all of those. So once it is defined as a specific occupational health and safety issue there is a whole mechanism in every organisation which would then automatically have to kick in. Insurance underwriters and a whole range of other organisations or government instrumentalities that a company would have to deal with would therefore start to look at those sorts of issues. That is why we think that by placing it as a health and safety issue it will automatically be subsumed under quality assurance protocols, both nationally and internationally.

Mr St CLAIR—We have asked this before today, but how do you then control the out-of-hours fatigue? If you are going to bring in prescriptive legislation and regulation—and we are overlegislated and overregulated now, I believe—how do you bring that into play? And where do you bring it in?

Prof. Dawson—It is a very thorny issue. I think the strategy that we have taken is that under occupational health and safety law the employee has a duty of care to turn up fit for work and to exercise their responsibilities, et cetera. What we would argue is that there is a shared responsibility model here: the employer has a duty of care to provide a safe system of

work and, given that they have done that, the employee has a duty of care to utilise the time off that they have been allocated in a safe and sensible manner.

The way that we have operationalised that in the organisations we have worked with so far is to say, with regard to what we euphemistically refer to as non-work related fatigue or causes of fatigue, 'As an employee you have a duty of care to deal with those issues and the employer's role is to provide training and education so that you understand the issues, that you are aware of the determinants of fatigue—that is, staying up all night on the turps and then cruising up to work, or staying up with a sick child. It is about understanding the potential implications of fatigue for your performance.'

One of things we have found to be enormously successful is to work with the wives and partners of many of the men working in the transport sector. Those women have a much better understanding of what we refer to as lifetime earnings as distinct from weekly earnings. The risk to their partner and to their financial security is often a very important driving force. If you want people to make good decisions, they have to have good information. That is why most of the organisations we have worked with will also implement training and education.

Again, this comes back to the Health and Safety Act. Once something is an identified workplace hazard, you must take a training and education approach to that issue. You have to inform employees as to the risks and take all reasonable steps to provide them with access to methods of mitigating or reducing that risk. Again, the training and education programs that the rail industry has worked with—but also aviation and road transport—we think are a critical point. However, the point that I would like to make is that they must be meaningful, not as we see in some of the transitional fatigue management programs where, provided your staff do a 'tick and flick' three-hour course, they can then go back to working whatever hours they used to work in the past. That is not meaningful; that is people satisfying a requirement in order to be able to extend their hours of operation and that does not actually carry through into any sort of change.

Mr St CLAIR—In New South Wales there are certain very graphic ads for the public on fatigue management, as you probably know. What is your view on those? I come from a rural electorate, right in the middle of a fatigue zone midway between Sydney and Brisbane, on the New England Highway. Quite often, anecdotally, we see people come out of the city on Friday night, they have finished a whole day of work, they have stuck the kids in the van and they suddenly drive at 100 kilometres an hour where they have driven during the week at 60 kilometres an hour maximum, or have been in the train all week and they drive for five hours and they die. How do you get around that?

Prof. Dawson—I would draw parallels with the way that we have changed alcohol related behaviour in the community. There is no reason to assume that what we have achieved with alcohol cannot be achieved with fatigue. I think it is about people understanding what the risks are. One of the things we have found quite interesting is that when we actually have people in the lab and they realise how bad their performance is—and this is echoed again not by our work but by other people who have worked in simulated studies—when they actually start to think it through and are honest about it, they say, 'Yes, it is a problem.' I think in the same way as we have created a social stigma against driving

under the influence of alcohol, it is not unreasonable that in the same 10- to 15-year cycle we could create the same approach.

For example, in Victoria I have done a lot of work for the fatigue management program and they have found in working with community groups that the comparison of the effects of fatigue and alcohol has been riveting in terms of the community groups they are working with. Once people understand that the effects of fatigue are almost identical to the effects of alcohol, then people stop and say, 'Gee, I wouldn't drive under the influence of alcohol. Maybe I need to think about fatigue.'

Mr Hussey—So if partner A is too fatigued then partner B assumes the driving responsibilities. I think there is an acceptance of that community-wise with alcohol. I just wanted to make the point too, Stuart, on your earlier question, that it is important to create a blame free culture when we are dealing with non-work related fatigue. It should be just as acceptable for an employee to ring up and not report for duty because they are fatigued as it is because they have eaten something and they have got a stomach upset or they have a virus. We need to create that sort of attitude and create the opportunity for people to deal with fatigue in that way. Obviously repeated and patterned absences due to fatigue—or anything else—would require management intervention. But I think that blame free culture is a way of dealing with non-work related fatigue. Everybody gets themselves into a situation of fatigue for all sorts of reasons—sick children interrupting sleep, day or night, et cetera—and I think that is an important aspect.

