OFFICE OF THE STATE CORONER

FINDINGS OF INQUEST

CITATION:	**Inquest into the death of Janet Louise YOUNG**
TITLE OF COURT:	Coroner's Court
JURISDICTION:	Brisbane
FILE NO(s):	COR 1412/06(0)
DELIVERED ON:	23 January 2008
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HEARING DATE(s):	1, 27, 28, 29 & 31 August 2007
FINDINGS OF:	Mr John Lock, Coroner
CATCHWORDS:	CORONERS: Inquest – Truck Rollover, Load Restraint and Centre of Mass

REPRESENTATION:

Ms J Wilson – appearing to assist the Coroner

Mr JS Miles of Counsel – representing Mr Thomas Young; instructed by Banks Lawyers

Mr JM Harper of Counsel – representing Jason Lawson; instructed by Quinn & Scattini Lawyers

Mr MJ Liddy of Counsel – representing Boral Bricks Pty Ltd; instructed by Barry & Nilsson Solicitors

CORONERS FINDINGS AND DECISION

1. The *Coroners Act 2003* provides in s45 that when an inquest is held into a death, the coroner's written findings must be given to the family of the person who died and to each of the persons or organisations granted leave to appear at the inquest. These are my findings in relation to the death of Janet Louise Young. They will be distributed in accordance with the requirements of the Act and placed on the website of the Office of the State Coroner.

The Coroner's jurisdiction

2. Before turning to the evidence, I will say something about the nature of the coronial jurisdiction.

The scope of the Coroner's inquiry and findings

3. A coroner has jurisdiction to inquire into the cause and the circumstances of a reportable death. If possible he/she is required to find:-

- whether a death in fact happened;
- the identity of the deceased;
- when, where and how the death occurred; and
- what caused the person to die.

4. There has been considerable litigation concerning the extent of a coroner's jurisdiction to inquire into the circumstances of a death. The authorities clearly establish that the scope of an inquest goes beyond merely establishing the medical cause of death.

5. An inquest is not a trial between opposing parties but an inquiry into the death. In a leading English case it was described in this way:-

"It is an inquisitorial process, a process of investigation quite unlike a criminal trial where the prosecutor accuses and the accused defends… The function of an inquest is to seek out and record as many of the facts concerning the death as the public interest requires." [1]

6. The focus is on discovering what happened, not on ascribing guilt, attributing blame or apportioning liability. The purpose is to inform the family and the public of how the death occurred with a view to reducing the likelihood of similar deaths. As a result, the Act authorises a coroner to make preventive recommendations concerning public health or safety, the administration of justice or ways to prevent deaths from happening in similar circumstances in future.[2] However, a coroner must not include in the findings or any comments or recommendations, statements that a person is or maybe guilty of an offence or is or maybe civilly liable for something.[3]

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[1] *R v South London Coroner; ex parte Thompson* (1982) 126 S.J. 625

[2] s46

[3] s45(5) and 46(3)

The admissibility of evidence and the standard of proof

7. Proceedings in a coroner's court are not bound by the rules of evidence because section 37 of the Act provides that the court "*may inform itself in any way it considers appropriate."* That doesn't mean that any and every piece of information however unreliable will be admitted into evidence and acted upon. However, it does give a coroner greater scope to receive information that may not be admissible in other proceedings and to have regard to its provenance when determining what weight should be given to the information.

8. This flexibility has been explained as a consequence of an inquest being a fact-finding exercise rather than a means of apportioning guilt: an inquiry rather than a trial.[4]

9. A coroner should apply the civil standard of proof, namely the balance of probabilities but the approach referred to as the *Briginshaw* sliding scale is applicable.[5] This means that the more significant the issue to be determined, the more serious an allegation or the more inherently unlikely an occurrence, the clearer and more persuasive the evidence needed for the trier of fact to be sufficiently satisfied that it has been proven to the civil standard.[6]

10. It is also clear that a Coroner is obliged to comply with the rules of natural justice and to act judicially.[7] This means that no findings adverse to the interest of any party may be made without that party first being given a right to be heard in opposition to that finding. As *Annetts v McCann*[8] makes clear that includes being given an opportunity to make submissions against findings that might be damaging to the reputation of any individual or organisation.

Introduction

11. Janet Louise Young ("the deceased") died from multiple injuries as a result of a traffic accident on 10 May 2006. Mrs Young was born on 26 May 1970 and was 35 years old at the time of her death. She was the wife of Thomas Young and was 8 weeks pregnant.

12. Mr Young told the inquest that his wife was a very caring and giving person, a committed Christian and a wonderful wife and companion. They met in 1995 and married in 2003. She had recently established a small business with her friend Deborah Graham. The business was a mobile food van that serviced commercial and industrial areas. Mrs Young and Ms Graham were both experienced in this area of business. It was called "Old Ducks Diner" and was proving to be a great success. Janet Young is clearly deeply missed by her husband and friends, including Ms Graham.

