CORRECTED TRANSCRIPT

RURAL AND REGIONAL SERVICES AND DEVELOPMENT COMMITTEE

Inquiry into cause of fatality and injury on Victorian farms

Melbourne — 21 January 2004

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Witness

Mr K. Breen, Director of Marine and Automotive Research, Engineering Systems Inc., Florida, United States of America (sworn).
Welcome, Kevin. Could you please provide us with your full name and address?

Mr BREEN — My name is Kevin C. Breen. My business address is 15951 McGregor Boulevard, Fort Miers, Florida, United States.

The CHAIR — Thank you. Are you representing an organisation today or are you in an individual capacity?

Mr BREEN — I am here as an employee of the company I work for, Engineering Systems. I am the director of marine and automotive research. I am here providing some information that I have gathered as a result of some work that my company has done for various members in the ATV industry in the last year.

The CHAIR — Thank you. The evidence you provide today will be taken down and become public evidence in due course. If you do not mind, could you provide us with your presentation, and then we will have some time for questions after that.

Mr BREEN — First of all I would like to thank you for the opportunity to be here this morning to speak to you a little bit about ATV safety and ATV accidents. Hopefully the information that I have from about 25 years of experience with ATVs, as a rider, as an engineer and as an accident investigator, will be helpful to groups such as yours in assessing where to go from this point in terms of overall safety. Firstly I apologise because I am going to struggle a little bit with the metric and English units. I tend to mix them back and forth, but I have my handy conversion table here, so I will try to work in the same units all the time.

In terms of a little background, the company I work for, Engineering Systems, works on an international basis and has a significant focus in the area of investigating accidents. We investigate almost every major plane crash in the world on behalf of somebody. We are involved with governments looking at accidents in terms of building collapses. Our engineers were on site within a week of 11 September looking at the building situation in New York City. Within ESI I am the person responsible for ground vehicles and marine products. I get involved in a wide range of vehicle evaluations, such as looking at safety testing and things like that. Probably because of growing up liking motorcycles I have found a personal interest in off-road dirt bikes, ATVs and things like that. I have been involved with them extensively on a personal basis for over 30 years. I am a degreed engineer, and from 1988 through to last year I was chairman of the committee of the Society of Automotive Engineers, which is an international group that develops standards and recommended practices for ATVs, special-purpose small vehicles, other off-road type vehicles similar to the multi-use lightweight equipment (MULE) vehicles and those types of vehicles that are also used in agriculture.

I have been involved in developing the standards currently in use the United States for ATVs and other similar vehicles. I have also provided technical data to the United States Consumer Product Safety Commission as well as a couple of other governmental agencies within the United States on a statewide basis.

Since the early 1980s I have been involved in investigating accidents involving ATVs in the United States, the United Kingdom, the Caribbean, Mexico and Australia. In addition to investigating accidents, a good part of what we do is testing — that is, taking vehicles, prototypes and concepts out and actually running tests on them with live drivers to see what they do under various circumstances and then modifying the vehicles. That includes crash testing, various tests of occupant protection, including evaluation of rollover protective structures (ROPS).

I hope I can add to this group’s knowledge what we have learned from a recent study we did here in Australia as well as that gained from 20 years of having looked at ATVs professionally on a worldwide basis.

Overheads shown.

Mr BREEN — Earlier this year I was asked by representatives from the ATV industry here in Australia to review and analyse a series of accidents that are part of coronial investigations. As a part of that I conducted an
analysis to look at individual accidents to determine what happened in those accidents from injury causation, accident causation and preventative standpoints. Included in that was reviewing the injury medical records, physically examining and measuring the accident situation in most of the cases, evaluating the documentation concerning the vehicles involved, examining the vehicles in some cases, conducting a review of the testimony that was given of the fact witnesses, reviewing the investigation conducted by the various authorities, and then conducting a traditional technical analysis of speed, time, distance, vehicle stability, operator inputs and things of that nature.

