QUEENSLAND COURTS

OFFICE OF THE STATE CORONER

FINDINGS OF INQUEST

CITATION:	**Inquest into the death of** Maurice Henry BAUER
TITLE OF COURT:	Coroner's Court
JURISDICTION:	Caloundra
FILE NO:	COR 13/06 (5)
DELIVERED ON:	5 March 2009
DELIVERED AT:	Caloundra
HEARING DATE(S):	29 and 30 September, 1, 2, 3 and 30 October and 22 December, 2008
FINDINGS OF:	Coroner – Magistrate D. Fingleton
CATCHWORDS:	**CORONERS: Inquest – Cause of Death – Electrocution; Contractor working "live" at time of death; "wiring rules" in electricity industry; training in wiring; need for Safety Alerts; investigation processes for inquests when death in the workplace**.

REPRESENTATION:

Counsel Assisting the Coroner:	Mr. J. Tate, Barrister-at-Law, Crown Law.
For Deceased:	Ms Carol Raven (Sister of deceased) and Mr F. Bauer (brother of deceased), not legally represented.
For Employer of deceased (Mr Forsyth):	Mr. A. Glynn, S.C., instructed by Cartwrights Lawyers.
For Department of Industrial Relations:	Mr. M. Carey, Coronial Liaison Officer.

CORONER'S FINDINGS AND DECISION

These are my findings in relation to the death of Maurice Henry BAUER, aged 50, who died at 545 Maleny Kenilworth Road, Maleny, Queensland on 1 March, 2006 from a work injury. These findings seek to explain how the death occurred and consider whether any changes to policies or practices could reduce the likelihood of deaths occurring in similar circumstances in the future.

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

The scope of the Coroner's inquiry and findings

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

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

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

4. An inquest is not a trial between opposing parties but an inquiry into the death. In a leading English case it was described in this way:- *"It is an inquisitorial process, a process of investigation quite unlike a criminal trial where the prosecutor accuses and the accused defends… The function of an inquest is to seek out and record as many of the facts concerning the death as the public interest requires."* [2]

5. The focus is on discovering what happened, not on ascribing guilt, attributing blame or apportioning liability. The purpose is to inform the family and the public of how the death occurred with a view to reducing the likelihood of similar deaths. As a result, the Act authorises a coroner to make preventative recommendations concerning public health or safety, the administration of justice or

[1] *Coroners Act* 2003, s45
[2] *R v South London Coroner; ex parte Thompson* (1982) 126 S.J. 625

ways to prevent deaths from happening in similar circumstances in future.[3] However, a coroner must not include in the findings or any comments or recommendations, statements that a person is or may be guilty of an offence or is or may be civilly liable for something.[4]

6 If, from information obtained while investigating a death, a coroner reasonably suspects a person has committed an indictable offence, the coroner must give the information to the director of public prosecutions.[5]

7 If, from information obtained at an inquest or during the investigation, a coroner reasonably believes that the information may cause a disciplinary body for a person's profession or trade to inquire into or take steps in relation to the person's conduct, then the coroner may give that information to that body.[6]

The Admissibility of Evidence and the Standard of Proof

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

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

10. A coroner should apply the civil standard of proof, namely the balance of probabilities but the approach referred to as the *Briginshaw* sliding scale is applicable.[9] This means that the more significant the issue to be determined, the more serious an allegation or the more inherently unlikely an occurrence, the clearer and more persuasive the evidence needed for the trier of fact to be sufficiently satisfied that it has been proven to the civil standard.[10]

[3] s46
[4] s45(5) and 46(3)
[5] s48(2)
[6] s48(4)
[7] s35
[8] *R v South London Coroner; ex parte Thompson* per Lord Lane CJ, (1982) 126 S.J. 625
[9] *Anderson v Blashki* [1993] 2 VR 89 at 96 per Gobbo J
[10] *Briginshaw v Briginshaw* (1938) 60 CLR 336 at 361 per Sir Owen Dixon J

11. It is also clear that a coroner is obliged to comply with the rules of natural justice and to act judicially.[11] This means that no findings adverse to the interest of any party may be made without that party first being given a right to be heard in opposition to that finding. As *Annetts v McCann*[12] makes clear that includes being given an opportunity to make submissions against findings that might be damaging to the reputation of any individual or organisation.

The Evidence

12. All of the evidence presented during the course of the inquest (including the exhibits tendered) has been considered by me, even though no specific comment may be made upon some aspects of it. Reference will be made to relevant evidence in the matter. In detailing the evidence below on which I base my findings, I am heavily reliant on the report by Associate Professor David Birtwhistle, F.I.E. Aust., from the Queensland University of Technology School of Engineering Systems (Report ES0110).