Mr St CLAIR—Or like sunburn, if you do not put the protection on—it is that excuse.

Mr Hussey—Yes, it is self-inflicted.

Mr Fletcher—I think the awareness is becoming a lot stronger. There is a lot of research, particularly coming out of the UK, looking at driving behaviours and self-awareness of sleepiness and likelihood of accidents. Some of the results of those studies are quite surprising in that people are very aware when they are really tired to the point that they are fighting sleep, but they do not necessarily associate that with a high chance of having an accident. Then when they have accidents they start to realise that link exists. Although there are a lot of issues relating to simulators versus real world—the concept that people are not that aware that being really tired constitutes quite a large risk of having an accident seems to suggest there are a lot of awareness and education issues similar to those required for alcohol that need to be brought up for fatigue and sleepiness.

Mr Hussey—In fact, fatigue is probably a bit easier. Most people will admit, 'I'm fatigued; I'm not going to be any good at driving,' whereas with alcohol they tend to say, 'I'll be okay. I drive a bit better when I'm half cut.'

Mr St CLAIR—Yes. I have never seen it yet!

Mr Hussey—No, because it is not a scientific fact.

Mr St CLAIR—But certainly even for members of parliament, particularly federal parliament where you come from big electorates, as I do and many of my colleagues do—

and others come from vastly bigger ones—you are driving anywhere between 400, 600 or 700 kilometres a day, every day, seven days a week.

Prof. Dawson—In fact, there have been several fatigue related accidents amongst parliamentarians, as I am aware.

Mr St CLAIR—Absolutely. I am just not sure how you manage that.

Mr GIBBONS—Just getting back to community awareness, how would you see that happening? In Victoria, for example, we have very graphic, quite horrible Traffic Accident Commission television commercials. Would we need to do something that extreme to try to get the message out, or is there another way of doing it?

Prof. Dawson—The point we would make is that we are not experts in how to change community attitudes. What we have certainly experienced in our work with a number of organisations and community groups is that once people understand the issue, we seem to get change. In fact, research that has been done in Australia, up on the north-west coast, shows that the best predictor of whether somebody treats fatigue as a serious issue—as a commercial truck driver—is whether they have had a serious, near miss incident where they almost died. That, in a sense, is very instructive and I think we have all been through that. I have driven too many hours and all of those things. We are all our own worst enemies in that sense.

If the people who are expert in community attitude change research were to approach the issue and if there were sufficient funds to do that, I think what has been done for alcohol would be eminently achievable for fatigue. In fact, I do not think it would be quite as expensive because drinking alcohol has a lot more benefits to it than getting tired in many cases, so we do not have to reverse the positives as well as emphasise the negatives. I would envisage a community based education and training program featuring a whole range of things, right down to fundamental parts of driver education.

For example, one of the things that strikes me as very interesting is that driver education, particularly in young and novice drivers, does not really address that issue in any meaningful way as part of the licence acquisition process, yet who is it that spends most time driving late at night outside of the workplace? It is young people between 18 and 25. Yet there is a prime group who are, as we said earlier today, both playing football and drinking and driving and staying up late.

Mr GIBBONS—On a bit further, one of the more gripping parts of those commercials is the penalties. You will see there is a film of booze buses and what happens when you go in there. It would be very hard to try to introduce penalties for people who are suffering from fatigue when they are driving, don't you think?

Prof. Dawson—On the contrary. The courts are placing enormous penalties every day of the week and there have been several fines placed on both drivers and organisations in the last couple of years by WorkCover in Victoria, primarily of $200,000 to $400,000. Loss of licence turns out to be clearly the most effective way of altering those sorts of behaviours in young groups. I would argue that the courts at the moment are significantly penalising

organisations and drivers and there is no reason why not. There was a recent court case over in Sale that I have been involved with where an individual was going on a long drive late at night and was a bit anxious about doing it, so decided to take a couple of sleeping tablets to relax. Not surprisingly, they fell asleep at the wheel and a three-year-old girl was killed, amongst many others. This person is now shaking their head and saying, 'Why is everybody giving me such a hard time?'

I think the community perspective has now reached the point where fatigue is no longer viewed as a 'You know, well, those things happen.' It is a predictable and understandable phenomenon, particularly in hours of work. If you are going to work 72 hours a week in the road transport sector, there are ways of putting 72 hours a week together that are clearly unsafe. The courts are consistently arguing to those organisations, 'We know it is within the guidelines but it is clearly unsafe and you need to manage that.'

