QUEENSLAND COURTS

INNISFAIL CORONER

Final and Signed

FINDING OF INQUEST

CITATION:	**Inquest into the death of ALLAN THOMAS WIGG**
TITLE OF COURT:	**Coroner's Court**
JURISDICTION:	**Innisfail**
FILE NO(s):	**COR 20/07**
PUBLISHED :	**16 January 2008**
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HEARING DATE(s):	**25-28 September 2007**

DATE SUBMISSIONS RECEIVED:

Assisting:	
Mr John Tate	**17.11.2007**
For the Family:	
Mr James Sheridan instructed by	
Mr Michael Cooper	**17.11.2007**
For Mr and Mrs Grima:	
Mr Mark O'Sullivan instructed by	
Mr Scott Falvey	**29.11.2007**
For Mr Moyle (Welder):	
Mr Bruce Gillan	**15.11.2007**
For Workplace Health and Safety:	
Mr Bob Watson	**28.11.2007**
For Mr Grant (Manufacter):	
Mr Tony Lee	**15.11.2007**

FINDINGS OF: **J Brassington Coroner**

CATCHWORDS:

CORONERS: Inquest
Workplace Death
Banana Bagging Machines
Elevated Work Platforms
Welding

REPRESENTATION:

APPEARANCES

Assisting:	**Mr John Tate**
For the Family:	**Mr J Sheridan instructed by Mr Michael Cooper**
For Mr and Mrs Grima:	**Mr O' Sullivan instructed by Mr Scott Falvey**
For Mr Moyle:	**Mr Bruce Gillan**
For Workplace Health and Safety:	**Mr Bob Watson**
For Mr Grant:	**Mr G Lee**

Judgment Category Classification:
Judgment ID Number:
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1. On the 3rd of December 2004 police were called to a banana farm at Wangan.[1] The body of a man, Allan Thomas Wigg, was found underneath a still running banana bagging machine. Mr Wigg had been employed as a farm worker by Michael and Moeris Grima. His role was to perform banana bagging work.

2. Pursuant to s. 28 (1) of the *Coroners Act 2003* (hereafter referred to as the *Coroners Act*) an inquest was held into the death of Mr. Wigg. These are my findings. These findings seek to explain the circumstances of Mr Wigg's death and to make recommendations aimed at preventing similar deaths in the future. They will be distributed in accordance with requirements of s45 (4) and s46 (2) of the *Coroners Act*. Section 45(2) of the *Coroners Act* provides that a coroner must give a written copy of their findings to: the family of the person that died; each of the persons that appeared at the inquest; and the State Coroner. 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.[2] When such comments are made a written copy of those findings must be given to the persons set out in s. 46 (2).

THE CORONIAL JURISDICTION

3. I have jurisdiction to inquire into the cause and circumstances of Mr. Wigg's death under the *Coroners Act* as his death occurred on 3 December 2004. The *Coroners Act* applies to all reportable deaths after 1 December 2003.

4. Pursuant to s. 11(2) of the *Coroners Act* a coroner can investigate *'reportable deaths'* so long as they are not aware another coroner is investigating the death. Mr. Wigg'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. Upon the departure from the jurisdiction of the original coroner investigating Mr Wigg's death the State Coroner transferred investigative responsibilities to me.

5. A coroner has jurisdiction to inquire into the cause and the circumstances of a reportable death. Section 45(2) of the *Coroners Act* provides that when investigating a death the coroner must as far as possible find:-

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1 Wangan is located between Innisfail and South Johnston.

2 Coroners Act 2003, section 46.

- 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.

6. Section 28 of the *Coroners 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.

7. 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.

8. A coroner is not bound by the rules of evidence but may inform herself in any way considered appropriate.[3] However, the coroner must act judicially and have regard to the rules of natural justice and procedural fairness.[4] Such an opportunity has bee accorded to the parties in this case. The coroner may require the witness to give evidence that would tend to incriminate the witness if the coroner is satisfied that it is in the public interest for the witness to do so, but *derivative evidence*[5] is not admissible against the witness in a criminal proceeding[6]

9. 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* [7] :

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

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3 Coroners Act 2003, section 37

4 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 (1990) 65 ALJR 167 at 168 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.

5 Derivative evidence means any information, document or other evidence obtained as a direct or indirect result of the evidence given by the witness

6 Coroners Act 2003, section 39

7 [1993]2 VR 89 at 95

in a civil proceeding, a question arises whether a crime has been committed, the standard of persuasion is, according to the better opinion, the same as upon other civil issues ... But, consistently with this opinion, weight is given to the presumption of innocence and exactness of proof is expected".

10. Finally, 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.[8]

MY FINDINGS

INTRODUCTION

11. The Inquest took place over four days. The following witnesses were called (in order of appearance):
    1. Robert McGregor Trainor – Senior Constable and Officer in Charge at South Johnstone Police Station
    2. Michael Bach – Principal Investigator – Office of Workplace Health and Safety (Queensland)
    3. Marilyn Groom – Who called 000 after coming upon the accident scene.
    4. Brian McGowan – Officer in Charge, Queensland Ambulance Service Silkwood.
    5. Lawrence John Grant – Manufacture of the Grima banana bagging machine.
    6. Terry O'Sullivan – Workplace Health and Safety Adviser (Mechanical)
    7. Barry Michael Duggan – Proprietor of Dugcut Engineering
    8. Michael James Grima – Banana Farm owner (in partnership) and employer of Allan Wigg
    9. Moeris Ellen Grima – Banana Farm owner (in partnership) and employer of Allan Wigg
    10. Dr. Frank Grigg – Chartered Professional Engineer
    11. Thomas Heron - Chief Safety Engineer (ret.) Office of Workplace Health and Safety (Queensland)
    12. David Reece – Risk and Safety Consultant
    13. Russell James Moyle - Diesel and heavy earthmoving equipment fitter.

12. Twenty-seven exhibits were tendered including a complete investigative brief prepared by Michael Bach. Counsel assisting also provided a brief of

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[8] Coroners Act 2003, section 45(5). See also R v Shan Eve Tennent; Ex parte Jager [2000] TSSR 64 where Cox CJ said of the similar Tasmanian provision: the focus of an inquest conducted under the Act being the ascertainment of facts without deducing from those facts any determination of blame, and the mischief sought to be avoided being the public naming of persons as suspected of criminal activity when they may never be charged. Section 46(3) provides the same prohibition with respect to comments.

background material for recommendations.[9] I received written submissions from each of the parties which I found most helpful in formulating these findings.

13. It is necessary to traverse the evidence given in the committal to understand both my findings and the recommendations made. I will consider the background to the events of 3 December 2004, what happened to Allan Wigg on 3 December 2004, the investigation of what occurred and the expert opinion of what happened to Allan Wigg. I have summarised the evidence I consider necessary both to explain my findings and recommendations. I have of course considered all the evidence before me even if not specifically referred to in these findings.

BACKGROUND

14. In 2004 Michael Grima and Moeris Grima (a married couple) operated in partnership a farming business at Grima Road Wangan and Wilson Road Mundoo. They farmed about 150 acres comprising 90 acres of bananas, 3 acres of pawpaws, 5 acres fallow and the balance sugar cane.

15. In 2003, there were 867 banana farms in Queensland, mostly in the wet tropical coastal area centred on Tully and Innisfail. Queensland growers produced then approximately 264 000 tonnes of bananas each year, equal to 85 per cent of the total production in Australia.[10]

16. Cultivation of bananas involves hard manual labour, as was said at the inquest, in the heat, in the mud and in the rain. Venomous snakes and other vermin are not uncommon in the banana trees.

17. An important aspect of the work on the banana farm is bagging the bananas. Bagging banana bunches involves pruning, encasing the bananas in a bag and then treating them with insecticides. The bags over the bunches provide protection from damage and enhance the effect of insecticides. Mrs Grima described the method of bagging with a ladder as *"tedious and labour intensive"*:

> *one person would have to climb up a ladder, put a bag - put a bag over the bunch, prune it, climb down, and then another man would come through and dust it.*[11]

18. The introduction of banana bagging machines in the 1990s greatly changed the banana industry. A banana bagging machine is a type of elevating work platform used by banana farmers to allow them to maintain banana bunches. The operating height of these Banana Bagging Machines does not exceed 3.6 metres.[12] The machines allow a single worker to travel

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9 Copies supplied to

10 Source: Department of Primary Industries and Fisheries Discussion Paper

11 Evidence of Mrs Grima p. 366

12 Although Mr. Grant considered that the average height was 1.6m

between the banana tree and elevate himself to the individual bunches without leaving the machine. In the terminology of the Australian standards a banana bagging machine is described as *"self-propelled articulated flight pattern slewing platform with a low hung basket".*[13]

19. Mr and Mrs Grima purchased a banana bagging machine from Grants Mobile Workshop on 7 July 1999 for $35,000. The description of the machine purchased was "banana bagging machine, serial no. BM400-0014, Eng. No. 921111E, fitted with Perkins 104/22 Engine, Hydrostatic Drive, Four Wheel Steer". This banana bagging machine is hereafter referred to as the "Grima banana bagging machine". To understand the events of the 3 December 2004 it is necessary to discuss the characteristics and functions of this machine. I turn now to discuss in detail the Grima banana bagging machine.