I have also looked at would have happened in each of those accidents had those vehicles been equipped with ROPS to try to see if the outcome would have been different and, if it was different, in what regard. By way of background, my staff includes a biomechanical engineer, a structural engineer, a mechanical engineer and a civil engineer. We are trying to get a pretty broad spectrum to look at these accidents and not just through the eyes of one person. We have submitted a technical report that I believe you have all been provided a copy of. If not, it is available through the coroner.

I will tell you little bit about where ATVs come from. I do not know if anyone here has personal experience of driving or using them, but it is probably a good idea before we look at where ATVs need to go in the future to look at where they have come from. Vehicles similar to modern ATVs began to be developed in the late 1960s as a result of a request from the marketing departments with the United States for a different type of vehicle to allow them to compete with snowmobiles. There was a fair amount of research and testing done by Honda in this regard that included developing a vehicle and prototypes, including six-wheel, five-wheel and four-wheel track vehicles and a bunch of different combinations. They built prototypes, and they were tested as a part of the process. It is interesting that when they got down to the final decision and testing times one of the places they chose to test was here in Australia because of its diverse terrain and opportunities for testing. That was done in late 1969, before the vehicles were first released in the United States.

A couple of key factors are part of ATVs that make them different from other vehicles and make them work the way they do. Probably the most important is the tyres. They use a flotation-style, low-pressure tyre. ATV tyres are operated at two or three less than 5 psi compared to car tyres which are 30 psi or more. The soft tyre is a key part of the whole ATV idea. It allows the vehicle to work on soft ground, it effectively gives better traction, and it provides some damping and motion control going over small rocks, logs and items such as that. Another key aspect of ATVs is that they have solid drive axles to provide constant predictable torque. The rider position and the centre of gravity of the vehicle are also key aspects of the vehicle concept. The rider is on top of the vehicle to give him an optimal place to view the terrain that he is going to be riding on. ATV riders need to learn to read the terrain and to negotiate obstacles at an appropriate speed. Putting the operator on top of rather than down in the vehicle gives him a better vantage point to do that. It also gives him a better vantage point to control the motion of the vehicle through rider-active operation, which I will speak about in just a minute or two.

Lastly, the vehicle is of a relatively small size in order to be compatible and fit within off-road terrains, to fit between trees and brush and go between rocks and things like that. The ATVs that we see today are the result of 30 years of evolution that have created a product line that is similar to automobile product lines where you have sport products, recreational products, general-use vehicles, utility vehicles and competitive-style vehicles. Also evolving in the same time frame in the last 5 or 10 years is a different vehicle that is larger, has a greater hauling capacity, has the ability for multiple riders, has an overhead structure, has a truck-bed style and has restraints of some type. These vehicles are not ATVs but a different vehicle that is readily available in the utility market today that do some of the things that ATVs do, but are much more utility focused.

As a point of reference, in the United States at the last count — the 2003 data is not in yet — but for 2002 unit sales exceeded 750 000 units. Currently there are over 5 million ATVs in use in the United States. They are used for both recreational and utility purposes. The reasons for their popularity and utility purposes get back to some of the key design elements. One is that they are easy to get in and out of various situations which you might be in when there tight corners, trees, rocks and things like that. They give you the ability to carry modest amounts of tools, supplies and accessories. The ease of getting on and off the vehicle is an important part of its utility use. A person checking fences or tending livestock may get on and off a vehicle 50 or a 100 times a day. Having a vehicle that is convenient, that is safe to get on and off because of your position and the foot pegs is important. Lastly, they are pretty economical to use and highly reliable when compared to alternatives, such as trucks and things like that.

As ATV numbers began to increase in the United States there was a proportional increase in reported injuries. As a result of that there was an investigation that was begun in the mid-1980s to study ATV safety. It was an intense investigation that lasted until 1991. The data that comes out of all of that study concludes a couple of things that are
interesting and important to take note of. One is that in the United States currently about 99.5 per cent of ATV
riders who use ATVs each year use vehicles without any type of an incident. It is important to set aside that the vast
majority of ATVs are being used by riders who simply do not have a problem. The injuries, though they are out
there, occur to a very small portion of users.

