



Emergency
Services
Commissioner

Review of the **TriTech Lubricants factory fire**

19 May 2011

Published by the Office of the Emergency Services Commissioner, Victorian Government Department of Justice, Melbourne, Victoria, Australia.

October, 2011

© Copyright State of Victoria, Department of Justice, 2011

This publication is copyright. No part may be reproduced by any process except in accordance with the provisions of the *Copyright Act 1968*.

Contents

EXECUTIVE SUMMARY	4
<i>Compliance with standards</i>	<i>6</i>
RECOMMENDATIONS	7
INTRODUCTION	8
<i>Terms of reference</i>	<i>8</i>
<i>Review methodology</i>	<i>8</i>
<i>The role of the Emergency Services Commissioner</i>	<i>9</i>
TRITECH LUBRICANTS	9
EVENT DESCRIPTION.....	11
COMMAND, CONTROL AND COORDINATION.....	15
CONTROL STRATEGIES	19
MULTI-AGENCY/ORGANISATION ARRANGEMENTS	21
COMMUNITY INFORMATION AND WARNINGS	23
COMMUNITY AWARENESS SURVEY	26
CONCLUSION.....	28
DEFINITIONS.....	29
REFERENCE DOCUMENTS.....	31
APPENDIX 1	32

Executive summary

At the request of the Fire Services Commissioner, the Emergency Services Commissioner has conducted a review of the fire at the TriTech Lubricants factory in Dandenong South on 19 May 2011.

Stakeholders are encouraged to consider the review findings and recommendations in the spirit of learning and improvement.

The terms of reference for the review were:

- The 'command, control and coordination' arrangements established at the incident, including any multi-agency/organisation arrangements implemented to consider and deal with the broader consequences of this fire.
- The control strategies implemented by the incident controller for the TriTech Lubricants fire.
- The issuing of community information and warnings to assist the community make informed decisions regarding their safety.

This was an intense and complex fire involving large quantities of combustible product. The review found that the fire was well managed and generally complied with standards associated with this type of fire.

The review team found that the response by the Country Fire Authority (CFA) brigades was delayed by approximately five minutes while crews located the correct address. This was due to a combination of incorrect address details provided by the initial caller and the name of a road adjacent to TriTech not appearing in the Vicmap database used by the Emergency Services Telecommunications Authority (ESTA).

The review found that the incident control structure functioned effectively and aligned with the Australasian Inter-service Incident Management System (AIIMS) and Part 3 of the Emergency Management Manual Victoria (EMMV). The control strategies aligned to the State Controller's Intent, with the focus on protection of life, property and key infrastructure. The incident and emergency management teams generally functioned as an effective cooperative. The CFA was supported by Metropolitan Fire Brigade (MFB) crews and appliances, and the two services worked together effectively.

Areas for improvement identified by the Victorian Bushfires Royal Commission, such as interoperability and the issuing of information and warnings, generally functioned effectively when applied to the urban environment. However, some aspects require modification for the urban context.

Environmental Protection Authority (EPA) and Melbourne Water, with support from the fire services and City of Greater Dandenong, prevented contaminated oil and water run-off from entering the Eumemmerring and Dandenong creeks. Thus, a major environmental incident was avoided.

The intention of the review has been to identify the lessons from this event so that improvements can be made to reduce risk, improve response arrangements and procedures, and help agencies in their preparation for future urban events of this type.

Overleaf is a table of the relevant standards that applied in the case of this type of fire. This report is based upon a review of how the response measures against these standards to identify the level of compliance. It is notable that the review finds that performance against these is either 'compliant' or 'generally compliant'.

Compliance with standards¹

Emergency Management Manual Victoria (EMMV)	generally compliant
Fire Services Commissioner Policy (FSCPOLICY001/2011) Strategic Control Priorities – State Controller’s Intent	compliant
Fire Services Commissioner Guidance Note Incident Management: Incident Controller’s Guide	compliant
Fire Services Commissioner SOP J4.01 – Incident Warnings and Advice (Scope refers to bushfires only)	generally compliant
Fire Services Commissioner SOP (FSCSOP02/2011) – Reporting of significant fires/emergencies to Fire Services Commissioner	compliant
CFA/MFB – Joint Operational Activities, Memorandum of Understanding (December 2010)	compliant
CFA SOP 9.16 – Media Management	compliant
CFA SOP 10.22 (1/12/2007) – Hazmat Detection Arrangements	compliant
CFA SOP 8.02 – Incident Controller (CFA as Control Agency)	compliant
CFA SOP 8.04 – Transfer of Control	compliant
Victorian Warning Protocol	compliant
Memoranda of Understanding with Emergency Broadcasters	compliant
ESTA ECP 0022-Standard Verification Process	generally compliant
OESC Practice Note – Emergency Broadcasting (version 3)	compliant
OESC Practice Note – Emergency Management Teams	compliant

Compliant	Complies with the intent of the standard
Generally compliant	Complies with the intent of the standard but with identified areas for improvement
Not compliant	Does not comply with the intent of the standard

¹ Standards include policy documents, standard operating procedures, practice notes, etc..

Recommendations

The review recommends that:

1. The Fire Services Commissioner ensures that policy, operational procedures, systems and training relating to information and warnings that have been applied to bushfires are now also applied to other emergencies. In particular:
 - information and warning messages are consistent as well as relevant, timely and accurate
 - a formal arrangement is established to ensure twenty-four hour availability of information officers for the issuing of information and warning messages
 - advice messages are issued to the community as soon as practicable to prevent 'information gaps'
 - integration of MFB with the One Source One Message (OSOM) system is expedited.
2. The Fire Services Commissioner clarifies the role of regional controller for major fires and incidents other than bushfire.
3. The CFA works with MFB to ensure that the MFB control unit is available for responding to large fires and multi-agency incidents in fringe CFA areas
4. The CFA, in collaboration with the other agencies develop a case study of the response to and recovery from the TriTech fire as a training and development opportunity.
5. The Fire Services Commissioner ensures that there is a single standard for the tabards worn by the IMT on the fireground and in control centres to ensure consistency and aid interoperability.

