

# Operational Review

Structure Fire Argus Fire Protection, Onehunga



WHAKARONGĀ IWI

**FIRE**  
**EMERGENCY**

NEW ZEALAND



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Incident Date:  
21<sup>st</sup> April 2019

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## Abbreviations

The following abbreviations may have been used in the report text.

### Fire and Emergency New Zealand Rank Titles

AC	Area Commander
AAC	Assistant Area Commander
ANC	Assistant National Commander
DNC	Deputy National Commander
SO	Station Officer
SSO	Senior Station Officer
CFO	Chief Fire Officer
DCFO	Deputy Chief Fire Officer

### Fire and Emergency New Zealand Command Functions/Roles/Facilities and tools

AA	Assembly area
BASO	Breathing Apparatus Support Officer
CIMS	Coordinated Incident Management System
Comcen	Communications centre
ECO	Entry control officer
eIAP	Electronic incident action plan
OIC	Officer in charge
ECP	Entry control point
FCP	Forward control point
FSA	Forward staging area
HAULET	Height, Area, Used as, Location of fire, Equipment, Tactical mode
IAP	Incident action plan
IC	Incident Controller
ISO	Incident safety officer
NAHS	National Advisor – Hazardous Substances
SFP	Safe forward point
SHEP	Significant Hazard Exposure Protocol
SHURTS	Size-up, Hazards, Using, Requirements, Tactics, Structure
SitRep	Situation report
UN#	United Nations Number

### Fire and Emergency New Zealand Vehicles & Equipment

BA	Breathing apparatus
DSU	Distress signal unit
HCU	Hazmat/command unit
HPD	High pressure delivery
IGC	Incident ground communications
LMR	Land mobile radio
LPD	Low pressure delivery
PID	Photo-ionisation detector
PPE	Personal protective equipment
TIC	Thermal imaging camera

### Other

CFBT	Compartment fire behaviour training
HSTLC	Hazardous Substance Technical Liaison Committee
ICAD	Intergraph Computer Aided Dispatch
ICAM	Incident Cause Analysis Method
MBIE	Ministry of Business, Innovation and Employment
NZPFU	New Zealand Professional Firefighters Union
OSM	Operational skills maintenance
PDA	Predetermined attendance
QFES	Queensland Fire and Emergency Services

## Executive Summary

On Sunday the 21<sup>st</sup> of April 2019 at 14:03, Northern Communication Center (Comcen) received a call from a private alarm monitoring company to smoke coming from the roof at Argus Fire Protection 314 Neilson St Onehunga.

A worker in the building at the time of the fire reported they had smelled smoke, had evacuated and was uninjured.

Fire appliances responding from Onehunga, Ellerslie and Otahuhu stations observed a large plume of smoke on route. Multiple calls were being received, and a 2<sup>nd</sup> alarm was transmitted.

On arrival it was found there was a developing fire in the front office area of a 130m by 100m building. A 3<sup>rd</sup> alarm was transmitted.

With the fire spreading, tactics were employed to cut the fire off from the interlocked adjoining part of the building occupied by a separate company. A combination of interior low-pressure deliveries, exterior deliveries, monitors and aerial appliances contained the fire to the area of the building where the fire began.

The incident was sectorised and escalated to a 4<sup>th</sup> alarm, with fire being contained within several hours.

Crews remained on the incident ground throughout the night and next day damping down hot spots. A stop message was transmitted at 16:00 at which time all standby crews left the site.

In the following days as the fire investigation was being conducted asbestos contamination was discovered and the site was cordoned off. During the fire however, the building owner had assured the IC there was no asbestos present in the area involved in fire. The fire investigation was immediately suspended, and contaminated equipment and apparel was bagged and tagged.

## Key Findings

1. The size up conducted by the first arriving Officer, his initial actions, prioritisation, and tasking were sound. Gaps in his 360 were communicated, and Officers were requested to size up their sectors and to relay information back to him. This detailed size up ultimately led to a sound strategy and good tactics to support it.
2. Firefighters experience was monitored at Entry Control by Sector Commanders. Tactical changes were made when necessary. Also, a Station Officer supervised interior firefighting operations of inexperienced crews working inside the structure. This was a good practice.
3. A Hazard Control Officer was appointed to specifically manage the tactics associated with the risk posed by the many large pressurised cylinders inside the building.
4. Several Command changes meant, at times, command and control continuity was disrupted. The opportunity to coach and mentor was overlooked.

5. Incorrect information was received from the building representative. On being asked numerous times it was stated all asbestos had been removed from the building, other than some asbestos materials sealed in a ceiling space away from the fire. The Safety Officer advised one Sector Commander some building materials were behaving as if it were asbestos. This information was noted on the incident hazard board, but not risk assessed as it contradicted the information being provided by the owner and occupier.
6. Post fire decontamination was not established as an incident ground facility, rather carried out in an ad hoc manner by some crews. Some appliances left the incident ground heavily contaminated, both inside and outside, with products of combustion.
7. The FRMO conducting the investigation into the fire felt they lacked support from various parts of the organisation when it was discovered that asbestos was present at the site. This is being managed outside of this review by the appropriate means.
8. Fire and Emergency New Zealand are potentially failing to comply with the Health and Safety at Work (Asbestos) Regulations 2016.

