# OFFICE OF THE STATE CORONER

# FINDINGS OF INQUEST

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| CITATION: | **Inquest into the death of Graham Tait** |
| TITLE OF COURT: | Coroner's Court |
| JURISDICTION: | Innisfail |
| FILE NO(s): | 2007/142 |
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| FINDINGS OF: | J Brassington, Coroner |
| CATCHWORDS: | CORONERS: Inquest – electrocution, contact with fallen powerlines, response to initial fault report, conductor clashing and short circuit fault protection measures, investigation by Electrical Safety Office and Workplace Health and Safety Queensland |

REPRESENTATION:

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| Counsel Assisting: | Ainslie Kirkegaard |
| Ergon | Tony Glynn SC i/b MacDonnells Law |
| Workplace Health & Safety | Peter Major |
| Family | Tony Lee, Lee & Co |

## *INTRODUCTION*

1. Beverley and Graham Tait married in 1973. While they raised their family in Innisfail and Bundaberg they decided to retire to a house they built at Narragon Beach near Mission Beach. In January 2007 Beverley and Graham were visiting their children, Darryl and Leisha, in Bundaberg. That visit lasted for seven weeks and then the whole family arrived at the house at Narragon Beach on 20 March 2007.

2. Just before 7:00pm on 21 March 2007 Beverley Tait was cooking dinner for her family when there was a power failure. Mrs. Tait rang Ergon Energy (ERGON) to report the fault telling the operator they had power on a reduced basis. The dispatcher told her that a crew would be dispatched to 'check it out'. Darryl Tait mentioned to his father that he had heard a buzzing sound out the back. Graham and Darryl then decided to go outside to have a look with Graham giving Darryl a torch.

3. Graham and Darryl crossed their yard and then walked across the easement to a slope behind the house. This area of land was crossed by power lines. Darryl shone the torch on the power lines and saw two power lines. He did not realize or appreciate at that time but there should have been four lines. At this time he and his father were standing under where the lines should have been. Graham asked Darryl to turn the torch off so the neighbours could not see them. The torch was turned off and Graham and Darryl continued to walk on the slope. Darryl then heard his father cry out. He went to his aid but was thrown to the ground. Feeling a shock he realized he was being electrocuted. He managed to tumble away and ran to notify his mother.

4. While Mrs. Tait rang 000 Darryl bravely tried to save his father. Wires were sparking and arcing where his father lay and Darryl tried to use a PVC pipe to roll his father off the lines. He could not save him. Graham Tait died before he could be rescued from the wires.

5. Pursuant to s. 28(1) of the *Coroners Act 2003* (the Act) an inquest was held into the death of Mr. Tait. These are my findings. These findings and comments will be distributed in accordance with requirements of ss. 45(4) and 46(2) of the Act.

## *THE CORONIAL JURISDICTION*

6. I have jurisdiction to inquire into the cause and circumstances of Mr. Tait's death under the Act as his death occurred on 21 March 2007 and was a reportable death. Mr. Tait's death was a '*reportable death*' in accordance with s. 8(2) and (3)(b) of the Act because it was a "*was a violent or otherwise unnatural death*" that occurred in Queensland. I am unaware of any other Coroner investigating the death.

7. Section 45(2) of the Act provides that when investigating a death the coroner must as far as possible find:-
    - Who the deceased person is; and

- How the person died; and
- When the person died; and
- Where the person died; and
- What caused the person to die.

8. A Coroner may also comment on anything connected with a death investigated that relates to public safety or the administration of justice or ways to prevent deaths from happening in similar circumstances in the future. When such comments are made a written copy of those findings must be given to the persons set out in s. 46(2).

9. Section 28 of the Act provides for the holding of an inquest if the Coroner considers it desirable. In this case the holding of an inquest was considered desirable and it was requested by the family of Graham Tait.

10. I now turn to matters of law and procedure that I must apply to the conduct of the proceedings and the making of my findings. A coronial investigation is an inquisitorial process. Its focus is finding out what happened and not on determining guilt, attributing blame or apportioning liability. Rather its purpose is to inform the family and public how the death occurred with a view to reducing the likelihood of similar deaths. A Coroner must not include in the findings any statement that a person is or may be guilty of an offence or civilly liable for something.

11. A Coroner is not bound by the rules of evidence but may inform herself in any way considered appropriate. However, the Coroner must act judicially and have regard to the rules of natural justice and procedural fairness. In this matter leave was given for the Tait family, Ergon Energy and the Office of Fair and Safe Work Queensland (OFSWQ) to appear, examine witnesses and make submissions at the Inquest in accordance with s. 36(1) of the Act.

12. When making findings the civil standard of proof, the balance of probabilities, is applied. However the principles of *Briginshaw v Briginshaw* must be adhered too. In the coronial context these are conveniently set out in the often cited judgment of Gobbo J in *Anderson v Blashki*[1]:

> *In Briginshaw v Briginshaw (1938) 60 CLR 336, at 362 to 363, Dixon J, as he then was, provided a classic statement as to the appropriate standard of proof to be used in civil cases: " . . . reasonable satisfaction is not a state of mind that is attained or established independently of the nature and consequence of the fact or facts to be proved. The seriousness of an allegation made, the inherent unlikelihood of an occurrence of a given description, or the gravity of the consequences flowing from a particular finding are considerations which must affect the answer to the question whether the issue has been proved to the reasonable satisfaction of the tribunal. In such matters 'reasonable*

[1] [1993]2 VR 95

*satisfaction' should not be produced by inexact proofs, indefinite testimony, or indirect inferences"*

## EVIDENCE

13. I turn firstly to a consideration of the evidence heard in the inquest and gathered during the investigation. It is necessary to traverse the evidence given in the inquest in some depth to understand both my findings and the recommendations made. Given the inquest took place over eight days and included a very substantial number of documentary exhibits my account of the evidence necessarily includes some summaries. I have of course considered all the evidence before me even if not specifically referred to in these findings. Where there is some dispute about what occurred I include my reasons for making the finding that I record.

## BACKGROUND

14. The Tait's home at Narragon Beach was situated on a large block with an easement adjacent to the rear of their property and beyond that easement, a vacant block of land which was a cleared grassy slope. Overhead power lines ran across the vacant block down to the houses that faced the sea. The Tait's home was one of these houses. These lines fed from a transformer pole (5147413) and substation 1522 located on a property to the north-west of the vacant block to a low voltage (LV) intermediate or "pin" pole (5147414) on the vacant block which fed to strain pole (5147415) located on the Tait's northern neighbour's property. Overhead lines running south from this strain pole delivered power to the Tait's property.[2]

15. The length of the conductor span between poles 5147414 and 5147415 was 68 metres. The span comprised two active conductors on one side of the pole and one active and one neutral conductor on the other side of the pole. The conductors were all 7/16 hard drawn copper. Substation 1522 was built in 1964 and it is believed the conductors were installed at that time.[3]

16. At about 6.50pm on the evening 21 March 2007 the Tait family were watching television. The weather then was fine[4] and the wind was light. The power then went out. When this happened Darryl Tait heard something he described as a *short buzzing noise* coming from behind the house.[5] The power lines feeding the Tait house could be described as behind the house. Mrs. Tait reset the power switch but the power only came on partially.

17. Mrs. Tait then rang ERGON.

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[2] Exhibits B6, C1.8 (figure 1) & T3-10

[3] Exhibit C1.12

[4] The evidence showed the grass was damp from earlier rain

[5] Statement A3

## The Relationship between ERGON Call centres and Control centres

18. Mrs Tait's phone call to ERGON was directed to the National Call Centre at Rockhampton. Call Centre staff are not co-located with the Control Centre staff. The roll of Call Centre operator is to receive fault calls. The operator then utilises the FeederSTAT system to log the information. The FeederSTAT system's main role is to allow the Contact Centre (call centre) to log fault related calls as they come in and then give immediate feedback to customers on restoration times.[6] It also allows Control Centre Staff to view data simultaneously. Once a Call Centre operator updates FeederSTAT with fault information the report is electronically forwarded to the relevant Control Centre Staff who then make arrangements for dispatch of repair crews or other relevant action. The relevant Control Centre for faults from Mission Beach (including Narragon Beach) on the 21 March 2007 was the Garbutt Control Centre at Townsville.

19. The Call Centre Operator is guided in the recording of the fault by training manuals and quick reference sheets which include scripting to assist operators to obtain information and to prompt them to give advice.

### *Mrs Tait's Fault Call*

20. When Mrs. Tait rang ERGON she spoke to Catherine Evans. Ms. Evans was employed by ERGON as a '*storm temp*'[7] from 19 January 2007 through to 30 March 2007. This was Ms. Evans' only period of employment with ERGON. To undertake her role Ms. Evans received five days training. Her training manual and her examinations were included in the material tendered in the inquest.

21. When taking a call Ms. Evans would be at a desk in front of her computer with her training manual, her headset and a notepad. She would also have laminated copies of frequently used questions in front of her. The suggested fault questions for a '*brown out*'[8] are:
    - Are the lights constantly dull?
    - What colour are the lights that are on? (orange/brown)
    - Are the neighbours having the same problem?
    - Do you have single or multi phase power?
    - How long has your power been like this?
    - Is there a storm in the area?
    - Has anyone received any shock/tingles?[9]

22. When Ms. Evans answered Ms. Tait's call she testified she would have used the fault questions guide and possibly her training manual although

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6 Exhibit C1.3 – Introduction to System – Participants guide p. 20

7 A temporary casual employee who is engaged to assist with increased volume of calls in the storm and cyclone season

8 The term "brown out" refers to a specific system condition where one high voltage phase of a three phase system is lost. Customers will experience constant low voltage, florescent lights not working, bulbs will appear half brightness and appliances not working.

9 Exhibit 1.3 CME 5

with respect to the latter she could not recall specifically whether she used this or not.

23. Ms. Evans gave her statement relating to the call in January 2008. After taking identifying information she then began to ask Mrs. Tait about the nature of the fault:

> "*I then said to Mrs Tait "Tell me what is happening." Mrs Tait said "We have no power". I said to Mrs Tait "By no power do you mean no lights and no power points?" Mrs Tait said "There are some light and some power points working". Mrs Tait said "There are some lights and some power points working"….I said to Mrs Tait "How long ago did this fault occur" As I said this I started to enter in on the initial screen the fault referred to as exhibit 5. Mrs Tait replied "10 minutes ago". I entered in on the fault screen as referred to as annexure CME5 hitting the button 10 minutes ago recording the fault."*

24. The time logged then as when the initial fault occurred at the Tait residence was 6.49pm being ten minutes prior to the call taken at 6.59pm.[10] The print out of the FeederSTAT entry is an exhibit in the Inquest.

25. Ms. Evans was also informed by Mrs. Tait that before the power went out her son heard a "*loud crackle noise"* outside, that some neighbours had lost their lights and the lights were "orangey brown". By referring to training manual Ms. Evans stated she classified the fault as a "*brown out".* Ms. Evans took contact information and then said she gave the following safety advice:
    - Please do not touch anything metal as it may be conducting electricity; and
    - Suggested she turn off the sensitive electrical equipment but leave one incandescent light on to let them know when power was restored.

26. Ms. Evans informed Mrs. Tait that a crew would be dispatched and ended the phone call. At 7:02pm the following information was entered into the FeederSTAT log relating to the call:

> *Son heard loud crackle before supply affected power points were out.. lights orange brown. Adv of safety.*

27. Mrs. Tait gave a statement with respect to the conversation in 2011. She conceded her recollection was not particularly good. She recalled receiving information about leaving one light on to check for the restoration of power but not receiving any information about touching metal. Mrs. Tait also recalled saying the lights were dim and flickering.

28. Given the passage of time it is understandable there might be some confusion as to the exact content of the conversation. Ms. Evans also

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[10] T2-74

conceded she was relying largely on her statement rather then her independent recollection. This original statement was signed on 12 January 2008. Both parties to the conversation agree there was no warning with respect to the possibility of fallen power lines.

29. It is likely that the most accurate account of the conversation is to be found in the FeederSTAT record which was in effect a contemporaneous note of the conversation. That account includes the notation "*adv of safety"* which suggests that advice with respect to safety was given. The extract from the manual[11] has suggested scripting when there is a *brown out/dull lights/flickering lights/low voltage* and this scripting is as follows:

    ***Q3 Has the Customer noticed if their lights change in voltage levels when they turn on appliances?***
    *If yes – log the call as 'L' Life Threatening in FeederSTAT*
    *Suggested Scripting – From the information you have provided me it is possible you may have a broken neutral which could be a potentially dangerous situation. I advise you not to touch your switchboard or anything metal in your home until our crew arrives and investigates the situation.*
    *If no – continue the questions*

    ***Q4 Are the neighbours experiencing the same problem?***
    *If yes – Log the call as 'B' Brown Out in FeederSTAT*
    *Suggested scripting – If the customer has a constant brown out situation and supply is not effected by turning on appliances, it is important to advise them to turn off all appliances (including refrigeration) and leave an incandescent bulb light (not a fluro) on to monitor when the supply has returned to normal. These faults can affect neighbours as well but must be logged as a brown out with reference made to the neighbours in the log.*

30. While Ms. Evans cannot recall specifically referencing the manual her advice as to leaving an incandescent light burning, which Mrs. Tait agrees was said, is consistent with the suggested scripting for question 4. The advice with respect to not touching metal is immediately above this scripting relates to question 3 and references not touching anything metal. What is surprising is if this advice was given that it would be expected to be a topic of some interest to the Tait family and would have been discussed after the phone call. Darryl Tait, who gave his statement in November 2007, does not mention this advice at all and does not recall any discussion about the advice.

31. I am satisfied that Ms. Evans clearly gave some advice but the state of the evidence is such that I am not satisfied to the requisite standard of the nature of that advice save where there is agreement between both parties as to what was said.

