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Protecting People

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Report

In the matter of

Ngauranga Gorge Fatal Incident Investigation

Prepared for

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WorkSafe NZ

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1. Introduction

The following report has been prepared at the request of WorkSafe New Zealand (NZ), to discuss the activities surrounding the events of 11 March 2019, where a fatal truck incident occurred at Ngauranga Gorge.

The purpose of this investigation report was to describe how the Persons who Conduct a Business or Undertaking (PCBU) associated with the fatal truck incident managed their risks, and the opportunities that existed to prevent the fatal event.

This report is based on the expertise of the author, research undertaken by the author, as well as the list of documents (with identification numbers) provided in **Attachment 1**. Any reference to material provided will be marked with the identification number of the document [e.g. 40018] and any reference to material researched by the author will be referenced as a footnote.

If further information is provided at a later date, reassessment may be necessary.

The author confirms they are familiar with the obligations on expert witnesses when providing expert evidence. Attached to this report at **Attachment 2** is Schedule 4, Code of Conduct for Expert Witnesses setting out the obligations specific to an expert within New Zealand and the author confirms that they understand them and agree to abide by them.

The author's curriculum vitae is attached as **Attachment 3**, outlining the author's training and experience. The author confirms that the evidence and commentary contained in this report is within their area of expertise.

2. Brief Description of the Incident

The NZ Police Fatal Crash Report dated 1 July 2019 (60000) provided a description of the incident in the Executive Summary as follows:

- 1.2 *At about 9pm on Monday the 11th of November 2018 (sic), Mr Joji BILO (25 years) was working on Ngauranga Gorge as part of a road construction crew repaving the State Highway.*
- 1.3 *Mr BILO was walking downhill within the coned off worksite, painting distance markers on the road surface.*
- 1.4 *At the same time, and approximately 400 metres uphill of him three large dump trucks were called up by the worksite manager to enter the coned off area in preparation of road milling process.*
- 1.5 *One of these was a Nissan Diesel truck, driven by Mr David Bruce JENKINS s9(2)(a).*
- 1.6 *Once Mr JENKINS entered the worksite, he moved to the left (kerbside) lane and parked his truck at the front (downhill) end of the queue, turning the engine off, along with his warning lights and roof beacon.*
- 1.7 *Mr JENKINS then got out of his truck and was seen by CCTV and car dash-cam standing near the driver's door, immediately before the truck started rolling away downhill.*



- 1.8 Mr JENKINS tried to get back into the vehicle as it moved downhill, before falling onto the road and sustaining life threatening injuries.
- 1.9 The Nissan truck continued downhill without any occupants inside, subsequently striking and running overtop of Mr BILO.
- 1.10 Mr BILO died at the scene as a result of the injuries received.

The date of the incident in the description above is believed to be a typographic error as the remainder of the report refers to the date of the incident as 11 March 2019.

3. Vehicle Details

3.1 Vehicle Identification

The vehicle involved in incident was a Nissan Diesel CG400, with registration ZO9541 and VIN # JNBCGB45000T00252 (**Figure 1**). The truck is understood to be powered by a 6-cylinder (12503cc) turbo diesel engine with a manual Road Ranger transmission [60000]. The truck has twin steer front axles and tandem drive rear axles (i.e. 8x4).



Figure 1 – Nissan Diesel CG400 Truck involved in incident [60000]

The truck is understood to have been manufactured and first registered in 2000 and was approximately 19 years old at the time of the incident. The truck had completed about 662,000 km [42003] based on the odometer reading.

The Nissan Diesel truck (ZO9541) is understood to have been checked and issued with a Certificate of Fitness (COF) #40647885 [42003] following an inspection by VTNZ at Porirua on 2 March 2019 (9 days prior to the incident).

The NZ Police Fatal Crash Report [60000] provided an examination of the vehicle involved in incident. There were various observations made in relation to damage to the exterior of the vehicle that aligns with the incident observed by the author in the provided videos [404, 405, 406, 407, 455, 24001].



3.2 Vehicle Interior

The NZ Police Fatal Crash Report [60000] provided the following notable observations in relation to the truck interior:

- 5.19 The steering wheel was twisted and bent out of round. This caused the horn to sound when the ignition was turned from the accessory position to the 'on' position. The steering wheel had to be pulled up to stop the horn during the inspection to prevent hearing damage.
- 5.20 The downward bend was on the right side causing the horn wiring contacts to short out closing the circuit to activate the horn. The caused the centre trim to sit up and not return to its normal position.
- 5.21 The truck was fitted with an air adjustable driver's seat, this was noted to be at its lowest position, resting on the seat base with no cushioning effect.
- 5.22 The controls for the seat were loosely secured to the seat base behind the park brake area (**Figure 2**).
- 5.23 When checked, the adjustment system worked correctly and lifted the seat up off the floor.
- 5.24 When sitting in the driver's seat it was evident that the seat was able to be rocked sideways, indicating either damage to the seat base or floor.
- 5.25 When the vinyl floor covering was pulled back it revealed the seat base had previously been welded to the floor, the floor around this weld had torn free allowing the right front corner of the seat to move freely (**Figure 2** and **Figure 3**).
- 5.26 The area around the weld had oxidised (rusty) indicating it had been in this condition for some time (**Figure 3**).
- 5.27 The movement in the seat should not pass a Certificate of Fitness inspection. The corresponding hole in the floor is visible from underneath the truck.
- 5.28 The Nissan is fitted with a 'Sanwa Seiki Ltd' brand park brake, which is located on the right side floor next to the driver's seat base (**Figure 2**).



Figure 2 – Nissan Diesel truck interior [60000]



Figure 3 – Torn weld and subsequent hole on right front corner of driver's seat [60000]

3.3 Park Brake Function

The NZ Police Fatal Crash Report [60000] provided the following further details on the function of the Sanwa Seiki park brake:

- 5.29 This is a simple design that has a rotary air valve inside a metal housing.
- 5.30 It operates by moving a spring loaded lever to control an air valve, which opens and closes a pressurised brake line activating the rear wheel brakes.
- 5.31 The lever needed to be lifted from near the horizontal position (on the floor), until the shaft dropped down approximately 6mm (Figure 4 and Figure 5), and preventing the lever from being released. This covered a sweep of approximately 60 degrees upward lift.



Figure 4 – Park brake engaged and lever not locked [60000]



Figure 5 – Park brake engaged and lever locked [60000]



5.32 *The return spring had enough pressure to provide resistance to the lever when lifted.*

5.33 *When applying the brake lever, it was apparent that the brake valve closed before reaching the locking gate.*

5 5.34 *This allowed the park brakes to apply without the brake lever being securely locked and with the lever remaining upright.*

5.36 *This truck was fitted with a handbrake warning device. This operated when the truck was running and the driver's door is opened when the park brake is not on, causing the air-horns to sound.*

10 5.37 *This additional safety device was checked and confirmed as operating during the vehicle inspection.*

The function of the Sanwa Seiki park brake provided auditory confirmation (i.e. rushing air through the system) of an engaged park brake but provided minimal tactile or visual confirmation (as shown in **Figure 4** and **Figure 5**) that the park brake is locked in the engaged or "on" position.

3.4 Park Brake Testing

The NZ Police Fatal Crash Report [60000] provided the following details on the testing of the Sanwa Seiki park brake on the Nissan Diesel truck:

20 5.42 *The Nissan truck involved in this crash has the same "Sanwa Seiki Ltd' brake lever fitted to the right side of the driver's seat.*

5.43 *It was noted that when someone was sitting in the truck and with the engine running, the seat was sitting on the floor as had not been adjusted or inflated with air. This meant that right side of the foam base squashed down to a position that exposed the top of the brake lever (**Figure 6**).*

25 5.44 *When the driver of the truck got out of the cab, the right thigh and trouser pocket could come into contact with the lever (**Figure 7**).*



Figure 6 – Location of engaged park brake with driver seated [60000]



Figure 7 – Contact with the park brake when exiting the truck [60000]

The author understands that contact with the park brake when exiting the truck (**Figure 7**) would likely result in the park brake disengaging (i.e. dropping to the floor) if the lever was not locked in as shown in **Figure 4**. However, if the lever was locked in position (**Figure 5**), the park brake should remain engaged.



The NZ Police Fatal Crash Report [60000] provided the following details on additional testing of the Sanwa Seiki park brake on the Nissan Diesel truck:

5.45 *During examination inside the truck and bench testing that followed later, the lever repeatedly remained upright without being locked into the gate, however it could be released with a light touch of the plastic knob.*

5.46 *The same testing procedure was done, lifting the lever until it held and to then to slap the floor to simulate the closing of the truck door. This slap released the lever every time, causing the park brakes to disengage.*

A video titled "Handbrake test video" was also provided to show that the slap to the floor (to simulate the closing of the truck door) released the lever and disengaged the park brake, if the park brake was not locked in the engaged position.

3.5 Sanwa Seiki Park Brake History

On 20 September 2006, the Queensland Government Department of Natural Resources, Mines and Energy (DNRME) published Mines Safety Alert No. 150 [70020]¹ describing a park brake failure resulting in a truck rolling away. The truck was an Iveco Acco 2350G and the "cause" was described as:

The park brake lever did not lock into position when applied. When the driver closed the door as he left the cabin, the vibration jolted the lever into the release position.

The comments and recommendations from this incident included:

The park brake lever is designed to be locked into position by a detent (a spring-activated pin that automatically drops into a catch hole). Tests showed that the park brake could be 'applied' while the pin remained unlocked. A slight jolt to the lever was all it took to release the brake.

The truck's 'brake not applied' alarm is activated by a sensor that monitors the position of the lever rather than the status of the detent.

Post-incident testing revealed that the alarm worked only when the ignition was on.

The driver's understanding of the truck's braking system was inadequate.

Climbing into the cabin of a runaway vehicle is dangerous and can result in serious injuries, or worse.

The designated area in which the truck was parked was not suitably designed to prevent vehicles rolling away in the event of a park brake failure.

Based on the description of the incident, it is understood by the author that this was either a Sanwa Seiki park brake or a very similar design.

In September 2010, a man was fatally injured by a runaway truck at Company Bay, Dunedin². The truck involved was understood to be a similar model of Nissan Diesel truck that was fitted with the 'Sanwa Seiki Ltd' park brake [60000]. Other non-fatal incidents³ were also known to have occurred around this time.

¹ <https://www.rshq.qld.gov.au/safety-notices/mines/park-brake-failure-truck-rolls-away> accessed 6 October 2021.

² <https://www.odt.co.nz/news/dunedin/man-dies-when-hit-rolling-truck> accessed 6 October 2021.

³ <https://www.odt.co.nz/news/dunedin/truck-crash-causes-chain-car-carnage> accessed 6 October 2021.



In about June 2011, the New Zealand Department of Labour published a Hazard Management Bulletin [50005 and **Attachment 4**] in response to the September 2010 fatality, explaining the incident in relation to the park brake being engaged but not locked and providing the following guidance:

- 5 *Considering the age of some of the vehicles with this type of park brake control valve, control valve operation must be checked regularly. Operators and service personnel need to be made aware that:*
- 10 • *When applying the park brake, the driver must ensure that the operating handle on the park brake control valve has fully dropped into its locking position. If this does not occur, the valve must be serviced immediately. The park brake control valve body wears down with use and, aided by the entry of dust and dirt, the smooth operation of the valve is affected – often to the degree that it will fail.*
 - 15 • *Dust boots on any such control valves must be in good condition.*
 - *Due to the position of the park brake control valve at the side of the seat base, the driver should make sure that he or she does not catch his or her clothing on the control lever when exiting the, because this, too, will often result in an uncontrolled park brake release.*

On 1 February 2012, UD Trucks (Nissan Diesel) published an Urgent Service Advisory [50010 and **Attachment 4**] to all owners and operators of Nissan Diesel CK330, CW330, CW380, CW400, CG380 & CG400 vehicles manufactured between 1993 and 2005 noting:

There has been a recent instance of an unintentional park brake control release of a Nissan Diesel CW380 vehicle which has allowed the vehicle to move off after the driver has exited the cab.

The reason for this release could not be conclusively determined but the most probable cause is the entry of foreign material between the park brake lever shaft and the park brake valve body which has caused the lever to stick in the valve body and prevent the lever shaft to fully engage the detent.

The Nissan Diesel Owners' Manual recommends that the brake valves be overhauled at 12 month intervals. Furthermore UD Truck Distributors (NZ) Ltd recommend that the brake valves be inspected at every service to ensure that the lever has no buildup of foreign materials between the lever shaft and the valve body and that the valve body is in good working condition...

*As a reminder to the drivers of these vehicles to ensure the park brake is correctly applied unlocked, UD Truck Distributors has produced a warning label (**Figure 8**) to be placed in the cab and one of these labels with fitting instructions is included with this advisory (**Figure 8**).*

In 2012, after a Coronial hearing (CSU-2010-DUN-000310) into the death of a pedestrian struck by a Nissan Truck in 2010, the presiding Coroner David Crerar made recommendations [60000] that:

"UD trucks continue with its undertaking to advise all owners and operators of Nissan Trucks; CW330 and CW380, and to the providers of service to them, of the potential hazard that exists with the inappropriate or premature release of the truck park brake."

On 13 February 2013, the Road Transport Forum (RTF) New Zealand published a Circular [50008 and **Attachment 4**] advising of the unintentional release of Sanwa Seiki park brake control valves predominantly fitted to Nissan Trucks.

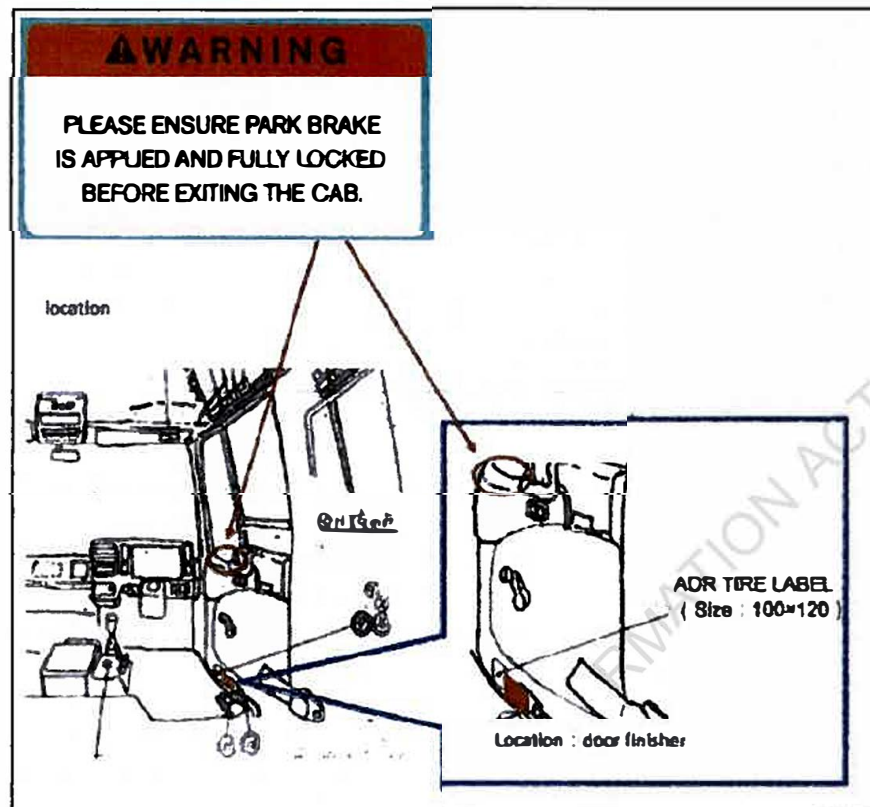


Figure 8 – UD Trucks Warning Label and affixing location diagram [50010]

On 30 September 2013, the RTF New Zealand republished the Circular [50008 and **Attachment 4**] advising of the unintentional release of Sanwa Seiki park brake control valves predominantly fitted to Nissan Trucks.

On 21 October 2013, UD Trucks (Nissan Diesel) republished the Urgent Service Advisory [50010 and **Attachment 4**] due to a poor response to the February 2012 Advisory. The advice was essentially the same as the February 2012 information.

On 28 November 2013, the RTF New Zealand republished the Circular [50008 and **Attachment 4**] advising of the unintentional release of Sanwa Seiki park brake control valves predominantly fitted to Nissan Trucks.

In February 2014, the RTF New Zealand published an article on the Sanwa Seiki park Brake Controls in their Trucking Brief (Vol: 33, No. 1) [50008(1) and **Attachment 4**]. The article advised operators to follow the guidance of the UD Trucks Urgent Service Advisory and that the police were inspecting for the orange warning sticker (**Figure 8**).

In May 2017, the New Zealand Transport Agency (NZTA) published a Safety Alert relating to Heavy Vehicle Servicing Information [50006(1) and **Attachment 4**] to avoid park brake failures. The Safety Alert described the maintenance and operational requirements for the park brake control valve for Nissan CK330, CW330, CW380, CW400, CG380 & CG400 vehicles manufactured between 1993 and 2005. The mechanism and areas required for inspection were described in **Figure 9**.

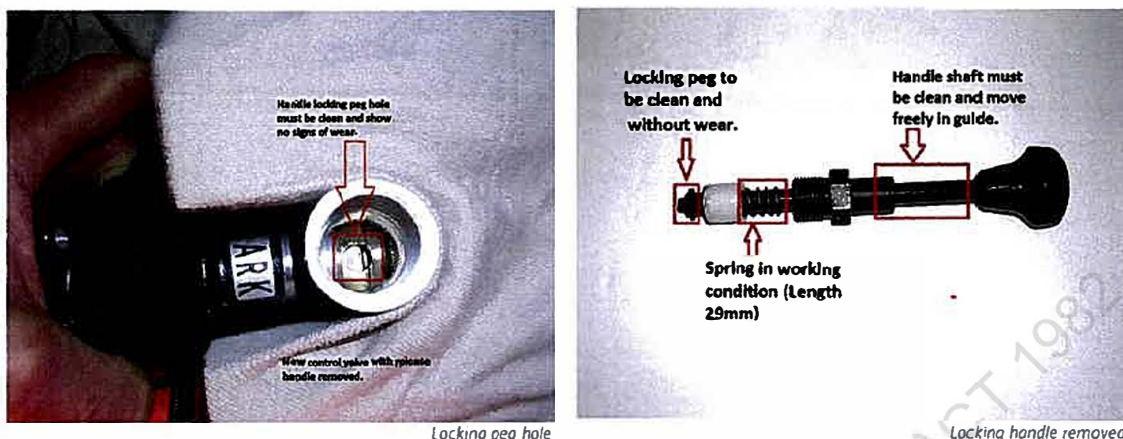


Figure 9 – Sanwa Seiki park brake control valve issues described by NZTA [50006(1)]

On 12 May 2017, RTF NZ republished the Circular [50008 and Attachment 4] advising of the unintentional release of Sanwa Seiki park brake control valves predominantly fitted to Nissan Trucks, in response to a recent fatality in Queenstown that was apparently linked to a similar park brake failure.

