



OFFICE OF THE STATE CORONER

FINDINGS OF INQUEST

CITATION: **Inquest into the death of Michael James Cameron**

TITLE OF COURT: Coroners Court

JURISDICTION: Brisbane

FILE NO(s): 2012/758

DELIVERED ON: 9 February 2015

DELIVERED AT: Brisbane

HEARING DATE(s): 3 September 2014, 15-17 December 2014, 22 January 2015

FINDINGS OF: John Lock, Deputy State Coroner

CATCHWORDS: Coroners: inquest, workplace incident, crush injuries, mobile crane, free fall ability, lock out bar incorrectly installed, safety inspections

REPRESENTATION:

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Counsel for Gosens Industries P/L: Mr S Russell I/B M & K Lawyers

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Contents

Introduction	1
Autopsy results	2
Personal Details.....	2
The investigations	3
Crane Inspections.....	15
Involvement of Balfour Beatty UGL Infrastructure and training of Aus Truestyle employees.....	19
Conclusions	20
Findings required by s. 45.....	22
Identity of the deceased.....	22
How he died.....	22
Place of death.....	22
Date of death	22
Cause of death	22
Comments and recommendations	23

Introduction

1. Michael James Cameron was 57 years of age when he died as a result of a workplace incident on the morning of 1 March 2012. The incident occurred at a cropping field located on the Jandowae Macalister Road at Jimbour West (about 1 hour east of Chinchilla and about 45 mins north of Dalby).
2. A section of a new high voltage electricity transmission tower was being lifted by a crane, when the load suddenly fell. Mr Cameron was situated underneath the load, and he died as a result of the injuries sustained when the load fell on him.
3. Police established that Mr Cameron was an employee of Aus Truestyle Pty Ltd, who had been contracted by Balfour Beatty UGL to construct and erect large high voltage electricity transmission towers alongside existing towers from Tarong Power Station to the Kogan Creek Power Station. The project had commenced in mid 2011, and had been underway for about 9 months at the time of the incident.
4. The Queensland Police Service and the Office of Fair and Safe Work Queensland (OFSWQ) conducted investigations into the incident.
5. Mr Cameron's wife Kerry Cameron detailed some concerns with respect to how she was told of her husband's death. She also detailed a concern about how she believed that the operator of the crane was not appropriately licenced or qualified to operate the crane on the particular day.
6. OFSWQ had considerable difficulty in obtaining statements from the workers and ultimately the Office of the State Coroner made formal requests for statements through the employer's legal representatives. A significant period of time elapsed from the time of the incident to when statements were finally obtained from the workers.
7. It became apparent early in the investigation that a 'lock out bar', which was to prevent activation of the free fall mode of the crane, had been attached to the incorrect side of the free fall toggle switches. This meant the crane controls were potentially locked into free fall mode or some middle position, such that activation of either of the main or auxiliary winch brake pedals could engage free fall in the winches. This became a major focus of the investigation and the subsequent inquest.
8. The circumstances surrounding the installation of the lock out bar, work which was commissioned by Aus Truestyle and conducted by Gosens Industries (Gosens), was unclear on the evidence gathered.
9. Accordingly a decision was made to hold an inquest. The issues determined at a Pre-Inquest Conference to be considered at the inquest were as follows:
 - The findings required by section 45(2) of the *Coroners Act 2003*;
 - The circumstances leading up to the death;
 - The appropriateness of the installation of the lock out bar on the crane and the overall maintenance of the crane; and
 - The appropriateness of the training provided to employees of Aus Truestyle Pty Ltd in the lead up to the death.

Autopsy results

10. An internal examination was conducted by specialist forensic pathologist Dr B Terry on 7 March 2012.
11. External examination revealed that the facial features were distorted by crushed fractures of the skull, facial bones and jaw.
12. There were also grazes and lacerations over the right proximal lateral forearm and over the radial aspect of the right wrist. There were fractures of the mid right and left femur distorting the lower limbs.
13. Internal examination revealed multiple bilateral rib fractures. The pericardial sac was lacerated, as was the right ventricular wall of the heart. The right and left mid shafts of the femur were also fractured. Dr Terry also noted that there was moderate to focally severe stenotic calcific atherosclerosis of coronary arteries with focal stenosis of up to 75% of the vascular lumen.
14. Toxicology testing revealed no alcohol in the femoral blood, but there was a presence of alcohol in the urine (10mg/100ml-0.01%). No drugs were detected. Dr Terry opined that the alcohol was not contributory to the death.
15. The formal cause of death was due to massive soft tissue and bony injury. Dr Terry stated there were multiple comminuted (crushed) compound fractures of the ribs and skull with extensive laceration of the brain, heart and lungs. There was microscopic evidence of moderately severe coronary atherosclerosis.

Personal details

16. Mr Cameron had been married to Kerry Cameron for 13 years. Mrs Cameron was present at the inquest. Mr Cameron's daughter and son from his first marriage and his mother were also present for the inquest. His death in these tragic circumstances is clearly felt by the family.
17. Mrs Cameron provided a statement to police in April 2013. Mrs Cameron provided background information about Mr Cameron's career and where they lived at various times throughout Australia. He was an experienced crane operator and had been working with Aus Truestyle since around 1998, shortly before they met.
18. She said that Mr Cameron always remained vigilant over safety aspects of his job, given that the job was very risky. Mrs Cameron cited other deaths that she was made aware of through Mr Cameron's work. Mr Cameron was always very safety conscious and he would always try to teach the other workers the right way to do things. He was always up to date with his CPR and first aid training. She recalled that Aus Truestyle would hold day courses on topics like climbing, rigging and operating a 4WD.
19. The evidence from a number of co-workers at the inquest confirms Mr Cameron's extensive experience in the industry and his adherence to safety principles was constantly exhibited. On the evidence I have considered, it is probable that Mr Cameron found himself momentarily and likely inadvertently under the tower when it was being lifted. There was some conjecture that the death could have been avoided if Mr Cameron had not placed himself in the 'line of fire' by being directly under the tower as it was being lifted. Accepting that would clearly be a desirable situation, I suspect that in practical terms that

is not always going to be possible in all work situations and the reality is Mr Cameron should not and would not have expected the catastrophic failure of the winch that unfolded.

20. On the day of the incident, Mr Cameron should have been on a rest day, but he wanted to work through until Easter so that the job could be finished. Mrs Cameron did not think the workers were under any pressure from Aus Truestyle to complete the job. They were required to have 5-6 days off every 6 weeks. Mr Cameron was on his 5-6 days when he should have been resting. There is no evidence to suggest fatigue was a factor.
21. Mr Cameron was well at the time of the incident. The only medication he took was for gout, and he would only ever have a few beers when he got home from work each day. His only health issue was a sore back.
22. Mrs Cameron was informed of the incident over the phone by Andrew Scott of Aus Truestyle. She has expressed concern as to being notified in this manner and has subsequently discussed this with Mr Scott. I do not intend to comment further on that issue.