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[4] *R v South London Coroner; ex parte Thompson* per Lord Lane CJ, (1982) 126 S.J. 625

[5] *Anderson v Blashki* [1993] 2 VR 89 at 96 per Gobbo J

[6] Briginshaw v Briginshaw (1938) 60 CLR 336 at 361 per Sir Owen Dixon J

[7] *Harmsworth v State Coroner* [1989] VR 989 at 994 and see a useful discussion of the issue in Freckelton I., "Inquest Law" in *The inquest handbook*, Selby H., Federation Press, 1998 at 13

[8] (1990) 65 ALJR 167 at 168

13. The traffic accident involved a semi-trailer rolling over as it turned through a 90^{o} bend in the road at Collinsvale Street, Rocklea. The shipping container being transported on the trailer was loaded with bricks. The driver, Jason Lawson, was employed by Gregory Cox who owned the prime mover and trailer. Cox was subcontracted by Sea Cargo Logistics ("SCL"). SCL is now in liquidation.

14. The trailer rolled first causing the prime mover to follow. The rollover badly damaged a stationary, unoccupied utility and caused minor damage to another parked car. The container impacted heavily with the Mazda E2000 food delivery van that was driven by the deceased. Deborah Graham was the passenger in the Mazda van and was seriously injured. She spent a significant time in the intensive care unit at the Princess Alexandra Hospital in a coma. The investigating officer advises that she has no memory of the accident. Deborah Graham attended the inquest as an observer and clearly is still suffering considerably as a result of the accident.

The Evidence

15. It is not necessary to repeat or summarise all of the information contained in the exhibits and the oral evidence given but I will refer to what I consider to be the more important parts of the evidence. The evidence is comprised of the following:-

- Coronial documents including the Form 1, Autopsy Report and Certificate.

- Supplementary Reports: There are 4 supplementary reports which detail the investigations undertaken principally by Senior Constable Mark Dent of the Queensland Police Service ("QPS"). The supplementary reports are numbered 2 – 5 (the Form 1 is the first report) and annexe a number of further reports, statements and other documentation. SC Dent has conducted a very comprehensive investigation and should be commended for it.

- Medical Reports: In addition to the autopsy report, the following medical reports have been obtained: Analysts Certificate – Jason Lawson; an opinion of A/Prof Bob Hoskins regarding toxicology results for Jason Lawson; Analysts Certificate – Janet Young; and an opinion of Dr Elisabeth Christensen regarding toxicology results for the deceased.

- Independent Expert Report: A report under the hand of Richard Larsen, Engineer – Loadsafe Australia Pty Ltd was commissioned by QPS as part of their investigation.

- Other Documentation: A recorded interview conducted by Suncorp insurance investigator, David Purcell, with Jason Lawson was obtained by execution of a search warrant on Suncorp Metway Insurance Ltd; NSW and QLD Traffic and Criminal Histories for Jason Lawson; and data from a

system called 'Webcrash' is included in the brief of evidence to indicate details of similar deaths.

The Parties/Background

16. The prime mover and trailer was owned by Gregory Cox who was subcontracted by Sea Cargo Logistics Pty Ltd (SCL). He had been subcontracting for SCL for some 5 years. SCL is now in liquidation and it has been difficult to contact any of the company representatives spoken with during the investigation. David White, OHS Manager for SCL, told SC Dent that at the relevant time SCL did not provide any training to subcontractors in respect of work methods.[9]

17. Mr Cox gave evidence that the prime mover was a 2005 Chrysler with a Detroit diesel engine fitted with an electronic engine and transmission management system. In the context of aeronautical accidents it would be similar to what is widely understood as a "black box". The trailer was a Maxi-trans Skel which is a type of trailer especially built for carrying 20 or 40 foot shipping containers. Mr Cox said that he had not passed on to Mr Lawson or other drivers any particular safety precautions about the loads of bricks from Boral Bricks. The drivers were not involved in the loading process nor did he get his drivers to check the load. He knew of the method of restraint employed by Boral and had no concerns. Despite the fact that drivers bear some responsibility in the industry for loading and restraint of loads, he gave no instructions to drivers about this. Gregory Cox had employed Jason Lawson from about 8 May 2006 on the recommendation of associates in the trucking industry. He had monitored Mr Lawson's driving and instructed him in the performance of his duties for the 2 days prior to the incident. In his opinion, Mr Lawson was a competent driver.[10]

18. The evidence of Mr Cox is indicative of a fairly casual approach to his responsibilities as an employer in the transport industry.

19. The record of interview with Suncorp reveals that Mr Lawson obtained his heavy vehicle licence on 04.01.99. He was appropriately licensed at the time of the incident. NSW and QLD Traffic Histories show that Mr Lawson's licence had been suspended on a number of occasions prior to May 2006 for failing to pay fines imposed for speeding and log book offences.

20. This was the first automatic truck Mr Lawson had driven. Mr Lawson told the Suncorp investigator that driving the automatic was easier than driving a manual truck.[11] He confirmed this in his evidence. He said he was given no specific training in relation to particular loads he would be carrying. His induction consisted more about the routes he would be taking.

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[9] SR2, p.28 + SR4, p.4
[10] SR2, p.29 cf ROI pp.6 – 7 where Lawson says he was employed by Cox the week prior to the incident.
[11] ROI, pp.7 - 8

21. Mechanical inspections revealed no defects in either vehicle that could have directly contributed to the cause of the incident[12].

