

# **Independent Investigation of the Lancefield-Cobaw Fire**

---

Prepared by the Independent Lancefield-Cobaw Fire Investigation Team

© The State of Victoria, Department of Environment, Land, Water and Planning 2015

Printed by Impact Digital, Brunswick.

ISBN 978-1-74146-899-1 (Print)

ISBN 978-1-74146-900-4 (pdf)

## **Accessibility**

If you would like to receive this publication in an alternative format, please telephone DELWP Customer Service Centre 136 186, email [customer.service@delwp.vic.gov.au](mailto:customer.service@delwp.vic.gov.au), via the National Relay Service on 133 677 [www.relayservice.com.au](http://www.relayservice.com.au). This document is also available on the internet at [www.delwp.vic.gov.au](http://www.delwp.vic.gov.au)

## Table of Contents

<b>1</b>	<b>BACKGROUND</b> .....	<b>4</b>
1.1	STATE FIRE ARRANGEMENTS .....	4
1.2	PLANNED BURN ESCAPES ON PUBLIC AND PRIVATE LANDS .....	6
1.3	LESSONS LEARNED INITIATIVES .....	6
<b>2</b>	<b>CONDUCT OF THE INVESTIGATION</b> .....	<b>6</b>
<b>3</b>	<b>RESPONSE TO THE TERMS OF REFERENCE</b> .....	<b>7</b>
<b>3.1</b>	<b>The adequacy of planning and resourcing of the ‘Lancefield–Cobaw Croziers Track’ planned burn</b> .....	<b>7</b>
3.1.1	<i>Burn Planning Process and Context</i> .....	7
3.1.2	<i>Risk Management</i> .....	10
3.1.3	<i>Organisational Structures and Governance</i> .....	13
3.1.4	<i>Resourcing</i> .....	15
<b>3.2</b>	<b>The appropriateness of the weather and other conditions for conduct of the planned burn on 30 September 2015</b> .....	<b>17</b>
<b>3.3</b>	<b>What caused the planned burn to break containment lines on 3 October 2015 and on 6 October 2015</b> .....	<b>20</b>
<b>3.4</b>	<b>Decision making, management and control of the planned burn, including the adequacy of the patrol strategy adopted following its ignition</b> .....	<b>22</b>
<b>3.5</b>	<b>The adequacy of communication with the community in the lead up to the planned burn and after it broke containment lines</b> .....	<b>23</b>
<b>4</b>	<b>INTERCONNECTEDNESS OF THE FINDINGS</b> .....	<b>26</b>
<b>5</b>	<b>DISCUSSION OF THE FINDINGS</b> .....	<b>27</b>
<b>6</b>	<b>MATTERS OUTSIDE THE TERMS OF REFERENCE</b> .....	<b>28</b>
<b>7</b>	<b>ACKNOWLEDGEMENTS</b> .....	<b>30</b>
<b>8</b>	<b>REFERENCES</b> .....	<b>31</b>
<b>9</b>	<b>APPENDICES</b> .....	<b>32</b>

## Investigation Team



Murray Carter  
(Lead Investigator)



Trevor Howard



Kevin Haylock



Vivien Philpotts



Jo Richards

## 1 Background

The Lancefield-Cobaw Croziers Track planned burn was conducted by the Department of Environment, Land, Water and Planning (the Department) in the Macedon Ranges Shire in spring 2015. The 266ha burn is located approximately 10km west north west of the town of Lancefield. The Department's *Fire Operations Plan 2015/16 - 2017/18: Grampians Region* describes the planned burn's objective as:

*To provide an irregular mosaic of areas of fuel reduction which will compliment works in adjacent fuel management zones.*

The burn was ignited on Wednesday 30 September 2015. It breached containment lines on Saturday 3 October and was brought under control overnight with approximately 70 additional hectares burnt. Further breaches of containment lines occurred on Tuesday 6 October and control of the bushfire was transferred from the Midlands District to the Gisborne Incident Control Centre (ICC) that afternoon. The bushfire, when finally contained on Tuesday 13 October, had burnt over 3,000ha and destroyed several dwellings, numerous sheds and many kilometres of fencing. It had also impacted upon lifestyles, livestock and livelihoods and caused considerable economic and social upheaval in the surrounding communities.

On 8 October 2015 the Victorian Government and the Department acted swiftly in announcing an independent investigation to be led by Mr. Murray Carter, Director of the Office of Bushfire Risk Management in Western Australia. The Investigation would establish the facts and circumstances around the burn and its escapes and make findings and recommendations for improvement. The Terms of Reference and the composition of the independent Investigation Team can be found in Appendix 1.

The final report was required by the Secretary of the Department within three weeks of commencement of the investigation. While the prompt establishment and the short duration of the investigation is positive, providing the community with action and answers and the Department with recommendations for improvement soon after the incident, three weeks remains a very short time for investigating such a complex matter. It is likely that some community issues will emerge after the investigation is concluded.

### 1.1 State Fire Arrangements

The Department of Environment, Land, Water and Planning was established on 1 January 2015. It assumed the responsibilities of the former Department of Environment and Primary Industries for fire management on public land in Victoria. The Department's portfolio includes over 100 agencies, including Parks Victoria, and 1200 Committees of Management of Crown Land Reserves. Networked Emergency Organisation arrangements are also in place between the Department, Parks Victoria, VicForests and Melbourne Water to further support fire management activities.

Under the *Forests Act 1958*, the Department is responsible for the immediate prevention and suppression of fire and for planned prevention of fire in state forests, national parks and on protected public land in Victoria. The *Forests Act 1958* requires the Department to carry out proper and sufficient work in these areas to prevent and suppress bushfire. As such, the Department's fire prevention and suppression responsibilities are distinguished from those of the Country Fire

Authority (CFA), which is responsible for private land within the country area of Victoria, and the Metropolitan Fire Brigade, which is responsible for the Victorian metropolitan fire district.

The Department's fire management activities are governed by the *Code of Practice for Bushfire Management on Public Land* (Department of Sustainability and Environment 2012a), developed under the *Conservation, Forests and Lands Act 1987*. The Code of Practice establishes the principles, standards and guidelines applied to the management of fire on public land in Victoria at three levels: strategic, operational and tactical. The Code of Practice requires the Department to prepare strategic bushfire management plans that outline landscape and regional strategies for achieving Code objectives. At the operational level, the Department is required to prepare a Fire Operations Plan outlining a three year forward program for planned burning and preparedness works, and a detailed schedule for the immediate 12 month period.

The ongoing reform of emergency management arrangements following the 2009 bushfire and 2010-11 and 2012 floods in Victoria has had significant implications for the Department's fire management arrangements and activities. The *Emergency Management Act 2013* defines the majority of Victoria's current emergency management structure, roles and responsibilities, formally establishing the State Crisis and Resilience Council (SCRC), Emergency Management Victoria (EMV), the Emergency Management Commissioner (repealing the Fire Services Commissioner), and the Inspector General for Emergency Management (IGEM).

The SCRC, Victoria's peak emergency management advisory body, is responsible for developing and coordinating emergency management policy and strategy. Under the *Emergency Management Act 2013*, the SCRC is responsible for developing a rolling three-year Emergency Management Strategic Action Plan, outlining state-wide strategic priorities, investment, and principles for government and the emergency management sector. The Emergency Management Strategic Action Plan requires the development of an annual works program for legislated agencies, including the Department, to support delivery of actions and to align them with organisational priorities and business planning.

The Department's legislative responsibilities are reflected in the Emergency Management Manual Victoria (EMMV), which establishes the Department as the control agency for fire in state forest, national park and protected public lands. The EMMV further establishes the Department's roles in the prevention of bushfire, development of policy and programs for bushfire planning, prevention and response, provision of support to other nominated agencies in these activities, and in the rehabilitation of public lands.

There are many forward looking and positive aspects of the Victorian state arrangements. The emphasis on interagency integration and interoperability is a sound basis for fire and emergency management going forward. While many of the arrangements are relatively new and are yet to fully evolve and mature, from a bushfire viewpoint the focus remains largely on response, suppression and incident management across a wide range of land tenures.