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## Part 1 - Incident Overview

### Incident description

At approximately 14:03 on Sunday 21 April 2019, ComCen received a 111 call from a private alarm monitoring company stating that a security guard had fire alarms ringing at Argus Fire Protection 314 Neilson St, Onehunga. The caller from the security firm said that there was now smoke starting come out of the roof.

It appears there was a 6-minute delay between the arrival of the guard and ComCen receiving the 111 call.

A worker inside the building at the time of the fire said that they had smelled smoke, had evacuated and were not injured.

At 14:05 ComCen responded the recommended PDA of three pumps, Onehunga 221 (ONEH221), Ellerslie 274 (ELLE274), and Otahuhu 311(OTAH311). At about the same time ComCen started to receive multiple calls to this address for a building on fire.

On route ONEH221 (SSO) observed a large smoke plume in the area they had been responded, and with additional information being received from ComCen, a K99 proceeding and 2<sup>nd</sup> alarm was transmitted. At 14:10 they ensured an aerial appliance would respond at this alarm level.

On arrival at the incident at 14:12 a K99 and a 3<sup>rd</sup> alarm was transmitted. The SSO ensured ONEH221 was well positioned for fire attack deliveries and allowing access for incoming aerial appliances. The SSO noted that the fire was well developed in the front of the building. The area involved had flashed over and fire spread towards the rear of the large 5000 sq m building was occurring.

The SSO tasked his crew with getting a water supply to their appliance and then establish a LPD to a side entrance at the front of fire building to prevent the fire from spreading through to a large warehouse area at the rear. The SSO from ONEH221 assumed the role of Incident Commander (IC).

OIC OTAH311 was briefed by the IC regarding the tactics to be used to cut the fire off and was appointed Sector 1 Commander. His crew established a second LPD to support the crew in the interior cut-off tactic being used in that sector.

The IC then attempted a complete 360 as part of the on-going size-up of the building and developing situation but was unable to complete this due to locked security gates.

At 14:22 a SitRep indicated they had a fire located in the front of 4m high building 200m X 60m used for fire alarm manufacture and metal processing. The fire was spreading to the warehouse and they were currently using two LPD and a ground monitor. They were establishing the Type 4 appliance and were conducting an exterior fire attack. An Assembly Area (AA) was communicated.

A SitRep at 14:27 indicated crews were now establishing internal fire attack to cut off the fire.

When Parnell's Type 5 aerial (PARN255) arrived, it was set up to operate in Sector 1, as and when required.

The OIC ELLE274 was briefed by the IC and appointed Sector 2 Commander. The IC said he had been unable to complete a full 360 of the building and that could the Sector 2 Commander complete a good size-up of the side of the building he was operating in and report back.

Sector 2 Commander noted a storage area inside the building containing many large pressurised cylinders containing PROINERT IG-55 is a clean agent fire extinguishing system using an inert gas (IG-55) consisting of 50% Nitrogen and 50% Argon and is used in gas flooding fire protection systems. This information was communicated to the IC in a CAN report.



ELLE274 was sited in Sector 2 to enable a direct fire attack on the fire as well as to be able to cut the fire off should it continue to spread. This was effective.

Another Type 4 appliance, Te Atatu 664 (TEAT664), was later set up further along the building to cover the Sector 2, Sector 3 corner of the building should the fire spread. Sector 3 never became active and the Sector 3 Commander operated mainly in support of Sector 2 Commander.

The main concern in the Sector 2 was the gas cylinder risk. A Hazard Control Officer was appointed to manage the tactic of an exterior exposure protection using a monitor and LPD. This was effective and the cylinders never got exposed to fire.

The IC was also aware of developing smoke conditions worsening, with smoke issuing from large roller doors in what would become the Sector 4 area of the building. This sector also had another larger building as a close exposure to the building on fire.

Remuera (REMU211) arrived as part of the 2<sup>nd</sup> Alarm response and the OIC was appointed as Sector 4 Commander. The IC requested he size-up his sector expressing concern for the changing smoke condition coming from the roller doors.

The Sector 4 Commander committed crews with LPD's and TIC's. One of the crews raised the roller doors releasing the heavy smoke in the large open warehouse section of the building improving

visibility. These crews were able to contain the fire and prevent it coming through from the well involved front area of the building.

Balmoral's (BALM611) appliance arrived and the Officer was briefed by the IC and appointed to Safety Officer (ISO). He conducted a safety size up utilising the Safety Officer pack, transferring his findings to the command unit hazard board.

At 14:26 the first on call Commander (REGION1C) arrived, had a face to face meeting with the IC and said he would carry out his own incident size up including a 360.

REGION 1C completed his size-up and talked with Sector Commanders gaining good situational awareness. He was satisfied with the strategies and tactics employed on the incident ground and made no changes.

At 14:52 REGION1C took Command of the incident, transmitted a K45 and appointed the outgoing IC Operations Commander (Ops).

At the same time a K44 "Nelson St Command" and a 4<sup>th</sup> Alarm assistance message was transmitted.



At 14: 54 the Area Commander for Waitemata arrived (WAITEMATA1) and conducted a size-up. He was concerned that the fire was breaking through into Sector 4 from Sector 1. He relayed his concerns to the IC. The tactics in Sector 4 were re-evaluated by the IC and Sector 4 Commander and it was determined that the current tactics were working as required and no changes were needed.