22. At the time of the incident Mr Lawson was transporting a load of bricks from Boral Brickworks (Boral) at Darra to the SCL yard at Rocklea. It was the third or fourth such 'run' for Mr Lawson that day[13].

23. Essentially, the process was that an empty container was loaded onto the trailer at SCL and then Mr Lawson travelled to Boral to collect a load of bricks. At Boral, the bricks were loaded into the container by Boral workers during which time Mr Lawson would occupy himself drinking a cup of coffee or going to the bathroom.

24. Mr Lawson was not involved in the loading process[14] and told Suncorp that he does not remember the incident or the lead up to it[15]. No-one from SCL, Cox or Boral spoke to him about the nature of the load or any safety precautions. In evidence he said he understood that if he loaded the truck he would have to take full responsibility but if he had not loaded the truck it became the responsibility of the person who loaded it. He had seen into the back of the container but he felt it was not his business to challenge how they loaded the container. He spoke about his experience with driving with an air bag trailer such as this one (as distinct from spring trailers) and that he thought it would take a significant lean on the trailer before it lifted up. He was surprised to hear that witnesses had seen the wheels lifting as he turned into Collinsville Street.

25. In evidence he was able to recall that as he went into the corner he slowed down and then he accelerated as he came out of it. He does recall the moment when it was clear that the vehicle was going out of control. He said the only thing he could do was put his hand on the hand piece to apply the trailer brake and try to accelerate out of it but it would not do anything.

Eye-Witness Accounts

26. The eye-witnesses essentially confirm that the trailer started to roll first, taking the prime mover with it. Most witnesses saw the utility being pushed up onto the footpath but did not see the van driven by Mrs Young until after the incident. The witness, Wayne Forbes spoke with her immediately after the accident. She was alert and in pain. She told him that she was pregnant.

27. Andrew Slaboz states that he passed the truck prior to it turning into Collinsvale Street and heard a loud bang[16]. Mr Lawson does not recall such a bang but explains that similar noises are not uncommon and are

[12] Statement of Anastasiou Georgas (referred to in SR2, p.5)
[13] ROI, p.8, A.98
[14] ROI, pp.9 - 10
[15] ROI, p.12, A.141
[16] SR2, p.36

caused by slowing down and the container putting pressure on the 'pins'.[17] Martin Mackay was travelling 50 metres behind the truck and was travelling at between 40 and 50 kmh. He believed the truck was not going much faster. As the truck was making the left hand turn he saw the vehicle move to the right and the left hand wheels lift. Before the wheels lifted there was nothing alarming in the way he saw the truck driven. He said he saw the prime mover being steered to the left as it was tipping. This corroborates the version of Mr Lawson when he said he was trying to regain control of the unit.

28. Matthew Levendi was at other premises in Collinsvale Street. He saw the prime mover approach the bend. He was on its right and did not see the left hand wheels lift but did see the trailer start to lean slightly as it effected the left hand turn. He had seen many trucks come around the corner and considered that it definitely was not going over the speed limit and was not going as fast as most trucks he had seen. He thought that the load must have shifted to act in this way because it was not going at a great speed. He saw it slide into the utility parked on the side of the road but did not realise it had hit the van driven by Mrs Young until he ran over.

29. Darryl Robert Walton was on a motor cycle travelling directly behind the truck as it turned into Collinsvale Street. He is an interstate truck driver. He saw the left trailer wheels lift a little (50 to 70 mm) as it turned into Collinsvale Street but it looked like a smooth flex of the chassis and not a thumping action. He then saw the passenger side trailer wheels lift again as it was going through the corner. It did not appear to be going too wide or fast. He saw the natural momentum of the truck moving right and knew that from a certain point it was not going to come back down and stopped.

The Cause of the Rollover and Method of Restraint

30. The load shifted significantly in the course of the rollover and although this is an area of some controversy, I accept that it is now impossible to tell if load movement occurred beforehand thus causing the rollover[18]. Lawson does not recall 'feeling' any movement of the load and finds it "*very hard to comprehend*[19]" the cause of the accident.

31. The method used by Boral to load the shipping containers involved placing 24 plastic wrapped pallets of bricks, arranged in 2 levels of 6 x 2 pallets. The height of the load was approximately 15cm from the roof of the container and 30cm from each side of the container. The load was stabilised in the centre of the container using non-structural dressed pine spacers attached to the upper pallets by nails[20].

32. Such timber bracing is called 'dunnage' and Boral maintains that this method of load restraint complied with the National Load Restraint

[17] ROI, p.11, A.132
[18] SR2, p.10, photograph 3
[19] ROI, p.14, A.172
[20] SR2, pp.7 – 10 +

Guidelines (LRG).[21] Evidence was heard from the manager at Boral, Mr Ryan. He was of the opinion that the method complied with the LRG although he was unable to point to any documentation that confirmed that the method had been assessed as compliant. The company had commissioned an engineer to investigate the incident and that engineer had concerns about the force that the nails could withstand. He recommended that the company could improve the method of dunnage by using airbags and Boral is now trialling an alternative system of bracing using air bags.