Introduction

The Fire Services Commissioner requested the Emergency Services Commissioner to conduct a review of a fire that occurred on 19 May 2011 at the TriTech Lubricants factory, 170 Williams Road, Dandenong South.

The review supports the Fire Services Commissioner's fire reform program, which is focused on improving the interoperability, resilience, capability and capacity of Victoria's fire services and the services they deliver to the community.

Terms of reference

- The 'command, control and coordination' arrangements established at the incident, including any multi-agency/organisation arrangements implemented to consider and deal with the broader consequences of this fire.
- The control strategies implemented by the incident controller for the TriTech Lubricants fire.
- The issuing of community information and warnings to assist the community make informed decisions regarding their safety.

The review may also make observations in relation to the fire preparedness levels at TriTech and neighbouring premises.

Any issues pertaining to compliance with building, dangerous goods and planning legislation is outside the scope of the review.

Review methodology

The review examined the response to the TriTech fire in accordance with the stated terms of reference and with the intention of identifying opportunities for improvement. The recommendations are intended to reduce risk, enhance response arrangements and procedures, assist agencies enhance preparedness for fires occurring in the built environment, and enhance the provision of information and warnings to the community.

The review team consisted of staff from the Office of the Emergency Services Commissioner (OESC) who possess a broad range of skills and experience in the emergency management sector. The review methodology incorporated:

- identification of the standards relevant to this type of fire and measuring performance against each one
- confirmation of the terms of reference and review approach with stakeholders
- evaluation of community information and warnings
- analysis of the response through interviews with stakeholders and review of documents
- ongoing engagement with stakeholders throughout the review
- engagement of specialist contractors where appropriate.

The review was conducted in accordance with the following principles:

- Acknowledgement that decisions are made with information and observations available at the time.
- Learning and improving.

- An evidence-based and consultative approach.
- Community engagement.
- Findings determined and fully reported without bias.
- Lessons are used to reduce risk and improve response arrangements.

The role of the Emergency Services Commissioner

The position of the Emergency Services Commissioner was established by the *Emergency Management Act 1986* to provide advice to the Minister for Police and Emergency Services on any issue in relation to emergency management.

The prescribed functions of the Emergency Services Commissioner, as set out in Section 21C of the Emergency Management Act, include:

- to advise, make recommendations and report to the Minister on any issue in relation to emergency management
- to encourage and facilitate co-operation between all agencies to achieve the most effective utilisation of all services.

TriTech Lubricants

TriTech Lubricants was located at 170 Williams Road, South Dandenong. A large quantity of oil products, including engine and transmission oils for the domestic and industrial markets were stored at the premises. The business employed twelve people.

The building was approximately 1,685 square metres (m²) in size. It incorporated a two-level office at the front with a floor area of 150 m² and a warehouse at the rear with a floor area of 1,535 m² (see Figure 1). The building construction comprised horizontal concrete tilt slabs supported by a heavy steel portal frame with a tin clip-lock roof. The building had fire hose reels installed, but not an on-site fire hydrant or fire detection system.

The site contained a number of large, fixed bulk storage vessels and portable storage containers. The oil products and blends were decanted from the bulk vessels into 1000 litre intermediate bulk containers (IBCs), 205 litre drums and 20 or five litre containers. The premises had an overall storage capacity of approximately 1,196,320 litres of product; however, the inventory at the time of the fire was approximately 528,968 litres. The product stored on site was predominantly mineral oil, which is classed as a 'C2' combustible liquid² and has a high flash point (205° C).

² Combustible liquid class C2 – A combustible liquid that has a flash point of greater than 150 degrees Celsius (AS1940-2004)