The Grima Banana Bagging machine

20. Lawrence Grant commenced to manufacture banana bagging machines in 1993 in partnership with Innisfail Bearing Supplies. Mr. Grant qualified as a plant mechanic (being a combination of diesel mechanic, boilermaker and fitter and turner) in 1980. He served his apprenticeship with the Forestry Commission of New South Wales and was State Apprentice of the Year in 1979.[14] In 1987 he commenced repairing farm machinery in his own business in Innisfail. With Innisfail Bearing Supplies Mr. Grant manufactured about 23 machines. He testified he had been involved in the design of one of the first hydrostatic machines that had been built anywhere in Australia. He has personally manufactured 14 machines. The majority of these machines were used in the Innisfail with one being sent to Coffs Harbour and two to Mossman. Mr Grant estimated that in Australia presently there are presently about four hundred machines in operation.

21. The description I will give of the Grima banana bagging machine is largely from the evidence and sworn statements of Lawrence Grant. Mr Grant cooperated fully with the coronial investigation and the investigation undertaken by the Office of Workplace Health and Safety Queensland. His evidence was helpful in both understanding the rationale of his design choices and the challenges inherit in designing and manufacturing banana bagging machines for use in the rural community.

22. Mr. Grant considered that a properly maintained banana bagging machine would last 10 years.[15] Although he cautioned that hours of use and poor

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13 From the statement of Doctor Frank Grigg (16 March 2007). Doctor Grigg, an extremely experienced Chartered Professional Engineer provided a report to me, and gave evidence at the inquest, on the compliance of the subject banana bagging machine with the Australian Standards.

14 Exhibit 21 lists his qualifications

15 Transcript p.206

maintenance might impact on this estimate. In submissions he considered that the life of a banana bagging machine should be 9,000 – 10,000 hours work.

23. The Grima banana bagging machine is a four wheeled machine with an engine and boom that can be raised and lowered. The machine is controlled by an operator who stands in a basket on a platform at the end of the boom. The basket essentially encases the operator to about waist level with little room for movement. This permits the operator to get close to the banana bunches when elevated. The operator controls the machine from the basket using controls on the platform.

24. To move the Grima banana bagging machine forward the operator pressed the right hand side of a foot pedal. The pedal was connected by a transmission cable to the hydraulic transmission pump. Pushing the pedal down on the left hand side put the machine into reverse. The release of the pedal returned it to the neutral position and stopped the machine travelling. Steering controls were on the platform.

25. The machine had two braking systems. Firstly, a park brake fitted to the front left hand side. There was a brake operation switch on the platform controls. When this was pushed forward it de-energised the brake solenoid causing the brake calliper to be applied. An emergency stop button also activated the parking brake.

26. In addition to the disk operation system there was a braking system from the operation of four hydraulic drive motors fitted to each road wheel. When the foot was removed from the pedal the hydraulic pressure caused the swash plate control lever to centralise which pushed the foot pedal into neutral position. When there was no oil flow from the hydraulic pump it caused hydrostatic lock in each motor. Mr. Grant says application of this braking system would stop the machine within 2 metres driving at top speed.

27. The Grima banana bagging machine was rated by Mr. Grant in design at 125 kg including 40 kg of equipment. He stated that this was originally painted on the boom. As supplied to the Grimas the Grima banana bagging machine had the hydraulic hoses housed internally to the boom.

28. The horizontal work platform upon which the operator stood was supported by front and rear platform levelling rods. These rods were secured by pins. The method Mr. Grant originally used to insert these pins in their clevis plates is set out (and adopted by him in his sworn proof of evidence) in Mr. Lee's letter of 27 February 2007:

    1. In the original manufacture of the machine the original pin was inserted through the clevis plate and through the bush.

2. Each end of the original pin was proud of the clevis plate.
3. A washer was then slipped over each end of the original pin and then each welded to the pin by means of a weld in excess of 50% of the circumference of the pin. That weld occurred on each end of the pin. That meant that each of the two washers were welded to their respective ends of the pin.
4. One of the washers only was then welded to the clevis plate with a tack weld approximately 12 mm long. That weld was done to prevent the pin from rotating in the clevis during movement of the bush. The idea was that the bush on the arm, inside the clevis plate, would rotate around the pin but that the pin would not rotate in relation to the clevis plate.

29. The pins originally inserted by Mr. Grant were 100mm long and made of mild steel. Mr. Grant's account of securing the pins was challenged at the inquest. However, I accept his account as truthful. It was supported by the evidence of other machines he manufactured being fixed in the same way and, as the evidence emerged, it became apparent that his evidence as to the rear platform pin having been substituted was entirely correct.

30. Mr. Grant testified that the Grima banana bagging machine had a number of modifications to his design which he had not performed or authorised. These modifications were:

1. the parking brake was removed;
2. a new materials basket welded to the operator's basket;
3. hydraulic hoses placed externally on the machine rather then internally within the boom;
4. new boom support post welded to the turntable and additional gussets and plates welded to the boom; and
5. new pins and welds holding the pins.

31. Mr. Grant's evidence was supported by Mrs. Grima who provided the following information as to modifications of the machine:

1. Strengthening of the front axles of the machine by Mr. Grant
2. A 'duster' installed on 14 January 2004 by Johnstone Agricultural Machinery
3. Rear axles replaced on 3 July 2001 by Dugcut Engineering
4. Safety guards installed around the machine's motor on 23 September 2003 by Dugcut Engineering
5. A heavy duty radiator installed on 23 May 2001 by Dugcut Engineering
6. The wiring on the machine inspected and replaced on 4 May 2004 by Austo's Autoelectrics
7. Hydraulic hoses inspected and new hoses installed on 1 and 2 December 2004

32. Mr. Grima testified that while he kept maintenance receipts for his banana bagging machine there was no maintenance record maintained by him nor was there any logbook setting out hours of use of the machine. Mr. Grima testified he always used appropriately qualified tradesmen for maintenance of the machine but Mr Grant, the machine's manufacturer was not utilised for maintenance.

33. With respect to the modifications to the machine Mr. Grima testified that at the time Mr. Wigg died the parking brake on the Grima banana bagging machine was getting fixed and was thus not on the bagging machine.

The Employment of Allan Wigg

34. From 24 May 2004 Allan Wigg was employed by the Grima partnership as a casual farm worker. His principal duties were as a Banana Bagging Machine Operator. Mr. Wigg had a relatively autonomous role on the Grima farm keeping his own hours but engaged too (usually) do about 40 hours a week. A significant portion of Mr. Wigg's duties involved using and maintaining the Grima banana bagging machine.

35. Mr. Wigg was a good and conscientious employee. Mrs Grima noted that he was the only banana bagger who would come and check the results of his bagging and dusting (some 10 to 16 weeks later) to make sure he was doing a good job.

36. When he commenced employment with the Grimas' Mr. Wigg filled out, on 9 June 2004, a safety induction for new workers. [16] The safety induction included workplace policies and rules of a fairly basic type general to most of the workers on the farm. For example, take care to avoid stump holes from old banana trees. The rules are reflective of the many casual workers that the Grimas' employed because of the difficulty of attracting permanent employees to such hard, relatively lowly paid work. Mrs Grima testified that in one year they had a turnover of 90 people on a farm that employs 6 – 9 people.

37. Mr. Grima instructed Mr. Wigg on how to operate the Grima banana bagging machine. He said he covered the operation of the machine, for example, the way it worked, the stop switch, the way to start it up. He also covered routine maintenance of the machine, for example, the greasing of it. He also watched Mr. Wigg drive the machine and put up bags and formed the view that Mr. Wigg was a competent operator. At this time there appeared to be no certification or license qualification to operate a banana bagging machine so competency was a matter of assessment based on individual judgment.[17] Nothing in the evidence

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16 Exhibit 8

17 Mr Grant testified a TAFE course is now available for banana bagging.

indicated that Mr. Grima was other then correct in his assessment: Allan Wigg was a competent operator of a banana bagging machine.

38. If there was a problem with the Grima banana bagging machine then Mr. Wigg would go to Mr. Grima and he would make arrangements to have the machine serviced. Maintenance of the machine appeared to be reactive to faults and not proactive and preventative.

THE REPAIR OF THE GRIMA BANANA BAGGING MACHINE

39. The account of what occurred with respect to the repair of the Grima banana bagging machine immediately before the death of Mr. Wigg mainly comes from the evidence of three witnesses: Michael Grima, Barry Duggan and Russell Moyle. Their evidence is largely consistent except for small variations which are entirely consistent with the passage of time.

40. Michael Grima testified that at about 2pm or 3pm on 1 December 2004 Allan Wigg approached him and told him a hydraulic hose was leaking on the machine. Mr. Grima and Mr. Wigg went to the shed to investigate the leak. At this time Barry Duggan was also present.