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[11] C1.3.1

### *Garbutt Control Centre*

32. The person receiving the information from the Call Centre via FeederSTAT is designated a Fault Analysis Officer. On 21 March 2007 the Fault Analysis Officer at the Garbutt Control Centre was Daniel Tagney. Mr. Tagney was a Level 1 Network Controller with many years experience in the electrical industry. In evidence he outlined his response to calls was determined by the category of fault. The FeederSTAT system has a priority matrix depending on the level of risk to members of the public associated with electrical outage. The priority matrix categorises faults as:
    *(a) Colour code red being reports of:-*
        *(i) Electric shock*
        *(ii) Life threatening*
        *(iii) Lines down*
    *(b) Colour code yellow being reports of:*
        *(i) Brownouts*
        *(ii) HV fuse down*
        *(iii) Other*
        *(iv) Phase down*
        *(v) Sparking lines/poles*
        *(vi) Momentary loss of supply*
    *(c) Colour code white being:*
        *(i) Unknown/no power*
        *(ii) Neighbours out as well*

33. The time the fault call appears on FeederSTAT after the initial entry by the call centre operator is very short – Mr. Tagney estimated 5 seconds. The time of acknowledgment by the fault analysis officer depends on the urgency of a call. A life-threatening call pops up as a red bar, which requires immediate acknowledgment and dispatch of someone as soon as possible. There is another level of calls which is not so immediate and that encompasses three or four different types of calls and the fault analysis officer has got up to 20 minutes to acknowledge and dispatch them. These are marked by yellow. Finally, there's another type of call which is called the "Quality of Supply" (for example, someone has had bad voltage for months and they want someone to check it) that could be two or three days before somebody acknowledges that.

34. On 21 March 2007, when Mr. Tagney received the fault call relating to Mrs Tait's initial call to the call centre, that fault was logged as yellow for a brown out. Mr. Tagney testified with a brown out situation it is usual to wait about 10 minutes before dispatching a crew to try and determine the source of the problem. For example, if the fault is in a distribution substation up to one hundred people might be affected so he would expect other calls to confirm a substation fault. In contrast if there are calls from a wider area then this fact can help isolate the area of fault and save time in dispatching a crew to remedy the fault.

35. The FeederSTAT shows Mr. Tagney acknowledged the fault at 19:11 and dispatched a crew at 19:18. As he explained in evidence the time 19:18 was the time entered into the computer; the actual time of dispatch may

have been before 19:18.[12] Mr. Tagney spoke to Michael ("Mick") Stoter, who was from the Tully Depot and on call, informing him of the fault call saying in effect "*Mick we have a single fault call for you at …… Drive Narragon Beach for a customer Mr and Mrs Tait. It has been logged on as: son heard loud crackle before supply affected power pontes out, lights orange-brown. I have a phone* number"[13] Mick Stoter told Mr. Tagney it would take him at least 20 minutes to get to the Tait's residence.

### *The Electrocution of Mr. Tait*

36. After Mrs. Tait ended the phone call with Ms. Evans Darryl and his father went to look at power box affixed to a wall outside the house. While there they were called back inside by Mrs Tait to the internal power switch board. Two of the main power switches had tripped. Darryl thought his father may have turned the switches on.

37. The family then went back inside the house and Darryl mentioned to his father the buzzing sound he had heard outside. Graham suggested that they go and have a look outside. The two men then went outside, walking side by side with Darryl holding a torch, to the easement behind the Tait house and then up a slope to where the power lines stood. At this time Darryl was wearing rubber thongs. Graham Tait had no shoes.

38. When they were about 10 metres from pole 5147414 Darryl shone the torch upwards and saw two powerlines. At this stage he was standing under the powerlines and his father was about two metres away. At this time Graham instructed Darryl to turn off the torch so the neighbours would not see them. Shortly afterwards Darryl head his father yell out. Darryl could see his father bent over like he was tying his shoe. Darryl's initial thought was his father might have stepped on a snake or into a hole but when he touched his father on the shoulder he was thrown backwards about two metres from where his father lay. Darryl felt a shock hitting him in the right leg and shoulder and realised he was getting electrocuted. He managed to throw himself backwards down the incline of the hill and tumbled a short way until he was not getting shocked. He ran inside to get help yelling his father had been electrocuted and to ring 000. Darryl then got a PVC tube, about two metres long, used to store fishing rods, to try and move his father off the lines. He got to within 6 metres of his father but could see that power lines were sparking but not exactly where they were. His father was moaning at this time. Darryl yelled for his father to get off the lines but there was no response. After about a minute his father made no more noise.

39. Doctor Morris Odell, a Forensic Physician at Victorian Institute of Forensic Medicine, provided a report to the coronial investigation. Doctor Odell has a particular interest in electrical injury and electrical death and had the

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12 T1 p. 44

13 Statement Tagney C15 p. 5

opportunity to consider the report of Mr. Coulter.[14] Doctor Odell considered that Mr. Tait's initial collapse could have occurred when he came into contact with a fallen conductor or experienced a "step" potential difference between his bare feet on the ground.[15] The collapse caused him to fall onto one or more bare energized conductors on wet ground which resulted in a fatal current flowing through his body. Doctor Odell states:

> *The time taken for him to die (as defined by the onset of irreversible circulatory failure followed inevitably by brain death) cannot be determined precisely however the scenario described by Mr Coulter is a likely sequence of events. Ventricular fibrillation would have been induced very rapidly, probably within a second or less after he came into contact with an energized conductor. This would have resulted in a fall in blood pressure and circulatory collapse over a few seconds and ensuing loss of consciousness. Brain death would follow within minutes. …..Mr. Tait would have sustained the fatal electric shock during or within a very short time (of the order of seconds or less) after his initial collapse. Once he developed ventricular fibrillation the only hope for resuscitation would have been treatment with a defibrillator within a few (2 – 3) minutes. In the particular circumstances of the case this was a practical impossibility. By the time the ambulance paramedics arrived 12 minutes after the initial 000 call the possibility of a successful resuscitation, even if he could have been attended to immediately, was vanishingly small. By the time the power was disconnected he had been shocked for over 21 minutes and it would be expected that he was dead for most of that time.*

40. Given the observations of Darryl and the evidence of Dr. Odell once Mr. Tait came into contact with the live electrical conductors his death was sadly inevitable.

## *The Emergency Response*

41. The inquest was provided with recordings from both the Queensland Ambulance Service (QAS) and the Queensland Fire and Rescue Services (QFRS). As Counsel Assisting submitted there is no evidence to permit me to determine precisely the extent to which time recording devices operating at each entity (QAS, QFRS and Garbutt Control Centre) were synchronised. However, the recording of the time of de-energisation of the

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[14] Mr. Coulter, an Electrical Engineer, produced a report for ERGON discussing his opinion as to the reasons why the conductors fell. That report is exhibit C1.7.1 and discussed in detail below.

[15] In his report Mr. Coulter explains 'step-voltage' shock as follows: *Regardless of the conductor contact scenario, when the two conductors were on the ground there would be voltages present in the surface within the vicinity of the active conductor, and the neutral as well for the first scenario. A person approaching the fallen conductors could receive a step-voltage shock, that is a shock due to current flowing from one foot to the other through the legs. This electric shock mechanism does not require direct contact with the energised conductor.*

network by Eric Read at Garbutt Control Centre (19:39) and the receiving of this information by QAS, while it occurred (19:39:07), indicates the QAS timing can be relied upon as consistent with that recorded by ERGON and can be used as a measure to gauge other time recordings. The QFRS also provided their logs and recordings that are time stamped through the FireCAD system.[16]

42. The QAS time sequence of the emergency response is:[17]

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| *19:17:25* | *000 call from Mrs Tait* |
| *19:17:32* | *QFRS notified* |
| *19:18:02* | *Mission Beach 7384B assigned (first ambulance)* |
| *19:18:56* | *Silkwood 7364C assigned (second ambulance)* |
| *19:18:58* | *QFRS record notification from QAS of electrocution* |
| *19:19:55* | *ERGON (Dan Tagney) notified of electrocution* |
| *19:21:04* | *Mission Beach 7384B dispatched* |
| *19:21:46* | *Silkwood 7364C dispatched* |
| *19:22:32* | *Second 000 call received from Mrs Tait – the call taker stayed on the line with Mrs Tait until the first ambulance (Mission Beach 7384B) arrived on the scene.* |
| *19:26:52* | *Communications Centre phones Ergon and speaks to Dan Tagney regarding the estimated time of arrival (ETA) of ERGON crews. Mr. Tagney advises that they are 20 minutes away. Mr. Tagney advised lines are not arcing but Mr. Tait still on lines.*[18] |
| *19:28:31* | *Mrs. Tait advises Mission Beach 7384B on the scene* |
| *19:36:20* | *Ergon (Dan Tagney) rings QAS Communication Centre regarding shutting down power* |
| *19:39:07* | *Communication Centre Supervisor to Ergon (Dan Tagney) advising Mr. Tait still on lines and he is advised by Mr. Tagney "we'll knock the breaker off"* |

43. The QFRS arrived at the scene at 19:35. Mr. Gillespie, captain of Mission Beach Fire Station provided a statement as to what he saw on arrival. He observed Mr. Tait in a paddock covered with long grass (approximately 800 mm long). The track that allowed access to the property only allowed him to position his "pumper" truck about 25 metres from Mr. Tait. He set up a 12 metre exclusion zone for safety and shone his lights to try and illuminate the scene. He could not see the lines on the ground but only where they entered the long grass and this was about 20 metres from Mr. Tait. Mr. Gillespie stated that seeing Mr. Tait in this situation, with his

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16 See statement Lynette Webb and F7

17 Exhibit E9 – compiled by Edward McAvoy who listened to all QAS recorded phone calls and radio transmissions. These calls were recorded on the Single Maxitrac Long Term Voice Logger used by QAS and each call is time stamped and the length of the call is recorded. There was some minor dispute about time recordings in submissions and this can be traced to a discrepancy between the original QAS timing in E3 from time stampings and Mr. McAvoy's chronology who listened to the call and the length. I have preferred his chronology given his checking of each recording.

18 QFRS exhibit F1 records notification that ERGON 20 minutes away at 19:23:12

obviously distraught family desperate to get help to him, he tried to think of something to aid Mr. Tait without risking the life of his crew. He considered a plan to use electrical gloves and a telegraphic link stick to hook the downed power lines and drag them out from under Mr. Tait. However he realised this would have no hope of success as he could not put sufficient pressure on Mr. Tait or the lines with the stick and it would have broken. Mr. Gillespie also realized that on the night of 21March 2007 the link stick and electrical gloves were not on the response pumper. They had been removed for routine maintenance.

44. A telescopic link stick is a portable telescopic high density fibreglass pole which terminates in an adjustable male-threaded head. It is used by QFRS to de-energise an electrical authority's low voltage supply to residential houses and buildings by removing the overhead primary service fuses located on the power pole. The link stick is constructed from high density laminated fibreglass and when extended is reliant on a number of 24mm push button locks (one for each section) to hold the link stick in the open position. Electrical gloves can be used with the link stick. Electrical gloves are not, as William Brown, Acting Assistant Commissioner Far Northern Region QFRS, explained in his statement[19] sufficient to protect the crew in these circumstances from the danger of electrocution. Mr. Brown also considered that the link stick, in the circumstances confronting Mr. Gillespie on 21 March 2007 could not have been able to move weights similar to an adult person. Nor could it push or pull objects in a horizontal position. Further, even if QFRS officers were notified of de-energisation is was, and remains, QFRS policy that fire officers not approach the area of the electrical apparatus until ERGON has disconnected the power supply.

45. The first ERGON officer on the scene was Steve Johnson. Mr. Johnson was not on call on 21 March 2011. Mick Stoter rang Steve Johnson at his home to try and get help to the Tait's residence while he was still on his way from Tully. Mr. Johnson's wife took the call and went to where he was playing social tennis at Mission Beach. Steve Johnson estimated he received the message from his wife at about 19:40. He left for the Taits immediately and estimated he arrived at the scene at about 19:50. When he arrived he saw Mr. Tait lying face down on the ground approximately three or four meters from a power pole. He saw two outside conductors drooping off the pole onto the ground and under the body. He could identify visually the fallen conductors as low voltage conductors that carried 240 volts (v) electricity supply to the customer. In testimony he indicated that the conductors were broken mid span towards the east.[20]

46. Steve Johnson knew from his knowledge of the network that this local area was fed from a high voltage transformer that is located about 70 meters away from Mr. Tait's body. That transformer is sub number 1522 and electricity goes from this transformer pole as 240 volts to consumers. He

19 Exhibit F5

20 T3 page 10

did a visual inspection of the conductors to the transformer and noted the low voltage links and the high voltage fuses were closed. This told him the electricity supply had not been physically isolated at the transformer. He then spoke to Mick Stoter again who confirmed that the El Arish feeder had been turned off. Confident this meant the conductors had been de-energised he put on his insulation gloves and walked over to where Mr. Tait was. He used a proximity tester to gauge the presence of electricity and given there was no reaction from the tester grabbed hold of the conductors and pulled them well clear of the victim and advised QAS officer they could attend the victim.

47. Mr. Johnson estimated he removed the conductors five to eight minutes after his arrival at the scene. This time estimate is consistent with the QFRS advice to their communication centre that ERGON removed the conductors and paramedics moved in to assess Mr. Tait at 19:56. The QAS record that Mr. Tait was assessed by paramedics and confirmed deceased at 20:02.

48. Mr. Stoter and his offsider arrived at the Tait residence at about 20:00 and took up with Steve Johnson. When he arrived Mr. Stoter saw there were wires drooping from the pin hole that he could identify as the neutral and 'A' phase conductors. He thought he pin hole was on a lean and had a relatively new cross arm installed. He considered the poll looked quite solid. The grass in the area was wet but it was not raining at the time.

49. Mr. Stoter then moved to isolate the transformer by climbing up the pole, opening the low voltage links and removing the three high voltage fuses. Mr. Johnson contacted the Garbutt control centre at about 20:15 notifying them that isolation had been carried out and power could be restored to the El Arish feeder. Mr. Johnson received approval to restore supply that evening to the surrounding residences. This was done by cutting out the damaged piece of the conductors and inserting a new piece and rehanging the conductors.[21] Both Mr. Johnson and Mr. Stoter confirmed the cross-arm on the pole was not damaged and the conductors were restrung on the old cross arm.