Secondly, most of the injuries have been attributed by the CPSC to operator error, misuse, lack of equipment
maintenance and things of that nature. Also, the CPSC looked at comparing ATVs to other types of recreational
and motorised vehicles, including snowmobiles, trail bikes, dirt bikes and other types of that type of vehicle, and
what they found in general is the accident rate is very comparable to that for other products. If you look at the slide
here, you can see that the dark blue is ATVs, and you can see that it is nominally the same or less than the accident
rate, either on a per-hour use or on a per-user or per-unit basis, for each of the other vehicles that would fit within
this general category of an off-road recreational vehicle.

I have also recently taken a look at data from Australia, and the data from Australia is very similar to the United
States experience. In Australia the data shows that more than 99.6 per cent of ATVs are used each year in Australia
without an injury. Again, we are talking about the injuries occurring to a very small fraction of users. It has a
similar record, very comparable, to other forms of off-road transportation within Australia as well. For example,
with motor vehicles and motorcycles there is substantially less risk. If we look also at other types of things that
might be used in an off-road application, such as motorcycles and horses, again we are talking about comparable
rates or lesser rates of injuries in terms of total numbers. Also when you look at the units that are out there on a
per-unit basis, the numbers are very comparable.

Before we go a whole lot further, this is a very important concept: that the injury rate for ATVs is simply
comparable with other products that are being used in this environment, and in terms of trying to improve safety we
are talking about a fairly small fraction of people who are having problems. I will get to the importance of that a
little more as we get further on here, but I think that is an important concept to set aside.

Let me just take a step back and talk briefly about the rider-active aspect of ATVs, because it is something that
people have discussed. The idea of an ATV from the beginning was to have a rider who was not fastened to the
vehicle with a seatbelt. Essentially it was similar to a motorcycle, as the rider sat on top of it. There are some
benefits that come from that. First of all, just having the rider there not fixed to the vehicle provides some additional
damping that helps the vehicle in terms of suspension properties. Just the physical presence of a human being, who
is unfortunately mostly water, helps the suspension system by adding that weight.

The second part of it is that riders will tend to naturally lean when making basic manoeuvres. It is something that
is very natural and very intuitive. It is very similar to when you walk; you lean into turns. When you walk down the
street and you want to turn left, you plant your right foot, push off and lean into the inside of the turn and then make
your turn. That is the way we walk. That is exactly the way you drive an ATV: you push on the outside peg and
lean into the inside of the turn, whether you think about it or not. It is something that takes a little bit of getting used
to, just like everything else does. We did not walk as soon as we came out of our mother’s womb. We had to learn
how to do that; there was a little bit of learning, and far less time than that is involved in learning how to operate an
ATV.

Other riders who are more active and more aggressive can employ even greater rider-active techniques that involve
standing up on the pegs and using their muscles as part of assisting in the damping system that helps improve ride
quality and takes some of the harshness out of the ride. But for the most part, routine simple operations can be
accomplished using just the natural body-lean movements that riders pick up on very quickly.

Let me move to the accidents that we investigated here in Australia during the last year. As I said earlier, I was
asked by the industry to take a look at seven incidents that had occurred here to determine what happened, what
was the cause of the accident, what was the cause of the injuries and what effects might be had with different
preventative actions. In summary form, what I found with these accidents was very typical of what I found with
accidents back in the US, and world wide, for that matter. Some of the units were poorly maintained, and that
contributed to the accidents occurring, such as vehicles that did not have adequate brakes, vehicles that had tyres
that were worn out and vehicles that had some of their electrical systems not working properly.

Some of the vehicles had improper overinflated tyres, and substantially overinflated — inflated to 30 PSI in one or
two instances as opposed to 3 or 4 PSI. Adult-size vehicles were being operated by youths under the age
recommended by the manufacturers. There were situations where children were operating vehicles they were
simply too small to be on to effectively control. There were environmental conditions such as heavy vegetation,
being out at night and driving into the sun, which obscured the operators’ ability to view terrain features at the speed they were going in order to avoid the obstacles. There were some health problems with older drivers that I believe contributed to, if not the injuries, the accidents as well. It is also interesting to note that approximately half of these incidents, though they occurred in a farm setting, did not involve farming activities. They involved, for example, children out on a Saturday having fun as opposed to performing farm chores and people out on an exploratory ride, such as someone who had never ridden before just out to follow his father, as opposed to a true farming activity.

