QUEENSLAND COURTS

OFFICE OF THE STATE CORONER

FINDINGS OF INQUEST

CITATION:	**Inquest into the death of D and F, a child**
TITLE OF COURT:	Coroners Court
JURISDICTION:	Brisbane
FILE NO(s):	2014/51
DELIVERED ON:	26 September 2014
DELIVERED AT:	Brisbane
HEARING DATE(s):	20 May 2014, 6-8 & 11-12 August 2014
FINDINGS OF:	John Lock, Deputy State Coroner
CATCHWORDS:	Coroners: inquest, quad bike accident, roll over

REPRESENTATION:

Counsel Assisting: Mr P. De Waard, Office of State Coroner

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Contents

Introduction

Approximately 170 deaths over the past decade have occurred in Australia and New Zealand whilst Quad Bikes were involved. Most of these have occurred in a rural setting and the leading cause of death on farms in Queensland has some involvement with a quad bike.[1]

It is uncontroversial to say that a number of the statistical sources confirm that the majority of deaths occurred in the age group of 10 – 19 and a second highest age group for those over the age of 50.

Quad Bikes are essentially four wheeled motorbikes. They are motorised vehicles designed to travel on four low-pressure tires, having a seat designed to be straddled by the operator, and handlebars for steering control. They are used for both recreational purposes, either privately or in tourism, or for agricultural purposes. In Australia and New Zealand they are typically used in rural settings. They are utilised by search and rescue teams. In the United States of America they are also used in rural settings but the majority are used in a recreational setting.

Whatever may be said about their utility, they have become essential equipment on many farms. That being said, the evidence gathered during this multiple inquest raise many issues including the importance of active riding, good maintenance, use of correct tyre pressure, use of helmets, not allowing children to ride adult sized quad bikes, understanding the limitations of the vehicle and that tragic incidents can occur in quite benign conditions. The cases also emphasise the importance of riders making appropriate decisions.

Most standard quad bikes have no roll over protection system (ROPS). In broad terms, a ROPS is a cabin or roll bar structure on top of the quad bike, which incorporates a seatbelt to restrict movement outside the protective zone in the event of a roll over. Other possible protection mechanisms include Crush Protection Devices (CPD), which is a two bar or circular structure attached to the rear of the vehicle, which aims to provide a protective space in the event of a roll over, but without a seat belt. The utility of either device has been the subject of considerable debate.

Quad Bikes are referred to by the manufacturers and marketed to the public as 'All Terrain Vehicles' (ATVs). There has been some criticism of the use of that term.[2] In this inquest it is intended to adopt the term Quad Bike, but I do so conscious of both arguments and simply use the term in this phase of the inquest because it is one known better to the general public in Australia.

There has been considerable research, studies, reports and investigations carried out by varying persons and organisations considering how to reduce the number of quad bike related accidents. Although there is considerable agreement in relation to a number of issues, there has been robust debate between the main protagonists and considerable difficulty in reaching a consensus as to how to move forward on some of the more contentious issues.

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[1] Lisa Crockett, *National Coronial Information System Database Search.* The report was dated up to 1 January 2013 and noted there is a possibility of underreporting due to filing errors and currently open investigations. The deaths involved in this inquest would not be included. By the time of the inquest the figures estimated were closer to 195.

[2] Coroner John Olle, *Record of Investigation into Death of Thomas John Hutchings* (2009) State Coroner Victoria, case number 3067/02, p 4. Coroner HB Shortland, *An inquiry into the death of Carlos Mendoza,* Coroners Court New Zealand, CSU- 2010-WHG- 000185 at p 25

This inquest will examine the circumstances of the deaths of nine individuals. Findings in relation to each of those cases will be made in the first phase of this inquest. In the second phase I will hear evidence concerning what recommendations should be made to help prevent deaths occurring in similar circumstances in future.

The evidence

1. This tragic multiple fatality involves a child and a related family member. For the purpose of protecting the family from as much further distress as was possible in the circumstances, on 20 May 2014 I made a non-publication order prohibiting the publication of the names of the deceased persons, and any information that identifies or is likely to identify them.