50. The de-energisation of the conductors can be placed at 19:39 by QAS time records as discussed previously. This time accords with the recollections of Mr. Tagney and his supervisor Eric Read. Mr. Tagney records in his statement that at approximately 19:25 he received a call from the Fire Brigade that the lines were down at the Tait residence and that someone was electrocuted. He placed an update on FeederSTAT at 19:25 to that effect. In his evidence Mr. Tagney acknowledged his statement was based on the FeederSTAT record and that the entry would have been completed after the phone call which might have taken a couple of minutes. When referred to the QFRS timings of 19:19:55 as the first notification he was prepared to accept that time.[22] Mr. Tagney

[21] T 3 p. 18
[22] T1 p. 47

testified that in the first phone call he was unsure whether a person was still on the lines. The transcript of the first phone call[23] confirms the information conveyed to Mr. Tagney was a person was electrocuted. Mr. Tagney then contacted Mick Stoter to inform him but left a message. Mr. Tagney then rang back Mick Stoter. Mick Stoter recalls receiving the second call at approximately 19:20 when still at his home and learning of the electrocution. While en route to pick up his partner he then placed the call to Steve Johnson's house to try and get someone to the Tait residence faster then he would be able to travel. His recollection that this occurred between 19:25 and 19:30 is consistent with Steve Johnson receiving the notification at tennis at 19:40.

51. While Mr. Tagney was talking to Mick Stoter he was also talking to Mr. Read. Mr. Read recorded in his operator's log at 19:30 that "*report from Emergency Services of person hooked up in the grounded wires – crew still 20 minutes away".* In his statement he thought the actual time of the report could be a couple of minutes earlier as he recorded the activity after it occurred. At this point Mr. Tagney and Mr. Read began to consult the diagrams of the supply network for the Innisfail and Tully areas to ascertain the nearest isolation point.

52. Mr. Read explained in testimony[24] it was necessary to consult schematic diagrams to ensure the correct feeder was de-energised. Although he had no information about the type of powerlines down Mr. Read correctly surmised that the line was probably a low voltage line as if a high voltage line was down he would have expected many more phone calls as a large number of customers would then be affected. While the FeederSTAT log records the relevant substation number (1522), and this record is usually correct, there can be day-to-day switching (for example, planned repairs) on the network which requires the feeders to be switched around. So a check is always required to make sure that the relevant substation is definitely on that feeder at that particular time. A failure to do could mean the wrong feeder is de-energised and the crew would be unknowingly working on a still energised feeder with a consequent risk to safety. Mr. Read consulted the "Innisfail/Tully Systems Diagrams Issued 2007". From these he ascertained an isolation point to disconnect supply for the area including the Tait residence. He estimated in evidence that this process of checking would have taken between five to ten minutes. Given Mr. Read's experience and knowledge of the documents it is unlikely any one else could have completed the task sooner. Mr. Read stated he made the decision to isolate the El Arish Feeder at approximately 19:39 because:
    (a) Emergency Services would not be able to render assistance to the deceased until they received confirmation from ERGON that the power had been discontinued.

    (b) If Emergency Services could render assistance to the deceased he may have been able to be resuscitated.

[23] WAV 1 exhibit F7
[24] T1 p. 77 - 78

(c) He was advised by Daniel Tagney that ERGON emergency crews were still approximately 20 minutes away from the Tait residence.

53. Mr. Read stated the decision to isolate part of the electricity network is not a decision made lightly as it affects a large number of customers including customers who rely on the electricity for medical treatment.

## *INVESTIGATIONS*

The investigation of an electrocution involves a number of different Government agencies including the Queensland Police Service (QPS), Office of Workplace Health and Safety Queensland (WHSQ) and the Electrical Safety Office (ESO). ERGON also conducted its own investigation of Mr. Tait's death. The Coroner has also an investigative role as set out above. It is useful before considering the details of this particular investigation to set out the relationship between these investigations.

### *QPS and Department of Industrial Relations*

54. As of 21 March 2007 there existed a Memorandum of Understanding (MOU) between the QPS and Queensland Department of Industrial Relations (that then included WHSQ and ESO).[25] Under the MOU QPS officers, as the first to arrive on the scene, perform the role of "first response officers". The role of a first response officer is set out in schedule C of the MOU. The first response office assumes control of the scene and the role includes securing the scene to:
    (i) identify the extent of the incident scene
    (ii) rendering the scene safe
    (iii) preserving potential evidence
    (iv) rendering any necessary assistance to members of the public

55. Schedule F of the MOU specifically deals with electrical incidents. That schedule provides that when attending the scene of an electrocution there should not be any examination or investigation until the scene has been declared safe by the local electrical authority. There is also a requirement to notify the appropriate electrical authority of a death or to ensure this has been done. Section 12 of the MOU also relates to electrical incidents and requires notification by the QPS to the local office of the Department of Industrial Relations. The MOU also includes agreements on priority of investigation.

### *Workplace Health and Safety Queensland and Electrical Safety Office Investigations*

56. The OFSWQ incorporates both the ESO and WHSQ. The ESO administers the *Electrical Safety Act 2002* which is the primary legislative vehicle regulating electrical safety in Queensland. The Electrical Safety

[25] That MOU has now been updated in 2011 to reflect the moving of OFSWQ to the Department of Justice and the Attorney-General. The gist of the MOU is unchanged.

Act then places upon electricity entities[26] certain obligations. Primarily, s. 29 provides:

> *(1) An electricity entity has an obligation to ensure that its works—*
> *(a) are electrically safe; and*
> *(b) are operated in a way that is electrically safe.*
> *(2) Without limiting subsection (1), the obligation includes the requirement that the electricity entity inspect, test and maintain the works.*

57. To discharge all the obligations an entity must comply with the Act and Regulations but compliance with these alone may not, depending on the circumstances be enough to discharge their obligation.

58. The *Electrical Safety Regulation 2002* provides that a *distribution entity* to give written notice to the chief executive of a *serious electrical incident* and *dangerous electrical event.* Both these terms are defined in the *Electrical Safety Act*:

> **11. Meaning of serious electrical incident**
> *A serious electrical incident is an incident involving electrical equipment if, in the incident—*
> *(a) a person is killed by electricity; or*
> *(b) a person receives a shock or injury from electricity, and is treated for the shock or injury by or under the supervision of a doctor; or*
> *(c) a person receives a shock or injury from electricity at high voltage, whether or not the person is treated for the shock or injury by or under the supervision of a doctor.*
>
> **12. Meaning of dangerous electrical event**
> *A dangerous electrical event is any of the following—*
> *(a) the coming into existence of circumstances in which a person is not electrically safe, if—*
> *(i) the circumstances involve high voltage electrical equipment; and*
> *(ii) despite the coming into existence of the circumstances, the person does not receive a shock or injury;*
> *(b) the coming into existence of both of the following circumstances—*
> *(i) if a person had been at a particular place at a particular time, the person would not have been electrically safe;*
> *(ii) the person would not have been electrically safe because of circumstances involving high voltage electrical equipment;*

[26] ERGON is an electricity entity

*(c) an event that involves electrical equipment and in which significant property damage is caused directly by electricity or originates from electricity;*

*(d) the performance of electrical work by a person not authorised under an electrical work licence to perform the work;*

*(e) the performance of electrical work by a person if, as a result of the performance of the work, a person or property is not electrically safe;*
*Examples for paragraph (e)—*
- *the connection of electrical equipment to a source of supply involving incorrect polarity or other incorrect connection*
- *the performance of electrical work as a result of which an exposed wire is left in circumstances in which it can be energised by the operation of a switch or circuit breaker or the insertion of a fuse*

*(f) the discovery by a licensed electrical worker of electrical equipment that has not been marked as required under this Act.*

59. Considering these requirements in the context of this inquest it would follow that upon Mr. Tait's death the obligation was upon ERGON to notify the ESO of the death within 24 hours.[27]

60. Under the *Electrical Safety Act* ESO inspectors are authorised to perform a number of regulatory functions to ensure compliance with the legislation. To perform these functions inspectors have a range of powers under the Act. Electrical incidents can occur at a variety of locations including workplaces. When a workplace electrical incident happens the effect of the *Workplace Health and Safety Act 1995* must also be considered.

61. The *Workplace Health and Safety Act 1995* is administered by WHSQ. The principal object of the Act is to prevent a person's death, injury or illness being caused by a workplace, by a relevant workplace area, by work activities, or by plant or substances for use at a relevant place. The Act places obligations on relevant persons and has a regulatory regime including prosecution to enforce these obligations. Section 9 of the Act defines a *workplace* to mean:

*A workplace is any place where work is, or is to be, performed by—*
*(a) a worker; or*
*(b) a person conducting a business or undertaking.*[28]

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27 This obligation was complied with

28 Workplace in the Electrical Safety Act is defined to refer back to the definition in s. 9 of the Workplace Health and Safety Act 1995

62. The Act also includes specific provision for its relationship with the *Electrical Safety Act*. Section 3A provides relevantly:

> *(1) This section applies if—*
>
> *(a) this Act, in the absence of this section, would have application in particular circumstances; and*
>
> *(b) the Electrical Safety Act 2002 also has application in the circumstances.*
>
> *(2) This Act does not have application in the circumstances to the extent that the Electrical Safety Act 2002 has application.*
>
> *(3) Without limiting subsection (2), to the extent that this Act would impose on a person a workplace health and safety obligation that is concurrent with an electrical safety obligation imposed on the person under the Electrical Safety Act 2002, the workplace health and safety obligation does not apply to the person.*
>
> *Example for subsection (3)—*
>
> *Section 28 of this Act imposes an obligation on a person who conducts a business or undertaking to ensure that each person who performs a work activity for the purposes of the business or undertaking is not exposed to risks to their health and safety arising out of the conduct of the business or undertaking. Under the Electrical Safety Act 2002, an obligation is imposed on an employer to ensure the employer's business or undertaking is conducted in a way that is electrically safe. Accordingly, the obligation under this Act of a person who conducts a business or undertaking does not include an obligation to ensure the person's business or undertaking is conducted in a way that is electrically safe.*

63. In the context of this matter the effect of the definitions is that both inspectors under the *Electrical Safety Act* and the *Workplace Health and Safety Act 1995* had jurisdiction to investigate the death of Mr. Tait[29] and bring prosecution action. However the relevant obligations are in the *Electrical Safety Act* rather than s. 28 of the *Workplace Health and Safety Act 1995*.

64. As is apparent from the evidence the investigation of this incident proceeded on the basis that the place (private land) where Mr. Tait died was a workplace for the purposes of the *Workplace Health and Safety Act 1995*. The assumption that the site of Mr. Tait's death was a workplace bought into play protocols established between WHSQ and the ESO to allocate investigative responsibility. In correspondence from the ESO[30] the situation is explained thus:

> "*To facilitate this approach the OFSWQ has a policy which is used to clarify the circumstances in which each division assumes the carriage of an investigation. This policy is titled Operational Policy for the Investigation of Electrical Incidents by WHSQ and ESO. The policy*

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29 An inspector can also have a dual appointment. For example, Mr. Nielands had an appointment as an inspector under both Acts although working in Workplace Health and Safety.

30 Exhibit B22 and the evidence of Mr. Dieckmann

*sets out on page 4 the 'investigation allocation criteria' used by the OFSWQ.*

*Under this policy, except in particular situations, WHSQ has primary responsibility for investigating fatalities that occur at a workplace and ESO for fatalities which occur at a place, other than a workplace.*

*The policy states that* 'WHS Regional Investigations Managers (RIMS) manage and oversee a comprehensive investigation for type one incidents occurring at a workplace. It is the responsibility of the RIM to designate the event as an investigation on the database and to appoint an investigator. The RIM is to consult with the WHSQ Regional operations Manager and/or ESO Manager Electrical Safety Compliance to appoint the appropriate inspector, based on the above investigation allocation criteria, to the investigation team.
*Note: A type one incident refers to"*

- *Workplace incidents causing death or grievous bodily harm of workers*
- *Death or grievous bodily of a member of the public likely caused by a work activity; and*
- *Exposure to substances likely to cause death or grievous bodily harm of a worker or a member of the public.*

*As WHSQ has primary responsibility for incidents that occur at a workplace a number of WHSQ inspectors have undertaken electrical safety training and have been appointed inspectors under the Electrical Safety Act 2002. These appointments afford these inspectors with the capacity to operate to the same level as an ESO inspector in regard to administering the Electrical Safety Act 2002.*

*In this instance the incident that occurred was initially attended by ESO inspector, Mr Brett Hodge. In accordance with the operational policy, the easement was deemed to be a workplace and the powerlines low voltage therefore the investigation was allocated to WHSQ inspectors Mr. Paul Neilands and Ms. Rebecca Wright. Both Mr. Nielands and Ms Wright are inspectors appointed under both the Electrical Safety Act 2002 and the Workplace Health and Safety Act 1995.*

The policy referred to in the correspondence is exhibit B22.1 and it sets out the Investigation allocation criteria in force in 2007 and now:

*An electrical safety office inspector should be allocated the following:*

- *Electrical events occurring at a place, other than a workplace ie Domestic premises*
- *Electrical events involving licensed electrical workers and contractors, and entity personnel*
- *Electrical events involving high voltage, except for persons operating plant, vehicles or other plant contacting a high voltage electric line at a workplace or public place*
- *Dangerous electrical events*

- *Electrical events which are primarily consumer protection and not safety related*

***To the extent that none of the above events apply*** a workplace health and safety inspector should be allocated the following

- *Electrical events occurring at a workplace*
- *Electrical events involving persons, operating plant or vehicles contacting a low or high voltage electric line at a workplace or public place*

## *Police Investigation*

65. The first police response was undertaken by Senior Sergeant Peter Williamson (then Officer in Charge at Mission Beach) and Senior Constable Anthony Cliffe. Both officers were recalled to duty at 19:30 hours and attended the Tait residence at approximately 19:45 hours. When he arrived Sergeant Williamson observed the QAS and QFRS in attendance. He saw Mr. Tait lying face down on the ground with a power line running under his body. He could also see two power lines grounded. He recalled hearing the power line arcing and was warned that the power lines were thought to be active. ERGON personnel, including Steve Johnson, attended and the scene was declared safe to attend to Mr. Tait.

