



OFFICE OF THE
CHIEF CORONER
OF NEW ZEALAND

Case study from Recommendations recap

A summary of coronial recommendations and comments made between 1 July–30 September 2012

FORESTRY DEATHS FROM ISSUE 4

**Coronial Services of New Zealand
Purongo O te Ao Kakarauri**

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Please also note that summaries of circumstances and recommendations following self-inflicted deaths may be edited to comply with restrictions on publication of particulars of those deaths, as per section 71 of the Coroners Act 2006. Similarly, the contents of summaries and recommendations may be edited to comply with any orders made under section 74 of the Act.

Case study forestry

Forestry deaths at a glance AS AT 1/8/2013

Year of death	No. of deaths
2007	1
2008	3
2009	5
2010	5
2011	4
2012	7
2013	6

2007 and 2013 data is incomplete

There have been 31 cases of work-related deaths within the forestry industry between July 2007 & Aug 2013.

This is an average of approximately 5 deaths a year.

In all cases the deceased was male – most commonly 36–45 years.

A high proportion of the deceased were Māori.

Tree felling & breaking-out tasks in particular contributed to a significant number of these fatalities. The activities being undertaken at the time of death include tree felling, breaking-out, loading logs for transport and transporting logs.

In six cases, following an investigation by the Ministry of Business, Innovation and Employment, the coroner decided to not to open or resume an inquiry. In four of these cases a prosecution under the Health and Safety in Employment Act 1992 had taken place.

Coroners have made comments and recommendations in 11 cases. An outline of these cases and the comments and recommendations, and any responses received, can be found in the following section.

Nine cases remain active before the coroner.

Background

The forestry sector has the highest rate of fatal work-related injuries in New Zealand and the rate of ACC claims for the forestry sector is almost six times the rate for all sectors (per 100,000 workers within the forestry industry).¹

In recent months the health and safety of the forestry industry, in particular the high number of injuries and fatalities, has come under the spotlight. Between January and August 2013 there had been six deaths of forestry workers. Various stakeholders including the Ministry of Business, Innovation and Employment (MBIE, formerly the Department of Labour (DoL)), the NZ Council of Trade Unions (NZCTU), the Forestry Owners Association, the Forestry Industry Contractors Association (FICA) and Competenz (formerly the Forestry Industry Training and Education Council) have been involved in discussions about the industry's health and safety record.

The Office of the Chief Coroner has released this case study on fatalities within the forestry industry in order to present the facts and background to this area of death, and collate recommendations made by coroners in these cases. Key stakeholders were also approached and asked for comment on this report. Where appropriate, their comments and responses to coroners' recommendations have been incorporated.

Fatalities and serious harm

Coronial data is only available from July 2007 (when the Coroners Act 2006 came into force). This data shows that there have been 31 work-related deaths within the forestry industry between 1 July 2007 and 31 August 2013.

This data differs slightly from that provided by MBIE. Coronial data includes five deaths occurring in a transport context (ie logging trucks) which are not included in MBIE's statistics. It should be noted that due to difficulties in identifying work-related transport deaths such as these in our database, this is not exhaustive and the number of these deaths is likely to be higher than five.

Forestry deaths before coroners demonstrate the tasks commonly being undertaken at the time of fatalities are tree felling tasks (accounting for 12 deaths or 39%) and breaking-out tasks (accounting for 7 deaths or 22.5%).

Pre-2007 data on forestry fatalities is available through the records of MBIE and other forestry groups. FICA undertook an analysis of fatal logging accidents occurring between 1988 and 2005.² The analysis found that 94 fatalities had occurred between 1988 and 2005. A breakdown of the fatalities showed felling (41%), breaking-out (14%), extraction (12%) and skid work (10%) were the four most common tasks undertaken at the time of a fatal accident.

MBIE has also recorded 967 serious harm notifications (which include fatalities) between 1 January 2008 and 30 June 2013, with the highest in a year being 188 serious harm notifications for 2012.

The forestry workforce

It has been estimated by MBIE that by 2014 the forestry sector will employ approximately 9,000 people.³ The forestry workforce is mostly male (approximately 85% as at the 2006 census) and has a higher than average proportion of Māori workers – 32.6% compared to the average for all industries of 12.2%.³ As at June 2009, 16% of the employees in forestry were aged 18–24 years. The proportion of workers over the age of 55 was 11.9%, which is lower than the average for all industries.³

Forestry work is labour-intensive and over 50% of the workforce report that they work more than 40 hours a week.³ Over 9% of forestry workers worked more than 60 hours a week.³

MBIE observes in their Forestry Action Plan that high turnover of staff and low levels of literacy and numeracy may be contributing factors to sector injuries and fatalities.³ However, FICA asserts that it is inappropriate to attribute workplace competency and safety on the literacy levels of forestry and logging workers. FICA's view is that there is a contingent responsibility of both trainers and managers to tailor training and workplace communications to suit their employees' abilities.

¹ Department of Labour Forestry Sector Action Plan 2010–2013, August 2011, page 12.

² Forestry Industry Contractors Association Analysis of Fatal Logging Accidents 1988 to 2005, October 2006.

³ Department of Labour Forestry Sector Action Plan 2010–2013, August 2011, page 9.

The law

LEGISLATIVE AND REGULATORY FRAMEWORK

The Coroners Act – opening a coronial inquiry

Under section 69 of the Coroners Act 2006 a coroner may postpone opening an inquiry or adjourn an inquiry where he or she is satisfied that another investigation into the death is being conducted that is likely to establish the matters that a coroner is required to establish. These matters include the identity of the deceased, when and where the person died, and the causes and circumstances of the death.

If the coroner is satisfied that the other investigation has adequately established these matters, he or she may decide not to open or resume the inquiry (Coroners Act 2006, s70).

The effect of these provisions of the Coroners Act is that in some cases where MBIE have conducted an investigation (leading in some cases to a prosecution under the Health and Safety in Employment Act 1992), the coroner may decide not to open or resume an inquiry.

