

Operational Review

Lake Hawea Vegetation Fire



WHAKARATONGA IWI

FIRE
EMERGENCY

NEW ZEALAND



Sponsor

Mike Grant, Region Manager Rural, Region 5

Report approved

Trevor Brown, National Operational Efficiency Manager

Incident Number: F2642681

Date of Incident: 2nd November 2018

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Abbreviations

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

Fire and Emergency New Zealand Position/Rank Titles

AC	Area Commander
AAC	Assistant Area Commander
ANC	Assistant National Commander
CFO	Chief Fire Officer
C	Controller
CL	Crew Leader
NCU	National Commander Urban
DCFO	Deputy Chief Fire Officer
DPRFO	Deputy Principal Rural Fire Officer
NMR	National Manager Rural
PRFO	Principal Rural Fire Officer
RFO	Rural Fire Officer
RMR	Region Manager Rural
SO	Station Officer
SSO	Senior Station Officer

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

AA	Assembly area
CIMS	Coordinated Incident Management System
IMT	Incident Management Team
Comcen	Communications Centre
eIAP	Electronic incident action plan
OIC	Officer in charge
FCP	Forward control point
FSA	Forward staging area
IAP	Incident action plan
IC	Incident Controller
ISO	Incident safety officer
SFP	Safe forward point
SHEP	Significant Hazard Exposure Protocol
Sitrep	Situation report
ICP	Incident Control Point

Fire and Emergency New Zealand Vehicles & Equipment

HCU	Hazmat/command unit
HPD	High pressure delivery
IGC	Incident ground communications
LMR	Land mobile radio
LPD	Low pressure delivery
PPE	Personal protective equipment
TIC	Thermal imaging camera

Other

ICAD	Intergraph Computer Aided Dispatch
ICAM	Incident Cause Analysis Method
PDA	Predetermined attendance

Executive Summary

On 2nd November 2018 at 17:22 hours, Comcen received a 111 call to pine trees on fire near the boat ramp at Lake Hawea. Lake Hawea (LAKE821) and Luggate (LUGG8311) were responded. Due to the large number of 111 calls being received about the fire the Comcen also dispatched Wanaka (WANA851). The incident was quickly escalated and included the use of five helicopters, with the total time involved being nearly two days.

Lake Hawea is a popular tourist destination and is situated at the Southern end of the Haast Pass. It is located on state highway 6 that links the West Coast to the popular tourist hotspots in Central Otago so is a busy highway route. The support of NZ Police to quickly close the highway for firefighter safety was appreciated by all involved.

The fire was featured on the national television news that evening.

Central Otago has a detailed Fire Plan that had been reviewed prior to the 'fire season' commencing, and they were on high alert as the long range weather predictions were for a hot, dry summer. The local brigade had good knowledge of the potential people and property risk from the fire. The chief fire officer immediately requested the attendance of the rural fire officer on duty and helicopters, realising that the terrain would be unsafe to put ground crews into due to its steepness. The ComGen had notified the RFO when receiving multiple calls so their attendance was very timely.

The cooperation between all agencies involved showed a team that have good working relationships. This contributed significantly to the fire being brought under control and extinguished without any damage to people or homes. This was aided by weather and ground conditions.

Part 1 - Incident Overview

Incident description

At 17:22 hours on November 2, 2018, the Southern Communications Centre (Comcen) received multiple 111 calls reporting a fire in pine trees, SH6, Lake Hawea.

A first alarm response of Lake Hawea 821 (LAKE821), Luggate 8311 (LUGG8311) and Rural Fire Officer Otago (RFOOTAGO3) was initiated and at 17:28 hours LAKE821 and LUGG8311 responded.

The incident was very close to Lake Hawea township and on turnout the OIC (CFO) LAKE 821 could see the smoke and observed the fire was in very steep rocky terrain, had not yet developed to the canopy, but was moving quickly downwind.

The site was a steep sloping Easterly aspect face of around 20 to 30 degrees. Some gradients near the road were over 45 degrees. The predominant vegetation was pine forest, limited understory but mostly pine needles, fallen branches and some patches of blackberry.

Due to the steep and unstable terrain it was decided to not commit firefighters to the hillside but to concentrate on ensuring the people in the four homes above the fire were evacuated and spot fires on the road were extinguished.