The investigations

Office of Fair and Safe Work Queensland investigation

23. OFSWQ were informed about the incident by telephone on the day it occurred. It was classed as a notification of an event that resulted in a fatality, thus coming under Part 9 of the Work Health & Safety Act. Ms Alison Cummings was the Principal Inspector who led the investigation. Ms Cummings was assisted by the following other OFSWQ personnel:
 - Ray Whelan (WH&S Senior Inspector);
 - Scott Munro (WH&S Senior Inspector);
 - Stuart Davis (WH&S Principal Advisor, Construction Engineering); and
 - Graham Bell (WH&S Principal Inspector).
24. First response officers were Ms Cummings and Mr Whelan. They arrived on site and issued a non-disturbance notice at about 1pm. The keys to the crane were also seized. A subsequent 'requirement to produce documents' was issued to Aus Truestyle. The crane was subject to testing, photographs were taken and experts attended to inspect the crane. Documentation relating to the purchase, maintenance, servicing and registration of the crane was obtained from Aus Truestyle.
25. It became apparent that the workers onsite at the time of the incident were not going to cooperate with OFSWQ inspectors by providing statements. Each worker had obtained legal advice to exercise the right to silence. This was said to have hampered the investigation.
26. OFSWQ did not pursue by way of coercive powers in obtaining statements due to the policy position of OFSWQ not to do so where the legal representation of the employer was also the legal representation for the employees/witnesses.¹

¹ Exhibit D1, OFSWQ report at page 6

27. I will deal here with a submission of counsel for OFSWQ that I should make comment or recommend that legal firms purporting to act on behalf of both interests place themselves in a position of conflict and thus prevents the timely gathering of evidence.
28. Counsel for the other parties given leave to appear urged me not to enter into that area saying that for an employer to have no access to its employees when considering incidents such as this would hamper the employer's capacity to adequately investigate for itself. Two of the counsel practice in other States and said to their knowledge that was not the position of their respective workplace health and safety agencies.
29. I have to say, this particular policy caught me by surprise. It is not uncommon, and even usual, for legal representatives to act for both employers and employees in inquest investigations. At some point a legal representative may determine that the interests of the employer are likely to be different to the interests of a particular witness and suggest or arrange separate legal representation. That also occurs regularly. On occasions there have been matters where I may have considered such a step could have been taken and was not, but ultimately that is a decision for the legal representatives exercising their ethical duty. A court may in such instances consider referring the conduct to the legal representative's professional association, but that would be only in instances of obvious and gross misconduct. For those reasons I do not intend to recommend or comment by way of endorsing such a policy in a prescriptive manner.
30. In any event my office then issued a number of Form 25's pursuant to s.16 of the Coroners Act so as to have statements taken from each of the workers.
31. Aus Truestyle and Gosens Industries also provided written responses to a variety of OFSWQ questions. Statements from relevant witnesses were eventually received by my office in December 2013 – through to early 2014. It should be noted that by this time Aus Truestyle had engaged another law firm and cooperation with the investigation improved. Gosens Industries responses were timely.
32. In response to the incident, OFSWQ issued a Safety Alert within a few weeks of the death, which referred to the need to correctly fit lockouts on cranes with free fall ability. The Alert encouraged the permanent disengagement of the free fall feature of cranes unless it could be demonstrated that the free fall ability was required. The Alert further stated that owners of cranes with a free fall lockout are to engage a competent person to inspect and test to ensure the lockout has been correctly installed and free fall cannot be inadvertently activated. The Alert was distributed to key industry stakeholders with a request for them to further distribute the Alert.

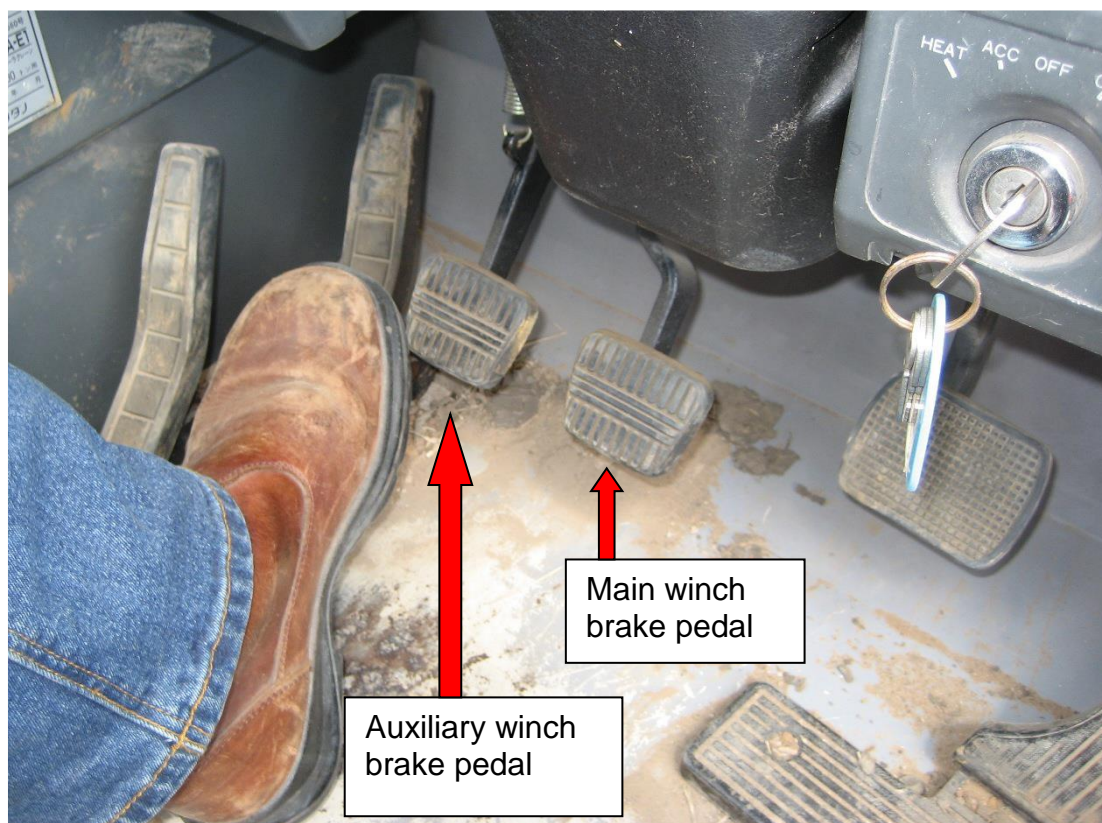
Inspection of the crane post-incident – discussion of free fall function – report by Stuart Davis (OFSWQ)