A coroner may decide to either hold an inquest, or hold a hearing on the papers and make a chambers finding.⁴ The coroner may hold a hearing on the papers if he or she is satisfied that no one, from whom evidence is generally to be heard, wishes to give evidence in person.⁵

The Health and Safety in Employment Act 1992

The HSE Act promotes the management of health and safety issues in industry. The HSE Act requires employers and self-employed people who control places of work to take 'all practicable steps' to eliminate, isolate or minimise workplace hazards. 'All practicable steps' is defined as doing everything that is reasonably practicable in the circumstances having regard to:

- the harm that might occur
- available knowledge about the likelihood of the harm occurring, the harm itself and what can be done to eliminate or reduce the harm
- the availability and cost of means to do something about the harm.

The Act also requires employers to keep records of and report all accidents.

⁴ If the death appears to have occurred when the deceased was in official custody or care an inquest is mandatory. (Coroners Act 2006, s80)

⁵ Coroners Act 2006, s77

Forestry industry codes and regulations

In 2012 an updated *Approved code of practice for safety and health in forest operations* (ACoP) was published by MBIE. The ACoP covers all forest operations (with the exception of log transportation) and the review focused on the tasks of tree-felling and breaking-out in particular, which consistently account for the greatest number of fatalities and other serious harm incidents.

The ACoP does not have the legal force of regulations however it is a statement of preferred work practices. Section 20 of the HSE Act enables the Minister of Labour to direct the MBIE to prepare, and submit for the Minister's approval, a statement of preferred practices, processes and principles (among other things) that can be formed into a code of practice. Although compliance with a code of practice is not mandatory, it can be used as evidence of good practice. Depending on the circumstances of the case, complying with a code may not be sufficient to meet the requirement imposed on duty holders under the HSE Act to take all practicable steps.

A court may consider the ACoP when considering an employer's compliance with relevant sections of the HSE Act.

Workplace health and safety

Policy and legislation surrounding workplace health and safety in New Zealand has gone through significant scrutiny and changes in the past three years. The 2010 Pike River Mine tragedy cast a spotlight on New Zealand's health and safety record, leading to a royal commission inquiry, the establishment of an independent taskforce and legislative reforms.

Independent Taskforce on Workplace Health and Safety

The Independent Taskforce on Workplace Health and Safety was established by the Government in April 2012, partially in response to the Pike River Mine disaster, to review whether New Zealand's workplace health and safety system remains fit for purpose. The taskforce has been established to consider and make recommendations on how to improve New Zealand's workplace health and safety record. They were also tasked with recommending a package of practical measures that would be expected to reduce the rate of fatalities and serious injuries by at least 25% by 2020. The terms of reference are available on hstaskforce.govt.nz

On 30 April 2013 the taskforce delivered its report to the Minister of Labour, Hon Simon Bridges. In a press release⁶, taskforce Chairman Rob Jager described the current system as 'not fit for purpose'. He stated that the system had 'a number of significant weaknesses across the full range of system components that need to be addressed if we are to achieve a minor step-change in performance'. The report's recommendations included the establishment of a stand-alone health and safety regulator; new workplace health and safety legislation; active engagement between government, employers and workers in developing regulations and codes of practice; strengthening worker participation in health and safety management; and increased resourcing of a new workplace health and safety agency.

Working safer: A blueprint for health and safety at work

In August 2013 the Government released *Working Safer: A blueprint for health and safety at work*. The document is the Government's response to the recommendations of the Independent Taskforce. The Government stated that the 'reform package is aimed at reducing New Zealand's workplace injury and death toll by 25% by 2020'.

Significantly, the reform will see the Health and Safety at Work Bill replace the HSE Act. This will be introduced into Parliament in December 2013. Regulations will also be developed to support the Bill. The new legislation will be based on existing Australian law. The legislation aims to clarify duty holders and duties, cover alternative working relationships and will impose a positive duty on directors. The legislation will also introduce a new suite of compliance and enforcement tools.

MBIE was provided with an opportunity to comment on this case study and provided the following additional information:

'In 2012 MBIE initiated a major change process to improve its performance as the health and safety regulator. Organisationally this has resulted in a separation of the inspectorate into dedicated investigation teams and

proactive assessment teams. In combination with this functional specialisation, the Ministry has adopted a more risk-based approach, focusing more of its resources in the areas of greatest harm. As part of this risk based approach, the national Safer Forest Harvesting project was launched in August 2013, targeting harvesting contractors and focussing on established hazards in cable assisted breaking-out, tree-felling and contributing factors (such as fatigue, training, production pressure, impairment, nutrition and hydration) respectively. This project includes increased engagement with forest owners and contractors and a deliberate enforcement approach targeting known unsafe practices.'

Recommendations made by coroners (NZ)

CASE NUMBER

CSU-2009-HAS-000100

DATE OF FINDING 1 May 2009

CIRCUMSTANCES

The deceased was part of crew undertaking an extraction process in Te Awahohonu Forest, west of Napier. He was one of two breaker-outs, and his role was to hook up logs onto a main rope and signal to the hauler operator on the yarder to commence hauling. During this operation, when the tail rope was raised again a piece of debris travelled down the rope and then dislodged, narrowly missing one breaker-out and hitting the deceased in the head, instantly killing him.

A DoL investigation was undertaken which found that the logging company's identification of hazards, and the *Best practice guidelines* only covered the inhaul operation and not the outhaul operation where the unintended pick up of debris when working ropes are tensioned is apparently not uncommon. The DoL found that a minimum safe distance from both the main rope and tail rope should be established and a safe position identified during both the inhaul and outhaul operations.

⁶ 'Workplace Health and Safety Taskforce calls for urgent, broad-based change' (Press release, 30 April 2013).

COMMENTS AND RECOMMENDATIONS

The coroner endorsed a number of recommendations made by the DoL that were directed at C&R Logging Ltd, the deceased's employer. These were as follows.

- Prior to the commencement of operations C&R Logging Ltd shall clearly identify the head breaker-out and his responsibilities on a daily basis. This includes the responsibilities for giving the primary signals to the hauler and responsibility for setting the safe distance for other breaker-outs to adhere to.
- C&R Logging Ltd shall, at pre-harvest assessment, using information provided by the principal identify and agree on, the average length of the trees in the block, and enforce that measurement as the minimum safe distance to be applied in all situations for the whole breaking-out process, inhaul and outhaul phase, or greater distance as required considering the terrain of the particular site.
- C&R Logging Ltd shall implement a detailed step by step 'breaking-out procedure' that clearly identifies duties, the chain of command, and consequences for failure to follow instruction or implement company procedures.
- C&R Logging Ltd shall implement and record a structured skills check/audit of all qualified breaker-outs on a monthly basis. Any new breaker-out under training, (NZQA Standard), shall be checked and any training needs identified. This shall be advised to the person undertaking the 'on job training', (competent-/buddy) to implement. These observations shall be reflected in the training records signed by both the trainee and competent person giving the training.
- C&R Logging Ltd shall review the breaking-out audit process and implement an additional check procedure that ensures the participants are at the predetermined safe distance for the whole of the inhaul and outhaul phase of the breaking-out process.
- C&R Logging Ltd shall ensure that any audit is signed off by both the auditor and the participant on the day of the audit. Any follow up or corrective actions identified in the audit, must be recorded in detail and actioned within any specific time frames.