At 15:15 WAITEMATA1 took command, transmitted a K45 and appointed the outgoing IC as Operations Commander.

A SitRep at 15:35 indicated two aerial appliances were in use, three LPDs were being used as internal attack, and three LPD were being used as external attack.

At 16:08 command was handed back to REGION 1C and the SSO returned to Ops.





At 16:13 a SitRep indicated the fire had been contained to the original building and crews were continuing with fire attack.



A message was transmitted at 17:05 indicating Police had received questions regarding the public health hazard from the smoke. The reply from the incident indicated there was minimal smoke showing from the building now and there was no asbestos involved in the fire. This was passed by ComCen to the Police.

Crews were rotated, and the 1st alarm crews returned to their stations to recommission and change crews as the night shift personnel came on duty.

Shift changes took place over the coming, and standbys were put in place.

At 21:04 Neilson St Command (AUCK2018) was shut down. Crews continued to dampen down hot spots and stand by.

A Stop message was transmitted at 16:03 22 April 2019.

The investigation into the cause of the fire continued until the following day when it was stopped and the site cordoned off due to asbestos confirmed as being present.

### Description and use of building

314 Neilson Street Onehunga is a large 12000 square metre building with two businesses operating out of it. The first is Argus Fire Protection and the other is Wakefield Metals.

The front of the building that was operated by Argus was constructed of an unprotected timber frame with a fibrous cladding on the exterior wall and long run iron roof. Their warehouse area was steel beams with iron long run cladding.

Most of the Wakefield Metals part of the building was of tilt slab wall construction to the height of about 3m and then iron cladding for the rest up to roof height.



*314 Neilson St Onehunga, pre-fire on 21 April 2019*

Argus Fire Protection is a company that produces, installs and maintains an extensive range of fire protection systems.

Wakefield Metals is an importer and distributor of aluminium, brass, copper, stainless steel, zinc, fasteners and other specialty products for New Zealand manufacturers.

This fire occurred in part of a larger building occupied by Argus Fire Protection. This is made up of an office block area 25mx20m x 3m in height with a flat roof and interlocks with a part of the building which is of about equal size but with a higher stud of approximately 7 through to 10 meters in height and pitched roof, used as process and manufacturing of fire protection systems and components. To the back of the manufacturing area is a part of the building housing compressed gas cylinders for the use in fixed fire protection systems.

Wakefield Metals occupy the other of two thirds of the building complex approx. 40m x 70m x 12m in height. Their office block area of the building is a mixture of light weight building construction, timber framed, gib lined with pine suspended ceilings.



Shows the entire building complex and exposures



Shows main area of fire involvement when OENH221 arrived

## Part 2 - Operational Review Framework

An Operational Review examines how Fire and Emergency New Zealand (Fire and Emergency) responds to large, significant and/or unusual incidents. It considers the application of policies, procedures and operational instructions as they applied to the incident. But its primary focus is to review the incident to assist officers and firefighters to share knowledge, experience and to provide a forum to share lessons learned and inform both operations and training.

Operational Efficiency and Readiness reviews focus on the facts and do not provide conjecture or alternative opinions that could or should have been deployed. The review identifies key findings to inform senior managers about any corrective actions required as well as identifying actions that worked well. The operational review reports are written for frontline firefighters to support their training, continuous improvement and knowledge sharing. Once completed, all reports are published in the Operational Efficiency webpage for all to share.

Operational Efficiency and Readiness (OER) is required to be independent and objective, to provide quality assurance advice to management to support continuous improvement in regard to the operational efficiency and operational readiness of Fire and Emergency New Zealand.

The Incident Cause Analysis Method (ICAM) is used to guide the conduct of operational reviews.

### Operational Efficiency and Readiness

The purpose of Operational Efficiency and Readiness (OER) is to provide operational assurance advice to the Chief Executive and Executive Leadership Team to ensure they achieve their responsibilities for the operational efficiency and operational readiness of Fire and Emergency New Zealand.

OER is independent, objective and provides quality operational assurance advice to support continuous improvement regarding the operational efficiency and readiness of Fire and Emergency New Zealand. OER is required to report quarterly to the Fire and Emergency Audit and Risk Committee and is a function of the Office of the Chief Executive.

### Terms of reference and scope of work

The Team Leader of the Operational Review Team has the authority to second additional resource, as required, to carry out this review.

1. Analyse ComCen actions, including:
  - a. receiving the call
  - b. mobilising and appliance response (PDA)
  - c. service delivery guidelines
  - d. communication between ComCen and incident ground.
  