33. A review of the incident was conducted by Stuart Davis, Principal Advisor (Construction Engineering) within OFSWQ. On 5 March & 12 March 2012, Mr Davis inspected and carried out testing on the crane. Mr Travis Butler was employed as a crane driver to operate the crane on 5 March 2012. In November 2013 Mr Davis provided a report, in the form of an internal memorandum, detailing his opinion as to the cause of the incident.
34. Mr Davis confirmed that the crane involved in the incident was a Tadano TR 200M-5 mobile crane, known to be a rough terrain hydraulic mobile crane with a maximum lifting capacity of 20 tonnes (20,000kg). The crane was manufactured in Japan in 1999.
35. The crane is described as having two winch drums, one for the main hook block and the other for the auxiliary hook block. There is only one fall of rope attached to the auxiliary hook block. The single 'fall of rope' is known as the 'whip line'. The larger hook block has four falls of rope and this hook block is hoisted and lowered with the main winch.
36. At the time of the incident, the auxiliary winch was being used to lift segments of the transmission tower.
37. The hoist winches on this particular crane are each powered by a hydraulic motor. The crane operator has a separate control for the main and auxiliary winches. The winches can be operated by a hand control, or a foot pedal which are linked together. When the crane operator's hand/foot are removed from the controls the winch will stop and the winch brake will be applied. There are separate brake pedals to operate the free fall function. Provided that the free fall toggle switch has not been engaged, the crane will not go into free fall, even if those pedals are engaged inadvertently.

38. The auxiliary and main winch foot pedals are to the left side of the cabin floor. The corresponding hand controls are located on the right hand side of the operator's seat. It is apparent the free fall function can only be operated with the foot brake pedals to the right of the other operating pedals.

View of auxiliary and main winch brake pedals



39. The crane was fitted with a free fall facility with respect to both the main and auxiliary winches. The free fall switches were situated to the right hand side of the control panel. The panel denotes the separate switches with the letter 'M' for main and 'S' for the single or auxiliary winch.
40. Mr Davis opined that a free fall function was extremely hazardous, and in fact was rarely used in Australia. He said that newer cranes are generally not provided with the ability to have a load 'free fall'. However, a relatively large proportion of mobile cranes still operating in Australia have a free fall facility on their winches.
41. So as to increase the safety of such cranes, it has been an industry requirement that they be fitted with a 'free fall keyed lock out' under the *Mobile Crane Code of Practice*, so that the crane operator cannot unintentionally place the crane into free fall. This Code of Practice is peculiarly a Queensland Code and Mr Davis was unclear if it is replicated in other states. The Code of Practice states it is a practical guide such that following it would achieve compliance

with health and safety duties. Compliance can be achieved by following another method, if it provides an equivalent or higher standard.²

42. It is evident the lock out bar was installed as an alternative compliance method although there is no evidence to suggest other alternative methods were considered. The efficacy of that method was the subject of some conjecture and will be discussed later in this decision. Mr Davis said in evidence it could be argued the lock out bar met the intent if it had been installed properly.
43. The procedure to engage the free fall function is clearly stated in the operation's manual for the crane, which was located in the cabin of the crane. The procedure can be summarised as follows:
 - Lightly push down on the auxiliary winch brake pedal (the pedal at the furthest left side of the cabin floor);
 - Move the auxiliary winch toggle switch from 'On' to 'Free' at which point the green indicator light should go out;
 - Push the brake pedal down until the operator feels a shudder of some sort;
 - Slowly release foot pressure on the brake pedal until the auxiliary hook goes into free fall;
 - To stop the free fall push the brake pedal down until the hook stops lowering;
 - To totally disengage free fall, move the auxiliary winch toggle switch from 'Free' to 'On' at which point the green indicator light should come on.
44. On 5 March 2012, Mr Davis inspected the crane and conducted testing. The crane was turned off and there were no obvious faults or additions, aside from the red lock out bar situated on the lower side of the free fall toggle switches.
45. In Mr Davis's report he stated the crane was operated through a number of functions including the raising and lowering of both hoist ropes. Initially, the crane operated correctly and no faults were detected. The crane operator was then asked to operate the crane more erratically and was asked to push the auxiliary and main winch brake pedals down intermittently. After doing that for some time, the auxiliary winch suddenly went into free fall and the auxiliary hook block fell rapidly towards the ground. This exact action was then able to be repeated.
46. On 12 March 2012, further inspection and testing on the crane was carried out. The red lock bar was removed from the free fall toggle switches and both toggle switches were pushed down into the 'On' (free fall disengaged) position. The green indicator light on the auxiliary winch did not light up but the light for the main winch did.
47. The crane manufacturer's procedure to engage and disengage the free fall on the auxiliary winch was followed, and the following observations were made:
 - The winch would not go into free fall when the free fall toggle switch was in the 'On' (free fall disengaged) position, irrespective of how many times the auxiliary brake pedal was engaged/disengaged;

² Exhibit D19 Mobile Crane Code of Practice 2006. The varied Code commenced on 1 January 2012.

- The winch would intermittently go into free fall when the free fall toggle switch was in the 'Free' position and the free fall activation procedure in the operator's manual was followed; and
 - When a load of steel angle sections (less than 1 tonne) was placed on the auxiliary hook the load fell rapidly to the ground (about 5m in 1 second).
48. As a result of the testing conducted on 5 & 12 March 2012, Mr Davis was satisfied that the auxiliary winch was able to go into free fall when the auxiliary free fall toggle switch was in the 'Free' (up) position and the auxiliary winch brake pedal was engaged. Mr Davis said the fact that the auxiliary winch did not go into free fall every time the brake pedal was engaged is most likely due to the winch clutch sticking on the auxiliary rope drum. There is a warning note in the operator's manual which indicates that if the free fall function is not used for a long period of time, it can stick, thus might not free fall the first time it is activated.
49. Mr Davis opined there would have been inadequate time for the crane operator (Mr Jones) to take remedial action and apply the auxiliary winch brake and stop the free fall from occurring. There also would have been insufficient time for Mr Cameron to realise that the load was falling and to get himself out of the way.
50. Mr Davis said the red lock bar on the free fall toggle switches had been attached to the wrong side of the switches. Instead of the bar locking the switches into the 'on' position, and thus disengaging the free fall function, it was actually locking the switches into the 'Free' position, thus engaging the free fall function. The green indicator light, which is supposed to indicate when the switches are in the 'On' position, was not working for the auxiliary winch but it was for the main winch.

Lock out bar installed under the switches at time of incident



51. Mr Davis went through each of the different pedals on the floor of the operator's cabin. There were a total of 6 pedals – 2 x winch pedals on the far left, 2 x free fall brake pedals in the middle, and the road travel brake pedal and accelerator pedal on the right. Mr Davis opined that it would be relatively easy for the

operator to unintentionally depress the auxiliary winch brake pedal – especially if he had intended to activate the winch pedal just to the left of the brake pedal.