At 17:30 hours Comcen responded Wanaka 851 (WANA851) due to the number of 111 calls being received.

At 17:34 hours a SitRep indicated there was a large vegetation fire heading uphill towards houses and helicopters would be required. Police were requested for evacuations.

An ex brigade member who had observed the fire deployed water tankers with capacities in excess of 10000 litres from a local contractor which ensured good water supply early for responding crews. He also ensured the four homes above the fire were evacuated.

WANA851 enroute to the fire spoke with the IC who confirmed that Wanaka 857(WANA857) should also be responded. At 17:56 hours the first helicopter responded and had given a 15 minute ETA. At 17:57 hours the second helicopter responded with no ETA communicated, and around this time the RFOOTAGO2 responded the Alexandra command unit (ALEX3914).

At 17:58 hours RFOOTAGO3(RFO7) arrived at the incident. He received a briefing from the OIC and could see the fire was developing. The smoke had changed to a darker colour and there were concerns regarding the safety of the closest house.

At 18:07 hours a SitRep indicated the fire is 20 hectares in size, burning in pine, and burning up hill. It was understood through third hand information that the residents have been evacuated and two more helicopters were requested bringing the total to four. At 18:17 hours it was confirmed a total five helicopters were either on scene or responding to the incident. This SitRep also indicated properties were threatened, all were evacuated, and an aerial size up was to be undertaken.

At 18:18 hours the CFO, RFO7, and a Department of Conservation rural fire Officer flew over the incident in the first arriving helicopter to gain full situational awareness. They confirmed the fire hadn't reached the first house but it was getting close. There was a discussion with the helicopter pilot on how to attack the fire, with the highest priority being to prevent spread to the nearest house. More helicopters arrived and initially assisted in extinguishing the fire near the closest house. At this time the IC did not consider it was safe to deploy ground crews onto very steep terrain.

At 18:19 hours while en route, RFO3 turned out Tarrass 8671 and Dunstan 6711 appliances.

At 18:31 hours a SitRep indicated the CFO was on scene in helicopter, three hectares burning heading South East direction. One property high priority, fire impinging on edge of property now. Three other high priority properties. Two helicopters on scene with monsoon. Multiple tankers and ground crews in operations.

To assist in predicting fire development a weather forecast was passed which indicated in the next 12 hours the Northerly winds would swing to north west with the strength ranging between 40 and 60 kph gusting to 90kph. It would be mainly dry until midnight with light rain through to midday tomorrow. The fire was moving slowly with a lot of smoke and the ground was green and wet. The fire had crowned quickly and then dropped down becoming slow moving on the slope with the main driver being the wind.

The Police had arrived on the scene quickly and closed SH6 by putting in wide cordons.

At about this time the CFO, RFO7, and DOC discussed the structure of the incident management team and who would be in control. Apart from the helicopters, all resource at the incident at this stage was urban, and to allow for just one change in command later it was decided to leave the CFO as IC.

At 18:41 a SitRep indicated a command point had been established and at 18:48 hours RFOOTAGO3 (RFO3) arrived. Shortly after RFOOTAGO4 (RFO4) arrived, received a briefing and implemented a change in command to RFO3 which was communicated to the incident ground. When ALEX3914 arrived the Command Point (Hawea Command) was relocated to a more suitable position behind the hotel.

The incident structure implemented was:

IC	RFO3
Air Attack	RFO4
Operations	CFO, Lake Hawea
Logistics	RFO7
Planning	DoC RFO
Safety Officer	DCFO Wanaka

Initially ground crews had not been established but once operations had reassessed access and fire conditions, and with adequate resources now at the incident ground crews were deployed up the driveway to protect threatened homes. Ground crews were also deployed from the state highway no more than two lengths into the

trees. The firefighters near the homes were instructed to keep out of the trees, and the ones deployed from the road were instructed to stay clear of the water drop zones.

At the briefing for helicopter pilots they commented that it would have been advantageous to have strobe lights or similar on the firefighters deployed into the trees so they could ascertain their exact whereabouts to ensure their safety.