2. Analyse safety and wellbeing:
  - a. injuries to Fire and Emergency personnel (L2 investigation) or members of the public
  - b. appropriateness and effectiveness of PPE

- c. level of safety and wellbeing monitoring during the incident
  - d. welfare of Fire and Emergency personnel
  - e. application of the Safe Person Concept
  - f. safe driving to incidents and appliance positioning
    - i. ensure *Driving policy (FL1 POP)* was followed during the incident
    - ii. appliances parked in a way that accounted for firefighter safety
    - iii. appliance positioning was re-evaluated as the incident progressed.
3. Analyse incident ground management:
- a. command and control procedures
    - i. initial actions of the first arriving officers
    - ii. Commander notification and response
    - iii. incident management structure
    - iv. effectiveness of strategies and tactics applied
    - v. resource allocation and function
    - vi. risk analysis
    - vii. recording and reporting (field notes, SitReps, etc.)
    - viii. appropriate and relevant operational instructions were implemented
  - b. knowledge and adequacy of water supplies available in the immediate area
  - c. operation of the Coordinated Incident Management System (CIMS)
  - d. inter-agency and/or stakeholder relationships.
4. Analyse emergency planning and preparedness
- a. effectiveness of risk assessments or tactical plans
  - b. application of plans and procedures
  - c. familiarisation of Fire and Emergency personnel with the site.
5. Analyse the findings of the fire investigation, including:
- a. the occupant's fire safety awareness of the building
  - b. the status and effectiveness of the evacuation scheme
  - c. how the Insurance Council of NZ (ICNZ) fire investigation protocol was applied.
6. Analyse the level of liaison, communication, and coordination of partner emergency services, government agencies or Territorial Authorities involved in the incident.
7. Analyse any other information that is relevant to the investigation.
8. Provide information that becomes available that adds value to fire risk management, safety and wellbeing, operational practices and the safety of others.

### Operational review team

Review team members are listed in the table below.

Investigation role	Officer	Fire and Emergency role
Sponsor	Richard Twomey	Fire Region Manager, Region 1
OER Team Leader	Trevor Brown	National Operational Efficiency Manager
Team member	Shaun Wooller	Senior Station Officer

## Methodology

The operational review team used the Incident Cause Analysis Method (ICAM) Advanced Investigation Techniques model to investigate this incident.

Once assembled, the review team visited the site to get a visual perspective of the location and surrounding environment.

The content contained within this report is a true and accurate reflection of the information provided to the team at the debrief and through data collected by means of Fire and Emergency reporting systems.

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## Part 3 - Operational Review Findings

This section outlines the findings from the operational review investigation based on the investigation's terms of reference. Generally, the findings are grouped chronologically from pre-incident to mobilisation and also cover operational and command and control aspects. Specific attention is directed at safety and PPE. Other findings relate to external agencies, the cause of the fire, legislative compliance and the post-incident debrief. The Operational Review team will measure compliance against Fire and Emergency Operational Instructions and Policy.

### 1. Pre-incident planning and intelligence

#### *Our expectations*

That *Operational planning policy (RD2 POP)* was followed to identify sites within the first response zone where significant fire or other risks are present. The risks may indicate the need for a site report and/or tactical plan.

#### *Our findings*

A risk profile of the building was done in 2014 and it had a Risk Score of 14. This at the time of the incident was below the threshold for a site report.

There was no building construction information in SMS for this building.

### 2. Mobilisation

#### 2.1 Communications Centre

##### *Our expectations*

That the Fire Service Communications Centre (ComCen) meets the performance expectations in the *Incident response service delivery guidelines (N7a)* and all standard operating procedures in relation to call receipt and dispatch, incident notifications, and subsequent actions.

##### *Our findings*

ComCen processed the call and dispatched all appliances within the service delivery guidelines.

#### 2.2 Response

##### *Our expectations*

That the responding appliances (career and volunteer) would meet the performance expectations in the *Incident response service delivery guidelines (N7a)*. The guidelines cover call notification, the response from the station and the arrival at the incident.

*Our findings*

All first alarm appliances response times met the performance expectations by arriving at the incident in 6m10s and 6m58s.

**2.3 Assistance, mobilisation and cover moves***Our expectations*

That priority message requests were processed in a timely manner and made using the greater alarm process contained in *Mobilisation (M2)* and *Land mobile radio communications (M3-2)*. Also, actions were taken to provide operational cover across affected stations.

*Our findings*

All requests for greater alarms were transmitted using the priority message system, all within acceptable time frames. The appropriate cover moves to provide operational cover were initiated and recorded by ComCen

**3. Operations****3.1 Operational Skills Maintenance (OSM) compliance***Our expectations*

That all personnel complied with the requirements of the *Operational skills maintenance training policy (OS5 TRP)*.

*Our findings*

All Officers and Firefighters on the incident ground were found to be compliant.

**3.2 Safe driving to incidents and appliance positioning***Our expectations*

That Officers and drivers:

- follow the principles in Driving policy (FL1 POP) when responding to the incident
- park appliances in a way that ensured firefighter safety and away from exposures to fire, building collapse, or other hazards
- re-evaluated the position of the vehicles as the incident progressed.

*Our findings*

No issues were identified during the response to the incident.

The OIC of the first arriving appliance positioned his vehicle allowing for good access to water supplies and access for in-coming aerial appliances.



Appliances were parked clear of smoke in the first instance, however at times the smoke was swirling, and some appliances were enveloped. This did not affect the operation of pumps on the incident ground.

The suggested Command Point was deemed unsuitable and an alternative location was decided on which was clear of smoke and an appropriate distance to the incident.

One aerial appliance had some mechanical issues and a mechanic was called to the incident to resolve this.

### 3.3 Water supplies

#### *Our expectations*

That firefighting crews had knowledge of, or access to electronic data and/or water maps documenting the locations for firefighting water supplies either reticulated, static or transportable, as recommended in *RD3 SC Schedule of operational readiness standards*, 6.3 March 2013.

#### *Our findings*

There were no reports of issues with water supplies. There was a hydrant outside the building and this was used in the first instance. Further hydrants on different size mains were utilised throughout the incident.