52. Mr Davis confirmed that the need to provide lock outs on free fall function of mobile cranes has been highlighted for many years. It is standard practice in the crane industry. The Mobile Crane Code of Practice 2006 states in s.6.6 *'when a mobile crane is fitted with a free fall facility, the free fall function is to be locked out with a keyed lock out.'*
53. The lock out bar installed on this crane was not a keyed lock out, however, Mr Davis states that this is not the issue. The issue is that the lockout had been fitted to the wrong side of the toggle switches, such that both winches were locked into the free fall position. Inadvertently activating the free fall mode was inevitable and made the operation of the crane extremely dangerous.
54. Mr Davis concluded that:
 - The fatal incident occurred because the free fall function on the auxiliary winch was inadvertently activated by the crane operator most likely when his foot depressed the auxiliary winch brake pedal;
 - The free fall lock out bar had been attached to the incorrect side of the free fall toggle switches – the crane controls were therefore locked into free fall mode such that activation of either of main or auxiliary winch brake pedals could engage free fall in the winches;
 - The crane user manual had adequate information on how to safely operate and effectively isolate the free fall function on the crane – reference to the crane user manual would have shown how the free fall function could be locked out and would have provided adequate information for the lock out bar to be attached to the correct side of the free fall toggle switches; and
 - The crane operator was likely unaware that the crane was in free fall mode and that he would not have had adequate time to apply the brake pedal prior to the falling load striking Mr Cameron.
55. Mr Davis said in evidence that at the testing he had heard a warning buzzer very quickly before the free fall commenced. He agreed a noticeable amount of force seemed to be needed to engage the pedal but this could be done inadvertently. This is contradictory to the evidence of the crane operator, Travis Butler, whose evidence is detailed further on in this decision.
56. Mr Davis said he would have expected the free fall function to have been the subject of inspections conducted annually, but certainly would form part of any major 10 year inspection.

OFSWQ conclusions

57. OFSWQ concluded the following:
 - An inspection of the photocopied crane operator's manual in the cabin suggested that the lock on the free fall toggle switches had been incorrectly located such that the switches were actually locked in free fall mode;
 - It appeared that the auxiliary and main winch could go into free fall if the brake pedal was depressed;
 - The red lock bar on the free fall toggle switches had been attached to the wrong side of the switches; and

- The lock out should have been a keyed lock out as recommended by the Mobile Crane Code of Practice 2006 – a keyed lock out is more tamper proof than a screw type such as that provided on the crane involved in this incident.
58. The issues identified by OFSWQ centred on the incorrect installation of the lock out bar over the auxiliary and main winch toggle switches. The crane had undergone a number of both major and minor inspections and repairs by various companies both in Australia and New Zealand, and the issue of the placement of the bar was never identified.
59. It would seem that the crane manual contained sufficient information such that, if it had been read, the lock out bar should have been installed correctly. From evidence led at the inquest it is now apparent that the original manual that came with the crane was in Japanese and another manual for a similar crane was later obtained.
60. OFSWQ confirmed post-incident measures, namely that Aus Truestyle had subsequently had the free fall system deactivated by removing the free fall switches and isolating the electrical wiring.
61. OFSWQ concluded that there was a lack of evidence that:
- The company was aware of the issue with the lock out bar;
 - The crane's free fall function had been used prior to the incident; or
 - There had been previous issues with the crane's free fall function.

Police investigation

62. The police investigation was lead by Sergeant Sean Relf of the Dalby District Forensic Crash Unit. His report was completed on 3 July 2013.
63. Whilst at the scene, police were able to obtain a version of events from Matthew Jones, the operator of the crane and the most senior person responsible on the work site. Following that, police had considerable problems obtaining statements from the workers who were present at the site. Aus Truestyle engaged legal representation and instructions were that no workers would be providing statements.
64. There were 8 workers (including Mr Cameron) on the site at the time of the incident:
- Matthew Jones;
 - Ricardo Peakman;
 - Ronald Kurt;
 - Callan Roberts;
 - Rhoderick Bettles;
 - Wayne Black; and
 - Jason Tramsek.
65. Police also identified a number of other potential witnesses who were employees of Aus Truestyle, but working at another site at the time:
- Nick Busch;
 - Billy Pellion; and
 - Callum Skinner.

66. Other witnesses who were identified as being associated with the project, but either on recreational leave at the time, or working offsite:
- Jacob Collins;
 - Matthew Walters;
 - Marshall Webster;
 - Dean Greensmith;
 - Richard Peakman; and
 - Andrew Scott.
67. The initial version of events obtained from Matthew Jones was that they were attempting to use the crane to lift off the ground the next section of tower to be attached. The section was made of steel, and about 3m high, 3m side and 10m long. Cables were attached to the closest end of the tower and it was that end which was being lifted, whilst the other end remained on the ground. They were attempting to stand the section up as they had previously done so throughout the project.
68. Mr Cameron was holding a guide rope, which was attached to the section being lifted. When the end of the tower was about 5m off the ground, the crane suddenly failed and the section of tower fell to the ground and struck Mr Cameron on the head. Mr Cameron had been positioned directly underneath the section.
69. Mr Jones and the other workers all tried to manually lift the section of tower off of Mr Cameron, but were unsuccessful. Mr Jones then used the crane to lift the section of tower off Mr Cameron. He was able to raise the tower just far enough off the ground so that it could be stabilised with blocks of wood.

Statements provided as a result of Coroners Act Form 25

70. The statements from each of the workers on site at the time of the incident generally concur with one another. The workers were all conducting the task of erecting the transmission towers; this had been an ongoing project for some 12 months. Mr Cameron was not operating the crane on this particular day. This was a 20 tonne crane being operated, and Mr Cameron was a large crane operator (usually operating 90 tonne cranes). The usual crane driver, Dean Greensmith, was on a recreation day. Matthew Jones was operating the crane instead. According to the workers and Mr Jones, this was not an unusual situation.
71. The end of the tower being lifted was at about a 45° angle when there was a loud bang, the sound of the chain unreeling, and the section of tower fell to the ground. Mr Cameron tried to get out of the way but was unsuccessful.
72. Mr Jones says that the tower was being erected in 5 different sections. They used the crane to lift the first two sections and had started to lift the third section when the tower unexpectedly fell and struck Mr Cameron. Mr Jones cannot explain why the section dropped, as the crane had operated with no problems during the first two lifts.
73. Mr Jones says that he had never operated the free fall function and did not know how to operate it. He actually believed that the free fall function was unable to be operated due to a lock out bar being installed across the switches, preventing them from being moved.