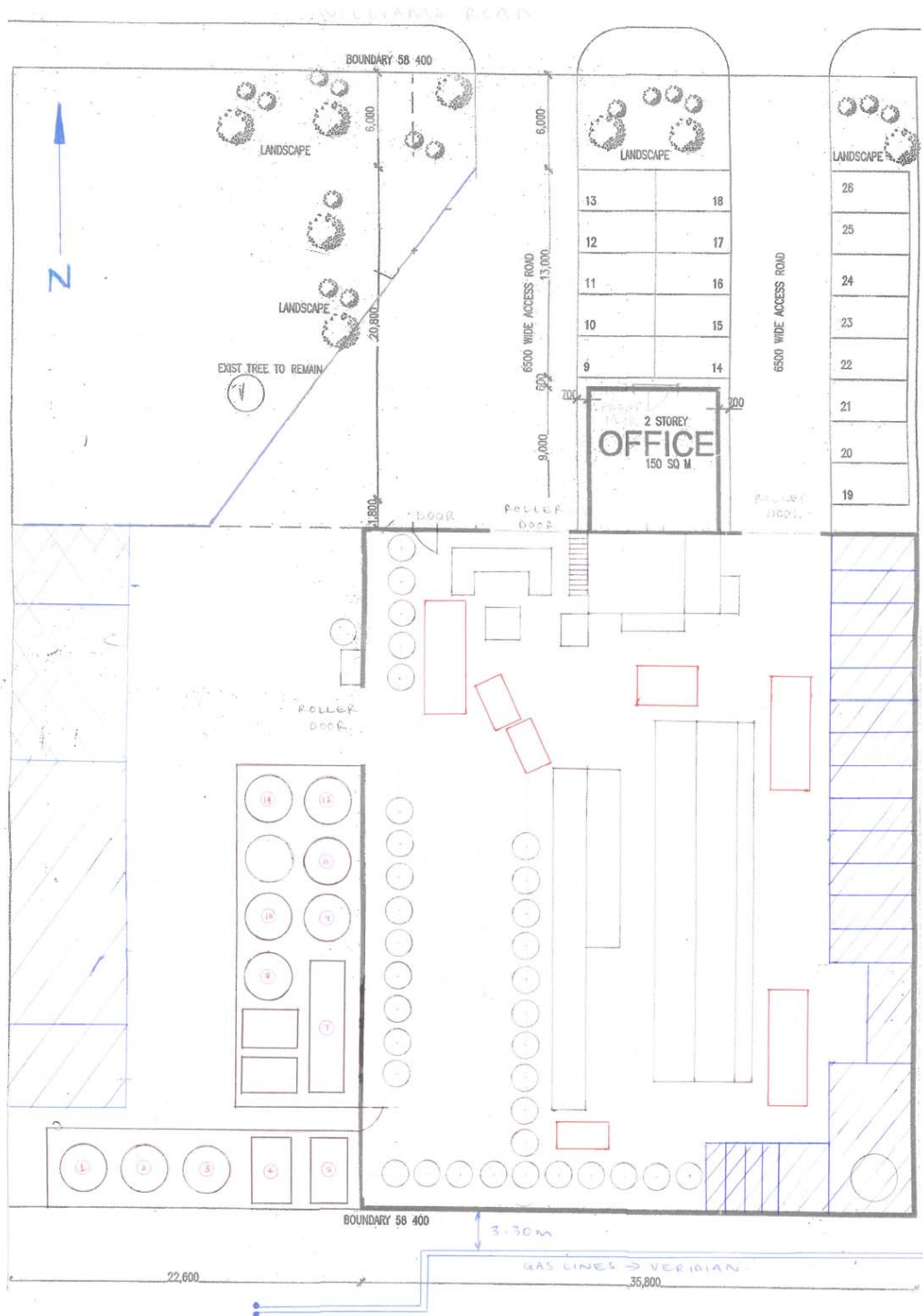


Figure 1. Site and building layout (Source: CFA)

Event description

At 7.58 pm, 19 May 2011, ESTA³ received a report of a factory fire from a caller through the emergency triple-zero (000) service. The caller gave the location as 'Ventura Court, Dandenong' but provided an incorrect intersecting street name (Martin Avenue). He did however state that it was off Greens Road near the glass factory. At the end of the call he also stated that the name of the premises was TriTech.

ESTA call takers use a computer-aided dispatch (CAD) system to 'verify' the location of a reported event. In this case, the caller had mispronounced the name, referring to Ventura rather than Venture, and the location chosen by the CAD system was Ventura Place, South Dandenong. The caller agreed on two occasions during the call that it was Ventura Place when asked by the call taker, but changed his mind at the end of the call stating he did not think it was Ventura Way but Ventura Court.

As Venture Court, the location of the fire, does not appear in the current VicMap database used by the CAD system, and because the caller provided an incorrect nearest intersecting street name, an event was created for Ventura Place, South Dandenong.

Hallam and Hampton Park CFA brigades were dispatched to Ventura Place, South Dandenong at 7.59 pm. The responding brigades were not advised of the factory name or the information about its proximity to a glass factory even though it had been provided but not recorded in the event chronology. Whilst en route, the Hallam crew observed heavy smoke issuing from an industrial area in the vicinity of Greens Road, Dandenong South, approximately two kilometres from Ventura Place and requested ESTA to dispatch additional brigades to investigate.

ESTA in the meantime, at 8.01pm, received a further report from the gatehouse of a factory nearby. The caller indicated there was a fire at a factory in Williams Road near Greens Road, Dandenong South. Due to the distance from the original call verified in Ventura Place, ESTA operators dispatched further appliances from Dandenong and Carrum Downs to the new location. Information regarding the two calls was passed to the appliances responding to the first location. ESTA dispatched Dandenong and Carrum Downs CFA brigades to this location as a separate event.

The Dandenong and Carrum Downs brigades were alerted to the second event four minutes and 56 seconds after Hallam and Hampton Park were alerted to the first event at the wrong location (Ventura Place, Dandenong South). Based on the CFA assignment rule for the correct location, the primary brigade is Dandenong supported by Hallam. Carrum Downs was correctly responded to support Dandenong as Hallam was already dispatched to the first location.

On receiving a third call relating to a factory fire, an ESTA operator contacted the original caller at the same time as Hallam Pumper was arriving at Ventura Place. The operator confirmed with the caller that the location would be Venture Court, off Williams Road, after interrogating the Melway overlay for the street which does not exist in CAD.

³ ESTA provides emergency call taking and dispatch services for Victorian emergency services organisations.

The Hampton Park brigade arrived at Ventura Place at 8.08 pm, and after confirming the absence of fire proceeded with Hallam brigade to Williams Road near Venture Court. Hampton Park arrived at 8.13 pm and found the front office area of the factory totally involved in fire with the fire spreading into the factory. The fire crews commenced an external fire attack.



Figure 2. TriTech fire taken at 4.04 am 20 May 2011 (Keith Pakenham, CFA)

There was no information relating to the occupancy of the premises other than the premises name and a 'Hazchem' sign affixed to the outer fence. Fire crews confirmed the nature of the occupancy from a company representative who attended the site following activation of the security alarm at 7.53 pm.

The fire spread rapidly through the building and involved plastic containers of product. Uncontained oil spread the fire to the external bulk storage areas. The incident controller requested the dispatch of additional resources, which included a number of fire appliances from the MFB. The rapid development of the fire resulted in a defensive strategy being adopted to protect adjacent buildings and gas pipelines at the rear of the premises. These contained hydrogen (flammable gas), nitrogen (an inert gas) and compressed air.

The rear wall of the building collapsed and damaged the nitrogen pipe line, however this did not present a hazard. The gas supplies were later isolated by a BOC representative. Water supplied by hydrants near the factory was insufficient so water was pumped from Greens Road, approximately one kilometre away, by means of a pump relay⁴. Further water was drawn from storage at the neighbouring Viridian glass factory. A large volume of water was used during fire fighting operations to cool the fire sufficiently to enable the application of fire fighting foam, which ultimately extinguished the fire.

⁴ A number of similar capacity pumping appliances in a series to relay water over a large distance from a water source to the fire attack appliance.



Figure 3. Hydrogen, nitrogen and compressed air pipelines located to the rear of TriTech (K Pakenham, CFA)

EPA attended the scene at 9.40 pm and notified Melbourne Water at 11.13pm. Melbourne Water arrived at 11.45 pm. They worked with fire crews to minimise the impact of product and contaminated water run-off.