Mr MURPHY—Professor Dawson, overwhelmingly today the evidence that we have gathered identifies the transport industry as being driven by the economic imperatives—and no pun is intended there. Can you picture a day where the economic imperatives are secondary to the health and safety issues in the transport industry? Will health and safety ever come first and the economic arguments come second?

Prof. Dawson—Again I draw the parallel that 15 years ago we were all legends in our own lunchtime, as the expression runs, and having a few drinks at lunch was no big deal. On the other hand, 15 years later you look at that now and the idea of a three martini lunch is reprehensible. In the rail industry coming to work and having a few drinks was no big deal. But 15 years down the path you would no more do that than fly to the moon. So I think I can see a day where community attitudes move to the point where we say it is not acceptable for somebody to be operating in the transport environment when their performance is impaired. Whether that impairment is due to fatigue, alcohol or any other cause is essentially irrelevant. What we are interested in is making sure the driver in the seat is fully alert and can do the job as well as possible.

Our experience has been that when organisations start to work out what fatigued drivers cost them in the long run, they get a very rude shock. It is costing them millions of dollars. I think increasingly litigious societies are starting to emphasise that We see insurance companies coming to us and saying, 'Could we put an argument to not pay out on that insurance claim because that person's hours of work were completely outrageous?' And the answer to that is, 'Yes.' That is where we are starting to see the changes. To be a bit flippant here, what we will see is that the economic imperatives will guide the economic imperatives.

Coles Myer, for example, are looking at their obligations under vicarious liability for hiring a trucking company and saying, 'We want you to get that product from Melbourne to Sydney in six hours.' They know that cannot be done safely. What their risk managers, working under economic imperatives, are coming to them and saying is, 'You need to think very carefully about that because while Ma and Pa Transport Company don't have very big pockets in terms of litigation, you do. You'll become the target in that sort of action.' That is what we are starting to see around Australia at the moment. That was the initial dilemma I referred to, between hours of work that departments of transport sanction and what

constitutes a safe system of work under health and safety legislation. We need to resolve that paradox, if only to give some guidance to the industry.

Mr Hussey—In the rail industry, where I have some experience, the old government rail systems were all self-insurers but that is no longer the case. One of the effects of privatisation is that they now have to pay for insurance. So I assure you a healthy and safe workplace is very much an economic imperative in the privatised rail system.

Mr JULL—How much money is spent on alcohol research and advertising in Australia?

Prof. Dawson—I could not give you the exact figures on that but my understanding is it is several million dollars a year.

Mr JULL—How much is spent on fatigue research?

Prof. Dawson—Very little. Our estimate is that we have, in terms of government funded research, one small grant from the Australian Research Council looking at a comparison of the effects of fatigue and alcohol. Up until a couple of years ago WorkSafe had initiated some research but the extramural research program at WorkSafe has had its budget reprofiled, so they are now doing no research in that area. As I understand, the federal Office of Road Safety has a small project with Ann Williamson in the order of some $60,000 or $70,000 a year.

In terms of public education stuff, there has not been a lot. On the other hand, some of the industries we have worked with have tried to put together consortia to try and work on this problem and have put some industry funds into it. But as I alluded to this morning, one of the big difficulties is that nexus between the industry and government. At the moment individual companies are contributing to it but what an individual organisation and company can do, particularly in road transport, is very little. On the other hand, we would argue that a capitation model whereby the industry and government work together to actually develop these programs is the way forward.

We have been talking about these sorts of issues but it would seem to us that research expenditure in the order of $10 million over five years should be able to produce exactly the same results as have been achieved for alcohol related research. That would be approximately half the budget as far as we can determine. One of the difficulties is that it has been impossible for us to determine what research has been one. Laurence Hartley's group has done a little bit but that has mainly been in the policy area. There are little fragments but there is no national coordinated research centre.

Certainly the Australian Research Council Key Centre for Human Factors, which we are a part of, has all of the fatigue researchers in the country in it—that is all three of us—and in the long run we believe the Australian Transport Safety Board and some of the expert practitioners in the area should actually work together. I do not think it should be run by the government bureaucracy and neither do I think the money should be handed out in an unaccountable way, as we have with many research grants in the past, because neither of those produces a good outcome.