### 3.4 Water flow rates for structure fires and/or specific fire behaviours

#### *Our expectations*

That a high level of operational competence was demonstrated in the choice of firefighting medium and delivery size. Also, that choices were based on a worst-case scenario and/or the recognition of fire behaviours, as recommended in the *Fire suppression guide (F1 GD)*.

#### *Our findings*

The tactical choice of large volume low pressure deliveries and monitors aligned with direction contained in the Fire Suppression Guide.

The use of large volume water flow to protect the cylinders that were potentially exposed to fire if the fire broke through into the cylinder store was appropriate.

It was identified that some branches in operation were not flowing adequate water for the fire conditions being experienced. An example of this was one set at 110 l/min when it can flow 570 l/min. It was noted that fire conditions were not improving despite having two LPD's in operation but when corrected noticeable change it evident.

### 3.5 Respiratory Protection (BA & APR)

#### *Our expectations*

That the incident response complied with all aspects of:

- Policy - Respiratory protection equipment (E3-2 POP)
- Respiratory protection equipment (E3-2 RG)

- Air purifying respirator guide (E3-2 GD)
- Quick reference guide - BA Draeger PSS 5000: Telemetry Set and Equipment
- BA maintenance and testing manual (RD5-1).

#### *Our findings*

Three entry control points were established, maintained and managed in line with the respiratory protection policy.

BA wearers tallies had rank written next to the names as a quick identifier for ECO's and Sector Commanders to gauge the experience level of wearers operating inside the building. This helped the Sector Commanders determine the tactics based on firefighter experience and ultimately ensuring the safety of the crews.

With a well-resourced incident ground some firefighters were appointed to assist and provide additional support to the ECO's

A Breathing Apparatus Support Officer (BASO) was appointed for this incident.

As damping down and overhaul was taking place, BA and APR's were not being used as per the Respiratory Protection Equipment protocols. Operational Support personnel set up lighting without the use of respiratory protection.

### **3.6 Firefighting operations**

#### *Our expectations*

That a high level of operational competence was demonstrated across all areas of firefighting operations. All firefighters and officers at the incident should demonstrate the training, skills, and knowledge for their level of experience.

#### *Our findings*

This incident employed a mix of simultaneous interior and exterior tactics to firstly contain and subsequently extinguish the fire using a combination of LPD's, ground monitors and aerial monitors in both offensive and defensive tactical modes.

Two LPDs worked together in Sector 2 to cut the fire off and stop the fire spreading to the larger more open part of the building, while other LPD's were used to knock down the large volume of fire venting from the front of the building.

The crews working inside the building to cut off the fire were newer less experienced firefighters. A Station Officer was appointed to supervise and manage interior firefighting operations within Sector 2. This was a good use of the Officers experience and an added control measure to maintain the safety of the crew carrying out interior firefighting.

In Sector 4, LPD's were put in place to ensure the fire was contained to the office. Any fire that did break through from the office block towards the larger open warehouse was well controlled with these deliveries in place. Early ventilation by crews working in this sector opening large roller

doors lifted heavy smoke conditions and improved visibility and reduced the risk to crew operating inside the building in this sector.

The use of a Type 4 appliance to operate in an offensive mode by having the aerial monitor work at low level and attack the fire with a narrow water stream through large windows was a good tactic. The narrow water stream considerably reduces the amount of air being entrained into the fire from the exterior and allows for steam and gasses to escape.

The potential risk that the fire could pose to the cylinder store was identified early and appropriately managed with an interior exposure protection delivery put in place under the supervision of an appointed Hazard Control Officer working with in that sector.

There was good use of TICs throughout all sectors.

The incident was geographically sectorised with Sector Commanders continually monitoring the effectiveness of the tactics being used.

## 4. Command and Control

### 4.1 Size-up

#### *Our expectations*

That the first arriving officer performed an initial size-up and risk assessment of the incident site by following the principles in Section 3 of the *Command and Control Technical Manual (M1 TM)*. The size-up should include a 360° observation if possible, information gathering, hazard identification and an assessment of the potential for escalation.

#### *Our findings*

The OIC of the first arriving appliance was unable to complete his initial 360 of the building due to security fencing and a large locked gate part way round the building.

The OIC understood that this needed to be done, but with a fire that was already well developed in the front of the building and starting to spread, returned to the front of the building to continue tasking incoming officers and crews to be deployed into areas that required immediate attention to gain fire control.

As the OIC met with incoming officers he made it clear that he had not completed a full 360 of the building. If Officers were delegated responsibility for areas not covered by the initial size up, they were instructed to conduct a thorough size-up and furnish a sector SitRep.

Each Commander that assumed command, completed a size up which included a 360 prior to taking command of the incident.

## 4.2 Tactical options

### *Our expectations*

That:

- the first arriving officer and subsequent ICs adopted a strategy and developed tactics based on the initial size-up and/or information obtained through monitoring the incident.
- the Safe Person Concept and Dynamic Risk Assessment processes were considered when implementing the chosen tactics, as outlined in Section 3 of the *Command and Control Technical Manual (M1 TM)*.

Also, that once a formal command structure was established, an incident action plan (IAP) was developed and implemented. The IAP should include the strategy, tactical options and related operational tasking based on the *Command and Control Technical Manual (M1 TM)*.