At the height of the fire there were four helicopters firefighting and one aerial platform coordinating their response. At 20:55 hours a SitRep indicated helicopter operations were ceasing for the night and they would be opening one lane of SH6 to allow traffic from Haast to get through.

As the crews got established by the structure the intensity of the fire reduced. There was a transition to mop up stage and the rule of no more than two lengths of hose into the trees remained in force as darkness fell. Water tankers shuttled water to firefighters on the top road.

The Queenstown District Council (QLDC) provided an experienced person to act as the Public Information Manager (PIM) for the IMT. There was concern expressed by the Emergency Manager, Otago Civil Defence regarding the possibility of the large water tank being compromised that was the main town supply. This resulted in operations seeking an alternative water source. The PIM released regular updates to the public and other agencies which was helpful as SH6 was closed for a long period impacting vehicle movement in both directions.

The overnight plan was to leave one crew to monitor to ensure the homes were protected, and the hoses were left deployed to enable a swift response. At 05:19 hours a SitRep indicated the wind had changed to the South at 04:45 hours and there were multiple flare ups and hotspots being attended to.

Mop up continued until a stop message was transmitted on November 4 at 12:19 hours some 43 hours after the initial call, and all resources left the fire ground about two hours later.

Location, topography, community, and terrain

Lake Hawea itself is located in the Otago Region at altitude of 348 metres. It covers an area of some 141 km² and is, at its deepest, 392 metres deep. At its greatest extent, which is roughly along a North-South axis, Lake Hāwea is 35 kilometres long. It lies in a glacial valley formed during the last ice age, and is fed by the Hunter River. Nearby Lake Wanaka lies in a parallel glacial valley eight kilometres to the west. At their closest point (a rocky ridge called The Neck), the lakes are only 1000 metres apart. But the townships of Lake Hawea and Lake Wanaka, which is a much larger community, are 15 to 20 minutes apart by road. The highway that passes past Lake Hawea is the main tourist route between the West Coast and Central Otago via the Haast Pass.

The town is found at the lake's Southern shore. The lake is a popular resort, and is well used in the summer for fishing, boating and swimming. The nearby mountains and fast-flowing rivers allow for adventure tourism year-round, with jet boating and skiing nearby.

The fire started on a steep slope next to SH6 that connects the West Coast through the Haast Pass to Lake Hawea. Topography for the site was a steep sloping face around 20 – 30 degrees. Some gradients near the road

over 45 degrees. Easterly aspect to the face, predominant vegetation was pine forest, limited understory, mostly pine needles, fallen branches and some patches of blackberry. There were a number of houses in and around the plantation.

Fire weather index and fire behaviour

The following is the account of the weather and fire behaviours observed by a DPRFO at the incident:

The weather readings were taken from the Hawea site at 1800hrs and readings were – temperature 13 degrees, RH 45%, rain 0, WNW wind 20km/hr gusting 30.

Fire behaviour observed after the DPRFO arrived was a surface fire moving slowly through the understory. Substantial suppression effort had already gone into the fire by first arriving crews. The initial run saw the fire quickly climb into the canopy but this was short lived. Factors affecting this was likely to be the slope immediately adjacent to the road near the point of ignition, that the wind was strongest on the edge of the forest and diminished further into the forest, fire weather conditions for this time of the year would also have helped reduce this fires intensity.

The initial fire run was not typical but driven by the slope and wind. The fire settled down and became typical for the fire weather indices at the time. With the amount of wind, the fire had the potential to do much more than it did. That can in part be attributed to the fire weather indices but also the fuel loading and layering. (layering being that there were not the ladder fuels available to assist the fire climbing into the canopy)



These photos taken from the Lake Hawea township showing wind direction and the fire in early stages

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 about what 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

The purpose of Operational Efficiency and Readiness (OER) is to provide operational assurance advice to the Chief Executive and Deputy Chief Executive Service Delivery 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.

Methodology

The Operations Efficiency and Readiness investigation team follow the ICAM investigation techniques methodology. For this review the team met with key managers involved in the incident, including a Department of Conservation person who fulfilled the planning role in the IMT. The team reviewed reports and documentation related to the incident, reviewed operational plans, and conducted a high level debrief involving key members of the IMT.