- C&R Logging shall increase supervision of breaking-out operations on a daily basis. Any failure identified shall be recorded and immediate action taken. A zero tolerance attitude must be taken to any failure to follow safety procedures.

Response from Competenz

Competenz (formerly FITEC) were provided with an opportunity to comment on this report. Competenz stated that the reviewed ACoP includes a rule that sets a minimum distance of 15 metres that breaker-outs must stand from moving ropes during outhaul.

CASE NUMBER

CSU-2008-WHG-000106

DATE OF FINDING 22 June 2009

CIRCUMSTANCES

The deceased died on Otaika Valley Road of fatal injuries sustained in a motor vehicle crash. He was driving his unloaded freightliner down Otaika Valley Road to pick up his next load of logs. As he drove down a tight and narrow s-bend, another fully laden log truck came down the same road from the opposite direction. The other trailer rolled onto its right hand side, sending its load of logs into the path of the deceased's vehicle. He was unable to avoid a collision, and died at the scene of the injuries he received.

Though both the other truck and trailer had passed inspection, the fitness of the truck had since become compromised because of wear and tear, and had an increased likelihood of 'roll-over'. It is part of the responsibility of the driver to maintain the appropriate condition of their truck; however the driver of that truck lacked experience with the dynamics of the truck and its warning signs, and was travelling around the bend faster than advised.

COMMENTS AND RECOMMENDATIONS

The coroner commented that it must be learnt that the trucks in this industry must be checked more often or need to have a stricter interpretation of the Certificate of Fitness with respect to metal fatigue and stress on components of the trucks and trailers that haul logs. There is no substitute for adherence to traffic signs for road users.

The coroner recommended that those that drive long haul trucks, particularly in the logging industry, be reminded that they have a personal responsibility to ensure that the truck they drive each day is safe enough to be on the road. Many such trucks as we see in this case meet the legal Certificate of Fitness requirements but that does not necessarily equate to being a safe truck on the road at that particular time.

CASE NUMBER

CSU-2008-PNO-000255

DATE OF FINDING 24 July 2009

CIRCUMSTANCES

The deceased had been contracted to assist with the salvaging of native timber from a farm property. He was responsible for, amongst other things, driving the timber-laden loader over the bridge. On the day of his death the deceased had already made two trips across the bridge carrying loads of milled timber. On the third crossing the deck of the bridge gave way when the loader moved too far away from the underlying support beam, causing the deck timber to become over-stressed and fail. The loader plunged approximately 7 metres into the Mohakatino River below, killing the deceased.

At post-mortem it was noted that the deceased did have an undiagnosed brain tumour that the coroner considered likely to have contributed to the loader being off course and beyond the safe part of the bridge's deck immediately prior to the bridge's failure. However the coroner found that the effects of the tumour could not be considered totally causative of the accident.

COMMENTS AND RECOMMENDATIONS

The coroner commented that the deck of the bridge extended an unusually long distance from the underlying support beam which meant that there was virtually no safety margin for deviation from a very straight line. The coroner said that in her view this exposed the deceased to an unacceptable risk.

The coroner accepted that the DoL considered that all practicable steps had been taken to identify hazards and made no criticism of South Pacific Movements Ltd in relation

to the steps they took to assess the viability of the bridge (in light of the accepted industry practice). However she considered that vast improvement in the assessment of the suitability of bridges for various purposes is needed. She considered it a 'poor reflection on the industry' that appropriate steps are considered to be a visual assessment, and having anecdotal knowledge of the history of use of the bridge.

The coroner recommended to the DoL that they engage with sector groups to lift standards of assessment of bridges on privately owned land that are used in commercial operations, and/or to carry heavy commercial vehicles, and promote voluntary compliance of the matters discussed below. She also recommended that the DoL investigate means by which industry standards for assessment of bridges on privately owned land that are used in commercial operations, and/or to carry heavy commercial vehicles, might include a requirement that an engineer's report be obtained as to the suitability of the bridge for the purpose.

To the Department of Internal Affairs the coroner recommended that research be carried out on the viability of requiring the safe loading and speed limits for bridges on privately owned land that are used for commercial purposes, and/or that are required to carry heavy commercial vehicles, to be notified by a sign at the bridge. She further recommended to the Department that they research the viability of introducing a compliance and inspection regime in respect of bridges on privately owned land that are used for commercial purposes, and/or that are required to carry heavy commercial vehicles.

Response from Competenz

Competenz (formerly FITEC) were provided with an opportunity to comment on this report. Competenz stated that the reviewed ACoP now includes the requirement for a bridge inspection programme.

CASE NUMBER

CSU-2008-WGN-000347

DATE OF FINDING 7 September 2009

CIRCUMSTANCES

The deceased was employed as a forestry worker at Ngaumu Forest in Carterton. He was carrying out operation as part of his employer's cable-logging operation. The deceased was still a tree-feller in training and his work experience in tree-felling was just over two months in duration.

The deceased's colleagues went to look for him when they had not heard any activity from his area for some time. He was found trapped beneath a fallen tree.

In order to commence the felling of the tree that struck and killed him, the deceased had to cut a pathway as the group was obstructed by a number of wind-thrown and uprooted trees. The tree he was cutting had a large wind thrown tree leaning heavily against it creating a large amount of pressure on the standing tree. This caused the tree to fall quicker after the back cut was completed, causing the wind thrown tree to spring forward in the direction the falling tree would have taken. The other wind thrown trees nearby made it difficult for the deceased to establish an uphill escape route. The falling tree hit other trees on the ground and slid, striking him as he made his way along the down-hill escape route he had cleared.