13. The report was carried out for Workplace Health and Safety Queensland (WH&SQ), at the request of Mr Kevin Huey of WH&SQ. The Professor was advised of circumstances surrounding the incident in an email from Mr. Neil Caldwell, Senior Electrical Inspector with the Electrical Safety Office (ESO), which was based on his investigation at the site and witness statements from those present on the day of the death, as well as a visit to the site by the Professor on 13 March 2006 with ESO officers, as well as tests carried out at his QUT laboratory. Indeed, this part of the Evidence is best read in conjunction with that report and its appendices.

14. On 1 March, 2006, Mr Forsyth was under contract by the owners of the property at 545 Maleny-Kenilworth Road, Maleny to electrically wire the house under construction there. The house was connected to the main 415/420 volt electricity supply at the road by a three-phase, 35 square mm cross section, underground cable. Prior to the incident, a temporary supply was provided to the house for use during construction. During this period the cable was connected into a metal box temporarily located close to the house. The box contained a min switch and other circuit breakers which controlled the temporary supply to the house.

15. The workers at the site that day included Mr Forsyth, the deceased Maurice Bauer and Paul Blackmore, employed by Mr Forsyth as a

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

[12] (1990) 65 ALJR 167 at 168

trades assistant to the electricians on site.

16. The workers had met at approximately 7 am in the workshop of Mr Forsyth's business at Maleny. The equipment thought to be required for the day's work was spread over two vans. There was no discussion about a fuse extraction stick being required for the day's work, nor was particular care taken to ensure that one was part of the equipment placed on the two vans. A long extension ladder was part of the equipment on one or other of the two vans.

17. Mr Forsyth and his employees arrived at the property at Witta at approximately 8.30 am. The deceased, Mr Bauer immediately engaged in tasks away from the house for some period of time. Mr Forsyth and Mr Blackmore began work on the task of relocating the switch box to a permanent position on a wall of the house, in fact to the side of the garage wall. At no time before undertaking this task, did Mr Forsyth himself, or did he instruct anyone else to, go to the Energex pole to remove the fuse connecting the electrical supply to the house, either by way of an extractor or by climbing up a ladder and removing it.

18. Mr Forsyth made the decision to work "live", despite there being no requirement for the work to be performed live. The *Electrical Safety Regulations* outline certain specific circumstances where live work could be required. Neither Mr Forsyth nor anyone in his employ, prepared a risk assessment of the performance of the live work. Other requirements of the Regulations were also neglected.

19. This task of relocating the switch box, required the withdrawal of the mains supply from the box. The live conductors at the ends of the cables, exposed during that operation, were temporarily insulated with plastic insulating tape by Mr Forsyth. Both Mr Forsyth and Mr Blackmore were wearing insulated gloves while doing this work. The box was relocated to the wall of the garage and the insulated live ends of supply cables were fed into the box where the cables were secured by a saddle.

20. Mr Forsyth did not consider deferring the work until such time as he could turn off the power supply to the house under construction but went ahead, working "live". He gave no warnings to any of the workers that he was working "live", except to tell Paul Blackmore to be careful of the wires – he would handle them.

21. While the box was moved the cables were placed on plastic on the ground to protect them. By that time, the weather had changed and it was rainy and windy and cold. The gas bottle that was near that part of the worksite to enable conduit to be bent into position then malfunctioned. Maurice Bauer was called to assist and some discussion was had about the use of another gas bottle, so that the bending of the cabling could continue. Mr Bauer had come from

another part of the property where he had been working, for this conversation.

22. By then, the cabling had been put into the box and secured to the back of the box with a zip tie. The box was closed. It was decided that, because of the inclement weather, the workers would take their morning tea break at a time earlier than their usual time of 10 am or so. The discussion at morning tea was that there would be no attempt to complete the moving of the switchboard box, as the weather was so bad and that other work would be undertaken instead. No mention was made by Mr Forsyth at morning tea that the live wires were insulated and sitting in the switchboard box.

23. After morning tea, Mr Bauer was working under the house on the task of feeding wiring for the kitchen located above where he was working, through to the trade's assistant, Mr. Blackmore. Mr Bauer asked Paul to fetch a component. As Paul was walking through a sliding glass door into the garage, he felt an electric shock. He called out to Bruce who wasn't far away that he had felt a tingle and Bruce then yelled out – "We may have leakage. Everybody stay away form anything metal." Meanwhile, Bruce ran to the switchboard box with the purpose of pulling the mains cable from the box.