41. Barry Duggan is the proprietor of Dugcut Engineering. He is by trade a very experienced fitter and turner. He testified that he did significant amounts of light engineering work for the Grimas'. On 1 December 2004 (Wednesday) he visited Mrs Grima for the purpose of offering some second hand iron to Mr Grima. While visiting he learned of problems with the hydraulics in the Grima banana bagging machine and he offered to help out Mr. Grima and Mr. Wigg disassemble the hydraulics.

42. Mr. Grima testified[18] that:

> *We pulled the front - front cowl off and I suggested that we're going to have to - to find this hose to see where it was leaking. So we started and Barry started marking everything and we were pulling apart - pulling connections off so we could get them out - get the hoses out, but the hoses went through the boom and we couldn't - when we went around the back of the boom we could not - could not get the hoses out of the boom because a - a plate was holding - holding the hoses down onto the*
>
> *It might have been referred to as the arm - an arm that went through ? Yes, the arm through the - it was holding - it was holding it down onto the boom - the hoses down onto the boom. So the - the pins had to come out that was holding this plate. At that time I got a visit from - from Dave Doolan from Grow Force and I was called away to go and see trial on one of the paw paw blocks. When I got back the - the*

[18] At page 331

hoses were pulled out of the machine and the arm was pulled out of the machine. It was all lying behind the machine.

43. Mr. Duggan and Mr. Wigg pulled down the machine and removing the pins which were welded. The pins had to be ground out and Mr Duggan recalls grounding out one pin or possibly both pins. Mr. Duggan identified the police photo 17 [19] and identifies the "bracket" in that photograph as where the pins were removed from. This bracket (or "fixed clevis plate") housed the rear clevis pin. The pin, as discussed earlier in these findings secured the platform levelling rods that supported the horizontal work platform upon which the operator stood.

44. Mr. Duggan testified that the pins were secured by full "Phillip welds" 50 – 60% welds on each side. The welds were not secured to the washer.

45. Examination by counsel assisting elicited the information that Mr. Duggan had replaced the pins securing the rear platform levelling rods in June 2004. The replacement occurred when Mr. Duggan was called out in June 2004 because the boom in the Grima banana bagging machine had broken in the paddock. He repaired the boom and upon assessing the pins were worn changed them.

46. He sourced the pins from his workshop. He did not have any manufacturer's information with respect to the pins. He testified:[20]

When you chose the diameter of the pin, was it the same diameter as the pin that you - pins that you removed that were worn? They suited the bushes that were there, they suited the bushes that were there.

When you installed them, was there any sloppiness in the fit? They weren't a tight fit but they were a reasonable fit.

The fact that they were not tight fits, was that something that you were concerned about? No, not with my welding.

47. The new pins put in were high tensile steel. Mr. Duggan testified he always used high tensile steel pins. Mr. Grima testified that he did not know the pins replaced by Mr. Duggan were high tensile steel.

48. Following the partial dismantling of the Grima banana bagging machine the levelling arm was laid on the floor. The pins were out on the ground. The hoses were attached to the machine at one end and laid out on the ground.

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19 Exhibit 2 in the Inquest

20 Transcript p. 287

49. When the machine hydraulics was dismantled it was apparent to Mr. Duggan that hydraulic repair or replacement of some hoses was required given the damage observed.

50. Mr. Grima testified he returned to see the hoses pulled out the machine. He contacted Innisfail Hydraulic Services Pty Ltd and as a result Russell Moyle, an employee of that company, travelled to the Grima farm near Lawrence Road Mundoo. Mr. Moyle arrived at about 4.30pm and met with Mr. Grima and Mr. Dugan. He observed that the levelling arm had been completely removed.

51. Mr. Moyle was qualified as a diesel and heavy earthmoving equipment fitter. He completed this qualification in 1984. Most of his working life has been involved with hydraulics and pneumatics including the design, supply, installation, and repair and testing of hydraulic systems. He has had no specialised welding training but had some training during his apprenticeship and his work often requires welding. This welding tended to relate to welding brackets to fit hydraulics. He had not, before 2 December 2004, welded high tensile steel.[21]

52. Before working on the Grima banana bagging machine he had some experience with elevated work platforms having repaired such machines for Ergon Energy as well as other banana farmers.

53. The effect of Mr. Moyle's evidence was that the decision to dismantle the Grima banana bagging machine made his job significantly harder as generally he could test which hose was not working when they were insitu.

54. Mr. Duggan testified he left the farm during discussions between Mr. Moyle and Mr. Grima saying that if he was not needed any more he would leave. He had attended and assisted in the dismantling of the Grima banana bagging machine as a friend rather then in his usual professional capacity and considered that his role, without further request, was finished. Hydraulic repair was not his field. Before he left he testified that he heard Russell Moyle comment that *"He had done plenty of these before"*.

55. During the conversation between Mr. Grima and Russell Moyle it was suggested by Mr. Moyle that to save *'pulling everything to pieces'* that he, during the repair reposition the hydraulic hoses to the outside of the boom. Mr Grima agreed. Mr. Moyle then left the farm to make up the required hydraulic hoses. Mr. Moyle's rationale was that the hydraulic hoses were being chaffed by their internal fixation. He considered it pointless to reinsert the fixed hoses in their original position as they would

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21 Transcript (Day 4) p. 80

only fail again. He explained to Mr. Grima the work he wished to undertake in the following way:[22]

> *The nature of the work was to run steel tubing externally down the boom and then run flexible lines from the bottom of the machine to the first part of the, like where the - the lift - the booms lifts on that machine, run flexible there and then flexible from the other end of the boom at the top of the boom down to the basket controls.*
>
> *....And that, fit brackets and, yeah, weld brackets on to the boom and that to restrain all the piping and that.*

56. Mr. Moyle received Mr. Grima's authorisation for the repair.

57. Mr Grima's testimony as to the repair and reassembly of the Grima banana bagging machine is that:

> *Then Russell went away to make up some pipes and then he come back the next day. He had some - he had some steel pipes with him and I think Wayne McDougal has to bring some more. But anyway, when he got there he said that he had some welding to do and at that stage I asked him, "Well, should I - should I bring Dugan in to do it - to do the welding or - to do the welding," and he said, "No, I don't need him." So in that - then - then he - Russell went away and got his own machine - his own welder. He came back and he started positioning the - the brackets to hold the steel pipes onto the boom. Russell told me that he needed a hand to weld those brackets to hold the steel pipes onto the boom and I gave him a hand to do that and then I went away. And after that I - I left him for a while because he had to make up hoses and one thing and another. And I come back - I asked Russell how - how he was going. He said, "Oh, I'm going to be here for quite a while." I think the words he said were "all night". And I said, "Look, Russell, I'll give you a hand to put the pins in." I put the top pin in and I couldn't get the bottom pin in - the top pin - I put the - I'll call it the front pin, I think I - yes, the front pin. No, it's the back pin. I'm sorry, it was the back of the machine.*
>
> *Okay. Which pin did you put in? The - the pin at the back of the machine.*
>
> *Okay. So we'll just call it the rear pin? The what?*
>
> *The rear pin? The rear pin. That's it. Yes.*
>
> *And the front pin ? And that one went in pretty well, yes.*

22

Yes. Okay? The front one didn't go in well, but Russell and - and I fooled around with it and - and I think Russell tapped it in and it went in.

Okay. And that's the - the front pin is the one closest to the operator's basket? That's right.

Okay? Yes.

And then when you say you put it in, did you just put it into the area designed to hold the pin? To hold it, yes.

Yes. And that's been called here the clevis? The clevis I think they're talking about is the one at the back of the machine.

58. Mr. Grima testified that when the pins were being reinserted by him he said *"It looks like it's been welded on one side."* As noted, neither Mr. Moyle nor Mr. Grima had been present for the dismantling of the Grima banana bagging machine.

59. Mr. Moyle largely agreed with Mr. Grima's account. He testified that Mr. Grima volunteered to give him a hand when he said that he would be there all night and he told him to put the levelling bar in. He also testified that he did not pick any of the pins up when they were inserted as he did not know where they were. He agreed that he assisted in putting the front pin by lifting the levelling bar and *"pushing or pulling the basket to get everything to align, and Mick placed the pin in through the - through the hole at the time."*

60. Mr. Moyle then testified as to how he came to weld the pins into position:

> *Well, the - I've gone to retain the pins into position, I've been crouching down to have a look to put them in position and they've gone - it's a stupid way to put the pins in because you know, there's no logical way of - you could see where they'd been welded in to the - welded onto the lugs and with that, Mick - Mick said that - oh, it didn't worry too much 'cause we were getting - he was getting a newer boom for it, thicker plate and that and - and he - offered to get Barry Dugan to come in or - or - Dugan to come in and - to come in and weld the pins in the following morning. With that I - I said look, I could weld them into you know, just to speed up so I could test it for that afternoon, that evening and yeah. So he agreed for me to weld them in. I said, no problem, and I welded them in and I - we gave it a test run.*[23]

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[23] Transcript (day 4) p. 87

61. With respect to the pins he said he welded them back on where the gouge marks were on what he referred to as lugs (or as referred to by the other witnesses as the clevis plate). He used his own equipment to weld and did not seek advice or instruction from Mr. Grima.[24] This was the first occasion that he had undertaken a weld of pins securing the levelling rods.