It is understood that UD Trucks obtained the registered address of every relevant Nissan Diesel truck and posted the Urgent Service Advisory to each registered owner.

3.6 Nissan Diesel CG400 (ZO9541) Park Brake

In light of the history of incidents and subsequent Safety Alerts relating to the Sanwa Seiki park brake, the NZ Police Fatal Crash Report [60000] noted the following in relation to the park brake for the Nissan Diesel CG400 (ZO9541) involved in incident:

5.35 An inspection of the park brake components showed no tool marks on any of the nuts or screws to indicate that it had ever been disassembled for inspection or any maintenance.

5.41 When the truck was examined it was noted that there was no warning label on the inside of the driver's door.

Therefore, for 7 years, Safety Alerts and Advisories were published regarding maintenance of the Sanwa Seiki park brake, but this was not effective in achieving the desired outcome for the Nissan Diesel truck involved in incident.



4. System of Work

4.1 Contractors and Subcontractors

Wellington Contracting Limited (WCL) entered into a Cartage Supply Agreement with Fulton Hogan Limited (FHL) on 21 December 2016 [40001] to provide cartage services (i.e. truck and driver) for 5 years on an as required basis. WCL had worked with FHL on other projects during the 2 years of the agreement prior to the day of the incident.

FHL entered into similar Cartage Supply Agreements with other contractors (e.g. Crawford Cartage Limited [40003]) to ensure that FHL had sufficient trucks (in addition to their own) to meet the peak demands of their projects. The agreement noted that FHL would make reasonable commercial endeavours to allocate work between carriers in a fair and reasonable manner.

As part of the application process with FHL, WCL filled in a "Contractor / Subcontractor / Supplier Health, Safety, Quality and Environmental Capability Assessment" on 13 November 2016 [41004]. A question on this form was "*Will your Organisation contract out or involve other personnel besides your own employees in the work you complete for Fulton Hogan?*" And the WCL response was "No".

Shuttle Express Limited (SEL) was a Diesel Mechanic and Cartage Supply Contractor that was known to WCL but had not been contracted to FHL.

In 2018, FHL needed additional trucks on the Wellington Airport Project and WCL introduced SEL to FHL Transport [s9(2)(a)]. On 9 February 2018, FHL [s9(2)(a)] [s9(2)(a)] contacted SEL [41007] to determine whether the SEL trucks were suitable to conduct the required tasks. On the same day, FHL [s9(2)(a)] sent an internal email [41007(1)] to request that SEL be set up as a transport subcontractor and the relevant documentation was sent through to SEL [41007(2)].

It is understood by the author that FHL's Transport person [s9(2)(a)] then became sick and the SEL prequalification was not followed through and completed [41007(3)]. However, FHL's need for additional cartage capacity remained. During a conversation, FHL's Transport person [s9(2)(a)] suggested to WCL that SEL operate as a subcontractor under WCL. This was agreed and simply consisted of WCL invoicing FHL for both WCL and SEL cartage activity and WCL directly passed on the funds (with no cost) to SEL. There was no formal documentation relating to this arrangement.

FHL's Transport person [s9(2)(a)] discontinued working in the role soon after this arrangement was put in place but WCL [41007(3)] believed that others within FHL were aware of the arrangement.

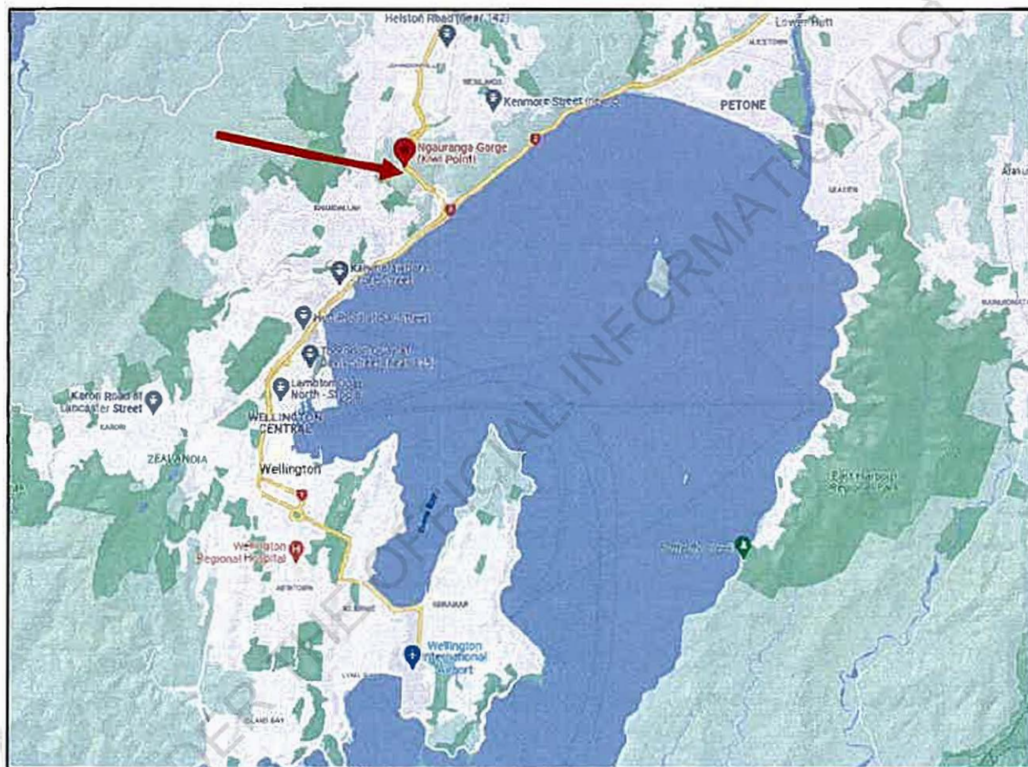
The Nissan Diesel CG400 Truck (ZO9541) was owned and operated by SEL.



4.2 Construction Project

The New Zealand Transport Agency (NZTA) is a Crown entity that is tasked with promoting safe and functional transport by land, including managing the state highway system as well as the regulatory requirements (i.e. licensing, certificate of fitness etc).

- 5 NZTA contracted Capital Journeys, a joint venture between Fulton Hogan Limited (FHL) and WSP Opus, to undertake a road upgrade on State Highway 1 (SH1) at Ngauranga Gorge, just outside Wellington (**Figure 10**). The road upgrade project predominantly involved resurfacing the 6 lanes of SH1.



10 **Figure 10 – Location of project**

A diagram showing the relationship between relevant PCBUs for the project and individuals involved in the incident is shown in **Figure 11**.

15 **s9(2)(a)** was FHL's foreman who was responsible for milling and paving activities on the downhill section at Ngauranga Gorge. Joji Bilo (deceased) was employed by FHL as a 'General Hand' and commenced employment with FHL on 20 August 2018.

As described in **Section 4.1**, SEL was seen as a subcontractor of WCL only from a financial payment perspective, not from the management of the work or worker [41007(3)].

20 SEL employed David Jenkins as a truck driver approximately 3 weeks prior to the incident. Mr Jenkins had been driving trucks (predominantly concrete trucks) for about 12 – 13 years and held a current New Zealand driver licence for classes 2 & 4 heavy vehicles. The licence was due to expire in 2027 [30500]. Mr Jenkins was driving the Nissan Diesel CG400 Truck (ZO9541) on the night of the incident.

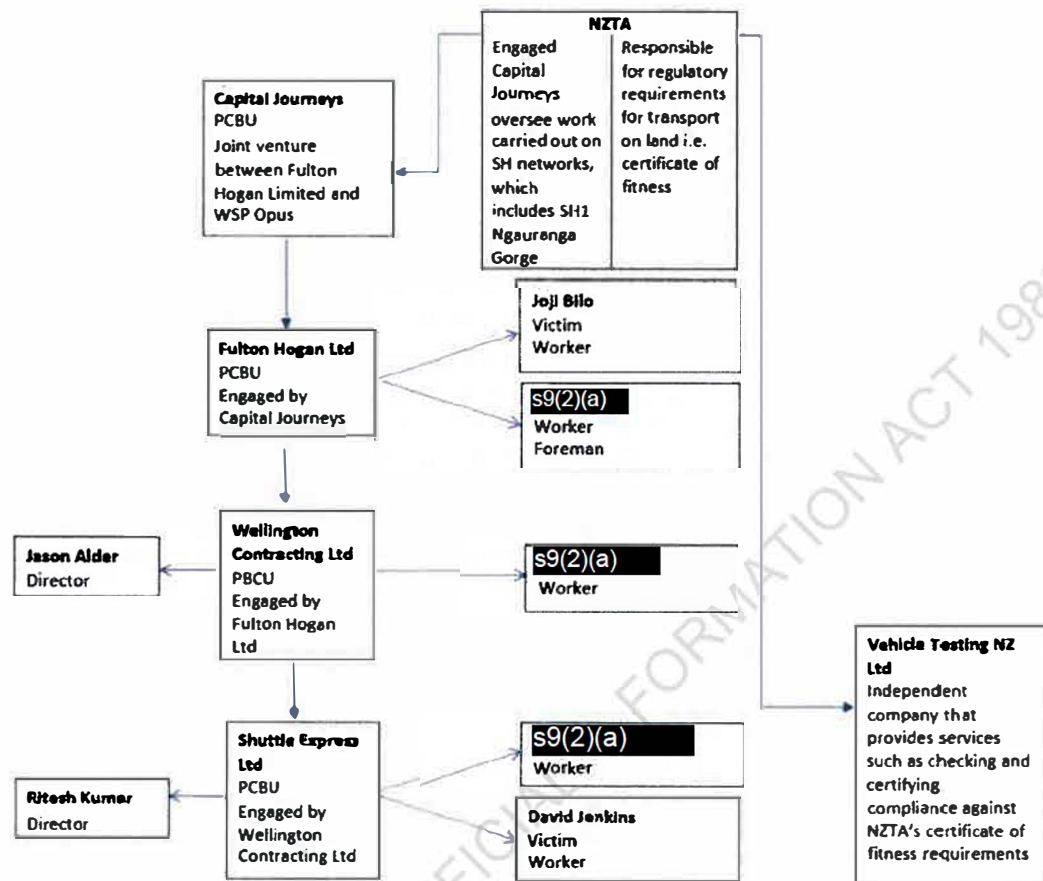


Figure 11 – Project entities and people

4.3 Incident Scene

The NZ Police Fatal Crash Report dated 1 July 2019 [60000] provided a description of the incident scene and the work being conducted in Section 3:

- 3.1 State Highway One is the main arterial route into and out of Wellington City. When heading south from Johnsonville the section of Highway passes through an area known as the Ngauranga Gorge.
- 3.2 The Ngauranga Gorge is 2 kilometres in length and has an approximate grade of 8%.
- 3.3 The downhill lanes have a camber to the inside of the curve to allow for water to run to the nearby kerbing and drainage sumps.
- 3.4 The crash scene was confined to the southbound downhill lanes beginning approximately 270 metres south of the Newlands Road onramp and continuing downhill towards Glover Street at the bottom of the hill, covering a distance of over 750 metres.
- 3.5 Ngauranga Gorge is marked into six lanes in total, three separate lanes travelling in opposing directions.
- 3.6 The opposing lanes are separated by a large concrete median barrier. For the purposes of this report I will discuss the downhill lanes only.
- 3.7 The area is well lit with overhead Led lights, which provide good illumination of the road and its curvature. All of the lights in the area were working on the night.



These lights are spaced approximately 55 metres apart and placed along the left hand side of the southbound lanes.

3.8 *The road surface is made with open grade porous asphalt, this appeared to be in well-worn condition, and it had previously been milled to provide greater surface texture for downhill traffic.*

3.9 *The surface of the downhill lanes was in the process of being replaced and as such the area was subject to a temporary Traffic Management Plan (TMP).*

3.10 *The TMP allowed for night works to be carried out on that section of State Highway and specified the way traffic using the area would be managed during the process and designated specific times that the work could be carried out.*

3.11 *The TMP identified the order the lanes were to be replaced, the reduced speed limits through the worksite, the layout of cones and protective attenuators, movements of vehicles into and out of the worksite as well as identifying personal protection equipment worn by staff.*

3.12 *In order to replace the top surface the road must first be milled down approximately 100mm before being re-paved using open grade porous asphalt. Once this is completed the lanes are marked out with painted white lines and lane separating dots.*

3.13 *The right hand lane surface (of the three) had been replaced the previous evening (10th March 2019), with the road working crew returning to replace the surface of the centre lane on the 11th of March 2019.*

3.14 *The worksite had been set up as per the TMP requirements, the two left hand lanes had been coned off to allow the workers onsite and the speed limits had been reduced on the variable speed signs.*

3.15 *The reflective cones were placed approximately 10 metres apart alongside the painted road markings.*

A view of the work area on the night of the incident is shown in **Figure 12**.

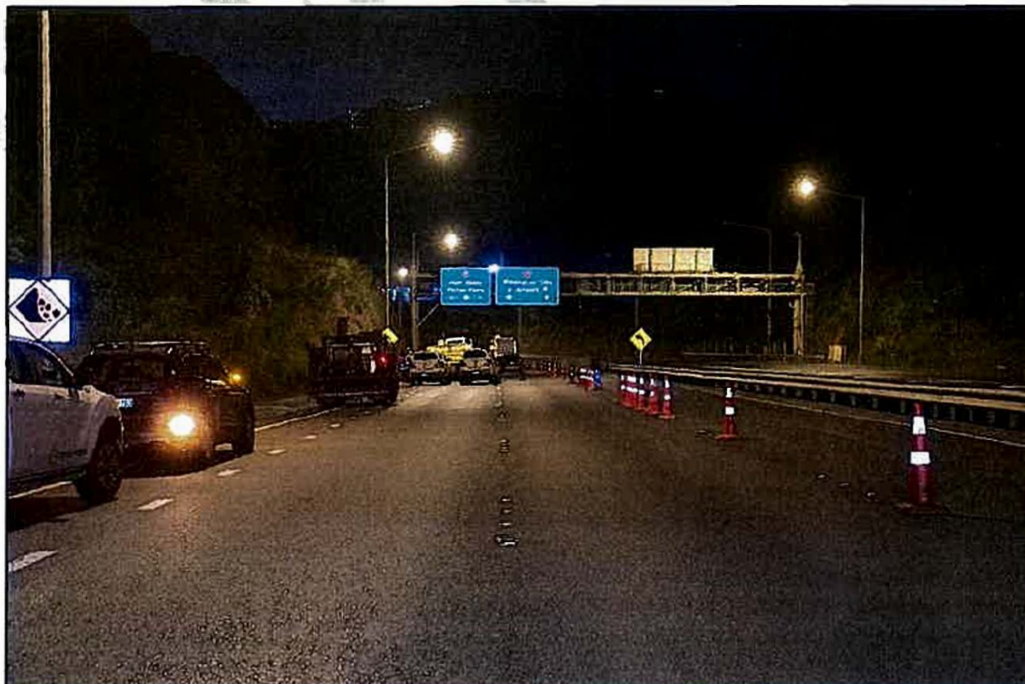


Figure 12 – Work area on night of the incident (60000)



4.4 Work Task

The work of repaving the asphalt on a road typically required the following tasks:

1. Apply Traffic Management Plan (TMP) to control traffic and create a work area.
2. Transport milling and paving equipment to the work area and unload.
- 5 3. Mark out the work area.
4. Mill the work area with a milling machine and cart the milled material away from the work area.
5. Lay tar (sealer) over the milled surface.
6. Lay stone chips in the tar, usually using a truck with a spreader attached.
- 10 7. Pave asphalt with a paving machine supplied by trucks carting asphalt material into the work area.

There are various other aspects of rolling and clean-up required throughout these key parts of the task.

4.5 Night Before the Incident

15 It is understood by the author that FHL were in control of the work area on the night before the incident.

The following sequence of events is understood to have occurred on the night before the incident, being Sunday, 10 March 2019:

- 20 • It is understood that s9(2)(a) (another FHL Paving Foreman) [32030 p.12] developed a Risk Control Plan [40029] that covered the Ngauranga Gorge Southbound repaving work planned for 10 to 14 March 2019.
- 25 • s9(2)(a) (FHL's Head Paving Foreman for Ngauranga Gorge) set up a tailgate meeting for FHL workers and FHL contractors. Mr s9(2)(a) noted [32030 p.13-14] that there was a discussion at the tailgate regarding the fact that the work was being conducted on a hill or incline and that common sense should be applied. There was no specific control in the Risk Control Plan [40029] for work on a hill/incline. The Risk Control Plan [40029] sign off for 10 March 2019 was undertaken only by FHL employees not FHL contractors.
- 30 • s9(2)(a) (truck driver for WCL) and s9(2)(a) (truck driver for SEL) [32040 p.23] advised that a foreman held a tailgate meeting on Sunday 10 March at the truck's meeting point at the Johnsonville Z Energy, a short drive from Ngauranga Gorge. s9(2)(a) advised that this was held less than an hour before the trucks were called to the worksite [32010 p.17].
- 35 • Mr Jenkins (SEL truck driver) did not appear to attend the tailgate meeting on Sunday 10 March 2019 [32020 p.8]. s9(2)(a) did not remember meeting Mr Jenkins [32030 p.18]. Mr Jenkins was introduced to someone who he believes may have been a foreman from FHL and there was some discussion about the milling work that would be happening that night [32020 p.7]. Mr Jenkins did not undertake any formal induction to the site by FHL.



- Mr Jenkins (SEL) was driving the Nissan Diesel CG400 Truck (ZO9541) and was involved in carting away milled material and then carting back asphalt.
- s9(2)(a) (SEL) was driving a truck responsible for chip-sealing that night.
- s9(2)(a) (SEL) also carried out some work with Mr Jenkins to provide instructions for paving work on a slope [32040 p.14] [32020 p.9] [32030 p.20-21].

The work undertaken during this night was to repave the fast lane (i.e. right-hand lane) of the Ngauranga Gorge Southbound three-lane highway.

4.6 Night of the Incident

It is understood by the author that FHL were in control of the work area and incident scene on the night of the incident.