24. Bruce and Paul passed each other as Paul went to warn Maurie and Bruce went towards the meter box. Both Paul and the builder Brett, also on site, called out to warn Maurie but there was no response. When Paul jumped onto the ground and looked under the house, he saw the inert body of Mr Bauer, slumped over a pipe that was underneath the house. This occurred at about the same time as Mr Forsyth was pulling the mains cable from the switchboard box.

25. Paul told the builder to call an ambulance. Without any concern for his own safety, Paul crawled to where Maurie was and grabbed him by the cuff of his pants and pulled him away from the waterlogged carpet on which he was slumped. Paul noticed that there was a metal beam near where Maurie was slumped. CPR was tried by Paul but was unsuccessful. Paul Blackmore observed marks on Mr Bauer's face at the time.

26. By the time the ambulance arrived Mr Bauer was already dead and beyond any assistance that could be provided to him by ambulance officers. Mr Forsyth was by now distraught and consumed by grief.

The Investigation

27. An inspection by Mr Caldwell from ESO on that day, found that the main three-phase cable had three 35 sq. mm. active conductors and one 25 sq. mm neutral conductor. Connected to each of these cables was a 10 sq. mm. cable, the smaller size of which enabled the mains cable to be electrically connected to the supply meters.

28. It was observed that one conductor had a burn mark and exposed copper could be seen through (presumably a hole in) the insulation tape. There also appeared to be an arc mark on the switchboard box. Mr Caldwell found that the earth electrode that is normally installed at the house had not been installed although there was a (rod) electrode on the garage floor. He also found that no main earth connection was installed and the neutral conductor was not terminated (connected to the box).

29. The house – a one level house - was on ground level at the front, sloping downwards at the rear, the rear parts of the house being supported by a number of metal posts. The house had a wood frame but had metal wall cladding which was connected to a steel roof and support brackets. Steel roofing was also observed to join the four sections of the building. Steel bearer supports (beams) of the timber deck were in contact with the building cladding.

30. The position of the main switchboard was on the external wall of the garage as can be seen on the left of Figure 1 of the Professor's report. Figures 2 – 5 of the Report depict the number of cables emanating from plastic conduits in the ground, probably cables to supply various loads on the site that were either previously connected to the temporary switchboard or which were still to be connected to the main switchboard; views of various sections of the house and the site of the accident (Fig. 5).

31. Figure 5 shows a large wooden beam supported by a number of posts set in concrete in the ground. Lighter-coloured wooden joists are supported by a metal beam at the right side of this Figure. Metal brackets on the beam support the joists: these brackets are also in contact with metal supports for plastic pipes that can also be seen in Figure 5.

32. Figure 6 shows the interior of the switchboard on the day following the accident. In the larger coils which can be seen are the three active (red) 35 sq. mm. ones and there is one neutral (black) 25 sq. mm. cable from the underground supply cable. There are also short lengths of insulated cables connected to each of the red supply cables – these smaller cables are needed because the larger-size cables will not fit into the meter terminals. White insulating tape can be seen to be wound over each of the joints between the larger and smaller cables.

33. Figure 7 attached to the report, shows the unconnected ends of the 10 sq. mm. cables, insulated with red tape. The hole in the red insulating tape on one cable (considered to be caused by arcing) is also visible. Figure 8 shows a mark on the rear internal wall of the switchboard box that could show the site of the electric arcing. The mark occurs on the top edge of a lip on the lower horizontal panel of the box that is bent over at right angles and onto which the vertical panel is spot welded.

Figure 9 shows other items of electrical equipment found in the garage, including the earth rod with connecting cable in conduit – possibly there for replacement later. The meter board was not connected.

34. The electricity supply to the house was obtained from an Energex low-voltage overhead line situated along the western side of the Kenilworth-Maleny Road. The 25 kVA, 11000 Volt to 415 Volt supply transformer is shown in Figure 10 of the Professor's report. Technical aspects of the electricity connection are detailed I para "3.3 Electricity Supply". The mains cable is connected to a number of wood poles along the route of the main road. At a pole close to the power transformer a three-phase overhead line which supplies number 545 is teed off the main cable. The house supply cable is protected by fuses mounted in a three-phase assembly. (Figure 11). At an adjacent pole, the overhead cable to the house is connected to a cable termination from which a three-phase underground cable connects the supply to the house.