33. Contrary to Boral's view, Queensland Transport Compliance Manager, Warwick Williams told police that, in his opinion, the method for loading the bricks did not comply with the LRG)[22]. The *Transport Operations (Road Use Management – Mass, Dimensions and Loading) Regulation* 2005 sets out requirements and penalty provisions in respect of loading. Loading requirements are prescribed in Schedule 7 to the Regulation. Schedule 7, inter alia, refers to the *National Transport Commission Load Restraint Guide, Second Edition* 2004. That Guide is referred to by a number of the business and government representatives who have provided information and opinions in the course of the investigation.

34. Mr Williams subsequently provided a statement[23] and gave evidence at the inquest. He is critical of a number of aspects of the method of loading. Firstly, the pallets do not conform with the dimensions specified in AS4762. He opines that if 1140mmx1140mm pallets had been used, four less pallets would have been required to load the same number of bricks but the load would have been more evenly spread over the container with the result that the height inside the container would have been lowered as would the centre of mass.

35. Secondly, he stated that the timber shoring method adopted here was deficient in a number of respects and that the use of a single piece of timber nailed to a pallet is not a recommended practice which would meet the performance standards of the LRG. Mr Williams was cross examined on this opinion. It is clear that the LRG does not specifically state that this method does not comply. The LRG provides examples of recommended steps and guides which if followed would meet the performance standards. Where alternative restraint methods are adopted (such as this method) they have to meet the performance standard. The performance standard requires that:
    - A load on a vehicle must not be placed in a way that makes the vehicle unstable or unsafe.
    - A load on a vehicle must be secured so that it is unlikely to fall or be dislodged from the vehicle.
    - An appropriate method must be used to restrain the load on a vehicle.

[21] Boral response to questions dated 08.02.07, p.1 (Annexed to SR5)
[22] SR4, p.4
[23] B14 and various annexures

36. Thirdly, Mr Williams was also concerned with the ability of a driver to be able to check a load in transit as the LRG places a lot of responsibility on the driver to ensure the vehicle is loaded properly.

37. Mr Larsen of Loadsafe Pty Ltd is a consulting mechanical engineer with a specialty in relation to loading and load restraint. He authored the first edition in 1994 of the LRG. He similarly opines that "*the load did not comply with the Performance Standards of the Load Restraint Guide, because it was not adequately restrained sideways*."[24] In his evidence he stated that the load did not comply because there needed to be restraint capable of withstanding .2G acceleration in a vertical direction and .5G in a horizontal direction.[25] Because there was not sufficient restraint on the vertical this would break the friction horizontally below .5G laterally. It is noted that the system of dunnage did not block the pallets from moving vertically other then by virtue of weight and gravitational forces.

38. Further, he said the fact that the system had been used on more than 4000 occasions, and apparently without incident, does not mean that the system of restraint met the performance standards but simply that vehicles had not been subjected to the accelerations and forces which brought the vehicle undone on this occasion. *"Just because a load has been carried in a particular way for many years does not mean it is properly restrained."*[26]

39. The Inquest also had the benefit of witnessing the method of applying the dunnage through a DVD showing it in practice. I will not describe it in words. The DVD was illuminating. In one particular scene, and by no means the only one of concern, Mr Fuller demonstrated how easily he could remove the timber bracing. If this was not such a serious matter it could have been considered comical. Mr Larsen was cross examined about his failure to test the sheer capacity of the nails to the soft wood pine pallets. He explained what he meant by this. He had not tested the sheer capacity of the nails which held the timber to the pallet but he was confident the nail would quickly distort and come out. I have to say I agree with him when he said he felt it unnecessary to test it. I accept what Mr Williams also said on this point and which I referred to earlier. It did not need to be tested. It patently was inadequate and I find the system of dunnage adopted could not possibly meet the LRG standards.

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[24] Report of Richard Larsen, p.4 (Annexed to SR5)

[25] *National Load Restraint Guide 2004*, p 186 Performance Standards To achieve this, the load restraint system must be capable of withstanding the forces that would result if the laden vehicle were subjected to each of the following separately:
0.8 'g' deceleration in a forward direction,
0.5 'g' deceleration in a rearward direction,
0.5 'g' acceleration in a lateral direction,
and to 0.2 'g' acceleration relative to the load in a vertical direction.

[26] *National Load Restraint Guide 2004*, Introduction p 8.

40. The inquest viewed a DVD showing the new air bag system in operation. Mr Larsen had no problems with the air bag system in principle[27] but had some concerns about how it was being implemented in practice. The air pressure for instance was being applied without a great deal of scientific application and the bags were not protected from the rough edges of the pallets. I think I can say that the DVD highlighted to me those obvious issues and it does not need engineering qualifications to find there are some obvious areas of simple practical improvement necessary.

41. Mr Ryan also said that the company was reviewing its transport processes and pack sizes as an ongoing process. This inquest is not in a position to comment on the effectiveness or compliance with this new system of dunnage or other processes being considered by Boral. However, I would certainly urge Boral to ensure that the air bag system is compliant with the LRG and that it is being used in a manner which is compliant and best practice.