*66.* Sgt. Williamson did not notify WHSQ or ESO that night of the incident. On that night, he testified, he had not turned his mind to the MOU nor did he immediately consider the scene a workplace. He did arrange for the attendance of Sergeant Mike Harris from Innisfail Scenes of Crime and Detective Bradley Doyle of the Innisfail CIB. Senior Constable Cliffe also spoke to the Tait family and recorded in his notebook: *7:15pm – power went out at house. Put light on and heard a buzzing noise. Contacted Ergon and told a brown out…Father said to go and have a look to see what was going on. Dad took a torch and we both started to walk around then started walking up dirt track together. About a metre apart when close to first power dad started patting around legs and say 'oh shit'. I thought Dad had been bitten by a snake. Dad was bent over and I touched his shoulder and I was thrown to ground. I felt a shock. Dad had then fallen over and I hear a spark. I then ran down the hill and told mum to ring the paramedics..""*[31] Mrs Tait told police on the night they heard no cars or truck drive up before power went off and only heard a zapping sound.

67. Police also spoke to the ERGON workers on site about what might have occurred. On inspecting the fallen conductor and seeing burning and splatter marks along them Steve Johnson thought the conductors had clashed causing them to short circuit and fall. His opinion was strengthened when he was told by a police officer that neighbours had observed seeing a flash of light in the early evening which indicated there had been a conductor clash. He assisted police by looking for evidence as to why the conductors may have clashed. He was shown a small slash

[31] Exhibit H6.1

mark on the side of the power pole near where Mr. Tait's body was located. At the time he thought it was a feasible explanation that the pole had been hit by a vehicle causing a bump that caused the wires to shake and then come close together. However, when he looked further there was no evidence of vehicle traffic at all and no other evidence that the pole had been bumped that night. The next day he returned to the scene in daylight and saw that the mark was older then he realised. Further there was no evidence that the pole had moved in the ground which is the usual indicator of impact. Mr. Johnson also conducted a search of the area looking for signs of wildlife that may have contributed to the clashing and he found no evidence of dead wildlife. He walked the length of the span and carried a torch. Sergeant Williamson recorded in the police log (at 00:33 hours on 22 March 2007) that *inquiries at the scene have failed to identify the cause of the grounding of the power lines, however staff from Ergon Energy have advised that a possible bird struck (sic) may have caused two overheard lines to come into contact with each other causing the lines to arc and break. The deceased was lying directly on top of two live power lines for approximately 25 minutes before Ergon disconnected the power remotely from Townsville…"*[32]

68. Sergeant Harris attended the scene at 21:00. He photographed the scene, prepared a sketch plan that showed where he collected various pieces of wire that he sampled and took as exhibits. While he had previously worked with WHSQ officers in investigating workplace incidents the location of this incident did not immediately strike him as a workplace and he testified that he simply did not turn his mind to speaking to WHSQ officers.[33] He collected and documented the wires at his own initiative believing some record was important. He was aware that the remaining conductors (including those he had taken samples from) were collected by Ergon workers and taken to their depot. Mick Stoter concurs that the crew took the remaining fallen conductors, rolled them up, and put them in his truck where they remained until the next morning when they were delivered to the Tully depot where they were collected by an ESO Inspector Hodges.

69. As an outcome of these attendances and his own observations Sgt. Williamson considered there were no suspicious circumstances of a criminal nature related to Mr. Tait's death. I concur with that assessment. As a result of that assessment the investigation of Mr. Tait's death, save for the formal coronial report, was largely the responsibility of WHSQ, ERGON and the ESO. Given the particular expertise needed to investigate the reason for the conductors clashing it is appropriate that these bodies had the primary investigative responsibility.

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32 Exhibit H#

33 T3 p. 59

### *ERGON Investigation*

70. Following Mr. Tait's electrocution ERGON immediately undertook an investigation of the incident. That investigation was set up by Mr. Bowes, Manager of Regional Services North Queensland and conducted by the System Safety Accident Investigation Team. The draft report (exhibit C1.8.9) and the final investigation report compiled by MacDonnells Law (exhibit C1) were both supplied to me and are exhibits in the Inquest.

71. It should be recorded that ERGON has been entirely co-operative with this coronial investigation. They have provided all material requested and fully disclosed all relevant matters including providing a very significant amount of further information as to operational changes resulting from their investigation of this matter. During the early stages of the coronial investigation they consented to the full investigative brief they prepared being copied for the information of the Tait family and to assist them making a submission for the holding of this inquest. ERGON should be commended for this assistance.

72. The ERGON report was informed by three expert reports:
    - Michael Powell from Biotica Environmental Consulting Pty Ltd who examined power pole 5147414
    - Ross Gilbert who inspected and assessed the conductors
    - Bob Coulter from Utility Engineering Solutions who examined the causes of the incident.

73. Each of these experts gave evidence at the Inquest and their reports are considered more fully below.

74. In summary the ERGON investigation concluded that while neither ERGON, or its experts, could conclusively determine the cause of the incident it is believed the most likely cause was that the conductors were struck by a flying fox or aerial animal causing the conductors to clash and fall to the ground while remaining live resulting in Mr. Tait suffering a fatal electric shock when he came into contact with them. The report concluded that the ERGON assets performed as expected but did not prevent the fatal electric shock to Mr. Tait.

75. Both the draft and the McDonnell's report refer to a May 2006 incident on the same LV network at Narragon Beach where a sea eagle, attempting to retrieve an electrocuted flying fox caused clashing of wires leading to the conductors burning and falling to the ground. This incident is discussed more fully below.

76. The draft report included a judgment of needs analysis essentially suggesting remedial measures to reduce the risk of similar events. Mr. Bowes evidence[34] provided an update to the inquest on progress of

[34] Exhibit C7

implementation of many of those post-incident remedial measures. These are also set out below.

### *ESO and WHSQ Investigation*

77. ERGON, in accordance with their statutory responsibility, notified the ESO of the electrocution of Mr. Tait at 20:38 on 21 March 2007. The notification was made to Deborah Fox who at that time was employed as the Manager of Electrical Safety Compliance at the Southern Region of the Electrical Safety Office. Ms. Fox was on call that night and this meant she was available to receive calls in relation to electrical incidents occurring anywhere in the State of Queensland. Ms. Fox provided a statement and her notes taken at the time.

78. Ms. Fox contacted her superior Mr. Barry Dieckmann the Director of Electrical Safety / Compliance and also left a voice mail for Terry Gillman who was the Electrical Safety Manager for North Queensland. She also contacted the inspector on call Brett Hodge. At this time Ms Fox was advised by Ergon that the conductors had come down because of a car hitting the pole. She also said she spoke to police who had no information to stop power been restored.

79. In testimony Mr. Dieckmann explained that the decision to restore power was made on the basis that there the fall of conductors was explained by the striking of the pole by a motor vehicle. This was an incorrect explanation. He testified that when he learned the next morning this was not the case his "*heart sank*". He conceded that a different decision may have been made as to the situation had that information been available to him.

80. The next morning Mr. Hodge, an ESO Inspector, was directed by Mr. Gillman to attend the site. Mr. Hodge is no longer employed by the ESO. He did not give a statement in the proceedings until 2010. Mr. Hodge was very experienced in the electricity industry. He began his career as an electrical mechanic tradesman, finishing his apprenticeship in 1986, worked in heavy industry, commercial, and mining and then he held positions as electrical supervisor before gaining the position as safety inspector with the ESO.[35] He had participated in investigative training but never previously investigated a fatal electrocution involving fallen conductors.

81. Mr. Hodge testified as that when he went to the site he thought WHSQ would be the chief investigators and that he was really going as a '*technical backup*'.[36] Essentially he considered that the visit to the site was "*just a site inspection and to see any items that were involved removed from the site*".[37] He testified he was told the site was a

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35 T2 p. 2-3

36 T2 p. 6 l.35

37 T2 p. 9 l. 35

'*workplace'* because ERGON has control of the site under a power line.[38] He testified he knew that because the incident involved a fatality it was never an ESO investigation but always was to be "*handed to workplace health and safety".*[39]

82. The email from Deborah Fox to Terry Gillman initiating the investigation is in evidence.[40] In this email, forwarded to Mr. Hodge, the direction from Ms. Fox is clear:

    "*Terry, Could you please send an inspector to the site of last nights fatality to commence an investigation.."*

83. Regrettably the inspection of the site and the subsequent ESO inspection were rudimentary. Mr. Hodge met Steve Johnson on site. They discussed the incident but there was no new information received. Mr. Hodge took some photographs of the scene but given these show restored power lines they do not greatly assist. Mr. Hodge did inspect the scene for evidence that might have indicated why the conductors fell. None was discovered. He did notice damage to the base of pole 5147414 and this was photographed. Upon examination of the damage he reached the conclusion that the damage was old and was not relevant to the incident. No notes of the site inspection or the conversation with Mr. Johnson were made. He estimated he was on site for no more then fifteen minutes.

84. Mr. Hodges attended the Tully Depot and took possession of the roll of conductor collected by ERGON employees the night before. There were no other investigative notes of any other inquiries.

85. Mr. Hodges also testified that he was told that the cross arm had been discarded the night before in rubbish somewhere between the site and the Tully Depot. This information is not recorded in any contemporary note. The ERGON employees on site on 21 March 2007 are clear that the cross arm was not replaced. Further, the expert timber scientist Mr. Michael Powell examined the cross arm and pole[41] and concluded that the cross arm appeared to being in service for some time.[42] I am satisfied that the recollection of Mr. Hodges was wrong. Unfortunately the lack of contemporaneous notes meant that he relied upon his recollections which he admitted with respect to this issue may have been confused.

86. Upon the material there appears to be no other action in the investigation between 22nd March 2007 and 23rd April 2007 when Mr. Paul Nielands from the WHSQ office was allocated the investigation. Mr. Nielands, who is no longer employed by WHSQ, had considerable experience in the workplace health and safety field. He had been a construction inspector with WHSQ since 1999 and held dual appointments as an inspector under

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38 T2 p. 9 l 50

39 T2 p. 11 l 15

40 B 28

41 Which had been later removed by Ergon and kept at the Tully Deport for evidentiary purposes. It is still there.

42 T3 p. 88

the WHS Act and the Electrical Safety Act. He had participated in training to investigate electrical incidents. While he had, while working in other countries, been involved in investigation of fatalities caused by electrical shock he had not been involved in investigation of an electrocution from fixed wires.

87. Paul Nielands testified that the initial investigation was commenced by the ESO as the scene did not have the appearance of a workplace[43] but then it was decided that WHSQ would take over. There appears to have been some discussion about the decision between inspectors but Mr. Nielands testified it was accepted as a management decision. Mr. Nielands began his investigation with a site inspection and spoke to Mrs Tait and Darryl Tait on 24 April 2007. His activity is recorded in WHSQ computer system called the Compliance Investigation System (CIS). He also made contact with police, including Sergeant Williamson, to ascertain the whereabouts of exhibits the police may hold.

88. On 26 April 2007 Mr. Nielands required ERGON to answer certain questions going to the possible causes of the incident. It is apparent from his evidence that Mr. Nielands was well aware that a primary focus of his investigation would be the reasons that the conductors fell and whether there was compliance by ERGON with the electrical safety obligations including the obligation on ERGON to maintain the overhead lines in safe condition and, to ensure, within reason, those lines did not clash together or separate through any structural fault within the lines. [44] He had sought some input in drafting the questions to ERGON from the ESO.[45]

89. Mr. Nielands ceased investigating this matter in late May 2007 because he had to return to his substantive position as a construction inspector. The new investigator was Rebecca Wright. Ms. Wright was a lawyer who had recently transferred into the role of WHSQ inspector. She had not received formal WHSQ investigation skills training at this time but had received some electrical safety training in her induction training in 2006. She held dual appointments as an inspector under the WHS Act and Electrical Safety Office.

90. After the handover from Mr. Nielands Ms. Wright spent a day or two familiarising herself with the files. She also spoke to her then manager, Paul Waltham, seeking guidance about the progress of the investigation. Her understanding of the purpose of the investigation was that it involved looking at every aspect involved in the incident to see what things could have affected or may have affected the outcome. Ms. Wright was frank in her evidence that during the investigation she sought advice from the electrical inspector in the WHSQ office about what sort of questions she needed to be asking. She was also candid in admitting that as this was her first major investigation she learned as she went along.[46] She sought

[43] T 2 p. 47
[44] T2 page 45
[45] T2 page 65
[46] T4 page 14

advice from Terry Gillman from the ESO asking him whether there were any legislative requirements in relation to what had to be done to secure safety with low voltage power line. This advice is recorded in Exhibit B17:

> *Terry advised that the ESO has not had too much involvement in the investigation but he was aware that Brett Hodge had seized some wiring. He suggested I speak with Darryl Stattmann to see what is in the ESO files and notebook entries.*
>
> *Terry advised that there was a lot of legislation in place for high voltage lines, but virtually nothing for low voltage. As a safety mechanism, low voltage lines rely primarily on fuses which don't necessarily fail whey they (sic) is a fault. Investigations are on-going as to what can be done, but safety switches (as in houses) aren't an option as the low voltage lines could be connected up to 100 homes, and with safety switches they would be continually tripping.*
>
> *The only real legislation for low voltage is in relation to the height of conductors and the exclusion zone for working around power lines.*
>
> *Terry is aware that Keith Spencer from Ergon seized the actual pole involved in the incident but he does not know where the pole is stored.*

91. Again Ms Wright was candid in admitting she was not clear on the "*technicalities"* of all that Mr. Gillman discussed.[47]

92. The ERGON investigation report was received by Ms. Wright on 14 December 2007. She then spent some days in early January 2008 reviewing the report. She then issued ERGON with a formal notice to participate in a record of interview. She explained that the record of interview process is where a potential obligation holder is formally interviewed by the department. It is a recorded interview with set questions. The interviewee is given the opportunity after answering those questions to formally put forward any comments that they might want and to make and to provide the investigators with any documentation or any other information that they feel is relevant to the investigation. As there is the potential that there may be prosecution action everything is done in a very formal manner.[48] However, after discussions with her new superior, Dean Coggins, in early February 2008 it was decided not to have a formal interview as ERGON had supplied all the required information in their investigation report.