The incident controller requested that an information officer attend the scene to initiate an advice message via OSOM. Residents living in Dandenong South, Lynbrook, Hampton Park and Cranbourne North were asked to remain indoors as much as possible, keeping windows and doors closed and air conditioners switched off. The first OSOM advice message was issued at 10:40 pm.

Dandenong City Council arrived on scene at midnight with sand to be used by Melbourne Water to block storm water drains. Oil and water travelled several kilometres in the storm water drains before being contained at Abbots Road and within a short section of natural creek at the end of the Abbots Road drain prior to reaching the Eumemmerring and Dandenong creeks.

The fire was declared 'under control' at about 4.30 am, 20 May 2011.

Approximately 130 fire fighters and 30 fire appliances attended the TriTech fire. The fire was prevented from spreading to neighbouring premises; however, two adjoining factories suffered significant damage to concrete tilt slab walls.

The incident incurred no injuries or loss of life, however, extensive loss (estimated \$37 million) was incurred by both the property and company owners. Recovery operations in relation to the storm water drainage system are still underway with an estimated cost to date of \$1.3 million.⁵

⁵ Estimate by Melbourne Water

Findings

The review team estimates that the response of the correct brigades to the correct location was delayed by four minutes and 56 seconds. This was primarily due to a combination of incorrect information provided by the first caller and the road name (Venture Court, Dandenong South) not being included in the Vicmap data used by ESTA to build the ESTA CAD Map.

ESTA has advised the review that the map error has been reported by ESTA to the appropriate naming authority, the City of Greater Dandenong, who confirm that DSE have been requested to include Venture Court in the Vicmap data.

Information provided by the initial caller relating to the factory name and proximity to the glass factory was not communicated to responding brigades as required by the ESTA standard operation procedure. This information may have assisted in earlier identification of the location of the fire. ESTA has identified this as a training issue and advised the review the matter will be addressed with its staff.

Command, control and coordination

A range of policies and guidance notes provide the standards for the command, control and coordination arrangements in Victoria. These include (but are not limited to) the Fire Services Commissioner's arrangements and policies, the Australasian Inter-service Incident Management System (AIIMS) and Emergency Management Manual Victoria (EMMV).

Incident management at TriTech

The Hampton Park and Hallam CFA brigades arrived at the fire at 8.13 pm and established Williams Road Control. Dandenong CFA brigade arrived at 8.16 pm and the officer established TriTech Control and declared himself the incident controller. The CFA District 8 call back officer arrived at 8.34 pm and became the incident controller after consulting with the initial incident controller.

The incident management team comprised an incident controller, operations officer, safety officer, logistics officer, information officer, sector commanders and an officer to manage media and emergency management team (EMT). The incident management team (IMT) was supported by the CFA District 8 operations manager, CFA operations officer, rostered duty officer (RDO) and regional commander.

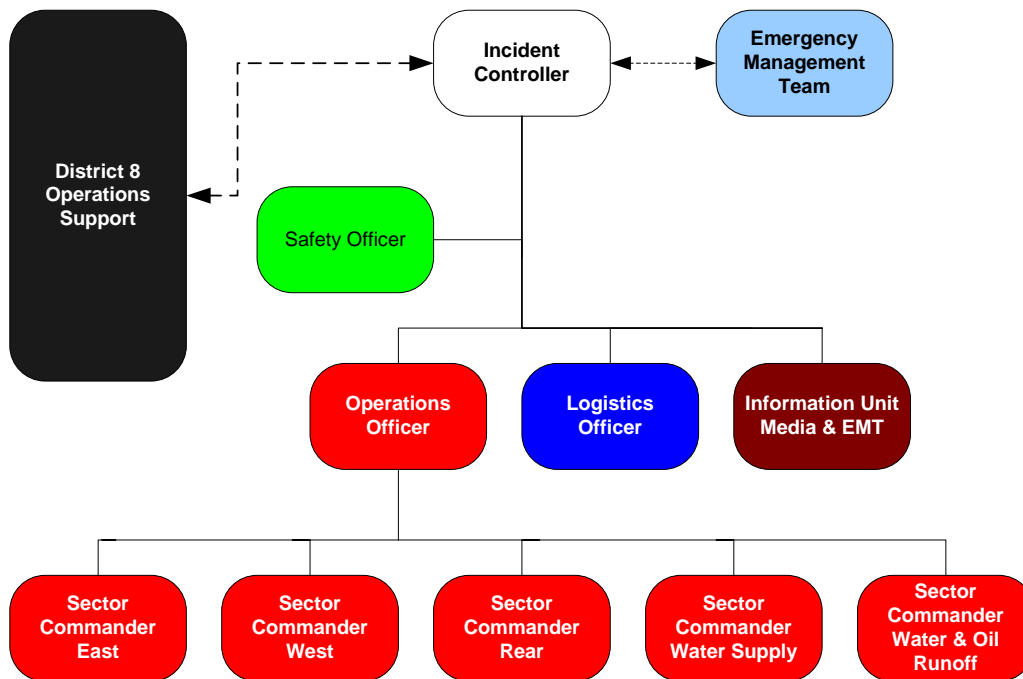


Figure 4. Incident management structure established for the TriTech fire (Source: CFA Operational Debrief Report)

The District 8 operations manager attended the fire and generally performed an oversight and support role to the IMT. He was not a member of the IMT. The RDO and regional commander provided support from the District Command Centre located in Dandenong. This included service delivery coverage for District 8, spot weather forecasts, organising change-over requirements for on-scene crews and catering. The RDO also provided information to the CFA state duty officer.

A number of those interviewed referred to a lack of clarity in the role of the regional controller for arrangements other than bushfire. The role was seen to be a duplication of the RDO's role.

The CFA chief officer attended the scene as an observer and made it clear to the IMT that he would not assume a role in the incident management structure. This ensured there was no confusion about his role at the scene and allowed the incident controller to carry out his duties unimpeded.

It is considered good practice for the incident controller to remain in the vicinity of the control point. While there was some variation to this principle, the review found that it did not present an impediment to the management of the fire.