2. Mr D and his nephew, F, died on 3 January 2014 in a quad bike roll over accident due to crush injuries. The roll over occurred when Mr D attempted to climb an incline in a creek bed on his quad bike, with F as a pillion passenger. The incident occurred on a private property in Far North Queensland. Mr D was 40 years old and F was 9 years old.

3. Mr D was looking after a friend's property down the road whilst they were away. He had reportedly turned the sprinkler system on at their property on the morning of 3 January 2014. His 9 year old nephew, F, and F's parents were on holidays from Victoria at the time and had been staying with him and his wife.

4. That afternoon, whilst Mr D's wife and family visitors were out, it is apparent that he consumed an unknown quantity of alcohol. When the other family members returned at around 6:30pm, Mr D advised them that he was going to ride his quad bike to his friend's property to turn off the sprinkler. He took F with him. F sat behind him, either as a pillion passenger on the seat or on the rear rack of the quad bike.

5. It is evident from an examination of the evidence, that instead of going to his friend's property, Mr D detoured from the route which would have taken him directly to the property and went off in an opposite direction. He rode along unsealed tracks to a neighbouring property frequented by quad bikes, motor bikes and 4WDs. Mr D was a frequent rider in the area.

6. At about 7.15pm, when Mr D had not returned, Mrs D went out looking for them on a bicycle but was unable to locate them. At about 7:30pm, Mrs D and F's mother commenced another search in their vehicle. They located Mr D and F at about 7.45pm, in a creek bed about 150m from the property.

7. They found Mr D and F underneath the quad bike, which weighed approximately 300kg. The quad bike engine was not running. Mr D and F were both unresponsive. The two women commenced CPR and notified emergency services.

8. At 8:00pm, the Queensland Ambulance Service received notification of the incident. Queensland Fire and Rescue Service personnel were first on the scene and continued with CPR. QAS arrived at the scene at approximately 8:20pm. Mr D and F were both pronounced deceased at 9:00pm

9. Police officers from the Deeragun Police Station attended the scene at approximately 8:24pm and initially assisted QAS and QFRS personnel with

provision of CPR.

10. . A Forensic Crash Unit investigating officer arrived at the scene at 9:00pm.

11. It appears that the quad bike rolled backwards off the incline and landed on top of Mr D and F.

Autopsy results

12. A full external and internal autopsy was performed on both Mr D and F on 7 January 2014 by a forensic pathologist, Professor David Williams.

13. Mr D had a laceration 2.3cm long on his nose and bruising to the right side of his forehead covering an area 7cm across. However, the skull, scalp and meninges were relatively free of trauma, there being minor amounts of subarachnoid blood within the meninges.

14. In terms of his respiratory system, Mr D had bilateral multiple fractures to the ribs and the fractures on the right side between 4 and 8 tending to extend forwards and some of these sharp rib fractures had penetrated the right lung. Multiple fractures were also seen in the left side of his chest without anterior displacement of broken ribs. His lungs showed areas of haemorrhage within the substance of each lung and blood was seen throughout the airways.

15. Professor Williams concluded that the medical cause of Mr D's death was:

    1(a). trauma he sustained as a result of the

    1(b). quad bike accident.

16. Professor Williams noted that F did not appear to have sustained any significant head injury. However, F had sustained a ruptured spleen. His heart demonstrated very florid subendocardial and also epicardial haemorrhages and there was probably a degree of traumatic asphyxia as a consequence of the weight of the quad bike.

17. Professor Williams concluded that the medical cause of F's death was:

    1(a). Traumatic asphyxia and a ruptured spleen

        due to, or as a consequence of

    1(b). Quad bike accident (passenger).

The investigation

18. Senior Constable Tasman Place and Constable Sarah O'Farrel from the Deeragun Police Station attended the scene within 24 minutes of the emergency call being received on the evening of 3 January 2014.

19. Scenes of crime photos were taken with Mr D, F and the quad bike in situ. An investigation by Forensic Crash Unit Investigator, Constable Gemma Williamson, was commenced. This was Senior Constable Williamson's first quad bike investigation and she had not previously ridden a quad bike.