The intended work to be undertaken during this night was to repave the centre or middle lane of the Ngauranga Gorge Southbound three-lane highway.

On the day of the incident, FHL sent messages [40006] and emails [40007] to Bryce O'Sullivan Contracting, Wellington Contracting, PCL Contracting, Total Site Works, Crawford Contracting, Dixon & Dunlop, s9(2)(a) and s9(2)(a) to arrange for various trucks at various locations for the SH1 project that evening (Figure 13).

805G	s9(2)(a)	407253	Milling	2m Mill ex Petone Yard to Ngauranga Gorge southbound for s9(2)(a) crew		
805G	s9(2)(a)	404863	Pav2	s9(2)(a) paver 2m x 3m ex Petone yard to Ngauranga Gorge southbound s9(2)(a) crew		
1x8w	Waka Gorge	401060	AT	10:00pm on-site chip spreading s9(2)(a) site Southbound		
1x8w	PCL	407253	Milling	9:00pm on-site Ngauranga Gorge Southbound for s9(2)(a) crew		12.5
1x8w	Waka	407253	Milling	9:00pm on-site Ngauranga Gorge Southbound for s9(2)(a) crew		12.5
1x8w	Waka Gorge	407253	Milling	9:00pm on-site Ngauranga Gorge Southbound for s9(2)(a) crew		12.5
1x8w	Crawford	407253	Milling	9:00pm on-site Ngauranga Gorge Southbound for s9(2)(a) crew		12.5
1x8w	D & D	407253	Milling	8:30pm tailgate Kiwi Point for Ngauranga Gorge Northbound for s9(2)(a) crew		14
1x8w	s9(2)(a)	407253	Milling	8:30pm tailgate Kiwi Point for Ngauranga Gorge Northbound for s9(2)(a) crew		13.5
1x8w	Waka Gorge	407253	Milling	8:30pm tailgate Kiwi Point for Ngauranga Gorge Northbound for s9(2)(a) crew		13.5
1x10yrd	s9(2)(a)	404063	Pav2	10:30pm Belmont Plant carting to Ngauranga Gorge Northbound for s9(2)(a) crew		12
1x10yrd	Total	404063	Pav2	10:30pm Belmont Plant carting to Ngauranga Gorge Northbound for s9(2)(a) crew		11.5
1x10yrd	Crawford	404063	Pav2	10:30pm Belmont Plant carting to Ngauranga Gorge Northbound for s9(2)(a) crew		11.5
						Tonnes/round 92.5 103

Figure 13 – FHL Contractor Truck delegation for 11 March 2019 [40007]

The following sequence of events is understood to have occurred on the night of the incident, being Monday, 11 March 2019:

- At approximately 6.30pm, s9(2)(a) (FHL's foreman for milling and paving activities on the downhill section at Ngauranga Gorge) met with FHL workers at their Petone yard and held a tailgate meeting [32030]. Subcontractors from Opus and Capital Journeys were present at the tailgate meeting. The Risk Control Plan [40029] covered work planned for 10 to 14 March 2019. The sign off for the night of the incident only identifies FHL, Opus and Capital Journey employees,
- At about 8.15 pm Mr Jenkins arrived at SEL's yard, completed his log book and checked over his vehicle, the red Nissan Diesel CG400 8 x 4 tipper truck, with registration number ZO9541.



- Mr Jenkins (SEL) drove the truck and met with other contracted drivers at the meeting point in Johnsonville around 8.30 pm [32020 p.14].
- At about 8:45 pm, one of the subcontracted drivers received a call that they could head to site and Mr Jenkins (SEL) followed [32020 p.15&17]. Mr Jenkins (SEL) was at the tail end of a convoy of three trucks heading to site but he missed a green light and became separated from the rest of the convoy prior to site [32020 p. 15].
- At about 9 pm Mr Jenkins (SEL) approached the work area that had the two slow lines of Ngauranga Gorge Southbound coned off by traffic control. Mr Jenkins (SEL) was driving at about 50 km/h in the fast lane with the rest of the traffic and found a spot to pull in between traffic cones and formally enter the work area [32020 p.14&15].
- Mr Jenkins (SEL) drove past the milling machine and the two other trucks that he had followed out from Johnsonville and pulled in front of them in the line and then reversed back up to park directly in front of the trucks [32020 p.14&15].
- Mr Jenkins (SEL) parked the truck and applied his park brake [32020 p.14,15&17].
- Mr Jenkins (SEL) exited the truck with the intention of checking that the pins that lock the tailgate were locked into position, as he did not want to risk losing the milled material should the tailgate open during the work [32020 p.14&16].
- After Mr Jenkins (SEL) got out of the truck and closed the door, the truck began to move and roll down the roadway. The specific time frame from closing the door to the truck starting to roll is unclear but appeared to be seconds in the CCTV.
- Mr Jenkins (SEL) set off after the truck and attempted to regain entry via the driver's door but was unsuccessful and sustained injury when he fell back onto the roadway.

s9(2)(a)

- At this time, FHL workers, Mr Bilo and s9(2)(a) were walking downhill of the runaway truck using measuring wheels to mark out the 'chainage', which was a distance measurement in relation to the start point for the resurfacing work. This would give them an indication of how long the work would take, and during the night, act as a guide for how far through the work they were. They both wore radios and were working within the coned off area [32030 p.8&10].
- s9(2)(a) was ahead (downhill) of Mr Bilo, who had to stop regularly to mark the road. The runaway truck travelled downhill without its headlights on and gained speed to about 45 – 49 km/h when it struck Mr Bilo from behind. Mr Bilo was dragged approximately 20m with the vehicle [60000 p.6&35-36].
- s9(2)(a) who was further downhill from Mr Bilo, heard a call over the radio from workers engaged on the uphill section of Ngauranga Gorge that there was a 'runaway truck'. He turned, saw the truck and was able to jump out of its path without being struck.



- Unaware that Mr Bilo had been struck, s9(2)(a) followed the runaway truck down until it came to a stop with the intention of checking on the driver [32030 p.7-8].
- The truck stopped when it contacted the centre lane barrier about 30 metres beyond the work site that was marked by cones.
- Mr Bilo s9(2)(a) s9(2)(a) died at the scene.

5. Health and Safety at Work Act 2015

The relevant Health and Safety at Work Act 2015⁴ at the time the incident was published on 1 October 2018. The relevant Health and Safety at Work (General Risk and Workplace Management) Regulations 2016⁵ at the time the incident was published on 1 December 2017. This section of the report will discuss how risks could be identified and effectively managed.

The Health and Safety at Work Act 2015⁴ defines a person conducting a business or undertaking or PCBU as:

17 Meaning of PCBU

- (a) means a person conducting a business or undertaking—
- (i) whether the person conducts a business or undertaking alone or with others; and
 - (ii) whether or not the business or undertaking is conducted for profit or gain; but
- (b) does not include—
- (i) a person to the extent that the person is employed or engaged solely as a worker in, or as an officer of, the business or undertaking;
 - (ii) a volunteer association;
 - (iii) an occupier of a home to the extent that the occupier employs or engages another person solely to do residential work;
 - (iv) a statutory officer to the extent that the officer is a worker in, or an officer of, the business or undertaking;
 - (v) a person, or class of persons, that is declared by regulations not to be a PCBU for the purposes of this Act or any provision of this Act.

It is the author's opinion that NZTA, Capital Journeys, FHL, WCL, SEL, VTNZ and UD Trucks were all PCBU's under the Health and Safety at Work Act 2015⁴.

A "person" as defined by the Health and Safety at Work Act 2015⁴ "includes the Crown, a corporation sole, and a body of persons, whether corporate or unincorporate".

The Health and Safety at Work Act 2015⁴ outlines the key principles relating to the duties of a person as follows:

⁴ Health and Safety at Work Act 2015, Ministry of Business, Innovation and Employment, Reprint as at 1 October 2018.

⁵ Health and Safety at Work (General Risk and Workplace Management) Regulations 2016, Ministry of Business, Innovation and Employment, Reprint as at 1 December 2017.



30 Management of risks

- (1) *A duty imposed on a person by or under this Act requires the person—*
- (a) *to eliminate risks to health and safety, so far as is reasonably practicable; and*
 - (b) *if it is not reasonably practicable to eliminate risks to health and safety, to minimise those risks so far as is reasonably practicable.*
- (2) *A person must comply with subsection (1) to the extent to which the person has, or would reasonably be expected to have, the ability to influence and control the matter to which the risks relate.*

31 Duties not transferable

A duty imposed on a person by or under this Act may not be transferred to another person.

32 Person may have more than 1 duty

A person may have more than 1 duty imposed on the person by or under this Act if the person belongs to more than 1 class of duty holder.

33 More than 1 person may have same duty

- (1) *More than 1 person may have the same duty imposed by or under this Act at the same time.*
- (2) *Each duty holder must comply with that duty to the standard required by or under this Act even if another duty holder has the same duty.*
- (3) *If more than 1 person has a duty for the same matter, each person—*
- (a) *retains responsibility for that person's duty in relation to the matter; and*
 - (b) *must discharge that person's duty to the extent to which the person has the ability to influence and control the matter or would have had that ability but for an agreement or arrangement purporting to limit or remove that ability.*

34 PCBU must consult other PCBUs with same duty

- (1) *If more than 1 PCBU has a duty in relation to the same matter imposed by or under this Act, each PCBU with the duty must, so far as is reasonably practicable, consult, co-operate with, and co-ordinate activities with all other PCBUs who have a duty in relation to the same matter.*

For equipment (like the Nissan Diesel truck involved in this incident) that is registered to drive on public roads and is used on a construction worksite or workplace, it is the author's opinion that more than one "person" or PCBU had the same duty to manage risks associated with the operation of that equipment in the workplace in accordance with the Act⁴. Some of these "persons" or PCBUs include designers/manufacturers/suppliers, owners, maintainers, operators as well as entities approving its suitability to drive on the road or access the site.

The key principle of the Health and Safety at Work Act 2015⁴ imposes a duty on PCBUs to eliminate or minimise risks to health and safety so far as is reasonably practicable, within the extent that they have the ability to influence or control the matter or risk. While it is generally understood that the primary duty of care for PCBUs is to workers, the Health and Safety at Work Act 2015⁴ describes the primary duty of care also applies to "other persons" (e.g. other road users), noting:



36 Primary duty of care

- (1) A PCBU must ensure, so far as is reasonably practicable, the health and safety of—
- (a) workers who work for the PCBU, while the workers are at work in the business or undertaking; and
 - (b) workers whose activities in carrying out work are influenced or directed by the PCBU, while the workers are carrying out the work.
- (2) A PCBU must ensure, so far as is reasonably practicable, that the health and safety of other persons is not put at risk from work carried out as part of the conduct of the business or undertaking.
- (3) Without limiting subsection (1) or (2), a PCBU must ensure, so far as is reasonably practicable—
- (a) the provision and maintenance of a work environment that is without risks to health and safety; and
 - (b) the provision and maintenance of safe plant and structures; and
 - (c) the provision and maintenance of safe systems of work; and
 - (d) the safe use, handling, and storage of plant, substances, and structures; and
 - (e) the provision of adequate facilities for the welfare at work of workers in carrying out work for the business or undertaking, including ensuring access to those facilities; and
 - (f) the provision of any information, training, instruction, or supervision that is necessary to protect all persons from risks to their health and safety arising from work carried out as part of the conduct of the business or undertaking; and
 - (g) that the health of workers and the conditions at the workplace are monitored for the purpose of preventing injury or illness of workers arising from the conduct of the business or undertaking.

The Health and Safety at Work Act 2015⁴ also outlines the duty of PCBUs who manage or control workplaces:

37 Duty of PCBU who manages or controls workplace

- (1) A PCBU who manages or controls a workplace must ensure, so far as is reasonably practicable, that the workplace, the means of entering and exiting the workplace, and anything arising from the workplace are without risks to the health and safety of any person.
- (2) Despite subsection (1), a PCBU who manages or controls a workplace does not owe a duty under that subsection to any person who is at the workplace for an unlawful purpose.

It is the author's opinion, that FHL were the PCBU managing or in control of the workplace at the time of the incident. However, the subsequent sections of this report will also outline where other PCBUs had opportunities to effectively manage the risk.



6. FHL Risk Management

Consideration of the health and safety of people (employees and the general public) should be an integral feature of the operation of any workplace. The identification, assessment and control of risks associated with activities undertaken by a business is typically addressed through the systematic application of risk management principles as part of an appropriate health and safety management system.

6.1 Quality Plan

The "Renewal Quality Plan – Asphalt Laying" for the "Wellington Network Outcomes Contract (Contract No: NOC 712N)" was prepared by Capital Journeys (and FHL) for the NZTA on 25 September 2018 [40009]. The defined purpose of the document was to *"identify, plan and control all processes that affect the quality of the product and to demonstrate that work complies with the Contract requirements for quality standards"*.

Section 2.6 [40009] on Safety and Environment notes that *"Safety will be managed in accordance with the Health & Safety Management Plan prepared specifically for this contract and the Health and Safety at Work Act 2015"*. The author has not observed the Health and Safety Management Plan for this contract.

"Renewal Quality Plan – Asphalt Laying" [40009] focuses on the processes, tests and checklists required to achieve a quality asphalt outcome. While there are emergency response procedures for major hazards in Appendix D [40009], the document does not specifically focus on safety, or specifically safety surrounding vehicle movement.

6.2 HSQES Risk Management Standard

The FHL HSQES Risk Management Standard [40010] dated 28 May 2018, aims *"to provide a simple and effective method to identify hazards, assess the risk from them, identify and implement practical control measures and continually improve"*. The responsibilities for a site are provided in **Table 1**, indicating that the Risk Register and Risk Control Plans were the key activities used to manage risk.

Table 1 – FHL Site Responsibilities [40010]

Site (including fixed sites)	Routine Work / Standard Activities			
	Check generic risk register is:	Department Mngnr / Crew	All staff and SQTE	Annually Post-incident alerts
	<ul style="list-style-type: none">RelevantUp to date			
	Risk Control Plan: <ul style="list-style-type: none">Site risksHighest risks	All staff on site	Subcontractors	Daily ² & if work changes significantly

The FHL HSQES Risk Management Standard [40010] then follows the standard Risk Management process of identify, assess, control, check and act. Some of the examples provided for safety hazards included moving plant and traffic management. The risk matrix used by FHL is shown in **Figure 14**, where work **must not** proceed if the residual risk is High (16 – 22) or Extreme (23 – 25). The health and safety consequences are:



Insignificant – No treatment required;

Minor – First Aid Treatment Injury;

Significant – Medical Treatment Injury (MTI) OR Restricted Work Injury OR Lost Time Injury (LTI) 3 days or less

Major – Lost Time Injury (LTI) 4 days or more OR Hospitalisation

Catastrophic – Fatality OR Permanent disability

		Potential Consequence Level				
		Insignificant	Minor	Significant	Major	Catastrophic
Potential Likelihood Level	Almost Certain The potential consequence is expected to occur in most circumstances	Med 11	High 19	High 24	Ext 23	Ext 25
	Likely The potential consequence will probably occur in most circumstances	Med 7	Med 12	High 17	High 21	Ext 24
	Possible The potential consequence is expected to occur at some time	Low 4	Med 8	Med 13	High 16	High 18
	Unlikely The potential consequence could occur at some time	Low 2	Low 5	Med 9	Med 14	High 19
	Rare The potential consequence may occur in exceptional circumstances	Low 1	Low 3	Low 6	Med 10	Med 15

RISK LEVELS	SCORES	PARAMETERS
EXTREME	23 – 25	If the post-control risk is EXTREME the activity MUST NOT proceed. Elimination, substitution, isolation and/or engineering controls must be put in place to reduce the risk rating to LOW or MEDIUM
HIGH	16 – 22	If the post-control risk is High the activity MUST NOT proceed. Alternate controls must be put in place to reduce the risk rating to LOW or MEDIUM
MEDIUM	7 – 15	The activity can proceed so long as the highest level and most appropriate risk control measures have been identified and implemented
LOW	1 – 6	Activity may proceed with normal supervision after implementing control measures

Figure 14 – FHL Risk Matrix [40011]

Therefore, for health and safety consequences that are potentially fatal or could result in permanent disability (i.e. Catastrophic), the likelihood level must be "Rare" (i.e. may occur in exceptional circumstances) in order for work to proceed in accordance with the Risk Matrix (Figure 14). If the likelihood is "Unlikely" (i.e. could occur at some time), the risk would be a "High 19" and work **must not** proceed.

It is the author's opinion that the FHL Risk Matrix is not overly functional in managing higher severity incidents, as there is no differentiation between permanent disability (i.e. back injury from heavy lifting), single fatality and multiple fatality events. In addition, the decision to proceed with work involving potentially fatal risks is based on someone's perception of whether the event "could occur at some time" or "may occur in exceptional circumstances".



6.3 Risk Registers

There were 4 separate FHL risk registers provided to the author for review. Reviewing each of these provided the following detail in relation to the risk of vehicle movements:

- Risk Register (Hazard ID) – Sealing [40018];

What are the Tasks?	What is the Hazard?	What could go Wrong?	How would you Eliminate or Minimise the risk?	Risk After
Spraying (hand and plant)	Vehicle movements	<ul style="list-style-type: none"> Collision Run over 	<ul style="list-style-type: none"> Wear Hi-viz & lace up boots at all times Only required staff to be in area, public kept out of site No-one to be between sprayer & chip spreader while sprayer backing up Ensure all plant/machinery is to Fulton Hogan spec (reversing beepers, flashing lights, ROPS etc) Only licensed & competent staff to operate No cell phones to be used while operating 	

- Risk Register (Hazard ID) – Transport Trucks [40019];

What are the Tasks?	What is the Hazard?	What could go Wrong?	How would you Eliminate or Minimise the risk?	Risk After
Operating Plant and Machinery	Plant Movements including reversing	<ul style="list-style-type: none"> Injury and Plant Damage 	<ul style="list-style-type: none"> Maintain exclusion zones ROP's / FOPs as required for task Keep eye contact with the operator if moving around mobile/operating plant Spotter for reversing trucks, beepers to be fitted Operator to stop machine before exiting Plan to manage plant and pedestrians 	
Plant working on slopes (e.g. shoulders)	Slips Slide	<ul style="list-style-type: none"> Machine rollover Loss of traction Subsidence Personal Injury 	<ul style="list-style-type: none"> Plant fitted with ROPs protection Experience Plant Operators with agreed procedure Clear information to Plant Operators of site gradient & work process requirements Go down hills in gear that you went up Park with wheels away from kerb if parking uphill, wheels towards kerb if parking downhill 	
Working with Subcontractors and other Contractors	Unaware of Hazards	<ul style="list-style-type: none"> Impact, Personal Injury Damage to Site Works Conflict Bottlenecks 	<ul style="list-style-type: none"> Induct to site, explain hazards and site requirements Site Emergency Plan read and understood Site Hazard Register read and understood Fulton Hogan staff to be aware of Hazards from other contractors 	

- Risk Register (Hazard ID) – Traffic Management [40020];

What are the Tasks?	What is the Hazard?	What could go Wrong?	How would you Eliminate or Minimise the risk?	Risk After
Working as other Contractor	Hazards that other Contractor brings to site	<ul style="list-style-type: none"> Not knowing the potential hazards that the other Contractors bring to site 	<ul style="list-style-type: none"> If you feel unsafe when working with or near other Contractors stop work and communicate with your Manager When working near other Contractors if required separate their work from yours (cones/barriers) Communicate with other Contractors, identify risks they bring to site and manage them 	

- Risk Register (Hazard ID) – Road Marking [40021];

➤ Nothing specifically relevant in this Risk Register.