62. Mr. Moyle believed he was welding mild steel. The basis of his belief was that he had personal knowledge that it was the general practice in the industry to use mild steel on those pins in bagging machines. He testified that he had gained this knowledge from discussions with manufacturers and farmers given he had noticed that the mild steel was subject to wear and tear.

63. Mr. Moyle testified that it was his intention when welding to do a complete weld. He was adamant that he volunteered to do the welding even after Mr. Grima told him that he would get Barry Duggan in on the following day. From Mr. Moyle's testimony it is apparent that Mr. Grima was anxious to have the machine working the next day. Without the machine no bagging work was getting done. Mr. Moyle understood the circumstances and this prompted his offer. Mr. Grima accepted he would have certainly asked when his machine would be ready. Mr. Grima also testified, in cross examination, that he had on a second occasion volunteered to get Barry Duggan back to do the welding. However, Mr. Moyle volunteered to do the welding and he, Mr. Grima, accepted the offer.

64. I accept Mr. Moyle gave a truthful account of the circumstances surrounding the undertaking of the welding. He rejected any explanation that might have mitigated his role – for example, performing the weld knowing Barry Duggan would be checking it or that he only did a tack weld for testing of the hydraulics. Mr. Moyle also testified he well understood the significance of the pin and levelling rod for keeping the operator's platform upright. Mr. Moyle did not attempt to suggest that Mr. Grima pressured him into welding the pins. Rather Mr. Moyle, to assist getting the machine working, volunteered to finish the job. When he had completed the welding Mr. Moyle considered that he had done a complete, competent weld. Mr. Grima, given Mr. Moyle's offer had no particular basis not to assume the task of welding was well within Mr. Moyle's professional competencies.

65. Following testing of the banana bagging machine Mr. Moyle left the farm satisfied with his work. Before he left he told Mr. Grima the machine was *"ready to go"*.[25]

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[24] Transcript (day 4) p. 87

[25] Transcript (day 4) p. 102

66. The next morning (3 December 2004) Mr. Grima went to Cairns early in the morning. In the morning, Allan Wigg replaced the front panel on the Grima banana bagging machine. It was his usual practice to spend at least 20 minutes inspecting the machine before commencing work. There is nothing to indicate that this morning he did not perform his usual duties. He then commenced work bagging.

67. At about 10.50am on 3 December 2004 Mrs Marilyn Groom heard a loud revving coming from a 'cherry picker'. She knew the Grimas' and was familiar with the farm location. As she passed the cherry picker she saw a body under the boom of the machine. She investigated and found the body of Allan Wigg. She went to the Curragah Hotel, adjacent to the scent, to call for help.

68. The first police officer on the scene, Senior Constable Trainor, Officer in Charge at South Johnson, arrived at the same time as the first response ambulance officer. Understandably the first priority was the examination of the man underneath the banana bagging machine. Brian McGowan, Queensland Ambulance Service Officer, examined Mr Wigg and determined that he was dead and there was nothing more that he could do. At the time of the examination Mr Wigg was lying in the prone position under a stationary banana bagging machine towards the front of the machine (which was still running). Senior Constable Trainor's initial conclusions on seeing the scene were:

> *A further inspection revealed that the basket that the deceased was standing in had come adrift causing the deceased to be thrown out. The basket has then squashed the deceased as the machine had travelled forward. On further examination it could be seen that there was some tree bark on the left hand steering arm of the machine. It could also be seen that there was a mark on the palm tree which was consistent with the machine colliding with the tree. The engine of the machine was de-activated.*

69. The banana bagging machine was actually turned off by a man who came over from a local hotel as Senior Constable Trainor had no idea how to turn off the machine. This person was not a witness in the inquest. Therefore it is impossible to draw any certain conclusion as to the position of the controls at the time the banana bagging machine was found. The only evidence is that of Senior Constable Trainor that:

> *you can see where - where the machine had hit the tree you can see the scuff mark in the tree and you can see part of the bark on the left hand - like, steering knuckle of the machine and you can see where the wheels have tried to keep going and it's stopped. So obviously it's knocked itself out of gear or something's happened to it.*

70. Having satisfied himself there were no suspicious circumstances, arranging photographs of the scene and completing notification of the death to the coroner (through a Form 1) Senior Constable Trainor essentially handed over the investigation of the circumstances of Mr Wigg's death to the Office of Workplace Health and Safety Queensland ("OWHS") and took no further part in the investigation.

71. Photographs of the scene and examination by Inspectors' Bach and Coggins from the OWHS found a steel pin lying on the ground approximately 11.8 metres from where the rear wheels of the Grima banana bagging machine had come to a stop. This pin fitted into the mounting on the rear platform levelling arm. This pin had welding, described as 'tac welding' and on it that mated with the welding, again described as 'tac welding' on the mounting clevis plate. Inspector Bach noted that that the fit between the outer circumference of the pin and the 2 mating holes in the clevis was loose such that the pin could be moved radially due to this clearance and he described the fit as a "sloppy" fit.

72. The pin was found on the track where the Grima banana bagging machine travelled on. Mrs Groom, the first arrival, saw banana bags, toolbox and pressure pack spray paint tins scattered along the path for a length she describes as 6- 8 paces and then a further 6 to 8 paces the banana bagging machine was 'stuck up against the palm tree' which was off the track. Photograph 15 of exhibit 2 depicts the scene. Although not entirely clear from the photographs it is apparent the scattered items observed by Mrs Groom were in front of where the pin had become disengaged. However, Mrs Groom raised the issue that some of the items may have been moved as she recalled them as more scattered back (towards the pin) then depicted in the photographs.

73. The scene supports the conclusion that as Mr. Wigg was driving the Grima banana bagging machine along the track the rear levelling support pin fell out because of the failure of the welds intended to secure it causing the work platform to collapse ejecting the operator. The Grima banana bagging machine continued to move forward inflicting grievous injuries on Mr. Wigg, which would have rendered him almost immediately unconscious, until its path was stopped by the tree.

74. Doctor Jagush provided the autopsy report that contained the main findings of massive brain damage associated with multiple stellate fracture of the scull particularly involving the front and right side of the skull. The features are consistent with a crush injury. There were no major injuries identified elsewhere. There was an abrasion on the left anterior flank.

EXPERT EVIDENCE AS TO WHY THE REAR LEVELLING SUPPORT PINS FELL OUT

75. The inquest was greatly assisted by the evidence of Doctor Grigg and Mr. Thomas Heron, both extremely experienced engineers who are frequently relied upon by the courts of all levels for export testimony, as to why the weld of Mr. Moyle fractured causing the loss of the levelling rod pin and subsequent collapse of the work platform.

76. Mr. Heron was the Chief Safety Engineer of Workplace Health and Safety Queensland for many years. He provided a report and also gave evidence at the inquest. In summary he says there was substantial force acting on the pinned joint supporting the platform levelling rod and is applied at right angles to the axis of the pin. If the clearance between the hole in the lugs and the levelling rod pin is large (a sloppy fit) the applied force will act directly on the weld used to secure the pin in its location. The evidence already recited demonstrates the fit of the pin immediately before the weld fractured was sloppy. Because the pin had excessive clearance the force applied by the levelling rod must be totally opposed by the small weld used to secure the pin.

77. Mr. Heron, in his report also noted:

> *To further exacerbate this situation the circumferential application of the force varies depending upon the height of the platform and will fluctuate wildly as the EWP is driven over rough terrain. The large force fluctuation will ensure the weld will ultimately fail by fatigue and allow the pin to work free.*

78. While the force acting on the join was sufficient to permit the pin to work free the failure mechanism for the collapse of the pin was that the weld failed by cracking immediately subsequent to completion of the weld, and cooling of the weld material. This phenomenon is referred to as "cold cracking" and nearly always occurs when attempting to weld two materials with large differences in mechanical and chemical properties. Physical, microscopic examination of the weld convinced Mr. Heron that the weld cracked almost immediately after application.

79. The weakness of the weld was because of the attempt to weld high tensile steel (the pin) and mild steel (the lug). The high tensile steel pin was the pin used by Mr. Dugan to replace the mild steel pin originally used by Mr. Grant in the manufacture of the Grima banana bagging machine.

80. Mr. Heron noted at the inquest most engineering workshops that are not controlled by professional engineers tend to consider that the stronger you go the better it is so they favour high tensile steel. This causes a problem when you try to weld two materials of different mechanical properties. Mild steel and high tensile steel have quite

different properties. Such a weld is possible but it would require the complex design of a procedure. It can be done and he (Mr. Heron) could design a procedure to ensure that it did occur.