I have been a very firm advocate in the last couple of years, having worked with industries, that the old tripartite model where industry, government and the university sector working together has actually produced some pretty stunning successes in terms of research that is both practical when applied to the industry and produces quite short and medium-term benefits as well as the longer term theoretical benefits.

Mr JULL—Adam Fletcher made reference to some study that had been done in Great Britain. How does our work here stack up against what is being done overseas? Can you give us any indication of what has been done overseas and to what extent that work is taken seriously?

Prof. Dawson—We can be quite proud in Australia because we are leading the way in what we call second-wave fatigue research. That is to say, 'Yes, we acknowledge it's a problem. What we need to help to develop is tools for determining the cost and managing the problem.' A lot of the research in the last 20 years has been focused primarily on identifying fatigue as a problem and getting people to understand that. What we have found is that we have a constant stream of people from the transport sector internationally coming to visit us at the centre because we have now moved on to fatigue management and policy research. So Australia should be quite proud in the sense that we are now leading the world in terms of that second-wave research.

If you compare spending in the US or Europe to what is spent here, they would probably spend 10 to 100 times more per capita. The US has probably the largest expenditure—probably $100 per dollar per capita. The UK is at the lower end and Europe, particularly the European Union, is probably midway between those two. But there is no doubt that the per capita GDP related expenditure on fatigue research in Australia is right at the bottom, down along with Africa, India and some of those countries.

We have not had a large research community in that area and it is only in the last three to five years that the industry support is starting to bring us to the point where we have critical mass in a couple of the research centres. In the next five years a joint initiative that involved the regulators, the industry sectors, the government and the universities together is the way we could actually achieve some very cost competitive outcomes. Most of the research from our group has shown that the benefits to organisations are somewhere in the order of $5 to $10 in cost reductions for every dollar they spend. That is a better return on investment than anyone is getting on the share market at the moment.

Mr Fletcher—Something else worth noting is that a lot of the overseas research has been either military or laboratory based. We are now trying to get applied research happening so we can understand how that impacts on the real world. We have gained huge amounts of knowledge out of the military and laboratory based studies. But in order to get real value, particularly from a community and economic sense, we need to actually make sure the tools we are developing are useful in the real world and that at least some of the research we do occurs at that level so we can get a better understanding of the big picture of the impacts. It is not really coming from those other sources.

Mr JULL—Does the Australian military use you?

Mr Fletcher—We have worked with the Royal Australian Air Force in the last year or two but not significantly with the forces in general.

Prof. Dawson—I have done some work with the people at the Collins class submarines but they have some other problems at the moment.

CHAIR—In the submission by the Fremantle Pilots they said your fatigue management software was adapted to monitor the work undertaken by marine pilots but was designed to protect the employer rather than determine the pilot's true level of fatigue.

Prof. Dawson—That raises an issue that is not unique to the marine pilots. One of the important things to understand is that the software we developed, while it takes into account time of day and all of those things, can still be used in inappropriate ways. One of the things we have been working on with the rail industry is to set up a national industry based committee to determine the guidelines on how those fatigue management systems should actually be used in practice, dealing with the specific issues related to that industry. We have seen examples in the rail industry where people have used fatigue modelling where it suits management.

As we were saying earlier today in some discussions, in an industry where people have been banging each other over the head for 20 years, if you give them a different tool they may just continue to use it to bang each other over the head. The point we would like to make is that by using fatigue management approaches, such as we have developed, we have the opportunity for rational discussion of these issues. That is where, for example, we would see agencies like the Australian Transportation Safety Board being fundamental mechanisms in trying to develop industry based guidelines for those sorts of approaches, so that the marine pilots can work in conjunction with the employers.

We are working with Brisbane marine pilots, the Townsville pilots, the ports corporation and Adsteam on industry based projects where they are saying, 'Okay, let's sit down and work in a consultative way to develop a set of guidelines that actually enable us to meet our operational requirements plus our social and other requirements.'

CHAIR—You provide the software but you are not necessarily given the opportunity of scrutinising the inputting of data. Have you ever been invited by one of those organisations—or, for that matter, by the Fremantle Pilots—to audit the input mechanisms?

Prof. Dawson—In many of the organisations we work with, the fatigue software is only part of a tool kit of approaches. As part of our public domain requirements of our funding, some of those tools have been made available on the Internet. They have been downloaded by organisations and used without involving us. I think that is just part of a difficulty that emerges. One of the things we would see as the role of the regulator is to move away from prescriptive hours rules to saying, 'This is how you should go through a fatigue management process of which fatigue management software may be part of the armament that you would use.' We are a small group; there are five or six of us working in a reasonably research based environment rather than a large consultancy. It becomes very difficult to service what is a mushrooming need at the moment.