The **orange** controls listed in the tables above indicate controls that could have had some influence on the incident but were not specific enough to be certain.

The **red** controls listed in the tables above indicate controls that could have prevented the incident if they had been effectively implemented.



All of the risk registers did not assess the “Risk After” or “Residual Risk” as described by the HSQES Risk Management Standard [40010].

6.4 Risk Control Plan

Based on the interviews with various personnel and the FHL HSQES Risk Management Standard [40010], the Risk Control Plan (RCP) appears to have been the primary risk management tool used in the field.

In total, there were 6 RCPs provided to the author from around the time of the incident, these included:

1. Resurfacing at Ngauranga Gorge Southbound (10/3/2019 – 14/3/2019) – Signed by various FHL personnel [40029];
2. Resurfacing at Ngauranga Gorge Northbound (10/3/2019) – Signed by various FHL personnel and 1 WCL truck driver [40030];
3. Trucks Carting Material at Various Locations (10/3/2019) – Signed by **s9(2)(a) FHL** [40031];
4. Transporting Material & Equipment at Ngauranga Gorge (10/3/2019) – Signed by **s9(2)(a) FHL** [40031];
5. Trucks Carting Material at Ngauranga Gorge Southbound (10/3/2019) – Signed by **s9(2)(a) FHL** [40032];
6. Lane Closures for Paving at Ngauranga Gorge Southbound (11/3/2019) – Signed by various FHL personnel [40032].

The approach that appears to have been adopted by FHL was to complete an RCP at the beginning of a block of work (e.g. 4 nights) and then sign on to the same RCP each night when the same work was conducted [40100 p.13]. The following observations are made in relation to these RCPs:

- There was only one contractor **s9(2)(a) WCL** signed onto one of the RCPs (#2) on one night.
- David Jenkins (SEL) did not sign onto any RCPs.
- The RCPs did identify vehicle to pedestrian interactions as risks and noted spotters, RT Comms, safety zones and tailgates as controls.
- The controls (#1) reduced the risk score from a 22 or 25 down to a 15 (**Figure 14**).
- None of the RCPs identified risks associated with parking.
- None of the RCPs identified the risks of people working on foot downhill of operating plant and equipment in the work area.
- None of the RCPs identified risks associated with working on or parking on the significant sloped roadway that was to be the work area.

In summary, it is the author’s opinion that the RCPs did not effectively identify and manage the risk of parking vehicles on the sloped roadway work area. The RCPs also did not effectively identify and manage the risk of people walking and marking up the roadway of the work area while trucks and other equipment were operating uphill from the pedestrians.



6.5 Tailgate Meetings

Minutes or notes and attendance for FHL tailgate meetings do not appear to be recorded from the night of the incident. A form was previously used as shown in the Milling Department Emergency Procedures and Guidelines [40023 p.52&53]. The RCP was intended to act as the record of this discussion at the time of the incident [40100 p.15]. However, **Section 6.4** showed the limitations of the RCPs in relation to this incident.

There appears to be a reasonable amount of confusion on who was present and what information was effectively conveyed during the tailgate meetings with the contractor truck drivers on the night of the incident (see **Section 4.5 and 4.6** and various statements).

There was some consensus that there were some discussions about the slope of the work area and some assumptions that everyone knew what to do to manage this exposure.

6.6 Inductions

The Risk Registers (**Section 6.3**) noted that inductions were a key control for working with contractors and subcontractors who were new to the work area or work in general and were unaware of the hazards.

Mr Jenkins (SEL) did not appear to undertake a formal induction with FHL or the work area [32020] and there was no formal induction information found in the FHL information. FHL advised that the RCPs are used as a means of induction [40100 p.17&18]. However, as described in **Section 6.4**, Mr Jenkins (SEL) did not sign onto any RCPs.

Mr Jenkins (SEL) sought out a person that he believed to be the foreman to introduce himself as a new truck driver. The extent of the FHL enquiry of Mr Jenkins (SEL) was to confirm that he had undertaken milling work previously.

It is the author's opinion that inductions did not occur, even though they are stated as a key control in the Risk Registers, and the RCPs were ineffective in achieving what was required of an induction.

6.7 Life Saving Rules

On 1 July 2018, FHL released their 10 Life Saving Rules [40016], these included:

1. **We always** keep a safe distance away from moving plant when we don't need to be near it
2. **We are always** competent and licensed (where required) to operate plant
3. **We always** wear seatbelts
4. **We always** have an effective plan to manage traffic and pedestrians
5. **We always** isolate, lock out, and test before working on plant and equipment
6. **We always** have a permit to work when required
7. **We always** use for protection when working at heights
8. **We always** keep clear of suspended loads
9. **We always** wear the correct PPE when working with bitumen
10. **We are always** drug and alcohol free when working



The relevant Life Saving Rule for this incident was that FHL always have an effective plan to manage traffic and pedestrians. Some of the detail for this rule [40016] included:

This life-saving rule applies to all of our work sites, yards and facilities. The plan is expected to cater for:

- 5 • The separation and (or) protection of people from vehicles and plant
- Traffic movements and flow
- Construction vehicle movements, parking and refuelling
- The safe passage of pedestrians and cyclists
- Exclusion zones

10 While this Life Saving Rule appears to be predominantly aimed at ensuring there are Traffic Management Plans in place to control the public, it also refers to movement of construction vehicles, parking and the protection of people from vehicles and plant.

15 Therefore, it is the author's opinion that the Life Saving Rule of always having an effective plan to manage traffic and pedestrians was ultimately not achieved on the night of the incident. The "plan" did not effectively manage the risk of parking vehicles on the sloped roadway work area, and also did not effectively manage the risk of people walking and marking up the roadway of the work area while trucks and other equipment were operating uphill from the pedestrians.

6.8 Know How Videos

20 FHL also had a training and information program called "Know How" [40017]. Videos were provided on the following:

- Risk Control Plan (RCP);
- Always keep safe distance;
- Light trucks – parking safely;
- 25 • Exclusion zones around plant;
- Parking heavy wheeled plant;
- Positive traffic management.

30 The "Light trucks – parking safely" appears to be aimed at trucks smaller than that being driven by Mr Jenkins (SEL), while the "Parking heavy wheeled plant" is aimed at larger earthmoving machinery. Nonetheless, the "Light trucks – parking safely" video highlights the need to apply the handbrake when parking, as conducted by Mr Jenkins (SEL) on the night of the incident. It was also noted that drivers should turn the wheels towards the kerb or bank when parking downhill.

35 It is understood that Mr Jenkins (SEL) had not seen any of the "Know How" videos as he had not undertaken any specific FHL induction to obtain access to these videos.



6.9 Safety Essentials

The FHL Moving Plant Safety Essentials – Parking flyer/poster [40027] (**Figure 15**) dated 16 May 2013, provides specific guidance to avoid parking on a slope where possible, and if parking on a slope:

Parking on a slope – place the vehicle in a low gear or in park (if automatic).

Parking downhill – Turn the wheels towards the kerb or bank.

And/or chock wheels:

- especially if vehicle is left unattended
- mandatory if you are working in or around the vehicle (lockout procedure must be followed).

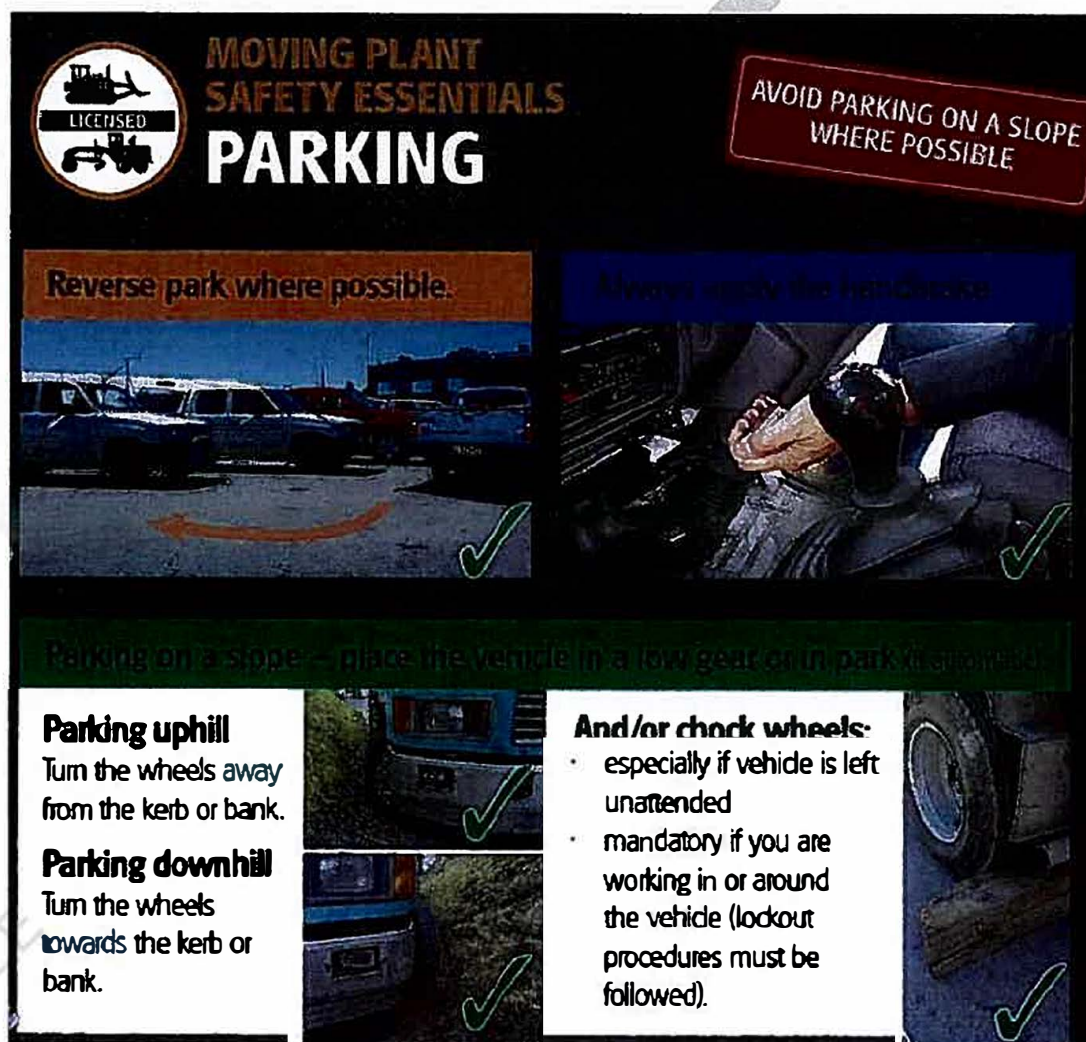


Figure 15 – FHL Moving Plant Safety Essentials – Parking flyer/poster [40027]

It is the author's opinion that this is useful information that could have assisted in preventing the incident. However, there appears to have been no opportunity for Mr Jenkins (SEL) to have been exposed to this information by FHL.



6.10 Procedures

The FHL Milling Operations Procedure [40022] was last updated or revised on 9 June 2016 and does not appear to have been updated since the introduction of Risk Control Plans (about Sept 2018) [40015]. The scope of this procedure [40022] was:

- 5 *Intended for all persons involved in milling works undertaken and controlled by Fulton Hogan Ltd and should be read in conjunction with; Work Instruction – Controlling Reversing Vehicles.*

10 The safety components of the procedure [40022] refers to applicable licensing, Personal Protective Equipment (PPE) and emergency procedures. It also noted that all personnel must “*have participated in the pre-start meeting*” (i.e. tailgate) and “*have sighted, understood and signed the site-specific Hazard ID*”. It is presumed by the author that the site-specific Hazard ID has been replaced by RCPs. If so, as noted in **Section 6.4**, the RCP was not sighted or signed by Mr Jenkins (SEL).

15 The FHL Milling Operations Procedure [40022] has a specific section for subcontracted truck drivers, noting that they are responsible for ensuring the truck is fit for use and any activity of the truck driver on the road is the driver’s responsibility.

Section 6.1 of the FHL Milling Operations Procedure [40022] outlines requirements of job planning, noting:

- 20 *When carrying out the initial site inspection, the Supervisor shall consider Truck access/movements and how best they can be managed. This must be recorded on the daily pre-start tailgate or DJS.*
- Details of the work site where persons or vehicles, involved in the milling process, will or could be expected to enter/exit the site must be noted.*
- The location of the Tip site must be noted and drivers advised.*

25 Specific details regarding the management of truck access/movements for the work area were not outlined in the RCP [40029]. Only generic controls (e.g. use spotters, RT comms, safety zones, tailgates & CTOs) were provided.

30 There were no other specific controls in the FHL Milling Operations Procedure [40022] to describe whether cartage truck drivers should stay with their trucks or how/where they should park if they need to get out of their truck while on-site.

The Milling Department Emergency Procedures and Guidelines dated 17 June 2016 [40023] outlines department specific procedures and includes operational zones (**Figure 16**) that are to be established during pre-start tailgates and adhered to at all times when reversing to a milling machine.

35 Based on the description of the incident (**Section 4.6**), no operational zones had been specifically defined in the work area or advised at the tailgate and Mr Jenkins (SEL) had pulled into the work area without the assistance of a traffic controller (T/C) and moved through the “Blue Zone” to find the “Green Zone” (**Figure 16**). Admittedly, the milling machine was in the process of being set up and was not operational at the time.

40 It is the author’s opinion that there were very few relevant aspects of this procedure followed on the night of the incident.

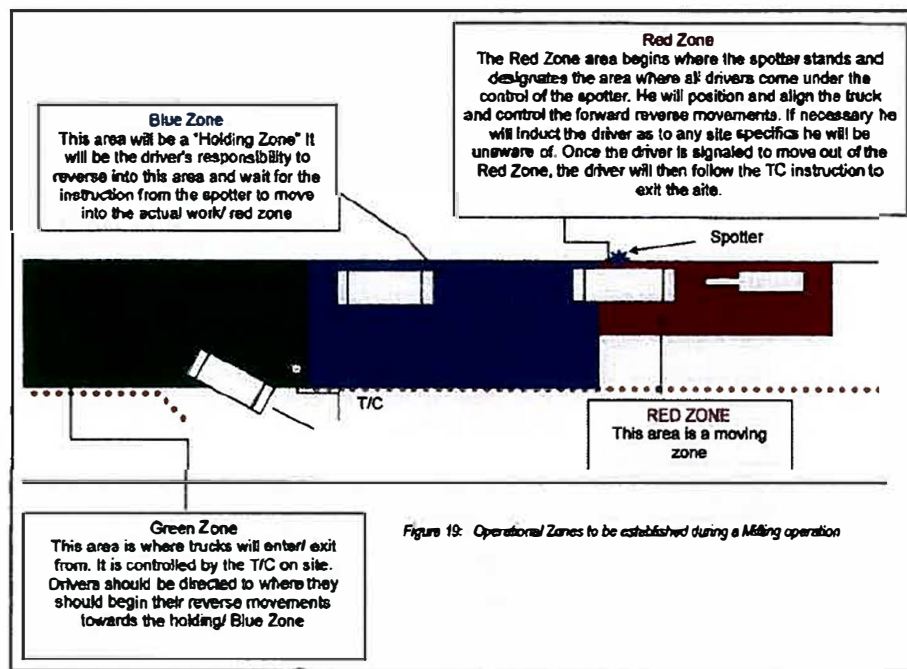


Figure 16 – Operational Zones for Milling [40023]

6.11 FHL & Nissan Diesels

It is understood that in 2012, FHL became aware of the issues relating to the maintenance required on park brake mechanisms within Nissan Diesel trucks [40100 p.28], potentially due to the UD Trucks (Nissan Diesel) Urgent Service Advisory (see **Section 3.5**).

FHL subsequently removed and replaced the park brake mechanism in their Nissan Diesel Trucks [40100 p.28]. However, they did not mandate this requirement for vehicles used on FHL sites by subcontractors as they felt it was too difficult [40100 p.28].

Had FHL enforced the requirement to replace the park brake mechanism on Nissan Diesel trucks for contractors and subcontractors, the incident would not have occurred.

6.12 Subcontractor Plant Condition Report

The Subcontractor Plant Condition Report dated 18 January 2016 [41005] is a generic document applicable to all plant from trucks to excavators and cranes. The document [41005] looks for current registration, warrant of fitness (WOF), certificate of fitness (COF), functional seat belts, reversing alarms, flashing beacons, first aid kits and fire extinguishers, among other things. The Condition Report [41005] then simply lists the makes and models of equipment that comply for a given company.

The Condition Report [41005] does not look to identify specific faults or recalls on individual models of equipment.

There was no Subcontractor Plant Condition Report [41005] on the Nissan Diesel truck involved in the incident or any other truck owned/operated by SEL.



It is understood that FHL undertake audits to ensure a subcontractor's equipment complies with the necessary requirements [40100 p.25]. However, this audit is only undertaken approximately annually and is not conducted prior to the subcontractor arriving on site.

5 The "Subcontracted and Hired in Plant Minimum Requirements – Checklist" [40037] is understood to be the revised version of the Subcontractor Plant Condition Report provided since the incident. This document specifically notes:

10 *Nissan Truck models; CG380, CG400, CK330, CM180, CW330, CW380, CW400, manufactured between 1993 & 2005 are not permitted on FH sites unless these trucks have been fitted with a replacement, approved, aftermarket hand brake that complies with the Heavy Vehicle Brake Rule 32015.*

Ensuring this checklist [40037] must be completed prior to any new piece of plant arrives on FHL site, would have prevented the incident on 11 March 2019.