20. Although the quad bike had been understandably moved off Mr D and F prior to

the arrival of police, Senior Constable Williamson observed the quad bike to have dirt and scratch marks on the rear cargo rack, front cargo rack, the bottom of the tow ball, the right hand side of the housing and above the right handle bar. She also observed scratches above the display screen and the housing of the screen to be bent and dislodged. The casing under the handlebars was dislodged. There was no damage to the front of the quad bike. Relevant photos were taken of the damage and submitted. The damage observed by Senior Constable Williamson was consistent with the quad bike impacting the ground upside down.

21. Senior Constable Williamson's investigation was to a high standard. She agreed in oral evidence at the inquest that quad bike specific investigation training and a standardized template for quad bike investigations would be useful.

Quad bike details

22. The quad bike was a 2011 model Suzuki Kingquad 750AXI. It was purchased new by Mr D. According to the manufacturer's specifications, the quad bike would have weighed 304kg with full fluid levels ('curb mass').

23. There were no accessories or modifications to the quad bike. There was no CPD or ROPS installed.

Mechanical inspection

24. Mr Simon Major from the Queensland Police Service Vehicle Inspection Unit in Alderley, Brisbane, conducted a mechanical inspection and test ride of the quad bike on 20 January 2014.

25. Mr Major observed that the quad bike had sustained impact damage to its upper fairings and handlebar cowling.

26. Mr Major concluded that the quad bike was in a satisfactory mechanical condition at the time of his inspection and test ride. He was of the opinion that there were no mechanical defects that could have contributed to the cause of the incident.

27. Tyre pressures were not taken at the scene. Mr Major noted in his report that all tyres were inflated to 4 psi, except the right rear tyre, which was deflated to 0 psi. He observed that the construction of the tyres and light weight of the vehicle gave the visual appearance that the right hand side rear tyre was inflated. All tyres were of a satisfactory tread depth.

Terrain and conditions

28. The incident location was an area of a dry creek bed, surrounded by trees and sparse vegetation. The terrain was a mix of dry compacted dirt, loose dirt, exposed rocks and exposed tree branches.

29. The area was used regularly by quad bikes, motorbikes and 4WD vehicles. Due to its regular use, the tracks were worn away, compacted down and changing in condition.

30. Along most of the creek bed, there was an embankment at 90 degrees to the ground and no apparent access points to the top. However, near the incident location, there was a much easier access point to the top, with a very gradual slope.

31. It is clear that for whatever reason, Mr D chose a more challenging access point.

The exact path he took on the 2m wide track up the incline is unclear. The incline was approximately 2m in height. There was a worn section of the embankment where the incident occurred. Deep tracks could be observed at the bottom where 4WD vehicles had gone up and down the embankment.

32. The incline had a number of varying gradients. The gradients of the embankments on the incline were measured as 17.5, 36.8, 47.4, 49.9, 42.3 and 44.9 degrees. However, there were also a number of obstacles on the incline such as exposed branches and rocks, which would have made the incline even more challenging.

33. Senior Constable Williamson observed the ground in areas to lack grip due to flaking away dirt and the exposure of rocks. She found that she would slip when she attempted to walk up the incline on foot.

34. Senior Constable Williamson was of the opinion that the variable gradients and slippery surface on the incline may have been contributing factors to this incident.

35. The weather was fine and the incident location was dry.

36. Visibility would have been poor at the time of this incident as it occurred between approximately 6:45pm and 7:40pm. Sunset on the day was 6:56pm. The new moon started on 1 January 2014. The sun was at 246 degrees from true north and would have been located on the left side of the travel of the quad bike. There was no form of street or property lighting at the incident location.

37. Although the engine was not running when the quad bike was discovered, it was observed at the time the engine was switched back on for mechanical inspection that the lights on the quad bike had been engaged in 'high beam' and were in working condition. However, depth perception and obstacle identification, given the poor lighting conditions, would still have been difficult.

