



## Investigation into a fire appliance loss in Ashburton, March 2021

### Fire and Emergency New Zealand



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## Executive Summary

### Incident summary

On 15 March 2021, Fire and Emergency New Zealand (FENZ) attended a vehicle and vegetation fire on a rural property at ■■■ Stanley Road, Dromore. During this event, an IVECO Type 1 appliance-based out of Ashburton (ASHB622) was overcome and destroyed by fire. Initial reports indicated no safety, health and wellbeing (SHW) risk presented to the personnel involved. Area Management determined that the incident would be investigated through an Operational Efficiency Review, and a health and safety investigation (level 2) was not actioned. At the end of 2021, following the realisation that FENZ personnel had been exposed to a risk during this event, FENZ commissioned an external health and safety investigation. This report details that investigation.

### Investigation approach

This investigation was undertaken based on Incident Causation Analysis Method (ICAM) methodology, which reconstructs the sequence of events and systematically identifies contributing factors, (including absent or failed defences, individual and team actions, task and environment conditions and organisational factors) to the incident. There were constraints to the use of this methodology, and the nature of this report, as outlined in the limitations section of this report.

### Aim

The aim of the investigation was to determine whether FENZ can demonstrate that all reasonably practicable steps to mitigate the risk of harm associated with this type of fire event were considered on the day.

### Scope

In scope was the specific consideration of the event under the FENZ defined critical risk of ‘working in and around fire’ to determine:

- The circumstances which led up to the incident response
- The circumstances which led to the appliance being in a situation where it could be damaged, exposing people to risk
- The contributory factors to the event
- The adequacy of existing controls
- The safety and health impact on FENZ personnel

FENZ requested that the scope be limited to the events up to the conclusion of the incident response, but to include all documented evidence produced following the incident.

### Other reports

This investigation was commissioned alongside MinterEllisonRuddWatts review (March 2022). FENZ requested that information was not duplicated between the health and safety investigation and the MinterEllisonRuddWatts review, and that the two pieces of work be aligned.

In addition, a number of internal reports have also been produced which relate to this event:

- i. Operational Review F3200236; July 2021
- ii. Ashburton Appliance Loss: F3200236 Safety, Health, and Wellbeing Review; September 2021
- iii. Level 2 Investigations – A National Operations Perspective; January 2019

This report therefore does not, and cannot, stand alone, and must be read alongside the other reports.

### Limitations

The Ashburton event occurred in March 2021 and this external health and safety investigation was commissioned by FENZ at the end of 2021. The delay in commencing a health and safety investigation impacted the investigation in a number of ways including:

- A constrained ability to obtain accurate information about the event. Memory distortions can occur after a period, altering accounts of events.
- Requests to interview the relevant crew involved were refused.
- The absence of internal communication about the investigation caused confusion because the leaders within the relevant region of FENZ were unaware of it being undertaken. This impacted the willingness of FENZ people to participate. This further delayed the investigation while FENZ clarified the purpose and intent of the investigation and the MinterEllisonRuddWatts review with those leaders.

The requested restrictions in scope and requirement for alignment with, and avoidance of duplication with, the MinterEllisonRuddWatts report mean that while this health and safety investigation was based on ICAM methodology it cannot be considered a full ICAM that stands alone.

### Summary contributory factors

The investigation identified a number of contributory factors to the event. The top 3 were:

1. The command structures and communication on the day of the event were not effective.
2. The crews were not all aware of the risks associated with the fire and the location of the crew and appliance. Risk control was inconsistently understood.
3. Training to respond to vegetation fires for rural and urban crews is neither mandated nor consistent in training materials.

### Summary recommendations

6 recommendations to address the contributory factors have been made. The top 3 are:

1. Review command structures and procedures for vegetation fires to improve effectiveness and consistency of implementation.
2. Develop the risk management capability of your people regarding vegetation fires, the differences in urban and rural appliances, and controls for responding to vegetation fires.
3. Review and ensure alignment of your training system to the risks your people are exposed to in their activities.

# Investigation Report

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## Investigation Details

**Incident time and Location:** 15 March 2021  
**Reported Date:** 20 March 2021  
**Reported to:** Safe@Work  
**Reported by:** [REDACTED]

**Date investigated:** *Operational Review Investigation*  
Investigation requested 15 March 2021  
Investigation completed 8 July 2021

*Fire Investigation*  
Investigation requested 16 March 2021  
Investigation completed on 17 September 2021

*Safety, Health and Well-being review*  
Review requested August 2021  
Review completed September 2021