93. Ms. Wright then finalised her final investigation report. This is Exhibit B2 in the Inquest. The investigation report essentially provides a summary of the ERGON report including:
    - précis of the statements of Catherine Evans and Daniel Tagney
    - précis of three independent reports prepared for the ERGON investigation

[47] T4 p. 16
[48] T4 p. 23

- a copy of the Code of Practice – Electrical Work Electrical Safety Act
- précis of the outcome of the ERGON investigation

94. The next section of the report is then filled in by the Regional Investigations Manager and is for the purpose of consideration of further action. Mr. Coggins (acting in this role) filled out this section and gave a statement of reasons why the investigation was complete and that there should be no further investigation. I include this statement in full:

*An obligation under s. 28(1) was imposed on Ergon Energy as owner of the assets to maintain them in a manner that did not affect the health and safety of their workers and other persons. It appears on the basis of the information obtained that Ergon Energy has discharged that obligation.*

*I submit that there is insufficient evidence that any person has a case to answer for the following reasons:*

1. *The investigation into the incident identified a number of possible causal factors as to why the conductors may have come down, but was unable to definitively confirm how this occurred on 21/3/07. It would seem in any case that what happened to cause the conductors to fall was out of control of the obligation holder at the time.*

2. *Mr. Tait chose on his own accord to enter at night an adjoining vacant property consisting of wet ankle deep grass with no footwear and just a torch;*

3. *Mr. Tait was not undertaking any sort of work activity at the time of the incident.*

4. *The investigation found prior to the incident that these assets had been serviced and adequately maintained with no matters outstanding.*

5. *Ergon Energy's CARE Report of 2000 identified the necessity to install spreaders as a priority 2 action plan, but had not yet commenced such upgrades in the TAIT'S area for reasons pertaining to cyclone priority areas to be done first. It can only be surmised that spreaders would have prevented the lines coming down if a cause could be substantiated of the contact between the two lines. An independent investigation and subsequent report identified among other things the same conclusion.*

6. *There appears to be nothing untoward with the information provided to Mrs Tait by the Ergon Energy operator he night of the incident with respect to Ergon Energy's policies and*

*procedures at the time and the way in which the call was classified and appropriate action taken by the obligation holder. I would however recommend that Ergon Energy consider a review of information given by operators to a caller in a code yellow situation by advising of the possibility of fallen lines and relay any applicable safety information to the caller.*

*I would therefore recommend that the Director of Legal and Prosecution Services approve no further investigation of this matter. Any follow up with Ergon Energy to through the applicable ROM.*

95. The Director of Legal and Prosecution Services WHSQ accepted the recommendation and advised no further comprehensive investigation of the matter would proceed.

96. Following this decision Mr. Coggins' recommendation with respect to changing of scripting for call centre operators does not appear to have been communicated to ERGON. At this time the responsibility of communicating recommendations was not with the investigators but another part of the Department.[49] ERGON eventually sought a copy of the investigation report under a Freedom of Information request. It was supplied with all Mr. Coggins' notes blacked out. The completed form or the investigation file was never sent back to Ms. Wright after the determination of the Director of Legal Services. This is standard practice.[50]

97. As noted previously ERGON included in their report reference to an incident recounted by a witness of a *sea eagle attempting to retrieve an electrocuted flying fox from the same LV network in May 2006. The shorting caused the conductors to burn off and fall to the ground. The local Ergon Crews rectified the damage and the bird was injured but survived. The Ergon incident number is Call Log ID 544098.*[51] This report refers to an incident that was occurred on 14 May 2006 in the same location as the Tait residence. The FeederSTAT of that incident is in evidence[52] and shows the call centre recorded "*that when a sea eagle tried to take a dead bat of (sic) of the powerline in the middle of their yard and has brought down two lines – two still remain intact. Adv to keep away from the area."* The powerlines were repaired the same day with Pat Casey recorded as performing the completed work.

98. Stuart Traill, Far North State Organiser of the Electrical Trades Union, testified at the Inquest that he had been told by various ERGON employees that Pat Casey, now deceased, recommended, following the 2006 callout, that the span of wires in question needed to have insulated spreaders installed to prevent further clashing and low voltage fuses installed on Sub Station 1522. These spreaders were not installed until

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49 T5 p. 10

50 T4 p. 38

51 Exhibit C1 p. 16

52 Exhibit C5

the days following Graham Tait's death on 21 March 2007. It was Mr. Traill's view that the conductors would not have clashed and fallen to the ground if spreaders had been installed prior to the fatality.[53] He testified in the inquest that he learned of the recommendation when he attended a meeting at the Tully Depot subsequent to Mr. Tait's death. There was some discussion amongst the members of the Tully depot and he was advised about the previous incident on the 14th of May 2006. He asked the Tully employees what were the actions back in 2006 and whether there were any recommendations made to ERGON, and was advised there was a recommendation following the earlier incident by Mr Casey. That advice was documented on "*a green form*"[54] which is a standard ERGON form used to document the fault, the repairs and any recommended corrective actions into the future. The employees advised him that there was a recommendation from Mr Casey made on that form and handed in to ERGON for low-voltage spreaders to keep the conductors apart and a recommendation to install low-voltage fuses on the sub-station in question.[55] Mr. Traill named Michael Stoter as one of those employees who provided him with information. Michael Stoter testified that he did recall Mr. Casey remarking after the electrocution of Mr. Tait in 2007 that he had made a prior recommendation for spreaders in all the fusible links to be placed on the pole.[56] Mr. Stoter could not recall whether the recommendation had been placed on a green form but was definite that Mr. Casey had made such a comment.

99. ERGON Energy, through Mr. Bowes, made enquiries to try and locate a copy of the recommendation by Mr. Casey. None was located. Enquiries with the relevant Work Group Leader of the Tully Deport, Mr. Gudonis and the former Operations Manager for the Area, Murray Libenknecht, also revealed they had no knowledge of the recommendation.

100. In evidence Mr. Bowes explained how the "green form" worked. It is a term for a booklet of forms which record daily task risk management plans. These are forms that ERGON crews, before they commence work each day, use to undertake a risk assessment and document the things that they put in place in relation to their task. On the back of that form is a green work sheet, and if, for example, the crew were contacted during the day or after hours to respond to an incident or to respond to a customer job, they would log the details of that job on the green form and that green form would come back to the depot completed with details of the task that had been completed. It is also used to recommend further action that might be required. While there is not a separate field that identifies further or recommended actions Mr. Bowes understands ERGON staff use that general text field to log any further activity that might be required at the job side. That green form then goes back to the depot and they then generate

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53 Exhibit D1

54 A slang term

55 T5 p 3 - 4

56 T6 p. 52

another work order to go and do that follow-up task at a later date when it was appropriate to do so.[57]

101. I accept Mr. Bowes and ERGON undertook substantial enquiries to find records of the purported Casey recommendation. None have emerged and while I am satisfied Mr. Traill and Mr. Stoter were entirely truthful as to their knowledge and recollections, I am not satisfied that Mr. Casey ever made the formal recommendation albeit it is entirely possible that he raised the matter in an informal way after he carried out the repair work.

## *ISSUES THE INQUEST EXAMINED*

102. At the beginning of the pre-inquest hearing I determined that the issues to be examined by the inquest were:
    (1) What caused the conductors to fall in this incident
    (2) The adequacy of Ergon's response to the initial fault call
    (3) The adequacy of the WHSQ investigation into the incident
    (4) The findings I am required to make under s. 45 of the Act

    Two further issues were canvassed by Counsel Assisting at the inquest being the equipping of the fire truck on the night of 21 March 2007 and QPS awareness of the MOU between the QPS and Department of Industrial relations.

103. In considering the issues I have the power under s. 46 of the Act which (relevantly) permits a coroner to comment on anything connected with a death investigated that relates to ways to prevent deaths from happening in similar circumstances in the future. As will emerge from a consideration of the issues substantial remedial measures have already been taken by some agencies and ERGON with respect to many of the issues to be discussed and I have referred to those actions to explain why in certain cases specific recommendations sought are not made. Finally, as must be apparent from these reasons the maintenance, running and regulation of the electrical network in such a large State presents immense challenges. Despite the assembly by Counsel Assisting of a large volume of material and hearing evidence over eight days, I am conscious this Inquest has explored only a small proportion of those complexities. Coroners must always be cautious of making recommendations without a complete understanding of those complexities and I have borne this caution in mind when making recommendations.

## *WHAT CAUSED THE CONDUCTORS TO FALL*

104. Mr Coulter, an Electrical Engineer, with lengthy experience in the electrical industry in Australia specialises in electrical network protection. He originally provided an independent expert analysis to the ERGON investigation as to the likely causes of an active to neutral short-circuit fault in the span of conductors. He is now employed by Energex as the

[57] T7 p 13 - 14

Protection Engineer Manager. Having considered his qualifications, experience and evidence I am more then satisfied that his conclusions are in no way affected by his present employment.

105. Mr. Coulter set out what could be the hypothetical causes of the conductors falling as follows:
    (a) One of the two conductors (either active or neutral) breaking some distance away from a pole and the source side flipping up and making sustained contact with the other before falling to the ground. The cause of the initial conductor break would be due to a pre-existing weak point that gave way at the time for some reason
    (b) Conductor clashing initiated by impact to a supporting pole
    (c) Conductor clashing initiated by high wind speed, gusts or turbulence
    (d) Conductor clashing initiated by pole slippage
    (e) Conductor clashing initiated by cross arm movement
    (f) Conductor clashing initiated by mechanical forces due to short-circuit current flowing through the span for a fault elsewhere
    (g) Conductor clashing initiated by a flock of birds alighting from a conductor near simultaneously
    (h) Conductor clashing initiated by a high load or contact from an object being carried under the span
    (i) Lightning strike and a subsequent flashover through the air mid span
    (j) Conductors bridged by wind borne foreign object or debris
    (k) Vandalism
    (i) Tree/vegetation contact
    (m) Conductor clashing caused by airborne wildlife contacting one or more of the conductors in-span. The commonest types of bird or animal in the locality of interest are fruit bats, flying foxes or a large bird such as a sea eagle.

106. He eliminated a number of causes immediately because the weather conditions were relatively mild ((c),(i) and (j). I concur with this conclusion

107. With respect to causes (b), (d) and (e) they relate essentially to a mechanical failure of the pole. Relying on the report of Michael Powell, timber scientist, he eliminated problems relating to the integrity of the pole. Mr. Powell gave evidence at the Inquest. The majority of his work is related to degradation of wood in circumstances where wood is not performing as it has been expected to and he will be engaged to investigate those causes or reasons why the performance is substandard. While the primary focus of his work is decay he comes across a whole range of different types of degradation including chemical, weathering and physical damage.

108. When engaged by ERGON Mr. Powell was asked to comment on the integrity of the pole as it stood in the ground including whether it was likely that a vehicle or other machinery had impacted on the pole, whether, if that was the case, what that impact might have done to the integrity of the pole, whether other issues, such as Cyclone Larry had had any impact on the integrity of the pole and other factors which he considered to be relevant to any damage that he may observe.

109. Mr. Powell initially observed the pole[58] in situ and then had the further opportunity to examine the pole after it had been removed. He found the pole to be in serviceable condition which meant that it was capable of supporting the insulators and conductors for at least another four years. Further, although the pole had a distinct lean downhill and towards the north-east, the angle of the lean was calculated to be no greater then 8 degrees from the vertical and would not, according to current ERGON guidelines require removal. The cross arm appeared to have been replaced relatively recently[59] and was in good condition with no defects.

110. At the Inquest Mr. Powell was asked about the issue of removal of the cross arm raised by Mr. Hodges. He testified that the cross arm, although relatively new, was sufficiently weathered to have a date consistent with the ERGON records. The only way the cross arm would have been recently replaced was if it had been replaced with a used cross arm of the same vintage. Given Mr. Powell's evidence and that of Michael Stoter, I am satisfied that Mr. Hodges allegation that the relevant cross arm was disposed of after the incident can be dismissed.

111. Mr. Powell also examined the fresh damage to the wood pole which in his opinion was consistent with been struck by a hard object such as a vehicle or machinery. The impact had scored the pole and dragged out a noticeable but small volume of wood material. He estimated the damage had occurred 2 – 3 weeks before he examined the pole on 24 March 2007. He considered it highly unlikely that this impact compromised the integrity of the pole as the small amount of wood lost was highly insignificant relative to the overall strength and condition of the pole. While the impact may have contributed to the lean of the pole this was also considered insignificant due to the glancing nature of the impact and the location relatively close to the ground. He also considered that the lean of the pole (attributed by anecdotal evidence to the effects of Cyclone Larry in 2006) and the lost pole cap would not have compromised the integrity of the pole.

112. I accept the evidence of Mr. Powell and agree with Mr. Coulter's conclusion that given these findings a failure of the pole or cross arm was unlikely to have caused the falling of the conductors.

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58 Pole 5147414

59 According to ERGON records in 2005

113. Mr. Coulter also eliminated vehicle movement under or near the line section (h) and vandalism (k) given there was no evidence to support these suppositions. Again that finding is entirely consistent with the evidence given in this Inquest. Also eliminated was cause (l) as the relevant span of conductors was well away from any trees or vegetation that might have come into contract with the conductors.

114. Mr. Coulter also relied on Mr. Ross Gilbert's opinion to eliminate a pre-existing weak point in the wires causing the overhead conductors to break (a). Mr. Gilbert is a consulting electrical engineer. He spent 34 years working with the State Electrical Commission of Victoria and then 18 years as a consulting engineer. His particular area of interest and expertise is overhead and underground power lines. Mr. Gilbert provided an expert opinion to ERGON on the condition of the conductors and records and assesses the damage caused to the conductors and was also called as a witness in the Inquest.

115. As part of his methodology Mr. Gilbert attempted to reconstruct the span of the conductors. This task was made considerably harder by the random manner in which the conductors were recovered. The majority of the conductor spans, six lengths, were recovered from WHSQ at their Sheridan Street Office. These were the conductor spans originally seized by Mr. Hedges (ESO) from the Tully Depot on 22 March 2007. ERGON held another 5 pieces of conductor at various locations and the largest piece (16.4m) was inspected. The pieces of conductor cut and seized by Sgt. Harris were also in the custody of WHSQ and were inspected. These pieces were relatively short. With the exception of the pieces taken by Sgt. Harris there was no record of the location of where any of the conductor pieces were recovered from or the phase[60] they came from. Seventeen metres of cable were missing. Mr. Gilbert testified he asked ERGON about this missing length but they were unable to produce that missing cable. They had apparently being unaware it was missing until Mr. Gilbert raised the issue. Subsequently the cable has never been located. The randomness of the collection of the conductors made it very difficult to reconstruct the spans.