One of the sad but true parts of this analysis is that each of these incidents was avoidable. In all instances the terrain where the unit was being operated could have been negotiated by a rider using proper technique in terms of selecting speed, steering input and anticipating the terrain obstacle. None of the operators had formal training, most had not reviewed the owners manual or other safety publications, and none was wearing a helmet, even though each of the products recommends the use of helmets.

One of the areas that I understand is of interest to this investigation and your committee is the concept of spray tanks. There was some discussion of that here yesterday. The spray tanks that are currently available and that were on the units involved were all less than the rated capacity for the unit. In none of these incidents did spray tanks appear to have been a significant factor in terms of actually causing the incident to occur. I think it is important to note that obviously loading of any vehicle is an important issue, and whether that load is material in a spray tank, a sack of seeds or a bale of hay, you have to be careful that you do not overload the capacity of a vehicle, because when you do the handling qualities of that vehicle are going to be affected. That applies to ATVs as well as any other vehicle.

If it of interest to this committee, I can provide details on each or any of the accidents. I put on the board a summary of a matrix that I believe you were provided with. I will pass these photocopies around. We were not sure the Powerpoint was going to work this morning, as we had some technical difficulties. There is a table you might be able to see a little better in there that identifies that matrix of the various accidents. But if you want to ask questions about any of the particular accidents, I would be glad to answer them. In the alternative, if you have questions later on after I have left, feel free to route those through Mr Newland, and he can arrange to get those questions to me and I can respond to them.

Let me move along briefly to the rollover protective structure issue and how, from a big-picture standpoint, it would affect ATVs and also their role in each of these accidents. ROPS has been suggested as a potential design modification a number of times in the past. It has been evaluated a number of times, and there are several key considerations. Probably the most important consideration, in my mind, is that once you incorporate a rollover protective structure you must mandate 100 per cent compliance of helmet use and restraints, because without that compliance you create a very serious hazard which can increase injuries significantly. There are also new hazards or injuries potentially introduced by ROPS, and one is that you increase the risk of operators being pinched or captured underneath the vehicle. For example, if they go into a water ditch and they are captured underneath the vehicle, the vehicle that can obviously be very dangerous. There can be pinching between limbs and the bar of the rollover protective structure.

Another thing I think it is important to note is that a ROPS will not prevent injuries that occur at elevated speeds. A ROPS will work on vehicles that travel at relatively slow speeds — in other words, relatively low amounts of energy are involved — so when they overturn in most instances the energy can be dissipated without being transferred to the occupant. If the vehicle is travelling at any kind of elevated speed there is a lot more energy involved, and that energy will be transferred to the occupant. An ATV overturn, just because of the fact that it is a vehicle capable of speeds that are significantly greater than that of a tractor, would typically involve energy transfer times that of a tractor. In addition, tractors tend to overturn laterally. They are travelling at slow speed and tend to roll laterally, whereas an ATV can have a much more complicated overturning event that may involve multiple overturns. Every time it turns over the occupant is loaded through contact with the ground until the energy is dissipated. So that is an entirely different situation, where the energy management is very complex to make it work effectively without actually increasing the potential for injuries.

A ROPS can reduce the stability of a vehicle and reduce the ability of an operator to recover in the event of a minor mishap, because he is no longer free to move his weight to shift, and he is tied to the vehicle. It eliminates any recovery on the part of the operator. It also creates the opportunity for people to strap weight on above the seat line, which is going to further reduce the stability. You have a structure up there, and it is easy enough to bolt a device of some type on there or hang a tool which can create a problem. I looked at a situation in Canada where a fellow
decided to carry boats on top of a ROPS that he had fabricated himself, and sure enough, the extra weight caused it
to turn over and kill his son.