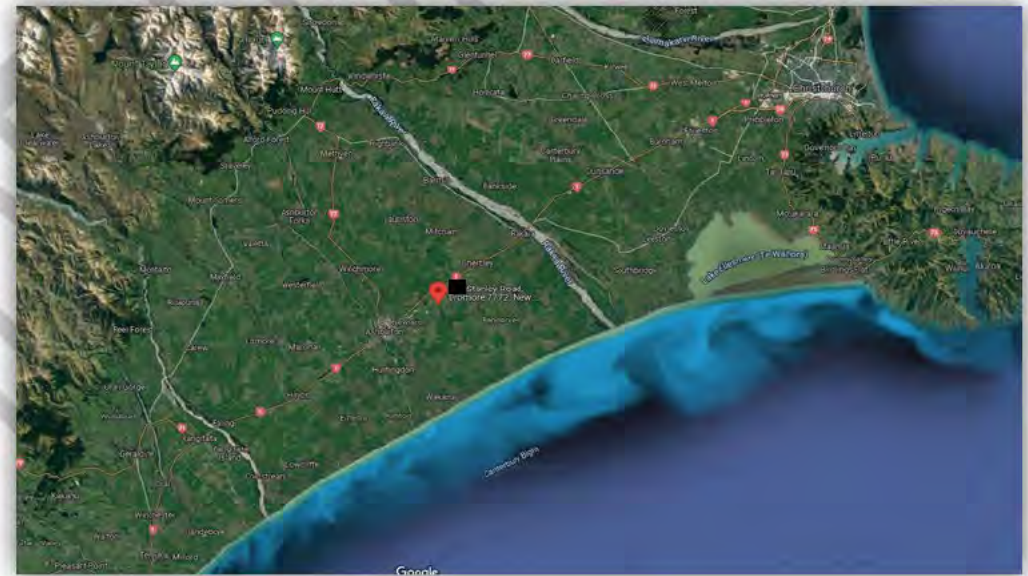
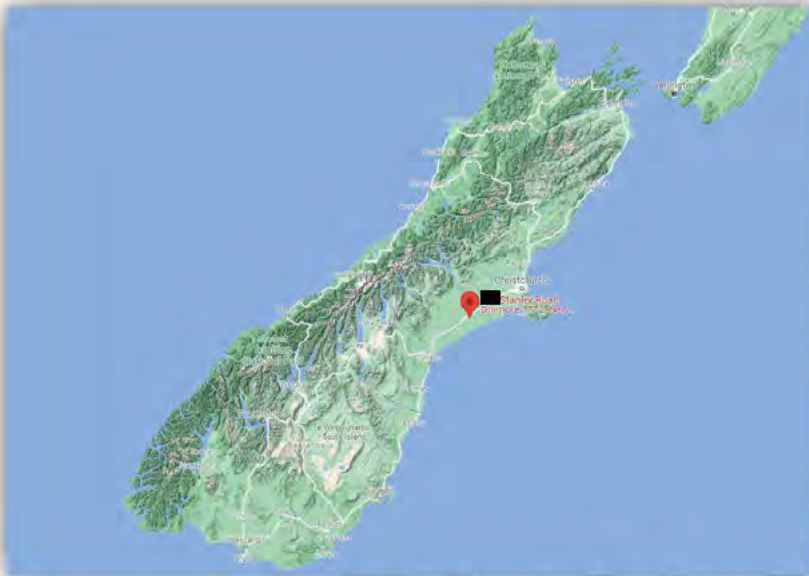
*Safety, Health and Wellbeing Level 2 investigation not actioned*

*External investigation requested by Chief Executive in October 2021*

## Incident Details

On 15 March 2021, the ASHB622 fire appliance was deployed to [REDACTED] Stanley Road, Dromore. ASHB622 was an urban firefighting vehicle deployed to a vegetation fire in a rural setting. The crew of ASHB622 attempted to move the appliance, were unable to, and then retreated from the appliance and went to a safe area. The appliance was a total loss.

## Location



[REDACTED] Stanley Road is approximately 75km from Christchurch (a 55-minute journey).



Aerial of Stanley Road



## Summary Timeline

15 March, FENZ was alerted (through the 111 system) to a combine harvester on fire at a farm in Ashburton, approximately 14kms out of town. The farmer had moved the burning combine harvester into an adjacent paddock before FENZ arrived. The paddock containing the combine harvester also had stubble on fire.

The timeline to the right outlines the key events during the incident, as taken from the SMS Incident Report document.

|       |                                                                                                                                               |
|-------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| 16:22 | • Communications Centre (COMCEN) identify two separate incidents at the same address. Combine Harvester on fire and paddock (vegetation) fire |
| 16:25 | • ASHB622 and ASHB6211 fire appliances are deployed to incident                                                                               |
| 16:29 | • K88 property fire, apparently small                                                                                                         |
| 16:29 | • ASHB622 attach another appliance, stubble fire                                                                                              |
| 16:29 | • Understanding shared that FENZ dealing with combine harvester on fire and stubble fire which is going down to a paddock                     |
| 16:31 | • ASHB621 proceeding to incident                                                                                                              |
| 16:32 | • ASHB622 make another tanker [available]                                                                                                     |
| 16:32 | • Harvester on fire in paddock, pumps 2, tankers 3.                                                                                           |
| 16:43 | • ASHB621 in attendance                                                                                                                       |
| 16:45 | • ASHB9011 in attendance                                                                                                                      |
| 16:50 | • ASHB627 in attendance                                                                                                                       |
| 17:10 | • Stubble paddock, fully involved 500 X 300, 3 BA crew, all appliances fully committed                                                        |
| 17:10 | • ASHB627 K45 Command changed to [REDACTED]                                                                                                   |
| 17:13 | • HIND9371 in attendance                                                                                                                      |
| 17:13 | • PEND8911 in attendance                                                                                                                      |
| 17:49 | • [REDACTED], Chief Fire Officer – “Have been caught in fire and is a total loss”                                                             |
| 17:50 | • Unit ASHB622 [K0 : Not Available (state location)] Broken Truck                                                                             |
| 18:02 | • COMCEN communication with National Commander (Brendan Nally, Deputy Chief Executive People)                                                 |
| 18:03 | • national media team were informed                                                                                                           |
| 18:07 | • national media team updated                                                                                                                 |

## Detailed Timeline

The timeline below provides more detail to explain the sequence of events during the incident (NB this is taken from existing documentation, interviews with stakeholders, and the statements taken from crew after the event by FENZ.)

The crew involved were not able to be interviewed to substantiate this timeline, and the information provided in the statements they gave to FENZ following the incident is too brief to allow a detailed account to emerge.

**March 2016** Fire appliance damaged due to fire.

**December 2017** Fire appliance damaged by vegetation (bush) fire. The appliance required paint and 'decal' repairs.

**15 March 2021** **Approximately 16:00-16:15**  
ASHB622 left a vehicle fire at [REDACTED] Stanley Road, Dromore Ashburton.