35. Figure 12 is a schematic diagram of possible components of an electrical circuit between the supply transformer and the house at the time of the accident. It shows that the supply neutral does not make contact with the metal box. Active cables are connected via two fuses. A rod earth electrode should have been connected from the metal switchboard box to the ground but was NOT connected on the day. The approximate point where the rod should have been connected is indicated in Figure 12 (Note D).

36. The sheet metal cladding of the house is connected to the switchboard box and also connects through various support poles to the ground: the electrical resistance from the sheet cladding to the general mass of ground is represented by a resistor equivalent circuit (Note E). The neutral of the electrical supply was connected to ground at the supply transformer and at a number of points along the length of the mains cable: this is indicated by a resistance to the general mass of ground (see Note F).

37. Also on 13 March, 2006, a number of tests were made by officers of the ESO (including Mr Caldwell) to determine characteristics of the electrical supply, the nature of electrical connections between conductive parts of the house structure and electrical resistance to ground from the conductive parts of the building. Results of those tests and measurements are contained in tables which form part of the Professor's report. Further tests were carried out by the Professor at QUT on 7 June 2006 to investigate whether there was evidence that arcing may have occurred between a live conductor and the case of the metal switchboard box from the house at Witta. Those tests are reported in detail in Appendix 2 of the report.

38. These tests showed that:

(a) the copper strands of the 10 sq. mm. cable had clearly penetrated the insulating tape at the point identified in Figure 7.

(b) there was evidence of pyrolysis (burning) of the tape in the vicinity of the puncture which would indicate temperatures close to the puncture of several hundred degrees Celsius.

(c) a mark was found at the rear of the switchboard box (close to the mark observed in Figure 8) that, under microscopic examination (Figure A.2.5), was found to have very similar characteristics to an arc mark (Figure S.2.7) produced under controlled conditions by a 10 amp arc at QUT on another part of the switchboard box where there was a metal lip similar to the one that can be seen in Figure 8.

39. The investigating team undertook further tests at the house on 23 June 2006, to establish the variation of possible fault potentials between the exposed conductive parts of the house structure and the surface of the soil in the vicinity of the accident. This was to ensure that as accurate an estimate as possible could be made of possible fault potentials that might have been experienced by the victim. Tests were also made to measure the electrical resistance between the metal frame of the house and the soil surface. Details of the tests are described in detail in Appendix 3. The indication was that at least 90% of the potential between the house metal frame and the general mass of ground would occur between the metal frame and the surface of the ground in the vicinity of the accident.

Conclusions

40. There was clear evidence that the copper conductors had punctured the taped end of the 10 sq. mm. cables in the switchboard box and that there was arcing between the cable and the region of the metal box where an apparent arc mark was observed. This was possibly caused by the door of the box blowing shut against the cables, due to the inclement weather. Puncture of the tape and subsequent arcing indicate that the box of the switchboard had become electrically connected to the active conductor.

41. This connection of the “live” active conductor of the supply to the metal switchboard box meant that all metal parts of the house structure that were in electrical contact with the box would have been at a potential of about 240 volts (+-6%) with respect to the multiple-earthed neutral of the supply network. Items that would have risen to about 240 volts included:

- garage sliding door frame
- garage external cladding
- north pavilion cladding
- main building cladding
- C section beam

- main roof sheeting.

42. The fact that the garage sliding door had become live was the reason that Paul Blackmore had experienced a shock when he stepped onto the concrete floor inside the garage. The metal beam under the house is in places close to the site of the incident. Metal straps supporting plastic pipes were connected to the metal beam and these became "live" as would all metal brackets supporting the beam. A current of not more than about 12.5 amps flowed from the supply into the ground at the house via a number of supporting posts set in concrete in the ground.

43. In relation to the electrical shock experienced by the victim, Maurice Bauer, it was estimated by Professor Birtwhistle to have been approximately 204 volts or at least 200 volts for a 240 volt supply. Once the insulation tape had been pierced on the end of the active cable in the switchboard box about 200 volts would be present between the metal beam and the ground surface below it. Anyone in the area who touched the beam and was in contact with the ground could have received an electric shock that may have continued for a considerable time. For most people such a shock would be fatal.

44. It is standard practice in the electrical industry that the task would be carried out with the main electrical supply turned off. This would normally be achieved by cutting off the electrical supply to the house through the electricity pole at the entrance to the property by the use of a fuse extraction stick, on the end of a pole (an implement measuring up to 8 metres), which allows a worker to disconnect the electrical supply from the ground. Alternatively, a worker can use an extension ladder to climb up to the fuse and extract it in that way. As stated, no effort was made to have anyone climb up an extension ladder to disconnect the power source. (See Exhibits showing photos of the relevant pole; Part of Caldwell's Report). – see below.