42. It is abundantly clear from the evidence of all witnesses who have scientific or practical expertise in such issues that the load had a high centre of mass making it less stable. I will not repeat the Laws of Physics which deal with the static roll-over threshold. Essentially the rollover occurred because of the combination of the high centre of mass of the load and the speed at which it was driven around the particular 90 degree bend at Collinsville Road.

43. Mr Larsen states that while the load probably did not shift prior to the rollover, "*there is a high probability that the rollover occurred because the laden vehicle did not have sufficient lateral stability to resist rollover when travelling at the speed at which it was being driven around the Collinsvale Street corner*."[28]

44. It is also clear that the reason why this container had such a high centre of gravity was because of the pallet size, the configuration inside the container and the method of transport.[29] Boral is a major national company. This is a very significant work place health and general public safety issue. Boral should be considering all of these issues on a national basis and not in the ad hoc manner which the evidence indicates occurred in the past. This all needs to be documented. There seems to have been a reluctance in the past to focus on documenting compliance issues as is evident from the answers from Mr Ryan on that and other matters. With amendments to the Chain of Responsibility legislation this should heighten the focus on these matters.

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[27] The LRG gives such a system it approval "*Inflatable air bags(disposable or reusable) can be effectively used to restrain loads within containers" see. National Load Restraint Guide 2004,* p141

[28] supra, p.5

[29] Some reference was made during the inquest about alternative trailer arrangements. I do not propose to expand on that issue other than to repeat what the LRG says about this issue : *National Load Restraint Guide 2004*, p 36 "Special precautions must be taken when carrying a load with a high centre of mass. The load should be carried on a vehicle with a low platform height (e.g. drop frametrailer or low loader) or on a vehicle with good roll stability (see Figure B.3)".

Evidence of Speed

45. Electronic data from the prime mover's electronic engine and transmission management system indicates hard braking by the prime mover at 11.29.45am. Five seconds prior to that the speed of the truck was 49.1km/h.[30] The speed limit in Collinsvale Street was 50km/h. That limit was not signed but applied as the default speed limit in a built-up area. There was no sign indicating a lower advisory speed at the 90^0 corner.

46. Robert Leslie Nolan from Detroit Diesel Australia provided a statement and gave evidence explaining the comprehensive data obtained from the electronic control module.

47. The inquest has also heard evidence from the eye witnesses and Mr Lawson. The data and the observations and evidence of eye witnesses as to the calculated speed and the rollover of the trailer and prime mover are consistent with each other.

48. At the time the prime mover was coming out of the bend it was travelling at about 49 kmh. With the benefit of hindsight it is evident that at that speed the unit had reached its rollover threshold and the inevitable rollover occurred.

49. QPS Senior Collision Analyst, Sergeant David Tulloch, has provided a statement outlining, inter alia, Rollover Threshold Propensity (RTP) for the combination of truck, trailer and load involved in the incident and for other combinations (with lower centre of mass heights). He conducted tests at the accident scene to calculate the lateral G forces acting on a vehicle at a nominated speed around the bend. On his calculation the rollover threshold for the relevant combination was 52km/h.[31] As the centre of mass drops, for instance if lower drop deck trailers were used, then the roll over speed increases. His calculation is obviously in close range with the speed at which the prime mover and trailer actually reached the rollover threshold.

50. It was suggested in submissions that this is evidence of Mr Lawson driving the unit at a speed excessive in the circumstances. The inquest heard from Mr Garry Jones who was at the time of the incident a truck driver for SCL and Mr David White, the Workplace Health and Safety Manager for SCL. They had experience as truck drivers. They gave estimates of the speeds they would take around the bend at between 30-40kmh. I accept that evidence but at the same time I do not consider that it is determinative of a proposition that in travelling at 49/50kmh it could be said that Mr Lawson was driving at an excessive speed in the context that I would consider a reference to a prosecuting body as a potential finding of negligence in a criminal sense.

[30] SR2, pp.11 & 13
[31] Report of Sgt David Tulloch, p.4 (Annexed to SR4)

51. It must be said that in the circumstances of this particular trailer, with its high centre of mass, and on that particular bend that at 50kmh the rollover threshold was reached. That is when the trailer started to roll. The speed limit was 50 kmh. Mr Lawson had been given limited instructions as to the loads he was carrying. He took no part in the loading. Until the load rolled there is nothing in the black box data which indicates a propensity to drive aggressively or at the limit. There is also no evidence that at that time the inadequate method of restraint had contributed to the commencement of the roll over. I accept the evidence that at between 10 and 15 degrees lift there was a shift of the load in the direction of the roll. There is no evidence available to me whereby I can make a finding that the roll over was recoverable or irrecoverable at the time the load shifted. It all happened relatively simultaneously and it is impossible to say.