The DoL investigation found that the deceased's decision to cut a particular dangerous tree was the critical factor in his death. The report concluded that in this case there were no clear recommendations that could be made to dramatically improve processes or procedures to ensure this does not occur again. The investigation did identify a number of 'practicable steps that could have been taken' that may have prevented the death, all of which should have been taken by the deceased. The DoL concluded that there were no clear recommendations that can be made to dramatically improve processes or procedures to ensure this does not occur again.

COMMENTS AND RECOMMENDATIONS

With reference to the 'practicable steps that could have been taken', the coroner formed the view that in fact the majority of the practicable steps referred to by DoL are steps that should have been taken by the employer, rather than the deceased. After hearing from an expert witness the coroner concluded that the deceased was cutting a tree beyond his

experience and in fact lacked the training to even recognise that he was out of his depth. He found the health and safety plan was a generic one and insufficient for the specific site, and that the deceased had only two months tree felling experience and was doing work usually done by the most experienced fellers.

The coroner recorded that it could not reasonably be said that 'an employee's inactions have been the major contributing factor into the cause of the accident', as was established by the DoL report. An expert witness found that other contributing factors to the poor decision made by the deceased included weather conditions (raining, wet, poor light, cold), time of day and having had only one day of rest (Sunday) before starting the next weeks work, and not enough experience. The expert said that with the wet conditions the likelihood of the tree sliding backward or sideways into the escape route was very high.

The coroner received advice from an expert witness as to whether any recommendations could usefully be made. The coroner made a number of recommendations directed at Montana Logging Ltd (the deceased's employer).

- Files be established in respect of all employees who are under supervision or training, which will constitute training records.
- When an employee has been deemed competent for certain forestry work, but has not yet been assessed for the relevant NZQA Limit Standard(s), details of the person who deemed the employee competent, together with the qualifications and experience of that person, and full details of the assessment (the kind of work being done, the conditions under which such work was carried out and what the assessment comprised of), should be added to the employee's training record. A copy of the assessment document should also be added to the training record. That record should form the basis for any future formal assessment by a FITEC assessor charged with examining the employee for the task-related NZQA Unit Standard(s).
- Employers employing workers in a group/crew context (for example, harvesting and forest silviculture operations) should hold a short meeting each day

prior to commencement of work, which meeting should be documented. Such meetings, which might be described as pre-start or toolbox meetings, should lay out a clear plan for the day's work. All those who take part in the meeting should sign the documented plan, recording their participation in such plan.

Such meetings should include:

- discussion of the previous day's work and any incidents or issues raised
- discussion of the work to be carried out during the day, including allocation of work, who is to carry out the various work tasks, whether any employee is changing his or her work tasks and the nature and extent of supervision of employees required that day
- highlighting of any particular known hazards associated with the day's work, together with such controls as are deemed necessary in the circumstances.

The coroner commented there may be no criticism of Montana Logging Ltd in general safety terms. There is no issue with the fact that the deceased was competent with normal tree felling but he did not have the level of experience and knowledge to properly cope with the environment in which he died. The coroner commented that it is hoped that the recommendations made by the court will act as a reminder to employers of the need for daily checking of the work to be carried out by forestry workers with a view to identifying and dealing safely with hazards they may meet during the day's work.

Such recommendation is in keeping with the nature of the duty laid down upon employers by section 7 of the Health and Safety in Employment Act 1992, enjoining every employer to ensure that there are in place effective methods for systematically identifying existing hazards to employees at work. In this way the employer's safety plan will be robust and complete. Plans that are generic in nature may effectively identify hazards of a general kind, but section 7 of the Act requires the laying down and maintenance of systems for the identification of both existing and new hazards to employees at work. New hazards may, and do, arise daily. For this reason there needs to be regular

reappraisals of employment hazards. Reappraisals are required as sites and the nature of employment change. There is a higher degree of care required on the part of employers in the case of trainees.

Response from Forest Industry Contractors Association (FICA)

[FICA agrees] with the comments. It will be important for our industry to carefully consider the record of learning recommendations as many prospective employers generally regard the information contained as insufficient. Many employers use their own more practical measures and often the skills of in-house trainers/assessors to make practical on-site assessments of the skills of new employees. Changes to the information contained in the record of learning would be potentially quite helpful, as standards for its details and format can be applied using systems in place by forestry's industry training organisation.

Response from Competenz

During the recent qualification review process it was identified that unit standards and therefore training needed to be improved in the area of on-going hazard management and identification of new or changing factors that could impact on an operation (weather, terrain, stand conditions). This additional requirement is currently being written into all of the relevant practical unit standards in forestry. There is also a review underway of the tree felling unit standards that will result in an improved understanding of the ability of tree fallers at different stages of their learning. Currently there are two stages of recognition (basic tree faller and professional tree faller). In the future there will be three recognition points (basic tree faller, production tree faller, professional tree faller).

CASE NUMBER

CSU-2010-HAM-000074

DATE OF FINDING 11 February 2011

CIRCUMSTANCES

The deceased's company was employed to remove a large tree from a property which had fallen down and was lying over a boundary fence. During this operation the deceased

was operating a bulldozer in order to contour and clean up the area surrounding the fallen tree. While attempting to move the tree stump with the bulldozer, the deceased was catapulted out of his seat, over the engine compartment and onto the left track of the bulldozer. As the bulldozer was slowly moving forward, he was dragged under the track and crushed by the weight of the machine. He was not wearing a seatbelt at the time he was operating the bulldozer.

COMMENTS AND RECOMMENDATIONS

The coroner commented that it was clear from the evidence that if the deceased had been wearing the seatbelt while operating the bulldozer, he would have survived this incident. The DoL inspector who investigated this incident noted that the seatbelt fitted on the bulldozer had the appearance of having been used regularly. There is no indication of the reason why the deceased had not put his seatbelt on at the time of the incident.

The coroner noted that there is no legal requirement for an operator of a bulldozer to wear a seatbelt and considered whether this would in fact be practicable or even desirable. He stated that there may be situations where operators of bulldozers put themselves at greater risk by wearing a seatbelt. In the absence of evidence on this point, the coroner simply made the above comments in the hope that the relevant safety organisations will consider whether it should be made compulsory for seatbelts to be worn while bulldozers are being operated.

Response from Forest Industry Contractors Association (FICA)

FICA agreed with the coroner's comments and also added the following.