## 1.2 Planned Burn Escapes on Public and Private Lands

Planned burning, while being an effective and essential bushfire risk treatment, has an element of inherent risk. Control issues and escapes have occurred in the past on both public and private lands. Departmental records show that for the tenures it manages, escapes over the last decade have been from a very small percentage of the planned burns conducted overall:

*Table 1: Percentage of escaped burns on public land*

	<i>Total Burns</i>	<i>Total Escapes</i>	<i>Percentage</i>
2014/15	670	10	1.50%
Last 5 years	3371	20	0.59%
Last 10 years	6427	71	1.10%

Escapes also occur on other tenures. On 6 October 2015, the second day of escapes from the Lancefield-Cobaw burn and the earliest Total Fire Ban on record in Victoria, records of the State Control Centre show that over 40 calls were made to authorities regarding re-ignition, escapes and other issues associated with planned burns on private property which were causing alarm in the community. This is in addition to many new bushfires starting and developing that day under difficult fire weather conditions.

## 1.3 Lessons Learned Initiatives

EMV has put in place a number of modern and strategic initiatives such as the State Review Team which has a role in distilling observations from incidents, coaching emergency managers, and providing a hub for the sharing of lessons learned. EMV, in collaboration with the Department, has already made some progress in applying this approach to planned burning. A staff learning package titled *The Cobaw Staff Ride* (Department of Environment, Land, Water and Planning 2015a) was developed in 2012 to capture and share lessons from an escaped burn in 2003 in the vicinity of the 2015 Lancefield-Cobaw burn. This is one of only two bushfire-related staff rides in Victoria and the only one that focuses on planned burning.

Planned burning in complex forested environments requires skills, knowledge and experience that can only be gained over many years in the field making training, development, mentoring and succession planning critical for the maintenance of a capable workforce into the future. Staff rides and other such initiatives can make an important contribution to operational learning. The Investigation Team urges the Victorian Government to develop these initiatives further and to broaden their application to all aspects of burn planning, preparation, implementation and review.

## 2 Conduct of the Investigation

The Lancefield-Cobaw Fire Investigation commenced on Thursday 15 October. Investigation methods included analysis of the Department's overarching doctrine, systems, processes and tools, their application at the state level and in the Grampians Region and the Midlands District. Interviews were conducted with staff in a range of positions and operational roles at all levels of the Department. This included the partner agency Parks Victoria. Interviews also involved some members of the CFA who filled operational roles in responding to the escapes.

Community input was given a high priority and numerous avenues and opportunities were provided. The Investigation Team identified and contacted key community representatives and also arranged face-to-face individual and group meetings and facilitated discussions with others. The Team also attended a number of public meetings. Team members were largely based in the local area during the investigation.

Community members were encouraged to provide written submissions to the Investigation Team via an email address. These were analysed to extract issues relevant to the Terms of Reference, to identify community members seeking access to the Investigation Team or those from whom the Team could seek clarification or further information, and to chronicle matters beyond the scope of the investigation which nonetheless warrant further attention.

A survey to gather community perspectives about the planning and conduct of the burn was planned and designed with input from a range of contributors. This was distributed at the Lancefield Agricultural Show on Sunday 18 October. It was also mailed to residents in the fire-affected area and made available at key locations throughout the Lancefield region. Responses were due by 24 October to coincide with the Lancefield Farmers Market and to ensure that the surveys could be analysed and the outcomes used to provide substance to the report and to accurately reflect the views of the local community. Strong community interest led to the Investigation Team extending that deadline to 28 October.

Matters outside the scope of the investigation have been captured, distilled and documented. These have been referred to EMV for follow-up and in some cases referral to another agency or body. Some issues may require a multi-agency resolution.

## **3 Response to the Terms of Reference**

### **3.1 The adequacy of planning and resourcing of the ‘Lancefield–Cobaw Croziers Track’ planned burn**

#### **3.1.1 Burn Planning Process and Context**

The process for planning the Department’s burns is set out in various documents and components of doctrine. At a high level many of the broad concepts, principles and strategies are articulated in the *Code of Practice for Bushfire Management on Public Land* (Department of Sustainability and Environment 2012a) and the *Bushfire Management Engagement Strategy 2014-18* (Department of Environment, Land, Water and Planning 2015b). Details to guide regional and district staff in preparing, approving, implementing and reviewing burn plans are contained in the *Fire Management Manual 10.1: Planned Burning* (Department of Sustainability and Environment 2012b). The Investigation Team was advised by the Department that this manual is currently being revised.

Departmental burn planning broadly commences with burns being nominated for inclusion in the Fire Operations Plan (FOP). The FOP is a rolling three year plan that is reviewed and approved annually by the Regional Director with each regional plan being amalgamated into a single state plan. It is usual for more burns to be nominated for each year than are likely to be conducted. This provides operational flexibility in the selection of burns to match weather conditions and windows



of opportunity. The planned burn under investigation first appeared on the Grampians Region FOP in 2012/13. After inclusion on the regional FOP, planning for each individual burn occurs over several months.

For planning and land management purposes the landscape is divided into four zones intended to protect assets, moderate bushfire intensity in adjoining areas, manage broader landscapes for biodiversity and other values, or exclude fire. The zoning and burn planning process sets objectives, determines the prescription to achieve those objectives based on fuels, weather conditions and lighting patterns, identifies values and stakeholders, assesses risk and develops a works program that deals with issues such as boundary preparation, hazardous tree assessments, signage and associated actions. When the specific plan is completed and approved for commencement, the burn is scheduled for ignition when suitable conditions appear likely.

Planning for this burn took account of the tenure, the landscape zoning framework and other factors. The Lancefield-Cobaw burn is in state forest within a Land Management Zone. It is classified as open forest with Messmate Stringybark (*Eucalyptus obliqua*) as the dominant overstorey species. Based on the zoning, land management and burn objectives, a planned burn coverage and mosaic of 50-69% was determined and a standard prescription was applied for achieving those objectives in that vegetation type during spring.

According to the Department’s doctrine the process for a burn plan to move through FireWeb, (the Department’s online web-based operational management reporting and communication tool for fire), towards ignition requires a series of planning statuses to be authorised. The District Manager and the nominated Burn Officer in Charge (OIC) are responsible for this including seeking the relevant approvals and authorisations. For a burn at district level the District Manager has the ability to delegate authority to the Fire Manager or another nominee in writing. Table 2 reflects the planning statuses and dates for this burn:

*Table 2: Planning statuses and approvals*

<b>Status</b>	<b>Date</b>	<b>Authority</b>
Nominated	2012/13	Fire Manager
Burn Plan Complete	21 August 2014	Fuel Management Officer
Proposed	1 July 2015	Fuel Management Officer
Planned	1 July 2015	Fuel Management Officer
Scheduled	25 September 2015	Acting Fire Manager
Ready	29 September 2015	Acting Fire Manager
Ignition Authorised	29 September 2015	Not Clearly Identified
Ignition	30 September 2015	Burn Controller

The Investigation Team found that in the planning and authorisation of the Lancefield-Cobaw burn some tasks were not finalised in FireWeb. In some cases the delegation of authority was not documented or clearly articulated. This does not mean the tasks were not completed however it was difficult for the Investigation Team to identify the completion of tasks due to the nature of the burn plan which serves as more of an authorisation checklist than a plan for conducting burn operations.

During the investigation much comment and discussion by the Department's staff and local community members focused on the issue of autumn versus spring burning. At present approximately 80% of the Department's burn program is conducted in autumn. Spring burning can have fewer long periods of stable weather than autumn and the onset of bushfire conditions normally occurs in late-spring. The autumn burning season may have more stable weather and conditions more conducive to burn control, although post-summer fuel conditions mean that it can be difficult to achieve such a mosaic. Spring burning following winter rainfall can provide conditions suited to the particular objective of this burn. There is uncertainty and risk though in relation to having patches of unburnt fuel adjoining burnt areas with the potential for re-ignition, so additional and ongoing patrol and surveillance is a requirement going into the summer bushfire season.