Signage and Other Preventative Measures

52. SC Dent spoke with a number of people about the issue of advisory speed signs and the lack thereof at the scene.

53. Jon Douglas is the Director (Traffic Engineering & Road Safety) Planning, Design & Operations Division, Department of Main Roads. Mr Douglas told police that it is not common practice to sign local roads with curve and advisory speed plates and advisory speeds are based on comfort considerations for cars. He said that centre of gravity issues make it difficult to determine an advisory speed for trucks.[32] He referred to the relevant Australian Standard and the Manual of Uniform Traffic Control Devices 2003 which advises that a truck tilting symbol be used at locations where there is a history of trucks overturning[33]. He conducted an inspection of the site and performed some basic tests. He now recommends the Brisbane City Council (BCC) conduct their own assessment concerning the erection of a curve advisory sign or advisory speed limit sign. He recommended the BCC install a “tilting truck” warning sign on the approaches to the curve. He further recommended Local and State Governments investigate other locations where there has been a history of two or more articulated vehicle overturn crashes, with a view to implementing appropriate remedial measures.

54. Webcrash data reveals there was a rollover at this incident scene on 28.01.02[34] and Mr Douglas said there had been two previous rollovers in the past 15 years.

55. Victor Nash is Traffic Engineer with the BCC. He spoke with police and explained the method for determining advisory speeds. He said the council “*tended to be reactive to incidents and that warning or advisory signs are not put on curves as a matter of course*.”[35] He confirmed that in light of the recommendations of Mr Douglas, the BCC had undertaken a preliminary investigation in relation to additional line marking, warning

[32] Email Jon Douglas to Sgt David Tulloch 07.12.06 (annexed to Tulloch Report, supra)
[33] SR4, pp.7 - 8
[34] SR2, p.27 and accompanying Webcrash database print-outs
[35] SR2, p.30

signs and a tipping truck sign. He agreed with the third recommendation of Mr Douglas.

56. On these issues there was very little controversy that the recommendations of Mr Douglas should be immediately made and the process commenced. It was noted that the BCC had not taken any action because of the pending inquest. As a result, I arranged for letters to be sent to the BCC and the Department of Main Roads on 10 September 2007 notifying them of my intention to make those recommendations and requesting they commence implementation.

Electronic Stability Program

57. Police investigations also included inquiries in respect of a product called an Electronic Stability Program (ESP). This product is designed to prevent truck rollovers[36]. David Oliver of Knorr-Bremse provided a statement which indicates that such a device could have been retro-fitted to a semi-trailer. He believes the ESP would have prevented the accident.[37] Knorr-Bremse manufactures the ESP and provided a promotional DVD demonstrating how the ESP works. He gave evidence and the inquest viewed the DVD demonstration. I do not intend to repeat the technical information provided on how it works. I am also mindful that the weight of Mr Oliver's evidence might be affected by the advantage Knorr-Bremse gains from promoting its product, but certainly the system on the face of it is a very valuable piece of safety equipment the transport industry and authorities should be considering utilising. It is also noted that there are other ESP manufacturers and the manufacturer of the trailer (Maxi-Trans Trailers) confirms that the ESP is available as an option for the type of trailer involved.[38]

58. It is beyond the ambit of this inquest to make specific recommendations as to the use of ESP systems. There are many practical and economic considerations that simply have not been explored.

59. Mr Williams however explained that Queensland Transport is often in discussions with transport industry representative bodies and the National Transport Commission. He had no objections to a recommendation that Queensland Transport should investigate the ESP systems commercially available and if regarded as suitable and viable, take up with the industry and the National Transport Commission its more widespread use.

Medical Evidence

The Autopsy

60. The incident occurred at about 11.30am and Mrs Young was declared dead at 1.53pm. While trapped in the van the deceased was initially stable however after she was administered an anaesthetic agent, suxamethonium, her heart rate dropped and she was difficult to ventilate.

[36] SR2, p.12
[37] Statement of David Oliver dated 15.05.06
[38] SR2, p.28

The pathologist, Dr Urankar, tested for an allergic reaction (anaphylaxis) to the suxamethonium and found that such reaction was possible given the results. The test involves investigating the level of tryptase, and that level can rise after death. Consequently, it is not possible to be certain the deceased had such an allergic reaction. It was noted that at the time the anaesthetic was administered Mrs Young was in a critical condition and emergency action was required.

61. It was opined that other possible mechanisms for death are a combination of pneumothorax and blood loss causing hypoxic injury to the brain. The fracture injuries suffered by the deceased were extensive and complex, causing significant blood loss but were insufficient to cause death on their own[39].

62. Dr Urankar concluded that *"it would be impossible to ascertain mechanisms described above were responsible for death. However, it would be more likely that all the possible mechanisms were collectively responsible and all these originally arose from the multiple injuries sustained in the motor vehicle accident*."

Toxicology – The Deceased

63. Analysis of 2 specimens of femoral blood revealed 0.003mg/kg of $\triangle^9$ tetrahydrocannabinol (THC). Dr Elisabeth Christensen, Forensic Medical Officer was asked to provide an opinion regarding the effect of that toxicity. Dr Christensen opined that:-
    - It is not possible to state with certainty that the level of THC would have impaired the deceased's ability to control a motor vehicle;
    - A person naïve to the use of cannabis is likely to have some impairment to their ability to control a motor vehicle with that level of THC toxicity; and
    - The levels of THC and its inactive metabolite, 11-nor $\triangle^9$ tetrahydrocannabinol- 9-carboxylic acid (0.010 mg/kg), suggest recent cannabis use, however it is not possible to state this definitively on the information available.

