FINDINGS, COMMENTS and RECOMMENDATIONS of Coroner Simon Cooper following the holding of an inquest under the *Coroners Act* 1995 into the deaths of Craig Gleeson, Alistair Lucas and Michael Welsh

Contents

Record of Investigation into Death (With Inquest)

Coroners Act 1995
Coroners Rules 2006
Rule 11

I, Simon Cooper, Coroner, having investigated the deaths of Craig Gleeson, Alistair Lucas and Michael Welsh with an inquest held at Queenstown and Hobart in Tasmania make the following findings.

Hearing Dates

9, 10 April 2018 at Queenstown.

11, 12, 16, 17, 18, 19, 20, 23, 24 and 27 April 2018 and 18 November 2020 at Hobart and then adjourned for written submissions.

Representation

Counsel Assisting the Coroner: S Nicholson and S Thompson

Counsel for Barminco: P Jackson SC and L Taylor

Counsel for Copper Mines of Tasmania: C Gunson SC

Counsel for Mr Gerald (Scot) Clyde: K Baumeler

Introduction

1. On Monday, 9 December 2013, at about 9.15am, Craig Nigel Gleeson and Alistair Michael Lucas fell from a loading station at level 18 of the Mt Lyell Mine, Queenstown. The loading station is around 700 metres underground. It is directly above a shaft approximately 35 metres deep. The men were carrying out routine maintenance, as part of a three man team, when a part of the machinery upon which they were working fell onto some timber boards. Mr Gleeson and Mr Lucas were standing on

the boards. The boards broke and dislodged and both men fell to the bottom of the shaft.

2. When mine rescue staff reached Mr Gleeson and Mr Lucas, Mr Gleeson was already dead and Mr Lucas in a critical condition. He was brought to the surface, but died in an ambulance on his way from the mine to the Queenstown District Hospital.

3. The mine was closed and an investigation commenced under the *Coroners Act* 1995. At the same time, an investigation was commenced by WorkSafe Tasmania under the *Work Health and Safety Act* 2013.

4. On 17 January 2014, not long after the mine reopened, Michael George Welsh was working alone at draw point TD 14 on level 1315. He was operating a front end loader (called a "bogger" by a number of witnesses). Just before 8.00 am that day, a sudden and extreme release of rubble, water and mud (known as a "mud rush") engulfed Mr Welsh's bogger and killed him. His body was recovered a little while later, next to the loader, face down and partly submerged in water. The area where Mr Welsh died was isolated and investigations commenced, again by Tasmania Police and WorkSafe Tasmania.

5. Because each man died in the course of his employment, an inquest was, in each case, mandatory, subject to an exception (dealing with natural deaths – which obviously these deaths were not).[1]

6. On 5 September 2017, Coroner McTaggart (the delegate of the Chief Magistrate), directed, pursuant to section 50 of the *Coroners Act* 1995 that all three deaths were to be investigated at one inquest.

[1] See section 26A.

The Role of the Coroner

7. Before an analysis of the circumstances surrounding the deaths of Mr Gleeson, Mr Lucas and Mr Welsh is undertaken, it is important to say something about the role of a coroner. A coroner in Tasmania has jurisdiction to investigate any death which appears to have been, accidental, unexpected or unnatural.[2] In this case, as has already been mentioned, because the men died in the course of their employment the *Coroners Act* 1995 (the *Act*) makes an inquest mandatory.[3] An inquest is a public hearing.[4]

8. When conducting an inquest, a coroner performs a role very different to other judicial officers. The coroner's role is inquisitorial. She or he is required to thoroughly investigate a death and answer the questions (if possible) that section 28(1) of the *Act* asks. These questions include who the deceased was, how he or she died, the cause of the person's death and where and when the person died. This process requires the making of various findings, but without apportioning legal or moral blame for the death.[5] A coroner is required to make findings of fact from which others may draw conclusions.

9. A coroner is also able, if she or he thinks fit, to make comments about the death or, in appropriate circumstances, recommendations to prevent similar deaths in the future.[6] The role of the coroner in making recommendations is especially important in the context of workplace deaths. In "Death Investigation and the Coroner's Inquest" the authors make the point that "the role of such recommendations in fashioning

[2] See section 3 of the *Coroners Act* 1995.
[3] See section 26A – subject to an exception, not relevant in these cases as no senior next of kin of any of the men made any request that no inquest be held.
[4] See section 3 of the *Coroners Act* 1995.
[5] *R v Tennent; Ex Parte Jager* [2000] TASSC 64.
[6] See section 28(2) of the *Coroners Act* 1995.

Occupational Health & Safety has become significant and constitutes an example of the constructive work of coroners as public health practitioners."[7]

10. A coroner does not punish or award compensation – punishment and compensation are for other proceedings in other courts, if appropriate. Nor does a coroner charge people with crimes or offences arising out of a death that is the subject of investigation. In fact, a coroner in Tasmania may not even say that he or she thinks someone is guilty of an offence. I note that by the time the inquests commenced criminal proceedings arising out of the deaths of the three men were complete.[8]

11. As was noted above, one matter that the *Act* requires is finding how the death occurred.[9] It is well-settled that this phrase involves the application of the ordinary concepts of legal causation.[10] Any coronial inquest necessarily involves a consideration of the particular circumstances surrounding the death or deaths so as to discharge the obligation imposed by section 28(1) (b) upon the coroner.

12. The standard of proof at an inquest is the civil standard. In practical terms, this means that where findings of fact are required to be made a coroner needs to be satisfied on the balance of probabilities as to the existence of those facts. However, if an inquest reaches a stage where findings being made may reflect adversely upon an individual, it is well-settled that the standard applicable is that articulated in *Briginshaw v Briginshaw*, that is, that the task of deciding whether a serious allegation is proved should be approached with great caution.[11]

13. I did not understand any party to the inquest to contend that the applicable legal position was in any way different to that which I have set out above.

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[7] Freckleton and Ranson, Oxford University Press, page 675.
[8] Subject of course to section 232(1) (b) of the *Work Health and Safety Act* 2012 – noting that provision's curious reference to a 'coronial report'.
[9] Section 28(1) (b).
[10] See *March v E. & M.H. Stramare Pty. Limited and Another* [1990 – 1991] 171 CLR 506.
[11] (1938) 60 CLR 336 (see in particular Dixon J at page 362).

The procedure leading to the inquest

14. Once the various investigations were completed, proceedings were commenced pursuant to the *Work Health and Safety Act* 2012 arising out of both incidents. The inquest necessarily awaited the final conclusion of both prosecutions before it could proceed.

15. In advance of the inquest, a series of issues was identified as being the "scope" of the inquest (in addition to the matters mandated by section 28 of the *Act*). In respect of the deaths of Mr Gleeson and Mr Lucas those issues were:

    a. The process involved in the replacement of the flask linkage assembly;
    b. The use (historical and contemporary) of the wooden work platform that was used on 9 December 2013;
    c. Any standard operating procedure (historical and contemporary) in place for the process referred to in (b);
    d. The use of lanyards and fall arrest devices at the workplace and in relation to the process referred to in (b);
    e. The use of the skip bin to occlude the exit from the chute, as part of the process referred to in (b); and
    f. The construction, strength and design of the temporary work platform used on 9 December 2013 (and previously).

16. In relation to Mr Welsh's death the following issues were identified as being the "scope" of that part of the inquest that was concerned with his death (in addition to the matters mandated under Section 28 of the *Act*):

    a. Measures in place to address and evaluate the risk of mud rush (or inundation), including but not limited to:
        i. Planning;

ii. Monitoring of contributing factors, such as rainfall; and
iii. Bogging procedures;

b. Draw point access procedure and draw control;
c. The Trigger and Response Plans (TARP) system, and the assessment of the draw point involved in the incident on 17 January 2014;
d. Implementation of the Principal Mining Hazard Management Plan (PMHMP);
e. The formation of bridges and pillars and their contribution to the risk of mud rush (or inundation);
f. The hierarchy of responsibility for operations between Copper Mines of Tasmania (CMT) and Barminco;
g. The auditing of the implementation of measures designed to evaluate, and alert workers to the risk of mud rush (or inundation); and
h. The availability and use of alternative equipment such as tele-remote equipment.

17. Various interested parties, in addition to the families of each of the dead men, were identified and notified of the pending inquest. Those parties included CMT, Barminco, Mr Gerald (Scot) Clyde and the relevant trade union. Self-evidently, CMT, Barminco and Mr Clyde all had an identified legal interest in the inquest, in the sense that each had the potential at least to be the subject of adverse findings. As such, each was entitled to be made aware of the fact of the inquest, provided with all relevant material and given the opportunity to be represented, cross-examine witnesses, tender evidence and make submissions.[12]

18. Unions Tasmania was also extended an invitation to participate in the inquest. So was the relevant trade union, the Construction, Forestry, Mining and Energy Union (CFMEU). Unions Tasmania and the CFMEU were in a different position to the parties named above, in the sense that neither were at risk of any adverse finding in respect

[12] See *Annetts v McCann* (1990) 170 CLR 596 generally and Section 52 of the Act.

of the deaths. Nonetheless, I invited their participation as the employee representative bodies, because I considered that their involvement may have assisted me to investigate the deaths of Mr Gleeson, Mr Lucas and Mr Welsh.

19. Unions Tasmania and the CFMEU declined to be involved in the inquest. No reason was offered (none need be given) but I consider their refusal to participate to have been unfortunate. It may be that the invitation was declined because none of the three men were members of a union. There may be some other reason - I simply do not know. Whatever the reason, I do consider that any trade union concerned about the safety of its membership, particularly in a dangerous industry like underground mining, may have had a positive contribution to make to assist to identify areas of safety concern and formulate recommendations to prevent similar deaths occurring in the future.

Mining at Mount Lyell

20. Mining has been carried out at Mt Lyell, near Queenstown since the late 19th century. It is the reason why Queenstown was established. After something of an initial false start gold mining, in the last decade of the 19th century the potential of the copper ore in the area was recognised and copper mining commenced. There followed a long period of profitable mining. Smelters and railways were built. Towns such as Gormanston, Linda and Crotty were established, flourished and eventually declined when copper prices fell.

21. Mining, whilst contributing great wealth, has come at a human cost. Fatal accidents occurred in 1902, 1903 and 1908. In 1912, a terrible underground fire claimed the lives of 42 men. There have been other deaths and serious injuries. The most recent fatality (before those of Mr Gleeson, Mr Lucas and Mr Welsh) was that of Mr Michael Knights, an employee of Barminco who died in an accident underground on 21 April 2003.

22. By 2013, Mt Lyell enjoyed the distinction of being Australia's oldest continually operating mine, although its fortunes had ebbed and flowed, depending on world copper prices.

23. Mining operations had over the years been carried out by a number of different corporate entities. At the time of the deaths of the three men, the mine was owned and run by Copper Mines of Tasmania (CMT). CMT employed what might be described as non-mining staff, such as maintenance personnel like Mr Gleeson and Mr Lucas. CMT contracted with Barminco Limited to carry out underground mining operations at Mt Lyell.[13] CMT had operated the mine from about 1995. Barminco commenced its role as underground production and development operator in September 2013. It took over from a company known as Redpath. Many, perhaps most, of Redpath's employees transferred to Barminco in September 2013 when it took over from Redpath. Mr Welsh, as a bogger operator, was part of the underground production team, and employed by Barminco. He had previously been employed by Redpath.

24. At the time the subject of this inquest, the method of mining at Mt Lyell involved the extraction of underground ore. Simply put, the ore was crushed underground, transferred to an underground storage bin, and then transported to the surface via a shaft.

25. Mr Gleeson and Mr Lucas were working in one such shaft – the Prince Lyell shaft. Apart from being used to transport ore to the surface, the shaft, 647 metres deep, could be used to transport staff in and out of the mine, although the evidence was that this was not a normal use, transport underground (and back to the surface) ordinarily occurring by driving into the mine in Four Wheel Drive vehicles. The shaft also provided an alternative exit or entry route in the event of an emergency; entry being

[13] Exhibit C100a – Mining Services Contract CMT and Barminco.

potentially required by mine rescue personnel in the event that the main drive access was compromised.

26. The Prince Lyell shaft has various levels which extend horizontally from it out into the mine. In a general sense, those shafts provide access to ore bodies.

Management structure

27. Although the management structure was split between CMT and Barminco, I do not consider that arrangement in any way contributed to the deaths of Mr Gleeson, Mr Lucas or Mr Welsh. There was nothing to suggest that management and senior staff being employed by different corporate entities had any particular impact, positively or negatively, upon the safe and efficient operation of Mount Lyell mine. In fact, the evidence satisfies me that the management of the Mount Lyell mine, at all relevant times, was effective and worked well.

28. At the time of the three deaths, Mr Clyde was employed by CMT as the general manager. Mr Clyde took an active part in the inquest. He was represented by counsel who cross-examined appropriate witnesses and made submissions. I am satisfied that Mr Clyde was both appropriately qualified and highly experienced in the mining industry.

29. Mr Clyde's direct assistant or second in charge was Mr Jared De Ross, CMT's mine manager at Mount Lyell. His job was to oversee and supervise a group of technical employees and contractors undertaking the mining work. Some of those who reported to Mr De Ross were employed by Barminco, others by CMT. He reported directly to Mr Clyde. There is no suggestion that Mr De Ross was anything other than qualified and competent.

30. The senior Barminco employee at Mount Lyell was Mr Jason Retallick, the Company's Project Manager. Like Mr Clyde and Mr De Ross, I consider Mr Retallick appropriately qualified to perform the role that he did being highly experienced in the mining sector.

31. All of these men – Mr Clyde, Mr De Ross and Mr Retallick– gave evidence at the inquest. All of them, like every witness who gave evidence, I consider was honest and did their best to assist me to carry out my obligations to investigate these deaths. I formed a favourable impression of all witnesses at the inquest; it seemed to me that every witness recognised the gravity of what had occurred and the need to endeavour to learn lessons where possible from the deaths of Mr Lucas, Mr Gleeson and Mr Welsh to make mining at Mount Lyell safer in the future. Not every inquest has the benefit of such an honest group of witnesses.

32. This does not mean that there were not differences between some of the witnesses. Some of those differences were about minor, less important issues. Others concerned matters of more significance. Nonetheless, at no stage did it appear to me that any witness was doing anything other than trying to tell the truth as they perceived it.