A common response from some staff interviewed who had responsibility for planning part of the burn was that in spring the surrounding area was green paddocks, but in reality this burn is surrounded by public and private forest, much of it long unburnt. The burn plan contains little information about the surrounding area, the fuels outside the burn, neighbours and the broader context. It will be stated throughout this report that the focus of the Department in relation to the Lancefield-Cobaw burn was clearly on its own tenure with inadequate attention to external considerations. The Investigation Team does however note that processes are afoot to shift bushfire risk management, and therefore burn planning, to a broader landscape approach (Department of Environment and Primary Industries 2014). This will provide some impetus for change however significant cultural and procedural shifts within the Department are also required to increase the focus on external factors and contingency planning.

There is also a broader social context within the wider area surrounding the burn and the Cobaw Ranges in which views differ about the need for fuel management and planned burning, and the extent to which these activities should occur. Climate trends, environmental changes and the need to monitor and manage associated risks through time were issues raised by several people. Many people in the community emphasised to the Investigation Team the alternatives to planned burning that might be available, some of which have been canvassed in a recent Victorian Government report (Inspector General for Emergency Management 2015). In broadening its focus the Department should consider that planned burning, at varying scales, is just one of many options in managing fuels, landscape risk, multiple tenures, diverse land uses and incorporate community perspectives. The Department should engage with EMV in seeking and implementing solutions to improving landscape scale bushfire risk management.

Planned burning targets were also the subject of much discussion in relation to this burn. Some community members expressed concerns about the focus of the Department being on hectares rather than risk. They suggested that burns were scheduled to meet targets, potentially compromising safe operations. The relative merits of achieving hectare targets and managing landscape risk has been the subject of a recent review and report (Inspector General for Emergency Management 2015). The topic was also discussed with staff during interviews. The Midlands District Fire Manager indicated that while there is an organisational imperative to implement the planned burning program there is "no pressure to do any burns in an unsafe manner to meet targets".

## Findings

- 3.1.1.1 The burn planning process does not produce a plan that adequately portrays the surrounding area and the associated fuels, assets and values.
- 3.1.1.2 The Cobaw State Forest exists in a heavily vegetated broader landscape consisting of multiple land tenures, private forest and farm land, and a network of road reserves under different jurisdictions.
- 3.1.1.3 There is a broader social context in which views differ about the need for fuel management and planned burning, the extent to which these activities should occur, as well as the alternatives that might be available.
- 3.1.1.4 The adequacy of land and fire management varies significantly across that landscape ranging from well managed fuel-reduced parcels of land to extensive and interconnected tracts of forest with heavy fuel loads.

## Recommendations

- 3.1.1.5 The Department must adopt a tenure-blind approach to the management of bushfire risk including the planning of burns.
- 3.1.1.6 In broadening its focus the Department should consider planned burning as just one of many options in managing fuels, landscape risk, multiple tenures, diverse land uses and must incorporate community perspectives.
- 3.1.1.7 The Department should engage with EMV in seeking and implementing solutions to improving landscape scale bushfire risk management.

### 3.1.2 Risk Management

The Investigation Team found some significant shortcomings in the organisation's burn planning processes and systems as well as their application to risk assessment and management for the Lancefield-Cobaw burn. This particular planned burn had been on the Grampians Fire Operations Plan since 2012/13. It was carried forward several times with some boundary changes. There is no evidence however that the risk assessment process was reviewed each time or that there is any trigger or requirement for doing so.

The planning process clearly identified the fuel hazard within the planned burn area to be extreme, with a very high bark hazard and a very high elevated fuel hazard. While many staff members were aware of the heavy forest fuels beyond the planned boundary it is evident that the formal fuels assessment process does not take adequate account of fuels outside the burn. This narrow focus is deficient. It is a source of uncertainty and risk and prevents a more meaningful risk assessment from being completed.

The Department's risk assessment tool and process is largely mechanical and spreadsheet-based giving an illusion of rigour but providing many opportunities for subjective judgements to be made and compounded. Many personnel indicated that it is difficult to understand the process which has no practical or operational application. One experienced Burn OIC stated that he repeats the risk

assessment process to be confident in it whenever he is required to implement a burn plan that someone else has prepared. This is evidence of good practice at an individual level that should be embedded in systems and procedures so that it becomes the norm.

The risk assessment tool and process rated the consequences of an escape from this particular burn as minor and the likelihood as very likely. This gave a risk level rating of moderate for the burn. Despite the overall fuel hazard assessment as extreme, the assessment of a very high likelihood of escape, and the fact that there had been a well-known previous escape from a planned burn in the Cobaw State Forest in 2003, this burn was assessed as requiring only district level approval.

The Department is committed to applying the *International Organization for Standardization 2009, ISO 31000:2009, Risk Management – Principle and Guidelines* (Department of Sustainability and Environment 2012a) to all aspects of its fire management business including planned burning. That standard sets out some sound principles that need to be firmly embedded in any organisation's processes and culture at all levels. Those principles of risk management are:

1. Creates value;
2. Integral part of organisational processes;
3. Part of decision making;
4. Explicitly addresses uncertainty;
5. Systematic, structured and timely;
6. Based on the best available information;
7. Tailored;
8. Takes human and cultural factors into account;
9. Transparent and inclusive;
10. Dynamic, iterative and responsive to change and
11. Facilitates continual improvement and enhancement of the organisation.

ISO 31000 sets out a risk management process with the primary step being to establish the context whenever a risk assessment and evaluation is done. The international standard also defines risk as the effect of uncertainty on objectives.

There are clearly many uncertainties that could have affected the achievement of organisational and burn objectives for the Lancefield-Cobaw burn, and it is also clear that establishing the context has not been done satisfactorily. If the history of fires and burn escapes in this area had been adequately captured in the planning process together with a broader focus on surrounding fuels and the technical challenges of burning in such an environment, then the complexity, uncertainties and risks should have been more explicit. Properly establishing the context in which the burn is to be undertaken would have provided a more comprehensive foundation for the risk assessment process which should have also necessitated a higher level of approval for this particular burn.

As a result of the flawed risk assessment process only a small number of district staff seemed to have an adequate appreciation of the burn. It is certainly evident that senior managers at regional and state levels have limited knowledge or understanding of this burn, its complexity and risk. It is highly desirable that they have an appreciation for burns of this nature. The Investigation Team

considers that this is not a simple, low risk burn that warrants only district level approval and oversight.

One aspect of burn planning and preparation that was appropriately considered and reviewed prior to ignition is the hazardous tree assessment and associated works. Following the tragic loss of two firefighters at a fire in Harrietville on 13 February 2013, the Department has had a heightened focus on identifying and dealing with trees on burn boundaries that might cause a hazard for personnel or burn security while retaining some large trees for habitat purposes. The boundary preparation works undertaken by the district for the Lancefield-Cobaw planned burn were audited by the region in February 2015.

## Findings

- 3.1.2.1 The risk assessment process did not adequately consider the context including the historical factors, the broader forested environment, technical and operational challenges, and the potential social and economic impacts beyond the immediate area.
- 3.1.2.2 A more comprehensive and transparent risk assessment process should have resulted from the above foundation.
- 3.1.2.3 The complex nature of this burn was not evident to planners, and did not appear to be communicated in a form that could be readily digested by managers, some of whom may not have technical fire backgrounds.
- 3.1.2.4 A more comprehensive planning process and risk assessment would have required a more appropriate and higher level of approval.
- 3.1.2.5 There was very little higher level scrutiny that may have detected, questioned and challenged many aspects of this burn at all stages.
- 3.1.2.6 The process of auditing hazardous tree assessments and associated works is a relatively new but sound practice that should be extended to include other parts of burn planning and implementation.