The fire was managed with two sectors initially, however, as the fire escalated, five sectors were applied – east, west, rear of the premises, water supply sector and product/fire water containment sector.

Mobile communications vehicle

The mobile communications vehicle (MCV) from Patterson River CFA brigade arrived at 9.10 pm and provided on-scene communications. The review team were told that the vehicle was too small to accommodate IMTs and EMTs at complex, large or prolonged incidents.

The MFB has a well-equipped, state-of-the-art command and control vehicle that provides spacious meeting areas for management teams, including information and media personnel. The review team believes the MFB vehicle should be available for large incidents in fringe areas of CFA jurisdiction.



Figure 5 Mobile communications vehicle (Keith Pakenham, CFA)

Tabards

The review team noted that the tabards worn on the fireground to identify the 'incident controller' did not comply with AIIMS and the EMMV. These specify that a white tabard is to be worn. Incident controller tabards worn on the fireground at TriTech were red and lime green. The lime green tabards currently used by CFA are reported to lack visibility when worn with the light-coloured Nomex protective clothing.

The wearing of incident management tabards is essential to clearly identify those who are part of the incident management structure and their roles.



Figure 6. Incident controller tabards (note: photograph taken during the handover of incident control 8.55 pm) (Keith Pakenham, CFA)

Interoperability between fire agencies

The review team heard that the MFB agency commander integrated effectively with the incident management team and that MFB resources generally operated effectively with CFA resources.

Examples included:

- Deployment of an MFB ladder platform appliance that had temporarily replaced the CFA ladder platform at Dandenong.
- MFB foam concentrate being used to supplement CFA supplies.
- MFB diesel fuel tanker assisting with the supply of fuel for MFB and CFA appliances at the scene.
- Integration of the MFB pumper appliance with CFA pumper appliances in pump relay and aerial operations.

Findings

The incident management structure aligned with EMMV and CFA standard operating procedures⁶ and provided a flexible and adaptable arrangement for the changing nature of the incident.

The role of regional controller during major urban fires and incidents is not as clearly defined as it is for bushfires.

The CFA mobile communications vehicle was reported as being too small to accommodate both the IMT and EMT at major fires and incidents. MFB has an alternative vehicle that may fulfil these requirements.

The colours of incident management tabards worn on the fireground were inconsistent with both AIIMS and the EMMV.

The MFB agency commander integrated effectively with the incident management team and MFB resources generally operated effectively with CFA resources.

Recommendations

The Fire Services Commissioner clarifies the role of regional controller for major fires and incidents other than bushfire.

The CFA works with MFB to ensure that the MFB control unit is available for responding to large fires and multi-agency incidents in fringe CFA areas.

The Fire Services Commissioner ensures that there is a single standard for the tabards worn by the IMT on the fireground and in control centres to ensure consistency and aid interoperability.

⁶ CFA SOP 8.02 – Incident Controller (CFA as Control Agency) and CFA SOP 8.04 – Transfer of Control

Control strategies

State Controller's Intent - Control Priorities

The Fire Services Commissioner's policy *State Control Priorities– State Controller's Intent*⁷ (intended to apply to all hazards) supports the command and control arrangements and provides a focus for strategic planning and development of control strategies.

The strategic control priorities provide direction and guidance for incident controllers, regional controllers and state controller, and form the basis of incident strategies and incident action planning. The control priorities are:

- (a) Protection and preservation of life is paramount
- (b) Issuing of community information and community warnings
- (c) Protection of critical infrastructure and community assets
- (d) Protection of residential property
- (e) Protection of assets supporting individual livelihoods and economic production
- (f) Protection of environmental and conservation values

Control strategies applied by the incident controller

Stakeholders described the TriTech fire as complex and dynamic, presenting fire crews with a number of challenges. The CFA operational debrief document states that control strategies were developed from the time of arrival and adapted as the fire developed and spread to the exterior bulk storage areas.

The initial strategy was containment of the fire to the area of the factory already on fire, while mounting an aggressive external fire attack to the office and adjacent factory area. As the fire spread inside the factory, the objective became containment to the factory while continuing an aggressive external attack.

Finally, as the fire spread to the yard and bulk tanks of product, the objective was to contain the fire to the site and prevent run-off of product and contaminated water while mounting a defensive external attack.

Air monitoring

The incident controller, after considering the buoyancy of the smoke plume, the products involved and a spot weather report from the Bureau of Meteorology assessed the plume as not posing a significant threat to surrounding residential areas. The wind was blowing in a southerly direction, towards non-residential areas and predicted to remain so for several hours.

He considered the use of air-monitoring equipment but believed the buoyancy and height of the plume would have prevented collection of useful data.

The EPA representative at the scene observed that the fire was creating a rising plume that didn't present exposure concerns at ground level.

⁷ FSCPOLICY001/2011

Victoria Police units in the vicinity and personnel at neighbouring CFA stations also provided the incident controller intelligence on the smoke plume.

Coincidentally, EPA installed five air-monitoring canisters in Dandenong South and Hampton Park (south of the TriTech fire) on 20 May 2011 as part of an existing joint air-monitoring program with the Department of Health. The canisters monitored ambient air at a height of two metres over a 24-hour period.

Analysis revealed traces of Acrolein⁸ in all five canisters, however the levels were found to be well below the threshold limit value⁹.

Findings

Control strategies established for the TriTech Lubricants factory were in line with the State Controller's Intent and contributed to the effective management of the fire.

The incident controller used intelligence available to him at the time regarding the smoke plume, the product involved and the weather conditions to assess the threat to surrounding residential areas.

⁸ Product of combustion of carbonaceous materials such as oils, timber, paper

⁹ The level to which a person can be exposed without adverse health effects

Multi-agency/organisation arrangements

Emergency management team

The function of an EMT is to support the incident controller in determining and implementing appropriate incident management strategies for the emergency.

The incident controller established an EMT to support the management of the TriTech fire which comprised representatives from Victoria Police, EPA, City of Greater Dandenong, Viridian New World Glass, energy authorities (gas and power), Melbourne Water, South East Water, Ambulance Victoria and the TriTech owner. WorkSafe attended the site on the following morning in relation to storage of dangerous goods.