74. After Mr Cameron's death, Mr Jones and Mr Scott carried out testing of the free fall function on the crane. There were multiple steps involved to activate the free motion. Mr Jones says it took several attempts before he was able to successfully engage the free fall function. He lists the steps required to engage the free fall function as:
- Set the relevant switch to the free fall position, which was done by pulling a small lever out, clicking it up or down into place and pushing it back in;
 - Depress the corresponding pedal continuously for 3 – 5 seconds;
 - Activate a free fall motion by allowing the depressed pedal to lift similarly to how one would operate a clutch. The faster you lifted the pedal using your foot, the faster the free fall operated. Re-depression of the pedal would halt the motion of the hook.
75. Given how difficult it was for Mr Jones to engage the free fall function and the fact that it took several practices for him to engage the function successfully, he said in his statement he is confident that he did not accidentally engage the free fall function. In evidence at the inquest he conceded, given the close proximity of the pedals in the confined space, he may have touched the auxiliary brake pedal.
76. That concession became quite important after having heard the evidence of Mr Travis Butler. Four days after the incident on 5 March 2012, Travis Butler of Loughlin Crane Hire was brought to the site by OFSWQ to test the crane. He winched it up (unloaded except for the hook) about 5m off the ground, touched the free fall pedal (which is the actual brake pedal for the auxiliary winch) and the actual crane went into free fall and the hook dropped to the ground. Mr Butler was very specific that the degree of force required was simply a "brush" or "bumping" of the pedal, which did not need to be depressed fully before engaging.
77. Mr Butler then turned the crane off, and then turned it back on. He conducted the same test again and the crane went into free fall. Mr Butler told OFSWQ in an interview that the crane should not go into free fall at all. He said there was a lock out for the free fall on the dash that did not appear to be working. He told OFSWQ that he had driven similar cranes before and had never seen anything like this happen before.
78. He was unable to replicate the free fall on the main winch. He did not hear a warning buzzer before the free fall occurred. Video evidence played at the inquest clearly indicates a warning sound prior to the free fall occurring.

The crane

79. The crane involved in Mr Cameron's death was a 20 tonne rough terrain Tadano crane with the following identifying features:
- model number TR200M-5-00101;
 - serial number 521929;
 - engine number TR2030028;
 - plant number MC66; and
 - Victorian registration plates FRQ863.

80. Aus Truestyle had previously only had one of these cranes, but expanded the fleet in about 2007 due to an increase in big contracts. The 20 tonne rough terrain Tadano's were the right mix of roadability and capability for site works. The cranes could not be purchased in Australia, thus Aus Truestyle imported two second-hand cranes from Japan. The crane was manufactured by Tadano Limited in 1999. The invoice for the purchase of the crane indicates that this took place on 8 July 2009. The importation process involved obtaining approvals from various government departments and passing quarantine requirements.
81. It is now clear the crane was shipped to Victoria, where Gosens was requested by Aus Truestyle to undertake a major inspection and modifications to certify compliance under Australian regulations. A number of inspections were conducted by an engineer, Donald Nicholls with the last one being documented in February 2010. By this time it is almost certain the lock out bar had been installed on the free fall mechanism.
82. There appears to have been no documented request or order in any of the documents produced by Aus Truestyle or Gosens to address the free fall issue. Mr Gerry Gosens installed the lock out bar. He was excused from giving evidence due to medical evidence received, which indicated he was suffering from advanced dementia. Hence his evidence would have been unreliable. He would have been in his late 70's when he installed the lock out bar.
83. His son, and fellow director, Karl Gosens, was unable to be specific about the issue but presumed Aus Truestyle requested the lock out bar. The invoice for the work did not particularise the installation of the lock out bar. Gosens had been contracted to undertake a major 10 year inspection. He had not seen a similar bar on other cranes, as they were all different. He stated the manual supplied with the crane was in Japanese and had to be translated. Mr Gosens stated his company would have relied on Mr Nicholls and CraneSafe to certify the modifications.
84. The crane was in New Zealand in April 2011, as it was inspected by Neil Trilokekar, a senior industrial surveyor, boiler, crane and marine inspector. Mr Trilokekar works for an international company, Societe Generale de Surveillance, which goes under the name of a subsidiary company based in New Zealand, Tidd Ross Todd Ltd.
85. On 6 April 2011, the crane was certified in accordance with New Zealand safety standards for Aus Truestyle. It seems it was then shipped back to Aus Truestyle in Australia (Victoria) to undergo modification of the tyres to comply with Australian road registration requirements and a major inspection to comply with Australian Standards. Gosens engaged Mr Nicholls to observe the major inspection and certify that the crane was compliant with Australian Standards.
86. The crane was then transferred to western Queensland for the commencement of the project on which Mr Cameron was working at the time of his death. This project is said to have commenced in June 2011.
87. Once in operation, the cranes were to be serviced every 500 hours or approximately every 10-20 weeks depending on the individual crane and the project. A service generally would involve tasks such as changing oil, greasing the booms, lubricating ropes and inspecting hydraulic lines. The service would not involve stripping down any of the components.

88. Dean Greensmith, the usual driver of the crane, was on recreational leave at the time of Mr Cameron's death. He confirms that whenever he was on leave, Mr Jones would drive the crane.
89. Prior to Mr Cameron's death, Mr Greensmith had never provided training to anyone else about how to operate the crane. With respect to the free fall function, he believed that the crane did have that feature, but that it had been barred by the installation of a lock out bar. He had never been shown how to use the free fall function, because he had thought it was not operational.

Installation of the lock out bar – Gosens Industries Pty Ltd and overall maintenance of the crane

90. The Tadano manufacturer's manual for the crane explains the free fall function from page 111; this is the section explaining 'hoisting' and provides various warnings about conducting that exercise. One of the warnings clearly states "*if the winch clutches are set to their FREE positions, the load could drop and cause an accident. The winch clutch switches should normally be kept in their ON positions.*"
91. Further, another warning states that '*if the winches remain unused (or free-fall operation is not performed) for a long period of time, the performance of the winch brakes and clutches may decrease due to rust gathering on their friction surfaces and winch clutch being stuck to the drum. When using the crane after a long period of time, be sure to check the performance of the winch brakes and clutches before using them.*' This warning explains why the free fall function might not have become operational straight away on the day of the incident.
92. The manual then goes on to explain exactly how to hoist by using the main winch, and then the auxiliary winch. It clearly states that the relevant clutch switch should be set to 'On' (meaning that the hoist is operator controlled). The manual also explains how exactly to activate the free fall function, and it clearly says that the relevant clutch switch should be set to the 'Free' position.
93. The evidence relating to the installation of the lock out bar is sparse. As part of the OFSWQ investigation, Aus Truestyle and Gosens provided responses to a set list of questions. The sum of that evidence is as follows:
 - The contract for purchase is dated 8 July 2009;
 - Gosens was commissioned by Aus Truestyle to undertake work on the crane, following its importation from Japan;
 - The work commissioned on the crane was a major inspection and also for the free fall function to be disabled
 - The major inspection included a full strip down of the unit to replace/repair any items not complying with the various standards; it also involved a thorough safety inspection and testing of the crane;
 - Gosens installed the lock out bar sometime in late 2009;
 - The installation of the lock out bar was due to a verbal request from Nicholas Morris of Aus Truestyle;
 - The lock out bar was installed horizontally across the clutch switch;
 - Gosens was of the view that there were no manufacturer specifications regarding the installation of a lock out bar to disable the free fall function. The manual provided was in Japanese. An English

translation was organised and became available, but it is unclear when;