The backgrounds of Mr Gleeson and Mr Lucas

33. Mr Gleeson was born on 2 June 1968. Married to Natalie for 18 years, he was the father of Nicole, Ryan and Taryn. Mr Gleeson was 45 years old when he died and had worked at the mine for approximately 13 years. Known as 'Glees', Mr Gleeson was popular with his workmates and recognised by them as very experienced. His son Michael worked at the Mount Lyell mine.

34. Apart from completing his apprenticeship as a fitter and turner in 2008, Mr Gleeson had undertaken a number of training courses leading to his accruing several

vocationally relevant qualifications including "work safely at heights"[14] and "identify, analyse and evaluate risk".

35. Mr Lucas was born on 26 July 1988. Known to many as "Big Al", and others as "Soupy", Mr Lucas was evidently a popular, "larger-than-life" character aged just 25 when he died. He was engaged to be married to Ms Emmy-Lou Smith with whom he had a son, Kobe. Like Mr Gleeson, he was a member of a mining family. His father Philip was also employed at Mount Lyell.

36. Prior to commencing work with CMT in August 2011, Mr Lucas had been employed at Zinifex Rosebery mine in both surface and underground roles. At the time of his death, he was undertaking a Certificate Three in Engineering-Mechanical Trade. He was "on track" to have completed that certificate in October 2014. Like Mr Gleeson, Mr Lucas had also successfully completed a "work safely at heights" course.[15]

37. Both men were fit and healthy. Local GP records (they both attended the same doctor at the same practice) only relate to minor ailments. It is evident that both were valued and respected members of the Queenstown community. Their deaths touched many people deeply.

Circumstances of the deaths of Mr Lucas and Mr Gleeson

38. On Monday, 9 December 2013, Mr Lucas and Mr Gleeson were assigned the task of changing the flask linkages on a discharge door cylinder. The task was, relatively speaking, a routine one; keeping in mind that it was necessary for the flask linkages to be replaced every two or so years. It was a job which involved, amongst other things, the use of oxyacetylene equipment. It was a task for experienced tradesmen.

[14] Exhibit C53.
[15] Exhibit C54.

39. Self-evidently, in order to replace or change the flask linkage assembly it was necessary for Mr Gleeson and Mr Lucas to access it. The evidence was that despite there being a number of fixed work platforms in the shaft, none of those platforms enabled direct access to the flask linkage assembly. It was located closest to a fixed platform, but that platform was above the assembly. The assembly sat directly above the discharge chute. So that they could gain access to the linkage assembly, Mr Gleeson and Mr Lucas had to first construct a temporary work platform. That platform, about which more will be said in due course, was made from wood. Once it was in place, direct access to the flask linkage assembly was possible.

40. The evidence was that the procedure associated with replacing those linkages was contained in a standard operating instruction, a copy of which was kept in a folder in the control room underground.[16] In summary, the work that needed to be undertaken involved cleaning out the loading flask and what were called the 'clamshell' boxes. All equipment was then isolated, including the feed conveyor and the load station. Following the isolation of all power and hydraulic air, an empty skip was to be placed over the outlet side of the discharge chute. Personnel then fitted harnesses and secured their lanyards, following which someone climbed down and created a platform over the discharge hole (or chute) using timber boards. The evidence was that when personnel are working on the platform replacing or repairing linkages they are required to be harnessed at all times.[17] Several witnesses including Mr McDermott, the fixed plant underground maintenance superintendent,[18] Mr Darren Quinn, the underground supervisor[19] and Mr Mark Hull, a boilermaker welder,[20] all said that this was so.

[16] Exhibit C13, affidavit of Paul Alan McDermott, page 2 of 3.
[17] *Supra*.
[18] *Supra*.
[19] Exhibit C16, affidavit of Darren Barry James Quinn, sworn 9 December 2013, page 2 of 3.
[20] Exhibit C23, affidavit of Mark Auberey Hull, sworn 11 December 2013, page 1 of 2.

41. The door of the loader had been jamming over the course of the weekend. This in and of itself was not unusual. There was evidence that it was common for linkage gear to become worn in the loading station. When the gear was sufficiently worn it caused the door to misalign and be unable to open (or close as the case may be). Mr Reginald Bellchambers, an experienced fitter and turner employed by CMT, said that in the 13 years he had worked with CMT he had fixed the loading station regularly.[21] That there was a problem with the door of the loader at level 18 in the Prince Lyell shaft was first reported on Saturday, 7 December 2013 when the linkage bushes on the door broke down.[22] Mr Lucas was working at the time and inspected the linkages for wear. When he did so, the evidence is that he wore a safety harness that was attached to an anchor point.[23]

42. On Monday, 9 December 2013, after starting at work at about 6.00 am Mr Lucas, Mr Gleeson and a third man, Mr Allan Stuart-Mitchell, were allocated the task of fixing the linkages.

43. Mr Gleeson was wearing a safety harness. Neither Mr Lucas nor Mr Stuart-Mitchell were wearing harnesses. Mr Lucas and Mr Gleeson entered the area above the shaft to deal with the linkage problem. The job that Mr Lucas and Mr Gleeson were required to carry out involved, as part of the task, taking out a metal pin and then cutting bolts off part of the wall with oxyacetylene to which the door was connected.

44. To do this both men stood on a temporary wooden work platform. Obviously, given the temporary nature of that platform, before they could stand on the platform, it was necessary to erect it first. This was where and how Mr Gleeson and Mr Lucas effectively commenced the job.

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[21] Exhibit C24, affidavit of Reginald John Bellchambers, sworn 12 December 2013, page 1 of 2.
[22] Exhibit C26, affidavit of Jon Jeremy Jarvis, sworn 19 December 2013, page 1 of 2.
[23] *Supra*.

45. The evidence was that the platform consisted of two timber bearers both 150 millimetres wide and 50 millimetres thick. The bearers were different lengths – one was 1.81 metres in length; the other 1.67 metres long. Resting on the bearers were four (4) timber planks. The planks were 33 x 50 millimetres in size. The bearers were not fixed to any structure and the planks were not fixed to the bearer or to each other.

46. The bearers of the platform were made from *athrotaxis selaginoides* more commonly known as King Billy pine. King Billy pine is a so-called "soft" wood. It is not considered to be a structural timber because of its relatively low strength. The evidence at the inquest was that the timber was not compliant with the applicable Australian Standard (A S1720. 1-2010 – "Timber Structures: Design Methods"). Ordinarily, King Billy pine is used for things such as making window frames, doors, furniture and the like. It is not used to construct a work platform, temporary or otherwise.

47. Subsequent testing showed that the bearer which failed had a slope of grain which was too steep to allow it to be used as structural timber. This meant, as the engineer who provided an expert opinion in relation to the platform, Mr Richards, said in his evidence at the inquest, that even if King Billy pine was a structural timber (which it was not) the particular pieces of King Billy pine used to construct the platform had the wrong grain orientation for use as structural timber.[24]

48. In addition to being constructed from soft wood, the platform was completely insecure. It was not fixed to anything at all, but rather merely rested on edges of the top of the shaft[25]. I am quite satisfied it was wholly inadequate as a base for Mr Gleeson and Mr Lucas (or indeed anyone) to work over a 25 metre deep shaft.

49. On the unchallenged evidence of Mr Richards, who I accept as an expert well qualified to express the opinions that he did, I am satisfied that the platform was not suitable as

[24] Transcript 12 April 2018, at 30.
[25] Exhibit C56, report – Gandy and Roberts, Engineers.

a fixed or temporary platform. I do accept that obviously the platform had not failed before 9 December 2013. Of course when it did the consequences were catastrophic.

50. Having put together the temporary work platform, Mr Gleeson and Mr Lucas climbed onto it in order to obtain access to the linkage arm. Once both went on the temporary work platform the situation was that two men weighing 77.2 kilograms (Mr Gleeson) and 112.1 kilograms (Mr Lucas), together with their tools and equipment were standing on a structurally unsound soft wood timber platform unsecured in any way over a 25 metre drop. They commenced the task of removing the flask linkage assembly.

51. As they did so, Mr Stuart-Mitchell was approximately 2 metres above Mr Gleeson and Mr Lucas. Unlike Mr Gleeson and Mr Lucas, Mr Stuart-Mitchell was a trade assistant and his role was to assist them by handing tools and the like. He was perfectly positioned to see and hear what happened. His description in his evidence at the inquest as to the lead up to, and aftermath of, Mr Gleeson's and Mr Lucas' fall was, I considered inherently reliable and accurate. It was the only eyewitness account of the incident and consistent with other objective evidence. I had no hesitation in accepting what Mr Stuart-Mitchell said occurred.

52. He said that as Mr Lucas and Mr Gleeson were partway through the task, Mr Gleeson asked Mr Lucas to move out of his way. Mr Lucas did so and then Mr Gleeson levered a piece of the door linkage, later recovered by investigators and found to weigh 64 kilograms, from its mounting. The linkage fell approximately half a metre straight onto the platform. The platform collapsed and both men fell. They plunged into the otherwise empty shaft and fell a total distance of approximately 22 metres. Both men landed on a pile of broken rock.[26] A horrified Mr Stuart-Mitchell saw all this happen in front of him from a distance of, as I said, about 2 metres away.

[26] Exhibit C9, affidavit of Allan Stuart-Mitchell, sworn 9 December 2013, generally.

53. Mr Stuart-Mitchell gave evidence that straight after the fall he called out their names but received no response. He could see what he described as "a shape" in high visibility clothing at the bottom of the shaft which was obviously one of the men. Mr Stuart-Mitchell could not tell whether it was Mr Gleeson or Mr Lucas that he could see. He immediately went to an emergency room which was nearby and used a telephone to call Mr Robert Butterfield from mine rescue (he had tried a closer telephone but it did not work). After making that phone call, Mr Stuart-Mitchell went back to the top of the shaft and continued to call out to Mr Gleeson and Mr Lucas. He could hear someone groaning but could not communicate in any meaningful way with either man at the bottom of the shaft.[27]

54. Mr Butterfield's evidence was that when he received that call at 9.15 am he was on the surface. He said that he instructed Mr Stuart-Mitchell to stay where he was and keep talking to Mr Gleeson and Mr Lucas. Mr Butterfield went straight to Mr Philip Kemp, the mine's Occupational Health and Safety Manager and told him what had happened. The pair then briefed Mr Clyde. Mr Butterfield and Mr Kemp identified which trained mine rescue personnel were available. Those rescue personnel – Mr Lachlan Brown and Mr Jeremy Weller - were quickly, but as thoroughly as the circumstances allowed, briefed. The assembled mine rescue crew then entered the mine in the mine's rescue truck.

55. Meanwhile, a triple zero call was made to Ambulance Tasmania. Ambulance Tasmania records tendered at the inquest indicate that the call was made at 9.30 am[28].

56. The rescue personnel arrived at level 18 some 12 minutes after they departed the surface at approximately 9.27 am.[29] When they arrived at level 18, the rescue team members met Mr Stuart-Mitchell. Mr Stuart-Mitchell showed Mr Butterfield where the men had fallen. Mr Butterfield looked over the edge of the shaft and could see

[27] *Supra*, page 2 of 2.
[28] Exhibit C7.
[29] Exhibit C10, affidavit of Robert William Butterfield, sworn 9 December 2013, page 2 of 3.

reflective clothing but was unable to tell who it was. He said that he shouted out and the person at the bottom of the shaft responded with what he described as a "muffled moan". Mr Butterfield could see another person at the foot of the shaft and noticed that the person sometimes moved.[30]

57. Having quickly assessed the nature of the problem confronting them, Mr Butterfield and Mr Brown abseiled down the shaft to where Mr Gleeson and Mr Lucas were lying. Mr Lucas was responding verbally but in a way that made little sense. Although cool, he was not cold to touch and could move his arms and legs. Mr Gleeson was a short distance away but unresponsive with no signs of breath or a pulse. Quite reasonably in my view, Mr Butterfield and Mr Brown concentrated their efforts on Mr Lucas. They assessed him and applied oxygen therapy to assist with his breathing. Mr Butterfield and Mr Brown used the blankets in an effort to keep Mr Lucas warm. They also covered Mr Gleeson's body with a blanket.

58. Meanwhile, a rescue cage was prepared. Mr Brown and Mr Butterfield continued to attend to Mr Lucas. They supported him, physically, to stop him from sliding further down the rock pile where he was lying. While they were with him Mr Lucas remained - or perhaps became - responsive. The cage arrived with other emergency response members. The mine rescue personnel placed Mr Lucas on a stretcher, placed the stretcher in the cage and then lifted it to level 18. From there Mr Lucas was transported to the surface. On the way, he complained he was finding it hard to breathe. Upon arrival at the surface, Mr Lucas was transferred onto an Ambulance Tasmania stretcher. Two paramedics and a volunteer ambulance officer were present. Mr Butterfield conducted a handover to Paramedic, Ron Foss. Mr Lucas was loaded into the Ambulance Tasmania ambulance.

[30] Exhibit C10, affidavit of Robert Butterfield sworn 9 December 2013, generally.

59. Paramedic Foss noted that Mr Lucas was obviously gravely injured. He also said that it did not appear that Mr Lucas was wearing any safety equipment (such as a harness).[31] Mr Lucas was fitted with an IV line and fluids were commenced. A soft bag was used to assist with his breathing. Mr Lucas went into cardiac arrest and CPR was commenced. He was administered adrenaline during the short ride to the Queenstown Hospital. En route to the hospital Mr Lucas condition worsened. Upon arrival at the hospital (according to Ambulance Tasmania Records at 11.32 am[32]) paramedics consulted with a medical practitioner and a decision was made that resuscitation should cease. It was evident that Mr Lucas was dead and that any further attempts at resuscitation would be futile. I am quite satisfied that the decision to cease resuscitation attempts on Mr Lucas was entirely appropriate. Nothing more could have been done for him.

Forensic Pathology evidence – Mr Lucas and Mr Gleeson

60. Later the same day, after it had been photographed *in situ*, Mr Gleeson's body was recovered from the bottom of the shaft and taken to the surface. Both bodies were formally identified and then transported by mortuary ambulance to the mortuary at the Royal Hobart Hospital.[33]

61. At the mortuary, the then Tasmanian State Forensic Pathologist, Dr Christopher Hamilton Lawrence performed autopsies. Dr Lawrence is a highly qualified and respected expert in the field of forensic pathology. He is eminently qualified to express the opinions that he did as to the causes of Mr Lucas' and Mr Gleeson's deaths.