64. Mr Young gave evidence that his wife never used cannabis but he did use it on a casual basis. Dr Christensen gave an addendum opinion which agreed that inhalation from passive smoking could cause detectable levels of THC in the blood. I accept the evidence of Mr Young on this issue and that any level of THC was from passive inhalation. Further, the level of cannabis was low and there is no evidence her judgment or ability to drive was in fact impaired.

65. In any event it does not seem that anything the deceased did contributed to the incident and her death.

Toxicology – The Driver

66. The toxicology results for Lawson were reviewed by Associate Professor Hoskins who states that the drugs detected are commonly used for pain

[39] Autopsy Report, p.6

relief and nausea control and *"it is reasonable to conclude he was drug free prior to going to hospital."*[40]

Criminal/Offence Culpability

67. According to the Queensland Police Service, the evidence does not disclose criminal conduct. SC Dent advises that special attention was paid to the question of criminality. Advice was sought by the QPS from its internal legal division. That advice was that the evidence was insufficient to establish a case against the driver or Boral Bricks based on criminal negligence (s289 Criminal Code).

68. The principal basis for that opinion is that the driver was under the speed limit and while the truck was heavy it was not over-loaded. Although there are a number of aspects of this case which are of concern relating to the method of loading and restraint, the training of drivers and matters relating to Chain of Responsibility, I agree there is insufficient evidence to establish a case against the driver or Boral Bricks and I will not be referring the evidence to the Director of Public Prosecutions.

69. In relation to any potential breaches of the Load Restraint Guidelines, a coroner must not include in the findings or any comments or recommendations, statements that a person is or maybe guilty of an offence or is or maybe civilly liable for something.[41] In my view these sections unfortunately prevent me from making any finding about that issue although clearly I consider the method of restraint as being highly problematic. In any event it would seem the potential prosecuting authority already has in its possession the relevant information to make such a decision. It has not yet prosecuted and it would seem the limitation period for bringing such a charge has now passed.

Chain of Responsibility

70. I agree with the submissions of Counsel Assisting regarding driver knowledge and training concerning the responsibility for proper loading and restraint. Mr Cox for instance, took a fairly casual approach to loading responsibilities which no doubt was passed on to his drivers. There is some evidence of drivers being unaware of the specification and method of loading and were unable to check loads during or before transport. Industry wide, drivers are no doubt at the bottom of the pecking order and may have little empowerment in that process. I agree with her submission that the Court recommend that Queensland Transport incorporate information –

    (i) about driver responsibility for loads generally; and
    (ii) about the risks of rollover at low speed for high centre of mass loads

    in any information and training it provides in relation to the new 'Chain of Responsibility' concepts to be introduced through legislation this year.

[40] Fax A/Prof Hoskins to SC Dent 31.07.06 (Annexed to SR3)
[41] s45(5) and 46(3)

71. It is instructive to refer to the Explanatory Notes introducing the Bill which sets out those reforms.

> "*The amendments to TORUM adopt provisions from the national Road Transport Reform (Compliance and Enforcement) Bill 2003 (the national Bill) and will strengthen current heavy vehicle compliance and enforcement processes in Queensland. The national Bill is model legislation developed by the National Transport Commission (NTC) which is designed to achieve national uniformity and to improve compliance with, and enforcement of, heavy vehicle operating requirements. The objective of the reforms is to make positive changes to the on-road behaviour of those involved in the heavy vehicle transport industry and to ensure accountability of all parties influencing compliance with heavy vehicle transport laws. This extends to off-road parties and is referred to as the "chain of responsibility". The aim of chain of responsibility laws is to ensure that all parties who influence on-road behaviour are held accountable for breaches of road transport laws. Under this concept, legal liability can reach beyond the driver to other parties both within and outside the road transport industry so that the real causes of non-compliance with road transport laws are targeted. Reasons for the Bill Compliance and enforcement reforms Heavy vehicles are significantly over-represented in crashes causing fatalities, relative to other classes of vehicles. For example, articulated heavy vehicles such as road trains, b-doubles and b-triples have a fatal crash rate 18 times higher than that of cars. Recent increases in fatal crashes involving trucks can be attributed, in part, to increases in the amount of truck travel on Queensland roads. It is estimated that, as a consequence of Queensland's strong economic performance, the use of trucks to transport freight will double between the years 2000 and 2020. Without tighter regulation of the road freight industry, this has the potential to significantly impact on Queensland's future road toll. The evidence of potential heavy vehicle offences is often located in diverse locations and is impermanent in nature, making it easy to destroy or alter. The adoption of provisions from the national model legislation by the amendments to TORUM contained in this Bill will assist in the investigations of these offences. In aiming to minimise the adverse impacts of heavy vehicle road transport on the community and remove any unfair competitive advantage that may result from the breach of transport legislation, the amending Bill will benefit Queensland by: • providing an effective, efficient and equitable scheme for encouraging compliance with the requirements of Queensland's road transport law and for the enforcement of those requirements; • making a demonstrable, positive change in the on-road behaviour of those involved in the transport industry by removing commercial benefit for breaching heavy vehicle road*

rules; strengthening powers for enforcement officers to improve intelligence gathering and prosecution outcomes; • refining the chain of responsibility provisions to recognise all parties who affect road transport compliance and ensure that they can be held accountable for their acts and omissions where they result in a breach of transport law; and • implementing our commitment to national heavy vehicle compliance and enforcement measures, thereby removing cross jurisdictional variations."