- The person who installed the lock out bar was Gerry Gosens who is the owner and Managing Director of Gosens Industries;
- Mr Gosens has installed lock out bars previously;
- Gosens had a major inspection conducted of the crane in February 2010 by engineer Donald Nicholls. As a result of this inspection the crane was considered satisfactory for continued use to manufacturer's specifications and AS2550.5 until February 2015;
- Following the certification from Mr Nicholls, the crane was inspected by Chester Kyle (on behalf of CraneSafe) in March 2010;
- CraneSafe then inspected the crane on an annual basis, the last of these inspections occurring in September 2011;
- The crane was also inspected by Neil Trilokekar, independent engineer, in New Zealand on 6 April 2011;
- Gosens was of the view that the lock out bar was installed correctly given that the crane was certified by an engineer (Mr Nicholls) and also passed various CraneSafe inspections which oversaw test lifts.

Crane Inspections

After the incorrect installation of the lock out bar, the crane was inspected and examined by a number of other professionals including CraneSafe and other engineers and the incorrect nature of the installation was not detected. It was inspected on the following occasions:

1. Certified by engineer Donald Nicholls of Donic Independent Engineering Services ('DIES') on 27 February 2010³;
2. Inspected by CraneSafe endorsed assessor, Chester Kyle on 25 March 2010⁴;
3. Inspected in New Zealand on 25 November 2010 (unable to be determined who conducted this inspection);
4. Inspected by Melvin Powell of Vehicle Inspection New Zealand on 2 February 2011⁵;
5. Inspected by Neil Trilokekar, independent engineer, in New Zealand on 3 February 2011;⁶
6. Inspected and certified by Neil Trilokekar in New Zealand, on 6 April 2011;⁷
7. Inspected by Chester Kyle for CraneSafe, on 9 September 2011.⁸

Donald Nicholls

94. Donald Nicholls was the last witness called at the inquest. In fact the inquest was adjourned to enable his evidence to be heard as there had been difficulties in serving Mr Nicholls with a summons to appear and it became apparent his evidence was crucial. It seems he had been a mechanical engineer since 1956. He worked for Workcover in Victoria for a number of years until he became a consultant in 1978. His consultancy was focused on heavy machinery, of which inspection of cranes formed a part.

³ Exhibit E13

⁴ Exhibit E14

⁵ Exhibit E11.1

⁶ Exhibit D11

⁷ Exhibit D11

⁸ Exhibit D30

95. Mr Nicholls was involved in the major 10 year inspection conducted on the crane by Gosens over a number of months in 2009 and culminating in his certification of safety on 27 February 2010. He advised the inspection was in accordance with AS 2550.5. He was involved in a number of inspections over a number of months, although the paperwork in that regard is somewhat lacking other than the final certification report. Interestingly he said he was not involved in the load testing of the crane, as this was conducted by CraneSafe a month later.
96. His instructions were verbal and was essentially to supervise the major inspection for Gosens. Specifically in relation to the lock out bar, he was not at first aware a lock out had been installed but was told about it sometime later. He says he was told by Gerry Gosens that Mr Gosens had been in contact with Tadano Australia and had been given verbal instructions about how to install the lock out bar. Given Mr Gosens cannot give evidence, and it would be unfair if not impossible to expect Tadano to be able to comment on this, I base no particular importance on this evidence.
97. What is of significance is that Mr Nicholls says he gave verbal advice to Gosens to obtain a translation of the manual from Japanese to English, but at no time did Mr Nicholls actually read or check an English version of the manual. He says he would have seen the lock out bar but accepted it had been installed correctly in accordance with Tadano's instructions. It was concerning that notwithstanding the requirements of section 7.3.5 of AS 2550.1, which deals with major inspections, he seems to have ignored the requirement of reviewing the English version of the manual and cross checking the manual's reference to the free fall lock out that had been installed. Mr Nicholls simply did not give any attention to the efficacy of the free fall lock out.
98. He says the free fall was checked to make sure it was not operational. He accepts Gosens was relying on him to check everything was right and safe to use. He agrees that on subsequently reading the English version of the manual that it is clear that the section marked "Free" on the instrument panel meant the free fall was activated and the words "On" denoted the clutch was on and effectively braking the free fall. He was not aware the Queensland Code of Practice recommended a keyed lock out.
99. It was concerning at the inquest when Mr Nicholls mistook the nature and use of the various pedals in the cabin of the crane when asked about them.

Chester Kyle (CraneSafe - VICTORIA)

100. Mr Kyle stated he had worked with CraneSafe as an endorsed assessor for 10 years. He had also previously worked with the Victorian equivalent of WH&S for some 17 years. He has been retired for the past 12 months.
101. His arrangement with CraneSafe was that he was on a list of endorsed assessors and he would be requested by CraneSafe to carry out an inspection. The purpose of CraneSafe is to ensure that all cranes are regulated, and that the standard of cranes conform to the regulations. CraneSafe is noted on documentation to be a division of the Crane Industry Council of Australia Ltd.

102. He conducted two inspections of the crane on 25 March 2010 and on 9 September 2011. The first took place in Victoria and was part of the major 10 year inspection involving a full strip down of the crane.
103. Mr Kyle seems to think the lock out bar was installed when he inspected it. He said there was no requirement to test the free fall function of the crane during this inspection.
104. The second inspection took place in Queensland. This was a 12 monthly inspection. He said there was also no requirement to check the free fall function during this inspection. He did say that when the 'weights' are tested, this involves an experienced operator inside the crane cabin who was to operate the hoists to test the various weights that the crane could lift. He would stand to the right beside the cabin whilst this weight test was being done. The crane never went into free fall.
105. A third inspection was conducted by CraneSafe after the incident when the free fall function was completely disabled. He did not do this inspection.
106. In his evidence it was quite apparent he considered the fact that the lockout bar was on the side of the "ON" section meant the free fall would not operate. He was of the mistaken impression the toggles needed to be switched to the "ON" position to work the free fall. He was not aware that the illumination of the two green lights meant the clutch was engaged, and hence if they were not on this potentially was an indicator the free fall was operational. He thought the very opposite and that if the lights were on, the free fall was activated.
107. He agrees now that in any inspection, particularly a major inspection, the free fall function should be tested.