[31] Exhibit C21, affidavit of Ronald Foss, sworn 10 December 2013, page 1 of 2.
[32] Exhibit C7 - I note that the Ambulance Tasmania records give the date of the incident as 8 December 2013. In the circumstances I do not consider anything turns on this obvious error.
[33] Exhibit C2a, affidavit of David Grant Fitzgerald sworn 9 December 2013; Exhibit C3a, affidavit of Adam John Spencer sworn 9 December 2013.

62. In both cases, Dr Lawrence provided reports which were tendered at the inquest.[34] In the case of Mr Gleeson, Dr Lawrence was of the opinion, which I accept, that the cause of his death was the result of chest injury sustained in the fall. At autopsy, Dr Lawrence found Mr Gleeson had suffered multiple rib fractures which had both perforated his lung, as well as his pericardial sac and pulmonary vein.

63. In the case of Mr Lucas, Dr Lawrence said, and again I accept, that the cause of his death was chest and abdominal injuries. The autopsy showed he had suffered a lacerated spleen and a large amount of blood was found in his abdomen, which was the major fatal injury. In addition, he had a fracture dislocation of his pelvis and some rib fractures.

64. Toxicological testing of samples taken from both bodies was negative.[35] Specifically, no alcohol or illicit drugs were found to have been present in either man's body at the time of their death. I am satisfied that neither drugs nor alcohol played any role in the deaths of either man.

Investigation to determine why Mr Gleeson and Mr Lucas fell down the shaft

65. Work at the mine stopped immediately after Mr Gleeson's and Mr Lucas' falls. Both Tasmania Police and WorkSafe Tasmania (the Mine's Inspectorate) were notified and investigations commenced on the day. WorkSafe issued a prohibition notice on 16 December 2013.[36] The notice required CMT to make good various identified deficiencies.

66. The circumstances of Mr Gleeson's and Mr Lucas' deaths was extensively investigated both by Tasmania Police and specialist investigators from WorkSafe Tasmania. Those investigations commenced while Mr Gleeson's body was still at the bottom of the

[34] Exhibit C4.
[35] Exhibit C5 and C6.
[36] Exhibit C43.

shaft. Ultimately, charges were laid against CMT in respect of a breach of the *Work Health and Safety Act* 2013. Magistrate T Jago made extensive and detailed findings of fact in her comments on passing sentence. I have been greatly assisted by those findings.

67. In summary, Mr Gleeson and Mr Lucas died because a heavy piece of the machinery upon which they were working, the linkage and arm and attached steel plate, weighing approximately 63 kilograms, fell approximately 0.538 metres onto the soft wood platform (which was of course unsecured). The platform gave way and Mr Gleeson and Mr Lucas fell down the shaft a distance of approximately 22 metres. Neither was anchored by a lanyard attached to a safety harness. The fall from the platform was the direct cause of their deaths.

68. Tendered at the inquest was a document entitled Standard Operating Instructions – Flask Discharge Door Linkage Replacement at Skip Loading Station.[37] I have already made mention of the procedure outlined in this document. This appears to be the only SOP or similar that guided the performance of the task being undertaken by Mr Lucas and Mr Gleeson. The first page outlines, *inter alia*, PPE[38] requirements when performing the job. Those requirements are:

    a. Hard Hat;
    b. Hearing Protection – Plugs;
    c. Safety Goggles;
    d. Gloves – Manual Handling; and
    e. Boots – Steel Toed Rubber Safety.

69. The absence of any reference to fall prevention or fall arrest devices is obvious.

[37] Exhibit C40.
[38] Personal Protective Equipment.

70. The second page of the SOP lists 14 steps that are to be taken when replacing the flask discharge door linkage. Relevant in the context of considering the circumstances of the deaths of Mr Lucas and Mr Gleeson are items 1.4, 1.5, 1.7 and 1.8. Those items are:

> 1.4 – Empty any ore out of flask into skip;
>
> 1.5 – Send skip to surface to discharge;
>
> 1.7 – Establish a working platform;
>
> 1.8 – Working off platform, remove linkage centre connecting pin, linkage door half and linkage shaft half.

71. Other documentation relevant to the manner in which the replacement of the Flask Discharge Door Linkage replacement was tendered at the inquest. A Job Safety Analysis, dated 18 October 2005 (that is over 8 years before Mr Lucas' and Mr Gleeson's deaths) deals with the manner in which the task is to be undertaken.[39] It lists required personal protective equipment as including "Fall Arrest" and "Harness".[40] It goes on to mention a step of fitting false timber flooring (across Top of Discharge Chute".[41] Contextually, this can only be a reference to using the so-called temporary work platform. That Job Safety Analysis is silent in relation to the use or even whereabouts of the skip bin when the task is being undertaken.

72. The evidence did not allow me to reach a conclusion as to which of the documents set out above i.e. the Standard Operating Instructions or the Risk Management Procedure – Job Hazard Analysis were to be followed. The fact that I was unable to determine which of the two policies or procedures was to be followed suggests workers would have been equally unable to work out which applied. It also indicates, to me at least, a degree of disorganisation in relation to critical aspects of safety management in the mine in the lead up to Mr Lucas' and Mr Gleeson's deaths.

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[39] Exhibit C52.
[40] *Supra*, page 1 of 2.
[41] *Supra*, item 2.

73. After the accident, CMT undertook a Job Hazard Analysis in relation to the replacement of the flask door linkage at 18 level load station.[42] That document emphasises the use of a work platform to a "designed standard", covering the chute access or implementing a requirement for all personnel to wear secured fall restraint harnesses.[43] It should be immediately apparent that had the procedures required by the Job Hazard Analysis, carried out after the deaths of Mr Gleeson and Mr Lucas, been in place on 9 December 2013 then neither man would have died.

74. The evidence at the inquest showed that there was a history of using the wooden work platform that Mr Gleeson and Mr Lucas fell from on 9 December 2013. It was obviously the case that it was completely inappropriate for the task that the men were undertaking. Evidence at the inquest was that the method of using the unsecured King Billy pine soft platform was replaced with an engineered and designed platform built to resist the static and dynamic forces expected to be applied to it during the execution of tasks including specifically the forces that would be applied upon the fall of the linkage arm. The evidence satisfies me that the replacement platform was able to be designed, constructed and supplied cheaply and quickly. If a properly engineered platform had been available and in use then it is highly unlikely, indeed inconceivable, either Mr Gleeson or Mr Lucas would have died.

75. As I have already noted both men had undertaken training, and received qualifications, in working at heights. That training included training in relation to the use of harnesses, lanyards and fall arrest devices. Mr Gleeson's body was found when it was recovered to have had a harness on it but it was not tethered to a strong point. Police investigating the deaths searched Mr Lucas' work locker. In it they found his harness. Mr Stuart-Mitchell gave evidence that he was not wearing a harness either.[44] I am quite satisfied that had Mr Lucas and Mr Gleeson been wearing correctly fitted and tethered

[42] Exhibit C47.
[43] *Supra*, page 1 of 3, items 4 and 8.
[44] Exhibit C163, record of interview, Allan Stuart-Mitchell, page 4.

harnesses or other similar fall arrest devices then it is highly unlikely, in fact in reality inconceivable, that either would have died on 9 December 2013.

76. It proved impossible to determine why Mr Lucas had left his harness and lanyard in his locker and Mr Gleeson, whilst wearing a harness, did not have it tethered. Mr Stuart-Mitchell confirmed that neither he nor Mr Lucas were wearing harnesses and that Mr Gleeson was wearing a harness but did not have it secured to anything.[45] In his interview with police carried out on 13 December 2013, Mr Stuart-Mitchell provided more information. He said that at one stage Mr Gleeson had actually been tethered to a strong point but that he had seen him unclip the tether to "get out of" the way of Mr Lucas.

77. Employees of CMT in supervisory positions such as Mr Paul McDermott, the fixed plant underground maintenance superintendent and Mr Darren Quinn, an underground supervisor at the time, both made it quite clear in their evidence that safety harnesses were required to be worn. There is no doubt in my mind that both Mr Gleeson and Mr Lucas knew this. Indeed, on Saturday, 7 December 2013 when the problem with the flask linkage assembly was first identified, Mr Lucas was working with Mr John Jarvis. Mr Jarvis gave evidence, which I accept, that;

> *"we were informed about the breakdown and were asked to inspect it. Al [Mr Lucas] has taken his safety harness with him, which I commented on as we were just going down for a look first. Al said "fuck going down there without one". Al has climbed down onto the linkages to inspect them. Al's harness was clipped onto a chain which we had hooked up."*[46]

78. Mr Bellchambers said in his affidavit, candidly, that he would "normally wear our work issued harness to conduct the work but in all honesty I sometimes don't". He went on to say that he would always have a harness with him but was "confident to stand on

[45] *Op cit*, page 2 of 2.
[46] Exhibit C26, affidavit of Jon Jeremy Jarvis, sworn 19 December 2013.

the boards without a harness on".[47] In light of what happened to Mr Lucas and Mr Gleeson it is evident that his confidence was misplaced.

79. Mr Quinn said that when performing repairs of the nature that Mr Lucas and Mr Gleeson were undertaking on 9 December 2013, those tasked to carry it out were not under constant supervision. He said "nobody is required to check to make sure all the safety procedures have been carried out before any work commences and is normally left up to the guys doing the work to do it and check it all themselves".[48] Mr Quinn also said that so far as he was aware nobody had checked to ensure that either Mr Gleeson or Mr Lucas had all the necessary safety equipment on 9 December 2013 appropriate for the task they were required to undertake.

80. I am unable to determine on the evidence why neither Mr Gleeson nor Mr Lucas was tethered to an appropriate safety or strong point. I cannot determine, on the evidence, why no one in a position of authority or with a supervisory role checked to ensure that safety equipment, appropriate to the task being performed, was being correctly utilised by Mr Lucas or Mr Gleeson on 9 December 2013. Whatever the explanation, the failure of Mr Lucas and Mr Gleeson to wear appropriate fall arrest devices was a principal factor causing their deaths. Put another way, had they both been wearing appropriate fall arrest devices (and I note at the risk of repetition – but the point is a very important one - that such devices in the form of harnesses were readily available), and those fall arrest devices had been tethered to an appropriate strong point, both men would have completed their shift and returned home to their families.

[47] *Op cit,* page 2 of 2.
[48] *Op cit*, page 2 of 3.

The use of the skip bin

81. Another matter directly relevant to the circumstances of the deaths of Mr Gleeson and Mr Lucas was the issue of the use of the skip bin. The evidence was that the skip bin, which moved up and down the shaft, could have been placed at the bottom of the chute, directly under where Mr Gleeson and Mr Lucas were working. Had the skip been in place it would have acted as an impenetrable barrier between the end of the chute and the main shaft. Had the skip been in place Mr Gleeson and Mr Lucas would have fallen into it, and not down the shaft. I accept that a fall from the temporary work platform distance of a few feet below into the skip bin may have caused either Mr Gleeson or Mr Lucas (or possibly both) injury, but I am confident that both would have survived such a fall.

82. In fact, one can go further in relation to the use of the skip bin. I am satisfied, on the evidence, that the task assigned to Mr Gleeson and Mr Lucas on 9 December 2013 could have been effectively carried out by standing in the skip bin, thus obviating the need to erect and use the obviously unsafe temporary work platform.

83. The evidence in relation to the use of the skip bin leads to the conclusion that had it been used, it was a simple measure that might have prevented both deaths. There was considerable evidence from a number of witnesses – Mr Matthew James, another underground fitter and Mr Quinn in particular, that when any work was carried out on the flask door and associated linkage gear, the skip was placed over the top of the shaft. Mr James in particular said that he had carried out the job in the past with Mr Gleeson and could "categorically say that [he] had never worked there without the skip in place."[49]

84. There is some evidence that the skip bin was being serviced on 9 December 2013. If that was so (and I have no reason to doubt that that was the case), it certainly would

[49] See Exhibit C17, affidavit of Matthew David James, sworn 11 December 2013, page 2 of 2.

have precluded it from being used. I observe that making a decision to carry out the task of the flask linkage assembly replacement at the same time as the skip bin was also being serviced was a poor one.

85. Nonetheless, it is difficult to be confident that Mr Lucas and Mr Gleeson would have necessarily put the skip bin in place to cover the shaft. The SOP tendered at the inquest did not require, or even mention using the skip as a precaution against falling.[50] In fact, the only mention in the SOP of the skip were the requirements to empty ore into it and then send it to the surface to discharge. Implicit in the SOP, or so it seems to me, is that notwithstanding the evidence of some of Mr Gleeson and Mr Lucas' co-workers it was not always used as a protection against falling. As I have already said, the evidence of co-workers in relation to the use to which the skip bin was put when servicing or replacing the flask linkage assembly varied, to the extent that the only reasonable conclusion is that there was no accepted or directed general procedure for its use.

86. Evidence from other workers including Mr Paul McDermott and Mr Dennis Riley, indicated that there was no guidance as to which method was to be used. It seems that the choice of method, and thus the choice in relation to safety, was left up to the worker to decide. I consider that leaving the choice of a work method to be adopted to workers was an abrogation of employer responsibility.

87. In summary, an almost perfect storm of poor safety practices and poor equipment directly lead to the deaths of Mr Gleeson and Mr Lucas. A properly engineered platform for the shaft, the wearing of appropriate safety harnesses and/or fall prevention devices and the placing of the skip in the shaft individually or collectively would have saved their lives.

[50] Exhibit C40, page 2 of 2.

Rescue efforts

88. A considerable amount of evidence at the inquest was concerned with the emergency response to Mr Gleeson's and Mr Lucas' falls. This was, in part, a response to the concerns quite properly raised by Mrs Sonya Castle, Mr Lucas' mother. Mrs Castle formally raised for consideration at the inquest:

    a. What medivac procedures were in place?
    b. When was triple-zero called?
    c. What rescue and recovery plans were in place?
    d. Why was the skip bin removed?
    e. Why wasn't Mr Lucas's father advised immediately?

89. I have, I think, already dealt with the issue of the skip bin removal. I will deal later with the notification of Mr Lucas' father. I consider that the other three questions raised by Mrs Castle – medivac procedures, triple-zero call and rescue and recovery plans – can be dealt with together since they involve an analysis of the emergency response to Mr Lucas and Mr Gleeson's fall.

90. I have already dealt with the issue of the triple-zero call. That was made at 9.30 am. In the context of everything that was occurring, particularly given that mine rescue personnel had already been dispatched to the scene of the fall, I do not consider that there was any delay in calling triple-zero.