## Recommendations

- 3.1.2.7 The Department should undertake a thorough review of the risk management and approvals processes.
- 3.1.2.8 The risk assessment process and its outputs should be clear and comprehensible, able to be understood, reviewed and challenged by operational practitioners, and senior managers without fire backgrounds, as well as technical burn planners.
- 3.1.2.9 Context setting and contingency planning should be specifically included within the reformed risk management processes.

3.1.2.10 Clear rules and triggers should be established to ensure that burn plans are reviewed whenever the risk profile changes due to circumstances such as significant changes to boundaries, abnormal seasonal conditions, adjoining development or land use changes.

3.1.2.11 A burn scheduled for ignition must have a current and useful risk assessment.

3.1.2.12 The approach to audits of hazardous tree assessments and associated works should be extended to other aspects of burn planning, preparation and implementation.

### 3.1.3 Organisational Structures and Governance

At a district level the burn planning process is disconnected from the operational implementation of that plan. Of particular concern is the small number of experienced operational personnel associated with burn planning. In some cases the Burn OIC is involved throughout the planning process however often the Burn OIC is provided with a plan that he or she has not prepared. This was evident to some extent in the case of the Lancefield-Cobaw burn although it should also be noted that experienced Burn OICs with familiarity with burning in the Cobaw State Forest were in charge of lighting operations. One of these Burn OICs was from the Department while the other was from Parks Victoria.

There is inadequate oversight, integration and accountability for all aspects of burn planning and implementation. The district organisational structure includes a Planning Manager, an Operations Manager and a Fire Manager reporting equally to the District Manager. This creates uncertainty surrounding accountability. The approach appears similar to an assembly line without systematic overall quality control. Different sections and positions contribute to the planning process, producing a burn plan that seems largely designed to gain approval rather than being a plan that is of operational use. Individual officers may provide such oversight but there is insufficient organisational commitment, systems or processes to ensure integration and continuity during absences of key personnel and to ensure strategic thinking and attention to detail.

There is also a lack of peer review. An officer may plan the burn including conducting the risk assessment while occupying one position, and then approve the burn for commencement and schedule it for ignition while acting in another position. That officer can then fill a critical role in the operational chain of command such as Duty Officer and/or Burn Controller, approving the burn for ignition, determining levels of resourcing and managing its implementation, including dealing with escapes. This situation, which is inadequate from a risk management perspective, did occur in relation to this burn and fails to provide adequate and proper safety nets.

A decade ago the Emergency Services Commissioner (Emergency Services Commissioner 2005) conducted an examination of prescribed burning practices in Victoria focusing on the former Department of Sustainability and Environment following an escape from a planned burn at Wilson's Promontory. He found that:

*Departmental processes do not systematically ensure that shortcomings are identified by others and rectified at the time or prior to commencement of individual burn plans. Ensuring that processes are in place to prevent an individual who*

*prepares a burn plan also approving or authorising it in another capacity is a simple step to strengthen the [risk management] process at the planning stage.*

The Investigation Team found in the Midlands District in 2015, that the inadequate processes highlighted in 2005 remain unchanged.

The concerns about district structures that are not optimised to provide for effective integration of burn planning and operations as well as good governance and risk management extend to the overall structure of the Department's fire business. At a regional level the Grampians Region has a Planned Burning and Roding Manager with some integrated oversight for planning and operations which is sound. However, while the Midlands District reports to the Grampians Region for fire management purposes, the area is geographically part of the Loddon-Mallee Region with other reporting relationships as well.

At the state level there is a separation of the fire, land and emergency management business into three separate arms of the Department: the Office of the Chief Officer, Fire and Emergency Management, and Regional Services. In this context some of the shortcomings associated with planned burning identified at a district level may be a reflection of deeper underlying structural issues. District, region and state structures require review to provide clarity and efficiency in the chain of command for planned burning. The Investigation Team was unable to answer the basic question: who is in charge of planned burning?

## Findings

- 3.1.3.1 The regional and district delivery model for fire management including planned burning is strongly supported.
- 3.1.3.2 State, regional and district structures are not optimised for effective and efficient governance and risk management for planned burning.
- 3.1.3.3 The separation of planning and operations in district structures does not provide for effective end-to-end processes and integration of components and outputs.
- 3.1.3.4 While there are Planned Burning and Roding Managers at the state and regional levels this is not the case at the district level.
- 3.1.3.5 There is inadequate district and regional oversight and accountability for all aspects of burn planning and implementation.
- 3.1.3.6 Poor oversight and risk management extend to corporate risk as well. Procedural shortcomings that were identified in a 2005 review of planned burn escapes and prescribed burning practices still exist in the Midlands District in 2015.

## Recommendations

- 3.1.3.7 A review of the organisation's structures and processes at state, regional and district levels should be undertaken to better integrate operational burn planning and operational implementation and to provide sound governance, risk management and quality control.

- 3.1.3.8 Burn OICs with appropriate knowledge and experience commensurate with the nature and complexity of the fuels and planned burn operations should be actively involved from the beginning of the planning process.
- 3.1.3.9 To the maximum extent possible given numbers and availability of suitable staff across partner agencies, there should be a single Burn OIC to provide operational continuity across days of ignition and burn management.
- 3.1.3.10 An audit and quality assurance function should be established to maintain standards, facilitate continual improvement and to manage risk at all levels of the organisation.

#### 3.1.4 Resourcing

The burn occurred at a time of the year when many resourcing arrangements at state, region and district levels were not in place. Project Fire Fighters (PFF) are normally employed on contract each year throughout the summer bushfire season and into the autumn planned burning period. They are engaged for the spring burning program as well, but were not in place at the time of the Lancefield-Cobaw burn. The point of annual commencement, and the span of weeks and months across the seasons, depends each year on the seasonal outlook and situational awareness, direction from the state level and budgets. Engagement of PFFs in spring can also mean that staff time is devoted to inductions and training during narrow windows of opportunity for burning.

To some extent operational involvement in fire management, and out of hours fire duties including planned burning, are voluntary within the Department for many positions and staff. Some may opt out of participation leaving others to carry the burden for the planning and implementation of the burn program. Over the last two years the number of individual public servants within the Department claiming Fireline Allowance has fallen, indicating that there are fewer active operational fire staff than before.

At the time of this burn, roster and standby arrangements that are also triggered by time of year and seasonal conditions had not been established for spring 2015 in the Midlands District. In the absence of routine standby arrangements resourcing for burns and bushfires has to be anticipated and put in place on an *ad hoc* basis. However, the Investigation Team established that the burn was resourced on successive day and night shifts from initial ignition on Wednesday 30 September through to its second major escape on Tuesday 6 October when control was transferred to the Gisborne ICC. Night shift resourcing is a sound practice and a lesson learned and implemented by the Department following the 2003 planned burn escape in the same area and the Cobaw Staff Ride that was developed.

Resourcing also affected burn preparation. One of the experienced Burn OICs involved in the burn ignition requested permission to conduct candling operations in the weeks leading up to the burn. This was not granted in part due to weekend resource availability, although the suitability of conditions at the time was also questioned. Candling is a process for reducing bark fuels around the perimeter of the burn by burning that bark on days prior to the main ignition when suitable conditions occur. There is no evidence to suggest that candling would have prevented the escapes on 3 and 6 October, but it is clear that the very high bark fuel hazard was a significant factor in controlling the burn and maintaining burn security.



One Sector Commander described the bark hazard in long unburnt fuels outside the burn area as “requiring a new category above extreme”. In describing the circumstances which are believed to have contributed to the 2003 Cobaw escape, the investigation report (Department of Environment, Land, Water and Planning 2015a) notes:

*The fuel loads in this burn were very high to extreme. The extreme amount of Stringybark fuel was a significant problem [for control]*

While the burn was resourced in the days and nights following ignition, resourcing levels were not adequate. There is evidence that resources were minimal and based on everything going according to plan. This is a source of risk as operational demands in excess of routine activities will divert resources from sectors and tasks leaving the operation under-resourced overall. During ignition days a number of experienced personnel, including Burn OICs, indicated that resources were inadequate and that when escapes occurred and the workload increased this impacted on critical tasks such as mopping up and blacking out. Minimal resourcing levels were in place for the Lancefield-Cobaw burn, and this was exacerbated over coming days by failing to adequately scale up when the situation deteriorated, breaches of boundaries occurred and fire weather forecasts indicated changing and unfavorable conditions.