CHAIR—I made the statement this morning and you corrected me—and probably quite rightly so—that we have done a lot of work in the field of alcohol and speed and seat belts and interior vehicle design and that sort of thing but we do not have any method of measuring fatigue. You said you disagreed with me. Would you like to very briefly state how you measure it?

Prof. Dawson—Over the last three years we have been involved with the rail industry and a number of other industries, including mining, which have been very interested in this dichotomy we talked about earlier—the relationship between work and non-work related fatigue. How do you know, when somebody turns up for work, that they have actually used their time off well? The general notion of fitness for work testing has emerged over the last couple of years in Australia but that has been primarily focused on drug and alcohol testing. Research by ourselves and others has clearly demonstrated that fatigue related impairment is much more likely to be the cause of impairment in the workplace. So what we have been working on is a way of measuring impairment in the workplace that is sensitive to drugs, alcohol and fatigue. In conjunction with a company in Perth called Romteck we have developed in a sense a video game hand-eye coordination task that several of you experienced today, which enables us to measure your performance relative to your normal historical performance. That will tell us whether you are under the influence of fatigue, drugs or alcohol. The idea behind that is that rather than random drug screening, which in many cases does not work very well, what we have found is that computer based performance testing in workplaces can be carried out on every individual at the start of every shift from the bottom of the organisation through to the top.

What has been very clear from the organisations that have adapted that approach is that yes, it is sensitive to fatigue, alcohol and drugs. Most importantly, it takes—again, what Frank was talking about—the no-blame approach: 'We know that you're impaired but we don't care why,' and we get away from many of the industrial problems associated with what the source of impairment is. 'So we don't care whether you have smoked marijuana or drunk alcohol or taken speed or whatever it is, you are impaired and shouldn't be at work.'

The point that has emerged is that industrially that approach has much more acceptance to the unions. It gets away from a lot of the problems we have with drug and alcohol testing in different jurisdictions in Australia; for example, in South Australia and Canberra where marijuana consumption is a summary offence rather than a criminal offence. In many cases where the correlation between impairment and a positive in a drug test is very low—for example, with cannabis testing—all we know is that you have smoked cannabis in the last four to six weeks. We do not know whether you are impaired or not. There have been a number of legal challenges to these drug and alcohol testing procedures.

On the other hand, performance based testing is always sensitive to whether you are impaired. What it does not tell us is why. In our experience in a blame-free culture, knowing that an individual is impaired is absolutely critical. Knowing why they are impaired is actually irrelevant and can lead to a lot of mistrust and distrust over the time. So we have been advocating what we call a performance based approach to determining and measuring fatigue in the workplace.

CHAIR—On that note, regrettably we have to bring this segment to an end. Once again I would like to thank you for your assistance this morning and for the excellent evidence you have given this afternoon. If we have any follow-up—and I conceivably see a situation where we may need some follow-up—if we write to you, would you respond in like kind? Perhaps we could even bring you to Canberra if we want to round off some of this towards the end of the inquiry.

Prof. Dawson—Certainly.

CHAIR—I have not discussed this with my colleagues yet but I would like to ask, in anticipation, if we wanted to use some of your graphs or some atypical graphs in our report, would you be prepared to make them available?

Prof. Dawson—They are all in the public domain and funded by the Australian government so they are very accessible.

CHAIR—Thank you very much. You will get a copy of the *Hansard* draft which will also be available on the parliamentary web site.

[4.19 p.m.]

IDE, Mr Robin Bruce, Project Manager, Transport SA

CHAIR—Mr Ide, I welcome you to the committee meeting. As I said in my opening comments this morning, it is probably appropriate that we should have commenced our public hearings in Adelaide because some of the best work in the management of fatigue is obviously taking place in this state. We would like to probe that information and work it into our inquiry as we go along. I am sure I do not have to caution you but you would be aware that these hearings are legal proceedings of the parliament and that any false or misleading evidence is considered a contempt of the parliament. If you should have to use any proper names or quotations, would you refer them to Hansard before you leave. Would you like to start with a short opening statement?

Mr Ide—Yes, thank you. There are three or four key points I would like to highlight from the South Australian submission. The first of those is that the transport industry is characterised by long hours of work and monotony in the task. We have heard previously about the commercial pressures and that is something that is discussed at some length in the South Australian submission. The other comment is that in remote areas we are aware of the limited opportunities for changing over operators. That is regardless of whether we are talking about the road system or the rail system.