### **Approximately 16:20 and 16.23**

COMCEN then received further 111 calls from the property and quickly identified two unrelated incidents at the same address. A new event was created at 16:23,

For the combine harvester and paddock (vegetation) fires, the closest crews were ASHB9011, ASHB622 and ASHB611. These appliances received the alert to

attend 1 minute 50 seconds, 1 minute 51 seconds and 1 minute 57 seconds, respectively. ASHB621 (tanker) arrived 22 minutes and 7 seconds after the event's start in the FENZ system.

ASHB622 arrived first at [REDACTED] Stanley Road, 8 minutes and 17 seconds after the event's start in the FENZ system. Upon arrival at [REDACTED] Stanley Road, the initial risk assessment by the ASHB622 crew determined that the combine harvester was the more urgent fire to address. ASHB622 via COMCEN requested assistance to deal with the stubble fire.

### **Approximately 17:10**

A rural controller took command of the event

### **Approximately 17:30:**

After dealing with the combine harvester fire, the crew of ASHB622 then turned their attention to "*a slow-burning stubble fire*". The stubble is the plant product that remains after a grain crop is harvested. The stubble is unusually ploughed back into the soil, which produces an excellent tinder-dry fuel-driven back onto the ground until ploughed.

ASHB622 moved into the paddock onto the right flank of the vegetation fire. The FENZ appliance driver was instructed by the Officer In Command (OIC) to '*park near the gate they had entered, in the same direction the fire was travelling.*' [REDACTED] Statement] They

parked '20m from the fire on unburnt stubble ground' [redacted statement].

Crew members [redacted] and [redacted] were pulling out the hose reel. Crew member [redacted] was on the branch, and Crew member [redacted] was the driver and pump operator.

**Approximately 17:45:**

A substantial wind change pushed flames from vegetation fire towards the crew of ASHB622 and the appliance. [Crew statements corroborate].

Crew member [redacted] became aware of the situation and called out to the rest of the crew.

Crew member [redacted] decided to move the appliance, he ran towards the pump panel, and flicked the pump out of gear. Crew member [redacted] then got into the driver's seat and tried to disengage the brake and engage the gear. The appliance would not move. Water was lost to the hose reel - making the crew believe the pump had been disengaged.

Crew member [redacted] ran back to the pump panel, realised that the flames had arrived at the location of the appliance. He tried again to disengage the pump switch. Crew member [redacted] reported that the smoke and flames were upon the crew.

Crew member [redacted] returned to the driver's seat a second time and tried again to move the appliance, but it would not respond.

Crew members [redacted] [redacted] and [redacted] retreated (due to flames and smoke) from the appliance. They observed the fire under the appliance and shouted to crew member [redacted] to alert him to the danger. Crew member [redacted] heard this and realised the flames were on the driver's side of the appliance and moving fast.

Crew member [redacted] "jumped out through the flames" and reunited with other crew members. All crew members moved to a safe area away from the appliance on fire and out of the direction of the wind.

**17:49:** [redacted] [redacted] reported to the COMCEN that the appliance was a total loss.

This message was misunderstood. It was interpreted that the crew no longer had visibility of other fire appliances and/or the combine harvester due to the smoke, and no follow-up communications were made. ASHB622 made no further communication.

**Approximately 17:50**

Other crews arrived to extinguish the fire in the paddock.

ASHB622 Crew embraced each other.

**15 March**

**Approximately 18:00 - 20:00**

Crew member on ASHB6211 was exposed to a significant amount of smoke and debris at the Ashburton event. [REDACTED]

[REDACTED] requested the crew of ASHB622 write statements about their involvement and the events that led to the loss of the fire appliance.

Paul Henderson emailed Trevor Brown, stating, *"a crew from Ashburton attended a harvester fire in a paddock this evening and ended up losing the entire appliance; no one was injured; however, I would like an operational review of this incident, please"*. Paul Henderson included photographs of the damage sustained to ASHB622.

**Approximately 23:00**

**16 March**

ASHB622 crew provided written statements to [REDACTED] (as per his request following the event). [REDACTED] sent the crew's accounts to [REDACTED] via email at 1.31 pm

Service Delivery commenced an operational review following Paul Henderson's email request from the previous day.

**On or around 16 March** [REDACTED] [REDACTED] requested a fire investigation due to unusual fire movement.

**April 2021**

SHW Board Committee members sought information regarding the Ashburton event, which resulted in the Safety, Health and Wellbeing team seeking clarification on the events at the Ashburton fire.

**25 June**

The Safety Health and Wellbeing team provided confirmation to the committee members that the incident had been assessed. They found *'no operational personnel in the vicinity of the fire and no imminent safety concerns to the people involved'*.

**6 July**

The investigators for the operational review provided their draft findings to the crew in Ashburton for their feedback.  
*Note: The investigators for the operational review utilised information from the fire investigation, which had been undertaken simultaneously.*

**28 October**

[REDACTED] [REDACTED] submitted notification to WorkSafe New Zealand regarding the Ashburton incident [6588]

### Photographs of the appliance involved

The below images reveal the ASHB622 state following the events detailed above, and of a 2019 Iveco EuroCargo ML120 the kind that was lost during the incident.