### *Our findings*

The strategies and tactics used to manage this incident were appropriate.

The first arriving OIC committed to securing a good water supply and establishing a LPD for an interior cut off to stop fire spread through the larger part of the building. The next arriving appliance Officer was appointed Sector 1 Commander and established a second LPD into the same location. These crews were detailed to not, at this point, advance too far into the building. A Station Officer was appointed to supervise the interior operation in this sector and the crews advanced further into the building achieving the cut-off.

An aerial appliance was established in Sector 1 to provide cover should the fire advance and involve parts of the building that handheld LPD's could not reach. It also allowed observation of the higher roof line and pitch change in the building where the fire was most involved.

An external attack with a ground monitor was used to knockdown the large volume of fire from the front of the building.

A Type 4 appliance was setup on the opposite side of the building to the crews carrying out the cut-off. This became Sector 2, and used the aerial in offensive mode to attack the fire through the windows from this location.

The risk to pressurised cylinders being compromised by the fire was addressed using LPD's conducting internal exposure protection. This controlled the risk and prevented the cylinders being exposed to fire.

The tactics in Sector 4 was to gain access to the other side of a dividing wall between the office area which was on fire, and the larger open area at the back of the building. This was achieved and large roller doors were opened allowing the heavy smoke logging to clear. LPD's were established preventing any fire coming through the wall. One Commander was concerned when conducting his size-up that the fire was breaking through into this sector and the crews would find themselves in an untenable position. The tactics remained unchanged after reassurances from

the IC and Sector Commander that the tactics employed and resources available were sufficient to prevent fire spread.

Communication and coordination between sectors was effective as there was no reports of the firefighting operation of one sector disrupting or impacting on another. Safety was closely monitored throughout the incident.

The implementation and execution of all the tactics used to control and extinguish this fire were appropriate and effective.

#### 4.3 Situation Reports

##### *Our expectations*

That:

- the initial SitRep was transmitted to the ComCen using the HAULET format and was based on the requirements of the *Land mobile radio communications* operational instruction (M3-2).
- incident ground SitReps were transmitted at regular intervals during the incident. SitReps were used to keep officers and fire fighters informed of the command structure, strategy and tactics. SitRep transmissions should be based on the principles outlined in the *Command and Control Technical Manual (M1 TM)*.

##### *Our findings*

The initial SitRep was transmitted about 10 minutes after arrival and was complete and in the HAULET format. Regular SitReps were transmitted as the situation changed and continued throughout the incident.

A K44 was transmitted when an ICP was established and K45 messages were transmitted at each change of command.

The use of CAN reports, Sector SitReps, and Incident Ground Safety broadcasts were all noted.

#### 4.4 Incident Management Team structure

##### *Our expectations*

That a command structure and an Incident Management Team were set up for an incident of this size, based on Section 4 of the *Command and Control Technical Manual (M1 TM)*. Also, it was expected that the command and control structure should provide clear lines of communication and help contribute to the successful conclusion of the event.

##### *Our findings*

The incident was appropriately structured for the size of the building and the identified risks. The incident incorporated Operational sectors (Geographical and Functional) and Logistical sectors.

The OIC sectorised the incident as resources arrived allowing for better span of control. He used geographical sectors to align areas of responsibility.

The Functional sector of Hazard Control Officer, appointed to manage the bulk gas cylinder hazard, was operating within a geographical sector. This did not impact on any command and control or communications in this area.

A Sector Commander was appointed for aerial operations at this incident.

There were several changes of Incident Command and Operations Commander which affected continuity. The opportunity for monitoring and mentoring was not applied.

The Complete structure at the 4<sup>th</sup> alarm level for this incident was:

- Incident Controller
- Operations Commander
- 3x Sector Commanders and 1 Aerial Sector Commander
- 1 x Interior Fire Suppression Commander
- Safety Officer
- Hazard Control Officer
- Logistics
- BASO
- Staging

#### 4.5 Incident ground structure

##### *Our expectations*

That appropriate incident ground facilities were structured for the size and complexity of the event. The facilities should be set up based on Section 4.2 of the *Command and Control Technical Manual (M1 TM)*.

##### *Our findings*

The incident had an Incident Control Point (ICP) AA and a Staging Area (SA).

The location of the AA was communicated early, allowing further responding Fire and Emergency as well as other agencies to be controlled.

Resources were sent from the AA to the SA having to pass via the ICP.

The ICP was moved initially, however when finally established, it was in an appropriate location to control access and deployment of personnel and equipment to the incident ground.

A safe forward point (SFP) was not established and wasn't deemed necessary.

#### 4.6 Resourcing of the incident ground

##### *Our expectations*

That the incident was resourced based on standard operating procedures using the 'make alarms' procedure contained in the *Land mobile radio communications policy (M3-2)*, and Section 4.6 of the *Command and Control Technical Manual (M1 TM)*.

##### *Our findings*

All requests for additional resources were made using the greater alarm system. Conformation for aerial appliance being dispatched on the 2<sup>nd</sup> alarm was sought by the OIC and confirmed by ComCen.

A lighting unit was appropriately requested on an ad hoc basis.

#### 4.7 Commander notification and response

##### *Our expectations*

That appropriate notifications were made to the on-call Commander (and subsequent Commander response) as the incident escalated. Notifications should be based on the Region's *Commander and Support Officers Notifications and Response policy*.