[S]ince other bulldozer and tracked skidder accidents there has been a much greater awareness generated among forest managers, logging contractor principals and their crew leaders that the wearing of operators seatbelts where fitted by the original equipment manufacturer is now accepted for most tasks in logging as the safest practice. The wearing of seatbelts in cutovers is now mandatory and audited regularly.

CASE NUMBER

CSU-2010-HAM-000488

DATE OF FINDING 20 April 2011

CIRCUMSTANCES

The deceased was working in a site in Whenuakite working as part of a logging operation involving loading cut logs on to logging trucks for transport.

The deceased was working with his colleague at 6am, at which time it was still dark. He leaned out the window cavity of the loader in order to pass a torch to his colleague. The window had previously been removed. At this time he inadvertently leaned against the main boom control lever, which lowered the boom. He was crushed between the lift ram of the boom and the safety frame of the cab, killing him instantly.

COMMENTS AND RECOMMENDATIONS

The coroner did not consider that any recommendations could usefully be made however commented on the key mistakes made by the deceased, as identified by the DoL investigation, which led to his death. He commented that the two main mistakes made was the failure to replace the window on the loader, and the decision made by the deceased to pass the torch through the window cavity. The window of the cab acts as a guard preventing operator access to the boom and thereby prevents the operator being crushed between the boom and the frame of the cab. By failing to replace the window, the deceased created a very serious threat to his safety.

The coroner further commented that the deceased's decision to pass the torch through this window cavity is an understandable one, given the convenience of doing so. Nevertheless, it was a fatal mistake on his part which would not have occurred if the window had been in place or if the deceased had stopped to consider the danger of such an action. The coroner said that he trusts that other operators of loaders will appreciate the necessity to ensure the safest possible working environment by maintaining in place any piece of equipment related to their safety while operating the machine, and to consider the consequences of their actions while the machine is in operation.

CASE NUMBER

CSU-2010-HAS-000288

DATE OF FINDING 24 June 2011

CIRCUMSTANCES

The deceased was performing breaking-out duties in the Wharerata Forest, Gisborne. On a Monday morning he and a colleague were using a tail hold anchor stump that had been used for that purpose since the previous Friday. The stump had been used as a tail hold to haul over 80 logs during this time.

That morning during the hauling process the deceased saw the stump moving and asked his colleague to signal to the hauler to stop hauling. The hauler operator stopped however the tail hold stump still lifted. The deceased fell onto the root plate of the tail hold stump as the soil moved under his feet, and then fell back into the crater left by the lifted stump. At that moment the very large stump fell back into the crater, crushing the deceased.

The DoL investigator commented that 'cable logging is inherently dangerous and risk management is limited to minimisation'. The investigation found that although the tail hold stump met all the requirements of the *Best practice guidelines*, it was devoid of its main tap root with only lateral root penetration evident. It was determined that it was the combination of the stump pulling and hauler stopping at the same time that the logs were partially suspended created a pendulum effect that levered the stump out of the ground, even after the hauler operator stopped.

COMMENTS AND RECOMMENDATIONS

The coroner recommended to FITEC that the *Best practice guidelines for cable logging* and the ACoP be amended to include:

- secondary anchoring system to be used at all times unless anchored to a mobile anchor or when two blocks are used to share loading forces
- 6 metre exclusion zone to be implemented around any live anchor
- any anchor stump failure shall be investigated to determine why the stump failed, and appropriate actions taken to minimise risks to employees.

The coroner also recommended that the DoL create a safety bulletin for forestry industry use.

Response from Competenz

Competenz (formerly FITEC) stated that it was too late to include additional material in the ACoP at the time of the coroner's recommendation. The coroner's recommendation will be added when the review of the *Best practice guidelines for cable logging* is carried out.

CASE NUMBER

CSU-2009-DUN-000402

DATE OF FINDING 28 June 2011

CIRCUMSTANCES

The deceased was a truck driver working as part of a logging operation in the forest involving loading cut logs on to logging trucks for transport. He received fatal injuries when, while engaged in loading logs onto a truck, he was struck by a log which became dislodged from the load. While the truck was being loaded, the deceased stood in what is agreed as the 'safe zone' to supervise the loading.

After loading was completed the deceased assisted with chaining the logs down and asked his colleague to push down a log that was sticking up at the top of the load. His colleague used the loader to do this successfully but this action caused an adjacent log to 'jump' from its previously secure placement, fall and strike the deceased. It appears that the deceased had moved around the truck during this time in order to secure the load before the log that had been sticking up could pop up again. It appears that his colleague had lost sight of the deceased at the time and was unaware that he had moved around the truck.

A DoL investigation was undertaken which concluded that the deceased had moved away from the 'safe zone' to secure the load before the log that had been sticking up could pop up again. The DoL report was suggestive therefore that it was the actions of the deceased which was the prime cause of his death. In contrast, the report of the employer (the Dunedin Carrying Company or DCCL) suggested that the prime responsibility was that of the colleague as loader-driver in continuing to operate the loader while he could not see the deceased.

COMMENTS AND RECOMMENDATIONS

The coroner commented that the codes and specifications, as they pertain to logging operations are confusing if not contradictory. However the coroner found that although the rules relating to the height of logs considered safe on a truck vary, there is no clear evidence that it was the height of the logs that was the problem.

With reference to both the DoL's investigation and DCCL's report, the coroner concluded that in his view responsibility is shared. The coroner commented that DCCL should have rigorous protocols in place to ensure safe operations. DoL and the industry should co-operate to ensure that there is only one, easily understood, set of guidelines for those in the logging industry to follow. The coroner recommended that a copy of this finding be sent to DCCL, DoL and to the Log Industry Safety Council to ensure that the Codes and Specifications are reconciled and acted upon to ensure the future safety of workers in the industry.

Response from Forest Industry Contractors Association (FICA)

FICA agrees that confusion over the safe zone is the greatest continuing cause of harm in log truck loading. FICA believes that the most recent clarity given with the diagrammatic clarification in the revised ACoP should simplify understanding for everyone.

Workplace observations indicate this area still lacks discipline, but as the ACoP now explains it clearly, it now needs to be put into practice and policed by all concerned. The workplace practicalities of trying to achieve implementation of the new simplified diagrammatic 'driver position' now appears to only be problematic in 'stems' logging operations (where the logs are loaded uncut and in full tree length). With a working group now investigating options it is anticipated that the only safe position for drivers being loaded in these operations will be remaining inside the cab of the logging truck. This is not yet finalised.