116. Conductor cable can fail mechanically in two ways: brittle failure and ductile failure. Small size copper conductors, as these conductors were, have a history of brittle mechanical failure. This is most apparent in tightly strung lines and usually occurs where the conductor is secured to the pin insulators. It is the result of "work hardening" of the metal due to conductor vibration near anchor points leading to a corrosion fatigue mechanism. This occurs where water is retained against the conductor surface by it lying on the insulator surface or within the wraps or ties. Upon examination of the conductors Mr.

[60] Mr. Gilbert explained that there was no way to tell an active or neutral conductor from examination. It was only when they were insitu overhead could they be identified.

Gilbert found no failure of the conductors at the supports and no evidence of any brittle looking break (fatigue or corrosion fatigue fracture) in the conductor strands. He considered a brittle failure extremely unlikely to have caused the conductors to fall.

117. Ductile failures are possible if the conductor temperature rises sufficiently under fault current conditions to reduce the mechanical strength of the conductor to a value less then the tension of the sagged conductors. Under these conditions there will also be increased sag in the conductors resulting from increased conductor temperature, a reduction in the tension of the conductors with the increased sag, increased magnitude of electro-magnetic forces resulting from the fault current and the possibility of horizontal displacement and the conductors clashing.

118. Mr. Gilbert found some evidence suggesting ductile overload failure but for that failure to be the primary cause of the incident a short circuit fault beyond the ductile overload failure would need to occur in order to establish the fault current necessary to raise the temperature of the conductor sufficiently for a ductile overload failure to occur. He found no evidence of this occurring and believed that a failure of the nature is unlikely to be the primary cause of the incident.

119. What Mr. Gilbert did find on examination of the conductors was obvious arcing damage to all the separated ends as well as the conductors around the 30 metre mark. An arc is established where there is no solid contact between conductors but the voltage is sufficient to break down the separating 'dielectric' (generally air) causing an electrical discharge and ionisation that establishes and maintains the arc. The establishment of an arc removes copper from the conductor strands by creating, high, localised temperatures sufficient to melt and/or vaporise copper.

120. Mr. Gilbert considered most of the damage he found was the result of an arcing contact between the active and neutral conductor. This will occur if the active and neutral conductors clash together (conductor clashing), wrap around each other in the air or become entangled on the ground. In this case he could not say what damage occurred from the conductor contact in the air and what damage occurred on the ground. In evidence Counsel Assisting referred Mr. Gilbert to Darryl Tait's evidence that he saw no arcing or sparks or heard no noise as he and his father approached to where the conductors were lying. Mr. Gilbert considered this evidence indicated that the active and neutral conductors were not in contact with each other on the ground at this time.

121. In evidence he explained his attempts to reconstruct the conductors by matching failure modes of individual strands. This was made difficult because of the method of collection and damage so results were not conclusive. Nevertheless he testified that while no definite failure

sequence could be deduced there was evidence that the active and neutral conductors were in contact at pieces A and B and he believed that they probably contacted at the A and B point first, then the conductors have wrapped together at the 30 metre mark because of the electromotive forces that were generated, and the cable failed first at points A and B and then progressively failed at the other points, working backwards.[61]

122. Mr. Gilbert was referred to Mr. Coulter's opinion of the likely cause of the conductor clashing:
*In the event under consideration possible mechanisms for creating continuous (sustained) contact between the active and neutral conductor have been eliminated. This leaves the most likely scenario for the fault to be as follows.*

*The A phase active and neutral conductors (at least) have been brought into initial contact by impact forces from collision within the span by a large bird or flying fox. Short-circuit fault currents will flow from the initial contact, arcing erosion damage to the conductor will start, and the resulting electromotive forces cause such conductor movement as to set up sustained clashing and or tangling. As the current flows for longer times, the conductor length will increase and contact becomes easier to maintain. At each contact point there will be further arc damage. If the conductors became tangled, as is probable, the arc duration at a particular point could be long enough to sever the conductor at that point. An approximate calculation of the duration of arcing needed to sever 7/064 Cu conductor for the Ergon calculated short-circuit fault current value of 1129 Amp gives a time of under 1 second.*

*In the scenario here the conductor would have been progressively burnt into sections in the air until the active and neutral conductor fell free of each other on ton to the ground. This could have taken many tens of seconds due to the sporadic nature of the burn-down combined with the fact that arcing faults tend to reduce the magnitude of the short-circuit current thus requiring longer times to for fuse operation than the 10 seconds mentioned above.*

123. Mr. Gilbert accepted this scenario as the most likely occurrence with the only reservation been that the original knock at points A and B would have had to be quite severe given there would be less sag of the conductors at this point.

124. Mr. Coulter's opinion was that when the active and neutral conductors were on the ground there were two contact scenarios. If the conductors were in direct contact the short circuit would be maintained. If they were not in contact the current flow would be through the earth. In this latter scenario if there were only a few centimetres separation

[61] T5 page 41

the current flow will be quite small and there would be no arcing, no noticeable light emission and probably no further conductor damage. The touch voltage for the active conductor would be very nearly 240 volts. In my view it is this latter scenario that best fits with the Darryl Tait's description of the scene as he and his father approached the power pole.

125. Having regard to the expert opinion I accept that Mr. Coulter's scenario is the probable cause of the conductors clashing and falling to the ground despite there been no animal carcase found at the scene. Witnesses[62] accepted that a bird or flying fox might hit the lines but also fly away. Mr. Coulter also considered a flock of birds on the lines flying off at the same time could cause wires to clash.

## *Preventative Measures*

126. The expert witnesses, and indeed many of the technically qualified witnesses, agreed there were measures that could reduce or minimise the risk of conductors clashing: the installation of spreaders and LV fuses, the replacement of small copper conductors with LV aerial bundled cable and undergrounding wires.

127. With respect to LV spreaders Mr. Gilbert testified he believed that the installation of spreaders on the relevant span would probably have avoided the clashing of conductors. He considered they were probably a lower cost alternative to replacing all of the bare conductors with insulated conductors. In Victoria, effectively all rural areas would have spreaders in any low voltage spans that still exist there because of the propensity of conductor clashing to also start bushfires. This installation has proven to be very effective.

128. Mr. Coulter also testified to the effectiveness of spreaders in Victoria. From his knowledge in Victoria every section of low voltage overhead line has at least one spreader and sometimes two. That came about because of primarily bushfire risk but it has been recognised that there are other advantages to their installation in keeping broken conductors in the air and reducing clashing of conductors following wildlife strikes.

129. Mr. Bowes informed the Inquest that LV spreaders have been introduced into the ERGON network in considerable numbers since 2000. Between 2001 and 2003 7000 spreaders were installed in the Cairns and Townsville areas. Further LV spreaders were installed under the Cyclone Area Reliability Enhancement ("Care") Program. Approximately 5,667 spreaders were installed in heavily populated areas between Bowen and Ingham in the period October 2007 to April 2010. The initial criteria under CARE focused on installation in highly populated areas.

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62 Mr. Johnson, Mr. Stoter, Mr. Trail and Mr. Coulter

130. ERGON continues with a program to identify spans where LV spreaders may need to be installed across the State. In particular in 2011/12 fourteen feeders (five in North Queensland) have been identified for installation of spreaders by analysing all outages caused by LV conductors clashing and subsequent failures. Further analysis will be undertaken by looking at all historical LV conductor clashing failures and prioritise these based on risk.

131. While some issues were raised generally about prioritisation of installation of spreaders I consider that the present program instituted by ERGON is informed by risk assessment and should not be criticised. Its program has to be understood in the context that when ERGON was established in 1999 it inherited infrastructure from six regional electricity distributors that was not cyclone proof. Since that time obviously considerable effort has taken place to address deficiencies in the infrastructure.

132. However, I do accept the Tait family submission that the incident in 2006 should have triggered a risk assessment of the risk of clashing conductors causing a conductor failure. Mr. Bowes consider the 2006 incident could have been logged into what is known as the "eSafe" system which is an electronic system used by ERGON to record, action and monitor safety issues. Given that the 2006 incident involved an asset failure it could have been referred back to ERGON'S asset management group to investigate the failure. He could not say why this incident was not captured in the incident reporting system.[63]

133. Nevertheless as Mr. Bowes quite properly conceded the 2006 incident constituted a "*missed opportunity*" for risk assessment and formal consideration of whether spreaders and low voltage fuses should have been installed on that span of conductors.[64] I agree with Mr. Bowes' assessment.

134. Contributing to the missed opportunity for risk assessment was the legislative reporting requirements for dangerous electrical incident to the ESO. As the 2006 incident caused no injury and involved low voltage line the Electrical Safety Act did not require reporting of the failure of conductors. No witness was able to satisfactorily explain why the fall of low voltage conductors was treated differently to high voltage lines. As Mr. Traill said in response to my question as to the reason for the differentiation:

*I don't know what the differentiation is; as to why - high voltage conductors obviously have a great potential, given the nature of the - and the electricity network, the high voltage network in this area - is 22,000 volts. So if you've got 22,000 volts on the ground, alive, you've got a serious problem.*

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63 T7 p 11

64 T7 p 11

*And obviously you've got a great potential to injure and kill. Low voltage, I'm not sure why - why low voltage is not a reportable incident, as I stated earlier. I personally would like to see it, because any live electricity wire on the ground has the potential to kill. If you've got a busted power point in your house, it's got the potential to kill. If it's on the ground, like, number 1, through the risk assessment process, obviously elimination of a hazard, is the top of the hierarchy of control. So if you can eliminate a hazard, i.e., eliminate the risk of a wire falling to the ground alive - you're minimising the risk.*[65]

135. Mr. Dieckmann from the ESO was not aware for the differentiation except on the basis that high voltage wires were very dangerous. Mr. Bowes testified that he considered that a LV conductor that remained alive on the ground would be something probably worthwhile reporting with the reasonable caveat that any reporting requirement would have to allow for times of natural disaster when there would always be the likelihood of multiple failures even when preventative action was taken.

136. As will be apparent from these findings low voltage does not mean less danger to human safety. A requirement to report the failure of low voltage conductors in 2006 would have inevitably triggered a proper risk assessment process and some involvement of the regulatory authority. Given the evidence of Mr. Bowes that a review of cases in the Cassowary Coast Regional Council area for a two year period showed there were three complaints (with only two incidents) of energised conductors falling a reporting requirement would appear not to impose an onerous burden on the reporter or the regulatory agency. Any amendment should also take into account the need to differentiate occasions where mass failure (for example, a cyclone) is involved.

137. Accordingly, with a view to minimising the significant safety risks posed by live fallen LV conductors **I recommend that the Office of Fair and Safe Work Queensland progress legislative amendments to mandate the reporting to the ESO of all incidents in which LV conductors fall to the ground and remain energised.**

138. The recording and review of faults is clearly a key factor in appropriate risk assessment. While mandatory reporting to the ESO, as already recommended, would improve capture of incidents the recording and review of incidents by ERGON, and other electrical distributors, is critical. Having heard Mr. Bowes evidence it is apparent ERGON takes the capture of safety information very seriously. Nevertheless the 2006 incident did not trigger any of the expected assessment and investigation processes in place in ERGON. I quote the Tait family submission with respect to this issue:
*The family is extremely concerned that a single green worksheet may be the only basis of a field crew's report to the depot and the*

[65] T6, page 21

*administration officer within that depot, for possibly on forwarding into the FeederSTAT system and, as necessary, the E-Safe system. It is almost beyond comprehension that there is no duplicate record kept, and no evidence of any follow up system to ensure that any recommendations that are made are followed through on either the Fdr Stat or E-Safe systems. The family urges the Coroner to make recommendations to a change to that procedure to ensure that all on-site issues are dealt with appropriately throughout the hierarchy of Ergon and make their way through the chain to the relevant program being Fdr Stat, E-Safe or some other appropriate system that Ergon develops.*

139. While Mr. Bowes did concede that there may be some scope to re-design the relevant form to prompt recording of further remedial work to address perceived risk factors, counsel for ERGON submitted these were not a suitable matter for recommendations. To some extent I concur with counsel as it would not necessarily be particularly helpful to descend into the detail of ERGON's record keeping. On all the evidence I am satisfied that ERGON is alert to and conscientious in developing and maintaining an incident reporting process. Nevertheless it is appropriate to draw attention to this matter in these reasons, and the valid concerns of the Tait family, with a view to reinforcing the critical importance of adequate record keeping and review in identifying and assessing risk. I consider these comments will suffice in this regard without formulating specific recommendations.

140. Low voltage fuses can act as a circuit breaker protection in low voltage connections between the substation transformer and the outgoing circuits. In the context of this case Mr. Coulter explained that if the conductors were burnt down because of contact and arcing the fuses should operate to disconnect the faulty conductor and prevent it from burning to the ground. Mr. Gilbert was less confident that low voltage fusing would have prevented the conductors falling in the circumstance of this matter. He testified:
*I would think it would be unlikely that the low voltage fuses would have operated for a phase - or for a phase 2 neutral fault, that distance away from the - from the sub-station. I've seen a lot of conductors burn down to the ground, those sized conductors, burn down to the ground, where there have been fuses protecting it. The reality is that the fault current, because of the size of the conductors, isn't normally sufficient to bringing the fuse out. It has to be a very close in fault for that to occur.*[66]

141. In North Queensland low voltage fuses were not fitted to the network before ERGON assumed control. Mr. Bowes informed the inquest that a program to retrofit LV fuses to existing distribution transformers where they were not installed has been in place since July 2001. This program is ongoing and all new installations have LV fuses installed.

66 T5 p. 46

Given the evidence of Mr. Bowes I do not consider that any further recommendations are necessary with respect to the issue of retro fitting LV fuses to protect the network.