Appliances that attended the incident

The following appliances attended the incident:

| <b>Appliance</b>       | <b>Vehicle Type</b>          | <b>Start to Alert</b> | <b>Start to Arrival</b> | <b>Start to Depart</b> |
|------------------------|------------------------------|-----------------------|-------------------------|------------------------|
| <b>ASHB622 (URBAN)</b> | 2019 Iveco EuroCargo ML120   | 00:01:51              | 00:08:17                | 01:28:48               |
| <b>ASHB621</b>         | 2019 Iveco EuroCargo ML120   | 00:08:31              | 00:22:07                | 01:34:54               |
| <b>ASHB6211</b>        | 1991 Nissan CW 340           | 00:01:57              | 00:22:17                | 03:04:46               |
| <b>ASHB 9011</b>       | 2019 Isuzu FSS550C           | 00:01:50              | 00:23:34                | 01:40:19               |
| <b>ASHB 627</b>        | 2020 Iveco Euro Cargo ML 120 | 00:17:05              | 00:29:26                | 03:07:36               |
| <b>PEND 8911</b>       | 2016 Isuzu FTR750            | 00:11:15              | 00:53:53                | 01:55:31               |
| <b>HIND 9371</b>       | 1987 Hino FD162LA            | 00:17:07              | 00:52:21                | 01:34:32               |
| <b>HIND 9311</b>       | 1996 Nissan Condor           | Not tasked to respond |                         |                        |

## Incident Analysis



## The Tip of the Iceberg

Following an event, the immediate cause is often apparent (the tip of the iceberg). In this case, the immediate cause was parking an urban vehicle on unburnt fuel at a rural fire.

It can be seductive to focus on this as the cause, and to stop inquiry this point. This however, would not support improvement nor be a true reflection of why the event occurred. The underlying factors which led to that situation- the environment, the system, the context, the individual factors within which the event occurred must be understood. This requires 'going beneath the surface' to uncover the latent conditions and situations which are present.

If you only fix the symptoms – what you see on the surface – the problem will almost certainly return and need fixing repeatedly. However, if you look deeper to figure out what's causing the problem, you can fix the underlying systems and processes to reduce the potential for future recurrence.

*Incidents are not always investigated thoroughly to understand root causes or additional factors within the work environment*

*Learnings from incidents are not always shared.*

*Incidents potentially not always reported, and reports not fully completed*

*The way health and safety investigations are commissioned and paid for internally does not encourage open communication*

*FENZ does not fully learn from previous incidents and events. Organisational capability to learn (absorptive capacity) is constrained.*

*While FENZ has identified hazards, there is ineffective determination, implementation, and monitoring of appropriate controls for those risks. Critical risk control management is in its infancy.*

*Within FENZ there are unhealthy relationships based on low levels of trust and poor culture.*



## Key Points Identified in the Investigation

### Key point 1: The appliance was not suitable for the situation

1. When 111 calls are received it is FENZ procedure to look at the nearest available resources. The objective is for FENZ to respond to the call quickly. There is no discrimination during dispatch between rural and urban appliances / crews.
2. FENZ respond to more than 6,000 vegetation fires annually (NZ Govt, 2020). Since 2017, urban crews have attended 16,020 (80%), and rural crews 4,428 (20%) of these incidents.
3. Considering the rural nature of the Canterbury geographical location, and the fact that urban appliances have responded to 80% of vegetation fires, there doesn't appear to have been an assessment undertaken, or decision made on the prioritisation of rural appliance capabilities. There are significant differences between urban and rural appliances. In particular, urban appliances like the ASHB22 IVECO Type 1 have limitations, such as:
  - An inherent design feature that interlocks the braking system should it be compromised or have low air pressure.
  - It is fitted with a switch mechanism to go from one function to another, and so while a rural appliance can pump water and engage the engine (it can pump water and move), by comparison, an urban appliance only has the capability to pump water or engage the engine, meaning that the appliance is stationary when pumping water.

- An urban appliance has lower ground clearance than a rural appliance, and doesn't have off-road capability (4x4) like a rural appliance does.
4. ASHB622 is an IVECO Type 1 urban appliance with an urban trained crew that was dispatched to a rural fire. This was not the optimal appliance for the situation.

### Key Point 2: The communication process to ensure workers are aware of the design features of IVECO type 1 appliance is not robust

5. Information on the design features of the IVECO Type 1 is apparently on OSM. There is a systemic issue where rural fire brigades are not yet fully able to access OSM.
6. There isn't any verification undertaken to determine whether information about the appliance capabilities and limitations has been provided, received and understood.

### Key point 3: General health and safety, and specific risk related competencies and capabilities are not consistently built or maintained

7. Training is not connected to risk management – the process of identifying, assessing, controlling and monitoring hazards and risks is not linked directly to the training programme.
8. There isn't a clear competence framework for risk related training and general leadership / accountability training. Nor is there a skill matrix that details the skill mix that must be available on an appliance.
9. During the investigation, workers within FENZ communicated different understanding of the various training

systems and their purpose. There are three internal mechanisms (outlined in the green box).

10. The new workers to FENZ often receive more current training than longer standing FENZ workers – and find themselves either having to upskill their colleagues, or having different views of what is required.
11. Due to the confusion with the use of the Safe@Work system during the event, and the need for investigations, FENZ has since rolled out training on the Safe@Work system and the levels of investigation required following different types of events. While this training was a good step, it did not document the knowledge, skills and abilities that managers, assessors and others involved in the event review and sign off process needed to fulfil their responsibilities.

**There are three internal mechanisms for training:**

1. The Operational Skills and Maintenance (OSM) system should, in theory, address operational readiness (i.e., be the essential requirement), but it does not cover vegetation fires.
  - a. Details operational competencies required to respond to an incident
  - b. All volunteers do not use it.
  - c. High trust system – depends on user/manager input and integrity.
  - d. It doesn't include specific hazards such as vegetation fires.
  - e. No assurance mechanism of learning outcomes
2. The Training and progression system (TAPS) covers basic firefighter skills and leadership, depending upon the level of progression of an individual. This appears to be focused on competencies to progress through the rank system, and unit standards are voluntary.
3. Unit standards (which are voluntary). These include specific hazards such as vegetation fires.