Terms of Reference

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

The terms of reference (ToR) for this review were based on the operational response to the incident:

1. Was there good communication between all personnel and agencies involved in the response, including Fire and Emergency ComCen?
2. Was Safety, Health, and Wellbeing a priority throughout the incident?
 - a. level of safety, health, and wellbeing monitoring during the incident
 - b. injuries to Fire and Emergency personnel (L2 investigation) or members of the public
 - c. welfare of Fire and Emergency personnel
3. Was the incident ground led and managed in accordance with the intent of the interim command and control policy?
 - a. command and control procedures
 - i. initial actions of the first arriving officers
 - ii. executive officer notification and response
 - iii. incident management structure
 - iv. effectiveness of strategies and tactics applied
 - v. resource allocation and function
 - vi. risk analysis including safe operation of aircraft support
 - vii. recording and reporting (field notes, SitReps, IAP's etc.)
 - viii. appropriate and relevant operational instructions were implemented
 - b. use of fire weather index to guide decisions
 - c. knowledge and adequacy of water supplies available for firefighting operations
 - d. operation of the Coordinated Incident Management System (CIMS)
 - e. inter-agency and/or stakeholder relationships.

Operational Review Team

Role	Who	Designation
Sponsor	Mike Grant	Region Manager Rural, Region 5
OER Team Leader	Trevor Brown	National Operational Efficiency Manager
Team member	Doug Bennett	Manager Operational Efficiency and Readiness

Part 3 - Operational Review Findings

This section outlines the findings from the operational review investigation based on the investigation's terms of reference, and follows a format based on the 4 R's (reduction, readiness, response, and recovery). 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. Reduction

Stakeholder Engagement

Expectations

That Fire and Emergency personnel were engaged with key stakeholders (residents, forestry owners, territorial authorities, IWI, DoC, partner emergency service agencies etc) to discuss reduction activities?

Findings

The investigation team observed strong relationships between key agencies involved in the incident, the DoC representative was a key member of the IMT when it was established. Although too late to participate in the formal debrief the Police representative arrived after completing a job while the investigation team were at the fire station. External resources such as helicopters were readily available, and feedback had been received from the pilots. They observed that when they need to dip their buckets in the lake a safety boat should be deployed to keep recreational boats away from the dipping zone to protect helicopters and the public.

Fire Season Promotion

Expectations

. That public signs were maintained and regularly updated as the fire season was assessed to keep the community and members of the public passing through aware of the fire danger.

Findings

The PRFO and his deputies had maintained a vigilant watch on fire conditions and had kept the fire warning signage up to date.

2. Readiness**Operational Planning***Expectations*

That there was a current fire plan, it was available to first responding crews, had been socialised with key stakeholders, and added value to the incident management team (IMT) once it was formed. The plan includes key arrangements with contractors (eg aircraft operators, bull dozer operators, Department of Conservation etc).

Findings

The Otago District Fire plan had been reviewed and updated prior to the commencement of the 2018/2019 fire season. It is a comprehensive document outlining all resources available, FENZ and external, and includes detail of contact arrangements. The plan was effective for this incident.

3. Response**Communications Centre***Expectations*

That the Fire and Emergency NZ 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.

Findings

The review team found Comcen processed the call and responded appliances in a timely manner as and when requested.

All notifications were actioned appropriately.

Safe driving to incidents and appliance positioning*Expectations*

That Officers and drivers:

- follow the principles of safe 'emergency response driving' when responding to the incident
- park appliances in a way that ensured firefighter safety and away from exposures to fire, building or vegetation collapse, road/highway traffic, or other hazards

- re-evaluated the position of the vehicles as the incident progressed.

Findings

There were no issues identified from the response to the incident. There was a quick response from NZ Police who ensured crews who had to work on the highway were protected, closing the road with a wide cordon, and keeping the public informed.

Appliances were parked in a safe and suitable location for the tasks that were initially identified.

All appliances positioning appropriately to support the chosen tactics.

Responding Appliances

Expectations

That the first responding appliances provide a timely response to the incident. A timely response is defined by the appliance responding from its station within a reasonable time frame of being notified of an incident, accepting volunteers will need respond to the station from a variety of locations and activities.

Findings

The review team found both the response from the station and the arrival at the incident met the timely performance expectations.

Water supplies

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.