142. Mr. Gilbert considered the usage of Low Voltage Arial Bundled Cable (LVABC) instead of small sized copper conductors would overcome the possibility of conductor clashing. LVABC is an insulated bundle of conductor wrapped together with each individual conductors being fully insulated. He testified that even if the LVABC cable came down there would be little likelihood of a person been electrocuted. Mr. Bowes stated ERGON has adopted LVABC as its preferred standard. In new urban residential subdivision underground cabling is the preferred and most common arrangement. The network supplying the Tait residence has now been undergrounded. Again there is common consensus among the witnesses as to the value of these measures in avoiding the risk to safety posed by fallen, live copper wire conductors.

143. I am satisfied on all the evidence that programs to adopt these preventative measures are well underway and will continue into the futures. In those circumstances I do not consider further recommendations are necessary.

## *THE ADEQUACY OF ERGON'S RESPONSE TO THE INITIAL FAULT CALL*

144. I am satisfied that Ms. Evans responded appropriately to the initial call by Mrs. Tait. As the evidence makes plain there was nothing in the content of the call measured against the resources available to Ms. Evans to draw attention to the life threatening situation. While Mr. Gilbert, an extremely experienced electrical engineer, could analyse the conglomeration of symptoms described by Mrs Tait: crackling noise coupled with partial loss of supply and relate those symptoms to arcing and the possibility of downed conductors' Ms. Evans was reliant on the fault cards that did not indicate that possibility. Nevertheless one possible cause of the brown out was fallen conductors. ERGON have recognised this fact and amended their call scripting to recognise the critical danger posed by fallen powerlines. Mr. Bowes informed the inquest as of 24 October 2011 the suggested scripting when a total loss of supply, partial loss of supply, brown out and emergency occurs now includes the following warning:
*Mr Smith, please be aware that fallen powerlines can be a possible cause of situations such as this. If you need to leave your house be aware of this possibility and treat all fallen or low hanging powerlines as live and report them immediately to Ergon Energy*

145. ERGON is to be commended for these scripting changes. While the evidence shows there are extensive public education campaigns run regularly to highlight the dangers of fallen wires customers actually experiencing loss of supply in circumstances such as those the Taits faced on 21 March 2007 might understandably not link those campaigns with their experience. The scripted, personal reminder has the benefit of

alerting callers to the possibility. It should be noted that Mr. Coggins from WHSQ made a recommendation to change scripting to alert consumers to the possibility of fallen power lines in his statement of reasons in February 2008. Unfortunately, this recommendation was never drawn to ERGON'S attention.

146. While ERGON has addressed this issue Counsel Assisting has submitted a recommendation should be made addressed to other electrical entities to review their scripting in these circumstances with a view to implementing similar changes. Given the potential to save lives of persons in similar circumstances to Mr. Tait that the change of script may produce I accept this submission.
**I recommend that electrical entities review their call centre scripting to including a specific warning reminding callers where there is a total or partial loss of supply, brown out or other emergency one cause of that situation may be fallen powerlines and fallen or hanging powerlines should be treated as live.**

147. With respect to call centre scripting an issue arose in the Inquest whether there should be changes to prompt operators to ask callers about noise. Further to the questions about noise the issue was raised whether where there was prolonged noise the call should be automatically escalated in the FeederSTAT system as red as an emergency/life threatening situation. While appreciating the possible benefits of that course in detecting and dealing with fallen lines I do not intend to make recommendations to that effect. I abstain from making recommendations on the basis that I am concerned that such a change may, as Mr. Bowes testified, lead to escalation of false alarms. Further unnecessary escalation may divert resources from critical events. This is a matter more appropriately dealt with and decided by those responsible for the maintenance of the electrical network.

### *Response of the Garbutt Control Centre*

148. Mr. Tagney's immediate response to the first fault call was appropriate and his dispatch of crew by 19:18 well within the 20 minute time frame specified for responding to yellow code faults. I turn then to consider the response of the Control Centre to the electrocution of Mr. Tait.

149. It was twenty minutes from the first notification to Mr. Tagney (19:19) of the electrocution of Mr. Tait to de-energisation of the feeder (19:39). On Mr. Tagney's evidence and that of Mr. Read there was some uncertainty as to whether Mr. Tait was still on the lines. This was not clarified until the QAS sought further advice from Mr. Tagney at 19:26. The next contact was 19:36 when Mr. Tagney sought advice as to whether Mr. Tait was still on the powerlines. When informed he was he said "*…we might knock the whole feeder off it will knock a couple of thousand people off but we can do it".*[67] QAS rang back at 19:39:07 (almost immediately after the previous phone call ended) and advised it was

[67] E8.1 and E9

thought Mr. Tait was deceased. It was during this phone call de-energisation occurred.

150. At this time there was no specific guidance as to guide control room personnel to deal with electrocution. In hindsight a decision to shut down the feeder may arguably have been made sooner or that clarification of whether Mr. Tait remained on the lines should have been sought immediately. However it would not be fair to those in the control room to criticise their actions. I am satisfied they acted diligently and professionally in a very difficult situation without the advantage of time to make a careful analysis. There first priority was safety and they were aware that until the arrival of ERGON workers no person could approach Mr. Tait to aid him. Further a mistake in ascertaining the correct feeder could have catastrophic effect for the ERGON workers and others at the scene who may have relied upon notification the feeder was de-energised. The process had to be approached carefully and methodically and I am satisfied that this was what Mr. Read undertook when checking the appropriate diagrams and making his decisions. The obtaining of those appropriate diagrams did not in any significant way delay his actions. Given the opinion of Dr. Odell that Mr. Tait would have been dead for most of the time it took to de-energise the conductors any delay in de-energisation did not contribute to Mr. Tait's death. Immediate de-energisation by ERGON upon receiving notification of the electrocution would not have saved Mr. Tait.

151. Notwithstanding this finding it is entirely appropriate that ERGON has moved to ensure decisions to de-energise lines are made in a timely manner in similar situations. Mr. Bowes, Manager for Regional Services Northern Operations for ERGON provided information to the inquest regarding an extensive review to identify improvements for in relation to the ERGON wires down policy. These new procedures and processes for managing wires down have become fully operational in ERGON since August 2011. While these procedures are still based on a risk assessment in the circumstances they do identify more clearly, as Mr. Bowes testified, [68] the requirements to de-energise in different scenarios, including where a member of the public is or may be at risk of electrocution. The guideline now provide for immediate de-energisation where urgent rescue or imminent threat is involved.[69] I accept Counsel Assisting's submission that a recommendation should be made to all electricity entities to institute similar policies. **I recommend that electricity entities review and if necessary develop and document procedures to guide control centre staff and field crews to deal with emergency situations involving downed live wires including de-energisation policies where urgent rescue and/or imminent threat is involved.**

[68] T7 page 23
[69] C7 and C7.1

152. I am satisfied that the absence of the telegraphic link stick and gloves from the attending QFRS truck attending the Tait residence in no way contributed to the fire crews inability to remove Mr. Tait from the powerlines. Those tools as I have previously discussed were not able to be properly used in these circumstances. The QFRS officers could not act until the lines were de-energised. Mr. Brown did advise the inquest that as a result of a review of this incident the period of time when the link stick and electrical gloves are absent from response vehicles while electrical conductivity tests are carried out has been reduced.

153. The transcripts of conversations and the statements of the emergency responders testify to their enormous frustration about not being able to do more at the scene to get Mr. Tait off the lines. However, in the situation they confronted there was nothing they could do to assist until the power was confirmed to be off. The procedures requiring ERGON staff to confirm the power is off before emergency personnel approach the scene is entirely appropriate. To encourage approach when the status of electrification is unclear would unnecessarily risk the lives of emergency responders.

154. The submissions on behalf of the Tait family include their thoughtful acknowledgment that they are satisfied that all relevant parties including the ERGON Officers attended as quickly as possible in the tragic circumstances that prevailed on the evening of 21 March 2007.

## *THE ADEQUACY OF THE WHSQ INVESTIGATION INTO THE INCIDENT*

155. Consideration of this issue also involves consideration of the police response and the response of the ESO to the incident. With respect to the issue of the failure of police to contact WHSQ on the night of the incident I accept that no fault lies with the police officers. As Sergeant Williamson explained he was aware of the requirement of notification where events took place in a workplace but it had simply not occurred to him that the place where Mr. Tait died was a workplace. I accept that this confusion was entirely understandable. As the transcript will show I struggled with this categorisation.

156. It is helpful to include some history as to how the definition of "workplace" in s. 9 of the *Workplace Health and Safety Act 1995* came to extend to the land outside the Tait's residence. Prior to 2005 WHSQ would not have regarded the area necessarily as a "workplace". However the *Report of Queensland Ombudsman – Workplace Electrocution Program June 2005*[70] criticised this approach:

*During a cyclone in North Queensland, a high voltage power line that crossed a river broke mid-span and fell into trees on a riverbank. A crew from the electricity entity attended the site and isolated the damaged section of the high voltage supply. They then left the scene.*

[70] Exhibit J1

*However, some time later, the broken high voltage power line fell from the trees and came to rest across live low voltage power lines located below before trailing onto the ground. JC made contact with the broken high voltage power line while he was standing in floodwaters. Although the power line had been de-energised, its contact with the live low voltage power lines meant that it carried a significant fault current. JC was fatally electrocuted. He was 11 years old.*

*Section 9.1 of the WH&S Act defined a "workplace" as "any place where work is, is to be, or is likely to be, performed by a worker". WH&S did not attend the incident site or conduct an investigation. WH&S claimed that an assessment was made at the time that the incident did not occur at a "workplace" and therefore was outside its jurisdiction.*

*Another interpretation, and one suggested by my investigation, was that the incident did occur at a "workplace" because, by the time the broken power line had fallen, the site was a place where work was likely to be performed by a worker by virtue of the necessity of repair. This alternative interpretation was subsequently supported by legal advice obtained by DIR following delivery of my report. That legal advice stated:*
*… there is no case in Queensland of which I am aware that addresses the nature or ambit of "workplace".*
*…*
*I am however of the view, to take the example of a fallen power line, that once a power line has fallen to the ground, then the area or place where the power line has fallen at the time of falling becomes for the purposes of the WH&S Act a "workplace".*

157. That interpretation is accepted by WHSQ on the following basis:

*The obligation of an electricity entity is found in s.29 of the Electrical SafetyAct 2002:*

> *(1) an electricity entity has an obligation to ensure that its works –*
> *(a) are electricity safe; and*
> *(b) are operated in a way that is electrically safe.*
> *(2) Without limiting subsection (1), the obligation includes the requirement that the electricity entity inspect, test and maintain the works.*

*A workplace is defined in s.9 of the Workplace Health and Safety Act 1995.*

*A **workplace** is any place where work is, or is to be, performed by -*
*(a) a worker; or*
*(b) a person conducting a business or undertaking."*

*The subject easement contained the power lines including the subject fallen power lines. Ergon, the electricity entity, had an obligation to*

*inspect, test and maintain the power lines in the easement and to repair the fallen power lines. Ergon had in May 2006 repaired a fallen power line in this easement and had the obligation to perform work repairing the fallen power lines.*

*The area is not only a place where work is to be performed by a worker, but also a place where Ergon conducts a business or undertaking inspecting, testing and maintaining the works including the powerlines and indeed repairing the subject fallen power lines*[71]*.*

158. Counsel for Ergon accepts this interpretation. Mr. Lee for the Tait family approaches the issue on the basis that he submits that the interpretation of workplace is simply not appropriate as the agency with the appropriate skills and knowledge is the ESO. Further the family is concerned that the blurring of the jurisdictional basis for investigation may have contributed to the ESO perfunctory initiation of the investigation.

159. While appreciating the logic of the approach of the Ombudsman and conceding the correctness of the interpretation of WHSQ the definition of workplace used is very wide. For example, following the logic of the definition a council footpath with a defect causing injury would be a 'workplace' because it is a place where work will have to be performed by virtue of the necessity of repair. Decisions as to the meaning of 'workplace' in other jurisdictions do not necessarily extend the concept as wide as the WHSQ interpretation albeit there are differences in definition. For example, in *Workcover Authority of New South Wales (Inspector Maltby*) v *Agl Gas Networks Limited* [2003] NSWIRComm 370 Justice Schmidt considered the situation where a demolition breached gas lines causing an explosion. The issue he considered was did the existence of the gas pipe mean it remained the workplace of the defendant even though at the time of the explosion no workers of the defendant were on site and the cause of the breach was the conduct of another party. His Honour said at 167 and 168:

*There can be no doubt that the service pipe, which was breached on 4 December always formed a part of the defendant's undertaking. The same cannot be said in relation to the place of work. Work was undertaken by the defendant outside Shop No 7 on 10 November. On the evidence, it was not until 21 or 22 November that a risk in reality arose, with the removal of the pavers and the exposure of the pipe while footings were demolished. In the circumstances revealed, it is difficult to see that the site was then the defendant's place of work, where those whom it had not employed were exposed to risk, contrary to its obligations under s16*.

*The mere fact that part of the defendant's gas reticulation system there lay in the ground, cannot be sufficient to make it at all times the defendant's place of work. Nor could the fact that at one time, the*

[71] Submission Office Fair and Safe Work Queensland

*defendant had there performed work on the pipes, thereafter make that place the defendant's place of work. If that were the test, inevitably the result would be that anywhere that the defendant had at any time ever laid pipes or other parts of its system, would always remain thereafter the defendant's place of work, with ongoing obligations under s16 of the Act resulting.*

His Honour went onto to comment:

*It seems to me that unless the defendant is present at a particular location, doing work on its gas reticulation system, or perhaps having someone else perform such work, as for example when contractors were engaged to install the goldline pipe for the defendant, when, on the evidence it appeared also to have its own employees present at least at some times, such a pipe and the ground in which it lies, is not the defendant's place of work. Section 16 of the Act is concerned with safety, while non-employees are present at an employer's place of work. It is not concerned with ensuring that the product of such work thereafter remains free from hazard. It follows that this location was only the defendant's place of work on 10 November and not thereafter, when I have found that non-employees were exposed to the risk here in question.*

160. Applying the existing WHSQ interpretation of 'workplace' to the situation considered by Justice Schmidt it may be that in Queensland a different result might ensue. Whether this result is desirable or not is not a matter for this Inquest. Rather my concern is to highlight the difficulties in implementation of the current definition where one or more regulatory agencies are involved.