45. As previously stated, Mr Forsyth did not have a fuse extraction stick with him on his truck that day and did not ask any of his workers to climb up the pole to turn off the power supply. This meant that when he began work on the removal and relocation of the switch box, he was working "live", a term in the electrical industry, which means that the mains' connection has not been turned off.

46. The effect of a house or other construction becoming "live" means that an electrical current runs through it and can cause a lethal electrical shock to persons coming into contact with such a building. Mr Forsyth had tied off the live wires within the box with insulating tape, which he assumed would make them safe and secure and that the electrical supply would not extend beyond the switch box.

The dangers of "working live":

47. The *Electrical Safety Act 2002* ("the Act") and the subordinate *Electrical Safety Regulation 2002* were introduced by government after a complete review of electrical safety following a number of deaths by electrocution which occurred in the late 1990's. The new legislation established the statutory office of Commissioner for Electrical Safety and an Electrical Safety Board and committees.

48. The new legislation introduced the concept of imposing electrical safety obligations on persons in the model of contemporary Workplace Health and Safety legislation. The Act has as its purpose:

"to establish a legislative framework for:

preventing persons from being killed or injured by electricity; and
preventing property from being destroyed or damaged by electricity."

49. The introduction of the legislation saw significant changes in the requirements on licensed electrical contractors and workers in particular dealing with the practice of performing electrical work on energised installations, or live work. New regulations dealing specifically with the requirements for live work were simultaneously introduced with the primary legislation. These were aimed at changing the culture in the industry from one where live work was routinely undertaken to one where it is only practised when there is no safe alternative and only then in the presence of strict risk controls and in accordance with mandated wiring standards.

50. For instance, Reg.11 of the "Electrical Safety Regulations", states that –

> "(1) an employer or self-employed person must ensure that, unless the circumstances required under this division for the performance of live work apply, live work is not performed.
>
> (2)Without limiting what the employer or self-employed person must do to ensure compliance with subsection (1), the employer or self-employed person must ensure that –
>
> > (a) each exposed part is treated as if it is energised until it is isolated and proved not to be energised."

Reg.12 of the Regulations sets out the "Requirements for performance of live work" and gives examples of circumstances where it would not be practicable to perform the electrical work other than by live work, e.g., in the interests of public safety or if a supply of electricity is necessary for the proper performance of the electrical work; or there is no reasonable alternative to performing the electrical work by live work, e.g., to avoid widespread outages.

Reg. 12 also states that the employer must prepare a risk assessment of the performance of the live work as well as perform the electrical work in accordance with a safe system of work. Various other requirements are set out in Reg. 12.

Reg. 66 states that "A licensed electrical worker who performs electrical work on an electrical installation must ensure that the electrical installation, to the extent it is affected by the electrical work, is in accordance with the wiring rules".

An example of recent changes to the Wiring Rules was tendered to the Inquest in Exh. No. 53.

51. In support of the new legislative framework, the ESO undertook extensive information and education activities. Each of these activities focused on the new live work regulations as integral to the changes for electrical workers. In the period July to December 2002, the ESO with the cooperation of the Electrical and Communications Association and the Electrical Trades Union undertook an extensive seminar program. A total of 10,200 people attended some 96 seminars at 43 locations in Brisbane and across regional Queensland.

52. Since that time, the ESO has maintained significant information and education activities with annual seminars which are promoted through industry stakeholder magazines and publications distributed to members. A component of all such seminars addresses the "live work" provisions of the legislation. These events have been held across all regions of Queensland and are well attended.

53. In the five years from 2003 to 2008 following the initial education program, over one hundred seminars have been facilitated by ESO for electrical workers and contractors, in addition to and participation in trade and industry shows and events including the extensive distribution of "live Work" brochures detailing legislative requirements. Extensive contributions to industry magazines and television and newspaper advertising have also been regularly utilised.

54. Most recently, from January to July 2008, the ESO again in cooperation with electricity industry employer and union organisations, delivered an extensive round of seminars to explain changes to wiring rules (Australian Standard 3000/2007). In addition to information and awareness activities, ESO inspectors also undertake field audits of electrical contractors. These include a comprehensive review of systems of work for compliance with legislative requirements including risk assessment and "live work" requirements. A comprehensive Contractor *Self-Audit* package has been recently introduced to provide internet based online assistance to contractors in meeting their obligations.

55. Based on the above information (provided by WHS&Q), it can be concluded that Mr Forsyth knew or should have known the dangers of working live.