Interviews also revealed that there is a resignation by staff that district resources and budgets are tight and this may result in resources at a burn being "thin". The Investigation Team noted that many of the staff interviewed commented that the resourcing for the Lancefield-Cobaw burn was not optimal however "we do what we can with what we have" or "we are just used to managing with what we have".

Community views around planning and resourcing are strong. Forty respondents to the community survey suggested that consultation with local CFA brigades would help to avoid poor decisions in the future. Key people in the community and CFA with knowledge and experience in the terrain, weather and history of the area could have contributed greatly to decision making processes. Many respondents to the survey also commented that once the fire had broken containment lines on Saturday 3 October that every available resource should have been used to control the fire to avoid a major bushfire that could occur with the weather conditions expected for Tuesday 6 October. While the Department did increase resources to control the breach of containment lines on Saturday, from a community viewpoint there seems to have been no adequate appreciation of the seriousness of the situation.

## Findings

- 3.1.4.1 Levels of resourcing for the Lancefield-Cobaw burn were minimal and inadequate given the seasonal outlook and the level of risk, which had not been properly assessed or taken into account.
- 3.1.4.2 Resourcing was a factor in not conducting candling operations in preparing this burn in the weeks prior to the main ignition.
- 3.1.4.3 From the first ignition, resources were insufficient to manage the burn and to maintain burn security when additional pressures such as escapes occurred.

- 3.1.4.4 Despite early engagement with the CFA and an invitation by the Midlands District Fire Manager in the months leading up to the burn, local CFA volunteer brigades were not invited to participate and may have been available if requested.
- 3.1.4.5 The resourcing of night shifts for planned burns is a positive step and an indication that the Department has learned some lessons from previous escapes and associated recommendations.

### **Recommendations**

- 3.1.4.6 Planning for resources must include any works necessary for the preparation of burns prior to the main ignition.
- 3.1.4.7 Indicative resourcing of burns must take account of the risk assessment and also provide for operational contingency planning.
- 3.1.4.8 Burn OICs must be fully involved in determining appropriate levels of resourcing for different operational phases and shifts.

## **3.2 The appropriateness of the weather and other conditions for conduct of the planned burn on 30 September 2015**

The Department has a contract with the Bureau of Meteorology (BoM) for fire weather services and a number of arrangements are in place to make tools, forecasts, observations and meteorological advice available to fire planners, decision makers and operational staff. There is a state fire weather teleconference at which a BoM duty forecaster in the State Control Centre discusses the weather forecast for the days ahead. At peak periods of the year this teleconference is held at 13.00 daily, whereas at other times of the year it is held twice a week on Mondays and Thursdays. When the Lancefield-Cobaw burn was conducted the twice a week schedule was in place. This teleconference is also used to discuss and plan burns in the days ahead as well as to deal with resourcing requirements in excess of local district capacity. The Regional Agency Commanders routinely attend this teleconference while district participation is optional but common and a good practice.

Four day fire weather forecasts are made available daily to fire personnel through the Department's FireWeb intranet site. These are tailored for bushfire purposes and are not sufficiently detailed for planned burn ignition and management without other inputs to decision making. FireWeb does provide regular Fire Behaviour Estimates for Planned Burning. This product is based on generalised weather estimates for a fire district from the gridded weather model which are fed into the McArthur Leaflet 80 (McArthur 1962) prescribed burning tables to produce an estimate of the rate of spread and fire intensity over the following days. This would be a general tool for burn planning, but it is only calculated for a small number of regional locations and might not pick up important local issues that could potentially affect fire behaviour at a specific burn site.

The BoM website has a registered user section with a range of other information and tools available. Personnel make regular use of the relatively new BoM MetEye tool which allows forecast data to be viewed for particular places and periods. In addition to the standard tools and information, spot forecasts for specific locations can be requested from BoM. These are often obtained for bushfires

and planned burns and they provide additional weather parameters and detailed information upon which to make decisions and monitor conditions at different times of the day. Duty Officers, Burn Controllers and others also have telephone access to the BoM duty forecaster to seek advice and to discuss spot forecasts or observations from the field which differ from the predicted conditions and fire weather parameters.

The context of interpreting and applying short-term weather forecasts must also be considered and the state of the landscape is an important and broader consideration. Fire history records and mapping show a diverse range of fuel ages in some areas adjacent to the burn, mainly to the west, while within the planned burn area and for large tracts of surrounding forest there is no recorded fire history. A portion of the planned burn on the south west, which was excluded from ignition on 30 September due to operational decision making, had been burnt in the 2003 escape. The fire history for other large parts of the forested Cobaw landscape is consistent with the assessment of fuel conditions within the burn as extreme overall including a very high bark hazard.

Other conditions such as long term trends in soil dryness and drought indices are also factors for consideration. Local farmers and landowners have reported that following a 10 year drought, with some recovery and even flooding over the last three years, there have been no significant stream flows in 2015. The BoM Drought Report (Bureau of Meteorology 2015a) does illustrate serious rainfall deficiencies for western and central Victoria for timeframes of 5 months, 15 months and 36 months. On that basis poor moisture recharge of deep litter beds and coarse woody fuels over the winter, and above normal fuel availability early in the spring could be expected. This situation would fit with a greater difficulty of control and mop-up, particularly in old fuels and on southern aspects.

A recording of the state fire weather teleconference for Monday 28 September indicates that a high pressure system over the area by Wednesday 30 September would bring warm northerly winds and very dry conditions by Friday 2 October and for the days immediately following. The burn proceeded on Wednesday 30 September with ignition on the first and second days. The state fire weather teleconference on Thursday 1 October confirmed that Friday, Saturday and Sunday would be warm and very dry, with Monday expected to be drier and with strengthening winds on Tuesday 6 October. At the teleconference on Thursday 1 October, the State Agency Commander cautioned all regions and districts to review burns given the outlook for the days ahead and to ensure that they are “completely stitched up” with no control issues by Monday 5 October.

Fire weather forecasts issued by BoM from the morning of Wednesday 30 September for the North Central Fire Weather District, which includes the Cobaw Ranges include conditions forecast for Saturday 3 October, four days later (Appendix 2). The forecast remained stable throughout the outlook period indicating winds northerly at 25-35 km/h with maximum temperatures of 28°C or slightly warmer and a Fire Danger Rating of Very High for the Saturday.

Gridded weather forecast data, available from Thursday afternoon, includes surface level relative humidity. This data shows that the forecast relative humidity on Saturday 3 October would see most of the state being under the influence of dry air with a relative humidity of 30% or less, and a large pool of drier air in the north west of the state, potentially encroaching on the Cobaw area.

Negative dew points were recorded by the Automatic Weather Station at Redesdale on Saturday 3 October which would have certainly contributed to the relative humidity being low on a day of moderate temperature (28-30°C). However, dew points around zero or below would be consistent with north-westerly winds in this part of Victoria, even in late September. The drying conditions experienced on the Saturday were foreseeable and would have been exacerbated by drought factors and fuel availability.

For a burn of this level of risk, given fuel conditions, fire history, rainfall deficits and other factors, obtaining spot forecasts for the days of ignition and burn control would be a sound practice for a Duty Officer and/or Burn Controller. This was not done and no call was made to the duty forecaster. The only spot forecast for the Lancefield-Cobaw burn was obtained on the afternoon of Tuesday 6 October after multiple escapes and when it had already become an active bushfire. The lack of a spot forecast is also surprising given the prominence, scrutiny, commentary and other lessons learned from the Cobaw burn escape in 2003. In his 2005 report (Emergency Services Commissioner 2005) on prescribed burning practices the Emergency Services Commissioner notes:

*The importance of obtaining accurate weather forecasts for the local area is also exemplified by the Cobaw escape. The Cobaw burn was on a high elevation site and the weather was forecast from a lower elevation automatic weather station. The forecast did not pick up on abnormal localised weather conditions that became a significant factor relating to fire behaviour.*

The appropriateness of weather and other conditions for burning on Wednesday 30 September is a complex issue. Many aspects of the weather from Wednesday to Saturday were typical of spring and would have provided an opportunity for planned burning. The Lancefield-Cobaw burn must be considered in the context of the information available at the time, the four day forecast and the number of days required to conduct and secure the burn. In this case the extensive heavy fuels and the drought affected landscape, together with the outlook for northerly winds and very dry conditions across the area by Friday, would have combined to create additional uncertainties regarding the achievement of burn objectives at that time, given the operational imperative for igniting and securing this burn within the narrow window of opportunity.