81. The design of such a weld would have been far outside the competencies of Mr. Moyle.

82. Mr. Heron also testified that only an expert could tell the difference between high tensile steel and mild steel. As has already been noted Mr. Moyle assumed, because of previous dealings, that the pin in this case was mild steel. Mr. Heron noted that if mild steel had been used and welded mild steel pin to the mild steel cheek plates of the clevis there would not have been a problem of cold cracking.

83. Doctor Grigg, who did not examine the machine, but had the opportunity to see Mr Heron's report essentially, concurred with his analysis of the reasons for failure of the weld. He to emphasised the difficulty of welding high tensile steel to mild steel.

84. The failure of the pin caused the collapse of the working platform. This had the consequence of causing the hydraulics (now placed by Mr Moyle on the outside of the machine) to be significantly interfered with. The design of the machine's braking machine should have meant that upon the ejection of the operator the gears returned to neutral and the machine stopped.

85. Mr O'Sullivan, Workplace Health and Safety Adviser (Mechanical) had the opportunity to inspect the machine. He considered it a possibility that as the basket had rotated through 90 degrees and all of the hydraulic lines and the control table for the forward/reverse actually travelled past the pivot point, that in that rotation the cable was no longer straight and in its normal position, and binding internally within the cable may have also contributed to the unit not allowing the lever to return to neutral at the drive pump. Thus, the machine probably remained in a forward position and moved over Mr. Wigg.

86. I have noted the submissions of counsel for Mr. Grant that it is possible the machine could have returned to neutral and stopped within two metres without touching the tree. To some extent how and when it returned to neutral is a matter of speculation. I accept what Doctor Grigg said in testimony that If the machine had been immediately inspected it might have been possible to determine if upon collapse of the basket whether the machine immediately returned to neutral or whether the crushing of the hydraulic cables meant the machine remained in gear. This could have been coupled with a more rigorous examination of the physical evidence.

87. Doctor Grigg essentially concurred with Mr. O'Sullivan that when the banana bagging machine hit the tree the movement of the basket could have caused the cables to move the pump to a different position which may have been, for a short time anyway, reverse until it worked itself back into neutral.

88. On the issue of returning to neutral it should be noted that on machines of this type it was recognised that the foot pedal controlling the forward motion of the machine didn't always return to its neutral position and the manufacturer (Mr. Grant) had apparently offered a spring to assist that to occur, but it wasn't fitted to the Grima banana bagging machine. His evidence was that in about 2000 he had offered return springs to those persons who had purchased his machine. In the case of the Grimas' he never communicated with Mr or Mrs Grima but rather told an operator of the existence of the spring and that it should be fitted. He left the return spring at the Grimas' farm but did not communicate with them personally. Mr. Gima never received the return spring nor understand the purpose of the return spring.

89. Mr. Grant in his affidavit outlined how the return spring operated: One end of the spring was attached to a fixed point on the frame of the machine. The other end of the spring was attached to the transmission pump control lever which was the lever controlling the hydraulic pump which in itself moved the machine either backwards, forwards or not at all. The pedal was also attached to the transmission control lever by means of the mechanical cable referred to that ran from the pedal at one end of the control lever to the other end.

90. Mr. Grant considered that the absence of a return spring would not have made a difference to the outcome of this incident because if the transmission had been jammed in forward because of the bending of the cable the return spring would not have been sufficient to have forced the cable and the accelerator out of forward gear.

91. There was some support for Mr. Grant's position from Doctor Grigg who noted (at 13 on day 4) that when the bucket tilted forwards it effected the cable between the pedal and the punt involved, so that it wasn't able to function under the spring that was there.

92. Given the onus of proof in these proceedings a more precise finding on the exact mechanism of when the machine returned to neutral and how the machine came to be in the position is simply not possible.

93. It is unfortunate that the immediate inspection of the Grima banana bagging machine by a qualified engineer was not undertaken and that, at the very least, there was not a better record of the machine and the scene

of the collision. Mr O'Sullivan, an engineer, did not inspect the machine until 21 April 2005.

94. Mr Wigg's death was a workplace death given he was employed by Mr. and Mrs. Grima on their farm. Hence, the investigation of his death involved not only officers from the Queensland Police Service but officers from the Department of Industrial Relations, Workplace Health and Safety Queensland.

95. The Queensland Police Service Operational Procedures Manual addresses this dual responsibility:

> *Any investigations involving the Service and workplace health and safety inspectors or electrical inspectors are always to be conducted in liaison with any such inspector. Liaison is to include, informing the relevant inspector of the status of any investigations and prosecutions undertaken.*

96. In this investigation the dual responsibilities exposed some shortcomings in the existing system. This is no criticism of the individuals involved rather it appears to result from factors beyond the control of those involved in investigations. Officers of the Queensland Police Service clearly considered the responsibility for the investigation rested with the investigators from the Office of Workplace Health and Safety Queensland (OWHS) who had an expertise that they did not possess. As the area was a rural location there was not the attendance of specialist accident investigation squads. The focus of OWHS was to ascertain whether the Workplace Health and Safety Act, the regulations and the various codes of practice and standards within that statutory regime have been breached and whether breach prosecutions should result. These particular investigative goals sometimes do not complement the statutory responsibilities of coroners should no prosecution result from an investigation. However, these issues are more appropriately dealt with when I consider comments and recommendations.

FINDINGS REQUIRED BY S45 (2)

97. As a result of considering all of the material contained in the exhibits and the evidence given by the witnesses, I make the following findings in accordance with my duties under s. 45 (2) of the Act:

- Who the deceased person is: The deceased was Allan Thomas Wigg
- How the person died: The narrative above sets out how Mr. Wigg died. In summary, the failure of a weld securing a rear levelling pin permitted that pin which secured the work platform to be ejected causing the collapse of the platform and the ejection of Mr. Wigg. He then sustained fatal crush injuries because of the forward movement of the banana bagging machine
- When the person died: He died on 3 December 2004

- Where the person died: Grima's farm Wangan
- What caused the person to die: Massive brain damage due to multiple skull fractures

COMMENTS AND PREVENTATIVE RECOMMENDATIONS

98. Section 46 of the Act, in so far as it is relevant to this matter, provides that a coroner may comment on anything connected with a death that relates to public health or safety or ways to prevent deaths from happening in similar circumstances in the future.

99. The above narrative, and the inquest evidence, makes plain that there were a number of factors, apart from the quality of the weld that may have contributed to the sequence of events that resulted in the death of Mr. Wigg. Addressing these factors may assist in preventing future deaths.

100. The inquest evidence also highlighted particular matters relating to investigation and prevention that I wish to comment upon.

101. Turning now to matters relating to the Grima banana bagging machine:

Issues relating to the Grima banana bagging machine

Did the Design and Manufacture of the Grima banana bagging machine contribute to the Death of Mr. Wigg:

Harness

102. The Australian Standards relevant at the time of the manufacture of this machine were AS 1418 – 1996 and AS 2550.10 – 1994 (Cranes – Safe Use – Elevating work platforms). The Australian Standards represent best practice industry guidance as published by Standards Australia through a consensus committee procedure.

103. Clause 9.20 of the Standard requires that a safety harness shall be worn by all personnel on the platform of a boom type elevated working platform. Such a harness would prevent the ejection of the operator to the ground.

104. There was a hole for the safety harness to be secured in the Grima banana bagging machine as supplied by Mr. Grant. In his evidence Mr. Grant said he discussed harnesses with Mr. Grima but that Mr. Grima did not choose to fit a harness. Mr. Grima denied such a conversation took place but agreed that he had not used a harness nor supplied one to operators. Indeed from the evidence harnesses were not used at all in the banana industry because of particular issues relating to banana

bagging machine. Some of these issues were canvassed at the inquest: there were no harnesses designed for the particular needs of the banana industry and operators did not want harnesses because they may need to get out of the operator's basket quickly (for example, venomous snakes may be in banana bunches). It may be that there is also a perception that because the elevation of banana bagging machine is not particularly high harnesses are viewed as unnecessary.

105. The data supplied by OWHS (to be discussed in detail later) testified to the injuries resulting from falls from quite modest heights. I consider that Doctor Grigg's testimony on this point is compelling. He considered all the arguments but strongly recommended that a harness be used to restrain the operator in the bucket in the event of a failure of the levelling link. He considered that there was no need for a 2 metre lanyard of the type typically fitted to harnesses of fall arrest systems and there is no need for the energy absorption features normally provided in such lanyards. He also considered there was no need for a full body harness.

106. Doctor Grigg provided further assistance to me by specifically canvassing his suggested design: at most a broad belt, such as worn by underground miners (possibly equipped with shoulder straps) with the attachment of this to a suitable point in the bucket by perhaps a length of strap such as used on seatbelts. The attachment point would appropriately be about ½ metre or so below waist level, probably on the boom side within the bucket. Doctor Grigg considered that an inertia reel like the type used on seatbelts could also have merit. These are commercially available and could be used without modification to facilitate ease of movement. He also recommended a quick release button for rapid escape.