Expert evidence

56. Mr. Neil Caldwell, an Electrical Safety Inspector with the Electricity Safety Office, investigated the incident and, as a result the inquest was provided with evidence of what was observed on the day of Mr Bauer's death at the site. Subsequent to that, he carried out a number of tests through the use of testing equipment and he recorded the results of those tests, which were provided to the court. (See Exh No. 6 – ESO Report (undated bur supplied to the Court on 18 September 2008 by Mr Carey, CLO).

57. Further evidence by way of relevant photographs and statements were also produced and tendered as evidence. The main switchboard and consumer's mains cable tails were taken to QUT for examination by Professor David Birtwhistle, who had also attended the site for tests, on 12 March, 2006. Mr Caldwell subsequently assisted Professor Birtwhistle with further tests.

58. It was Mr Caldwell's considered opinion that it was not good practice for an electrician to work with the relevant cables energised. Mr. Caldwell presented to the court, valuable information about the auditing practices undertaken by the Electrical Safety office of small operators. This is carried out once every five years. Information was supplied about the "risk assessment methodology" which now applies in relation to work done on sites. Electrical contractors are expected to develop safety and health management plans. They are expected to have safe work instructions. To assist contractors to carry out these tasks, there is a website for risk management and there are Codes of Practice published by the Electrical Safety Office.

59. It was Mr Caldwell's opinion that parts of the electricity industry have become complacent with handling of conductors and basic handling of electricity or conductors which are energised, although he made no comment on this particular case. The performance of work on and near energised components is by far the biggest cause, he said, for investigation by the E.S.O., as a result of significant injuries having been caused. In the end, however, it was his opinion that the issues come down to the competence of individual contractors.

60. Evidence from Professor Birtwhistle of QUT, showed that the house frame became live for the reasons that the coil of wire in the switchbox had been chopped off, producing a sharp end which had been very poorly insulated. It appeared that the wires had been cut and enwrapped rather hurriedly and thrust inside the box. The conductors were sharp and subsequently pierced the insulation.

61. Based on the evidence of Professor Birtwhistle of QUT, the deceased received an electrical shock of 200 volts at 12.5 amps The safe working level in Australia is considered to be 50 volts. Professor Bertwhistle's investigation showed that the current that would have been available either through the metal beam or the metal straps would have been the same and would have been sufficient to deliver a lethal electrical shock.

The Autopsy

62. On 13 June 2006, **B.B. Ong, Consultant Pathologist**, performed an external and full internal autopsy examination, took toxicology and histology samples and reviewed the deceased's medical records from his General Practitioner, Dr. Ian MacDonald. The deceased's injuries included the following:

All the injuries are limited to the face.

(i) Somewhat irregular abrasions on the right side of nose occupying an area measuring 3 x 4cm.

(ii) a red bruise, 4cm x 3.5cm on the outer left forehead, involving the outer aspect of the left eyebrow.

(iii) A red bruise, 3cm x 1.5cm on the upper left check (prominence of the cheek).

(iv) An abrasion, 4cm x 1.5cm on the lower left cheek.

63. No other injuries were present. A careful examination of the face, head, torso and upper limbs including the hands and back of body did not elicit any obvious presence of electrocution mark. No similar mark was present on the feet.

64. The pathologist found that the Cause of Death was consistent with electrocution. In this regard, I am not deterred by the description "Consistent with electrocution". Dr Ong's evidence was that, because he could not find an "entry and exit" mark on the body of Mr Bauer, which is the usual case with electrocution cases, he was not prepared to merely say "electrocution". It appears that it is a point of contention among forensic pathologists as to whether a death is described as having been caused by electrocution or "consistent with electrocution". However, in this case, there is no other reasonable explanation for Mr Bauer's death, as he was found in the autopsy to be suffering from no life-threatening illnesses at the time the electrical current passed through his body.

Findings required by s45

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

    a. The identity of the deceased was Maurice Henry BAUER.
    b. The place of death was 545 Maleny Kenilworth Road, Maleny.
    c. The date of death was 1 March 2006.
    d. The formal cause of death was electrocution.

Concerns, Comments and Recommendations

66. Section 46 of the Act provides that a coroner may comment on anything connected with a death that relates to public health or safety, the administration of justice or ways to prevent deaths from happening in similar circumstances in the future. The coroner must give a written copy of the comments to –

    (a) a family member of the deceased person who has indicated he/she will accept the document for the deceased person's family; and
    (b) any person who, as a person with a sufficient interest in the inquest, appeared at the inquest; and
    (c) if the coroner is not the State Coroner – the State Coroner; and
    (d) if a government entity deals with the matters to which the comment relates –

        (i) the Minister administering the entity; and
        (ii) the chief executive officer of the entity.