Response from Competenz

The coroner commented that the 'Codes' and 'Specifications' were confusing. During the review of the ACoP, the review team met with the Log Transport Safety Council (LTSC) to address this issue. It was agreed that the ACoP and the LTSC

standards document needed to be better aligned. The two groups worked together to develop rules for loading zones and designated safe areas. This single set of rules appears in both documents. Other rules relating to loading and transporting of logs were also reviewed by both groups to ensure consistency.

CASE NUMBER

CSU-2010-CCH-000043

DATE OF FINDING 14 December 2011

CIRCUMSTANCES

The deceased was an experienced breaker-outer working in Robin Hood Bay, Marlborough. At the time of his death he was undertaking work felling trees. He died from injuries received when a tree he was cutting down fell on him.

The tree had been secured to the mainline of the cable hauler prior to being cut, the intention being that the tree would fall freely but once down, the mainline could be used to facilitate its immediate retrieval. However, there was insufficient slack in the mainline to let the tree fall freely, and as the tree began to fall the line tightened and pulled the tree off the stump and back towards the deceased. He was unable to move from its path and was trapped beneath it.

COMMENTS AND RECOMMENDATIONS

The coroner commented that this revealed what she considered to be shortcomings in the employer's management of Health and Safety issues, particularly in relation to the tree felling process the deceased was using when he died. She also commented that this process does not appear to be an industry recognised practice, nor does it appear to be used widely within the industry, although Pelorus employees were well familiar with it.

The coroner further stated, 'since [this incident] Pelorus Contracting Limited has produced a one page Health and Safety policy document regarding use of the process, but in my view further action should be taken to formalise training and identify competencies required if this process is to be persisted with. In particular, the training should cover the means by which the person using the process can determine the tension in the mainline when the line is unsighted'.

Response from Pelorus Contracting Ltd

Pelorus Contracting Ltd has informed the Office of the Chief Coroner that it has not used this technique since the incident due to the terrain and block(s) that they have been working in. Since the death of the deceased the firm has put in place a certificate to certify that the recipient has been trained and certified to use the process.

Pelorus Contracting Ltd further stated that it will be applying all training under Policy 12.8 Machine Assisted Felling – Cable Harvesting of the new Code of Practice for Safety and Health in Forest Operation issued by the DoL.

Pelorus Contracting Ltd stated that FITEC (now Competenz), who is under contract with Pelorus to certify all training, will certify the harvesting technique. Note that it was clarified by Competenz that their role is not to certify a particular technique but rather to develop unit standards and assessment processes that meet industry needs. In this case Competenz has unit standards covering machine- assisted tree falling, and these are what the trainees will be assessed against.

CASE NUMBER

CSU-2011-DUN-000356

DATE OF FINDING 5 December 2012

CIRCUMSTANCES

The deceased died at Overton Forest, Southland of multiple traumatic injuries, sustained when he was struck by a falling tree.

The deceased was employed by Don Contracting who had been working in the Overton Forest, clearing pines. The crew were working on the lower part of the block which was reasonably sheltered from the wind, the strength of which was described as building as the day progressed. The deceased began de-limbing the second to last tree with his back to the last tree. The tree behind him was pulled from the ground by the wind and fell. The deceased was wearing ear muffs because he was using a chainsaw, and could not be warned. The tree struck him on the back and drove him straight into the log he was standing on. Other crew members called emergency services, but he had died at the scene.

The ground where the deceased was working was softer than usual, due to recent rainfall. This made it easier for the tree to be blown over. Additionally, the roots of the tree that fell on him were small for a tree of that size. The wind was recognised as being strong that day, but all the bush workers at that day in Overton Forest agreed that that the forest was sufficiently sheltered, and it was safe for working. Extra care was also taken by moving to a lower area to fell trees that were less affected by the wind.

The deceased was an experienced bushman, having had 20 years experience, and was stated as being competent and an expert. He either had not noticed the increase in wind strength around him as he worked, or took a risk in finishing the block, despite the wind.

COMMENTS AND RECOMMENDATIONS

The coroner recommended that a copy of this finding be forwarded to the MBIE and to FICA in order that the lessons learned from the tragic death of the deceased not be lost.

Response from Ministry of Business, Innovation and Employment

MBIE commented that it is difficult for the Ministry to respond specifically to such a general recommendation. MBIE wrote that the findings had been registered on the Ministry's database and distributed to various areas of the Health and Safety Group including the General Manager Health and Safety Operations, the Sector Engagement and Technical Services teams and the Health and Safety Policy team. The findings are also available to staff. In this way they are available to be used in a variety of aspects of the Ministry's work relating to health and safety in the workplace.

CASE NUMBER

CSU-2012-HAS-000144

DATE OF FINDING 19 December 2012

CIRCUMSTANCES

The deceased died from injuries received when he was crushed between two logs while working in Whareongaonga Forest. He was working in a four man breaker-out crew, removing logs from the pile. A worker on the lower side of a pile of logs felt the logs moving and pressing on his leg. He pulled his leg free, and moved out of the way, however unfortunately the deceased was hit by the logs.

Staff worked quickly to free the deceased who was trapped by the logs, and commenced CPR. Ambulance helicopter assistance was called but he could not be revived.

A DoL investigation found that the men had been removing logs from the bottom of the pile, causing it to destabilise and slip. The investigation emphasised that the development of mechanical extraction methods considerably reduced the risks involved with this work and that the rapid implementation of these methods when available should be a priority for everyone.

COMMENTS AND RECOMMENDATIONS

The coroner recommended to harvesting contractors, forestry owners, principals and cable harvesting employers that cable harvesting contractors use mechanical grapples as the preferred method of log extraction.

It was recommended to FITEC (now Competenz) and the Ministry of Business, Innovation and Employment (MBIE) that immediate consideration be given to including a recommendation that mechanical grapples are used in both the *Best practice guidelines* and the ACoP. It was further recommended that immediate consideration be given to including recommendations for extraction, location and height restrictions of bunched logs in both the *Best practice guidelines for breaking-out* and the ACoP.

Response from Ministry of Business, Innovation and Employment

The Health and Safety Group has reviewed your recommendations from [this inquest].