6.13 Summary

15 The previous sections of the report indicate that FHL's primary risk management approach for contractors or subcontractors was discussing Risk Control Plans (RCPs) at tailgate (i.e. pre-start) meetings. However, the documented RCPs for the night of the incident did not effectively identify or control the risk of a parked truck rolling away.

20 There were various controls documented or implemented for FHL employees that could have prevented the incident, but these were not rolled out to include contractors and subcontractors and therefore were not applied on the night of the incident.

7. WCL Risk Management

25 WCL had completed the "Contractor / Subcontractor / Supplier Health, Safety, Quality and Environmental Capability Assessment" on 13 November 2016 [41004]. No further risk management documentation was provided.

30 As described in **Section 4.1**, FHL suggested that SEL operate as a subcontractor under WCL. This was primarily to ensure SEL could be paid for the work that their trucks were undertaking in the absence of a formal cartage agreement with SEL. There was general agreement amongst FHL, WCL and SEL personnel that there was no expectation that WCL was managing SEL employees or equipment.

It was noted throughout **Section 6** and summarised in **Section 6.13**, that FHL were not effectively managing the risk of a parked truck rolling away for their contractors or subcontractors.

35 Therefore, based on FHL's ineffective management of the exposure and the described relationship between WCL and SEL, it is the author's opinion that WCL were not going to effectively manage this exposure for SEL or FHL.



8. SEL Risk Management

Ritesh Kumar was the director of SEL and is understood to be a qualified diesel mechanic. SEL owned the Nissan Diesel truck involved in the incident. As described in **Section 3.1**, the truck had passed a COF (No. 40647885) on 2 March 2019 [42003].

Mr Kumar noted that he purchased the truck on 5 March 2018 [42100 p.20] and picked up the truck on 9 March 2018 [42100 p.2]. Therefore, Mr Kumar and SEL would not have been the legal owner of the truck during the time that any of the Department of Labour Hazard Management Bulletins, UD Trucks Urgent Service Advisories, RTF circulars or NZTA Safety Alerts as described in **Section 3.5**, were published.

While Mr Kumar worked as a diesel mechanic during some of the years when the advisory information was sent around (**Section 3.5**), it is not considered by the author to be likely that Mr Kumar would have been presented with this information.

Mr Kumar noted that he had never received any correspondence regarding the issues with the park brake on the Nissan Diesel truck [42100 p.18]. Mr Kumar also noted that the Nissan Diesel truck was regularly pulled over by the police [42100 p.19] and no comment was ever made regarding the park brake issue.

Mr Kumar also noted that in the year that he owned the Nissan Diesel truck, he had a problem with the Turbo and he took it to a “Nissan dealership” in Kapuni Grove in Porirua, so that they could plug in the truck to their specialised equipment and clear the fault code [42100 p.20]. Mr Kumar later referred to the dealer as Wilmac Transport Services [42100 p.25]. There are some old online references to Nissan Diesel NZ Ltd at 6 Kapuni Grove, Porirua⁶ as well as newer reference to Wilmac Transport Services. The Wilmac Transport Services Facebook page photograph shows that they appear to have some connection or affiliation with UD Trucks (**Figure 17**)⁷.



Figure 17 – Photograph of Wilmac Transport Services⁷

⁶ <https://www.cylex.co.nz/company/nissan+diesel+nz+ltd-18061449.html> accessed 11 October 2021.

⁷ <https://www.facebook.com/wilmactransport/788726602026781/?type=3&theater> accessed 11 October 2021.



It appears that Mr Kumar took the truck to a dealer or service entity associated or affiliated with UD Trucks in the year prior to the incident but the park brake issue (i.e. absence of the sticker as shown in **Section 3.5**) was not identified during this visit.

Mr Jenkins was an employee of SEL and advised that he undertook a pre-start inspection of the truck on the night of the incident. The completed pre-start has not been provided but it is understood by the author that it was aligned with the driver walk around guide provided by NZTA [42004]. There are no items in the checklist [42004] that would have assisted in identifying the issues with the park brake on the Nissan Diesel truck.

It is the author's opinion that Mr Kumar and SEL are unlikely to have received any information regarding the park brake maintenance issues for the Nissan Diesel trucks due to the date of acquisition of the Nissan Diesel truck. The park brake issue was not even brought to his attention when presenting the truck at a UD Trucks affiliate dealership for a repair. Therefore, it is not reasonable to expect that SEL's Risk Management processes could effectively address something that was not within their knowledge.

9. UD Trucks Risk Management

In about 2002, Nissan Diesel (NZ) Ltd was renamed UD Truck Distributors (NZ) Ltd ("UD Trucks") [32110 p.2]. UD Trucks import and distribute new trucks and genuine parts for UD Trucks. UD Trucks have a service operation in Auckland and run a dealer network throughout the rest of New Zealand for sales, parts and service [32110 p.2].

UD Trucks became aware of potential issues with the park brake in about 2010 following the fatality at Dunedin. UD Trucks requested to be part of the investigation from this incident but were not permitted [32110 p.2]. Once UD Trucks were allowed to look at the park brake valve, they ascertained that it was "working fine" and assumed that the critical issue was maintenance as people do not maintain older trucks [32110 p.2].

As described in **Section 3.5**, UD Trucks then published Urgent Service Advisories to all owners and operators of Nissan Diesel CK330, CW330, CW380, CW400, CG380 & CG400 vehicles manufactured between 1993 and 2005, on 1 February 2012 and 21 October 2013 to maintain the park brake valve and issued stickers.

The design of a safety critical feature like a park brake should provide feedback to the operator that it is actively engaged and ensure that it cannot be disengaged without an intentional and conscious action from the operator. Therefore, upon engaging, it should lock into position and not be able to be released without a specific action from the operator. It is the author's opinion that having a park brake valve design that will engage but not lock into position every time, is a fundamentally flawed design. In addition, having a safety critical feature like a park brake that potentially needs to be disassembled and inspected every 12 months to assist in ensuring its successful operation, is unlikely to produce reliable safety outcomes. Finally, the location of the park brake between the driver's seat and the door significantly increases the risk of inadvertent contact to exacerbate the risk of unintentional release of a park brake that is not locked in position.



A brief review of the park brake valve design shows that there were numerous opportunities for issues to occur to prevent successful locking upon engagement:

- Wear on the locking peg;
- Wear on the locking peg hole;
- Locking peg spring length;
- Locking peg spring tension;
- Ingress of foreign material into the locking peg area;
- Ingress of foreign material around the handle shaft;
- Tension or tightness of the handle locking nut;
- Handle rotation spring length;
- Handle rotation spring tension;
- Wear in the valve body rotation.

A number of these previously mentioned issues could actually be created or exacerbated by annually pulling apart the mechanism and inspecting it.

UD Trucks also did not appear to have an independent detailed review of the park brake valve undertaken to confirm whether the key issue was the absence of maintenance or fundamental flaws in the design.

UD Trucks also did not appear to engage with companies with large numbers of affected trucks (like FHL) to understand how they interpreted the problem and their subsequent solutions (i.e. replace and relocate the park brake valves), to establish a unified position for all of the Nissan Diesel fleet in New Zealand.

It is the author's opinion that UD Trucks did not adequately investigate the Sanwa Seiki park brake valve issues to understand the fundamental flaws in the design of the park brake valve to create a situation where the operator engages the park brake, but it is not effectively locked into position.

On 21 January 2014, UD Truck Distributors (NZ) Ltd issued a Potential Safety Issue⁸ for the *"possible slow actuation of the park brake valve"* for various model Euro 5 trucks (**Attachment 5**). The issue was identified as a *"restriction in the exhaust port due to piston deterioration as a result of high humidity conditions"* that may result in slow actuation of the park brake. This was a recall where UD Trucks covered the cost of installing a replacement control valve.

While UD Trucks advised that the Nissan Diesel and Euro 5 park brake issues were "different" [32110 p.4], the author can see a lot of similarities in that the park brake valve may not work as intended all of the time. The major differences were that the Nissan Diesel trucks were older than the Euro 5 and there were more of them in service. In the author's opinion, neither are valid reasons to not undertake a recall.

⁸ https://www.udtrucks.com/parts-and-service/potential_safety_issue_.pdf accessed 12 October 2021.



It is the author's opinion that, on the basis of the Euro 5 park brake valve recall, UD Trucks could have recalled the Sanwa Seiki park brake valves in the Nissan Diesel trucks like the one involved in the incident. Had this recall been undertaken, this incident would have been prevented.

5 10. NZTA Risk Management

The New Zealand Transport Agency (NZTA) requires all heavy vehicles, passenger vehicles and rental vehicles to have a current Certificate of Fitness (COF) to drive on New Zealand roads. NZTA appoint agents like VTNZ and VINZ to undertake these inspections and ensure vehicles meet relevant road safety standards.

10 The author understands that the NZTA became aware of the Sanwa Seiki park brake issues in Nissan Diesel trucks in at least 2012, when UD Trucks approached NZTA to obtain all of the registered owner addresses for relevant model Nissan Diesel trucks to send the Urgent Service Advisory [32110 p.3]. As described in **Section 3.5**, NZTA issued their own Safety Alert on the issue in May 2017.

15 However, it is understood that NZTA did not issue a directive to COF inspection agencies (i.e. VTNZ and VINZ) to confirm that the recommended maintenance (or presence of the sticker) had occurred in order to pass the COF [32130 p.7].

20 It is the author's opinion that, in the absence of the manufacturer/distributor (e.g. UD Trucks) making a specific decision to recall known problems with critical safety features on vehicles, the NZTA had the authority to ensure that this occurred for the safety of all New Zealanders.

25 Based on the numerous prior significant incidents and near misses, the NZTA could have provided a directive to ban the use of Sanwa Seiki park brakes in all trucks by ensuring a COF could not be passed if the park brake was present in the vehicle. This was finally implemented following the incident in March 2021 and became effective from 1 September 2021⁹. It is the author's opinion that this should have been conducted following the 2010 incident or following multiple near misses thereafter.

11. VTNZ Risk Management

30 VTNZ¹⁰ (60% owned by DEKRA and 40% owned by MTA) is New Zealand's largest vehicle inspection service, with more than 100 locations across New Zealand. VTNZ conduct Warrant of Fitness (WOF), Certificate of Fitness (COF) and other vehicle condition assessments for vehicles in New Zealand, in addition to other services.

⁹ <https://vehicleinspection.nzta.govt.nz/news/trucks-with-sanwa-seiki-brake-system> accessed 12 October 2021.

¹⁰ <https://vtnz.co.nz/> accessed 12 October 2021.



The author understands that VTNZ were aware from about 2011, of the Sanwa Seiki park brake issues in Nissan Diesel trucks [32130 p.5] and has issued multiple internal technical news articles or bulletins regarding the issue to all testing stations. All inspection staff then need to sign off that they have read and understood the content of these bulletins [32130 p.5].

As previously described, VTNZ carried out and passed the COF on the Nissan Diesel truck (ZO9541) about 9 days prior to the incident [42003].

VTNZ noted that their inspectors would consciously test the Sanwa Seiki park brake to ensure that it locked into the engaged position as they were aware that they can wear over time [32130 p.4&6]. The COF inspection report [42003] makes no reference to this test as it is a generic report but does describe that there is a *"detailed checklist available to customer on request"*.

As described in **Section 3.5**, UD Trucks published Urgent Service Advisories to all owners and operators of Nissan Diesel CK330, CW330, CW380, CW400, CG380 & CG400 vehicles manufactured between 1993 and 2005 on 1 February 2012 and 21 October 2013, to maintain the park brake valve annually and issued stickers to indicate that this had been completed. VTNZ advised that they also received these UD Trucks Urgent Service Advisories [32130 p.5]. However, VTNZ also noted that they **did not** specifically inspect the park brake to see if it had been maintained or observed the presence of the sticker, as it was not a directive from NZTA [32130 p.7].

It is the author's opinion that VTNZ could have at least engaged with NZTA upon receiving the UD Trucks Urgent Service Advisories to determine whether this issue should be added as part of the specific COF inspection for that type of truck.

This type of engagement could also have occurred after the NZTA released their own Safety Alert in May 2017.

12. Effective Controls to Manage the Risk

The Health and Safety at Work Act 2015⁴ describes a requirement to manage hazards and risks (as described in **Section 5**), including the need to eliminate risks, wherever reasonably practicable. The Health and Safety at Work (General Risk and Workplace Management) Regulations 2016⁵ also notes:

6 Hierarchy of control measures

- (1) *This regulation applies if it is not reasonably practicable for a PCBU to eliminate risks to health and safety in accordance with section 30(1)(a) of the Act.*
- (2) *A PCBU must, to minimise risks to health and safety, implement control measures in accordance with this regulation.*
- (3) *The PCBU must minimise risks to health and safety, so far as is reasonably practicable, by taking 1 or more of the following actions that is the most appropriate and effective taking into account the nature of the risk:*
 - (a) *substituting (wholly or partly) the hazard giving rise to the risk with something that gives rise to a lesser risk:*



(b) *isolating the hazard giving rise to the risk to prevent any person coming into contact with it;*

(c) *implementing engineering controls.*

(4) *If a risk then remains, the PCBU must minimise the remaining risk, so far as is reasonably practicable, by implementing administrative controls.*

(5) *If a risk then remains, the PCBU must minimise the remaining risk by ensuring the provision and use of suitable personal protective equipment.*

This hierarchy of control is regularly applied throughout industries to implement effective controls to manage risks.

Based on the information previously described in this report, it is the author's opinion that the risk of a rollaway truck from the inadvertent deactivation of a Sanwa Seiki park brake was known and understood by many entities (e.g. FHL, UD Trucks, VTNZ, NZTA) from about 2012, following the 2010 Dunedin fatality.

The consequence of a rollaway truck is predictably very high, ranging from fatalities to significant property or infrastructure damage. Therefore, it was prudent for relevant PCBUs to focus controls into the higher end of the hierarchy of control (i.e. elimination).

It is the author's opinion that the following opportunities existed for relevant PCBUs to implement effective controls from about 2012 to prevent this incident:

1. UD Trucks should have thoroughly investigated the Sanwa Seiki park brake valve issues to understand the fundamental flaws in the design of the park brake valve. This should have led to a recall of the Sanwa Seiki park brake valves in a similar manner to the Euro 5 recall undertaken soon after. This would have been an effective elimination control for the entire Nissan Diesel fleet in New Zealand. While UD Trucks admitted in 2012 that the reason for the park brake release could not be conclusively determined, they could similarly not be confident that the advice to inspect the mechanism on an annual basis, was ever going to be effective in fixing the problem. The advice to undertake the maintenance that is stated in the operator's manual is a weak administrative control.

2. UD Trucks should have ensured that all their dealer network (including Wilmac Transport Services) followed through on the Urgent Service Advisories by:

- a. Confirming the presence of the Warning Label on every relevant model Nissan Diesel truck that entered their premises; and
- b. Confirming that the current owner/operator of the truck was aware of the Urgent Service Advisories.

This would have provided additional strength to the weak administrative control.

3. NZTA should have provided all relevant information relating to the Sanwa Seiki park brake valve investigations to UD Trucks and encouraged them, from an informed position to undertake a recall. This would have facilitated an effective elimination control.



4. NZTA should have provided a directive to ban the use of Sanwa Seiki park brakes (as has currently occurred). This would have created an effective elimination control.
5. NZTA should have at least provided the directive to COF inspection agencies (i.e. VTNZ and VINZ) to confirm that the UD Trucks recommended maintenance (or presence of the sticker) had occurred in order to pass the COF. This would have provided additional strength to the weak administrative control.
6. VTNZ should have had a system in place to ensure that recalls, Urgent Service Advisories and Safety Alerts have been acted upon during COF/WOF inspections of relevant vehicles. At a very minimum, VTNZ should have engaged with NZTA to determine whether a directive needed to be applied as a result of any recalls, Urgent Service Advisories and Safety Alerts. This would have provided additional strength to the weak administrative control.
7. FHL should have enforced their own internal requirement to replace the Sanwa Seiki park brake in 2012 onto contractors and subcontractors. This was an effective elimination control for the FHL fleet. However, accepting contractor vehicles without the change onto their sites, rendered the control largely ineffective. It is the author's opinion that this was an easily enforceable condition through a plant inspection prior to the first entry onto a FHL site. Once this change was confirmed, there would be limited need for continued inspections for this item.
8. FHL should have implemented their entire risk management approach for vehicle movement across their contractors and subcontractors, and not just their employees. This is largely an administrative control and not as effective as the previous elimination controls. The approach included "Know How" videos on parking safely and Moving Plant Safety Essentials for parking.
9. FHL should have adhered to their Life Saving Rule of always having an effective plan to manage traffic and pedestrians by:
 - a. Ensuring people are not working on foot downhill of operating plant and equipment without adequate protection.
 - b. Ensuring cartage truck drivers are only called to the site when needed and are instructed to remain in their vehicles while on-site (particularly when working on sites with steep inclines).
 - c. Ensuring more relevant information is captured in RCPs and shared with all personnel (employees and contractors) on the site.
 - d. Ensuring all personnel (employees and contractors) are formally inducted into the work site and advised of the measures adopted to manage traffic and pedestrians.



13. Summary and Conclusions

The following opinions are based on the assumptions set out in this report. If any further information becomes available, then a reassessment may be necessary.

The Health and Safety at Work Act 2015⁴ drives the need for PCBUs to eliminate risks, wherever reasonably practicable. It is the author's opinion that all of the elimination controls discussed in this report were reasonably practicable from 2012 to 2019 in the context of the incidents that had already occurred. Had any of these elimination controls been implemented, the fatal truck incident on 11 March 2019 would not have occurred.