A ROPS, like any other device, must be maintained, and it must also be rigid and non-deformable to be effective.
Getting back to ROPS, if we are going to look at designing a ROPS, we have to step back to the fact that in
Australia, and similarly in the US, more than 99.5 per cent of ATVs are used without a problem, so that any design
change that would affect the vehicle’s operation, given its fairly high level of safety, has to be looked at very, very
carefully. This analysis has been done. Over the last 20 years various organisations have looked at the concept of
ROPS on ATVs. I think that overwhelmingly people have agreed that, in general, ROPS are not appropriate for
ATVs. The configuration of ATVs does not support the concept of ROPS, but it does create new hazards. It is
simply not a good idea.

Manufacturers of ATVs have looked at alternative types of vehicles. For example, here is a Kawasaki MULE that
is not an ATV — it performs a different function. It does have a roof structure, it does have restraints, it does have a
much higher carrying capacity. These vehicles are readily available for use in agriculture and for other utility
purposes. They are used in some instances, but they do not do some of the things that ATVs are used for in
ranching and agriculture, so in many instances farmers elect to purchase an ATV because of the things an ATV will
do and this type of vehicle will not do.

In analysing the outcome in the particular incidents that I have looked at in Victoria and Tasmania, if those vehicles
had been equipped with a ROPS I can say that the effect would have been minimal at best. In some of the instances
there would have been no difference in terms of the outcome, simply because of how those accidents happened and
the facts as they related to them. In some of the instances there may have been a different injury. There may not
have been the same injury but a different injury as a result of the ROPS that would have been serious and life
threatening, if not life taking, in one form or another. Only one of the incidents involved a very unusual
circumstance where the ROPS may have provided a benefit for a three-year-old passenger who was sitting in front
of their grandmother. Again, that is a very bizarre situation where there may potentially have been some benefit.
There may also have been an injury that occurred there anyway. It is difficult to sort out what happened in that
accident.

The analysis that I did in looking at whether or not the ROPS would make a difference assumed that each of the
occupants in these accidents was wearing a helmet and was wearing a restraint. That was how I modelled the
analysis of whether the ROPS would make a difference or not. In actuality, none of them was wearing a helmet,
and in those situations, without helmets and restraints, essentially no benefit is going to be derived from ROPS. It is
my understanding that a recent survey in Australia of farmers using tractors indicates that restraint usage is not very
high; it is less than 20 per cent. That is a concern not only in the tractor area but also in terms of if ROPS were to be
put on ATVs; that would mean that for 80 per cent of the time those operators would have increased their risk of
injury by not wearing a restraint.

I would like to close with a couple of recommendations based on the work I have done both on these incidents here
in Australia and also in looking at the situation I have seen world wide for the last 20 or 30 years. Specifically I
think the industry needs to be exploring alternative communication avenues for ATV safety and maintenance
information. They need to explore a coordination of training and user education with various farm safety groups on
items such as proper tank usage, operator age, use of safety equipment, and they need to look at assisting dealers
and providing a check list for used vehicle sales. It is my understanding that in Australia there is a roadworthy
concept for the sale of regular motor vehicles; a similar concept is appropriate in selling used ATVs to make sure
they are adequately maintained.

To the farm users: I recommend that efforts need to be made to encourage the use of vehicles by appropriately aged
riders, the use of helmets, the following of recommended loading limits, proper maintenance, checking and
maintaining tyre pressure on a routine basis, reviewing safety publications and encouraging proper techniques at all
times.

To the Workcover authority: I would recommend that they regulate the use of ATVs in accordance with the
recommended practices of age of operators, loading and use of helmets, and encourage all users to follow practices
from the manufacturers regarding maintenance on the vehicles and tyre pressure. One of the things I noted is that
the investigations that were conducted in some instances were not very systematic, and in some instances there was
information that was lost in the process.
An issue that I think would be of great assistance is better data collection in terms of training investigators to systematically document ATV accidents. ATV accidents are a little different from a regular farm-type accident in that farming accidents typically happen in one place — a tractor overturns and a guy gets tangled up in a piece of equipment that is in a relatively confined space — whereas an ATV accident happens over some distance as the vehicle is travelling. Unlike motor vehicle accidents, there are not skid marks and there is not crash damage that you can measure typically on an ATV. There are some specific nuances, and training investigators in how to look at and document these types of accidents would provide improved data to make better decisions on down the line.