Speed and mode of drive adopted

38. Senior Constable Williamson observed that the quad bike was in high range automatic. There is no evidence to suggest the speed they were travelling but given the area he was attempting to traverse it is unlikely excess speed played a part. She also observed that the quad bike had the ability to be selected in 2WD or 4WD mode. This is located on the right side handlebars by pressing a button to select 4WD. She observed that 2WD had been selected at the time of the incident.

39. The decision to endeavour to travel up the incline in 2WD and in high range was contraindicated for the circumstances.

40. Senior Constable Williamson was of the opinion that whilst attempting to navigate the incline, Mr D may have given the quad bike an extra burst of power on the throttle to navigate the steeper gradients and this may have contributed to the quad bike rolling.

Personal Protection Equipment

41. Mr D was not wearing a helmet at the time of the incident. However, it is unlikely that a helmet would have assisted him in this case due to his cause of death being due to chest injuries.

42. F was wearing a child's sized open face motorbike helmet owned by one of his cousins. His aunt assisted in putting the helmet on prior to him getting on the quad bike. She advised police that the padding was snug fit on his head and she ensured the strap was securely fastened. The helmet was compliant with Australian Standards.

43. On arrival at the scene, F was observed to be wearing his helmet but it was removed by his mother and Aunt.

44. Mr D was wearing a t-shirt, shorts, thongs and safety gloves. F was wearing a t-shirt, board shorts, thongs, and motocross gloves.

Quad bike not intended to carry a passenger

45. The quad bike owner's manual and warning signs on the quad bike clearly stated that persons under 16 years of age must not ride the quad bike. F was 9 years of age.

46. The owner's manual and warning signs on the quad bike clearly stated that passengers must not be carried on the quad bike.

47. The carriage of a passenger results in different weight disbursement, which can effect balance and steering and increase the risk of losing control even with the weight of F who weighed 43kgs.

48. This was not the first time Mr D had carried children as passengers on his quad bike. His wife advised police that he had previously carried their 13 year old daughter on the back of the quad bike.

Training and Experience

49. Mrs D advised police that the quad bike was purchased brand new. She did not see her husband read the manual or watch the video. She did, however, state that her husband was very meticulous and reading a manual was something he probably would have done. Mrs D was not aware of any formal or informal rider training completed by her husband.

50. Mrs D advised police that she had been with her husband since he was 17 years old and he had always ridden motorbikes and quad bikes. She described her husband as a sensible rider who would get together with friends in the area to ride the tracks and did not believe he would attempt anything dangerous, especially with his nephew on the rear. Mr D was familiar with the area in question and had frequented the area on hundreds of occasions.

Intoxication

51. Mrs D mistakenly thought her husband had consumed around two pre mix alcoholic drinks on the afternoon prior to the incident, although she was not home at the time. She returned home prior to him leaving on the quad bike and did not believe him to be intoxicated. She did not believe that he would have taken out his nephew if he was affected by alcohol.

52. However, the toxicology testing of Mr D shows that his femoral blood alcohol level was 163mg/100mL, and his urine alcohol level was 210mg/mL. This means that Mr D's level of intoxication was at least three times the legal limit for driving.

53. Mr D's level of intoxication would have contributed to this incident. It would have

affected issues such as his willingness to take risk, his perception of the embankment, and his reaction times. The quad bike manual and warning signs on the quad bike clearly warn drivers not to ride whilst intoxicated.

Conclusions

54. This is a particularly tragic case but one that was avoidable at many levels. The contribution of the level of alcohol is particularly significant. It would have impaired decision making at macro and micro levels, affecting risk taking, perception and capacity to control the quad bike.

55. In this case, the driver was driving at night, on rough terrain and up a steep and slippery incline, with a passenger in 2 WD and high range. There is little more that can be said.

Findings required by s.45

My formal s. 45 findings will be included in the findings forwarded to family.

Comments and recommendations

I close the inquest in respect to my findings as required by s. 45. I will be considering any comments and recommendations in the second phase of this multiple inquest.

John Lock
Deputy State Coroner
Brisbane
26 September 2014