The submission also highlights the difficulty of or the lack of tools available to authorities at the moment in the detection of fatigue and the difficulty of collecting data. There is reference in there to some other work which makes an estimate of up to 60 per cent of road crashes being at least partly as a result of fatigue. In some work done in South Australia recently, relating to development of a compliance strategy, it was found that enforcement officers believe fatigue is a problem and it is the single most significant problem that faces them. But the evidence they have of fatigue as an issue is largely circumstantial. They referred to the difficulty in measurement of fatigue. Apart from anything else, in the case of an incident or an accident, people do not admit to being fatigued.

The paper then talks about some initiatives in South Australia. The first area is the observation that several rail operators have put in place some management systems that manage the issue of fatigue but there is a perception that they are not on the same footing as either other operators or the road transport system by virtue of that management and they are therefore disadvantaged. In the marine area, it is quite clear that there is further work needed on the effects of sleep patterns and what that does to work performance.

The hours of driving on the roads is prescribed and in South Australia we have recently seen the move towards an emphasis on hours of work as distinct from hours of driving. That is in legislation that is with the House at the moment. It is signalling the sorts of moves that are happening as a result of some of the road transport reform measures that come out of the work of the National Road Transport Commission. The first step is the transitional fatigue management facility that has not previously been available in South Australia and the important point that relates to tightening up the chain of responsibility. But there is, of course, no legislative requirement for management of fatigue in light vehicles.

The submission talks about the recent coronial inquiry and the recommendations of the coroner. There is some information that I have provided to the inquiry that sets out some of the concerns of the South Australian government that came out of that coronial inquiry. Some of those comments relate to the inadequacy of the logbook system and the regulated hours system. So South Australia is saying very emphatically that the management of fatigue needs to move beyond the logbook and the regulated system to have a chance of being effective.

The revised regime that South Australia supports is outlined on page 7 of the submission. The key points there are that transport operators recognise that effective fatigue management starts with them; acceptance of practical, industry based alternative compliance or quality assurance schemes that are subject to audit; and greater responsibility accepted by drivers and owners in meeting due diligence and duty of care obligations. Given that those things might be possible, that provides the opportunity for enforcement efforts to be targeted to those operators that operate outside the alternative compliance or accredited schemes. The final point relates to the possibility of using some high technology developments that are being researched at the moment by road authorities around Australia.

On the final page of the submission there is mention of the issues that came out of the recent coronial inquiry in South Australia. One of the issues there is the matter of the system of payment for drivers and the strong incentives that represents for driving long hours and for breaking the law. The final point mentioned is the need for a link with the occupational health, safety and welfare legislation and the note there that South Australia has recently set up a process which is to do with interagency monitoring of work practices. The two agencies—the one responsible for the occupational health and safety legislation and also the transport agency—are working a bit closer together, looking at the outcome that is all about management of fatigue in transport.

CHAIR—What do you take to be ‘maritime’ in the South Australian context—what sectors of the marine industry?

Mr Ide—It is the mariners themselves—the people on board ship. That is what the reference in the submission refers to, primarily.

CHAIR—You mention seafarers on page 5 of your submission, in the second-last paragraph under ‘Marine initiatives’, and that there is evidence based on Parker’s report on sleep deprivation amongst pilots and engineers. I would like to pursue that. How are pilots organised in South Australia? Have they been privatised into corporate groups?

Mr Ide—I would need to take that on notice. I am not clear on the exact arrangements for that.

CHAIR—Are they still controlled by the South Australian government?

Mr Ide—Yes.

CHAIR—Either in a corporatised or organisational structure.

Mr Ide—Yes.

CHAIR—We would like your views on that. We had evidence this morning that the West Australian government has corporatised the port authority of Fremantle and it in turn has privatised the pilot service. We would be interested to know what the structure is in South Australia and whether you are applying in the marine sense the same rigours that are being applied on the roads. Could you give us a bit of a feel for that?

Mr Ide—Yes.

CHAIR—We would appreciate that, if you would. In regard to accident investigation, what method of assessment do you use? Do you have an accident assessment unit within your road safety organisation? Do they probe all accidents or a cross-section of them?

Mr Ide—Certain accidents. The routine investigation procedure is carried out by police. We have a specialist group that investigates those accidents.

CHAIR—A specialist unit within the police force?

Mr Ide—Yes.

CHAIR—Is fatigue one of the questions that is asked, or one of the assessments that is carried out in regard to that general inquiry into an accident?