91. I am quite satisfied on the evidence of Mr Kemp, Mr Brown, and Mr Butterfield in particular, that the efforts to rescue Mr Lucas and Mr Gleeson were timely, efficient and highly professional. I do not consider that there is anything further that could have been done by the mine rescue team quicker once they were notified of the circumstances of the fall.

92. One witness - Mr Dale Roberts - suggested that there was a lack of urgency on the part of the rescue crew.[51] I do not accept that there is any basis for that criticism. The objective evidence in relation to the timing of the first emergency call, when vehicles and crews responded, and when Mr Lucas reached the surface, simply does not support, factually, that criticism. Mr Roberts was also critical of some of Mr Kemp's decisions. I do not accept that there is a valid basis for the criticism that Mr Roberts made. I note unlike Mr Kemp, Mr Roberts had no particular experience in relation to mine rescue.

93. I think it is important to make clear that I do not consider that Mr Roberts was dishonest or attempting to mislead me or anyone else. Rather, I consider the evidence he gave, and the opinions he expressed, were genuinely held by him. I just do not accept that the criticisms he made of the rescue efforts were valid or reasonable.

94. I consider that Mr Kemp's decision to have Mr Butterfield and Mr Brown abseil down the shaft, rather than using ladders fixed in position, was entirely appropriate. He could not be certain that the ladders were safe to use - despite Mr Roberts' views about the matter. The already terrible situation would only have been made infinitely worse if Mr Butterfield and/or Mr Brown had been injured as a result of using ladders that may have proved to have been unsafe. Moreover, I am quite satisfied that the decision to abseil did not delay the rescue of Mr Lucas in any meaningful way.

95. The uncontradicted evidence was that Mr Kemp had in excess of 30 years experience in responding to emergencies. He said in his evidence that the most "complex, difficult and dangerous rescue" is that using a ladder. He said ladderways underground are usually poorly lit and that ladder rescue necessitated those on the ladder being accompanied by a rope team in any event. The use of ladders in underground rescues is problematic for a number of reasons, not least of which is that rescue personnel are required to transport bulky and heavy equipment for use in the rescue. The evidence

[51] Exhibit C28, affidavit of Dale Leslie Allen Roberts, sworn 22 December 2013, page 4 of 4.

was that the bags containing the rescue equipment weigh as much as 30 kilograms. This is not something easily done up, or down, a ladder. Mr Kemp described the use of ladders in rescues as often being a "non-workable rescue method".

96. I am quite satisfied that the response of Mr Kemp and all other emergency responders was in all of the circumstances completely appropriate, timely and professional.

97. The evidence about the issue at the inquest satisfies me that medivac procedures and rescue and recovery plans were both in place and appropriate. I am also satisfied that proper mine rescue training was given to those personnel who volunteered for the dangerous but unfortunately necessary role of mine rescue.

98. I note that the evidence was that Mr Philip Lucas became aware at about 11.25 am that his son had been involved in the accident (he already knew that an accident had occurred because he was in the meeting when Mr Butterfield was notified at 9.15 am). Mr Lucas senior was notified by Mr Clyde by phone that his son had been involved in the accident. Mr Clyde asked Mr Lucas senior to go and see him. Mr Lucas senior did so and Mr Clyde told him the terrible news that his son was dead.

99. I do not consider there was any delay in advising Mr Lucas senior of his son's fall and death. In fact, Mr Lucas had died only minutes before Mr Clyde told his father. Even if it was thought that there was some type of delay in advising Mr Lucas senior of the fact that his son had been involved in the fall (and I consider there was good reason not to tell anyone until the circumstances were clear), there is little doubt in my mind at least that the mine rescue personnel and management were doing the best that they could in extremely challenging circumstances.

100. I do not accept that there is any proper basis to criticise anyone at CMT in relation to their dealings with the families of Mr Lucas and Mr Gleeson. On the contrary, I consider that, on the evidence, CMT treated the bereaved families with a considerable degree of compassion.

101. In conclusion, at least so far as the response to Mr Gleeson and Mr Lucas' falls, I think it appropriate to **comment** that the actions of Mr Brown and Mr Butterfield are worthy of particular recognition. It took a considerable amount of personal courage to abseil into the shaft to try to rescue Mr Gleeson and Mr Lucas.

One other matter relating to Mr Gleeson's and Mr Lucas' deaths

102. I have had specific regard to the Intersafe report[52] authored by a mechanical engineer with extensive experience in relation to fall protection, Occupational Health & Safety systems and incident investigations. I note that the author of the report inspected the incident site and the equipment in use by Mr Gleeson and Mr Lucas on 9 December 2013. The conclusion of that report is that a fall arrest system would not be necessary if the work platform had been safe. In other words, once an appropriately safe temporary platform was in place over the shaft there would have been no requirement for fall arrest systems to be worn.

103. However the author of the report expressed the view, which I have no difficulty accepting that individual fall arrest systems, such as safety harnesses with appropriate lanyards, were necessary and would have been necessary even if the platform was appropriate to the task, at least while the platform was being put in place.

104. I also have regard to the conclusion in that report that the use of temporary platforms is common across the mining industry. Self-evidently though, the structural integrity of any platform, temporary or otherwise, is something that needs to be assessed before the platform is provided to be used by employees.

[52] Exhibit C197.

Conclusions in relation to Mr Lucas and Mr Gleeson

105. Mr Gleeson's and Mr Lucas' deaths illustrate the critical importance of the development and adherence to appropriate safe operating systems, procedures and protocols. This is especially pronounced in an industry such as mining where there are no second chances.

106. Mr Nicholson, Counsel Assisting, submitted that there is little criticism of Mr Gleeson and Mr Lucas in respect of their failure to adhere to safety requirements, specifically the failure to use safety harnesses. Safety is the responsibility of employers as a matter of law. That does not absolve employees from taking care about their own safety. Ultimately though it seems to me that the development and fostering of an appropriate safety culture is top-down. A number of other employees who gave evidence at the inquest recognised (apart from probably Mr Stuart-Mitchell) that wearing a harness when performing maintenance on the flask linkage assembly was essential.[53] Others gave evidence that safety equipment is a personal issue and requires the individual worker to ensure that he or she has it with them, and uses it.[54]

107. I mention this aspect of the evidence to highlight that safety is the responsibility of everyone. Workers must take responsibility for their own safety, as well as employers.

Mr Welsh's background

108. Michael George Welsh was born on 10 December 1960. He was 53 years of age at the time of his death. He is survived by his wife Sandra and five children – Tamika, Sarah, Jenna, Lacey and Michael. In addition to their children, Mr and Mrs Welsh had full custody of a grandson, Seth.

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[53] See for example Exhibit C13, affidavit of Mr Paul McDermott sworn 10 December 2013 and Exhibit C14, affidavit of Mr Darren Quinn sworn 9 December 2013.

[54] Exhibit C17, affidavit of Rodney Alfred Hine, sworn 10 December 2013, page 2 of 3.

109. Mr Welsh – known to his workmates as "Digger" – was a very experienced mine worker, with over 20 years in the industry. Between 1995 and 2010 he worked as a bogger operator underground at Mount Lyell mine as well as at Charters Towers in Queensland. He had been employed by Barminco from 1 September 2013 to work at Mount Lyell. Before that, between 2010 and 2013, he was employed by Redpath Mining, also as a bogger operator at Mount Lyell.

110. He had numerous qualifications and had completed a great many location specific training courses. The evidence was that prior to recommencing employment with Barminco on 1 September 2013, Mr Welsh had completed the CMT site-specific surface and underground inductions as well as other relevant industry and mining inductions. Aside from high blood pressure, which was treated with medication, Mr Welsh was in good health.

111. I am satisfied that he was appropriately qualified and had the necessary experience to carry out the task assigned to him on the day of his death. Neither a lack of training or experience, nor poor health caused or contributed in any way to Mr Welsh's death.

112. Like Mr Gleeson and Mr Lucas, Mr Welsh was a Queenstown "local". His death also impacted a great many people. As Mr Clyde's counsel submitted, the effects on the small tight knit community of Queenstown of the men's deaths were "far-reaching".

The circumstances of Mr Welsh's death

113. At approximately 5.30 am on 17 January 2014 Mr Welsh arrived at work at CMT. Several people working that morning, including Mr John Edwards, Mr Simon Fischer and Mr Darrell Stephens, described seeing Mr Welsh and having a coffee with, and chat to, him before work started. He appears to have been his normal, happy self. The evidence was that at about 5.45 am the usual pre-shift safety briefing took place. That briefing which included ship bosses (or supervisors – the descriptions used by

witnesses varied) and all other personnel, involved staff being allocated jobs for the shift to follow and the identification of any issues to be aware of or safety hazards. I am satisfied that Mr Welsh was at that briefing along with approximately 30 or so other people. One of those present at the briefing, Mr Edwards, a member of the underground service crew, said that there was "nothing of note" mentioned at the meeting that he could remember.[55]

114. All personnel were breath tested for alcohol before starting work in accordance with normal procedure. They then proceeded to their assigned tasks underground. Mr Welsh went underground in what was described as a troop carrier or 'troopy' (a four wheel drive vehicle) with other workers including Mr Shane Sturges.[56]

115. Before heading underground, the crews "tagged on" at the surface tag board. A second tag board was in place at level 1465 and any personnel passing that level also "tagged on" at that level. The evidence was that the purpose of tagging on was to provide an effective, quick and easy method of identifying the whereabouts of staff. It is evident that the system worked well when Mr Welsh died. Rescuers were able to identify quickly that it was Mr Welsh that was missing by reference to the so-called "tag board".

116. Mr Welsh was assigned by Mr David Woolley, the dayshift crew Production Supervisor, to work at draw point TD 14 on level 1315.[57] Mr Woolley evidently regarded Mr Welsh very highly, describing him as a "very very *[sic]* experienced operator working within the stopes".[58] After he was allocated his task for the shift, Mr Welsh then made his way to TD 14 where he was to work operating a Sandvik LH 621 loader - known universally as a 'bogger'. The loader was approximately 11 metres long and weighed in the order of 60 tonnes (or as much as 80 tonnes, if loaded). On

[55] Exhibit C88, affidavit of John Patrick Edwards, sworn 19 January 2014, page 1 of 4.
[56] Exhibit C91, affidavit of Shane Peter Sturges, sworn 18 January 2014, page 1 of 2.
[57] Exhibit C71, affidavit of David John Woolley, sworn 17 January 2014, page 1 of 3.
[58] *Supra*.

top of the loader is a cab where the driver (or operator – in this case Mr Welsh) sits to operate the machine. In simple terms, Mr Welsh's job was to 'bog' at the draw point. 'Bogging' involves the removal of broken rock (which contains ore) from a draw point using the loader. I will return to the issue of bogging later in this finding.

117. At about 6.30 am Mr Woolley, who had been on the surface, returned underground and went to 1315 level where he met Mr Welsh before he started work at the draw point. Mr Woolley described inspecting TD 14 with Mr Welsh and the two men discussing how to approach the job and, specifically, how to get the mud to stand. Mr Woolley said that when he was there he could see "water running freely on the floor… [and that] the dirt was firm and there was nothing out of the ordinary."[59] Mr Woolley left Mr Welsh at TD 14 and walked to nearby TD 13 to inspect the state of that drive. From there he went to TD 18 where a drill operation was being carried out.

118. Mr Woolley said in his evidence that not long after leaving Mr Welsh, he (Mr Woolley) called him on the radio and asked him how he was going. Mr Welsh led Mr Woolley to understand that he had almost finished the job at TD 14. This would appear to be the last occasion any contact was had with Mr Welsh.

119. At about 7.45 am, Mr Welsh and his loader were completely engulfed by a mud rush event at draw point TD 14. The force of the mud rush was such that the loader (remembering it weighed between 60 and 80 tonnes) was pushed back a considerable distance. Mud, rocks and the like were up to the level of the axles and completely covered the front end of the machine. The operator cab windows were destroyed and the cab itself full of mud and rocks.

120. A fellow loader operator, Mr Michael Barnett, who was on the same shift as Mr Welsh and was working nearby at level 1315, TD 16, noticed at about 7.45 am what he

[59] Exhibit C71, affidavit of David John Woolley, sworn 17 January 2014, page 2 of 3.

described as a "heap of mud" near where Mr Welsh had been working. In his affidavit he said he immediately knew that "something was wrong". He told the driver of a truck working nearby to get off the level, jumped out of his loader and went on foot to look for Mr Welsh. He could not see anything, so got back on his loader and continually called out Mr Welsh's name on the appropriate radio channel (that is the channel upon which they had been working). When that was unsuccessful, Mr Barnett tried all the other channels. Still Mr Welsh did not respond. Switching to emergency channel 6, Mr Barnett called "emergency, emergency, emergency, everyone make their way to the tag board", something he repeated twice. Mr Barnett then broadcast on the emergency radio channel a message to the effect that there had been a mud rush on TD 14 and that he could not find Mr Welsh.[60]

121. The first person to arrive to assist Mr Barnett was Mr Scott Evans. He was followed shortly after by Mr Woolley. The three men commenced an immediate effort to try and get to Mr Welsh. Mr Barnett got back in his loader and started digging the mud away, moving it to TD 16. Somewhere between 30 and 45 minutes later Mr Barnett said that he saw what proved to be the lights in TD 14 of Mr Welsh's loader.

122. By now, emergency services aboveground had been notified. The evidence from Paramedic Ron Foss, an Ambulance Tasmania Branch Station Officer and a paramedic of 20 years experience[61], stationed at Queenstown, was that he received notification at 9.04am of an incident at the mine. Along with Volunteer Ambulance Officer Patricia Snell, Mr Foss made his way immediately to the mine office. Paramedic Foss and VAO Snell arrived at the mine office just three minutes after receiving the call.

123. Meanwhile below the surface, Mr Barnett continued to dig until he reached Mr Welsh's loader. He did not see Mr Welsh but described his loader as "at least half covered in mud"[62]. By now additional personnel including Mr Judson Burke, the CMT

[60] Exhibit C74, affidavit of Michael Barnett sworn 17 January 2014, page 2 of 3.
[61] Mr Foss had of course been involved in the effort to save Mr Lucas.
[62] *Supra*, page 3 of 3.

production foreman and Mr Clint Mayes, CMT's technical services superintendent, had arrived at the scene. Mr Mayes and Mr Burke made their way along the drive to Mr Welsh's loader. Mr Burke climbed over the back of Mr Welsh's loader, onto its engine cover and looked into the cab. He said that the loader was "covered in mud [and had] a window smashed in."[63] Mr Burke saw Mr Welsh lying face down in the mud. The time that Mr Welsh's body was located was approximately 8.25 am. By that time, mine rescue personnel including Mr Robert Butterfield the Occupational Health and Safety coordinator for CMT, who will be remembered played a significant role in the rescue attempts with respect to Mr Welsh and Mr Lucas, had arrived on the scene.