A representative from Viridian attended EMT briefings because of the risk to the gas pipelines at the rear of TriTech, and the need to access water on the Viridian site. To manage the impact of the fire on adjoining premises, the incident controller also liaised with representatives from Engel Fridges, Daily Roast Coffee and CPC Panels and Floors.

The EMT conducted regular briefings on their agency/organisation activities. A Victoria Police member undertook the role of municipal emergency response co-ordinator (MERC).

The MERC liaised with a representative from City of Greater Dandenong in relation to providing sand.

Containment of the product and contaminated water

The TriTech fire resulted in a large quantity of water and product run-off entering the drainage system in the South Dandenong area. This was a significant issue for CFA resources and a sector was established to manage the containment of fire water run-off through the drainage system. EPA took the lead role in this sector and was supported by Melbourne Water and City of Greater Dandenong.

Collaboration between the fire services, EPA, Melbourne Water and City of Greater Dandenong through the EMT averted any significant environmental impact. Their action contained and prevented contaminated run-off from entering the Eumemmerring and Dandenong creeks.

The review heard that the actions of the Melbourne Water personnel prevented a more significant environmental impact and clean-up from occurring. The EPA commended Melbourne Water for their efforts.

The EPA estimated that this was one of the largest oil spills to have entered Melbourne's drainage system and presented Melbourne Water with a significant and costly recovery. Melbourne Water overcame many challenges to remove product and contaminated water and dispose of the contamination. It involved good collaboration between a number of waste management transport, storage and logistics service providers.



Figure 7. Sand bunding used to contain oil and contaminated water run-off (Source: Melbourne Water)

Finding

Multi-agency collaboration facilitated through the EMT, combined with local knowledge was effective in containing a large quantity of product and contaminated water run-off and avoided a much greater environmental impact.

Recommendation

That CFA, in collaboration with the other agencies develop a case study of the response to and recovery from the TriTech fire as a training and development opportunity.

Community information and warnings

The review analysed community information and warnings provided during the TriTech factory fire. The following is a summary of key themes and issues.

Issue of warnings

Information officers use OSOM¹⁰ to create and publish warnings, with the approval of the incident controller, directly to emergency broadcasters, the CFA, DSE and VICSES websites and the Victorian Bushfire Information Line. The system ensures that community, emergency services and support organisations receive the same information at the same time, from the same source.

The information officer at the TriTech fire issued information and warnings in accordance with the Victorian Warning Protocol, using the existing warning templates and systems. The review noted that warning processes, including templates, are not as well developed in an urban context as they are for bushfires. Community expectations are consistent, regardless of the emergency, in that they need to be kept informed.

For fires and incidents, other than bushfires, an information officer is contacted at home if there is a requirement for information and warnings to be issued after hours through OSOM. This is an informal arrangement that lacks structure and does not ensure the availability of an information officer, possibly at short notice.

A total of four warning messages were issued throughout the TriTech fire, starting at 10:40 pm and concluding at 10:10 am the next morning.

<u>Warning issue time</u>	<u>Warning category</u>
10:40 pm (19 May)	Advice
1:02 am (20 May)	Advice
3:12 am (20 May)	Advice
10:10 am (20 May)	Advice

The review noted that all advice warning messages incorrectly named the location of the fire as 'Ventura Place'. When preparing the warning messages, the information officer selects the appropriate location from a drop-down menu in OSOM, which at the time of the TriTech fire was Ventura Place. The location in this instance should have been amended.

Emergency broadcasting

CFA demonstrated a strong understanding of the emergency broadcasting arrangements and utilised emergency broadcasters during the TriTech fire.

Warning messages are provided in three categories: Advice, Watch and act, and Emergency warning. Under the Emergency Broadcasting Practice Note, broadcasting an Advice message is at the discretion of the emergency broadcaster.

¹⁰ Refer to glossary

Thus, some broadcasters chose to read out the four Advice messages on air, while others did not.

Major metropolitan media outlets were aware of the fire quickly. The CFA information officer responded to media enquiries at the scene and by telephone. He arranged live interviews and crosses for the operations officer (CFA) who was undertaking the role of media officer before the arrival of a CFA media liaison officer.

Warning language and timing

The review found that there was a commitment by fire agency personnel to inform the community but noted that the first Advice message was not issued until approximately two and a half hours after the arrival of the first CFA brigades.

At 10 pm, a news bulletin on ABC 774 AM radio reported that the CFA was warning residents to evacuate their homes due to the TriTech fire. This report was based on an earlier interview with a CFA spokesperson who expressed uncertainty about the chemicals present in the plume and referred to 'getting people out' of the path of the plume as it was 'better to be safe than sorry'.

The CFA media spokesperson's comments did not align with the incident controller's assessment of the smoke plume not posing a threat to surrounding residential and industrial areas.

At 10.53 pm, following the reading of the first Advice message, a 3AW newsreader stated, "they don't believe the smoke is toxic at this stage." Information relating to the toxicity of the smoke was not provided in any of the Advice messages.

The first Advice message also requested the community to 'monitor conditions', with the next warning message being released over two hours later.

Online communications

MFB and CFA media units coordinated effectively by telephone, however details of the TriTech fire did not appear on the MFB website, even though MFB appliances and crews were at the scene. The review notes that the MFB is not yet integrated with OSOM and therefore the MFB website is not automatically populated with information.

Social media was not monitored by the control agency at the incident level or used as a means of issuing warning messages. The review notes, however, that the OSOM system is now able to send warnings to social media (not available at the time of the TriTech fire).

The review team also acknowledges that an action plan developed by the Fire Services Commissioner to address recommendations from the Tostaree Review includes a program to investigate and clarify intelligence from social media and monitoring of other sources.

The focus however, should not be predominantly in the bushfire context. OESC research shows a higher volume of social media is likely to be generated in relation to an urban incident. Some agency personnel interviewed by the review team suggested that one all-hazards, all-agency website would facilitate the community's

access to warnings and information, particularly for incidents located on the urban fringe or where multiple agencies are involved.