Findings

The fire occurred beside Lake Hawea which became the major source of water supply for helicopter monsoon buckets, supported by water tankers.

Firefighting operations

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.

Findings

This incident employed a mix of ground firefighting tactics and helicopters using monsoon buckets. Good decisions were made to keep crews safe while implementing tactics to extinguish the fire and protect properties above the head of the fire.

When additional firefighters responded in a station van they were utilised to extinguish spot fires, and an ex-brigade member responded with a large capacity water tanker.

When night fall came and the helicopters had to stop operations the aggressive tactics employed had given the IC control of the fire, and they were able to contain the fire overnight with ground crews.

Size-up*Expectations*

That the first arriving officer performed an initial size-up and risk assessment of the incident. The size-up should include extensive observation of as wide an area as possible, information gathering, hazard identification and an assessment of the potential for escalation.

Findings

The first arriving officer quickly realised that due to the location of the fire the immediate priority would be to evacuate a number of houses above the fire. One of the brigades' firefighters lived in one of these houses and had already commenced an evacuation prior to responding to the station. The IC also ensured other houses in the direction of the fire were also notified to prepare to evacuate if requested.

Tactical options*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.
- safety was a priority and a Dynamic Risk Assessment process was considered when implementing the chosen tactics.

Also that once a formal command structure was established and priorities were set, an incident action plan (RF200) was developed and implemented. The RF200 should include the strategy, tactical options and related operational tasking and would be formalised once resources allowed a formal IMT to be established and prepare a formal Incident Action Plan (IAP).

Findings

The strategy based upon the initial size up was to contain then extinguish the fire and protect surrounding property. Initial tactics were to evacuate a number of houses above the fire and establish a water supply to attempt to extinguish the fire from the highway.

It was recognised very early in the incident that helicopters using monsoon buckets would be required to help extinguish the fire.

All tactical decisions were thoroughly and competently risk assessed.

Situation Reports

Expectations

That:

- the initial SitRep was transmitted to the ComCen.
- 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.

Findings

An initial SitRep was transmitted and incident ground SitReps were transmitted at regular intervals.

Incident Management Team structure

Expectations

That a command structure and an Incident Management Team were set up for an incident of this size. Also, it was expected that the command and control structure would follow the principles of the interim command and control policy, providing clear lines of communication and help contribute to the successful conclusion of the event.

Findings

The incident was appropriately structured for an incident of this size and complexity. The incident was sectorised functionally to allow for aerial operations (helicopters with monsoon buckets). A safety officer was appointed and as the incident progressed, Logistics and Planning roles were added.

The complete structure comprised of:

- Incident Controller
- Operations Manager
- Three sector Supervisors
- Liaison (to liaise with PHO and National Communications team for PIM)
- Safety Officer

- Planning Manager
- Logistics Manager

Incident ground structure

Expectations

That appropriate incident ground facilities were structured for the size and complexity of the event.

Findings

The following facilities were established:

- Incident control point (ICP)
- Assembly area (AA)
- Hot Zone
- Staging area in shady location
- Decontamination facility (including two decontamination corridors)

Senior Officer Notification and Response

Expectations

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

Findings

Appropriate notifications were made to the on-call Senior Officers and their response was timely.

The first arriving Senior Officer (RFOOTAGO3) received a briefing from the OIC LAKE821, assumed Command, and appointed the outgoing IC as Operations Manager. This change was communicated in an IG SitReps.

Contractor Management

Expectations

That all contractors used at the incident were given a thorough safety briefing, were identified in the Fire plan, and had received training suitable for the tasks they would be asked to perform at the incident.

Findings

The main contractors used at this incident were aircraft operators using monsoon buckets, and a department of Conservation person who took a role on the Incident Management Team.

Incident Ground Communications

Expectations

That an effective communications plan was developed and employed based on the interim command and control policy (M1 POP). 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.

Findings

A two channel communications plan was implemented. This was deemed sufficient for an incident of this complexity. There was no need for separate Aerial and Logistics channels.

Incident ground SitReps were broadcast at regular intervals to keep crews informed.

The command debrief identified that giving water tanker drivers IGC radios during the incident would have improved communication.

Land Mobile Radio (LMR)

Expectations

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

Findings

There were no reported issues with communication between the incident ground and the Communications Centre.