161. As the OFSWQ submitted the only significance of whether a fatality occurs in a "workplace" is in the allocation of the lead agency in the subsequent investigation undertaken by OFSWQ and that lead agency is determined in accordance with internal policy. According to the criteria existing at the time of Mr. Tait's death the allocation of work was made in accordance to policy to WHSQ notwithstanding that the investigation would be carried out under the Electrical Safety Act.

162. I query the utility of the classification given it removes the investigation of the conduct of an electrical utility from the very regulatory agency tasked with regulating that utility. The highly specialised nature of the investigation was one calling for persons skilled in the electrical field. Ms. Wright, the investigator allocated was very inexperienced. I am satisfied she did her best and indeed accept she demonstrated diligence and a determination to move the investigation forward and nothing I say in these reasons should in any way be interpreted as a criticism of Ms. Wright's skills, aptitude or dedication as an investigator. Indeed her personal integrity can be seen by her readiness to admit to the shortcomings of the investigation. However, at the time she undertook this investigation she lacked the training and highly specialised skills to appreciate all the issues that arose.

163. Counsel assisting asked Ms. Wright whether the report reference to the 2006 incident prompted her to query any of ERGON'S actions. She replied it did not as given the time period between that incident and Mr. Tait's electrocution made it not significant. She considered the earlier incident had no direct bearing on the later incident as the lines had been repaired and didn't consider the issue of whether there might have been proactive activity following the first incident to help prevent the second incident.

164. I infer from Ms. Wright's evidence she struggled, understandably, with the technical aspects of the ERGON report. While she had some informal discussions with the ESO and the electrical inspector working in her office these went largely unrecorded. Mr. Coggins acknowledged in evidence to the Inquest that at this time there was not much coordination between the two agencies, with respect to co-investigating investigations and people in both agencies did not feel comfortable with respect to seeking those resources.[72]

165. Given this was Ms. Wright's first investigation she was obviously doing her best to provide a comprehensive summary of what occurred. However, in effect her final report was essentially a summary of the ERGON report rather than her investigation with little analysis of whether the earlier 2006 incident represented a risk management opportunity for ERGON. The conclusions of the ERGON report were assessed without reference to information about the prevalence of this type of incident. This type of data can be of great assistance in understanding and implementing preventative measures. It should be noted Mr. Coggins acknowledged this and noted that in the last 18 months WHSQ has broadened its focus to include these considerations. Clearly when Ms. Wright undertook her investigation such a policy had not been implemented.

166. From her evidence Ms. Wright concedes that WHSQ undertook very little or no independent investigation of ERGON'S conclusions as to the cause of the incident. This is not a criticism of the ERGON report. As I have made plain I consider their report comprehensive and with a full and frank disclosure of all the circumstances involved. However, the ERGON report was accepted at face value and no independent expert with knowledge in this very difficult and technical area verified the findings. I accept that ERGON'S expert evidence was reliable and thorough. Indeed their evidence forms the basis of many of my findings. My concern is that procedurally without knowledgeable, independent scrutiny many, including the families involved, would struggle to accept the conclusions exempting the company from fault given they were based largely on the company's own investigation.

[72] T5 p 7

167. The end result of the WHSQ investigation was that which was criticised in the report of the Queensland Ombudsman, The Workplace Electrocution Project, June 2005.[73] That report reviews investigations of electrical deaths where in a number of cases there was essentially no independent investigation by the ESO and WHSQ but a reliance on information supplied by the electrical entity when the victim had been electrocuted by the infrastructure controlled by that electrical entity.[74] In this matter a perusal of the ERGON report satisfies me that it was of a much higher standard then those that appear to have been considered by the Ombudsman during their long investigation. Nevertheless thorough regulatory scrutiny of fatal incidents remains a powerful tool to ensure safety through a voluntary compliance scheme. I quote the words of Mr. Bevan[75] as to the critical need for an effective regulatory investigation:

*A regulatory agency is one that has, as one of its responsibilities, a legislative obligation to enforce a statutory scheme. Discharging this role can involve the use of a wide range of methodologies. However it is generally accepted that a regulatory agency should promote voluntary compliance with legislation administered by it as well as take enforcement action to deter non-compliance when appropriate.*

*The investigation of an incident is a key element of the compliance function. Investigations are undertaken for a variety of reasons, including to:*

- *determine the cause of an incident or event;*
- *encourage compliance with legislation;*
- *gather evidence capable of leading to prosecution by the regulatory agency;*
- *ensure remedial action is taken to reduce risk to the public from breaches; and/or*
- *act as a deterrent.*

168. The importance of investigations in ensuring that a regulatory agency achieves its purposes is acknowledged by the OFSWQ in their submissions. Recent developments indicate that some of the issues arising in this matter will be addressed by reviewing which agency (WHSQ or ESO) actually performs the investigation of persons killed in circumstances similar to Mr. Tait. The Office informs me as follows:

*Evidence was given as to the WHSQ/ESO review, which includes responsibility for investigation of electrical incidents, particularly, serious electrical incidents (see s11- Electrical Safety Act 2002). The review is continuing. At its conclusion, adoption of and the timeframe for any recommendation made requires approval of the Associate Director-General, OFSWQ.*

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73 Exhibit J1

74 Exhibit J1 – see in particular cases in 4.4 and 4.7

75 Exhibit J1 page 125

*Based on preliminary findings of the review, there is agreement in principle between the agencies that particular investigations, currently led by WHSQ, will move to the ESO. These matters will include incidents involving fatalities and injuries amounting to grievous bodily harm (or where the risk of death or grievous bodily harm is present) but exclude circumstances where plant machinery, equipment or vehicles contact conductors (low or high voltage) at a workplace or public place.*

*Retention by WHSQ of investigations into incidents involving contact with conductors (high or low voltage) by plant, machinery, equipment or vehicles recognises elements of such incidents often include, first, inadequate safety management by businesses or undertakings not involved in electrical work (see s18 Electrical Safety Act 2002) but working in proximity to conductors, and/or secondly, competency of operators of plant, machinery, equipment or vehicles.*

169. In addition to these welcome developments evidence at the Inquest also demonstrated a much more co-operative approach to investigations then demonstrated in this matter. Mr. Coggins testified that investigations done now are conducted very differently from this matter. For example, in an electrical incident both WHSQ and ESO inspectors attend and liaise throughout the investigations. There is a new method of analysis geared to preventative action including an analysis of statistics and previous incidents.[76] Improvements have also been made to communication of information to families and auditing of recommendations in investigative reports of the type made by Mr. Coggins in this matter to ensure they are properly followed up.

170. While I accept the great advantages of the ESO assuming primary responsibility for electrical investigations involving death or grievous bodily harm as indicated by the OFSWQ submissions the evidence in this matter demonstrates that the aspects of this investigation performed by the ESO were deficient. In particular Mr. Hodge's site inspection and seizure of evidence did not in any way clarify the location of all the conductors or record critical conversations about their location. As Mr. Lee sets out this caused the anxiety to the family as there was speculation that the relevant cross arm had been disposed of and not collected by Mr. Hodges. They now accept this evidence was simply wrong. This failure also meant that Mr. Gilbert could not conclusively reconstruct the conductor span. The reason why the initial stages of the investigation were so deficient is not entirely clear. Mr. Hodges had, according to Mr. Dieckmann, the skills to investigate the incident. To be fair to Mr. Hodges he may simply have not understood that this was the start of the investigation as he knew from the outset it was a WHSQ investigation. To some extent that inference is supported by the fact the documentation shows no step took place in the investigation until Mr. Nielands assumed control. It was for those supervising to ensure the

[76] T5 page 18

investigation was allocated appropriately and conducted appropriately from the first. Regretfully I cannot find this occurred in this case.

171. The first stages of any investigation are critical in preserving evidence. In investigations of this type I accept Mr. Gilbert's evidence that investigators on the scene should ensure that all the relevant items (including conductors) are recorded exactly where they were including their location in relation to the poles and in relation to the other piece of the conductors. He went on to say "*It should all be left until you can properly photograph that in the position where it lay, or videoed or, you know, some permanent record so that it enables you to take those pieces of cables and at least know where they come from*".[77]

172. In this case circumstances contributed to the loss of conductors and the opportunity to accurately record the scene. The early information (that a vehicle hit the pole) misled Mr. Dieckmann into giving the go ahead for restoration of power which inevitably meant that the scene would be disturbed. I don't criticise Mr. Dieckmann for this decision. He needed also to consider the other people in the locality who were without power. The location and the time meant that no ESO or WHSQ Inspector could get to the scene quickly. The attending police were confused as to the need to contact WHSQ and the ESO as they were not aware this was a workplace incident. Sergeant Harris made an attempt to record the scene and he should be commended for the initiative but without the expert knowledge relating to what he was recording (i.e. the difference between active and neutral conductors) the recording was deficient.

173. Given the importance of evidence collecting in this regard I accept Counsel Assisting's submission that a recommendation should be made to improve liaison between the investigating agencies to enhance scene documentation which would have the benefit of facilitating thorough investigation with a view to preventing similar deaths. **I recommend that the QPS, OFSWQ and electricity entities consult and develop a shared understanding of their respective priorities and procedures to enhance the process of scene preservation and the identification and collection of evidence at fatal incidents involving electrical supply networks. I also recommend that the QPS, WHSQ and the ESO continue education of their personnel about the importance of early initial contact and consultation between their agencies to promote effective investigation.**

174. The witnesses from OFSWQ including Ms. Wright, Mr. Coggins and Mr. Dieckmann should be commended for their frankness and assistance to the Inquest. All were candid in their responses and admitted the deficiencies in the investigation. They all impressed as anxious to use the lessons learned in this matter to improve the response of their agencies in the future with a view to preventing deaths in similar circumstances. With a view to assisting that process I make the

[77] D5 T36

following recommendations focused on assisting their current review of investigation of type 1 electrical incidents. Accordingly **I recommend that the OFSWQ include in their review:**

**(1) Consideration of reassessing lead agency allocation of an electrical incident to the ESO when that incident occurs in a 'workplace' or non-domestic premises but does not involve work-related activity;**

**(2) Consideration of including in operational policy a requirement for a broader focus of investigations confined not simply to whether a breach has occurred but whether there are broader preventative measures that might be recommended;**

**(3) Clarification of how investigators should consider and verify investigative reports completed by other agencies (including electrical entities), including investigators can access independent advice;**

**(4) Consideration of improving documentation of investigations including the basis on which decisions are made; and**

**(5) Consideration of ways to improve collaboration between ESO and WHSQ including assessing whether organisational culture may impede that collaboration.**

## *FINDINGS*

175. I am able to make the following findings pursuant to s. 45(2) of the Act:

The identity of the deceased is Graham Robert Tait who was born on 28 October 1942.

Mr. Tait died on 21 March 2007.

Mr. Tait died at Alexander Drive Narragon Beach Queensland.

Mr. Tait died from electrocution when he came into contact with fallen low voltage power lines that remained energised after they fell to the ground. Mr. Tait came into contact with these lines when in company with his son Darryl Tait when they were investigating the cause of a partial loss of power at their residence. At about the time of the power loss Darryl Tait heard a short electrical buzzing sound. Mr. Tait suggested they investigate this while they awaited arrival of an ERGON repair crew. At this time the ERGON call centre scripting did not include a warning of the danger of fallen power lines where there was a partial loss of power or a 'brown out'. Mr. Tait was not wearing shoes and the ground was damp. There was no sign of sparks or arcing from the grounded electrical lines as Mr. Tait and Darryl approached the power pole. This was consistent with the conductors not been in direct contact but still energised. Darryl shone the torch upwards and saw two intact lines. He did not realise there should have been four power lines. At his father's request he switched off the torch. Shortly afterwards Darryl head his father yell. Darryl could see his father bent over like he was tying his shoe. When Darryl touched Graham on the shoulder he was thrown backwards about two metres from where his father lay. Darryl felt a shock hitting him in the right leg and shoulder and realised he was getting electrocuted. He managed to throw himself backwards and down the incline of the hill and tumbled a short way until he was not getting

shocked. Mrs Tait rang 000. Neither Darryl nor the emergency responders could assist Graham because the wires remained energised. ERGON de-energised the lines at 17:39 hours remotely from the Garbutt Control Centre. At that time Graham would have been in contact with the energised conductors for at least 22 minutes. He would have been deceased for most of this time. Steve Johnson removed the conductors from underneath Graham's body at approximately 19:56 and he was pronounced deceased at 20:02. The probable cause of the conductors falling was the active and neutral conductors been brought into initial contact by impact forces from collision within the span by a large bird or flying fox. Short-circuit fault current then flowed from the initial contact causing arcing erosion damage to the conductor until they broke and fell. This section of low voltage network did not have protection in the form of low voltage spreader or low voltage fusing that might have prevented the initial clashing and/or conductor burn down.

## *CONCLUSION*

176. These findings concentrate on the last moments of Graham Tait's life. It is appropriate to record finally something about the rest of his life. He was a loving husband and father. Born in El Arish he met the love of his life, Beverley, in that small town and they married in 1973. They had two children, Darryl and Leisha. Graham worked at the family service station at El Arish until he and Beverley took over Larsons Newsagency in Innisfail. In 1988 they purchased a business in Bundaberg and ran that business until retirement in 1993. He and Beverley enjoyed their work and life. They were enjoying retirement in the house they had built at Narragon Beach. On 21 March 2007 Graham had his family with him. Reading what Beverley has written about their life together this would have meant everything to him.

177. The loss that Beverley, Darryl and Leisha experienced with Graham's death has not diminished over time. I extend to them my sincere condolences for that loss. I am aware how much time and effort the family put into ensuring their was a full and open investigation of Graham's death and I hope that they take some comfort in the recording of the changes in procedure that have taken place because of the analysis of what caused Graham's death.

178. I also wish to express my gratitude for the work of the Counsel Assisting me in this matter. In particular I extend my thanks to Ms Ainslie Kirkergaard who meticulously gathered a very substantial amount of material to ensure that every avenue of inquiry relating to Graham Tait's death was properly explored.

179. I now close the Inquest.

J M Brassington
Coroner
Innisfail.