The review notes, however, that the Fire Services Commissioner has commenced a project to identify and understand the various pieces of information and data available to emergency management agencies and the community during emergencies. The on-going implementation of OSOM will also assist in achieving consistency across agencies with VICSES recently included and MFB scheduled for integration with the system in June 2012.

Findings

The Fire Services Commissioners SOP (J4.01) – Incident Warnings and Advice applies to bushfires, and not yet to structure fires or incidents in urban areas.

Although the incident controller arrived at the incident prior to 8:30 pm, the first Advice message was not issued until 10:40 pm, resulting in a prolonged gap in getting factual information to the local community.

No warning information was posted on the MFB website although MFB resources had been deployed to the incident.

CFA 'closed the loop' in relation to the warning messages and informed the community when the fire was 'essentially out'.

All Advice messages displayed the incorrect location of the fire.

The review found the information officer was generally knowledgeable about public information arrangements and requirements.

There are no formal arrangements for around-the-clock access to information officers to ensure the timely issue of community information and warning messages for fires and incidents other than bushfires.

The emergency broadcasting arrangements did not include warning levels or templates for structure fires, only for bushfires and floods.

Some information being provided by the IMT media officer was inconsistent with the assessment made by the incident controller.

Recommendation

The Fire Services Commissioner ensures that policy, operational procedures, systems and training relating to information and warnings that have been applied to bushfires are now also applied to other emergencies. In particular:

- information and warning messages are consistent as well as relevant, timely and accurate
- a formal arrangement is established to ensure twenty-four hour availability of information officers for the issuing of information and warning messages
- advice messages are issued to the community as soon as practicable to prevent 'information gaps'.
- integration of MFB with OSOM is expedited.

Community awareness survey

Introduction

The terms of reference for this review included an analysis of the issuing of community information and warnings to assist the community make informed decisions regarding their safety.

In summary, the analysis notes that:

- the major metropolitan media outlets became aware of the fire quickly.
- based on their risk assessment that the fire plume was unlikely to pose a human health risk (the smoke was non-toxic and the plume high) the CFA issued four Advice messages to emergency broadcasters.
- Advice messages were issued by some, but not all emergency broadcasters.

The review team conducted a community awareness survey to provide a snapshot of what residents in the vicinity of the TriTech fire knew of, and about, the fire.

Methodology

The nearest houses were located approximately two to three kilometres from the fire. The review team conducted a limited, random household survey to identify resident / household knowledge of the TriTech fire, and any action taken during, or following the fire. The survey included a retirement village to the south and houses to the north and south-east of the TriTech factory.

A randomly selected sample of 125 households was surveyed by telephone. The sample comprised households that were aware of the fire, with a total of 540 calls made to fill this quota. A further 40 households in the Willow Lodge retirement village were door-knocked and surveyed face-to-face.

A principal limitation of the survey is the time elapsed between the incident and the survey / interview.

Survey Results

The survey found that, overall, 74.1 per cent of households were unaware of the TriTech fire.

Retirement Village

Of those who were aware of the fire, 84 per cent became aware the next day. Only 8 per cent (2 people) reported becoming aware of the fire while it was in progress.

Telephone Survey

Of the 125 residents who were aware of the fire:

- 38.4 per cent became aware on the night it occurred
- 6.4 per cent became aware the following day

Television was the predominant source of knowledge of the fire (33.3 per cent), with personal observation (28.7 per cent) and the radio (20.7 per cent) also primary sources of information.

Thirty nine per cent of respondents identified that they had received information about the fire (as opposed to knowing there was a fire). Of these, 43.9 per cent received their information from television and 21.1 cent from the radio. Television was a significant channel for news of this emergency.

The survey also identifies that most of the people who received information received the correct information. This included the nature of the incident, the suburb in which it was located, and safety and preventative action. A small number of people received incorrect information – in particular, that people were being evacuated and that it was dangerous. The small number of people (11) who took action, took appropriate action, that is predominantly staying indoors and closing windows.

The results of this survey must be considered in the context of the TriTech Fire being an urban, industrial fire, located in the Dandenong South Industrial Zone.

It is also important to note that, unlike a bushfire or rural fire, there is no industrial fire awareness campaign in place, nor are there recommendations or advice in relation to fire preparedness for industrial or urban fires.

The survey indicates a low level of awareness of the TriTech fire in surrounding communities. Given the level of threat and the advisory nature of messages issued by the incident controller this was not a matter of concern.

It does indicate, however, that urban emergencies may require a more intrusive strategy for issuing information and warnings. Rural communities will actively monitor information from emergency broadcasters and websites during bushfires or periods of high fire danger. This is not the case in urban areas where major emergencies occur unexpectedly and at any time.

Conclusion

Overall, the TriTech fire was managed well and in accordance with policies, protocols and procedures.

Many actions and activities worked successfully at TriTech. For example, containment of the fire to the premises, the collaborative approach employed to contain contaminated water run-off and a high level of interoperability between CFA and MFB resources.

The review team also identified opportunities for improvement and these have been included in the report.

Stakeholders are encouraged to consider the report findings and recommendations in the spirit of learning and continuous improvement.