Mr Ide—My understanding is that where there is some suspicion that fatigue might be involved, on an individual basis there will be a follow-up of fatigue issues, possibly involving expert advice from other areas.

CHAIR—Do you have any statistical data available that we could look at on this?

Mr Ide—I am not aware of any.

CHAIR—Could you check for us?

Mr Ide—Yes.

CHAIR—Could you give us a bit of a pro forma on what happens in regard to accident investigation and if there are any statistics available on accidents in South Australia—mainly road and road transport in particular—where fatigue has been determined to be an issue.

Mr Ide—Yes.

Mr JULL—I noticed in the submission there was quite a deal of reference to the 'drowsy drivers die' campaign which was specifically targeted in rural areas. That has been run over a couple of years?

Mr Ide—Yes.

Mr JULL—How effective has that been? Have there been any results on whether or not it worked? What sort of money did you have to spend to get the message through?

Mr Ide—I do not have that information available but I could get that.

Mr JULL—Yes, if you could, thank you.

Mr St CLAIR—Do you know whether it was rural people who died, Mr Ide, or was it city people travelling out of the city? I have asked this question, as you probably know, before.

Mr Ide—I am aware in a general way that it was a mixture of both. It is not one or the other.

Mr St CLAIR—So fatigue rather than road conditions rurally?

Mr Ide—Yes, the emphasis was on fatigue. That program was targeted, as the submission says, at particular times—holiday periods and times when people were travelling en masse interstate, so in that sense it was targeted at city people. But an important part of the message was that this is not just an issue for city people, it is something that at times is overlooked by rural people.

CHAIR—Do you have a very extensive driver reviver program here or something similar, where at weekends roadside stalls are manned and so on?

Mr Ide—There is a program. It is a little bit ad hoc in that for a good few years it has been driven more by the local safety committees in the regional areas. It is only in the last year or so that it has had a little bit more focus in the sense of coordination statewide.

CHAIR—Does the state government transport department have umbrella control, or is it just a subsidy/support thing?

Mr Ide—The support is sometimes in kind but not so much in any other form. The state government Transport SA people have been involved in providing sites and some of the infrastructure but it is not supported more actively than that.

Mr McARTHUR—Do you think there is a culture in South Australia that because it is a bigger state there are a number of accidents on country roads? I notice in your submission you refer to that, so that people may be more aware in this state that fatigue related accidents are a fact of life?

Mr Ide—There is a culture that they are a fact of life. I have heard of the culture that says, 'I can drive many hours a day and that's something that I can do because I live in remote areas. I will drive from the far north in one hit.'

Mr McARTHUR—Are they aware of the accident potential of all that?

Mr Ide—I suspect not. There is a bit of an issue for South Australia because we are surrounded on two sides by jurisdictions that do not have a regulated hours of driving arrangement.

Mr McARTHUR—I notice you have tabled a letter between your minister and the federal minister in relation to an horrific accident. What would you suggest the role of the Commonwealth might be in this whole problem of road laws, fatigue, driving logbooks and all that sort of paraphernalia? Do you think South Australia and the Commonwealth could come to some agreeable outcome?

Mr Ide—One of the issues in the letter related to the payment system for drivers. That is difficult to resolve because there are some other forces driving that. I think there is more scope for bringing together the occupational health and safety arrangements and giving that sort of legislation more effect in the operation of the transport system and the road system in particular.

Mr McARTHUR—Why would you not be the leader of all the other states in how to handle this problem of fatigue and then the Commonwealth might follow your lead? What about that for a suggestion? You have the research centre here, you have the professor, you have everything going for you.

Mr Ide—Yes. I think there are some difficulties in being effective because of the need for some sort of detection, enforcement, in the on-road environment.

Mr McARTHUR—So you would be advocating a national system rather than a state-by-state system?

CHAIR—Main roads are essentially, apart from the national highway, the prerogative of the states. I do not think what Mr McArthur is proposing can work without a great deal of input from the states.

Mr Ide—Certainly.

Mr McARTHUR—The carriage of dangerous chemicals was something the Commonwealth managed to persuade the states to come to a common agreement about with them. That was moving dangerous chemicals from Brisbane to Perth. Do you think we might develop a similar set of arrangements on the debate about fatigue management?

Mr Ide—I think the states and the Commonwealth are heading in that direction in the sense of the measures that have been put in place, moving from the regulated system to the fatigue management approach, which is about being a bit more responsive to the different conditions nationally—and they do differ widely across the country.