#### Key point 4: Firefighting training specifically for vegetation fires is not standardised across all workers

12. The training and competence requirements for vegetation fires are not communicated, verified or provided at frequent intervals (such as after previous events (2016) or after a change in the rules or procedures).
13. Training to respond to vegetation fires is not standardised and consistent across all workers (volunteer/career and urban/rural) training. It has been difficult to compile the training records for those on the call list for the Ashburton incident. However, analysis of the training provided reveals that certain individuals were trained in critical concepts 20+ years ago and have not had refresher training. There is no clear trigger or mechanism to ensure refresher training is provided, this places FENZ at risk of not effectively training or instructing workers or ensuring that all workers have the competency and capability for their role<sup>1</sup>.

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*Training: Fire and Emergency New Zealand must ensure that workers are adequately trained and competent to do their work safely".*

*Safety and Wellbeing Study Guide [amended 2019] OSM*

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<sup>1</sup> [Horse trainer sentenced after incident leaves teenage girl tetraplegic | WorkSafe](#)

#### Key point 5: The fire appliance parked on unburnt material when fighting a vegetation fire

14. Considering the weather conditions, fire travel, and stubble condition in the paddock, the appliance was not parked in an optimal position.
15. There are gaps and inconsistencies in respect of the rules regarding working on unburnt material during vegetation fires in the red book, green book, online training and R\$-143/2020 (see insert). There is no risk assessment available for this critical risk and no clear definition of controls, specifically critical controls. Therefore, monitoring and audit practices cannot be complete nor give assurance of risk control effectiveness.

Red Book *"does not work on unburnt vegetation."*  
Green Book *"working on unburnt vegetation is dangerous."*  
R4-143/2020 *"avoid entering areas of unburnt fuel."*  
Online training *"keep one foot in the black."*

#### Key point 6: Communication during the event, including weather changes, was absent and confusing.

16. The Operational Review identified that a clear command and control structure was not established—specifically, the details of who was in command and when were unclear. If the command and control of the response to the Ashburton fires

had been different, it is possible that an earlier evacuation might have been directed, and the incident may not have resulted in the loss. Standard fire orders are for the crew to remain informed of weather conditions at all times and know what the fire is doing at all times.

17. The late realisation of the proximity of flames to the appliance was a major contributing factor to its loss. Due to the rapidly changing conditions, the location of the fire appliance and the late realisation of the situation, a rural appliance with higher ground clearance and the ability to move whilst pumping water would have suffered fire damage, but not been a total loss. The potential for other consequences of moving a fire appliance on unburnt stubble material whilst flames were on and around the appliance includes fatal harm to personnel. Communication is critical.

#### Key point 7: Culture within FENZ does not currently promote open communication

18. Since 2017, there has been significant work on amalgamating urban and rural services and creating 'one FENZ'. In June 2021, FENZ announced organisational changes for Tranche 2 (Service delivery and approach to rank). Tranche 2 was implemented following the March 2021 event (6588). This may have impacted worker performance and willingness to highlight issues as roles were being disestablished.
19. ██████████ raised awareness of the appliance loss through the Safe@Work notification. Following this notification, information about the various investigations and reviews was not communicated adequately to ██████████ or the Ashburton crew. This absence of clear communication could be misconstrued by workers as 'nothing happening'.

20. From conversations with some FENZ workers during the investigation, there appears to be a distrusting culture. This distrust focused on their perception of a 'blame culture' rather than a learning culture within FENZ.
21. The distrust was highlighted during this investigation when leaders at the operational level were not happy or cooperative in facilitating or communicating the need for the investigator to talk to the crew involved. The local manager level was not aware of this external investigation until December 2021 because until the investigation commenced, he had not received any communication about it. There has been a significant effort within FENZ to address culture and wellbeing over the last three years. The success of these efforts was not felt during this investigation.
22. In contrast - the process for triggering a welfare officer for the crew was initially done informally (16 March high-level timeline). There were repeated mentions of the Ashburton crew being traumatised or that the organisation did not support them.

#### Key point 8: Dynamic risk assessment prioritised the combine harvester and not the vegetation

23. The SHW Review identified that the "*dynamic risk assessment process and initial size-up of the vegetation fire appear to have been made through recognition primed decision making for a typical baled crop. However, the crop was still in windrows, presenting a greater available fuel load than what would be typically experienced in this region*". The author of the SHW Review stated, "*that risk was taken to save property that was already lost (the crop and appliance), which is counter to the safe person concept*".

Key point 9: Procedures for large response events were not followed

- 24. The call list for the Ashburton event had 16+ firefighters in attendance which triggers the requirement for a safety officer. No safety officer was identified on the call list. It is noted that the call list may not be accurate.
- 25. [REDACTED] and was reported through Safe@Work but is not listed on the call list [REDACTED] listed as part of the Ashburton crew in the FENZ organisational chart.
- 26. Staff are recorded as being on 'standby' when they were involved in the response. See table below.

| 621        | 622        | 627        | 6211       | Standby    |
|------------|------------|------------|------------|------------|
| [REDACTED] | [REDACTED] | [REDACTED] | [REDACTED] | [REDACTED] |

Key point 10: Poor command and control communication resulted in COMCEN not activating its procedures to escalate

- 27. Once the event had ended, [REDACTED], Chief Fire Officer for Ashburton, requested that the crew involved in the appliance loss write statements about the event. The COMCEN reported information on the event as per their processes. There are multiple processes for COMCEN to follow for various incidents. COMCEN had not received all the information about what was happening at the event – or had misunderstood the communications that were made. This led to a missed opportunity to escalate information through formal channels and due process. This is linked to key point 6 and 7.