107. Given the data as to injuries resulting from falls (set out below) and the potentially devastating consequences for the operator, as illustrated in this matter, I consider that in the interests of safety operators in banana bagging machine should have a harness. Given the current lack of support for harnesses and the lack of an agreed model there needs to be some coordination to bring together the stakeholders and push the benefits of harnesses and the potential detriment to employers, manufacturers and workers if harnesses are not employed. The OWHS appears the appropriate body to perform this coordinating and educative role.

108. Consequently **I recommend that the OWHS facilitate the development and usage of harness in banana bagging machine in Queensland.**

I now turn to the design of the banana bagging machine

109. Mr. Heron and Doctor Grigg were both critical of the design relating to the retention of the pin by a welded joint. Mr. Heron in his report set out his preferred model for a pinned joint design employing 'good engineering principles'. However, Mr. Heron was assuming the failed welded joint reflected the designer/manufacturers original intention. I am satisfied that the original pin connection was as set out in Mr. Grant's material. The welding on the joint referred to by Mr. Heron was Mr. Moyle's work who was of course acting on assumptions by following the pattern of welding that he believed was represented by the groundings out made by Mr. Duggan the day before. Mr. Moyle was not present when the Grima banana bagging machine was dismantled and never observed Mr. Duggan's weld or Mr. Grant's original weld.

110. Another aspect of the criticism of the design was the sloppy fit of the pin.

111. With respect to the sloppy fit two matters need to be noted: the subject pin was not that inserted by the manufacturer Mr. Grant. Mr. Duggan gave evidence that the pin was replaced by him some six months before this incident without reference to the manufacturer. Mr. Grant denied that the pin he inserted was a sloppy fit. The pin described by Mr. Heron and the witnesses post the collapse did have a sloppy fit. Secondly, as Mr. Moyle was not present for the disassembly of the machine he could not be aware which pin was removed from the particular joint. Further, Mr Grima's evidence was that he had been absent for the disassembly of the Grima banana bagging machine and when he returned he did not know where the pins were. This was not contested. Mr Grima's account of the reassembly was that he asked where the pins were, was told and put the pin in the joint (p. 355). Mr Moyle agrees that Mr. Grima may have asked where the pins were. Mr. Grima then put the pins in the clevis joints as described above in the summary of the evidence.

112. Hence, neither the final weld securing the pin and the fit of the pin could be the responsibility of the manufacturer Mr. Grant.

113. Doctor Grigg was asked to comment on the original design of Mr. Grant to secure the pins by welding the pins to the washer and then tac welding the washer to the clevis plate. Doctor Grigg gave cogent reasons why he thought this design was potentially flawed. He considered that while it might be a quick and easy way for assembly it was "bad news" from a maintenance point of view. The security of the pin depends on the quality of the welding. The split pin method of securing the pin was, in his view, a much superior design.

114. Mr Heron (at p. 55 day 4 transcript) said about the original welding (rather than a tac weld we had a fill-it weld and that that fill-it weld exceeded at least 50 per cent of the circumference of the pin and the clevis plate):

> *Now, if that would have been done, whilst I would say that it's not good engineering practice, I couldn't say that it wasn't done safe. In fact, I'd have to say that it was safe and - it wasn't a pretty job, but it was certainly safe and in my position as the ex-chief safety engineer for Queensland I'm not looking for things to be gold plated. I only wish that things were safe and that's indicative when we look at the Code of Practice for plant and the regulation of the Workplace Health and Safety.*

115. Mr. Grant's reasoning for his design selection was that he considered the suggestion that a split pin could be left out by a service person or a farmer. Essentially, his concern was that the split pin was too easily removable.

116. Given the views expressed by the experts, particularly Mr. Heron, I am not prepared to conclude that the design choice to secure the pins to the plates through a weld (as described by Mr. Grant) rather then a split pin design as suggested by Mr. Heron and Doctor Grigg was a flawed choice that was inherently unsafe at the time of manufacture. However, given the maintenance issues involved the design choice of the split pin system would have been preferable. This finding is supported by Mr Grant's evidence of his later revision of the original design by changing the pins to bolts with Nylok nuts.

117. Given the evidence as to the maintenance of the machine in this case I am concerned that there may well be other banana bagging machines where the pins may well be secured by welds not dissimilar to those employed by Mr. Moyle or where high tensile steel rods have replaced mild steel rods. **I recommend that there is an urgent need for inspection of current machinery or an alert issued to ensure all banana bagging machines are checked by a competent person and modifications, particularly to the joints securing of the working platform checked.**

118. Issues with respect to the breaking system have already been noted above and conclusions recorded. Given the method of operation a banana bagging machine should have a 'dead man's control' – that is, a control that means that if the operator is no longer able to operate the control the machine returns to a condition which renders the machine safe. Mr Grant's evidence was that the machine was capable of stopping within 2 metres when returned to neutral upon release by the

operator of the platform pedal. The controls, relevant to the accident, had the potential to operate as dead man type, but there were a number of problems that prevented that occurring including, probably, the bending of the cable. The return spring may, or may not, have aided the return to neutral in this case. It is of concern that the fitting of the return spring, that may have improved the functioning of the selected control mechanism was dealt with in a way that left confusion as to whether the Grimas' were even aware of the necessity and utility of fitting the spring.

119. This issue needs to be considered with the issue of documentation provided with the machine. The documentation was rudimentary There was some dispute as to whether the manual exhibited was even received by Mr. Grima. However, accepting that the manual as exhibited was provided the information provided still had some deficits. In particular more information to guide maintenance and repair work was needed. Mr. Grant, in submissions, acknowledged that his own manual, with the benefit of hindsight, could be more specific and detailed. In particular, more information as to modifications, and the consequences of modification need to be included in the manual.

120. Modification from an engineering perspective is where a change is made to the elements of the piece of plant that takes it away from its original design. Doctor Grigg noted that a person who was doing maintenance on the machine may change the design and that is effectively a design activity and by such activity the person doing maintenance may have assumed a designers obligations under the Workplace Health and Safety Act 1995, to

- "Ensure the plant is designed to be safe and without risk to health when used properly";
- "Ensure the plant undergoes appropriate levels of testing and examination which ensure the plant is designed to be safe and without risk to health when used properly";
- "Take all reasonable steps to ensure appropriate information about the safe use of the plant is available.

121. Dr. Grigg considered modifications of the Grima banana bagging machine could include:

- the fitting of the larger basket;
- the design change to the way the pin was attached
- Substitution of the pin for one of different specifications including diameter, length and component.

122. Given that by statutory definition a designer includes anyone who designs a plant or who alters the design of existing plant so that new measures for controlling risk are required persons undertaking

maintenance should be advised that modification of the original design, even by repair, comes with specific statutory burdens.

123. Here there is evidence of significant modification to the machine without reference to the original designer. A clear warning or requirement that the manufacturer be notified of changes to design should be included in the manual supplied by Mr. Grant and I would **recommend that if he has not he include such information in his manuals.** At the very least such a warning, if supplied to a repairer may at least give them pause before they embarked on modifications of the scale of this machine.

124. With respect to conclusion on this issue I consider that in hindsight there were aspects of the design and manufacture of the Grima banana bagging machine that had they been different may have improved the safety of the machine. It is a matter of speculation whether, given the modifications and maintenance of the machine and the general consensus still prevalent about the use of harnesses, whether any of the particular issues would have affected the outcome. Upon all the evidence presented I do not consider there is evidence to support the conclusion that the Grima banana bagging machine, as supplied by the manufacturer, was not fit for its purpose.

Maintenance

125. The Grima banana bagging machine had work carried out upon it by contractors other then the manufacturer. The evidence shows these modifications were carried out without reference to the manufacturer. No records or log books, apart from invoices, were maintained by the Grimas'.

126. I consider it important not to be overly critical in these findings with respect to aspects of Mr and Mrs Grima's record keeping. The inquest heard from Mr. Grant that it is not uncommon for farmers in rural locations to maintain much of their own machinery including undertaking repairs. The reality of rural life is that highly qualified engineers are not readily available. Mr Grima was not a person who in fact serviced or attempted such repairs. He always engaged professionals to look after his machines. He expected, and it does not seem an unreasonable expectation, that if something was outside the competency of that particular tradesman, that he would be informed.

127. The evidence of Mrs Grima was that she kept invoices detailing the work performed on the Grima banana bagging machine. Submissions by counsel for the Grimas were to the effect that Dr. Grigg accepted that retention of invoices was satisfactory in the circumstances and that it was unnecessary to keep a logbook if detailed invoices were

available. However, it is perhaps preferable to excerpt the full effect of what Doctor Grigg said:

So it would actually be a good idea, given the farm environment that these machines are normally located on, and given the owners of the farms general knowledge, that when these difference contractors are engaged to perform repairs and modifications that they are actually given access to a maintenance book which shows these changes been taken place in the past, such as a repair log? That would be common sense suggestion, wouldn't it?-- Yes. Yes.

So that people who come forward and undertake any changes to the EW - EWPs in the future can have a look at it to see - to see what's been done in the past. That would-----?-- Yes.