It is not practical for the group to republish the *Best practice guidelines* and the ACoP for safety in health in forest operations to include your recommendation that mechanical grapples are used. The group notes that mechanical grapples are an emerging technology with considerable evident benefits, and has already publicly stated its view that their use could contribute to reducing serious harm in the forestry sector. The Ministry will continue to make that point publicly and when it is appropriate to republish the guidelines and the ACoP, publish its position in those documents.

FITEC is currently producing a *Best practice guidelines on breaking-out* and your recommendation that this document should include recommendations for extraction, location and height restrictions of bunched logs is being addressed in that. The Ministry raised with FITEC (now Competenz) the recommendations and anticipate that the intent of the recommendations will be reflected in the *Best practice guidelines*.

Response from Competenz

Competenz (formerly FITEC) commented that additional content was added to the draft *Best practice guidelines for breaking-out in a cable operation* as recommended by the coroner. This document now includes a section on breaking-out bunched stems.

Recommendations made by coroners (Aus.)

CASE NUMBER

Inquest into seven deaths (NSW)

DATE OF FINDING 19 October 2007

CIRCUMSTANCES

In New South Wales (NSW), Australia, between 2003 and 2006, seven inquests were conducted consecutively into seven forestry industry workers. Five of the seven deaths occurred in state forests. The Forestry Commission, WorkCover Authority of NSW, employers and other workers who were witnesses were involved in the inquests.

All but one of the deaths occurred during the course of tree felling or as a result of a snagging operation. All men were highly experienced and apparently well trained. Almost all of these cases involved stags or damaged limbs from trees inadvertently falling and striking the workers. The particular risk posed by stags is that they are dead or decaying trees whose timber is dry and brittle. This means that they are susceptible to falling as a result of vibrations (for example caused by a chainsaw, by being hit by a falling tree or machinery or being subjected to impact shock from a felled tree landing close by). A stag may also fall due to natural causes. The general consensus at inquest was there is no such thing as a safe stag.

COMMENTS AND RECOMMENDATIONS

The coroner commented in her findings that 'All timber workers work in extreme conditions. The work is hard and constant and they are isolated. The work is often dangerous. Remuneration for this hard work is usually dependant on their tally of trees felled'. One of the central questions asked by the coroner was 'What more needed to be done by way of education or regulation to ensure the safety of other industry workers?'

Having considered the circumstances of the individual deaths, the coroner made a number of general observations.

In Australia timber-felling operations are controlled by State Forests through the use of harvest plans and all operations are supervised by supervising forestry officers (SFOs). One of the key accountabilities of the SFO is to ensure that contractors adopt safe working practises, including safe felling techniques. The coroner observed that the evidence demonstrated a lack of consistency of uniformity in the supervision of harvesting operations by SFOs.

The series of inquests exposed a variety of policies that are relevant to tree felling in the vicinity of other stags and other hazards. Material provided to fellers to guide their assessment of dangerous stags was not always consistent and varied between their definitions of such terms as 'stag' and 'felling zone'. The coroner found that it seemed most instructions and warnings by SFOs concerning identifying and assessing dangerous stags occurred on an ad hoc basis. The coroner also observed that no single guidebook or manual produced by Forests NSW contained the entire guidelines to enable a single reference point.

The coroner made a number of recommendations in her findings. To State Forests (Forests NSW) she recommended that they:

- enforce regular supervision by SFOs of all harvesting operations in state forests
- ensure that the auditing programme specified in the *Monitoring and audit manual* be implemented and enforced
- continue to ensure that safety alerts are disseminated to all logging contractors and other harvesters to ensure the timely and comprehensive distribution of information concerning recent accidents or other issues requiring urgent attention

- promote the *Forest NSW H&S guideline – dangerous and problem trees* as the minimum and mandatory standard of practice for harvesters.
- clearly define 'drop zone' or 'active felling zone' or 'felling zone' in accordance with AS2727 – 1997 to ensure it encompasses an area '...not less than twice the length of the tallest tree to be felled from the operation. This safe distance should be increased on steep slopes because felled trees may slide downhill. The zone should extend 360° around the tree to be felled.' (this will necessitate redefining the terms 'immediate felling zone' and 'active felling zone' as contained within the second manual and guideline)
- review current Forests NSW safety documentation including the second manual and the *Guideline and chainsaw operators manual* with a view to implementing a comprehensive and readily accessible system of computer linkages to these and other relevant publications and other documents (hyperlinks)
- ensure all SFOs are equipped with hard copies of all safety policies, procedures and other related information to be accessed in the field
- confirm the enforceability of all occupational H&S provisions with respect to all logging operations conducted by any person, company or any other contractor (including stumpage contractors) within state forests of NSW.

To Standards Australia it was recommended that consideration be given to altering the diagram in *Australian standard 2727-1997 chainsaws – guide to safe working practices* (page 24) (concerning the feller retreating along escape route) – to include reference to feller watching falling tree for three metres at least and then turning to retreat.

To the WorkCover Authority it was recommended that it:

- revise its recommendations concerning the style and spacing of glut/s to ensure a greater understanding of the importance of uniformity and evenness of gluts when loading timber packs
- review the present regulatory requirements concerning logging on private property to ensure those contracted harvesting operations are undertaken only by accredited operatives (to be distinguished from the property owner's own activity)

- review the evidence presented at inquests into the these deaths for non compliance under the Occupational Health & Safety Act.

Recommendations were also directed to the NSW Ambulance Service regarding response times and the dispatch of helicopters, and to the Commissioner for NSW Police regarding the collection of blood and tissue samples.

CASE NUMBER

L0325/2005 (TAS)

DATE OF FINDING 30 May 2006

CIRCUMSTANCES

The deceased was working as a self-employed tree feller in a forest owned by Forestry Tasmania. He was the holder of a number of certificates of competency issued under the Tasmanian Forestry Industry Training Board's industry competency standards. The deceased's colleague found him lying alongside a fallen tree with a tree limb lying next to him. It appeared that a limb in the crown of the tree that fell and struck the deceased had been damaged – probably from being struck by another tree which had been earlier felled by someone else. It appeared that the deceased was aware of the damage to the tree and the danger it presented.