Certainly the warm weather experienced during that period was above average for that time of year. The BoM issued a Special Climate Statement (Bureau of Meteorology 2015b) on the heat event of early October 2015. However, given all of the other information available including rainfall deficits and drought conditions, and the bushfire seasonal outlook (Bushfire and Natural Hazards CRC 2015; Emergency Management Victoria 2015), state arrangements to support planned burning in spring were minimal. Expertise and capacity for fire weather analysis had decreased in the Midlands District in the period prior to the burn. At the state level the frequency of the fire weather teleconferences remained at twice a week. Many of the fire weather products and supporting services are intended for fire danger awareness and summer bushfire preparedness so there is a reliance on districts to obtain appropriate products such as spot forecasts, to make calls to the duty forecaster, to undertake fire behavior analyses and to monitor daily conditions.

## Findings

- 3.2.1** The burn was scheduled by the Acting Fire Manager on Friday 25 September for ignition when suitable conditions occurred.
- 3.2.2** The state fire weather teleconference on Monday 28 September made it clear that a high pressure system over the area by Wednesday would see warm northerly winds and very dry conditions experienced on Friday 2 October and successive days.
- 3.2.3** The standard daily and four day weather forecasts provide information suitable for fire danger awareness and bushfire preparedness but do not provide sufficient details for burn planning and monitoring such as wind strength, wind direction, relative humidity and dew points at different times throughout the day.
- 3.2.4** For a burn of this level of risk, given fuel conditions, history and other significant factors, obtaining a spot forecast for the day of ignition would be a sound practice for any Burn Controller to obtain sufficient information on which to make decisions and to monitor conditions throughout the day. This was not done and is a major shortcoming.
- 3.2.5** The state of the landscape with regard to drought factors would have contributed to control and mop-up issues in the drying cycle, especially with negative dew points on the Saturday following ignition.
- 3.2.6** Igniting this burn on 30 September 2015, in heavy fuels, in the absence of the best available weather information, and with a narrow window of opportunity before very dry conditions, added further uncertainties to the achievement of burn objectives.

## Recommendations

- 3.2.7** Greater attention to drought factors and their interactions with forest fuels and forecast weather needs to be made when conducting planned burns.
- 3.2.8** The requirement for obtaining spot forecasts for planned burning should be linked to complexity and risk with appropriate oversight in place.

## 3.3 What caused the planned burn to break containment lines on 3 October 2015 and on 6 October 2015

Procedures for investigating escapes from planned burns are dealt with in section 6.4 of the *Fire Management Manual 10.1: Planned Burning* (Department of Sustainability and Environment 2012b) which states that all suspected escapes must be investigated and reported in accordance with the relevant guideline. Guideline 10.1.11, which forms part of the manual, categorises the magnitude and seriousness of escapes and sets out triggers for levels of reporting and investigation. Categories 3 and 4 fit with the circumstances of the escapes on Saturday 3 October and Tuesday 6 October respectively. Category 4 mandates a cause and origin report by a fire investigator.

A fire investigation in accordance with the normal procedural requirements outlined above was not done for the Lancefield-Cobaw burn escape. The Department has however accepted that the planned burn did escape on those dates.

On Saturday 3 October the burn breached containment lines during the afternoon. The burn escape was on the southern edge in an area that had burnt out quite cleanly on the first day of ignition. There had been some spotting reported from the initial lighting at that location. One of the issues noted by personnel who observed a burning tree outside the burn boundary was the smouldering duff layer, a mixture of decomposing organic material that sits below the surface fuels. Gusting winds were blowing across the blackened surface of the burn exposing and shifting smouldering material. While this may have been a contributing factor, the exact cause of the escape on that date remains uncertain from a technical fire investigation point of view.

Response arrangements included additional resources from the Department which were sought locally just prior to the escape due to developing conditions, and tankers from the CFA which responded soon after the escape. Later in the afternoon aerial resources arrived to begin observation and suppression. The overnight crew contained the breach just prior to 05.00 on Sunday 4 October. Patrolling, mopping up and blacking out operations continued over the next couple of days and the situation on 6 October coincided with the development of significant bushfire weather conditions.

Forecast fire weather for Tuesday 6 October had already triggered a Total Fire Ban, the earliest on record in Victoria and indicative of unseasonal conditions. The actual conditions on the day also led to a large number of bushfires starting and burning across the state including a number of escapes from planned burns on private property.

The exact cause of the escape on 6 October also remains uncertain. Observers at the time reported spotting from well within the burn in the vicinity of the high point in the north east from where the burn was first ignited. That spotting contributed to some of the trees identified for pre-burn preparation near the burn boundary, which had a very high bark fuel hazard, to ignite further contributing to embers being thrown into unburnt adjoining fuels. This ignition of these trees occurred despite the pre-burn clearing works around their bases. By 13.15 containment lines had been breached in multiple locations and the operation shifted largely to response and suppression.

## Findings

- 3.3.1** Personnel on the fireline on Saturday 3 October observed a tree alight outside the burn boundary with the fire spreading from that point. This occurred in windy conditions which were exposing and transporting the smouldering duff layer within the burn.
- 3.3.2** Personnel on the fireline on Tuesday 6 October reported that spotting was occurring from well within the burn and that trees on the boundary with heavy loads of fibrous bark were also alight and causing further spotting.
- 3.3.3** No cause and origin investigation was undertaken in accordance with standard procedures and the precise cause of the escapes remains uncertain from a technical fire investigation point of view.

### **3.4 Decision making, management and control of the planned burn, including the adequacy of the patrol strategy adopted following its ignition**

Many aspects of the burn operation were well conducted. Crews were briefed prior to ignition with an emphasis on history and previous problems with burning in the Cobaw State Forest. Lighting patterns and associated strategies were sound on the day of ignition. An experienced Burn OIC ran the operation on Wednesday 30 September with pre-arranged trigger points for progress and reporting to the Burn Controller. No significant departures from this plan were made although the rate of progress was slower than expected and limited resources influenced a decision not to include a portion of the planned burn in the south west. This was a wise decision. The second day of ignition was also run by an experienced Burn OIC with a focus on patching out and internal ignition, both common strategies to consolidate the burnt edge from the previous day and to achieve the overall burn objective.

Good decision making and management and control of the burn in the operational phases was impeded though by inadequate planning, risk assessment and earlier decisions such as the lack of continuity of Burn OICs across the days of ignition including Friday 2 October when no accredited Burn OIC was present. There was a lack of adequate resourcing throughout the operation which is discussed elsewhere in this report.

Patrol strategies were found to be adequate overall, including mopping up and blacking out activities which conform with standards and best practice. Resourcing was again a constraint.

Many personnel at various levels of the chain of command had an excessive reliance on obtaining a solid burnt edge and an inadequate awareness of the potential issues associated with the size and distribution of unburnt patches and heavy internal fuels given slopes and weather forecasts. While ignition by aircraft was flagged during burn planning as an option that could be used, this was not applied to the burning out of internal fuels in the lead up to unfavourable conditions.