Yes. Okay. Thank you?-- Yes. The compilation of such a log might be able to be achieved just by simply collecting the - appropriately detailed invoices from the various service people to some extent, but - but they might need to be summarised to a degree as well.

Yes, certainly. But they should certainly be made available by the owner to those particular independent contractors, for the want of a better word?-- Desirably, yes.

Yes?-- I - I mean, it - I - I think there's - it needs a little bit of qualification on that, in the sense that if somebody's brought in to replace a hydraulic hose or something-----

Mmm?-- -----they hardly need to review the whole life history of the machine.

Mmm-hmm?-- It's usually pretty obvious this hose is blown or it's leaking, or something like that, just replace it, but if there are modifications made then I think they should be documented properly.

128. Section 10 of the Standard sets out the requirements for maintenance, inspection and repair. The standard is comprehensive. Clause 10.1 states:

In the case of repair the owner must ensure that a competent person considers at least items (a) to (h) below. The competent person must consider the following items as applicable and include the results in the recommended repair:

- *(a) details of the proposed repair*
- *(b) design analysis (where applicable)*
- *(c) selection of the replacement material.*
- *(d) Welding procedure specifications*
- *(e) Details of any heating and straightening process that may be used*

(f) *Selection of the most appropriate method of non-destructive testing. Nominate the extent and level of testing*

(g) *The post-weld heat treatment procedure, where applicable*

(h) *All work instructions*

129. Section 10.5 relates specifically to logbooks:

A continuous working record (i.e logbook) of the significant events concerning the safety and operation of the elevating work platform shall be kept and retained on the elevated work platform. The logbook may be in any suitable format, including the loose leaf book. The minimum records that shall be retained in the logbook are copies of:

(a) A summary statement of the last major inspection

(b) A summary statement of the last annual inspection

(c) A summary statement of the last routine inspection

(d) The complete daily pre-operation reports for not less than the last 14 days of operation or since the last routine inspection

(e) Action taken or repairs carried out to rectify malfunctioning or damaged components.

Each log entry shall be signed by the responsible person making the entry and should contain details of that person's identification and qualifications.

130. While this information might be obtained from invoices the essence of the log book is to provide an accessible source of information as to the history of the maintenance and modifications. It is a document that those tasked with repairs could scan to pick out important information that would allow a proper risk assessment process of the repair been undertaken.

131. It is concerning that Mr Grima, despite engaging professionals for the repairs, does not appear to have this requirement bought to his attention by those undertaking the repairs. Nor was a log book supplied by the manufacturer (although I should note the second page of the manual makes some reference to recording maintenance details). Log books are not unusual phenomena. Nearly every motor vehicle on the road has a service log. Speedometers record mileage.

132. Without any maintenance record Mr. Moyle was essentially working on a machine that he made assumptions about. The assumption that he was competent to weld and was welding mild steel directly contributed to the death of Mr. Wigg. No assumptions may have been necessary if there was a service history or a log book readily available. Other aspects of maintenance that were concerning were:

1. The Grima banana bagging machine was allowed to operate without a parking brake. At the time the Grima banana bagging machine was returned to service following the repair by Mr. Moyle the parking brake was missing: it was been repaired by another contractor (not Mr. Duggan). Whether, had the brake been in place, Mr. Wigg would have had an opportunity to deploy the parking brake can only be a matter of speculation. Dr. Grigg conceded that given the suddenness of the collapse of the machine it is unlikely that Mr. Wigg would have had the opportunity to deploy the brake. In any event Dr. Grigg considered that the drive system may have overcome the parking brake to continue forward momentum and that he did not have sufficient information, given the nature of the inspection of the machine, as to the power system of the brake was still functional after the collapse. However, the decision to continue operating the Grima banana bagging machine, at the least, without the parking brake represented another unrecorded modification of the machine. With respect to this issue I would adopt the conclusion of Doctor Grigg (at p. 20) of the transcript who said *"I suppose it goes without saying that the park brake was there for a purpose and when it's operated without it, it - it does reduce the level of safety but perhaps not for the circumstances that occurred in this case."*

2. The absence of a risk assessment process to ensure any modifications not undertaken in accordance with manufacturer's instructions remained safe and without the introduction of non-controlled hazards. Mr. Grima in evidence did not appear to have any sophisticated understanding of the risk assessment process. Again, it follows that many people, not just farmers, who engage professional tradesmen or contractors to work on complex machinery, do not undertake a separate risk assessment process. They simply do not have the knowledge or expertise. Given that none, but Mr. Duggan and Mr. Moyle, of the independent contractors had the opportunity to give evidence or make submissions to me I am loathe to make any conclusions of fact about their expertise or process of risk assessment or information they supplied. Mr. Moyle does not, to any significant extent appeared to have applied any risk assessment to the process of realigning the hydraulics and welding the joint.

133. The standard governing recording of maintenance was not adhered to in this case. While acknowledging that the Grimas were I consider trying to do their best in their circumstances and do not appear to have been particularly assisted in their discharge of their obligations by many they may have relied upon for their professional expertise I consider that the records maintained were not adequate.

134. From the evidence at the inquest Mr. Grima has himself now engaged expert assistance to assist him in meeting the requirements of record keeping. Having seen and heard the Grimas' giving evidence I consider that had they had the information that they now have acquired through these tragic circumstances they would not have intentionally forsaken their obligation. There may well be many people in situations like the Grimas. Indeed there may be many people like Mr. Wigg who are exposed to potentially unsafe machines. Independent inspection of high risk farm machinery appears to offer some benefits in ensuring the safety of machines like the Grima banana bagging machine.

135. Counsel for Mrs. Wigg submitted the legislature has seen fit to make appropriate, independent certification regimes with respect to a number of machines including motor vehicles (for example, road worthy certificates).

136. When asked by counsel assisting about recommendations that might prevent future loss of life Doctor Grigg also raised the issue of more enforcement of the present codes by independent certification (at page 25):

> *for certain high-risk machines I think there needs to be a - a - to achieve a - a - a better enforcement there probably needs to be inspection carried out by relevant people. Now, the - the - that - that, of course, raises the question of, who might relevant people be, and the way the Professional Engineers' Act is written these days, it - it really places the - well, it - governmental inspection tends to not be the - the way or the focus of current legislation, is my understanding. The expectation is that professional engineers are expected to take on those sorts of responsibilities and - and to certify the satisfactory design of machines and professional engineers find that somewhat onerous in many cases, but it's important that any assessment be done by people who are quite competent at - at doing those assessments and it shouldn't be left to people who are unlikely to have the necessary degree of competency.*

137. Mr. Grant, through his lawyers, also submitted that there was a query whether self assessment/ management / procedural control is sufficient in an industry where the consequences of non compliance with agreed standards could lead to such tragic consequences. He submitted that a number of witnesses, including Mr Moyle, had suggested that annual inspections by a Government authorised officer such as occurs with motor vehicles, trucks and buses in many states of Australia should take place with farm-related machinery. This, in his submission, is a common sense way to approach the future with a view to preventing further tragedies.

138. Such a system would have the advantage of also ensuring that the owners of machinery would have some assurance those employed to repair were undertaking their tasks properly.

139. Such a system would require significant capacity building if utilising independent professionals. The reality of rural locations is that utilisation of such experts is always constrained by their availability. Increased regulation would also impose increased costs. Nevertheless, as this inquest has made plain, the loss of life has devastating consequences to all involved. Again the OWHS appears to be the appropriate body to institute and develop such a system for high – risk farm machinery. I **would recommend that the OWHS consider the development of a system to include systemic, regular inspection of high risk farm machinery to ensure compliance with Australian Standards.**

THE INVESTIGATION

140. I turn now to consider the investigation of Mr Wigg's death and the role of the regulator.

141. The Department responded to counsel assisting outline of possible findings ("that the investigation of the death of Mr. Wigg did not include any adequate examination of the machine and the scene of the incident immediately following the death of Mr. Wigg. Such examination might well have detected the replacement of the pin that failed and provided information as to the actual position of the controls") with the submission that the substantial body of evidence put before the Court during the inquest hearing does not support this assertion with respect to the Department's investigations.

142. I have already touched upon particular aspects of the investigation that caused some concern. To summarise these issues: the investigation concentrated on prosecution of particular breaches of the Workplace Health and Safety Act. The report to the coroner essentially encompassed the breach report. The structure of the report did not permit inclusion of information that addressed many of the active and latent factors that combined with work place factors and individual actions that created the climate for the fatality to occur. The securing o f the scene and recording of the actual physical location could have been improved. The consequence of that is that conclusions on particular, important matters can only be speculative. I would also note that the investigator in this case followed the template for investigations and the availability of professional and competent experts at short notice was clearly limited given the attendance of Mr. O'Sullivan months after the incident.