14 October 2021

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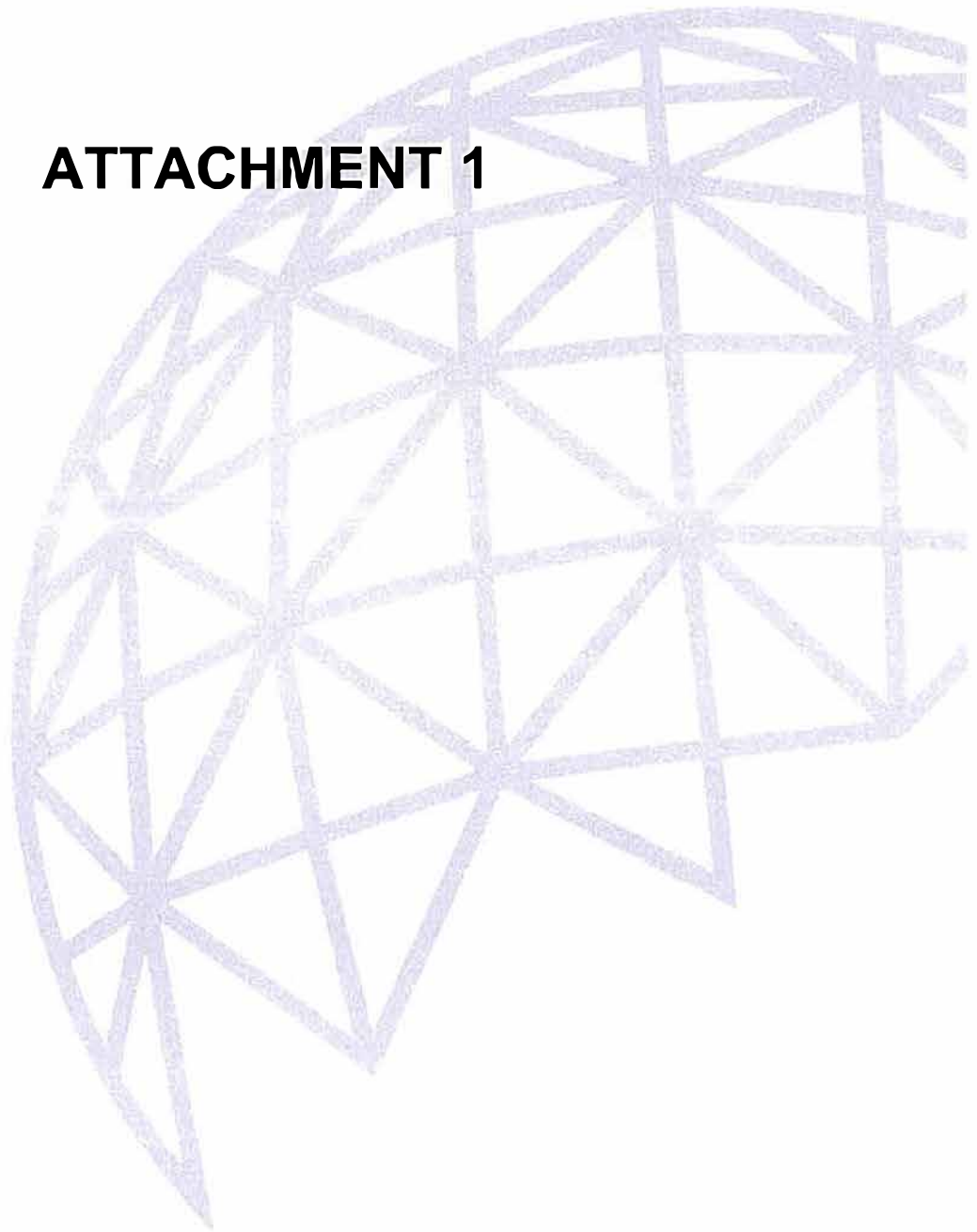
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ATTACHMENT 1



RELE

Information in support of Expert Brief for InterSafe

To assist in understanding the document classification, refer to the following:

CCTV Footage / video / photographs

31000 series – Statements – report (police)

32000 series – Statements (WS)

40000 series – FHL Documents – Statement

41000 series – Wellington Contracting Ltd

42000 series – Shuttle Express Ltd

50000 series – Safety Alerts (with 3x70000 series Alerts)

Miscellaneous material

The following is a list of documents etc that was provided to assist in providing the expert advice:

CCTV Footage / video / photographs

CCTV Footage

- 404 Pump Station-20190311 -212348
- 405 Kiwi Point Off-20190311-212328
- 406 Kiwi Point On-20190311-212318
- 407 36M Gantry Sth-20190311-212303
- 455 Kiwi Point-20190311-212337
- 24001 - 5740219 - Dash Cam footage

Video

- Hand brake test video
- Exclusion Zones around plant
- KnowHow RCP
- Light Trucks – Parking Safely
- LSR Always keep clear of the gear
- Parking or Leaving Heavy Wheeled Plant on Site
- Positive Traffic Management

Photographs

- P1000684
- P1000686
- P1000687
- P1000688
- P1000689
- P1000690
- P1000691
- P1000692
- P1000693
- P1000694
- P1000695
- P1000696
- P1000697
- P1000698

- P1000699
- P1000700
- P1000701
- P1000709
- P1000710
- P1000711

31000 series – Statements – report (police)

- 31500 - 5740219 - R Kumar statement
- 31501 - 5740219 - s9(2)(ba)(i) statement
- 31502 - 5740219 - s9(2)(ba)(i) statement
- 31503 - 5740219 - s9(2)(ba)(i) statement
- 31504 - 5740219 - s9(2)(ba)(i) statement
- 31505 - 5740219 - s9(2)(ba)(i) statement
- 31506 - 5740219 - s9(2)(ba)(i) statement
- 31507 - 5740219 - D Jenkins statement
- 31508 - 5740219 - s9(2)(ba)(i) statement
- 31509 - 5740219 - s9(2)(ba)(i) statement

32000 series – Statements (WS)

- 32000 - 5740219 - s9(2)(ba)(i) transcript
- 32010 - 5740219 - s9(2)(ba)(i) transcript
- 32020 - 5740219 - D Jenkins transcript
- 32030 - 5740219 - s9(2)(ba)(i) transcript
- 32040 - 5740219 - s9(2)(ba)(i) transcript
- 32050 - 5740219 - s9(2)(ba)(i) transcript
- 32060 - 5740219 - s9(2)(ba)(i) transcript
- 32070 - 5740219 - s9(2)(ba)(i) transcript
- 32080 - 5740219 - s9(2)(ba)(i) Higgins) transcript
- 32090 - 5740219 - s9(2)(ba)(i) Higgins WGTN) transcript
- 32100 - 5740219 - s9(2)(ba)(i) transcript
- 32110 - 5740219 - s9(2)(ba)(i) JD trucks) transcript
- 32120 - 5740219 - s9(2)(ba)(i) transcript
- 32130 - 5740219 - VTNZ transcript
- 32140 - 5740219 - s9(2)(ba)(i) transcript
- 32150 - 5740219 - s9(2)(ba)(i) transcript

40000 series – FHL Documents – Statement

- 40001 - 5740219 - Cartage supply agreement FH - WCL 1a
- 40002 - 5740219 - Total siteworks subcontract agreement 1b
- 40003 - 5740219 - Cartage supply agreement - Crawford 1c
- 40004 - 5740219 - Dixon & Dunlop- subcontract agreement 1d
- 40005 - 5740219 - PCL subcontract agreement 1e
- 40006 - 5740219 - Text messages between FHL and contractors 2a
- 40007 - 5740219 - Emails nightshift truck sheets 2b
- 40007(1) - 5740219 - Emails nightshift truck sheets 2c
- 40007(2) - 5740219 - Emails nightshift truck sheets 2d
- 40009 - 5740219 - WGTN network outcomes renewal quality plan 2f
- 40010 - 5740219 - HSQES risk management standard - NZ 3a
- 40011 - 5740219 - Risk management matrix 3b
- 40012 - 5740219 - Traffic management plan 3c

- 40013 - 5740219 - Site check list 3d
- 40014 - 5740219 - Capital journeys risk sheet 3e
- 40015 - 5740219 - Risk control plan 3f
- 40016 - 5740219 - Life changing rules 3g
- 40017 - 5740219 - Know how flow chart 3h
- 40018 - 5740219 - Risk register hazard id - Sealing 3i
- 40019 - 5740219 - Risk register - transport trucks 3j
- 40020 - 5740219 - Risk register - traffic management 3k
- 40021 - 5740219 - Risk register - road marking 3i
- 40022 - 5740219 - Milling operations procedure 4a
- 40023 - 5740219 - Milling dept - emergency procedures and guidelines 4b
- 40024 - 5740219 - Asphalt laying work instruction 4c
- 40025 - 5740219 - Pavement construction work instruction 4d
- 40026 - 5740219 - Sealing physical work - work instruction 4e
- 40027 - 5740219 - Moving plant essentials 4h-j
- 40028 - 5740219 - Flowcharts 5a-f
- 40029 - 5740219 - Risk control plan - surfacing 100319 9a
- 40030 - 5740219 - Risk control plan 9b
- 40031 - 5740219 - Risk control plan 9c
- 40032 - 5740219 - Risk control plan – traffic management 9c
- 40036 – 5740219 - FHL alert post incident
- 40037 - 5740219 - FHL contractor vehicle checklist post incident
- 40100 - 5740219 - FHL transcript
- 40101 – 5740219 - FHL audio

41000 series – Wellington Contracting Ltd

- 41003 - Contractor Subcontractor Supplier HSQE Capability Assessment Form
- 41004 - Contractor Subcontractor Quality and Environmental Capability
- 41005 - Subcontractor Plant Condition Report - Regional
- 41007 - Email Ritesh & FH
- 41107(1) - Email Ritesh & RH
- 41107(2) - Email Ritesh & RH
- 41107(3) - Email Ritesh & RH
- 41100 - 5740291 - WCL transcript

42000 series – Shuttle Express Ltd

- 42003 – 5740219 - VINZ inspection report
- 42004 – 5740219 - Driver walkaround guide
- 42009 – 5740219 - Nguaranga Gorge works order
- 42100 – 5740219 - SEL transcript

50000 series – Safety Alerts (with 3 x 70000 series alerts)

- 50005 – 5740219 - DOL accident alert 2011
- 50006 – 5740219 - NZTA safety alert 2019 post accident
- 50006(1) – 5740219 - NZTA safety alert 2017
- 50008 – 5740219 - RTF circular 2017
- 50008(1) - 5740219 - RTF trucking brief 2014
- 50010 - 5740219 - UD urgent advisory - 9(c)
- 50010 - 5740219 - UD urgent advisory
- 51010(1) -Warning Label Letter 2012 - 9(c)

- 50010(1) -Warning Label Letter .2012
- 70020 - 5740219 - Other similar alerts
- 70020(1) - 5740219 - Other similar alerts
- 70020(2) - 5740219 - Other similar alerts

Miscellaneous

- Chipsealing Blue Book
- Sealed Pavement Maintenance Blue Book Guideline
- 30002 - 5740219 - JB training records
- 30500 - 5740219 - DJ licence
- 31000 - 5740219 - General training records
- 31000(1) - 5740219 - General training records
- 31000(2) - 5740219 - General training
- 60000 - 5740219 - Police fatal crash report
- 70003 - 5740219 - GH relationship chart
- 5740219 Fulton Hogan Report - BM version - RY review4
- Emails 'Red Alert' UNCLASSIFIED

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ATTACHMENT 2

RELE

1982

Code of conduct for expert witnesses

Schedule 2 Schedule 4: replaced, on 1 February 2009, by [section 8\(1\)](#) of the Judicature (High Court Rules) Amendment Act 2008 (2008 No 90).

Duty to the court

- 1 An expert witness has an overriding duty to assist the court impartially on relevant matters within the expert's area of expertise.
- 2 An expert witness is not an advocate for the party who engages the witness.

Evidence of expert witness

- 3 In any evidence given by an expert witness, the expert witness must—
 - (a) acknowledge that the expert witness has read this code of conduct and agrees to comply with it;
 - (b) state the expert witness' qualifications as an expert;
 - (c) state the issues the evidence of the expert witness addresses and that the evidence is within the expert's area of expertise;
 - (d) state the facts and assumptions on which the opinions of the expert witness are based;
 - (e) state the reasons for the opinions given by the expert witness;
 - (f) specify any literature or other material used or relied on in support of the opinions expressed by the expert witness;
 - (g) describe any examinations, tests, or other investigations on which the expert witness has relied and identify, and give details of the qualifications of, any person who carried them out.
- 4 If an expert witness believes that his or her evidence or any part of it may be incomplete or inaccurate without some qualification, that qualification must be stated in his or her evidence.
- 5 If an expert witness believes that his or her opinion is not a concluded opinion because of insufficient research or data or for any other reason, this must be stated in his or her evidence.

Duty to confer

- 6 An expert witness must comply with any direction of the court to—
 - (h) confer with another expert witness;
 - (i) try to reach agreement with the other expert witness on matters within the field of expertise of the expert witnesses;
 - (j) prepare and sign a joint witness statement stating the matters on which the expert witnesses agree and the matters on which they do not agree, including the reasons for their disagreement.
- 7 In conferring with another expert witness, the expert witness must exercise independent and professional judgment, and must not act on the instructions or directions of any person to withhold or avoid agreement.

Schedule 2 Schedule 4 clause 7: replaced, on 1 December 2009, by [rule 10](#) of the High Court Amendment Rules (No 2) 2009 (SR 2009/334).



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ATTACHMENT 3

RELE

1982

Curriculum Vitae

JUSTIN ANDREW LUDCKE

PhD, BE (Medical)(Hons), Adv Dip OHS, FIEAust, CPEng, NER, APEC Engineer, IntPE(AUS), RPEQ, MHFESA

1. Personal Details

Date of Birth: 9 November 1976

Place of Birth: Brisbane

2. Professional Qualifications

- | | |
|------|---|
| 2001 | Doctor of Philosophy, Queensland University of Technology. |
| 1997 | Bachelor of Engineering (Medical) (Hons), Queensland University of Technology. |
| 2013 | Advanced Diploma in Occupational Health and Safety, Australasian College of Health & Safety. |
| 2019 | Chartered Professional Engineer (CPEng) of The Institution of Engineers Australia in Risk Engineering, Mechanical Engineering and Leadership and Management |
| 2019 | Registered Professional Engineer of Queensland (RPEQ) in Management and Mechanical Engineering |

3. Professional Memberships

Fellow of the Institution of Engineers Australia (FIEAust)

Chartered Professional Engineer (CPEng) of The Institution of Engineers Australia in Risk Engineering, Mechanical Engineering and Leadership and Management

Registered on the National Engineering Register (NER) in Risk Engineering

Registered on the Asia Pacific Economic Cooperation (APEC) Register (APEC Engineer)

Registered on the EMF International Register of Professional Engineers (IntPE)

Member of the Human Factors & Ergonomics Society of Australia (MHFESA)

2005 - Queensland Branch Committee Vice-Chairman

2007-2011 - Queensland Branch Committee Treasurer

4. Professional Development/Training

- 2018 System Leadership Revision, Mastering Management Pty Ltd [½ day].
 - 2016 NSCA Property Risk and Compliance Management, Integrated Safety Training [2 days].
 - 2007 Workplace Health and Safety Officer (WHSO), Australasian College of Health and Safety [2 days re-certification].
 - 2006 Queensland General Safety Induction "Blue Card", Blue Dog Training [Online]
 - 2005 PC-Crash Advanced Users Workshop, Linz, Austria. Dr. Hermann Steffan of DSD (Dr Steffan Datentechnik GmbH) [4 days].
 - 2004 Team Leadership and Team Membership Revision and Self-Assessment, Mastering Management Pty Ltd [2 days].
 - 2003 Team Leadership and Team Membership, Mastering Management Pty Ltd [2 days].
 - 2002 Certificate IV in Assessment and Workplace Training, Commerce Queensland [5 days].
 - 2002 Workplace Health and Safety Officer (WHSO), Commerce Queensland [2 days re-certification].
 - 2002 PC-Crash Users Workshop, Brisbane, Australia, The InterSafe Group [3 days].
 - 2002 Major Incident Investigation - using Analysis Reference Tree Trunk, New Zealand, The InterSafe Group [3 days].
 - 2001 Minor Incident Investigation, Sydney, The InterSafe Group [1 day].
 - 2001 PC-Crash Advanced Users Workshop: EES crash sled tests, Linz, Austria. DSD (Dr. Steffan Datentechnik) [4 days].
 - 1999 MADYMO Beginner Users Course, Brisbane. Advea Engineering [2 days].
-

5. Peer Refereed Publications

Ludcke, J. A., Percy, M. J., Evans J. H., Barker, T. M. (2002) "Modelling Inflatable Rescue Boats (IRBs) in Surf Conditions to Investigate the Impact on Surf Life Saving Personnel", *International Crashworthiness 2002 Conference Proceedings*, Melbourne, Australia, ISBN: 0-908556-78-0.

Ludcke, J. A., Percy, M. J., Evans J. H., Barker, T. M. (2001) "Impact data for the investigation of injuries in inflatable rescue boats (IRBs)", *Australasian Physical & Engineering Sciences in Medicine*, vol. 24, no. 2, pp. 95-101.

Ludcke, J., Percy, M., Evans J., Barker, T. (2000) "Modelling of Shock Absorptive Foam Using MADYMO to Prevent Injuries in Inflatable Rescue Boats (IRBs)", *Proceedings of the International IRCOBI Conference on the Biomechanics of Impact*, Montpellier, France, pp. 471-473.

6. Conference Papers and Presentations

- 2018 "Incident Investigation – Back to Basics", *28th Electrical Engineering Safety Seminar, NSW Planning & Environment Resources Regulator*, Sydney.
 - 2016 "What is our Critical Risk in Construction?", *Construction Health Forum – March 2016*, Brisbane.
 - 2015 "Why Are We Not Learning to Manage Manual Tasks in the Mining Industry?", *19th Triennial Congress of the International Ergonomics Association*, Melbourne
 - 2015 "Why Are We Not Learning to Manage Manual Tasks in the Construction Industry?", *19th Triennial Congress of the International Ergonomics Association*, Melbourne
-



- 2013 "Is Zero Harm Achievable?", Safety Institute of Australia, *Safety in Action Conference*, June 2013, Brisbane
- 2012 "Managing Safety: Is it Fact or Fiction?", *Drill 2012 Conference*, Adelaide.
- 2010 "Lifting Techniques Training Busted", *HFESA Mythbuster Session*, June 2010, Human Factors & Ergonomics Society of Australia, Brisbane
- 2005 "Change for the Future, Not Blame for the Past", *The Safety Conference*, Sydney.
- 2005 "Permanent Disability versus Lost Time Injury: What are they telling us?", *31st International Conference of Safety In Mines Research Institutes*, Brisbane.
- 2003 "Computer Based Tools and Technologies for Forensic Investigation", *Australian Plaintiff Lawyers Association (APLA) – National and NSW State Conference 2003*, Coolom and Sydney.
- 2002 "Modelling Inflatable Rescue Boats (IRBs) in Surf Conditions to Investigate the Impact on Surf Life Saving Personnel", *ICrash 2002*, Melbourne.
- 2001 "Using Biomechanics and Mathematical Modelling to Investigate Surf Life Saving Injuries in Inflatable Rescue Boats (IRBs)", *Second International Lifesaving Services (ILS) Medical-Rescue Conference*, Gold Coast.
- 2001 "Modelling of Ethylene Vinyl Acetate (EVA) Foam in MADYMO to Determine Impact Absorption Capabilities", *2001 Australian MADYMO Users Meeting*, Melbourne.
- 2000 "Modelling of Shock Absorptive Foam Using MADYMO to Prevent Injuries in Inflatable Rescue Boats (IRBs)", *2000 International IRCOBI Conference on the Biomechanics of Impact*, Montpellier, France.
- 2000 "Impact Data for the Investigation of Injuries in Inflatable Rescue Boats (IRBs)", *Impact Biomechanics Australia Conference: Neck Injury 2000*, Sydney.
- 1999 "Modelling of Inflatable Rescue Boats (IRBs) in Surf Conditions to Reduce Injuries", *Third National Conference on Injury Prevention and Control (IPC)*, Brisbane.