As an ATV user and engineer, I would be available to continue to review from a technical standpoint the development of reasonable approaches to enhance safety here in Australia as well as what I am doing in the US currently. As you are aware I am involved with a coronial inquest and do plan to return whenever that is scheduled the next time, and I could be available to provide additional information to this committee if you would like it at that point in time. I would be glad to answer any questions you have at this time as well.

**Dr NAPTHINE** — I take it from what you just said in conclusion that you would recommend the compulsory wearing of helmets on all ATVs?

**Mr BREEN** — Absolutely. Using helmets is a good idea.

**Mr MITCHELL** — Would engineering design changes in the ATV configuration — using a different compound or pressure tyre, maybe changing the centre of gravity to lower it a little bit, and perhaps widening the wheel track or something — give them a greater stability? It is harder to take out operator error than to try to make the machines safer.

**Mr BREEN** — In terms of stability, if you think about it for a second, for example, the idea of lowering the centre of gravity, the vehicle right now has ground clearances that are of the order of about 8 or 9 inches — I apologise for the terminology. Effectively you cannot drop it a lot more than that, otherwise you start running on the ground every time the ground gets uneven. So even if you could drop it an inch or two, you are not going to lower the centre of gravity very much. You are not going to find significant differences in stability by making minor changes in the vehicle’s configuration. There needs to be a certain amount of ground clearance and there needs to be a certain narrowness of the wheels to fit between trees and rocks and things like that. People have looked at this, and from the test documents I have seen from the manufacturers, they have looked at various combinations of moving the wheel base out, extending the track and lowering the vehicle’s weight a little bit, but no big changes were made.

In terms of the tyre compound, there are varying tyres around that are stiffer and that are softer, but they all end up being a soft flotation-style tyre, which is sort of the key to this type of vehicle. It is what makes it work the way it does. For example, an off-road motorbike has a harder tyre, but it does not work very well in the mud, it does not work very well in the sand and it does not work in soft surfaces, because it just digs in. Part of the advantage of an ATV tyre is that it is soft, and that is why it works the way it does.

In terms of what you do about operator error, I think there is at some point a time that operators can do the right things. In each of these accidents there was no reason why the operator could not have avoided the accident. For example, in one of the accidents a guy drove into a terrain feature he did not see. There is nothing you are going to do about that, other than operators driving slowly or not driving at night. Those are the kinds of things that I think you can avoid by reasonable driving practices, and they are not going to be affected by changing vehicle design.

**Mr McQUILTEN** — Okay. What about governing speed?

**Mr BREEN** — That area has been an item of debate. Some models have speed governors on them, the ability to adjust the throttle to travel; other models have had baffle plates that can be put in. One of the things that I think that we have seen in the US is that people do not tend to want that. They tend to want the speed. It is a trade-off of providing enough power to pull things but when you take the pulling out and you get out on the open land people tend to want to drive too fast, and sometimes they do. In each of these incidents I do not think anybody was operating at full speed, so absolute speed was not a problem; the wrong speed for that situation was. There was one instance where a young boy was operating at a pretty high rate of speed, and he could have gone faster but fortunately he did not.

**Mr CRUTCHFIELD** — You talked about Workcover and regulations. You made clear your view about helmets. In your presentation you did not comment — you may have said it but I did not hear it — about licensing of operators and making that mandatory in terms of an age limit. I note in your incident factors that both instruction
and terrain are features in almost every one, which I believe would be related to education and some form of licensing. What is your view on mandating licensing and an age limit and maximum cc usage for people under the age of 21, let us say?