67. In the following paragraphs, I make certain comments and recommendations, in the hope that deaths in similar circumstances will be prevented.

Quality of the Investigation into the death of Mr Bauer by the Electrical Safety Office (ESO) and the Queensland Police Force (QPS):

68. Most deaths which are considered to be surrounded by suspicious circumstances are usually investigated by the QPS. In the case of workplace deaths, the QPS usually defer to investigations by such bodies as the Workplace Health & Safety Division of the Department of Industrial Relations (DIR) (see Memorandum of Understanding – Exh. 54). In this case the appropriate investigative body was the Electricity Safety Office, as in this case. The original QPS Report to this Coroner, included reports from the ESO, which body obtained a report from Professor Bertwhistle.

69. All of these reports were provided to the court. These reports and the assistance provided to this Inquest by the Division of Workplace Health and Safety were thorough and professional.

70. However, processes could be improved, on the admission of Mr Carey, who appeared for the Department of Industrial Relations in this matter. To that end, a template for Coroners' reports is being reviewed and an undertaking given to the State Coroner that he will be consulted in relation to the template and, indeed, the investigative method to be established.

71. The current procedures for investigations, forming part of the submission by DIR (Exh. No. 54) set out in detail the role of the Coronial Liaison Officer and the processes followed in an investigation into a death in a workplace in considerable detail and shows constant efforts to improve the standard of investigations.

Post-incident – requirement for publication of a Safety Alert, indicating the nature of the problem and providing people with a warning:

72. When an event such as has occurred in this case, the seriousness of the situation suggests that safety information be communicated to the relevant sections of the industry as soon as possible. A Safety Alert is "an approved document prepared by WHSQ officers to advise inspectors, workplaces and industry within ten days about the risks associated with a particular hazard that has come to the attention of WHSQ. The need for a Safety Alert may arise:

- where the risk arising from a workplace hazard has the potential to cause a serious incident at a workplace, or
- as a result of a serious incident occurring at a workplace.

73. Processes for the development of a Safety Alert are outlined in section "N" of DIR's submission (Exh. No. 54). The process involves a written Request from the person requesting the preparation of a safety alert to the relevant Regional Manager (RM) to the Director, RSB for development approval. The proponent has to consider "the likelihood of the same or similar serious incident or risk re-occurring or whether this was a one-off occurrence".

74. Safety Alerts are "owned" by the Director, Regional Services Branch (RSB). Some Safety Alerts have an expiry date, while others are reviewed by the Director, RSB, on an annual basis. In this case, Mr Bauer died on 1 March 2006. The report prepared by Associate Professor Bertwhistle was not completed until 6 August 2006.

75. Even though this date was considerably beyond the preferred 10 day recommended period for the issue of a "Safety Alert", in fact it was some five months later; no safety alert was then issued. Surely if the

evidence suggests that the message of not working live is not getting through to the industry, an opportunity such as was offered by the unfortunate death of Mr Bauer, to publicise and warn against the hazard of working live, should surely not have been wasted? The fact that a matter is covered by a statutory scheme (the Act and Regulations) does not impact on the question of whether or not safety alerts or other public information should be given.

76. **It is my recommendation** that Safety Alerts should be issued as soon as possible after a death or a serious incident has occurred at a workplace. In relation to a risk arising from a workplace hazard, regardless of any detailed investigations being carried out, to best warn or remind those working in the industry as to those hazards.

Training Issues:

77. In his report into the death of Mr Bauer, Professor Birtwhistle says (at Page 10 in his Conclusions) that –

"6.6 A poor knowledge of and training in taping of conductors - which appears to be widespread in the electrical community, may have contributed to the failure".

In his site inspection on 13 March, the Professor had observed that several taped joints appeared to be of very low quality. When tapes were unwound from the joint damage to the tape, sharp edges on the conductors were starting to penetrate the soft tape. (P. 9 of report).

78. Reference to the Wiring Rules (Rule 3) provided, the Professor suggested, no guidance regarding what constituted an effective taped joint. Indeed, Rule 3 provides only very general guidance to the effect that joints in cables must be insulated to provide a "degree of insulation not inferior to that of the conductors".

79. The Professor went on to say that "no tests for such a repair are suggested in the Wiring Rules" and that he could find "no industry - approved procedures for taping."