Findings required by s45

75. I am required to find, as far as is possible, who the deceased was, when and where she died, what caused the death and how she came by her death. I have already dealt with the last of these issues, being the circumstances of Mrs Young's death. As a result of considering all of the material contained in the exhibits and the evidence given by the witnesses I am able to make the following findings in relation to the other aspects of the death.

(a) The identity of the deceased was Janet Louise Young.

(b) The place of death was the Princess Alexandra Hospital, Brisbane, Queensland.

(c) The date of death was 10 May 2006.

(d) The formal cause of death was:
1(a) Multiple injuries, due to or as a consequence of
1(b) Motor vehicle accident (driver).

Concerns, comments and recommendations

76. Section 46 of the Act provides that a coroner may comment on anything connected with a death that relates to public health or safety, the administration of justice or ways to prevent deaths from happening in similar circumstances in the future. As indicated I make the following recommendations:

- That Queensland Transport incorporates information about driver responsibility for loads generally; and the risks of rollover at low speed for high centre of mass loads in any information and training it provides in relation to the new 'Chain of Responsibility' concepts to be introduced through legislation this year.

- That Queensland Transport investigates the Electronic Stability Program systems and if it is regarded as suitable and viable take up with the industry and the National Transport Commission its more widespread use.

- That the Brisbane City Council –
  Erect a truck tilting sign in Collinsvale Street within the next 2 months;

Undertake a safety audit of Collinsvale Street to determine what else might be done to improve safety;

Undertake a safety assessment of those locations within its jurisdiction that are set out in the Webcrash data produced by Mr Douglas (Ex B13.3).

- That the Department of Main Roads issues a directive to relevant staff to review the Webcrash database to identify locations where there has been a 'cluster' of accidents and then assess those locations (when they are within the Department of Main Roads jurisdiction) for possible safety improvements.

Report on Implementation of Recommendations

77. As I indicated at the conclusion of hearing evidence I intended to immediately write to the BCC and Department of Main Roads concerning these recommendations so that any necessary investigations could be completed without any delay. I am pleased to say that both organisations have taken significant steps towards implementing the recommendations made and have reported to this office as follows:

Brisbane City Council

- All signs and pavement markings in Collinsvale Street including the Donaldson Road intersection have been upgraded. Curve warning signs have been installed and the advisory speed limit assessed. The initial assessment recommended 40 km/h for the main bend on Collinsvale Street (not currently signed) and 30 km/h for the bend at Donaldson Road (currently signed at 35 km/h). The advisory speed limits will not be installed until a Road Safety Audit Report on Collinsvale Street has been completed. The audit will be finalised by the end of January 2008 and will make final recommendations on the advisory speed limits.

- Tilting Truck signs have been installed on both approaches to the Collinsvale Street bend.

- A review of truck rollover crashes on BCC roads has been undertaken. A copy of the review was attached.

Department of Main Roads

- The Department has issued a comprehensive directive to all District Directors to undertake a safety audit of crash locations where two or more heavy vehicles have tipped over between 1997 and 2006. Site investigation reports are to be completed by March 2008 and signage works completed by June 2008. The directive states*: "Whilst the Coroner has not yet released his findings, his office has pre-emptively advised that it is going to recommend that locations where there has been a cluster of truck over turn crashes be assessed for possible safety improvements. It is important that this work be undertaken to demonstrate Main Roads commitment to proactively reducing the likelihood of repeat occurrences."*

78. I wish to thank the Brisbane City Council and the Department of Main Roads for undertaking the implementation of these recommendations in such a comprehensive and expeditious manner.

Conclusions

79. Most accidents are a result of a combination of factors converging at the one time. The roll over of the truck which caused the death of Mrs Young was similarly the result of the convergence of a combination of factors. In hindsight, it was avoidable. With a slightly lower speed, or a lower centre of mass, the crash would not have occurred. A truck tilting sign or speed advisory sign may have warned the driver to reduce his speed. More instruction to the driver about the potentially high centre of mass may have induced a more precautionary speed but speed alone was not the only cause. Evidence was given about other trailer combinations which would have reduced the centre of mass. Each of those factors has been addressed and some recommendations have been made which may reduce similar incidents occurring again, particularly at this bend. It is clear however, that all involved in the transport industry from Government, Industry groups, employers, contractors and drivers have their part to play in the reduction of such incidents in the future. The "Chain of Responsibility" legislation may also play a part.

I thank Senior Constable Dent for his comprehensive investigation in this sad case.

Counsel Assisting, Ms Wilson has also provided excellent advice in the preparation and conduct of this inquest.

I also thank Counsel who represented the parties for their assistance and the conduct of their respective cases.

To Mr Young, Ms Graham and the family of Janet Young, I again offer my condolences.

I close this inquest.

John Lock
Brisbane Coroner
23 January 2008