Mr BREEN — If you can do it, those ideas are great. It is a cultural thing, that has been my experience. I have been very impressed during the times I have been in Australia with the high rates of seatbelt usage and that people wear helmets riding bicycles, people wear helmets wearing motorcycles. In the US there are attempts to regulate licensing and it does not work because we cannot get people to wear seat belts driving cars or motorcycle helmets driving motorcycles. Training, licensing and age recommendations would be great stuff if there is a way to implement it.

Mr CRUTCHFIELD — My second question relates to ROPS. You mentioned there is a body of evidence that supports your view. Can you provide the committee with that body of evidence in terms of other investigative bodies that have similar views about not having ROPS? I am aware of the MUARC report, which you criticise. That may not be the right word, but MUARC would have a view about your comments in respect to them, so what other bodies support your view?

Mr BREEN — Let me answer your question backwards first. If you look at the MUARC report, my reading is that they agree that ROPS cannot be put on ATVs as we know them. They want to redesign the ATV to accommodate a different style of ROPS. I agree with them: ROPS cannot be put on the ATV, and I think they say that in those words. In terms of other bodies the engineering staff of the Consumer Product Safety Commission has evaluated ROPS on ATVs on a couple of occasions and both sides have rejected the concept.

Mr CRUTCHFIELD — Who are they?

Mr BREEN — That is the US regulatory agency for ATV. It is the Consumer Products Safety Commission. Several technical papers by research organisations in the US evaluated ROPS, and I can arrange to get those kinds of papers provided to you. They have done an analysis on these concepts as well and have found that there are hazards that just do not outweigh — do not provide a benefit.

Mr CRUTCHFIELD — Excluding ROPS are there any other engineering solutions that you advocate that are cost effective?

Mr BREEN — I will call them technical solutions. Given the fact that more than 99.5 per cent of the vehicles simply do not have a problem it is very dangerous to start tinkering with the design; you might create more problems that you solve. We are at this level where less than half a per cent of people are having an incident, and we are at the point of trying to deal with the human factors, getting people to do things the way they are supposed to. Human nature is human nature and people will do things wrong occasionally. It is the extent to which you can train and educate them to encourage them not to do that — some people will do what they want to do, regardless of what you teach them. Unfortunately no design solutions in the last 30 years have been shown to make a difference. It seems that the biggest difference we have seen is in getting people to do reasonable things.

Dr NAPTHINE — I know that three-wheel ATVs are in a market sense being driven out of the market. Should they be banned and should resale of three-wheel ATVs that are already existing in the community be banned?

Mr BREEN — The biggest problem I see with three-wheel ATVs is that at best they are 17 years old and they are worn out. On whether they should be banned, there are some people who find them to be appropriate to use, but they are vehicles that are not frequently maintained very well so if there were a roadworthy concept a lot of those vehicles would not pass because their bearings are shot and the parts on them are pretty well worn out.

Dr NAPTHINE — Should there be compulsory registration of ATVs even if they are just being used on farms?

Mr BREEN — I think there is a lot of benefit in doing that. One is that it creates a mechanism to inspect the vehicles when they are sold again so that before the registration is transferred somebody has to sign off that this needs new tyres or new brakes. It also gives an avenue to communicate with users by having a database then of the owners to provide safety information or new ideas as they evolve, so there are benefits to registration or licensing or however.
Dr NAPTHINE — Like pay it when you buy it, a one-off licence, and you have a database and whenever you transfer it then it can be subject to a roadworthy or something.

Mr BREEN — Right, like you do with a motor car to make sure it is roadworthy or something like that.

Mr WALSH — To go back to Michael’s first question about the Workcover authority bringing in some form of compulsory licensing and training, would that have made any difference in the accidents that you have viewed for the coroner, or in your view could they have made a difference?

Mr BREEN — In some of the instances there was conduct that I think would have been instructed, trained, addressed in some type of reasonable program. That is not to say that individual people on any day will follow what they have been taught, just like when you drive a motor car sometimes you exceed the speed limit. But I think there were through the incidents involved a number of under-aged drivers and children, and presumably in some type of licensing or training program it would be emphasised very strongly that if you are under 16 or 18 or 20 you should not drive. If people were to have followed that instruction those three incidents would not have occurred.