7. Employment and Experience

2001 – Present **InterSafe**

InterSafe specialises in "Protecting People" in both the workplace and public places. InterSafe has assisted our clients across all industries in effectively controlling the future through preparation of more than 10,000 comprehensive incident reports (dealing mostly with fatal/permanently disabling occurrences) throughout 60 years of collective experience.

Justin Ludcke's responsibilities within the company have included:

- Investigating incidents resulting in fatality or permanent non-fatal damage and preparing expert reports for the legal profession. Reports include specific recommendations for change to minimise the potential for future incidents. Incidents cover a wide range of industries and scenarios.
- Training management/supervisors in incident investigation and risk management processes.
- Developing and reviewing Health & Safety Management Systems and other relevant systems documents.
- Facilitating and conducting risk assessments for whole of project to task or role based exposures.
- Conducting safety and ergonomics risk assessments and audits on various pieces of equipment and in numerous environments and organisations.

- Conducting research into patterns of injury resulting in permanent damage to 1000's of people across many industries.
- Facilitation of Focused Recall™ processes with workers for companies.
- Investigation and analysis involving detailed computer modeling (using PC-Crash & PC-Rect) of road and transport accidents.
- Training industrial workforces, supervisors, engineers, and managers in Incident Investigation, Risk Management and Ergonomics.
- Conduct "Safety in Design" Reviews and Risk Assessments.
- Developing Apps and Software to compliment business services.
- Undertaking duties as a Manager and General Manager of the business.

Specific projects undertaken by Justin Ludcke include:

- Over 500 litigation matters resulting in personal injury in both the workplace and public places.
- Major litigation matters involving regulator prosecutions.
- Independent, legally privileged investigations into fatal incidents across Australia.
- Investigating major global incidents resulting in fatal consequences or significant impact on assets (e.g. fire, explosion, fall of ground).
- Conducting a gap analysis for the design and implementation of a Safety Management System against legislative requirements.
- Facilitating the Focused Recall™ processes for an entire mine, rail and port operation for Rio Tinto in Canada.
- Conduct a risk assessment on the design and operation of a barge constructed to lay a dual submarine gas pipeline for Leightons Constructions (Asia) Limited.
- A complete site assessment of vehicle-vehicle and vehicle-pedestrian interaction at BlueScope Steel. Control measures were developed to minimise the risk of damage to all personnel on site.
- Machine guarding and WHSO (Workplace Health & Safety Officer) Audits for VIP Petfoods to minimise the risk of damage to operators and maintenance personnel in the manufacturing facility.
- A risk assessment of the tasks conducted by the Marine Animal Response Team (MART) of the Queensland Boating & Fisheries Patrol while performing bycatch release from the shark nets and drum lines placed off Queensland beaches (in particular releasing whales from the shark nets).
- An ergonomic/safety risk assessment of a water tanker (fire truck) for the Queensland Fire & Rescue Authority.
- An ergonomic evaluation of stair chairs and stretchers for the Queensland Ambulance Service (QAS) to determine the advantages and disadvantages of the current designs. Based on these results, an ergonomic evaluation was performed to develop specific factors that were to be included in a specification for new equipment.

2009 – 2017

Lutheran Ormeau Rivers District School (LORDS)

Member of the LORDS School Council (including Vice Chairman from 2014) involved in the development and subsequent opening of the school in 2012 as well as the ongoing governance of its operation.

Chair of the LORDS Construction Committee involved as the client representative to assist in managing the annual construction projects (since 2011). Annual project values range from \$900,000 to \$4.5 million. Work involves providing input into designs, assisting with the government grant process, reviewing and approving

contracts, plans, budgets/variations and inspecting the quality of the completed project for sign-off. The role also involves developing and maintaining the master plan for the school and medium to long term planning of building schedules.

Member of the LORDS Finance Committee involved in the financial governance including the development and approval of budgets as well as medium to long term financial plans for the school.

2006

University of Queensland

Invited Guest Lecturer in Ergonomic Subject matter within the School of Human Movement Studies.

2005

Queensland University of Technology

Invited Guest Lecturer in Medical Engineering Subject matter within the School of Engineering Systems.

Invited Guest Lecturer in Ergonomic Subject matter within the School of Design.

2002

Griffith University

Invited Guest Lecturer in Ergonomics Subject matter within the School of Public Health.

1998 – 2001

Queensland University of Technology

PhD research in injury prevention entitled, "Modelling of Inflatable Rescue Boats (IRBs) in Surf Conditions to Reduce Injuries."

Engineering laboratory demonstrator and engineering research assistant positions were also fulfilled during this time.

RELE



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ATTACHMENT 4

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ATTACHMENT 4
(50005)

NZ Dept of Labour
Hazard Management Bulletin
June 2011



Truck's Spring Brake Failure Kills Pedestrian

INCIDENT

A member of the public was killed when he walked between two unattended trucks parked on a hill road. The hand brake failed on the uppermost vehicle, causing it to run into the lower, crushing the victim.

CIRCUMSTANCES

Two trucks were parked on a hill, facing down.

The uppermost truck (truck 2) parked behind the first (truck 1) and the driver applied the park brake (a spring brake). Truck 2's driver exited the truck's cab and walked towards the rear of the vehicle, when the park brake released. The truck rolled down the hill into truck 1, crushing a member of the public who was walking between the rear of truck 1 and the front of truck 2.

INVESTIGATION

The investigation revealed that this was not an isolated incident; a number of other uncontrolled park brake releases have been recorded.

Truck 2 was fitted with a park brake control valve positioned at the base of the driver's seat. There are two known variants of brake valve – both operate the same way with the same locking system. They were manufactured up until approximately 2003.

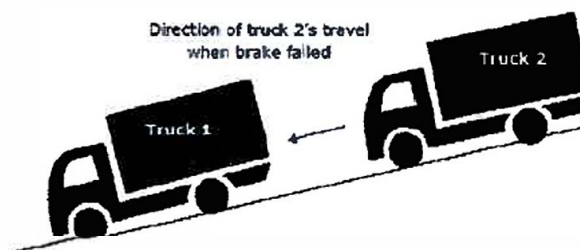
In the case of truck 2, the locking dowel in the park brake control valve had not fully engaged in the valve body, and the brake released.

There were two identified reasons for the brake not fully engaging:

1. the park brake operating lever (located in the handle head of the park brake control valve body) was sticking, and
2. the locking hole in the park brake control valve body was worn and elongated.

Either fault – on its own or together – will prevent full brake engagement.

The driver engaged the park brake control valve, but the operating lever failed to fully engage the locking dowel. The driver exited the truck with the park brake engaged but not correctly locked. Factors such as engine vibration, the bump of the closing door, and the return spring pressure on the operating lever would have been enough to release the brake, with fatal consequences.



1

Figure 1: Diagram showing how the trucks were parked and the direction truck 2 travelled when the park brake failed.



2

Figure 2: shows the interior of a truck cab with a park brake control valve positioned at the base of the driver's seat. The park brake is in the "engaged" position.



GUIDANCE

The New Zealand Police's Commercial Vehicle Investigation Unit carried out an investigation, and made a number of recommendations.

Considering the age of some of the vehicles with this type of park brake control valve, control valve operation must be checked regularly. Operators and service personnel need to be made aware that:

When applying the park brake, the driver must ensure that the operating handle on the park brake control valve has fully dropped into its locking position. If this does not occur, the valve must be serviced immediately. The park brake control valve body wears down with use and, aided by the entry of dust and dirt, the smooth operation of the valve is affected – often to the degree that it will fail.

Dust boots on any such control valves must be in good condition.

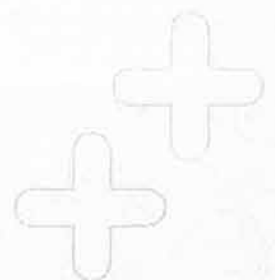
Due to the position of the park brake control valve at the side of the seat base, the driver should make sure that he or she does not catch his or her clothing on the control lever when exiting the cab, because this, too, will often result in an uncontrolled park brake release.

WHICH INDUSTRIES/SECTORS OR MATTERS WILL THIS INFORMATION BE RELEVANT TO?

- All operators of heavy motor vehicles fitted with control valves and other vehicles fitted with similar type valves with spring brakes as a park brake;
- All drivers of these vehicles;
- All heavy motor vehicle service providers and repairers.

Note: This material has been prepared using the best information available to the Police/Department of Labour at the time of publication. Information may change over time and it may be necessary for you to obtain an update. This material is also only intended to provide general advice and does not constitute legal advice. You should make your own judgement about action you may need to take to ensure you have complied with your workplace health and safety obligations under the law.

RELE



ATTACHMENT 4
(50010)

UD Trucks (Nissan Diesel)
Urgent Service Advisory
February 2012



UD TRUCKS

UD Truck Distributors (NZ) Ltd

7 Langley Road, Wiri
PO Box 76-326, Manukau City 2241
Ph: +64-9-250-1800
Fax: +64-9-250-1340
www.udtrucks.co.nz

1 February 2012

URGENT SERVICE ADVISORY

To all owners and operators of Nissan Diesel CK330, CW330, CW380, CW400, CG380, CW400 & CG400 vehicles manufactured between 1993 and 2005.

There has been a recent instance of an unintentional park brake control release of a Nissan Diesel CW380 vehicle which has allowed the vehicle to move off after the driver has exited the cab.

The reason for this release could not be conclusively determined but the most probable cause is the entry of foreign material between the park brake lever shaft and the park brake valve body which has caused the lever to stick in the valve body and prevent the lever shaft to fully engage the detent.

The Nissan Diesel Owners Manual recommends that the brake valves be overhauled at 12 month intervals. Furthermore UD Truck Distributors (NZ) Ltd recommend that the brake valves be inspected at every service to ensure that the lever has no build up of foreign materials between the lever shaft and the valve body and that the valve body is in good working condition.

The inspections and service intervals should be more frequent for vehicles operating in adverse or dirty and dusty conditions.

If the park brake control shows any signs of stiffness in operation or the lever does not slip smoothly into the detent, the valve should be serviced immediately.

As a reminder to the drivers of these vehicles to ensure that the park brake is correctly applied and locked, UD Truck Distributors has produced a warning label to be placed in the cab and one of these labels with fitting instructions is included with this advisory.

Please ensure that the label is affixed to the cab in the position shown and should you require any further information please contact your nearest UD Trucks/Nissan Diesel service agent or contact UD Trucks directly on the above numbers.

A list of UD Trucks service agents and their contact details are included with this advisory.

If you do not use an authorised UD Trucks service agent you should provide your service provider with a copy of this advisory.

Yours Sincerely



John Gerbich
General Manager



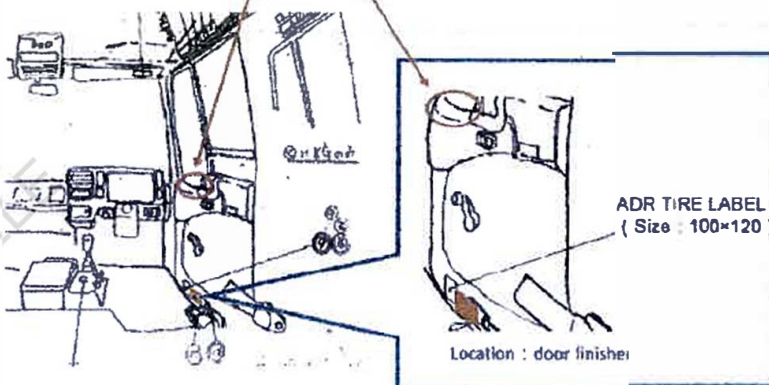
Bryan Musgrave
National Aftersales Manager

TO FIT THIS LABEL

1. Ensure that surface is clean and free of dust. If necessary wipe with cleaning solution
2. Peel backing from label and apply label firmly to the area indicated



location



ATTACHMENT 4
(50008)

RTF New Zealand
Circular

Published: 13 February 2013

Republished: 30 September 2013

Republished: 28 November 2013

Republished: 12 May 2017



Circular

Sponsored by
Lumley 

12 May 2017

File Ref: 1/14/56

Released by: Mark Ngatuere

To	Forum Directors, Area Executives
Released by:	s9(2)(a) Senior Policy Analyst

PARKBRAKE FAULT: SAFETY ALERT ISSUED

In 2013 we advised of unintentional releasing of *Sanwa Seiki* park brake control valves¹ resulting in tragedies and severe harm incidents. These control valves are predominately fitted to Nissan trucks.

In response to a recent fatality in Queenstown apparently linked to park brake failure the NZTA has circulated a safety alert for distribution. It is attached to this circular and can be accessed here:

<http://www.nzta.govt.nz/assets/Vehicles/Safety-alert-Avoid-park-brake-failures-201705.pdf>

The safety alert focuses on the mechanical condition of the park brake control mechanism and is right to do so. There is also an element of driver awareness that cannot be ignored. There is a chance that drivers operating these hand brakes could be detecting a change in handle function/performance that should not be ignored. Any perceived drop or change in performance should be further investigated by suitably qualified personnel.

¹ Original circular Issued 13 February 2013. Second circular issued 30 September 2013. Third circular issued 28 November 2013.



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ATTACHMENT 4

(50010)

UD Trucks (Nissan Diesel)

Urgent Service Advisory

21 October 2013

21ST Oct 2013

URGENT SERVICE ADVISORY

To all owners and operators of Nissan Diesel CK330, CW330, CW380, CW400, CG380 & CG400 vehicles manufactured between 1993 and 2005.

Due to a poor response to an advisory sent out to the then owners in February 2012 there is an urgent need to re issue that advisory.

A recent instance of a vehicle rolling away after the driver had exited the cab has shown that the message hasn't been communicated to operators as UD Trucks and the CVIU had expected.

The reason for this last accident was due to the driver not ensuring that the park brake valve was properly applied and locked in the park position before he exited the cab.

In this case there was no fault found with the valve and it operated as it was designed to do.

UD truck Distributors (NZ) Ltd recommends that the park brake valve be inspected at every service to ensure that the lever has no build-up of foreign materials between the lever shaft and the valve body and that the valve is in good working condition.

The service intervals and inspections should be more frequent for vehicles operating in adverse and dusty conditions.

If the park brake control valve shows any signs of stiffness in operation or the lever does not properly lock in the park position, the vehicle must not be operated until the valve is rectified or replaced.

As a reminder to the drivers of these vehicles to ensure that the park brake is correctly applied and locked before exiting the cab, UD Truck Distributors has produced a warning label to be placed in the cab. See fitting instructions included.

If your listed vehicle does not have the label attached or your park valve is in urgent need of repair, please contact your nearest UD Trucks /Nissan Diesel service agent or contact UD Trucks directly on the above numbers.

Please also see this advisory under recalls on our web site.

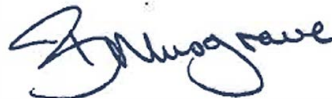
A list of UD Trucks service agents and their contact details are included with this advisory.

If you do not use an authorised UD Trucks service agent you should provide your service provider with a copy of this advisory

Yours Sincerely



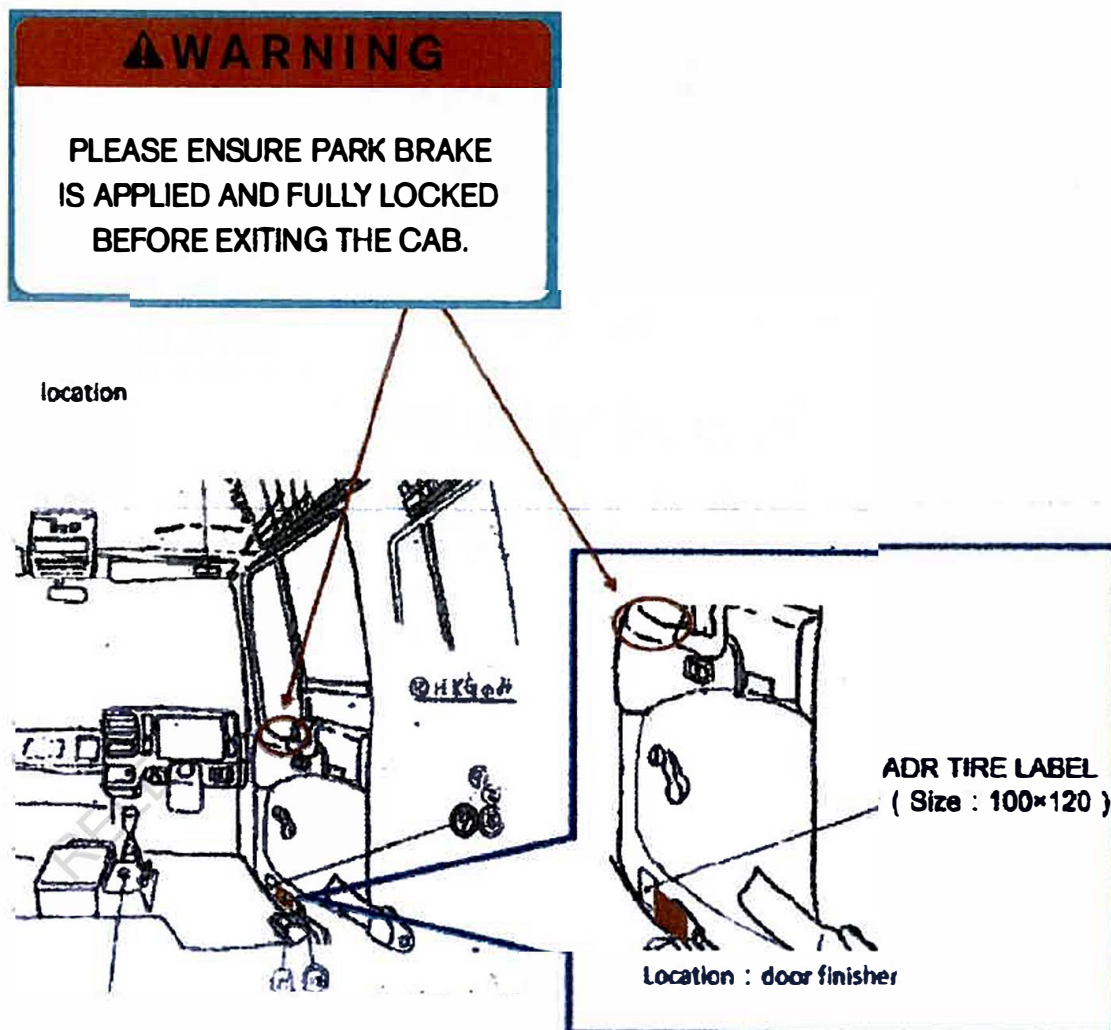
John Gerbich
General Manager



Bryan Musgrave
National Aftersales Manager

TO FIT THIS LABEL

1. Ensure that the surface is clean and free of dust. If necessary wipe with cleaning solution.
2. Peel backing from label and apply firmly to the area indicated.