Use of insulation tape certified to standards:

80. There is no requirement presently in the Wiring Rules that manufacturers packages for electrical tapes should indicate the number of the appropriate Australian Standard being present on packages for electrical tapes. The Professor found no evidence that tradesmen use only tapes certified to standards and this would appear to be poor practice. It may arise from an influx onto the market of cheaper tapes. However, steps should be taken to institute or reinstitute such a requirement in the Wiring Rules and **I so recommend.**

81. A copy of these comments will be provided to –

Ms Carol Raven (sister of the deceased);
Mr. Martin Carey, Coronial Liaison Officer, Department of Employment & Industrial Relations for transmission to the Director-General of that Department;
the State Coroner;
The Minister for Employment & Industrial Relations.

S.48 – Reporting offences or misconduct

82. This section of the *Coroners Act 2003* (ss.2) states that:

"If, from information obtained while investigating a death, a coroner reasonably suspects a person has committed an offence, the coroner must give the information to –

(a) for an indictable offence – the director of public prosecutions; or
(b) for any other offence – the chief executive of the department in which the legislation creating the offence is administered."

83. If, as the result of my investigation, I suspect than an offence has been committed by Mr Forsyth I must give the information, that is, my findings in this Inquest and any evidence adduced as part of that investigation to the Director of Public Prosecutions, so that Officer may consider whether or not charges should be laid against Mr Forsyth. I need not specify what charge should be laid but merely that I "reasonably suspect an offence has been committed".

84. In doing so, I need not satisfy myself that "a jury, properly instructed, could find the then defendant guilty of the offence" (the test in committal proceedings); that would be a matter for the Director of Public Prosecutions to consider, when deciding whether or not to proceed with any charge/s.

85. I suspect that an indictable offence has been committed by Mr Forsyth in this matter. Although many things conspired to cause Mr Bauer to be electrocuted on that day – the weather which meant that there were difficulties in Mr Forsyth and Mr Blackmore completing the task of relocating the switchboard box; the difficulties they had in doing the job, due to the lay of the ground, the ineffectiveness of the particular insulation tape being used to tie off the ends of the wires, the dominant issue in this matter, is that Mr Forsyth, chose to go ahead with the work, even though he had not disconnected the mains electrical supply from the electrical pole at the entrance to the premises. This meant that the work was begun "live", with no warning to the workers involved and that this fact – the working "live" – led to Mr Bauer's death.

86. There is no question that Mr Forsyth deeply regretted his actions. The extent of his moral guilt and great remorse and grief was palpable at the inquest into Mr Bauer's death and he made a public apology to the family member of Mr Bauer which touched their hearts. As part of the purpose of inquests, is to offer some "closure" to the family of deceased persons, this was important.

87. However, the job of a coroner is to comply with the requirements of the *Coroners Act 2003* and if a coroner reasonably suspects a person has committed an offence, whether or not family members would even require such action, the coroner must give the information to the DPP as referred to in S. 48 of the Act and as alluded to above.

88. In all the circumstances, I will be forwarding to the office of the Director of Public Prosecutions, all of the information obtained in the investigation of this matter, based on my reasonable suspicion that an indictable offence has been committed by Mr Forsyth, i.e. the offence of manslaughter. This is based on the derivative cause of the events which led to the death of Mr Bauer, that is that the power supply from the Energex pole was not disconnected before the work on the relocation of the switchbox was begun.

89. This failure – to properly isolate the power supply from the house, combined with the sub-standard taping of the wires which were placed into the box, causing an arcing which set off an electrical current to move through the house – caused the death of Maurice Bauer. These facts, found by me on the balance of probabilities, forms the basis for my reasonable suspicion that the offence of manslaughter was committed.

S. 48, ss4 also states that:

90. "A coroner may give information about a person's conduct in a profession or trade, obtained while investigating a death, to a disciplinary body for the person's profession or trade, if the coroner reasonably believes the information might cause the body to inquire into, or take steps in relation to, the conduct."

91. A "disciplinary body" is defined in the Act as one that:

    (a) licenses, registers or otherwise approves the carrying on of the profession or trade; or
    (b) can sanction, or recommend sanctions for, the person's conduct in the profession or trade.

92. I have been informed that the Electrical Licensing Committee is already seized of this matter but has not concluded its investigations as it is awaiting the outcome of this inquest. I will be forwarding all information obtained by me in relation to this inquest to that Committee, for the purposes of its inquiry into the conduct of Mr

Forsyth in his trade as an electrical contractor, in the events of 1 March 2006.

I close this inquest.

Diane M. Fingleton
Coroner, Caloundra

5 March 2009