Mr WALSH — From my memory of ATVs there are stickers all over them saying that people under 16 should not drive them, that they are dangerous. If you actually read them you would never get on them, so is it going to make any difference?

Mr BREEN — I guess with some people it will, and some people will do whatever they darn well please. In one of the incidents I believe the sticker was no longer on it because it had been a resale unit. In that situation a boy showed up who was visiting the farm that day; he just rode it for the first time. Presumably had there been someone there who had been a bit more assertive they would have said, ‘You are not old enough’, because they would have seen that sticker and that accident might have been avoided; but in one of the other ones the sticker was on and it was ignored.

Dr NAPTHINE — If we change the culture about people under 16 riding ATVs on farms there is a great temptation they will then move back to riding motorbikes and dirt bikes at the ages of 10, 11, 12. Should there be similar bans on age for the riding of motorbikes?

Mr BREEN — You can look at two alternatives. One is you have a similar program for motorbikes as with ATVs: the risks are very similar. The other thing is to look at some type of increased training program if you are going to let older youths start to use the machines. It is one thing letting a six-year-old drive an ATV, which unfortunately was the situation with one of these incidents — it is something that does not make any sense — but for someone who is maybe 13½ it is getting close, so maybe there could be an additional training level you can get as you get older that would allow you to use it to get the younger 14 or 15-year-olds better trained, better familiar with the equipment, and then allow them to use the equipment with a certificate or something like that. There are some states in the US that will permit that. With a training certificate you can operate below a certain age.

Mr WALSH — Do you believe there is a similar risk between a two-wheeler and an ATV?

Mr BREEN — I think the risk rate is very similar. The situation with two-wheelers is virtually all the collisions are overturns of some type, mostly as a result of speed and terrain contact. There are some differences in how they are used, obviously, but the risk numbers are very similar.

Mr MITCHELL — With the 99.5 per cent of riders who do not have accidents is there a breakdown on those who are using ATVs for farm work-related jobs as compared to recreational users?

Mr BREEN — I have not been able in the Australian data to split that out, and part of that is because, for example, in this situation here three of these incidents were called farming-related accidents but they were not, they were joy-riding. In the US data they made an attempt to split it out and obviously the recreational riding had a higher risk than utility riding because recreational riding in the US unfortunately frequently involves drinking and riding whereas for the most part working people are driving slower and have not had their beers for the day yet.

Mr MITCHELL — With ATVs — and we talk about a minimum age of 16 years or something like that — would a weight-based limitation or minimum weight make a difference, given that the rider’s body weight does — —

Dr NAPTHINE — Fat kids can ride them younger!
Mr BREEN — That is an interesting question, and let me point to a couple of analogies that speak to that. If we look at male-female comparisons, females tend to be 50 per cent lighter than males on average, so you would assume that female riders would have a much higher rate of injury. In fact in the US it is the opposite. The risk of male injuries on ATVs on a per-user basis is three times that of females. There is something in us that makes us more aggressive, I guess.

Dr NAPTHINE — Yes, testosterone!

Mr BREEN — So I think weight-based suggestions alone are a problem because age and decision making are far more important than how much you weigh. The heavy youngster is not going to be more mature than a lightweight adult, and the decision making is the bigger problem. That is why age hopefully helps that along a bit.

Mr CRUTCHFIELD — I note that commercial fishing is your area of comment — marine safety.

Mr BREEN — Right, recreational, general.

Mr CRUTCHFIELD — Have you any views on some engineering solutions or risk-based management solutions for the commercial fishing industry in terms of either injuries or deaths?

Mr BREEN — I have not looked at the commercial fishing industry here at all.

Dr NAPTHINE — Would we be welcome to visit Florida for your testing facilities? Would that be a useful thing for the committee to do?

Mr BREEN — Sounds like I might take you out for a ride!

The CHAIR — Thanks very much, Kevin. You will receive a copy of the transcript in a couple of weeks, and any obvious errors of facts or grammar you may correct but not any matters of substance. Again thank you very much for your time and for giving this presentation today.

Witness withdrew.