Melvin Powell (Vehicle Inspection NZ – VINZ)

108. Mr Powell had worked for VINZ for 5 years and he was currently with the NZ Transport Agency.
109. He conducted a safety inspection on 2 February 2011.⁹ The safety inspection did not include any lifting of equipment or the crane's operation. The Certificate of Fitness (COF) inspection only included the parts of the vehicle that are relevant to the safe operation of the vehicle whilst travelling on the highway i.e. steering and suspension systems, lights, brakes, tyres and chassis condition. Those components were checked for performance, modifications, condition and mandatory requirements being met.
110. He could not comment on any in-cab modifications or the crane's lifting gear as this was not part of this inspection.
111. He noted the crane failed this particular safety inspection (for the reasons noted on the report) and is unsure where the crane went after this inspection. In relation to the lock out bar he said he was not required to report on any free fall function or the lock out of such function.

⁹ Exhibit E11.1

Neil Trilokekar

112. Neil Trilokekar of SGS in New Zealand conducted two inspections. In his evidence he clarified he only inspected visually once. The second inspection document simply passed the crane after he had received confirmation that remedial works he ordered had taken place.
113. In general information he indicated that the Regulations in New Zealand make it a mandatory requirement that a crane is inspected and certified by a 3rd party inspector who is accredited by the Certified Board for Inspection Personnel (CBIP).
114. The regulations in New Zealand essentially compare to those in Australia, however just because a crane is certified as safe for use in New Zealand, does not mean that the certificate is valid in Australia as it needs to comply with Australian Standards to be operational in Australia.
115. Because this was an imported crane, according to the New Zealand mobile crane code of practice, it had to undergo a safety certification process.
116. He conducted an inspection on 3 February 2011.¹⁰
117. He said he would not have noticed a lock out bar during this inspection as this crane was not used for free fall function in New Zealand, and because of this fact, the free fall function was not tested. He stated that his inspection is to consider the safety features of the crane and not the operational features such as the winching and free fall. He failed the crane on this inspection for various reasons not related to the free fall function.
118. As stated in evidence the subsequent inspection document of 6 April 2011 was simply certifying the crane as being safe after remedial works were confirmed and was not a visual inspection. Once again, the free fall was not tested and this crane was not used for free fall function (apparently no cranes in New Zealand are used for their free fall function). This certification was only valid in New Zealand and did not extend to Australia.

Measures taken with the crane since the incident

119. On 26 March 2012, Aus Truestyle commissioned an inspection of the crane by MetroTech Pty Ltd (engineers). Interestingly, the report of that engineer thought that the lockout bar was located correctly as the bar was over the 'On' sign, suggesting the free fall mechanism was off. They also looked for the operator's manual in the cabin but were only able to find a Japanese version. He was advised that an English version was available but was currently being used by others. He subsequently contacted Tadano who was able to provide him with an extract of an operator's manual for a crane fitted with the same type of freefall system. He stated that upon reading these instructions it became apparent the switch position relates to the clutch operation which controls the free fall.
120. This report noted Mr Gerry Gosens stating the crane operator had not used the brake pedal during the lowering operation and thought he heard a bang just before the load dropped in free fall mode. They raised the possibility the auxiliary Winch might have failed and the free fall mode was not engaged. In

¹⁰ Exhibit D11

any event a recommendation of that inspection was the free fall system be dismantled completely.

121. The Crane was inspected by Tadano in April/May 2012.¹¹ This noted the free fall switches were locked into “Free” position which meant the winches were on standby for activation of free fall. Testing of both the main winch and auxiliary winch activated the free fall when the brake pedals were depressed and then released to allow the weight free fall. This was in accordance with the operation of the winch free fall as per the operator’s manual.
122. Tadano then inspected both winches which were removed and stripped down to check for any damage, excessive wear or abnormalities. These inspections indicated all items were in good order and suitable for continued operation. The free fall system was deactivated by removing the free fall switches and isolating the electrical wiring. The brake pedals were also removed. The crane was tested and confirmed in a certificate that the free fall function had been successfully disabled.
123. Aus Truestyle confirmed to OFSWQ that it had arranged for the free fall function to be completely disabled on all of its cranes.

Involvement of Balfour Beatty UGL Infrastructure and training of Aus Truestyle employees

124. Balfour Beatty UGL subcontracted Aus Truestyle to supply labour, plant and equipment with respect to the job formally referred to as the ‘Western Downs to Halys Transmission Line’ project. The contract between the two parties was entered into on 26 May 2010.¹²
125. The scope of the work for which Aus Truestyle was responsible for is detailed on pages 7 – 8 of the contract. Occupational Health & Safety is dealt with from page 14 of the contract. It says that the subcontractor (Aus Truestyle) is responsible for ensuring that each of its employees working on the site has successfully completed a General Occupational Health and Safety Induction Training Course for Construction Work prior to commencing any work on site. Evidence of that induction training was required to be provided to the main contractor (Balfour Beatty UGL).
126. The inquest has been provided with the safety inductions for each of the workers who were onsite at the time of the incident. Mr Cameron’s documentation shows that he was inducted on 30 May 2011. The contract required, among other things, that daily JSEA’s (Job Safety & Environment Analysis) be conducted on site. The relevant JSEA, entitled ‘Erection of Transmission Towers’ were provided.¹³ It confirms that daily crane checks were to be conducted. Not surprisingly, there is nothing in those records to indicate a problem with the free fall function or the lock out bar.
127. The Aus Truestyle representative responsible for workplace health and safety, Andrew Scott, gave evidence and provided a statement. He is the Operations Manager, Transmission Systems. In his statement and later in evidence at the inquest, he confirmed the following with respect to the training of employees:

¹¹ Exhibit F2

¹² Exhibit F1

¹³ Exhibit D4

- All Aus Truestyle employees assigned to the project were given inductions;
- The main project induction was provided by Balfour Beatty UGL and covered the project details, site safety, emergency management plans, environmental plans, personal protective equipment requirements relevant to the project and Balfour Beatty's 'Golden Rules', one of which was for employees to 'avoid working under suspended loads';
- A separate induction was conducted by Aus Truestyle which covered Safe Work Method Statements (SWMS's), JSEA's and work procedures relevant to the project. The work procedures and SWMS's/JSEA's covered all safety issues particular to the scope of work that was being carried out;
- Each day on site, the Aus Truestyle crew were required to carry out a pre-start briefing to identify any site specific safety issues and a daily pre-start check on all plant equipment;
- Aus Truestyle appointed a safety representative onsite and this was Rhoderick Bettles, although site safety was known to be everyone's responsibility;
- The appointed site supervisor was Matthew Jones – all concerns were to be reported to Mr Jones who would then report them to Mr Scott;
- There were also designated safety officers on site on behalf of Balfour Beatty.