Safety is an area that warrants positive comment. Any planned burning operation carries health and safety risks to personnel, and a burn in tall forest with overhead hazards, variable and in places steep terrain, and a lighting strategy requiring good communication and coordination adds further risks. The burn ignition on two consecutive days was overseen by two experienced Burn OICs and throughout the days and nights that followed there were a mix of very experienced and less experienced fire practitioners in the chain of command and on the ground. One near miss occurred resulting in vehicle damage from a falling limb but there were no injuries. In what was to become a complex and challenging operation, there is strong evidence of good decision making in relation to the events and activities that could have adversely impacted on the safety and wellbeing of personnel.

#### **Findings**

**3.4.1** Safety outcomes were good with no physical harm to personnel and strong evidence of the application of sound judgement and good decision making in a hazardous environment.

- 3.4.2 Many personnel and decision makers did not have a sufficient awareness of the extent, distribution and potential fire behaviour of internal unburnt patches and their likely interaction with slopes and drying conditions.
- 3.4.3 As a result of 3.4.2, options to manage internal fuels and secure the burn prior to unfavourable conditions were not applied.
- 3.4.4 There was a failure of decision making in not significantly elevating levels of resourcing after the escape on Saturday 3 October, and in anticipation of known adverse fire weather forecasts for Tuesday 6 October.
- 3.4.5 No higher level of oversight directed the above to occur. This is consistent with the general lack of appreciation of the level of risk associated with this burn.
- 3.4.6 There was no evidence that the patrol strategy adopted or the mopping up and blacking out methods and standards were deficient. However, the warming and drying conditions with spotting and escapes on some sectors combined with limited resourcing may have been contributing factors to sub-optimal outcomes.

### Recommendations

- 3.4.7 Greater consideration should be given to using aircraft for burn security surveillance as well as ignition and burning out operations, in addition to aerial observation and the suppression of bushfires.

## 3.5 The adequacy of communication with the community in the lead up to the planned burn and after it broke containment lines

The district planning team initiated community engagement around the FOP including mail-outs and an open house on 15 August 2015, which was attended by approximately 20 people. Direct and local community engagement was also undertaken by the district planning team however this focussed on the change of policy around firewood collection in the burn site. It was not focussed on informing neighbours of the burn, but rather sensing community response to the change of policy.

Communication with the community during burn planning and preparation included numerous standard activities such as newspaper notifications and signs on the burn boundary. These activities are consistent with the broad requirements in the *Fire Management Manual 10.1: Planned Burning* (Department of Sustainability and Environment 2012b) and the draft *Engagement and Communications Plan 2015/16: Midland District – Grampians Region* (Department of Environment, Land, Water and Planning 2015d). However, it is evident to the Investigation Team that much of this work is routine and passive, rather than focusing on targeted interactive processes and meaningful engagement.

Numerous interviews with staff indicated that due to the location of the burn within a broader state forest, neighbours weren't considered in the planning process to an extent that could be considered adequate. A small amount of direct engagement did occur. Two landowners, whose properties had been affected during the 2003 escaped burn, mentioned to the Investigation Team that they were contacted by personnel from the Department to let them know when the planned burn would be



ignited. When talking to some operational personnel they commented on the fact they had spoken to adjacent land owners during the burn operation with regard to fall-back lines, escape routes and contingency planning for suppression. While this is at odds with other views about the presence of neighbours, and the extent to which they should be engaged, it does highlight the disconnected process between planning and operations that is discussed above in section 3.1.3.

When enquiring about direct community consultation during burn planning the Investigation Team was again consistently told that there were no letter drops as the burn was not considered to have "adjacent households" as it was in the middle of the Cobaw State Forest. History doesn't seem to have been considered adequately as well. The Cobaw Staff Ride highlights that the investigation of the 2003 burn escape (Department of Environment, Land, Water and Planning 2015a) states:

*Neighbours not given letterbox drop of intent to do the burn – adjoining landowners not notified immediately prior to lighting or involved.*

Some communication with the community occurred regarding implementation of the spring burning program and the ignition of this particular burn. A radio interview with a senior regional officer occurred in the period leading up to the Lancefield-Cobaw burn to herald the commencement of the spring planned burning program and to articulate its broad objectives. A media release by the Department on 29 September advised the community that the Lancefield-Cobaw burn was scheduled for commencement and that ignition was imminent. This is a fairly general and passive form of communication though, which appears not to be an avenue that the community receives information through.

Community perspectives are quite different to those of the Department regarding the adequacy of communication. In the survey distributed by the Investigation Team a question was asked 'Did you know in advance that a planned burn was scheduled for the Lancefield-Cobaw area on 30 September?' Seven of the 114 respondents answered yes while 107 answered no. Of the seven who were aware of the planned burn, two cited the local paper, one resident was aware from referring to the CFA and the Department's websites, another realised a burn was imminent when he saw bulldozers at the back of his property, and two people reported knowing due to regularly being in the forest to exercise. Only three of the seven respondents who answered yes live around the fire area. Forty seven people said they only became aware that a burn was in progress after seeing the smoke.

After the planned burn had broken containment lines 36% of respondents to the survey wrote that their awareness of the event was by word of mouth. Knowledge of the fire from this point onwards was mostly communicated through the community 'bush telegraph', with many people either being a local CFA member or knowing one which was the best method for staying up to date. Most of the normal means of communication with the community about bushfires, including escapes from planned burns, are multi-agency systems and processes rather than Department-specific approaches.

Official forms of communication after the burn became a bushfire included public radio broadcasts, the Fire Ready Application, the CFA website and public town meetings. ABC radio 774 was utilised by many people for information but was found to be frustrating as updates were only relayed at

news time or at the end of scheduled programs. Listeners were informed to tune into Bendigo station 91.1 but it was not made clear that this was FM not AM radio which caused confusion and stress for some people.

The emergency alert information was relayed to people through the Fire Ready App and the SMS message service with only eleven respondents saying they received a landline phone alert. Several people commented that the evacuation alerts received in the Lancefield township caused a lot of stress. While the official phone based warning systems had reached 30% of survey respondents this is likely to be the same people receiving both messages. The lack of mobile phone reception in the fire area meant that many people did not receive this information.

The School Bag phone application utilised by the Lancefield Primary School appears to have been a very effective form of communication. A message was sent to all parents on Monday 5 October to alert them that Tuesday 6 October was to be a high fire danger day and to remind them to be contactable in case of an evacuation. On Tuesday a decision was made to evacuate the school and all but a few children had been collected within 20 minutes.

Fourteen percent of people surveyed rely on the radio and referring to the CFA website to keep informed about the fire status. The CFA website as a form of communication is now widely known by the public but cannot be accessed by people without internet service.

Meetings between community members and the Investigation Team clearly painted a picture that some aspects of communication by the Department in the days after the burn escaping were deficient. The bushfire spanned in excess of 3,000ha and multiple land tenures and in patrolling and mopping up the fire perimeter staff from the Department entered and conducted operations on private property, sometimes with heavy machinery, without paying adequate courtesy to land owners or including them in decisions about the works to be undertaken on their own land. In some cases damage was done to assets and values while landowners also expressed concern for possible cultural heritage impacts. This has added considerable stress to community members whose lives and in many cases livelihoods had already been severely impacted by the fire. Many aggrieved people feel that a strong and sincere apology from the Department is needed.

Community input to the investigation reveals a high level of distrust and dissatisfaction with the Department, including ongoing departmental changes such as restructuring and renaming, which impede relationship building and communication. The Department should consider branding the component of its portfolio dealing with fire management and planned burning on public lands so that there is an enduring entity for building stronger and more sustainable relationships with the community. This would also assist with developing and reviewing mutually beneficial long term measures of public accountability in relation to community engagement, as discussed in the recent IGEM report (Inspector General for Emergency Management 2015) on performance measures for fuel management on public lands.

## Findings

**3.5.1** Communication by the Department with the community was inadequate for this burn at all stages including planning, implementation and after the escapes.