124. Mr Butterfield's evidence was that he was notified at about 8.00 am of the fact that there had been a mud rush, and that without any delay he assembled the mine rescue team and headed underground. It was immediately apparent to all those on the scene that Mr Welsh was dead and thus, completely understandably in my view, no efforts were made to resuscitate him. Paramedic Foss pronounced Mr Welsh 'life extinct' at about 10.00 am.[64]

125. I think it is worth noting at this stage that the evidence satisfies me that the emergency response to the mud rush which killed Mr Welsh was, in my view, both timely and professional. Nothing more could have been done for Mr Welsh after the incident occurred.

126. In any event, the evidence from a number of witnesses was that Mr Welsh's body was found face down, dead, in approximately one metre of muddy water next to the side of the loader near the entrance to draw point TD 15. It is safe to conclude, I think, that Mr Welsh was either getting into or out of the loader at the moment when the mud rush occurred engulfing him and his loader.

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[63] *Supra*, page 3 of 3.
[64] Exhibit C90, affidavit of Ronald Laurence Foss, sworn 19 January 2014, page 1 of 2. Mr Foss was also of course involved in the response to Mr Gleeson and Mr Lucas' death.

127. The fact of Mr Welsh's death was reported, immediately, in accordance with the requirements of the *Coroners Act* 1995. Police officers arrived at the mine in short order and were quickly on the scene at TD 14 on level 1315. A number of photographs were taken by Sergeant Walkley when Mr Welsh's body was recovered. The photographs taken were tendered at the inquest.[65] More photographs were taken when Mr Welsh's body reached the surface.[66]

Forensic Pathology evidence

128. Mr Welsh's body was identified[67] before it was transported by mortuary ambulance to the Royal Hobart Hospital. At the Royal Hobart Hospital Mr Welsh's body was examined again and formally declared "life extinct" by a medical practitioner (a standard procedure notwithstanding the fact that Paramedic Foss had already made that pronouncement).[68]

129. Highly experienced forensic pathologist, Dr Donald Ritchey then performed an autopsy. Dr Ritchey provided a report which was tendered at the inquest.[69] Dr Ritchey expressed the opinion in that report that the cause of Mr Welsh's death was asphyxia due to suffocation complicating entrapment in a mudslide. I accept Dr Ritchey's opinion. Like Dr Lawrence, I am satisfied that Dr Ritchey is well qualified to express the opinion that he has and is highly regarded in the discipline of forensic pathology.

130. Dr Ritchey noted that Mr Welsh's body showed considerable evidence of advanced *post-mortem* decomposition. The evidence from Sergeant Walkley in particular was

[65] Exhibit C58a.
[66] Exhibit C59a.
[67] Exhibits C161a and 161b.
[68] Exhibit C161, affidavit of Dr Marcus Yong, sworn 17 January 2014.
[69] Exhibit C98, affidavit of Dr Donald MacGillivray Ritchey, sworn 12 May 2014.

that the muddy water in which Mr Welsh's body was lying was quite warm. I think this explains the decomposition that Dr Ritchey found at autopsy.

131. Samples taken at autopsy were subsequently analysed at the laboratory of Forensic Science Service Tasmania. A report was received from Forensic Science Service Tasmania and tendered at the inquest.[70] That report indicated that alcohol (ethanol) had been found in Mr Welsh's body in an amount of 0.130 g per 100 mL of blood. Nothing else of any significance was identified as being present in the samples analysed. I am quite satisfied that the presence of alcohol was the result of the putrefaction formation of ethanol. Dr Ritchey said:

> *"the body was in an advanced state of post-mortem decomposition as evidenced by generalised bloating, vascular marbling, extensive skin slippage and advanced autolysis of the internal organs, findings suggestive that the environment was quite warm or hot. Although thermal injury is not thought to have contributed to death, the* ***hot environment definitely contributed to the advanced decomposition*** *and post-mortem bacterial overgrowth. Microorganisms normally present within the body proliferate much more rapidly in a warm environment than in a cold one is one of the main reasons that bodies are normally refrigerated after death and prior to embalming. Ethanol (alcohol) is a common product of fermentation metabolism by these microorganisms and is the likely source of alcohol detected in the post mortem blood. The very low level of ethanol present within the vitreous supports this interpretation".*[71]
>
> [emphasis added]

132. In summary, I am satisfied on the basis of the evidence from Dr Ritchey and Forensic Science Service Tasmania, that Mr Welsh died as a result of the injuries he sustained

[70] Exhibit C162.
[71] *Supra,* page 9 of 12.

when he was engulfed in a mud rush. I am satisfied, to the requisite legal standard, that neither alcohol or drugs (illicit or prescription) played any role in Mr Welsh's death.

Investigation into the circumstances of Mr Welsh's death

133. WorkSafe Tasmania also conducted an investigation in relation to the circumstances surrounding Mr Welsh's death. Tasmania Police, carrying out the investigation pursuant to the provisions of the *Coroners Act* 1995 quite appropriately in my view, left the interviewing of many of the pertinent witnesses in relation to Mr Welsh's death to what might be described as the subject experts, namely WorkSafe Tasmania.

134. In the immediate aftermath of Mr Welsh's death, WorkSafe Tasmania Mines Inspectors, Mr Fred Sears and Mr Andrew Tunstall, conducted interviews either in Queenstown or Hobart with:

    a. Mr Lachlan Brown – on 5 February 2014;
    b. Mr Jared De Ross – on 15 May 2014;
    c. Mr Scott Clyde – on 15 May 2014;
    d. Mr Clint Mayes - on 5 February 2014;
    e. Mr Jason Retallick - on a date not recorded in the record of interview, but 29 January 2014;[72]
    f. Mr Robert Bramich – on 29 January 2014;
    g. Mr Cameron Schultz – on a date not recorded in the record of interview, but 30 January 2014;[73]
    h. Mr Andrew Forshaw – on 4 February 2014;
    i. Mr David Cuello – on 4 February 2014;
    j. Mr Nathaniel Oldmeadow - on 4 February 2014;
    k. Mr Philip Kemp – on 6 February 2014;

[72] Investigation Log – Fred Sears, page 4 of 6.
[73] *Supra.*

l. Mr Anthony Clark– on 30 January 2014 and for a second time on 19 June 2015;
m. Mr Brendan McGee – on 17 February 2014; and
n. Mr Stewart Hills - on 3 February 2014.

Each interview was conducted under caution. Each was transcribed and the transcripts tendered as exhibits at the inquest.

135. Although the investigation carried out by WorkSafe Tasmania was carried out under different legislation (the *Work Health and Safety Act* 2012) and for a different purpose (establishing whether offences had been committed against that legislation), the material obtained was of benefit in respect of the coronial investigation and utilised accordingly. I note that some of those interviews were conducted by WorkSafe Tasmania investigators and Mr John Webber, who had been engaged as an expert witness by WorkSafe Tasmania. Although not a matter which impacted upon the coronial investigation or the inquest, I observe that such an approach may not have been an entirely wise one, and certainly not in the context of a criminal investigation.

136. Following the completion of its investigation, WorkSafe Tasmania made a decision to lay a charge against CMT for an alleged breach of the *Work Health and Safety Act* 2012. CMT pleaded not guilty to the complaint. The prosecution against CMT was discontinued in September 2017.

Mining methods and techniques at CMT

137. I return now to the method of mining, as it was carried out at Mt Lyell mine in 2013-2014, so as to better understand the circumstances of Mr Welsh's death. As I have already mentioned, copper ore is mined at Mount Lyell, and has been for many, many years. In January 2014, the method of mining employed at the mine was so-called "Sub Level Caving". Mr David Cuello, who I accept is an expert in the field, gave evidence at the inquest in relation to this method of mining. He said that Sub Level Caving is

"a mining process which intentionally undercuts (by drilling and blasting) a relatively wide mining zone in order to induce instability and self-caving of a rock mass to extract valuable ore from the surrounding host rock. SLC mining starts at the top of ore body and develops downwards…Ore is mined from sub levels spaced at regular intervals throughout the deposit.

Each sub level is established through:

- *development drifts and from these*
- *the caving zone is established through the drilling and blasting of individual rings and from these hereafter broken ore is marked out after each blast.*

This process is then repeated until each level is exhausted before beginning again on the level below. As material is marked from the orebody the cave also grows vertically due to gravity and as SLC operations typically begin 100 – 300 m below the surface (or at a previous mining level) there is a delay between the beginning of the SLC operations and the breakthrough to surface of the existing mine. During this lag period extraction is limited to avoid creating an excessive air gap and the consequential risk of air blast. Once the cave is connected to the surface, then it is possible to move to full mucking extraction from each ring."[74]

138. In essence, at the time of Mr Welsh's death in 2014, and for some time leading up to then, an ore body within the Mount Lyell mine, located at least in part under a previous open cut mine, was, mined by the Sub Level Cave method. This involved 25 metre horizontal sections of the orebody being extracted through a series of "draw points". The method of extraction involved drilling horizontal tunnels (my term – which I acknowledge is a non-technical one) into the orebody, and then, by means of an explosion causing portions of the ore body to collapse into the tunnel.

[74] Exhibit C65a, page 1.

139. Following firing, which happens at the end of each shift, the collapsed rock (or 'rill'), containing copper ore, was removed by the use of a front end loader. The removal of rock is known as bogging.

140. The front end loader placed loads of the rock (containing ore) into trucks. Those trucks then took the rock and ore to the crusher in the mine. After being crushed, the ore and rock was transported to the surface for further processing at CMT's copper concentrator plant.

141. Once processed at the concentrator plant, the end product (known as concentrate) was taken by truck to the Melba Flats area before being loaded onto freight trains and transported to Burnie, 115 or so kilometres north on Tasmania's North West Coast. At Burnie, the concentrate was loaded onto bulk cargo ships before being transported to India for further processing. Approximately 2.4 million tonnes of ore were extracted each year from Mount Lyell mine prior to Mr Welsh's death.[75]

142. The evidence at the inquest was that Sub Level Caving was a relatively uncommon mining method in Australia as at 2014. The evidence was that perhaps only three other mines nationally used the method, and no others in Tasmania. Nothing in particular turns on this, or so it seems to me, other than perhaps that expertise in relation to the method of mining may not necessarily have been easily available. Even if this conclusion is correct, I do not think that it contributed in any way to Mr Welsh's death.

143. One of the recognised risks associated with this method of mining includes that of a "mud rush". A mud rush is a sudden inflow of mud from a draw point or other underground opening. It seems reasonable to conclude that this risk is increased when Sub Level Cave mining is conducted under a former open cut mine, particularly when that open cut mine contains a large body of water as the Iron Blow does. The fact that

[75] See generally exhibit C198.

Sub Level Cave mining involves a risk of mud rush is, and was in 2014, something very well known in the underground mining industry generally, and by CMT in particular. The evidence is that CMT was alert to the risk of mud rush and had a number of procedures, practices and protocols in place to deal with that risk. I will shortly deal with those procedures, practices and protocols.

144. The evidence at the inquest was that mud rush events were reasonably common occurrences at Mount Lyell mine. Mr Clint Mayes, CMT's Technical Services superintendent (essentially the Mine Manager's second in charge) said in his affidavit that while a mud rush might occur every year, they were of a concern (I understood this to mean a greater risk), during winter because higher levels of rainfall occur in winter than any other time of year.[76]

145. Senior Mine Geologist, Mr Brendan McGee, employed by CMT at the relevant time, said of mud rushes that "*generally the most common thing that causes a mud rush is a high volume of rainfall. Our data shows that where there is a high rainfall it is in the timeframe that a mud rush will occur underground. Other signs of possible mud rush are:*

a) *The volume of water draining out of the draw point could change. An example would be a draw point going from a stream rating to a river rating or the drainage ceasing altogether would raise the TARPS rating.*
b) *The moisture content of the rill itself as in the high moisture is an indicator of an increased mud rush.*
c) *The temperature and colouration of the draining of the rill, i.e. green water indicates increased risk and hot water indicates increased risk.*
d) *The rill can appear to bulge or move and that is an indicator of increased risk of mud rush.*
e) *The geometry of the rill when it stands; a vertical standing rill is an indicator of an increased risk of mud rush.*

[76] Exhibit C61, affidavit of Clint Andrew Mayes, sworn 20 January 2014, page 3 of 3.

f) The rill can push back against the loader which the loader operator can feel is another indicator."[77]

146. The evidence at the inquest satisfies me that the single biggest risk factor in relation to a mud rush event was higher than normal rainfall. This was because water build up and then release is the cause of a mud rush event. Therefore, more water entering a mine, as a result of increased levels of rainfall heightens the risk of such an event. The evidence in relation to rainfall satisfies me that it was appropriately monitored in the lead up to Mr Welsh's death and that there had been nothing that was unusual in respect of rainfall levels. Pumping of water from the mine, something else regularly monitored and a reasonable indicator of whether there had been a buildup of water within the mine showed nothing unusual in the days before 17 January 2014.[78]

147. Mr Mayes said there had been previous mud rushes at levels 1340 and 1415; the former 30 metres in length and the latter 60 metres in length. Like Mr McGee, he explained that some of the warning signs for the previous mud rushes had been that draw points became extremely wet and a lot more "fine" material than normal was present. Other indicators of an increased risk were, Mr Mayes said, that a draw point could become very hot and that the colour of the water could change to green which would indicate the water was pooling in the cave.

148. A significant amount of evidence was received at the inquest as to how the risk of mud rush was managed. The management of the risk involved both recording and monitoring data. The structural and engineering controls involved in endeavouring to manage that risk also had another purpose – the monitoring of the production output of the mine.

[77] Exhibit C66, affidavit of Brendan Michael McGee, sworn 20 January 2014 pages 1 and 2 of 3.
[78] Exhibit C192.

149. Part of these risk controls involved the monitoring of the amount of water pumped out of the mine, recording rainfall and the level of water in the Iron Blow open pit, located between Queenstown and the old town of Gormanston, under which the mine was located. The relevance of these measures is that a mud rush event is directly linked to an increase in water within the mine. Water obviously enters the mine in a variety of ways including, but not limited to as a result of rainfall in the local area.