CHAIR—If a company is doing contract work of one sort or another for the South Australian government, do you require quality assurance?

Mr Ide—Generally, yes.

CHAIR—What do you think of the prospect of fatigue management programs being linked to quality assurance as a compulsory dimension of it? In other words, a transport company that might have complied with the technical requirements of quality assurance but did not have a fatigue management program would not be able to do state government work.

Mr Ide—It is not something that has been canvassed, that I am aware of, in South Australia at this stage.

CHAIR—We have talked a lot about the various modes of transport themselves—the drivers or operators or pilots—but what is Transport SA's experience of the servicing of vehicles? Are you happy with the quality assurance in the workshops? Are the mechanics placed under unrealistic deadlines in getting vehicles back on the road, servicing vehicles? Or are vehicles going out on the road unserviced? Does your interest in the matter of fatigue stop purely with the on-road or on-rail or on-water experience or does it go into the workshops? We have received evidence, for example, that one of the problems in aviation is that the engineers who service some of our aircraft are put under unrealistic pressure. Fatigue is a consequence and that can be just as dangerous to the aircraft as having a fatigued pilot in the cockpit.

Mr Ide—Yes.

CHAIR—Has your assessment of fatigue gone into the workshops?

Mr Ide—Not at anything like the same level as it has for the vehicle operators. We are certainly aware of it in the preparation of the South Australian submission, especially in the context of the management of roadworthiness of road vehicles, because in South Australia we have a large number of vehicles where the roadworthiness is managed by the operators. So it is a quality system for them.

CHAIR—It is not annual?

Mr Ide—It is a self-managed system which is an alternative to annual inspections but it is audited by the agency. So it is not open slather for the operators.

CHAIR—You do not spot audit that at all?

Mr Ide—Yes. It is a quality assurance type of system. In implementing that we are very much aware that, for some operators, one of the reasons for taking that up so enthusiastically is that they can manage their maintenance of a high-utilisation road fleet. For example, they might do the maintenance all at night or during hours that are way different from what it would be if they were coming in for an annual check which is constrained between 7.30 and 4.30 or whatever time the government inspection station operates. So that puts a different complexion on it. But we have had no cause to follow down the chain. It is not accommodated in the driving hours legislation and it is picked up in the new legislation in the sense of the accountability chain.

Mr St CLAIR—You said in your submission that a move beyond logbooks and regulated hours is essential for possible further fatigue management. How is this to be

achieved? What role do you see the Commonwealth and the state having if self-regulation approaches were adopted for logbooks?

Mr Ide—The path that South Australia has embarked on at this stage is that which comes out of the road transport reform process driven by the NRTC. The first stage of that is some different legislation which accommodates, first of all, the transitional fatigue management system and ultimately a fully-fledged quality assurance approach to management of fatigue which is beyond the prescriptive. It might have some general boundaries around it but it does not rely on 12 hours or 14 hours or whatever it might be.

Mr St CLAIR—Do you have heavy-vehicle monitoring stations in South Australia where the photos are taken?

Mr Ide—We do not have those.

Mr St CLAIR—Is there any move in South Australia to look at that as a way of monitoring movements of vehicles?

Mr Ide—There are currently a couple of initiatives going on in South Australia to look at that and see whether there is scope for either that technology or some other technology to be used.

Mr St CLAIR—Because the flexibility of it is quite extraordinary when you think that things are set up there to identify the size of a heavy vehicle to go through, as you know, but you also notice sometimes—for those of us who drive through them—that they also pick up cars on some days. So obviously there is a monitoring system in there. I just wondered whether you would see that as something that spreads across the nation.

Mr Ide—We are looking at that in a couple of ways at the moment. That is one type of technology. There are other possibilities as well. There may be some other ways of doing it. That technology has been around for a little while now.

CHAIR—Thank you, Mr Ide, for coming in today. We appreciate that. With regard to that letter to Mr Anderson, we will treat that as correspondence for the time being. After his permission has been sought we will discuss giving it some other status. You will receive a draft of the *Hansard* transcript. That information is also available on the parliamentary web site.

Mr Ide—Thank you.

Resolved (on motion by **Mr St Clair**, seconded by **Mr McArthur**)

That this committee authorises the broadcast of this public hearing and the publication of the evidence given before it this day.

CHAIR—I would like to thank all those who have been here today as witnesses and as members of the public gallery, members of the press and Hansard. Once again, thank you to Professor Dawson. I declare this public hearing closed.

Committee adjourned at 4.50 p.m.