Key point 11: Good practice for the crew to write statements following a significant event

- 28. The action by [REDACTED] to request the affected crew to write statements about what happened during the appliance loss is not documented in the FENZ process or procedures. However, it is recognised by the investigator as being a helpful addition following an incident. This action potentially benefits crew wellbeing in processing what happened [this may not be appropriate in all occurrences]. If this is to be part of FENZ process, then training in how to take proper statements would be beneficial. The statements that had to be relied upon for this investigation were incomplete in key areas.

### Key point 12: Record keeping within, and use of Safe@Work is poor

29. Information flow on the incident informally appears to have occurred quickly, and differing accounts caused the Safety, Health and Wellbeing team to seek clarification on more than one occasion. Information received by safety, health and wellbeing team workers did not reveal the extent of the worker's exposure to the fire risk until months later.
30. There is inadequate record-keeping for events in Safe@Work.
  - A near miss was recorded in the system that no individuals were hurt by the events of the appliance loss (6588).
  - 6588 was recorded in Safe@Work 5 days after the incident; this is outside FENZ requirements. It is unclear why this was not reported at the same time as 6560.
  - While there was a near miss regarding people, there was no process to record the appliance loss as an incident within Safe@Work.
  - There were no corrective actions listed for the 6560 event, and it was closed on 17 March. This is more serious than 6553, yet it was completed quickly. There are no notes in the system. Information from the system does not describe the actions required, what was done or why this was closed.
31. Workers within FENZ were aware that the crew had been exposed to significant risk (fire). Better communication between teams may have resulted in the need to review 6588 and commence a level 2 investigation.

32. The SHW team requested information on the safe@work event and were provided information that no workers were at risk of harm from the vehicle being on fire; this was known to be incorrect.

### Key point 13: Workers who oversee entries within the Safe@Work reporting system have no formally recorded training

33. In 2019 when Safe@work was launched, there was a rollout training programme; unfortunately this was not documented. Continual improvement and refresher training do not occur. It is unclear what formal guidance is provided to those in assessing a health and safety event in the safe@work system; It is accepted that not all fields and functions are utilised. This includes awareness of the different levels of investigation.
34. It is noted that since the March 2021 event, assessors have subsequently received training on Safe@Work processes, but this is not a formal record of training, and the content and requirements of this training are not in the OSM.
35. The guidance for safe@work events<sup>2</sup> is focused on harm or injury to people or near misses. The risk rating guidance does state consequences for equipment (for example, a catastrophic result is a catastrophic loss of operational capability).

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<sup>2</sup> System guide – Assess Safe@Work event

#### Key point 14: Notification procedures to WorkSafe are not clear or understood

36. It was discovered that workers were exposed to a serious risk to their health or safety arising from immediate or imminent exposure to fire was 30 August. Notification to WorkSafe occurred on 28 October.
37. FENZ has conflicting information on who is responsible for notifying the regulator, for example:
  - The Safety and Wellbeing Study Guide (amended 2019) states that the National Safety, Health and Wellbeing Manager is responsible for notifications to Worksafe NZ.
  - The “assess and investigate workplace safety or health events” process flow (version 2.0 dated 17 May 2021 details that a Safety, Health and Wellbeing Advisor can notify Worksafe NZ.
  - The investigation process flow details that an assessment is made after an initial report is made in Safe@work. There is no trigger should information be revealed during an investigation or other situation.
38. In considering the above, there is no detail in the safe@work records for reports 6553 and 6560 that demonstrates the notification considerations made at the time.

*“A notifiable incident means an unplanned or uncontrolled incident in a workplace that exposes a worker or any other person to a serious risk to that person's health or safety arising from immediate or imminent exposure to—an escape, a spillage, or a leakage of a substance; or an implosion, explosion, or fire...”<sup>3</sup>*

<sup>3</sup> Health and Safety at Work Act 2015

#### Key point 15: Teams are working in silos with missed opportunities for learning

39. There are no processes or procedures for the Service Delivery Team and the Safety, Health and Well-being team to share information or collaborate (share resourcing) on investigations. The operational review process commenced on the same day as the incident. The Safety, Health and Well-being team was unaware for several days/weeks.
40. The operational review does touch upon health and safety. However, there are no checks in the investigation process to determine whether the safe@work process has been instigated. There is no process to inquire why a level 2 investigation was not conducted.
41. There is potential for investigators from Safety, Health and Well-being to interview workers – jointly – with the Operational Efficiency Review team - about an event that could impact the mental well-being of workers, especially if there was a trauma for the workers in the event.
42. Following previous incidents in 2016 and 2017, there were no FENZ organisational learning occurrences. Individual brigades improved, but wider learning was not shared.
43. Learning mechanisms are immature and not working. There is minimal feedback to crews following events. An essential defence against failure is awareness.

**Key point 16: There is no formal assurance activity performed on the Safe@work system**

44. The Safe@work system is not utilised appropriately. Configuration enhancements have not been made – for example there is no audit trail, and there is no clear information about who can see information within the Safe@Work system.
45. The local area select the response to events. With no formal assurance process by the SHW team to ensure consistency in decision-making, such as ensuring the right investigation level was triggered or that sufficient detail was entered against an event (minimum standards). For a selection of events viewed, the investigator cannot identify why an event was or wasn't progressed into an investigation or what actions have occurred to prevent reoccurrence
46. Individuals provided conflicting information on assurance within the safety, health and well-being function at FENZ. A selection of records in Safe@Work reveals that information entry is minimal. There is no evidence that managers and others involved in the safe@work process have received adequate training or instruction in the review and assessment requirements for health and safety events. Formal assurance isn't made on a representative sample of safe@work entries to ensure that there are no competency or capability requirements for the regions; there is no opportunity to find out if there are trends in data or whether there is inconsistency

in reporting or assessing which would require intervention (continuous improvement).