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ATTACHMENT 4
(50008(1))

RTF

Trucking Brief
February 2014



MORE CHOICE IN COF INSPECTION SERVICES

Members won't be restricted to the current inspection-only CoF providers under a new model the New Zealand Transport Agency is introducing. It enables repair and maintenance providers to offer CoF inspections as well as their usual services and will allow more inspection organisations, vehicle inspectors and inspection sites to enter the market. It is also looking at accrediting operators with the best safety records to manage the safety of their vehicles including inspection, repair, reinspection and certification.

The Agency says the change is driven by the need for a more customer responsive system and enhanced vehicle productivity. It says vehicles can be returned to service more quickly to increase vehicle productivity, potentially reduce costs for owners and operators and improve road safety. However it does concede the risk of reduced access and increased prices in rural or low volume inspection sites, though it claims for many customers the risks will be more than offset by the reduced downtime from bundled maintenance, inspection, repair and certification services.

The current prescriptive site requirements will be replaced by outcome-based principles and standards. To make sure the required standards are met the Agency says it will improve the efficiency and effectiveness of its audit system and set up an effective CoF-delivery monitoring and evaluation system. Inspectors will need to demonstrate their qualifications, experience and knowledge and will be appointed for a three-year term subject to satisfactory audit results and meeting professional practice and development requirements.

The final operational policies and procedures are expected to be released by 30 April with applications to become an inspection organisation, inspector or approved site accepted from 31 July and the first round of appointments made in September.

The new model incorporates many of the changes the Forum has been pressing for over a number of years, including the appointment of independent inspectors. However we do have reservations about allowing companies to carry out their own CoF certification because of possible public perception issues.

* Reference: Certificate of Fitness review

REPAIR AND MAINTENANCE COMPANIES WILL PROVIDE COFS

The repair and maintenance sector believes customers would want a bundled service according to a survey for the Agency by NZIER. There was some concern about whether customers would be willing to pay for the extra investment and cost involved, but NZIER said that repair and maintenance sites already commonly have roller brake machines while it's not unusual for them to have load simulation facilities. Sites without roller brake machines were often planning to install them over the next two or three years NZIER said.

Other issues raised by potential CoF inspection providers were training and the risk that additional CoF work would dog up their workshops.

Some raised the possible reputational and liability damage they might suffer if a vehicle was subsequently involved in a crash or if staff members were found guilty of passing inspections fraudulently.

Overall NZIER found that most respondents intended to quickly seek approval to become inspection organisations.

This could lead to a significant reduction in business for existing CoF-only service providers with only 15% of the survey participants believing that customers will not want a combined inspection-repair service. NZIER says this ties in with a 2012 assumption that the inspection-only sector will have 10%-20% market share in the long run.

COF FITNESS PERIOD CHANGES

Extending the CoF inspection period from three to 12 months rather than the current three to nine month period has been signed off by the Government.

The New Zealand Transport Agency is now reviewing its policies around the use of CoF variable frequency and how this can be used to incentivise better safety performance. One outcome could be that operators with the very best safety and maintenance records might have 12 month inspections while the most at-risk operators might be required to have CoF inspections every three months.

A change to a risk-based approach to CoF period requirements which rewards conscientious operators and focuses on poor performers is welcome but it also reinforces the Forum's concerns about the ORS system especially in terms of operator exposure to enforcement.

UPDATE YOUR TSL CONTACT INFO?

The New Zealand Transport Agency is reminding operators of the need for TSL holders to inform it of any changes to their contact details so it can keep its register up to date. It says there may be occasions where it needs to pass on important information and that members who provide an email address can receive information such as ORS ratings and roadside inspection reports electronically.

Members wanting to revise their contact details or confirm them can phone 0800 822 422 or email info@nzta.govt.nz.

Need equipment or vehicle finance? We're on the job.

Call 0800 ASK BNZ (0800 275 269) or email BNZ_assetfinance@bnz.co.nz

Lending criteria and minimum loan amounts apply.

Proudly Supported by



HPMV AND 50MAX PERFORMANCE UPDATE

The Forum has been provided with a selection of PowerPoint slides from an internal industry/NZTA meeting. These will bring everyone up to date regarding certain aspects of the Agency's HPMV permit processing and processing of 50MAX applications. Members should note the current processes are somewhat standardised so if information is missing from applications or the application requirements are not completed with specified attachments these will be simply returned to applicants.

The Powerpoint slides, which provide a tabulated summary of common rejection issues as well as an update on issuing permit times and progress on rolling out the 50MAX network, are available from associations and on the Forum's website.

* **Reference: HPMV update FORUM SURVEY OFFERS INDUSTRY INSIGHTS**

A Road Transport Forum survey to gauge industry attitudes shows that 90% of respondents believe that the image and perception of the road freight industry needs improving and 68% said the Women in Transport initiative would help do this. 84% said they were interested in joining or assisting the initiative while 73% would participate in a Women in Transport sector meeting at a Forum conference. There was also strong interest in regional meetings if they were held by the associations.

The survey covered a good cross section. 57% were female and 43% male. While all age groups responded, the largest at 27% was 46-50 year olds. 79% said they were currently employed within the industry while 70% of those who listed their occupations said they were in a managerial or similar role. There was also a good spread across business sizes with 42% saying they were employed in companies with over 50 staff while 26% worked in companies with one to 10 people.

Participants said the three main changes needed to attract more women into the industry are changing the industry culture, addressing female pay disparity and presenting the industry as a valid career choice.

SELECTING HPMV AXLE AND GROSS WEIGHTS

Members should be aware of the risks of electing axle weights and gross weights for full HPMV or limited HPMV permits. Getting the load distribution correct and in accordance with the axle-set mass values specified on the permit is a tricky proposition and perhaps should only be contemplated where the operator has considerable confidence about the payload mass and its distribution over the vehicle axle groups. Having third parties complete the application means the operator may not be aware of this risk.

The Forum's advice is that members need to make an informed choice about selecting an HPMV option and understand the weight distribution limitations of their choice because the CVIU will enforce what is on the permit. Both the New Zealand Transport Agency and CVIU have signalled to the Forum any tolerances applied when weighing HPMVs are designed to inhibit or discourage poor mass compliance.

* **SMART TRAILERS AND DUMB TRUCKS**

If an EBS or ABS trailer is being towed behind a dumb truck it must be provided with an activating power source from the truck. Clause 2.28(c) of the Heavy Brake Rule stipulates that "if a vehicle is equipped with an anti-lock braking system, the vehicle's rotationally-sensed wheels must not lock, when the speed of the vehicle is above the ABS-activation parameters set by the vehicle manufacturer". This clearly cannot be complied with unless electronically controlled trailer brake components are provided with a power source from the towing vehicle.

Recent police activity emphasises that greater scrutiny is being applied to this area of vehicle safety. HSE requirements can't be ignored either as there is a general expectation that in all situations all steps will be taken to minimise the risk of harm. Towing a technologically advanced trailer without using the technology doesn't meet this expectation. It is unlikely that HSE inspectors would consider cost or ignorance of the law as a valid excuse for not powering up such trailers.

* **Reference: Electronic brake**

SANWA SEIKI PARK BRAKE CONTROLS

Members with trucks fitted with Sanwa Seiki park brake controls are warned that the Police are paying special attention to such vehicles. Following a coroner's directive some owners had not received the information, Police have now been instructed that any Nissan models from the CK300 to the CK400 manufactured between 1993 to 2005 are to be given a copy of the hazard alert. If the orange warning sticker is not on the door or dashboard the operators are to be phoned to find out if they had had contact from UD Trucks and if they are aware of the hazard. Operators will be advised of the HSE issue and advised to contact UD Trucks.

The risk for members with such vehicles of not taking the recommended action is that they may face liability under the HSE Act if a vehicle is later involved in an accident.

While these controls are mainly fitted to UD Trucks they are apparently fitted to some Isuzus of a similar age.

* **Reference: Park brake fault NEW CONSUMER LAW**

The new Consumer Law Reform Act has a major win for members compared to the draft legislation. After protracted discussion the Forum got the provisions changed to make the persons supplying the goods, whether by auction or otherwise, liable for damage to goods in transit. Other changes include extension of the Act's provisions to goods purchased by auction including online and a requirement that goods are delivered in a reasonable time but with no specific time set.

The Act increases the Limited Carrier Liability from \$1,500 to \$2,000. The Bill originally proposed increasing the liability to \$2,500 but the Forum successfully argued that it should be reduced. The \$1,500 limit hasn't been increased for more than two decades so the new figure is probably in line with inflation.

*** Want to know more?**
Go to the **Members Section** of the Forum website (www.rtfnz.co.nz) and enter the reference in the search box. Mislead your username and password for the Members' Section? Just email forum@rtfnz.co.nz and we'll send the details right back.

"I was the lead officer and the first on the scene. Basically they have misrepresented the information they have been presented with. There was no suggestion right throughout the case of evidence of a cellphone."

Former policeman Matt Bourne on the video used by police to claim a truck driver's use of a mobile phone caused a crash. NZ Herald 29 January 2014.

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ATTACHMENT 4

(50006(1))

NZTA

Safety Alert

May 2017



SAFETY ALERT

AVOID PARK BRAKE FAILURES

Park brake control valve maintenance and operational requirements for Nissan CK330, CW330, CW380, CW400, CG380, CW400 and CG400 vehicles manufactured between 1993–2005.

The *Nissan Diesel Owner's Manual* recommends that the **park brake hand control valve is overhauled at 12-month intervals**.

It also recommends that the valve's operation is thoroughly checked by a qualified diesel technician when the vehicle is being serviced or if there is concern about its operation.

As some of these vehicles have been in service for some time (up to 24 years old as of 2017), it is important to test the operation of these valves more frequently. Because of the exposure to everyday working conditions and numerous applications this valve can make during a normal working day it **should also be part of the drivers daily pre-start checks**.

Points of note when testing the hand control operation

- When rotating the hand control handle it should move freely and should be spring loaded to the OFF position (Figure 1, item 3: rotational spring)
- The release handle lock must move freely up and be spring loaded down to the lock position
- With the hand brake applied and in locked position it should not be able to be released (rotated) without lifting the release handle.

If there are faults found with the above checks the valve must be inspected/replaced before the vehicle is put into service.

The areas that require a close inspection if you are looking to repair this valve are in the illustrations below (new valve shown).

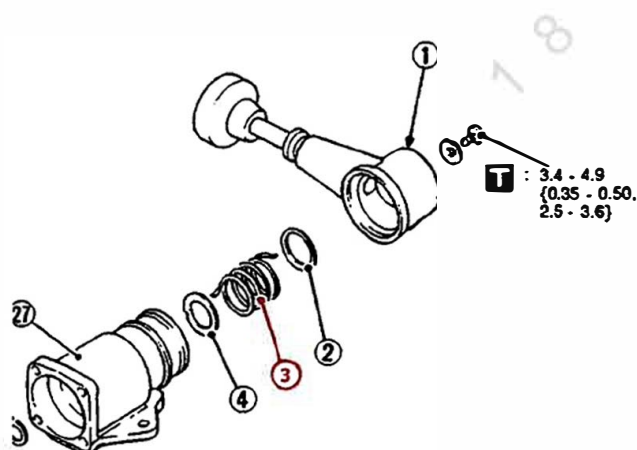
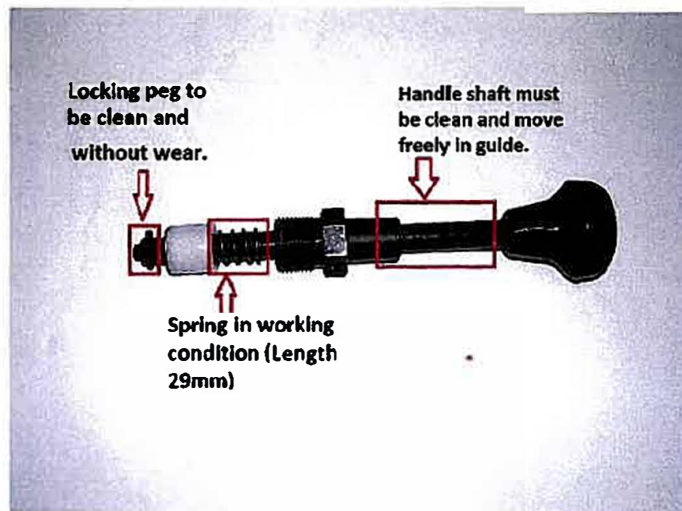


Figure 1. Handle lift to release (spring loaded to lock down)



Locking peg hole



Locking handle removed



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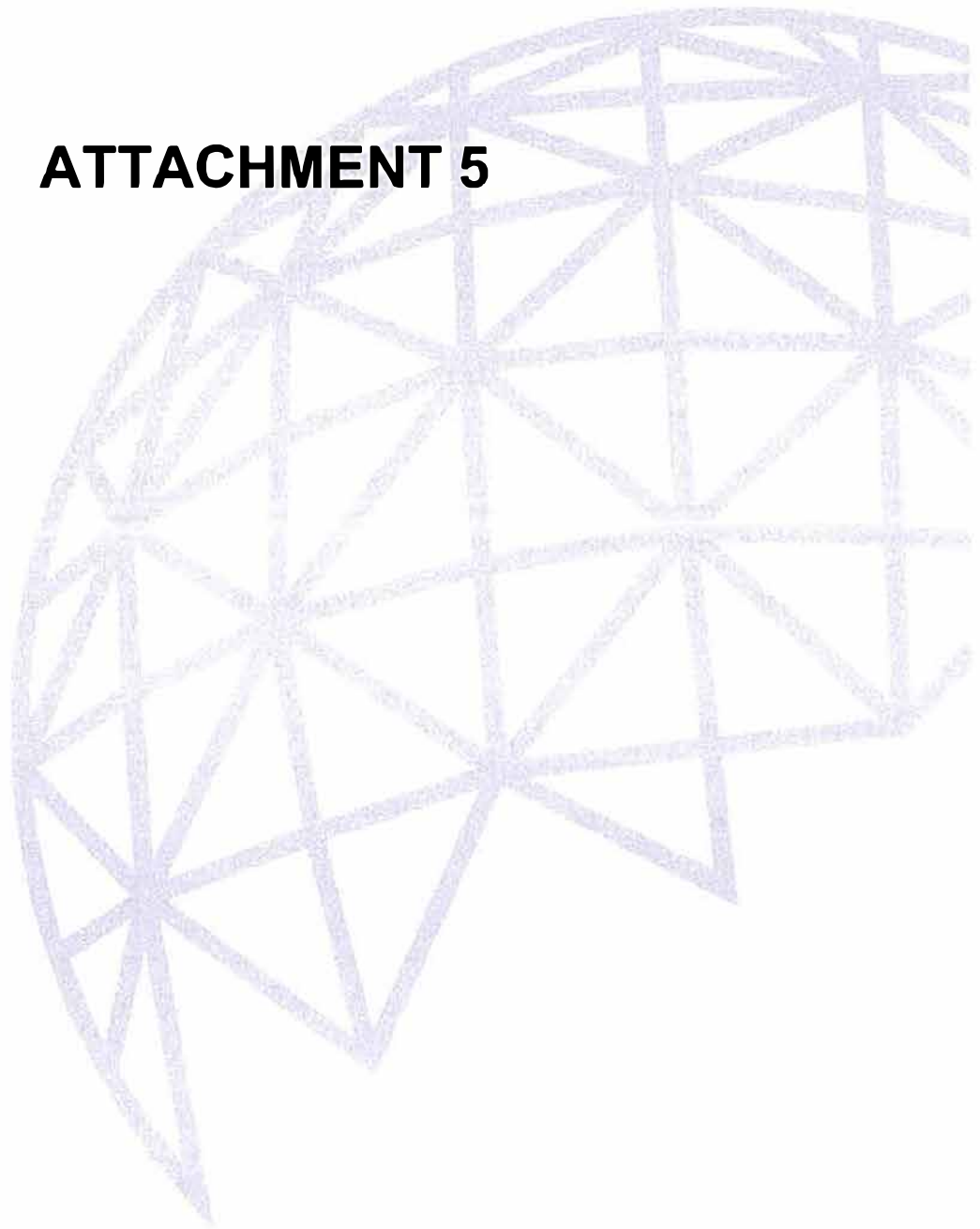
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ATTACHMENT 5



21st January 2014

POTENTIAL SAFETY ISSUE

To all owners of UD Trucks MK,PK,CK,CW,GK & GW Euro 5 models imported new and sold between 2011 and 2014.

UD Truck Distributors (NZ) Ltd is taking the precautionary measure of recalling certain Euro 5 vehicles due to the possible slow actuation of the park brake valve.

Cause:

A restriction in the exhaust port may possibly occur due to piston deterioration as a result of high humidity conditions.

Instructions:

Accordingly we would like to replace all control valves at an authorised UD Trucks dealer convenient to you. This work will take approximately 1 hour and the cost will be met by UD Truck Distributors.

Vehicles concerned:

All Euro 5 MK (GH7) vehicles up to and including chassis number 00750.

All Euro 5 PK (GH7) vehicles up to and including chassis number 01231.

All Euro 5 CW (GH11) vehicles up to and including chassis number 00430.

All Euro 5 GW (GH11) vehicles up to and including chassis number 00071.

CK17380 (GH11) chassis number 00005.

GK17420 (GH11) chassis number 00117.

Please have the valve/s replaced as soon as possible at an authorised UD dealers.

Yours Sincerely



John Gerbich
General Manager



Bryan Musgrave
National After Sales Manager