Conclusions

128. In reaching my conclusions it should be kept in mind that 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.¹⁴ 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.
129. If, from information obtained at an inquest or during the investigation, a coroner reasonably believes that the information may cause a disciplinary body for a person's profession or trade to inquire into or take steps in relation to the person's conduct, then the coroner may give that information to that body.
130. There does not appear to be any training issues that contributed to the death in this case. Appropriate health and safety procedures were adopted by Balfour Beatty UGL and Aus Truestyle. The employees were licensed and trained in their respective positions.
131. Aus Truestyle had no reason to suspect the lock out bar had been installed incorrectly. It was entitled to rely on Gosens and the inspection processes, and in particular those of Mr Nicholls and Mr Kyle to ensure the free fall function had been deactivated. There was no need to involve the employees in any specific training on that issue.
132. It is clear that the lock out bar was installed without any regard for the manufacturer's manual. It has to be said that the method adopted, even if

¹⁴ s 45(5) *Coroners Act 2003*

correctly applied, was simplistic at best. It did not satisfy the definition of a keyed lock out. In addition to this, the crane was inspected on numerous occasions by persons purported to have some technical expertise and the issue with the lock out bar was not detected. I accept the testing in New Zealand was not considering the operational features of the crane but its road operating features, and therefore no comment will be made about their procedures, other than the limitation to their testing should be made clear for those who may later read their reports or certificates.

133. However, the testing by Mr Nicholls and CraneSafe (Mr Kyle) should have considered the efficacy of and tested the deactivation of free fall function.
134. It is accepted the features on the panel with the use of the words 'Free' and 'On' are confusing and certainly should not be replicated in other models of cranes using a free fall function. I can think of a multitude of more effective and clearer instructions. However, it is extraordinary that no-one, either at Gosens or during the inspections by Mr Nicholls or Mr Kyle, thought to clarify how the functions were to operate. They obviously either did not cross check with the English version of the manual when it became available, or if the English version was considered, simply did not understand the significance. Either way this is very concerning.
135. Further, no-one seems to have grasped the importance of understanding that the non-illumination of the two green lights indicated the free fall function was potentially operational on both winches. Accepting the auxiliary winch light perhaps became non-functional at some unknown time, the main winch light was operational and should always have been illuminated if the free fall was dis-engaged. That should have rung alarm bells. It clearly didn't.
136. After the incident the crane underwent further modification and testing to ensure that the free fall function was no longer working. It is highly unlikely the same amount of testing of the free fall function occurred after the lock out bar was installed.
137. The crane was operational for some two years without any incident involving the free fall function. That may have been by some good fortune but was also likely due to the fact there needed to be some direct and deliberate and forceful application to depress the foot pedals. Given none of the operators would have intended to activate the free fall, they never had need to take that action.
138. The events of 1 March and then the testing of 5 March 2012 now indicate that there is some possibility of some other fault occurring which caused the auxiliary winch to fail without warning and without the operator going through the procedures necessary to operate the free fall function. To that extent, I agree partly with the submissions of counsel for Gosens.
139. I say this on the basis that Mr Butler importantly confirmed he simply needed to brush the pedal to activate the free fall and no buzzer sounded. This is consistent with the version of events of Mr Jones, who was adamant he did not push down on the pedals. He did not have to. It is now most likely he indeed brushed against the pedal and this activated the free fall, but this was not in accordance with the function as it was intended to operate, including the absence of the warning buzzer.

140. The freedom in movement of the toggles as indicated in one of the videos post incident may have been one of the factors, which indicated there may be a third neutral position, which somehow activated only the auxiliary winch free fall. There may have been some other electrical or switching fault as suggested by counsel representing Gosens. Certainly there was no mechanical fault to the winch as that was tested and examined and it otherwise operated as it should. Unfortunately, if there was some electrical switching or other issue, this does not appear to have been examined at a technical level and cannot now occur as the free fall system and electricals have been removed.
141. I do not agree with Gosens' submissions that no causal relationship between the installation of the lock out bar and the incident can be suggested. What can be said is the lock out bar was installed incorrectly. This was intended to deactivate the free fall feature altogether and clearly it did not. If it had been installed correctly this may have prevented the failure occurring. It cannot be ruled out that the free play evident between the middle neutral position and the activation position is the possible culprit and if the same free play on the deactivated side had occurred (through a correctly installed lock out bar) then the incident may not have occurred.
142. I do accept however, given the totality of the evidence, and in the absence of an unequivocal technical explanation, that a clear causal factor between the lock out bar installation and the incident cannot be ruled in or out. It unfortunately remains now uncertain on the evidence.

Findings required by s. 45

Identity of the deceased –	Michael James Cameron
How he died –	Mr Cameron was employed as a rigger/crane driver on a project erecting power line towers. During the morning he died he found himself inadvertently under a section of tower being lifted by a mobile crane. The load went into free fall. The free fall function on the crane was supposed to have been disabled 2 years earlier with the installation of a lock out bar. The lock out bar had been incorrectly installed such that it was not in fact completely de-activated. This had not been rectified despite a number of technical inspections having certified the crane's operational safety. Unfortunately the evidence is unclear as to what precise mechanism brought about the catastrophic consequences of the load going into free fall, however a causal relationship to the installation of the lock out bar and the incident cannot be ruled in or out.
Place of death –	1238/Jandowae Macalister Road, Jimbour, Queensland
Date of death –	1 March 2012
Cause of death –	Massive soft tissue and bony injury

Comments and recommendations

143. The applicable Australian Standards¹⁵ are silent as to the issue of free fall functions and how they can or should be locked out. By comparison the *Qld Mobile Crane Code of Practice* makes specific reference to the need for the free fall facility to have a keyed lock out. This crane was evidently being utilised across state and other jurisdictions and it would seem appropriate that the regulation of free fall functions and safety features on cranes should be consistent, despite our Federal/State complexities. It may be best to regulate this issue through amendments to the Australian Standard rather than leaving it open to various State voluntary Codes of Practice.
144. In that respect I recommend to Australian Standards that its committee dealing with the mobile crane standards review the standards to consider if any amendments should be made to include, but not limited to:
- how free fall mechanisms can most effectively be made inoperative and should this be included in the Standard;
 - if free fall capability is to remain on a particular crane, as to how the functions can be unambiguously signed and locked out when not in use; and
 - the provision of appropriate certification by relevant experts that such functions are now safe and adequate.
145. Given the annual inspection regime conducted by CraneSafe and the deficiencies made most evident in this case of aspects of the inspection regime, I recommend that CraneSafe review its inspection program to include an inspection of and testing of the free fall function and appropriate safety features as against the operations manual if such functions are capable of continued operation.

I close the inquest.

John Lock
Deputy State Coroner
BRISBANE
9 February 2015

¹⁵ AS 2550.1, 2550.5 and AS 1418.1 and 1418.5