150. In addition to structural and engineering controls, a number of what were described as administrative controls were in place. Those controls, in use at the time of Mr Welsh's death included:

    a) Trigger and Response Plans (TARPS) for draw point access;[79]
    b) Principal Mining Hazard Management Plan (PMHMP);[80]
    c) Draw Point Access Procedure;[81]
    d) Incident reports;[82]
    e) TARPS variance record sheets;[83]
    f) Shift plans;[84] and
    g) Shift reports[85].

151. A significant amount of evidence at the inquest was concerned with the Draw Point Access Procedure, the TARP system and the Principal Mining Hazard Management Plan. It is convenient to deal with each in turn.

152. In 2009 the Mine's Mud Rush Management Plan was developed by Coffey Mining Pty Ltd in response to, or at least after, an incident of mud rush which occurred on 24 August 2009. That Mud Rush Management Plan was sent to CMT undercover of letter

[79] Exhibit C115.
[80] Exhibit C101.
[81] Exhibit C128.
[82] Exhibits C140 – C148.
[83] Exhibit C124.
[84] Exhibits C151 and C153.
[85] Exhibit C155.

dated 17 February 2010 and appears to have incorporated information available as at 2 December 2009.[86]

153. The Mud Rush Management Plan is extremely comprehensive and technical in its terms. Some of the areas covered by the plan include:

a) The identification of risk signs,
b) Draw controls,
c) Risk assessments,
d) The method of bogging operations to be undertaken at draw points,
e) Management review processes.

154. The evidence was that a number of reviews occurred and were ongoing in relation to the controls in use to attempt to manage mud rush at the mine. There was evidence at the inquest that the plan had been the subject of reviews after its implementation. Initially the plan was reviewed by AMC Consultants (who had been involved in the development of a plan in the first place) in May and September 2010.

155. Further reviews occurred. The first was in November 2011 which lead to a document entitled "Mount Lyell Review of Mudrush TARPS report."[87]

156. The next review took place the following year and involved a comprehensive risk assessment and review conducted in September and October 2012. That also resulted in a further document the "Mount Lyell Inrush Risk Assessment".[88]

157. This evidence satisfies me that there was ongoing review of processes and procedures in relation to the risk of mud rush within the mine.

[86] Exhibit C200.
[87] Exhibit C122.
[88] Exhibit C136.

158. Similarly, the evidence in respect of the Draw Point Access Procedure was that it was developed in 2009 following, and responsive to a mud rush event. It was evidently designed to identify circumstances in which an elevated risk of a mud rush event occurring had manifested.

159. A reasonable and accurate summary of the various controls in place at the time of Mr Welsh's death is contained in CMT's legal advisers written submissions. I set them out:

a) The categorisation of mining areas into risk zones based on historical mud rush events, wet draw points and cave modelling, et cetera;
b) A controlled volumetric draw strategy which applied a draw factor (60%, 80%, 120% or 180%) to each risk zone (with a low draw factor for higher risk, and vice versa);
c) A draw control limit, being the maximum amount of material to be bogged from the stope, calculated by multiplying the blast tonnage for ring by draw factor (e.g. 3,000 Tonnes x 120% = 4,600 t [sic]); and
d) Regular supervisory inspections of draw points (at least four times per day) for the purpose of, among other things, applying the TARP matrix that assessed factors relevant to mud rush and dictated the manner in which a draw point was to be managed. By applying the matrix, draw points would be risk rated either as:
    i. Green/LOW;
    ii. Yellow/MON (for "Monitor");
    iii. Orange/MED (for "Medium"); or
    iv. Red/HIGH.

160. Relevantly, the procedure mandated by the PMHMP in the event a draw point was categorised as medium was:[89]

a. A restriction of access to draw point, subject to supervisory inspection;

[89] See exhibit C191.

b. That the relevant supervisor must be "informed" and that the "supervisor must assess the conditions with particular reference to the nature of the change, the conditions over the preceding day and the conditions in, and tasks scheduled for, adjacent draw points";
c. The supervisor may determine the appropriate steps to be taken including "that the conditions are continuing to change" and therefore restrict access (other than in a bogger) to within 10 m of the brow; and
d. The supervisor must initiate a management review if the conditions deteriorate.

161. In addition, the PMHMP prescribed that "once a draw point has been ranked as medium risk, access is intended to be restricted in accordance with the (procedure set out above)".[90]

162. I should also add that I accept on the basis of the evidence of the inquest that it is quite apparent that all personnel were familiar with the applicable procedures. I also accept the training in relation to them was recent and vocationally relevant.

163. There is little room to dispute the proposition that constant auditing and updating is appropriate of any risk management tool. There was evidence from Mr De Ross that formal auditing of compliance with the PMHMP had not been implemented by 17 January 2014. He said that there was auditing done regarding compliance, but it was more informal, such as by talking to people, walking around, and making sure things like TARP variance sheets were being used.

164. Mr De Ross said that it had been intended to make the process "a bit more formal". He was looking to ensure that more proactive auditing would take place.

[90] *Supra*.

165. Mr Clyde acknowledged that the type of auditing of compliance with the PMHMP was not "like forensic accounting style audit where you look at everything in the minutest detail". He said that "the key things with the PMHMP for the inrush was that day-to-day inspection. That was your first warning. There was no other warning you were going to get. There were no other sort of automated systems[.]"

166. Mr Kemp gave evidence that auditing was more informal and that, as at 17 January 2014, a documented, written, structured audit program was not in place. Nevertheless, he also gave evidence that there were still things "like work process audits where you actually go and watch a person against a procedure." He went on to say that whilst "the audit compliant against our procedures was the final stage that wasn't completed", they "still did auditing on the mine site."

167. The evidence in this case satisfies me that CMT's approach to auditing, if *ad hoc*, was regular. I consider it to have been of an acceptable standard.

168. In addition to constant monitoring of water and ground conditions within the mine, a draw control limit was implemented and practised to ensure, in simple terms, no more than safe amounts of rock were removed from draw points.

The events leading up to Mr Welsh's death

169. I should say at the commencement of my analysis of the circumstances surrounding Mr Welsh's death that I accept the submission of counsel for Barminco that 'great care must be taken not to inadvertently attribute to [Mr Welsh] or Mr Woolley any fault in respect of Mr Welsh's death.[91] I am quite satisfied that neither man was in any way to blame for what happened. Both were carrying out their assigned tasks for the day, in accordance with relevant operating procedures.

[91] Submissions on behalf of Barminco, 12 February 2021, paragraph 2.

170. The evidence was that draw point TD 14 had been problematic for some time. A mud rush had occurred at TD 14 in April 2013.[92] This event led to a management decision not to overdraw that stope as a "safety measure".[93]

171. TD 14 continued to cause problems for several of the shifts in the immediate lead up to Mr Welsh's death. There was substantial evidence that the draw point was "not holding".[94] Witnesses variously described TD 14 as "pushing", "creeping", "starting to walk out" or that there were problems getting it to "stand". No matter what expression is used, the rill at TD 14 had been, in my view, based on the evidence at the inquest, at least "unstable" for several shifts before Mr Welsh's death.

172. It is also apparent on the basis of the evidence at the inquest that responsible personnel were all well aware of the instability of the rill at TD 14.

173. Mr Rodney Bessell the shift boss of C Crew, gave evidence at the inquest.[95] He said that he inspected TD 14 on 8, 10 and 11 January and that each time he did so he saw nothing in particular which caused him any concern. Mr Bessell's evidence was during the shift he worked on 11 January 2014 TD 14 became wetter and it was increasingly hard to stand.

174. On 13 January 2014 Mr Bessell said he had a discussion with Mr Cameron Schultz (one mining engineers) and suggested 'shotcreting' the rill of TD 14.[96] Shotcreting involves spraying concrete onto the rill and allowing it to dry and thus harden, so as to help provide some stability. Rock continued to be taken from TD 14. Mr Bessel said that at 3.00 am on 14 January 2014 the rill at TD 14 "looked good". However, there is evidence that the rill continued to be unstable.

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[92] Exhibit C62, affidavit of Judson Burke, sworn 19 January 2014, page 1 of 3.
[93] *Supra*.
[94] Exhibit C71, affidavit of David John Woolley, sworn 17 January 2014.
[95] See generally Exhibit C97, affidavit of Rodney Noel Bessell, sworn 22 January 2014.
[96] *Supra*, page 2 of 2.

175. The bogger operator working on Mr Bessell's shift, Mr Grant Cox (who was doing exactly the same job with the same equipment in the same place as Mr Welsh) also gave evidence at the inquest. In summary, his evidence was that he also had difficulties with TD 14. He said he was unable to get it to stand but noted that this was a "fairly regular problem that is encountered underground, and nothing unusual".[97]

176. The shift before Mr Welsh's final shift commenced at 6.00 pm on 16 January 2014. Like all shifts, it was 12 hours. Mr Luke Freeman, a production bogger operator, with about eight years experience in that role, was assigned to work at TD 14. His direct supervisor was Mr Leigh Johnson. Mr Freeman in his evidence at the inquest described TD 14 as "pushing out". He said he could not get it to stand, although he bogged about 200 tonnes from TD 14, all the while trying unsuccessfully to get the rill to stand. Having taken his quota of rock and dirt from TD 14 (200 tonnes) he chained the stope off and went to work in another stope.

177. I note that in his evidence Mr Freeman said that when he inspected TD 14 "the water was coming from underneath", which he thought was a good sign. He said there were "no signs of water at the brow or any big signs that something was amiss", describing the rill as "pushing a bit but not slumping". Mr Freeman said because he was aware the TARPS rating was medium he took special notice of the various signs he saw at TD 14.[98] In fact, Mr Freeman considered that TD 13 was more of a problem than TD 14.

178. Mr Leigh Johnson, the production shift boss of Mr Freeman's shift also gave evidence at the inquest. He said that he did a handover with Mr David Woolley who was the outgoing shift boss. He said there was "nothing really of note to handover… [And that Mr Woolley told him] that TD 14 was good and that they had been bogging it."[99]

[97] Exhibit C75, affidavit of Grant Raymond Cox, sworn 21 January 2014, page 1 of 2.
[98] Exhibit C73, affidavit of Luke Gareth Freeman, sworn 18 January 2014, generally.
[99] Exhibit C72, affidavit of Leigh Anthony Johnson, sworn 18 January 2014, page 1 of 2.

179. Before any work started in TD 14, Mr Johnson gave evidence that he inspected it. He said that inspection occurred at about 7.20 pm or thereabouts. His evidence was that he did not normally inspect all sites that were to be the subject of work during a shift he was supervising, but because TD 14 was at a TARP rating of "monitor" he did inspect it. I note that the evidence is that at the start of his shift all other sites where work was to be carried out were at a "low" TARP rating.

180. Of TD 14 when he inspected it, Mr Johnson said "I noticed that it still seemed to have a bit of pressure behind it and it wouldn't stand properly. That was because the stope seemed to be coming straight out, and not slumping down on an angle like would be normal. I haven't come across something like that in the past. I have had draw point slump, but not come straight out". [100]

181. In the course of his duties over the night of 16 – 17 January 2014 Mr Johnson continued to monitor TD 14 as well as TD 13. Difficulties are merged with TD 13 which are not particularly relevant to the death of Mr Welsh other than to say that Mr Johnson raised the TARP rating of TD 13 to "monitor". Work stopped at TD 13 and work then stopped at TD 14 once the quota of 200 tonnes had been taken from it.

182. Mr Johnson said that at shift change over (i.e. as night shift transitioned to day shift) he told Mr Anthony Clark, the mine foreman, about TD 14's stope "coming straight out not standing correctly and pushing forward." Mr Freeman also apparently told Mr Clark of issues he had encountered with TD 14.

183. Mr Judson Burke, the Production Foreman, with over 25 years experience in underground mining, had looked at the draw point the day before when he was conducting a general inspection of the mine. He later told investigators from WorkSafe Tasmania that he noticed that water was coming out of the face of the

[100] *Supra*, page 2.

draw point. He said that the water was cool to lukewarm. He said the general area of the draw point was very wet and very muddy.[101] It was Mr Burke's view that the draw point which when he inspected it was rated "monitor", should remain rated as "monitor".[102] There is no reason not to accept what Mr Burke said. He was a highly experienced miner who obviously had dealt with unstable draw points on numerous occasions in the past. He was clearly familiar with the applicable procedures designed to assess the risk of mud rush and the appropriate ratings.

184. Nonetheless, as I have said it is evident that the TD 14 remained, along with others, the subject of consideration. It remained the subject of regular inspection. In fact, the very reason Mr Welsh, a highly experienced and highly regarded bogger operator, was allocated to the draw point TD 14 was because it was a problem and he was thought the most capable person available to deal with the issue.

185. In any event I find on the evidence that at about 7.00 am, after speaking to Mr Johnson and Mr McGee, Mr Woolley and Mr Welsh inspected TD 14 together. The purpose of the inspection with Mr Welsh was, Mr Woolley said, to come up with a plan to "try and get the stope at TD 14 suitable for a charge to be deployed for further production". When Mr Woolley and Mr Welsh went to TD 14, Mr Welsh drove in on his loader and Mr Woolley walked in behind him. The men walked up to the brow of the stope and had a discussion about "how to approach the situation of how to get the mud to stand."[103]

186. Mr Woolley and Mr Welsh came up with a plan. Mr Woolley said the plan involved "just clean[ing] up the toe of the rill and rais[ing] the bucket up towards the backs … to form a tabletop…to accommodate access for the charge crew".[104]

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[101] Exhibit C62a, Record of Interview, Judson Burke.
[102] *Supra*.
[103] Exhibit C71, affidavit of David John Woolley, sworn 17 January 2014, pages 1 and 2 of 3.
[104] Exhibit C71a, record of interview, 30 January 2014, David Woolley, page 9.