Also, that the Commander response was timely, and that Commanders would arrive on the incident ground dressed in appropriate uniform for the role they were to assume.

##### *Our findings*

The notifications to the on call Commanders and the response was timely. The first arriving Commander arrived within 13 minutes of being notified. Immediately on arrival he received a CAN report from the IC, conducted a size-up, received a handover and assumed Command. The outgoing IC was appointed to Ops.

The next Commander arrived some 10 minutes later and was appointed Logistics (Logs) Commander and Planning & Intel (P&I) Commander.

As the incident escalated more Commanders were notified and responded. An Area Commander arrived and conducted his own size-up prior to being briefed by the IC. On receiving a briefing, command was handed over this higher ranking Commander with the outgoing IC appointed Ops.

#### 4.8 Command Unit operations

##### *Our expectations*

That the Command Unit (HCU) provides excellent command support, with operators having in-depth knowledge of systems, including eIAP as described in the *HazMat Command Vehicle Technical Manual (HCV\_1)*.

##### *Our findings*

The Command Unit received a SitRep while responding to the incident.

The initial site selected for the Command Point was not ideal so the HCU was moved and an ICP established.

One of the base radio units was on an incorrect radio channel resulting in early command channel radio transmissions being missed. This fault was soon found and rectified.

The touch screen in the pod room was working well with the SMART MAP application, providing good information to the Incident Management Team

#### **4.9 Post fire decontamination procedures**

##### *Our expectations*

The review team expected to find that any decontamination would be carried out as detailed in the Post Fire Decontamination Procedure (G7-1).

##### *Our findings*

There was no deliberate decontamination established at the incident.

Post fire decontamination was carried out in an adhoc manner at fire appliances before leaving the incident.

There were contradicting reports of the presence of asbestos at the incident, and the post fire decontamination that did occur did not align with the requirements for asbestos as outlined in IS1 (Operational Safety).

When it was confirmed two days later that asbestos was present, an email was sent to all Officers who attended the incident to have personnel that were working in and round the exterior of the building have their Level 2 PPE laundered as per normal process for PPE with asbestos contamination.

Not all personal who attended the incident have had entries made into the Safe@work portal for exposure to asbestos.

Some appliances returned to their stations in a heavily contaminated state, both inside and outside.

## **5. Communications**

### **5.1 Incident ground communications**

#### *Our expectations*

That an effective communications plan was developed and employed based on the command and control policy (CAC-1). This plan should contribute to the safety and effective management of the incident. The style of communication utilised will be dependent on the size and scale of the incident. Communications may be achieved through a combination of electronic devices and/or face to face discussions,



Fire and Emergency personnel will routinely carry IGC radios as part of their general operational equipment to enhance fire ground safety for crews at the incident and ensure fire ground communication is effective when face to face communication is not appropriate.

*Our findings*

A two channel communication plan (Operations and Command) was implemented early and there were no reported issues with the incident ground communications or the incident ground radios.

A third dedicated channel was used for the aerial appliance operations.

## 5.2 Land Mobile Radio (LMR)

*Our expectations*

That effective communication would exist between the ComCen and the responding appliances.

*Our findings*

LMR communication was effective throughout the incident, with no reported issues identified.

## 6. Safety and Hazard Management

### 6.1 Compliance

*Our expectations*

That the Fire and Emergency comply with the *Health and Safety at Work Act 2015* at all times.

That a Safety Officer be appointed in compliance with *Operational Safety (IS1)* and Section 5 of the *Command and Control Technical Manual (M1 TM)*. All hazards and control measures will be recorded on the Incident Ground Hazard Assessment form and transferred to a Hazard Assessment Board and/or eIAP.

*Our findings*

A Safety Officer was appointed as appropriate in compliance with IS1.

All higher risk tactical options were risk assessed prior to implementation and the communications between the Safety Officer and respective members of the Incident Management Team (IMT) was effective.

To minimise risk, there was enhanced supervision of inexperienced firefighters internal firefighting.

A hazard board was populated, however not all hazards were risk assessed and some of the control measures contradicted the tactics being employed.

The Safety Officer reported to the IC that the building materials were failing in the manner of asbestos and he believed asbestos was present. This contradicted the information that the building representative had given the Planning and Intel Commander, stating that all asbestos building products had been removed from the fire affected area.

Post fire decontamination appears to have been adhoc and done at appliances before crews left the incident ground. There was no Decontamination Officer appointed or decontamination formalised

There were two injuries reported, and a near miss. In addition, 18 entries were made for exposure to asbestos.

Appendix 5, Operational Safety (IS1) contains the asbestos fibres protocol. IS1 was last updated in February 2014 and doesn't address the full scope of the updated Health and Safety at Work (Asbestos) Regulations 2016. This particularly applies when conducting post incident fire investigation where investigators are being exposed to residual asbestos while dressed in inappropriate PPE.

## 6.2 Personnel welfare and monitoring

### *Our expectations*

That processes and systems were in place to monitor operational crews for fatigue and that robust control measures were in place to establish work rotation. Rotation is used to prevent overuse of crews and is based on *Operational Safety (IS1)*. Additionally, a rehabilitation area should be established to ensure that firefighter welfare was maintained and to allow for recuperation.