The deceased made a decision to fall the damaged tree but did not clear the area to either side and backwards from the intended direction of fall so that he had an escape route to enable him to safely avoid any unexpected reaction in the tree's falling. It appeared that as the tree began to fall on its intended line the damaged limb had become detached from the tree's crown and began falling in the direction of the deceased. To avoid the falling limb the deceased moved from the back of the offending tree towards its front but in doing so was struck, either by the detached limb as it had swung from the south towards the north, or by the tree itself.

Post-mortem toxicological testing revealed the presence of methylamphetamine recorded at 0.4mg/L. However, the evidence did not permit the coroner to make any finding upon whether the drug was a factor contributory to this accident.

COMMENTS AND RECOMMENDATIONS

The coroner commented that this tragedy may have been avoided if the deceased had, in accord with proper forestry practice, cleared an escape route before he proceeded with the felling. Had he done so then it is probable that he would have been able to utilise the route and avoid the limb when it became detached and fell towards him. The coroner said that this death should serve as reminder to all tree fellers that the preparation of an escape route is a measure vital to their safety in the bush.

The coroner further commented that it is of course reckless and foolhardy for any worker in the forestry industry to consume drugs which may compromise his capacity to carry out his work duties in a manner which best ensures the safety of himself and others. The coroner's understanding was that some employers within the industry, but not all, incorporate within their occupational, health and safety guidelines a specific drug policy. Such policies ordinarily provide for random drug testing by a medical practitioner. In the coroner's opinion, any reasonable steps which can be taken to dissuade workers from using non-prescribed drugs when working should be encouraged. To this end the coroner recommended that all employers in the forestry industry adopt a drug policy and that such policy incorporates a provision for random testing of employees, particularly when working in the bush.

CASE NUMBER

H0224/2003 (TAS)

DATE OF FINDING 4 January 2008

CIRCUMSTANCES

The deceased was working as a tree feller in the Styx Valley, near Maydena, when a colleague found him underneath a large section of tree. His colleagues had to drive 20km to Maydena to get mobile phone reception before the Tasmanian Ambulance Service could be contacted.

An investigation into the death ascertained that the fallen section of tree was the top of a stag which appeared to have broken off about 10 metres from the ground. It appeared that one or two other trees felled by the deceased

that day struck the stag as they fell. This damaged the stag and caused it to fall on the deceased while he was felling another tree.

As a result of the workplace standards investigation it was identified that the probable cause of this tragic accident was a failure by the deceased to use tree-felling practices of a standard equal to the Forest Safety Code (Tasmania) 2002. It was also recognised that there was a failure by one or more persons at the workplace to ensure compliance with the principal employer's safety management system, in particular the procedure for the management relevant to the cull of stag trees.

COMMENTS AND RECOMMENDATIONS

The coroner commented that the deceased's death was avoidable and stated that the circumstances in which it occurred should serve as a reminder that it is incumbent upon those with a duty or obligation to exercise management or control over a workplace, that as far as is reasonably practicable any person at the workplace is safe from injury and risks to health. The coroner further stated that it is also of paramount importance that persons hold the appropriate certification of relevant or applicable competencies or are operating under the direct supervision of a competent person.

CASE NUMBER

1527/02 (VIC)

DATE OF FINDING 18 February 2009

CIRCUMSTANCES

The deceased was an experienced tree feller who, in the course of undertaking his duties, was struck and killed by a falling tree. Following a lengthy WorkSafe investigation the deceased's employer was charged and subsequently pleaded guilty to two counts of failing to provide and maintain a safe working environment contrary to the Occupational Health and Safety Act 1985.

COMMENTS AND RECOMMENDATIONS

The coroner commented that the failure of the defendant company to address exclusion zones in its risk analysis, combined with the various safety shortcomings and departures from industry practice identified in the WorkSafe investigation, which formed the basis of its guilty plea is without excuse.

The coroner stated that the timber industry poses significant dangers to workers. It casts a proportionate burden on employers to ensure that safety is paramount. The coroner commented that unfortunately, the high regard in which the company held the deceased was not reflected in a work safety system which complied with industry practice and guaranteed his safety.

The Office of the Chief Coroner would like to thank the Ministry of Business, Innovation and Employment, the NZ Council of Trade Unions, Competenz (formerly FITEC), the NZ Forestry Owners Association and the Forestry Industry Contractors Association for their input.

Glossary

ACC	Accident Compensation Corporation
ACoP	Approved code of practice (specifically the Approved code of practice for safety and health in forest operations)
DCCL	Dunedin Carrying Company
DoL	Department of Labour (now Ministry of Business, Innovation and Employment)
FICA	Forestry Industry Contractors Association
FITEC	Forestry Industry Training and Education Council (now Competenz)
H&S	Health and Safety
HSE Act	Health and Safety in Employment Act 1992
LTSC	Log Transport Safety Council
MBIE	Ministry of Business, Innovation and Employment (formerly Department of Labour, Department of Building and Housing, Ministry of Science and Innovation, Ministry of Economic Development)
NSW	New South Wales
NZCTU	New Zealand Council of Trade Unions
NZQA	New Zealand Qualifications Authority
SFOs	Supervising forestry officers

FORESTRY TERMS AND PROCESSES

Breaker-out Worker at the felling site responsible for connecting trees or logs to a hauling rope, tractor, skidder, etc. for transport to a landing.

Breaking-out Operation of a breaker-out or initial movement of trees from the felled position.

Cable logging In its most simple form cable logging consists of a fixed winch with a tail rope used to pull the line out to the trees and a main rope to pull the logs in once attached to the line. Because much of New Zealand's plantation forest is located on steeper land, cable systems are quite widely used.

Grapple Hinged jaws which can be closed or opened and used for grasping logs. Grapple hauling involves hauling logs using a grapple in place of butt rigging and strops.

Hauler (yarder) A machine equipped with winch or winches that operates from a set position to haul logs or drags from the stump to landing.

Root plate (root wad, root ball) The mass of roots and soil which is exposed when a tree is wind-thrown or pushed over without being severed or broken off from the stump.

Skidder (snigger) A self-propelled extraction machine with wheels or tracks specifically designed to partly support logs during skidding.

Skidding (snigging) The process of dragging logs from stump to skid (the area to which logs are extracted and where they are sorted or loaded).

Stag A standing dead or decaying tree (Australian term).

Tail-hold The anchor for the tailrope. Most often a stump, machine or a deadman. A deadman is a solid object, usually a log, buried in the ground to form an anchor for guys, blocks or hauler tieback.