187. Mr Woolley's evidence was that he considered that there was nothing remarkable or abnormal about the conditions at TD 14. He said that the slope of the rill appeared to him to be firm and stable and that water was draining freely from it.[105] He did not perceive there were any safety issues with TD 14. Mr Woolley was aware that TD 14 was rated at "medium" when he inspected it just before Mr Welsh's death. He told investigators later that that was the reason why he wanted to go down and have a look at the stope prior to anyone else going in there and starting work. Having assessed it Mr Woolley said that he would have "kept it on monitor".[106] I am satisfied that Mr Woolley was very familiar with the TARPS system using it as he said "frequently".[107]

188. The evidence that I have set out above satisfies me that the requirements prescribed by the PMHMP to properly assess and respond to the risk of mud rush were, in a practical sense, complied with immediately prior to Mr Welsh's death. I am satisfied that Mr Welsh did not access within 10 metres of the brow of TD 14 until it had been the subject of a "supervisory inspection" (by him and Supervisor Mr Woolley). It is also evident that at relevant times of the preceding few shifts appropriate supervisors had been informed and carried out assessments of the conditions, especially when the TARP rating changed from "monitor" to "medium".

Draw point control

189. The evidence at the inquest satisfies me that the practice of draw point control was well understood by all personnel, procedures followed and controls appropriately monitored.

[105] *Supra*.
[106] *Supra*, page 16.
[107] *Supra*, page 17.

190. In saying this I do not overlook the evidence of Mr Grant Cox that was taken *de bene esse* at the inquest. Mr Cox said:

> *"in my time at the mine, I have known for the drill [sic] point allocated tonnes to be "doctored" a bit from time to time. By this I mean, that sometimes for example if a drive is allocated 200 tonnes, it may be the case that it is actually bogged 400 tonnes and the excess 200 tonnes written off to another drive. This often happens when there are problems getting the drives to stand. It is a bit of an accepted process, and often unavoidable to get the job done".*[108]

191. I consider that the evidence Mr Cox objected to is admissible. The reason I have reached this view is, briefly, section 51 of the *Act* provides that a coroner is "not bound by the rules of evidence and may be informed and conduct an inquest in any manner the coroner reasonably thinks fit". An inquest is, as I have noted already, inquisitorial in nature and not a proceeding *inter partes*. The procedures, and in particular rules of evidence, suitable for proceedings *inter partes* are well recognised as not being suitable in a coronial inquest.[109] The question of "admissibility" is interwoven with the question of "relevance". Thus if the material produced is capable of bearing upon the ultimate statutory function exercised by a coroner, then it should be received. Questions of weight are of course another matter.

192. It seems to me that Mr Cox's evidence, if accepted and capable of bearing upon the ultimate statutory function I am required to perform, that is to determine how Mr Welsh died. This is because one of the matters under consideration at the inquest was the effectiveness, or otherwise, of the various procedures in place to manage the risk of mud rush. Draw point control was one of those procedures. Thus, it seems to me that Mr Cox's evidence is relevant and I admit it.

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[108] Exhibit C75, affidavit of Grant Raymond Cox, sworn 21 January 2014, page 2 of 2.
[109] *R v South London Coroner; ex parte Thompson, quoted in Commissioner of Police (South Australia) v Coroner's Court of South Australia* [2020]SASCFC 64.

193. That of course is not the end of the matter. The issue is what weight Mr Cox's evidence should be afforded. In determining what weight, if any, the evidence should have I observe that it is completely unsupported by any other evidence on the point. All the other evidence in relation to draw point control was that the process was adhered to. Moreover, Mr Cox's evidence about that point lacks anything by way of specificity. He described things happening "from time to time" without indicating when, by whom and with what effect.

194. In the circumstances I do not consider his evidence about alleged "doctoring" of draw point controls should be afforded any weight. It is inconsistent with the evidence of other bogger operators and supervisors as to amounts taken from TD 14 in the shifts leading up to Mr Welsh's death.

195. There was evidence in the form of shift plans to indicate that there had been, in relation to TD13, 14, and 15 on level 1315, a number of occasions where maximum tonnage had been exceeded, with three of those occasions recorded on TARP variance reports (notwithstanding that it being intended that each instance of exceeding the tonnage ought to have been recorded).[110] The fact that the variations were recorded rather suggests 'doctoring' was not occurring.

196. The PMHMP, as earlier discussed, at point 6.2, allowed for variation between planned targets and targets that exceeded the planned draw, but subject to a request being made to the mining manager, with that person then to consider the risk of exceeding the draw limit, so as to reduce the hazard of the occurrence of increasing the hazard of mudrush presenting in the drawpoints.

197. In summary, viewing the evidence as a whole I am satisfied that draw point control procedures were implemented at the mine. From the evidence of the shift plans and TARP variance sheets, it would seem that, leading up to 17 January 2014, oversight of

[110] Exhibit C120

the use of TARP variance sheets, and implementation of section 6.2 of the PMHMP, did not occur as frequently as envisaged in those controls. This underscores the importance of auditing of such critical risk management measures.

198. I cannot make a finding, however, that by reason of any failure to strictly adhere to those (and other, present) controls, resulted in the inrush event that caused Mr Welsh's death. Nevertheless, I comment later on the importance of auditing such tools in order to, as best one can, avoid the hazard of inrush materializing.

199. I am satisfied that there was practical and effective adherence to the controls imposed by the Mud Rush Management Plan, the Principal Mining Hazard Management Plan and the Draw Point Trigger Action Response Plan in the days and hours leading to Mr Welsh's death.

The future

200. The evidence at the inquest was that extraction of ore from the Mount Lyell Mine had ceased operation after Mr Welsh's death. When the evidence at the inquest concluded, that was still the case and the mine was in what is known as "care and maintenance mode".

201. If or when the mine is to reopen, then the evidence was that it would adopt more modern mining methodology including transitioning to Block Cave mining rather than the practice of Sub Level Caving that was in use when Mr Welsh died. In addition, the use of tele-remote boggers are anticipated in the future. Certainly, tele-remote bogging would significantly enhance the safety of mine workers when, or if, the mine reopens. At the very least it would place significant physical distance between the bogger operator and the rill, the point most vulnerable to a mud rush.

202. I accept the evidence of Mr Mayes that the change in mining methodology from Sub Level Cave mining to Block Cave mining will reduce water quantities in draw points and reduce static water pressure at, or behind, rills.[111]

203. I also have specific regard to the future plans for the mine outlined by Mr Mayes. It is evident that CMT have expended substantial resources in relation to planning for the safe reopening of the mine, at some unidentified time in the future. Not only will the change in mining methodology serve to reduce (but not eliminate) the risk of mud rush but the future use of the Prince Lyell shaft only for ventilation, and not as a method of removing ore from the mine, means that the task which claimed the lives of Mr Gleeson and Mr Lucas will no longer need to be carried out.

Recommendations and comments – Mr Gleeson and Mr Lucas

204. I make the following recommendations arising out of my findings in relation to the deaths of Mr Gleeson and Mr Welsh. In making the recommendations which follow I acknowledge that much has changed at Mount Lyell Mine since their deaths, including the fact that the mine is in care and maintenance mode. Nonetheless, I **comment** that I consider their deaths were entirely avoidable had basic safety principles been adhered to. Thus I consider the making of the recommendations which follow to be important, despite everything that has changed. My **recommendations** are:

a) That there be no further use of temporary work platforms, like that from which Mr Gleeson and Mr Lucas fell to their deaths;
b) Instead, properly designed, engineered and constructed platforms only be used;
c) All workers be required in all appropriate circumstances to use appropriate fall arrest equipment, such as harnesses and lanyards;
d) That all workers be trained in the use of such fall arrest equipment;

[111] Exhibit C198 – statement of Clint Mayes.

e) That there be regular auditing and supervision of the adherence to the use of fall arrest equipment to ensure appropriate use.

Recommendations and comments – Mr Welsh

205. I consider it appropriate to **comment**, as I have earlier in this finding, that the practice apparently adopted by WorkSafe Tasmania during the investigation into Mr Welsh's death of having some of the records of interview conducted by persons retained as expert witnesses should be avoided.

206. I accept Counsel Assisting's submission in relation to the need for some level of certainty and objectivity to be introduced to the auditing of risk management tools and the decision-making by the operators of mines, particularly in relation to inundation and mud rush. It seems to me that the need for some level of certainty and objectivity is illustrated rather well, albeit probably unintentionally, in Annexure A of CMT's closing submissions. In those submissions, CMT's legal advisers point out that the term "overdraw" can have two different meanings, depending on context. One context means that overdraw is indicative of the failure of implementation of controls. In another context the same word can refer to a deliberate method of implementing a strategic engineering control.

207. Moreover, I note that despite the use of administrative controls, there were instances, in relation to TARP variance and implementation of the PMHMP, where auditing of those vital control measures, and adherence to the need to file, say, variance reports, did not occur, or had not been formalized. I **comment** that adherence to, and the auditing and oversight of, hazard and risk controls such as those tools is vital and necessary, particularly in mines such as that at Mt. Lyell.

208. I note that Counsel Assisting's submission about this issue was expressly supported by CMT, and that Barminco 'took no issue' with it. I therefore **recommend** that auditing of risk management tools and the decision-making by management of

operators and mining operations using those tools, be formalised and made consistent with, perhaps, the New South Wales code of practice – inundation and inrush hazard management.

Findings Required by s28(1) of the *Coroners Act* 1995

209. On the basis of the evidence at the inquest I make the following formal findings pursuant to section 28 (1) of the *Coroners Act* 1995 in relation to each of the men whose deaths were the subject of this inquest.

210. Mr Gleeson:

a) The identity of Mr Gleeson was Craig Nigel Gleeson, born 2 June 1968;
b) Mr Gleeson died when he fell down a discharge chute in the company of Alistair Michael Lucas, when he and Mr Lucas were replacing a flask linkage assembly at the Mount Lyell Mine, Queenstown, Tasmania; and
c) The cause of Mr Gleeson's death was fatal chest injuries sustained in a fall from height; and
d) Mr Gleeson died on 9 December 2013 at Queenstown in Tasmania.

211. Mr Lucas:

a) The identity of Mr Lucas was Alistair Michael Lucas, born 26 July 1988;
b) Mr Lucas died when he fell down the discharge chute in the company of Craig Nigel Gleeson, when he and Mr Gleeson were replacing a flask linkage assembly at the Mount Lyell Mine, Queenstown, Tasmania; and
c) The cause of Mr Lucas' death was chest and abdominal injuries sustained in a fall from height; and
d) Mr Lucas died on 9 December 2013 at Queenstown in Tasmania.

212. Mr Welsh:

a) The identity of Mr Welsh was Michael George Welsh, born on 10 December 1960;
b) Mr Welsh died when he was working as a loader (or bogger) operator and was engulfed in a mud rush at the Mount Lyell Mine, Queenstown, Tasmania; and
c) The cause of Mr Welsh's death was asphyxia; and
d) Mr Welsh died on 17 January 2014 at Queenstown in Tasmania.

Conclusion

213. The deaths of Mr Gleeson, Mr Lucas and Mr Welsh were tragic, and in the cases of Mr Gleeson and Mr Lucas, completely avoidable. Apart from the terrible impact of their deaths upon their families who lost much loved husbands, partners, sons and fathers, it is quite apparent that their deaths, so close together, had a profound effect on the tight knit community of Queenstown.

214. Unlike many mine workers both on Tasmania's West Coast and throughout many areas of regional Australia, Mr Gleeson, Mr Lucas and Mr Welsh all lived locally in Queenstown. They were very much part of that proud and resilient community. Their deaths robbed the community of three important members. Many people lost a friend, teammate or co-worker. That sense of loss was palpable during the inquest, particularly during the hearing days in Queenstown.

215. I extend my sincere condolences to all of those whose lives were touched by Mr Gleeson, Mr Lucas and Mr Welsh.

216. I consider that the investigation carried out by Tasmania Police in relation to each of the deaths was of a high standard. The initial response and ongoing liaison with the Coronial Division was particularly noteworthy. I wish to extend my thanks to all officers involved in responding and investigating, but in particular the investigating

officers in each case - Sergeant Sarah Crabtree (Mr Gleeson and Mr Lucas) and Sergeant David Walkley (Mr Welsh).

217. I have already mentioned that I consider the conduct of Mr Lachlan Brown and Mr Robert Butterfield is worthy of recognition. In addition, the Ambulance Tasmania Personnel – both career and volunteer- is also worthy of particular mention.

218. Finally, I wish to record my thanks in particular to Mr Nicholson and Mr Thompson, Counsel Assisting, and to Constable Katie Luck, Tasmania Police (former coroner's associate), for their assistance in relation to the preparation for, and conduct of, the inquest.

Dated: 18 June 2021 at Hobart in the State of Tasmania.

Simon Cooper
Coroner

Summary of comments and recommendations

I **comment** that I consider the deaths of Mr Gleeson and Mr Lucas were entirely avoidable had basic safety principles been adhered to.

I **recommend** that there be no further use of temporary work platforms, like that from which Mr Gleeson and Mr Lucas fell to their deaths.

I **recommend** that instead of temporary work platforms, properly designed, engineered and constructed platforms only be used.

I **recommend** that all workers be required in all appropriate circumstances to use appropriate fall arrest equipment, such as harnesses and lanyards.

I **recommend** that all workers be trained in the use of such fall arrest equipment.

I **recommend** that there be regular auditing and supervision of the adherence to the use of fall arrest equipment to ensure appropriate use.

I **comment** that the practice apparently adopted by WorkSafe Tasmania during the investigation into Mr Welsh's death of having some of the records of interview conducted by persons retained as expert witnesses should be avoided.

I **recommend** that auditing of risk management tools and the decision-making by management of operators and mining operations using those tools, be formalised and made consistent with, perhaps, the New South Wales code of practice – inundation and inrush hazard management.

I **comment** that the actions of Mr Lachlan Brown and Mr Robert Butterfield are worthy of particular recognition. It took a considerable amount of personal courage to abseil into the shaft to try to rescue Mr Gleeson and Mr Lucas.