47. Checks are not made on a representative sample of Safe@work entries to ensure that notifications to WorkSafe should have occurred. While informal checks may be performed on whether notification has happened to the relevant regulator, there appears to be no check done upon the closure of entries within Safe@work once more information is known.

**Key point 17: there is a potential deterrent to progressing health and safety investigations**

48. The service Delivery budget pays for operational review resources; by comparison, a health and safety investigation is not paid for by the Safety, Health and Well-being team but by the regions.

**Key point 18: Roles and responsibilities unclear**

49. Roles and responsibilities from head office to the regions (local areas) and between leaders to workers are unclear, and clarity is absent about who coordinates and leads on safety.
50. Individuals spoken with revealed that there may be a misunderstanding of how the teams (Service Delivery and Safety, Health and Wellbeing) work together.



## Recommendations

### Recommendation 1: Learn and improve from reviews and investigations

51. Review recommendations in the following reports and track corrective actions to completion
  - Operational Review F3200236; July 2021.
  - Ashburton Appliance Loss: F3200236 Safety, Health and Wellbeing Review; September 2021.
  - Level 2 Investigations – A National Operations Perspective; January 2019.
  - MinterEllisonRuddWatts Report; 2022.
  - ICAM on Ashburton Event – HSE Global; 2022.
  - Recommendations from these reports should be grouped into themes and presented to the FENZ Leadership and Committee (Board).

### Recommendation 2: Develop a formalised assurance function within the Safety, Health and Wellbeing team

52. Implement a formal assurance process to review a representative sample of incidents, including near misses, within the safe@work system to ensure consistent approaches are applied across the regions, trends in issues have the opportunity to be identified, and the accuracy of whether notifications to WorkSafe were required.

### Recommendation 3: Develop a joined-up approach to learning from when things go well and when things go wrong.

53. Adopt learning teams as an alternative mechanism to investigations for some events.
54. Set up a national learning and investigations team with competent investigators who can respond to various investigations and learning activities across health and safety and operational activities.
55. Support learning and improvement activity with a national "learning platform" where investigations and learning teams' outcomes are promptly shared with the organisation. This could be an intranet section.
56. Review how investigations are funded internally.

### Recommendation 4: Define and communicate when notifications to Worksafe are required.

57. Review the processes and procedures for regulatory notifications and ensure consistency in the FENZ approach.
58. Update record 6588 to show that it has been notified.

### Recommendation 5: Define a Welfare Officer trigger.

59. Align Welfare officers with SHW, Service Delivery, and National Advisor investigation activities. This alignment would ensure Welfare Officers are aware of events and investigations underway, and identify the need for welfare support outside the routine procedures

### Recommendation 6: Improve training processes and material.

60. Training requirements should be clear for different roles (linked to job descriptions), and the risks workers will face in their work.
61. Develop a clear syllabus with learning outcomes which is the single source of truth, and align processes with this.
62. Ensure expiry dates for training courses and refresher training triggers are defined, and that there is a method for 'bring up' for refresher training.

### Recommendation 7: Minimum standards for Safe@Work

63. Define minimum standards of information entry in safe@work. This will require a review of the fields that must be completed.
64. Ensure an up-to-date entry is made within each record that clearly articulates the assessment made of the entry, any subsequent actions and any rationale for closure of the entry.
65. Communicate KPI requirements for reviewing an entry once made and the period within which it must be closed or actioned.

## Appendix 1: Additional Information

### Incident Cause Analysis Method

An Incident Cause Analysis Method (ICAM) methodology has been used to investigate the fire event. This methodology enables the investigator to analyse root causes and determine recommendations.

The objectives of incident investigations are to:

- Establish the facts.
- Identify contributing factors and latent hazards.
- Review adequacy of existing controls and procedures.
- Report the findings.
- Recommend corrective actions to improve efficiency, reduce risk and prevent a recurrence.
- Detect developing trends that can be analysed to identify specific or recurring problems.
- Identify any critical learnings for distribution within the organisation and externally.

The investigation aims not to apportion blame or liability but to identify failures within organisations, systems, and communication that have contributed to the event and provide recommendations to prevent a recurrence and help the organisation improve.

### Investigation Methodology

The process taken for the investigation is detailed in the below diagram. As described at the introduction of this report, while this methodology was followed as far as possible, the constraints on

scope, inability to speak directly with those involved, the delay to investigation commencement and the requirement to not duplicate with the MinterEllisonRuddWatts report mean that this is not a true technical ICAM.



### Investigator: Stacey Rees

Stacey has international experience as a regulator and investigator across a diverse range of functional areas, including fraud, hazardous substances, asbestos, consumer credit and contract law, amusement devices, diving, food safety, metrology, labelling, etc. core health and safety.

Stacey is a lead auditor, a registered Prince 2 practitioner and has professional qualifications in investigation (including PEACE, SE3R and ICAM), management, risk management and safety. Her career commenced with the achievement of first-class honours in consumer protection. She worked for many years as a Trading Standards Officer before using her transferable skills in other areas of safety.

Stacey has undertaken a wide range of investigations and prosecution cases across the spectrum of compliance activities. Stacey has extensive experience as a health and safety professional spanning several years, most recently in the public and private sector, including for WorkSafe NZ, where she worked on implementing the new hazardous substance regulations amongst other vital projects.

### People Involved in the timeline.



**Please note that crew members of ASHB622 were not interviewed as part of this ICAM process. Therefore, there has been a necessary reliance on statements written by the crew on 15 March 2021.**

## Appendix 2: Additional items for consideration

During the investigation, additional items were identified which FENZ should consider. These were beyond the scope of the investigation, and therefore are included in this appendix.