Definitions

Agency commander	A person within an agency empowered to direct personnel and resources of the agency in the performance of its role and tasks.
Control point	An area established at an incident scene by the incident controller to oversee the management of an incident.
Emergency Broadcasting Practice Note	The Emergency Broadcasters Practice Note defines the agreed procedures for agencies and broadcasters to utilise Victoria's Emergency Broadcasting arrangements.
Emergency management team (EMT)	An emergency management team is the team which assists a controller in formulating a response strategy and in its execution by all agencies, and which assists the emergency response coordinator in determining resource acquisition needs and in ensuring a coordinated response to the emergency
Incident controller	The incident controller is a member of the control agency whose role is to provide leadership and management to resolve the emergency at the incident site. This is the agency forward controller and operates in close proximity to the incident.
Incident management system (IMS)	A system used by agencies undertaking their management responsibilities in response to an emergency. An incident management system is not a fixed set of rules, but rather a flexible and dynamic methodology, which can cater for an escalation or change in the severity of any emergency. The system is established by a <i>response agency</i> and will involve use of personnel for the various functions, which may need to be individually managed. Incident management functions might include, but are not limited to: control, planning, operations, logistics, intelligence, information, investigation, finance or administration.
Incident management team (IMT)	An incident management team comprises the <i>incident controller</i> and the personnel responsible for the other functions (principally planning, operations and logistics) forming the <i>incident management system</i> .
Municipal emergency resource officer (MERO)	A municipal appointee responsible to the municipal council for ensuring the coordination of municipal resources to be used in <i>emergency response</i> . [Act]

Municipal emergency response coordinator (MERC)	A member of Victoria Police appointed to a municipal district as municipal emergency response coordinator.
Operations officer (CFA)	Refers to an officer of the CFA rank operations officer.
Operations officer (IMT)	Refers to the function of operations officer within an incident management team (AIIMS).
Operations manager	Operational leader of a CFA District
One Source One Message (OSOM)	OSOM is the principle system used by fire services in Victoria to issue information and warnings to the community and provides simultaneous warnings and information to the community via emergency broadcasters, the CFA and DSE websites and other information mediums.
Regional call back officer	An operations officer (CFA) rostered to attend (if required) fire/emergencies on behalf of the rostered duty officer.
Regional commander	CFA function held by an operations manager within a CFA Region
Rostered duty officer (RDO)	The nominated CFA operations officer (or Manager) acting as the senior operational officer within a Region
Warning types	<p>There are three distinct levels of alerts which are to be used for community warnings within Victoria. The decision-making process will identify which of the following levels of alert will need to be issued to the community.</p> <p>Advice – general information to keep you up-to-date with developments.</p> <p>Watch and act – it is likely that you may be impacted by the emergency. You may be in danger and should start taking action to protect your life and your family.</p> <p>Emergency warning – you will be impacted by the emergency. You are in danger and must take action immediately. This message may be preceded by the Standard Emergency Warning Signal.</p>

Reference documents

BoM Spot Weather Progress Report dated 19 May 2011 @ 10.45 pm
CFA Fire Investigation Report for the TriTech Factory Fire
CFA Event Chronology
CFA SOP 8.02 – Incident Controller (CFA as Control Agency)
CFA SOP 8.04 – Transfer of Control
CFA SOP 10.22 (1/12/2007) – Hazmat Detection Arrangements
CFA SOP 9.16 – Media Management (1/7/2005)
CFA Operational Debrief Report dated 15 September 2011
CFA Post Incident Analysis
CFA/MFB – Joint Operational Activities, Memorandum of Understanding (December 2010) – including Appendices
CFA Preliminary Incident Reports for the TriTech fire
Emergency Management Manual Victoria (EMMV)
ESTA Chronology and Recorded Call Information
ESTA ECP 0022-Standard Verification Process
Fire Services Commissioner Guidance Note – Incident management, Incident Controller's Guide
Fire Services Commissioner Policy (FSCPOLICY001/2011) – Strategic Control Priorities – State Controller's Intent
Fire Services Commissioner SOP (14/09/2011) – Incident Warnings and Advice
Fire Services Commissioner SOP (FSCSOP02/2011) – Reporting of significant fires/emergencies to Fire Services Commissioner
Householders' awareness of emergency information about the TriTech fire – Strahan Research Pty Ltd
Memoranda of Understanding with Emergency Broadcasters
OESC Practice Note – Emergency Broadcasting version 3
OESC Practice Note – Emergency Management Teams, May 2009
Review of Community Bushfire Warnings Report – Molino Stewart
TriTech Lubricants Fire Dandenong-Oil Spill (Incident Report and Debrief-Melbourne Water/Thiess.
Victorian Warning Protocol

Appendix 1

Dispatch and on-scene times for the main appliances involved in the fire fight

Appliance	Dispatch	On-scene
Hampton Park Pumper 1	8:04:38 pm	8:13:10 pm
Dandenong Ladder Platform	8:05:48 pm	8:13:37 pm
Hallam Pumper 1	8:00:49 pm	8:13:40 pm
Hallam Tanker 1	8:06:55 pm	8:14:01 pm
Carrum Downs Pumper 1	8:07:55 pm	8:15:04 pm
Dandenong Pumper 1	8:05:46 pm	8:16:33 pm
Dandenong Rescue	8:08:53 pm	8:20:30 pm
Dandenong Pumper 2	8:06:15 pm	8:20:47 pm
Hallam Car	8:21:58 pm	8:29:49 pm
Frankston Breathing Apparatus	8:14:23 pm	8:30:24 pm
Hampton Park Tanker 1	8:12:36 pm	8:32:26 pm
Patterson River Forward Control	8:40:18 pm	8:51:27 pm
Frankston Teleboom	8:41:21 pm	8:52:53 pm
Scoresby Hose Layer	8:52:17 pm	9:04:00 pm
Patterson River MCV	9:10:56 pm	9:10:59 pm
Ladder Platform - 25	8:53:21 pm	9:13:52 pm
Dandenong Support	9:08:24 pm	9:15:53 pm
Dandenong Tanker 1	9:08:22 pm	9:17:50 pm
Pumper - 33	9:05:09 pm	9:21:11 pm
Springvale Pumper 1	9:31:11 pm	9:41:07 pm
Patterson River Pumper 1	9:31:44 pm	10:08:52 pm
Narre Warren Car	10:16:06 pm	10:30:50 pm
Somerville Salvage	9:51:54 pm	10:31:31 pm
Ladder Platform - 35	10:05:29 pm	10:36:19 pm
Transporter A - 10	9:45:01 pm	10:45:20 pm
Transporter B - 10	10:20:40 pm	10:55:21 pm
Cranbourne Pumper 1	10:50:04 pm	10:58:20 pm
Boronia Pumper 1	10:49:48 pm	11:06:04 pm
Hallam Hazmat	11:16:57 pm	11:25:44 pm