143. There were a number of pre-inquest hearings involving myself and other coroners in this matter. A reading of those transcripts make it apparent that the cause of the accident was determined by OWHS as set out by Mr Heron, the weld cracked leading to Mr. Wigg being crushed by the banana bagging machine. However, as I trust these findings make clear, the inquest revealed a far more complex picture of what occurred then can be ascribed to the actions of one man, Mr. Moyle, in welding the machine. Certainly, Mr Moyle assumed a role outside of his competency in welding the joint and undertook the weld without making adequate investigation of the properties of the machine. However, the substitution of the mild steel pin for high tensile steel, the modifications of the machine, the lack of a maintenance record to provide quick and easy information for contractors, industry resistance to harnesses, ignorance as to the risk assessment processes all had a greater or lesser contribution to what occurred in this case. It would seem that any regulator tasked with a preventative function would consider it necessary to adopt some of the methods advocated by Mr. Reese, such as fault trees, to ascertain all the contributing factors to workplace incidents. Such an approach can only be of assistance to coroners in discharging the statutory role of making recommendations to prevent future deaths. It would also permit the regulator to address at an early stage any preventative action to reduce risk.

144. It is with a view to improving this interaction between the coronial system and the regulators and not to criticise the OHWS I raise the following issues:

Evidence of Other Incidents

145. The OHWS investigator considered, even at the inquest, which was some three years after the death of Mr. Wigg, that the incident with the Grima banana bagging machine was an isolated incident. (Transcript p. 46). When preparing the investigation report for the coroner the information of other relevant incidents does not appear to be regularly included in the investigation. This may be a result of the investigation focusing on possible breach action under the relevant legislation.

146. However, data supplied to me by the OWHS and also evidence in the inquest demonstrated that platform collapses in elevated working platforms are not a particularly unusual occurrence.

147. The data from OWHS demonstrated that in the fruit industry during the period 1 July 2002 to 30 September 2005 there were 147 workplace health and safety incidents resulting in some level of injury or death. Of

these 17 involved some form of elevated work platform (including cherry pickers). These 17 include the incident involving the death of Mr Wigg. Another four incidents resulting in injury amounting to grievous bodily harm.

148. Examples of the most serious injuries were included in the data:
- Serious bodily injury resulting from a fall from a cherry picker 2002
- Serious bodily injury (spinal) from a worker falling out of the cherry picker August 2004
- Serious bodily injury (spinal) to a worker picking avocados when the elevating working platform tipped over 2005
- Serious head injuries and crush injury when working trapped underneath a banana bagging machine – 2005
- Non serious injury when lifting boom on cherry picker snapped because of manufacturing fault and worker fell 2.5 – 3 metres 2005

149. Also noted in the data were incident that were fortunate not to involve serious injury or death:
- Bagging machine collapse, worker tipped onto ground and machine moved forward but did not run over him – 25 January 2005
- Banana bagging machine rolled down embankment – 2005

150. The data provided included the noted that *"From this table, it is apparent that serious injuries result from tipping or falling plant or from falls off elevating work platforms. This appears to indicate that the applicable Standards and manufacturers' instructions are not being followed."*

151. Doctor Grigg testified that he had personally investigated at least three or four accidents where the bucket of a elevated working platforms had tilted forward in a manner similar to this case. The other incidents did not involve fatalities but Doctor Grigg considered it certainly highlighted the need for interventions such as a safety harness.

152. Mr. Heron was also aware of a considerable number of accidents throughout Australia (including Western Australia, South Australia, Victoria and New South Wales) relating to a fairly well-known brand of elevating work platform. He also averted to several accidents in the in the rural industry and at a refinery in Brisbane. All of the problems have been related to the mechanism and the rigidity, strength and security of the levelling mechanism that holds up the elevating work platform stage.

153. Thus while the particular failure of the levelling mechanism in this case related to a welding failure I am satisfied on the evidence that there may be significant benefit in highlighting to operators and suppliers the fact that the security and integrity of levelling rods for elevating work

platforms is most critical and they should be designed and maintained in a professional manner. The submission from Office of Workplace Health and Safety (Queensland) noted in respect of this issue that

> *Noting the evidence in these proceedings, the direct and indirect causation issues identified, the department considers the broader response of rural audits undertaken was appropriate. That said, in appropriate circumstances the department will continue to utilise the safety alert process in an endeavour to promote safer work process.*

154. Notwithstanding, this response I would still recommend to the department, **that if it has not done so, it consider an alert noting both the security and integrity of levelling rods for elevating work platforms is most critical to the safety of the operator and they should be designed and maintained in a professional manner.** Accordingly, I make this recommendation.

155. The frequency of particular types of incidents should also be readily available to investigators who are tasked to both investigate and pass on reports to coroners. With respect to these matters the Department's submission supported the provision of relevant data and envisaged a 'a formalised process where early identification of (future) requests will be put in place'. Such a process can only better inform the coronial process of making recommendations to prevent future deaths and I would **recommend that the OWHS ensure that investigators have access to, and coroners are routinely supplied with, information as to the statistical frequency of similar incidents to those being investigated.**

Exhibits

156. In this case the OWHS returned, quite lawfully, the banana bagging machine to Mr. Grima once there was no complaint and summons. At this time the coroner was not consulted. Therefore, a full examination of the machine by another expert was made much more difficult. At the very least continuity of the exhibit was lost. While the OHWS may have to lawfully return the item seized under their legislation the machine was potentially evidence in the inquest. Section 59 and 60 of the Coroners Act 2003 apply to physical evidence seized by the police officer for the investigation and require the coroner to return the evidence to the lawful owner as soon as no longer required for the investigation. It is the practice of other agencies (including the QPS)to apply to the coroner for an indication that the exhibit is no longer required before returning the exhibit. **I would recommend that OWHS investigators adopt a similar process.**

157. Although I have not had the opportunity of hearing full submissions on the issues of dual responsibilities for investigations involving the QPS and the OWHS nor any submissions from the QPS the issues in this

inquest raise the question about the need to ensure existing procedures delineate the areas of responsibility for initial investigations and hand over of the scene to OWHS officers.

Promoting Safety

158. The evidence at the inquest, and the significant material provided by counsel assisting, raised the issue that many farmers do not have a clear understanding of workplace health and safety procedures and tended to view their operations as rural and therefore safe. In this regard I would particularly refer to the Report by the Australian Safety and Compensation Council *"Beyond Common Sense: A Report on the Barriers to Adoption of Safety in the Agricultural Industry"*.

159. Clearly from the evidence of Mr and Mrs Grima the fair inference to draw was that they, like the great majority of farmers, wanted, and want to, do the right thing to protect their workers. They presented as uncertain of how to negotiate the not inconsiderable legal and bureaucratic maze to achieve this aim. At the time of this incident they did not have an understanding of the process of risk assessment. The resources that exist provided by the Office of Workplace Heath and Safety appear comprehensive. However for people in isolated rural areas actually getting access to those resources is difficult. Even for the computer literate the lack of broadband access in rural areas means downloading material of any length is impossible. It is also apparent that others, besides farmers, need to be educated as to their responsibilities to ensure workplace safety. In particular, contractors engaged for tasks need to be educated as to the implications of undertaking repairs outside their competency or modifying designs without reference to manufacturers. The Office of Workplace Health and Safety clearly has an immense challenge in working with farmers and others in rural areas to implement a simple and effective risk assessment model that can be applied to the myriad of situations facing rural employers and workers.

160. From material available to me and from evidence at the inquest it is apparent that they Office has sought to discharge its responsibilities in regard to information. Mr. O'Sullivan gave evidence of seminars organised in rural areas for plant manufacturers to highlight the link between the obligations and the plant code of practice and the use of other technical industry guidance such as Australian Standards, and to a degree the use of the risk assessment process in the design and manufacture stage for items of plant.

161. The Department submitted it considered material from "a wide variety of sources across many industry sectors when future business direction and strategies for addressing its responsibilities under the Workplace

Health and Safety Act 1995." The inquest raises issue as to the regulator's role in promoting safety particularly with respect to safety alerts and strategies to heighten awareness of safety and health in the agricultural sector. I do not intend to make specific recommendations with respect to strategies that might be adopted. I trust that the expertise of the regulator informed by existing information and the issues raised in this inquest and the material collated by counsel assisting will assist it to meet this difficult and challenging responsibility.

Prosecution

162. Counsel for the family of the deceased raised the issue of discontinuance of prosecution. The submission was to the effect that prosecutions by the OWHS should not be discontinued without compelling reasons. The inquest is not the appropriate venue to air these particular issues given the statutory restraints upon coroners. However, for the family it must be difficult not to understand what may well be appropriate decision making. I bring this issue to the attention of the Department who are placed best to provide that particular information to Mrs Wigg.

CONCLUSION

163. It is a tragedy that Mr Wigg died doing the work that he did so well. To Janelle Wigg, Allan's mother, father, brother and family I trust that the coronial investigation has provided some of the answers that you sought. You all have my sincere condolences for your dreadful loss.

164. I also take this opportunity to thank counsel assisting for his work in assisting me and the former coroners in this inquest. His dedication and knowledge was of the greatest assistance to me. I should also acknowledge my predecessor in the role of coroner who commenced the coronial investigation.

The inquest is now closed.