### Additional Finding A

Discussions during the investigation highlighted workers confusion relating to the health and safety roles and responsibilities and relationships between the following:





Chief Advisor, Safety Health,  
and Wellbeing  
Manager Safety Health and  
Wellbeing  
National Response Capability  
Advisor

### Additional recommendation A: Develop an accountability framework and communicate it

- Provide communication on the role and functions of SHW (including Manager SHW and Chief Advisor Safety and Wellbeing), Service Delivery and the National Advisor's continuous improvement. There is an opportunity for joint up working and progress in the linkages between the teams' work.

## Appendix 3: Causative factors table

| Organisational Factors                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Task/Environment Conditions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Individual/Team Actions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Absent or Failed defences                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Training (TR):</b><br/>Deficiencies in the system for building necessary awareness, knowledge, and skills amongst FENZ workers.<br/>Training not given or ineffective</p> <p><b>Organisational (OR):</b><br/>Unclear understanding of legal requirements for roles and training/qualifications required<br/>Unclear accountability, responsibility and delegation</p> <hr/> <p><b>Communication (CO):</b><br/>Unclear communication structure<br/>Inadequate feedback/confirmation from the provider and receiver of information</p> <p><b>Incompatible goals (IG)</b><br/>Work performed in misalignment with FENZ process or procedures<br/>Health and safety investigations have a financial implication for business units in FENZ (operational reviews do not)</p> <hr/> <p><b>Risk Management (RM)</b><br/>Management of risk for work to be undertaken is not systematic or thorough<br/>Procedures (PR)<br/>Scope of procedures unclear and difficult finding procedures that are in place</p> <p><b>Organisational Culture (OC)</b><br/>Absence of compliance monitoring and review<br/>Poor relationships, low levels of trust and goodwill<br/>Unaddressed employee fears and anxieties</p> <p><b>Regulatory Influence (RI)</b><br/>Inconsistent knowledge regarding regulatory requirements</p> <p><b>Organisational Learning (OL)</b><br/>Ineffective learning from previous incident events</p> <p><b>Management Systems (MS)</b><br/>Deficit of systems to encourage open communication</p> | <p>Competence and capability are assumed and not prompted by central FENZ. A high trust model where workers put forward for training when required.</p> <p>Dynamic – fast-changing environment</p> <p>Violations normalised; Incidents potentially not always reported, and reports not fully completed</p> <p>Untimely communications between the region and head office (inadequate information from head office back to Ashburton crew)</p> <p>Command structure unclear for the incident</p> <p>Gaps in organisational structures and responsibilities</p> <p>Hazards identified but ineffective implementation and monitoring of appropriate controls</p> <p>Risks not fully assessed for the rural environment with urban ruck and crew</p> <p>A mismatch between policy, procedures and practice</p> <p>Culture did not encourage open communication with others stating about the crew involved “they were laughing stock” which was not formally addressed</p> <p>Region did not want to participate in investigation</p> | <p>Knowledge-based mistake: a worker parked vehicle on unburnt material in vegetation fire</p> <p>Rule based mistake: command and communication during Ashburton event was poor</p> <p>Knowledge-based mistake: worker did not understand the investigation policies and procedures applied and were in place</p> <p>Routine violation: workers and managers/supervisors do not understand rules regarding the process and procedure to record work</p> <p>Knowledge-based mistake: worker does not know health and safety legislation to make timely notifications to the regulator</p> <p>Knowledge-based mistake: Incidents are not always investigated thoroughly to understand root causes or additional factors within the work environment</p> <p>Knowledge-based mistake: Learnings from incidents are not always shared.</p> <p>Knowledge-based mistake: work not recorded in the Safe@work system with adequate information to inform future personnel</p> | <p><b>Awareness</b><br/>FENZ was aware that urban crews attend 80% of rural fires, yet training differs between urban and rural crews.</p> <p>Managers and workers are not aware of controls for risks (hierarchy of controls and FENZ risk appetite)</p> <p><b>Detection</b><br/>No job analysis of qualifications for tasks performed</p> <p>No CRM recording</p> <p>There is no trigger process for the regional crew to raise concerns when there is no safety, health, and wellbeing investigation.</p> <p>Unclear if the crew obtained the support they required following a traumatic incident.</p> <p>No performance checks were made on work performed or not performed on regions individual with a written warning.</p> <p>No retraining or prompt for refresher training on critical worker capabilities.</p> <p><b>Control and Interim recovery</b><br/>No centralised recording of actions since notification of issue raised on 20 March – therefore, no ability for oversight.</p> |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

## Appendix 4: Details of events recorded in safe@work system

Three safe@work reports were recorded following the event  
**Record 6560** entered by [REDACTED] 16 March (+1 day) Closed 17 March

[REDACTED]  
It was recorded as an incident. It was active (open) for one day.

**Record 6553** entered 16 March (+1 day) Closed 25 May  
[REDACTED]. No action was taken - it was only for notification purposes.  
It was recorded as an incident. It was active (open) for seventy days.

**Record 6588** entered by [REDACTED] on 20 March (+5 days) Closed 3 May  
This record is categorised as a 'near miss' that the crew were not harmed or injured during the loss of the ASHB622 fire truck. There is a section to attach people to the record –  
When the event was created on 20 March (11.08 am), the person linked to this event was [REDACTED], with the consequence "[REDACTED]"  
On the 22 March [REDACTED] was added at 13.40, and [REDACTED] was added at 13.40, followed by [REDACTED] at 13.41.  
The incident was assessed that no notification was required to WorkSafe New Zealand.  
It was active (open) for 44 days.