Table of Exhibits

C1.	Report of Death - Craig Gleeson and Alistair Lucas
C2. C2a	Life Extinct Affidavit – Craig Gleeson Affidavit – Identification
C3. C3a	Life Extinct Affidavit – Alistair Lucas Affidavit of Identification
C4.	PM Report – Craig Gleeson and Alistair Lucas
C5.	Toxicology Report – Craig Gleeson
C6.	Toxicology Report – Alistair Lucas
C7.	Ambulance Tasmania Records – Alistair Lucas
C8.	Photographs from Coroners File – Craig Gleeson and Alistair Lucas
C9. C9a	Affidavit Allan Stuart-Mitchell 9-12-13 Record of Interview 7-1-14
C10.	Affidavit Robert Butterfield 9-12-13

C11.	Affidavit Lachlan Brown 9-12-13
C12. C12a	Affidavit Phillip Kemp 9-12-13 Record of Interview Phillip Kemp 28-1-14
C13.	Affidavit Emmy Lou Smith 10-12-13
C14.	Affidavit Phillip Lucas 10-12-13
C15. C15a C15b	Affidavit Paul McDermott 10-12-13 Record of Interview 10-1-14 Record of Interview 31-3-18
C16. C16a	Affidavit Darren Quinn 9-12-2013 Record of Interview 10-1-14
C17. C17a	Affidavit Matthew James 11-12-13 Record of Interview 7-1-14
C18. C18a	Affidavit Graeme Mee 9-12-13 Record of Interview 28-1-14
C19. C19a C19b	Affidavit Rodney Hine 10-12-13 Record of Interview 10-1-14 Record of Interview 29-1-14
C20. C20a	Affidavit Brett Gow 10-12-13 Record of Interview 28-1-14
C21.	Affidavit Ronald Foss 10-12-13

C22. C22a	Affidavit Denis Riley 12-12-13 Record of Interview 8-1-14
C23. C23a C23b	Affidavit Mark Hull 11-12-13 Record of Interview 8-1-14 Record of Interview 29-1-14
C24. C24a	Affidavit Reginald Bellchambers 12-12-13 Record of Interview 25-2-14
C25.	Affidavit Michael Close 13-12-13
C26.	Affidavit Jon Jarvis 19-12-13
C27.	Affidavit Jason Clarke 21-12-13
C28. C28a	Affidavit Dale Roberts 22-12-13 Record of Interview 18-1-14
C29.	Affidavit Natalie Gleeson 27-12-13
C30. C30a	Affidavit Snr Const. Dale Wylie 13-1-14 Photos (see C8)
C31.	Affidavit Leslie Manley 12-12-13
C32.	Affidavit David McCallum 13-12-13

C33.	Affidavit James Atkinson 9-1-14
C34.	Affidavit April Crow 13-1-14
C35.	Information and Engineering Drawing of Prince Lyell Shaft Sk01-Sk08
C36.	Plan showing location of Prince Lyell Shaft and Mine Offices
C37.	Photographic evidence taken by WorkSafe inspectors
C38.	Copper Mines Tas Management System Accreditation
C39.	CMT-SOP-003 Risk Management Standard Operating Procedure 1-12-11
C40.	Standard Operating Instruction 22-4-20
C41.	CMT-SOP-023 Safe Working at Heights 19-6-11
C42.	Copper Mines Tasmania Occupational Health and Safety Policy 1-12-12
C43.	Prohibition notice to CMT 16-12-13

C44.	Email Clyde to Tunstall 20-12-13
C45.	Platform Info sheet from Pitt and Sherry 19-12-13
C46.	Risk Assessment 19-12-13
C47.	Job Hazard Analysis UFP-SOI 19-12-13
C48.	Email Tunstall to Clyde 20/12/13
C49.	Email Tunstall to Sears 10-1-14
C50.	Chain of Responsibility Chart for CMT
C51.	RL and Shaft Drawings by CMT
C52.	Job Safety Analysis – Replacing Discharge Door Pins and Bushes
C53.	Working at Height Certificate – Craig Gleeson
C54.	Working at Heights Certificate – Alistair Lucas

C55.	Judgement - Sears and Copper Mines of Tasmania (Magistrate Jago)
C56.	Report from Gandy and Roberts to WorkSafe Tasmania entitled 'Copper Mines of Tasmania Tiber Platform Fail'
C57.	Report of Death to Coroner – Michael Welsh
C58. C58a	Affidavit Sgt David Walkley 22-9-17 Photos - Michael Welsh
C59. C59a	Affidavit Katrina Chivers 20-2-14 Photos - Michael Welsh
C60.	Record of Interview Phillip Kemp 6-2-14
C61.	Affidavit Clint Mayes 20-1-14 Record of Interview Clint Mayes 5-2-14
C62. C62a	Affidavit Judson Burke 19-1-14 Record of Interview Judson Burke 24-1-14
C63. C63a	Affidavit Nathaniel Oldmeadow 21-1-14 Record of Interview Nathaniel Oldmeadow 4-2-14
C64.	Record of Interview Lachlan Brown 5-2-14
C65. C65a C65b	Record of Interview David Cuello Resume David Cuello Supplemental Information – David Cuello

C66. C66a	Affidavit Brendan McGee 20-1-14 Record of Interview Brendan McGee 17-2-14
C67. C67a	Record of Interview Jared De Ross 25-2-14 Record of Interview Jared De Ross 15-5-14
C68. C68a	Record of Interview Gerard Clyde 11-4-14 Record of Interview Gerard Clyde 15-5-14
C69.	Record of Interview Jason Retallick
C70.	Record of Interview Robert Bramich 29-1-14
C71. C71a	Affidavit David Woolley 17-1-14 Record of Interview David Woolley 30-1-14
C72. C72a	Affidavit Leigh Johnstone 18-1-14 Record of Interview Leigh Johnstone 4-2-14
C73. C73a	Affidavit Luke Freeman 18-1-14 Record of Interview Luke Freeman 29-1-14
C74. C74a	Affidavit Michael Barnett 17-1-14 Record of Interview Michael Barnett 29-1-14
C75.	Affidavit Grant Cox 21-1-14
C76.	Affidavit Robert Butterfield 19-1-14

C77.	Affidavit Darrell Stephens 20-1-14
C78.	Affidavit Chris Gane 18-1-14
C79.	Affidavit Simon Franz Fischer 19-1-14
C80.	Record of Interview Cameron Schultz
C81. C81a C81b	Affidavit Anthony Clark 17-1-14 Record of Interview Anthony Clark 30-1-14 Record of Interview Anthony Clark 19-6-15
C82.	Record of Interview Peter Porter 7-2-14
C83. C83a	Affidavit Stewart Hills 22-1-14 Record of Interview Stewart Hills 3-2-14
C84.	Lachlan Brown Minor Incident Report 11-1-14
C85.	John Webber Overview Report (aide memoire)
C86.	Affidavit Travis Cocker 18-1-14
C87.	Affidavit Rodney Denny 18-1-14

C88.	Affidavit John Edwards 19-1-14
C89.	Affidavit Scott Evans 18-1-14
C90.	Affidavit Ronald Foss (Ambulance Tasmania) 19-1-14
C91.	Affidavit Shane Sturges 18-1-14
C92.	Affidavit Denis Tatnell 18-1-14
C93.	Affidavit Carol Steyn 20-1-14
C94.	Affidavit William Wedd 17-1-14
C95.	Affidavit Danny Welsh 21-1-14
C96.	Affidavit Joseph Taylor 22-1-14
C97.	Affidavit Rodney Bessell 22-1-14
C98.	Post Mortem – Michael Welsh sworn 12-5-14

C99. C99a	Fred Sears Investigation Log Fred Sears Supplemental Proof of Evidence dated 4-8-17, 8-8-17 and 11-8-17
C100. C100a	Mining Activity Report, CMT Shift Plan 17-1-14, Barminco Shift Plan 17-1-14 Mining Services Contract CMT and Barminco
C101.	PMHMP – Inundation and Inrush
C102.	Conditions of Employment (Welsh) 7-8-13
C103.	Letter from Scot Clyde to Fred Sears 30-3-11
C104.	CMT Mine Longitudinal Projection
C105.	SRK Consulting Draw Rate & Surge Comparisons (aide memoire) (colour images)
C106.	CMT 1315 Level Production & Grate Lyell Fault 13-3-14
C107.	1315 Ring Firing Plan
C108.	1315 Location of Bridges 31-1-14
C109.	1315 Location of Loader 23-1-14

C110.	1365 Rings Fired and Pillars Plan
C111.	1290 Level (plan) 13-3-14
C112.	1340 Rings Fired & Pillars Plan 13-3-14
C113.	1340 Rings Fired by Month (plan) (17/1/14) 30-1-14
C114.	1340 Location of Bridges Plan 31-1-14
C115.	Drawpoint TARP Procedure
C116.	TARPS Presentation (CMT)
C117.	Nightshift TARPS Presentation Attendance
C118.	Day Shift TARPS Presentation Attendance 15/8/13
C119.	Night Shift Issues Mud Slump CS60 21-8-13
C120.	Day Shift Issues Mud Slump CS60 22-8-13

C121.	Pre-shift Meeting Record - Day Shift 22-8-13
C122.	AMC Consultants Mt Lyell Review of Mud Rush TARPS 19-12-11
C123.	Hazard and Minor Incident Report Form 15235 re TD14 TARPS 17-1-13
C124.	TARPS Variance Record Sheets
C125.	PMHMP – Inundation and Inrush
C126.	CMT-SOP-003 Risk Management Standard Operating Procedure
C127.	CMT-SOP-006 Management of Work Processes Standard Operating Procedure
C128.	UGM-SOP-250 Drawpoint access Procedure Standard Operation Procedure
C129.	OH&S Audit Report of CMT
C130.	Incident Investigation 2013_2169 1340 TD14
C131.	Curtin University CMT Mt Lyell Mine Geotechnical Review of Sublevel Caving April 2013

C132.	CMT Corrective Action Report 29-3-13
C133.	Barminco Blasting & Overdraw Summary for 1315 & 1350 Jan/Feb 2014
C134.	1315 CS60 Slump Investigation Report 148-13
C135.	Inspection following TARPS (undated)
C136.	AMC Consultants Mt Lyell Inrush Risk Assessment 28-10-12
C137.	AMC Consultants Mt Lyell Draw Strategy Review 21-9-10
C138.	Memorandum to Lachlan Brown from Brendan McGee 23-8-13
C139.	Curtin University CMT Mt Lyell Mine Geotechnical Review of Sublevel Caving (Visit II) Aug 2013
C140.	CMT Accident/Incident Report (and associated documents) 3-11-13
C141.	Minor Incident Report 18-10-13
C142.	Minor Incident Report 4-10-13

C143.	Incident Report 19-9-13 Jared De Ross
C144.	Incident Report 2011-1866 3-1-11 Luke Freeman
C145.	Incident Report 2011-1769 17-8-09 Jared De Ross
C146.	Incident/Accident Report & Investigation (and associated documents) 18-8-09
C147.	Incident/Accident Report & Investigation 2009/1659 10-8-09
C148.	1315 TD17 Incident 4-11-13
C149.	Memorandum Iron Blow Open Pit Water Level Monitoring 21-6-10
C150.	CMT Hydrogeology of the Prince Lyell Copper Mine Feb 2010
C151.	Daily Shift Plans Dec 18 2013-Jan 17 2014
C152.	Monthly Plan December 2013 – Barminco
C153.	Daily Shift Plans commencing 1-1-14

C154.	Documents from morning meeting
C155.	Draw Point Shift Reports
C156.	2014 Diary – Cameron Schultz
C157.	TIMI-CMT Underground Induction Final
C158.	Complaints Report Draft P1
C159.	1340 & 1315 Blasting vs Overdraw Jan-Feb 2014
C160.	Block Cave Draw Profile Analysis (McGee to Brown)
C161. C161a C161b	Life Extinct Affidavit – Michael Welsh ID Affidavit – Michael Welsh ID Affidavit
C162.	Toxicology Report (Forensic Science Service Tasmania) – Michael Welsh
C163.	Walk Through Video
C164.	Updated Flask Door Linkage process

C165.	CMT S.A.F.E Workplace Accident Prevention Card
C166.	Google Map – Queenstown to Prince Lyell Shaft
C167.	Photographs mine rescue vehicle
C168.	Photographs fire truck
C169.	Prince Lyell Iron Blow Site Plan Diagram
C170.	Prince Lyell Underground long Section View East Diagram
C171.	Prince Lyell Iron Blow Site Plan Faults as Mapped (Birdseye view)
C172.	Inventory of deceased property Craig Gleeson (Receipt document + bag)
C173.	Inventory of deceased property Alistair Lucas
C174.	Silver Ruler
C175.	Black G Shock Watch (recovered from Michael Welsh's body)

C176.	Two safety harnesses along with 2 receipt documents and x 2 brown bags
C177.	Personal effects Craig Gleeson (receipt document only items 1-8 #108572
C178.	Platform timber (receipt document items 9 to 11 #108572 + actual planks/board x3 Blue bags, x2 Brown paper bags)
C179.	Personnel files Craig Gleeson and Alistair Lucas (including Safety Induction)
C180.	Linkage assembly
C181.	Affidavit Andrew Tunstall 31-7-14
C182.	Proof of Evidence Andrew Tunstall 16-7-14
C183.	Invoice
C184.	Affidavit Sergeant Walkley 22-9-17
C185.	Affidavit Constable Walton 24-10-17
C186.	Affidavit Constable Whelan 9-11-17

C187.	Record of Interview Andrew Forshaw 4-2-14
C188. C188a	Photo whiteboard – diagram drawn by Clint Mayes Diagram with red marking of Bulging Rill
C189.	Photo whiteboard - diagram drawn by Leigh Johnstone
C190.	Draw Point Shift Report 16-1-14
C191.	Barminco Standard Work Procedure Draw Point Access
C192.	Spreadsheet – daily pumping v rainfall data
C193.	Daily cave net water build up chart creation process
C194.	CMT Mine Longitudinal Projection March 2015
C195.	Pre-shift issues report
C196.	Mud Rush Review
C197.	Intersafe Report by Dr Kayler

C198. C198a C198b C198c C198d	Statement of a Witness – Clint Mayes 17-11-20 1745 level design extraction level D Panel Section Layout D Panel Section View D Panel Section Resource
C199	UNSW Russel Morison Report
C200	Mud Rush Management Plan

Table of Witnesses who gave evidence at the inquest

- Allan Stuart-Mitchell
- Robert Butterfield
- Paul McDermott
- Darren Quinn
- Rodney Hine
- Dale Roberts
- Reginald Bellchambers
- Graeme Mee
- Denis Riley
- Matthew James
- Adam Richards
- Andrew Tunstall
- Mark Hull
- Lacey Welsh
- Jenna Welsh
- Tameka Sylvester
- Sandra Welsh
- David Cuello
- Andrew Forshaw

- Clint Mayes
- Phillip Kemp
- Judson Burke
- Jason Retallick
- Robert Bramich
- David Woolley
- Leigh Johnstone
- Luke Freeman
- Michael Barnett
- Cameron Schultz
- Darrell Stephens
- Nathaniel Oldmeadow
- Lachlan Brown
- Grant Cox
- Anthony Clark
- Peter Porter
- Brendan McGee
- Stewart Hills
- Jared De Ross
- Gerard (Scot) Clyde