### *Our findings*

The incident was resourced well allowing for timely crew rotations. Crew change overs happened in a well-planned manner with no reports of personnel spending prolonged periods of time on the incident ground.

The interior cut off firefighting tactics were effective with crews not being required to operate deep within the building. This minimised exposure to excessive heat which had been a concern of the IMT.

The Operational Support canteen unit was at the incident and supported firefighting crews with refreshments.

## 6.3 Injuries to Fire and Emergency personnel or members of the public

### *Our expectations*

That all policy and procedures relating to injuries, to either Fire and Emergency personnel or members of the public, were complied with.

### *Our findings*

The worker who was present when the fire started evacuated the building safely.

One firefighter posted two entries in the Safe@Work portal reporting a cut and blistering to the wrist. A near miss was entered by a firefighter for a shoulder strain.

18 entries were made for exposure to asbestos.

## 7. Personal Protective Equipment (PPE)

### 7.1 PPE performance

#### *Our expectations*

That PPE performed to the expected level and if issues were identified they were reported.

#### *Our findings*

All PPE performed to the expected level.

### 7.2 Wearing of PPE

#### *Our expectations*

That all personnel were dressed in the appropriate level of PPE based on the *Fire and Emergency Uniform and Personal Protection (PPE) manual (N2 TM)*.

#### *Our findings*

There were reports of personnel working at the incident in smoke who failed to wear BA.

While erecting scene lighting, some Operational Support personnel were inside the warehouse in and exposed to smoke without wearing respiratory protection and Level 2 PPE as the conditions required.

## 8. Inter-agency and Stakeholder Relationships

#### *Our expectations*

That effective stakeholder liaison was established and maintained during and after the incident.

#### *Our findings*

Close liaison with Police ensured cordon management. The Police were supported by the Auckland Operational Support personnel.

Auckland Civil Defence contacted the ICP several times during the incident and received updates on the situation.

The fleet service provider responded to assist with mechanical issues affecting an aerial appliance at the incident.

Auckland's Joint Transport Operations Centre (JTOC) was kept updated on the road closures around the incident.

## 9. Fire Cause and Determination

### *Our expectations*

That a qualified fire investigator was assigned to investigate the cause of the fire and that a timely and accurate fire investigation report was published within the expected timeframe.

### *Our findings*

A qualified Fire and Emergency Investigator examined the incident. During this time, it was confirmed asbestos was present in the debris. The scene was immediately evacuated and cordoned. All equipment being used by the fire investigator was sealed in bags and labelled asbestos contaminated. The PID was sent away to be tested for damage, and decontamination.

The outcome of the investigation into the cause was undetermined at the time of this review.

## 10. Incident Debriefing

### *Our expectations*

That a debriefing of the incident was planned and held in a timely manner. Debriefs should be structured to enable all Fire and Emergency personnel who attended the incident to provide input.

### *Our findings*

Hot debriefs were conducted by Officers of appliances at the time of the incident.

A Command debrief was facilitated by OER, with a further debrief was facilitated by OER on 24 June 2019 to clarify an issue that was brought to the attention of Area 4 Management regarding asbestos contamination occurring in post fire during the fire investigation.

Released under the Official Information Act 1982



## Conclusions

This incident was superbly managed, with all Officers having a high level of situational awareness that was derived from excellent communication between the IMT and the Sectors but more importantly a detailed initial size up by the first Officer. A sound Action Plan was implemented for an event of this type and magnitude. The overall strategy was complemented by sound tactics which were in turn supported by the appropriate tasks being performed to a very high standard by all firefighters and support personnel. Appliances were well positioned and utilised for their particular capability. Commanders took key roles within the IMT and took command when it was required of them. All of this led to a successful outcome.

This and similar future events highlight the need to actively manage post fire decontamination more rigorously. PPE, equipment, and appliances need to be decontaminated before leaving the incident ground to reduce any chance of unwanted products being transferred. Some appliances were returned to stations without being decontaminated, one so dirty the interior required steam cleaning.

On several occasions, Commanders were assured by the building owner and its occupiers, no asbestos was present in the area affected by fire. In fact, they insisted it had all been removed. To the Commanders, this information quite rightly suggested there was no need to consider an asbestos risk. Although some information from the ISO did mention building product in Sector 2 behaving in a manner consistent with asbestos, this information seemed contradict the owner and occupier who were adamant none was present.

It wasn't until during the fire cause investigation sometime after extinguishment, it was deemed a significant amount of asbestos was actually present. This resulted in the investigation being halted. It also caused some confusion about what actions needed to be taken in regards to the Fire and Emergency Investigators equipment and PPE that had been exposed so it was bagged and tagged accordingly.

The fire at Argus was contained and extinguished effectively and competently with fire damage contained to the area of the building of origin.

## Part 4 – Operational review report approval

This report has been authorised by Operational Efficiency and Readiness:

*Everything in this statement is true to the best of my knowledge and belief, and I made the statement knowing that it might be admitted as evidence for the purposes of the standard committal or at a committal hearing and that I could be prosecuted for perjury if the statement is known by me to be false and is intended by me to mislead.*

Name: Trevor Brown

Rank: Assistant National Commander

Role: National Operational Efficiency Manager



Signed:

Date: 18 August 2019

**This report complies with Fire and Emergency policy relating to the Official Information Act.**

Released under the Official Information Act 1982