Public Information Management

Expectations

That effective communications were promulgated to ensure members of the public effected by the incident were informed. The media were given information to ensure accurate accounts of the incident were promulgated, and all interested agencies were kept informed and given critical information that related to their responsibilities.

Findings

The Queenstown Lakes District Council provided a public information manager (PIM) to support the incident management team. They provide good, timely information to the public and effected agencies.

One resident in the properties at immediate risk was a member of the Lake Hawea fire brigade and he took a proactive role in ensuring all residents were evacuated safely. The CFO, Lake Hawea also contacted him to advise him of the fire and was advised that he had already organised the residents to evacuate, ensuring this was done quickly and safely.

Safety and Hazard Management

Expectations

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

That a Safety Officer be appointed, and 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.

Findings

A Safety Officer was appointed, discussed the incident with the IC, identified hazards and populated the hazard board. The hazards were risk assessed and control measures were signed off as being adequate.

Personnel welfare and monitoring

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.

Findings

The incident was managed as has been the practice in the past. This meant that crews completed their shift and went home. As the main fire attack was by means of helicopters using monsoon buckets the working conditions for ground crews were not arduous, nor was it excessive time they were required to work.

Injuries to Fire and Emergency personnel or members of the public

Expectations

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

Findings

There were no reported injuries or near misses.

Inter-agency and Stakeholder Relationships

Our expectations

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

Our findings

There was effective stakeholder liaison with the local council. They provided the Public Information Manager (PIM) for the IMT, Police were informed regarding evacuations and road closure and played a proactive role in the incident, and Department of Conservation were also informed. They also participated in the IMT.

The investigation team observed during the debrief they facilitated a well-built relationship between all agencies involved.

4. Recovery

Fire Cause and Determination

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.

Findings

The cause of the fire was from carelessly used fireworks, with evidence found in the fire scene by the investigator.

Incident Debriefing

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.

Findings

OER facilitated a command debrief with personnel who played a key command role in the incident.

Due to the unavailability of a number of personnel a suitable date to hold a debrief was not able to be facilitated at the time of this review, but feedback had been received from the helicopter operators.

Conclusions

The fire that occurred at Lake Hawea in November 2018 although not large posed several challenges for the initial arriving crews and the incident Controller (IC). The fire was in mature pine on a steep slope with several residential properties above the fire. Fortunately, the fire risk was moderate so the first responding crews were able to implement tactics to protect the properties above the fire front after ensuring all the residents were evacuated.

Sound risk assessment prioritised firefighter safety, restricting access to the fire area due to the very steep and unstable terrain. Closing the highway quickly also ensured that all personnel involved in the response were able to operate safely. The cooperation between all agencies and personnel involved contributed to a good outcome that restricted property loss, both to properties at risk and the forest itself.

Although no key issues were identified during the review the review team note that consideration of utilising the Invercargill command unit could be given for longer duration incidents. This could relieve the Alexandra command unit and take pressure off the time volunteers are deployed in support roles for longer duration incidents.

There were some other findings the management team should consider for future incidents:

- Issue IGC radios to tanker drivers during the incident so there is communication between the IMT and the drivers.
- Consider the use of strobe lights or similar for firefighters working in and around the trees when air operations are in progress so pilots could ascertain firefighters exact location to ensure their safety.
- When instructing helicopters to dip monsoon buckets in a recreational lake such as Lake Hawea consider deploying a safety boat to keep recreational boats away from the dipping zone and flight path, protecting the public and helicopters.
- Ensure accurate information is being transmitted in SitReps as this contributes towards better situational awareness of others responding. There was an occasion within the message log where the fire was suggested as being 20 hectares in size and the next message (24 minutes later) stating it was three.

Part 4 – Operational review report approval

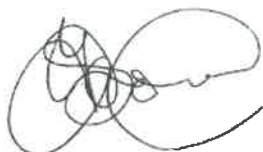
This report has been authorised by Operational Efficiency and Readiness:

Everything in this report is true to the best of my knowledge and belief, and I approved the report 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: 5th December 2019

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

Approved for Publishing

Darryl Papesch
Digitally signed by Darryl Papesch
Date: 2019.12.05 11:13:00 +13'00'

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