- 3.5.2** The Midlands District has a Draft Engagement and Communications Plan for planned burning which articulates some sound principles and routine activities but the communication for this burn was inadequate and passive, not targeted, interactive and meaningful.
- 3.5.3** If the risk of this burn had been properly assessed during the planning process, with appropriate regional oversight, a specific communication and engagement plan may have been developed for the Lancefield-Cobaw burn.
- 3.5.4** Some engagement with neighbours did occur during operational contingency planning by burn practitioners.
- 3.5.5** The community's opinion of the communication in the lead up to the planned burn and after it broke containment lines is that it was deficient.
- 3.5.6** Many of the normal methods used by authorities to communicate after the burn had escaped and become a bushfire were ineffective.
- 3.5.7** The community has a high level of distrust and dissatisfaction with the Department, including ongoing departmental changes such as restructuring and renaming, which impede relationship building.

### **Recommendations**

- 3.5.8** Planning processes should be reviewed to ensure that stakeholders beyond the immediate burn area are clearly identified, prioritised and targeted with appropriate communication.
- 3.5.9** Communication and engagement processes should be reviewed with an emphasis placed on developing and applying active and meaningful approaches rather than passive methods only.
- 3.5.10** The Department should consider branding the component of its portfolio dealing with fire management and planned burning on public lands so that there is an enduring entity for building stronger and more sustainable relationships with the community.

## **4 Interconnectedness of the Findings**

While each component of the Terms of Reference has been dealt with separately there is a high level of interconnectedness and dependency. Much has been said about the separation of planning and operations in the lead up to the burn. District and organisational structures are not optimised for integration, oversight and accountability. Despite the previous burn escape in the Cobaw State Forest, which caused significant damage and community distress and the very old and heavy forest fuels affected by drought, there was a lack of attention to issues including stakeholders and the physical environment outside the planned burn area. This resulted in the risk assessment process being inadequate. A robust and practical risk assessment founded on an awareness of the broader context should have triggered a higher level of scrutiny and preparedness. This flawed planning process flowed on to other areas such as a decision not to conduct a candling operation, a single

person filling multiple important roles including approvals and establishing resourcing levels, and the abandonment of good practice in not obtaining spot weather forecasts. There was a lack of involvement of local CFA brigades and a failure to adequately engage with the community.

The seasonal outlook and the changing seasonal conditions did not trigger sufficient preparedness action early enough from the state through the regions to the districts. Project Fire Fighters were not in place, standby arrangements and rosters had not commenced and the state fire weather teleconferences remained at twice weekly. A burn with old fuels in an area with previous escapes was scheduled for ignition. Two days prior to ignition, on the state fire weather teleconference, northerly winds were forecast to bring warm dry air to the burn area within days of ignition. While concerns were expressed at the district level by an experienced Burn OIC, the burn proceeded without additional resourcing. When dry conditions, control difficulties and an escape occurred on Saturday 3 October, resourcing was not sufficiently escalated despite the knowledge of deteriorating weather ahead.

## 5 Discussion of the Findings

These organisational and procedural shortcomings exist and have occurred within an agency in which fire personnel at all levels display a very professional outlook and a dedication to their demanding work. This was very evident from the high level of cooperation received by the Investigation Team and the level of openness that staff had about areas for improvement.

Numerous district staff described the Burn OICs as “experienced”, “competent” and “conservative” and many aspects of the burning operation were conducted to a high standard in a challenging environment. Safety management was paramount and evidently successful. Many previous inquiries and reviews have raised concerns about the aging workforce of fire and land management practitioners and the relatively small pool of experienced operational burn practitioners. While this is also a matter of serious concern in relation to the Lancefield-Cobaw burn and the Department generally, the Investigation Team positively notes the age structure and gender balance in the Midlands District fire team and the appetite for learning and improvement that many personnel clearly displayed.

While state, region and district structures have been questioned regarding their adequacy and integration, the Investigation Team holds strongly to the view that fire management and planned burning on public lands requires a strong and well integrated single agency able to bring to bear a diverse body of science, technical expertise, personnel, physical resources and infrastructure that also services broader land management functions and responsibilities. Fire management cannot be separated from land management activities. The investigation has focused mainly on burn planning and operations, consistent with the Terms of Reference, but there are also many other parts of the Department that contribute to the professional and practical delivery of fire management on public lands including biodiversity conservation, cultural heritage management, invasive species management and the monitoring and evaluation of planned burning for ecological and adaptive management purposes. Planned burning and forest fire management require broad integrated land management expertise and support.

In dealing with the adequacy of communication in the periods prior to the burn and following the escapes, the numbers of changes to the Department's identity over several years was commented upon to the Investigation Team by members of the community. The fire management business for public lands in Victoria has remained relatively consistent over a period spanning many decades, but the delivery has been through several agencies and structures. To rebuild and maintain public confidence and to strengthen the role of fire management on public lands, any review of the structures associated with planned burning should consider branding of the Department's fire management business entity so that the brand can be enduring and recognisable across any future changes in departmental portfolios and labels.

National initiatives in the fire and land management sector may also be timely and informative for contextualising and adding value to some of the findings and recommendations in this report. The National Burning Project, a joint initiative of the Australasian Fire and Emergency Services Authorities Council and the Forest Fire Management Group, has been in development since 2012 to document and describe best practice in planned burning. From each state and territory the project has so far endeavoured to harvest, distill and package the key principles and practices that underpin sound burn planning and risk management for operational and ecological outcomes. Important publications are currently being drafted. The challenges for the Department, and other agencies nationally, is to put in place rigorous, effective and transparent systems and processes to deal with uncertainties and risks while remaining operationally focused and committed to on-ground delivery as well as sufficiently agile to recognise conditions and make the most of windows of opportunity to burn.

## 6 Matters Outside the Terms of Reference

Given the strong focus of this investigation on input from the community, it was inevitable that significant information would arise which is outside of the Terms of Reference. The Investigation Team met with the Department and Emergency Management Victoria early in the review process and agreed that all of those items raised which are beyond the scope of the investigation would be described in a report to EMV. This has occurred with a separate ancillary report provided to EMV on 4 November 2015. Topics identified and detailed include:

- Response and recovery;
- Community meetings and information;
- Insurance;
- Skills and experience of firefighters;
- Traffic management points;
- Personal fire plans;
- Domestic water quality;
- Heavy woody fuels;
- Managing private forests;
- Catchment management;
- House and dwelling protection;

- Road verge management;
- Telecommunications black spots;
- Economic impacts on residents;
- Losses and opportunity costs;
- Personal leave contribution by CFA volunteer brigade members;
- Business continuity for CFA volunteer brigade members; and
- Culture and heritage.

EMV, in conjunction with the sector, will address the identified topics through established processes that form part of the normal post-summer improvement activities. However, any acute issues that require a more immediate response will be addressed as a priority.

## 7 Acknowledgements

The Investigation Team would like to acknowledge the following people or organisations for their support in the preparation of this report.

- Macedon Ranges Shire Council in providing office accommodation and other facilities in Romsey.
- Dr. Lachlan McCaw, Principal Research Scientist at the Department of Parks and Wildlife in Western Australia, for providing analysis and advice on weather and other conditions.
- The Lancefield community for their cooperation and willingness to speak to the Investigation Team. This was greatly appreciated given that many of those we spoke to have lost property and are deeply affected by the fire.

## 8 References

Bureau of Meteorology 2015a, Drought Report <http://www.bom.gov.au/climate/drought/drought.shtml>

<http://www.bom.gov.au/climate/drought/drought.shtml>

Bureau of Meteorology 2015b, Special Climate Statement

<http://www.bom.gov.au/climate/current/statements/scs52.pdf>

Bushfire and Natural Hazards CRC 2015, *Southern Australia Seasonal Bushfire Outlook 2015-16, Hazard Note Issue 010*, Melbourne.

Department of Environment, Land, Water and Planning 2015a, *Bushfire Staff Ride: Course Notes – Cobaw State Forest Escaped Planned Burn 3-7 April 2003*, State of Victoria, Melbourne.

Department of Environment, Land, Water and Planning 2015b, *Bushfire Management Engagement Strategy 2014-18*, State of Victoria, Melbourne.

Department of Environment, Land, Water and Planning 2015c, *Fire Operations Plan 2015/16-2017/18: Grampians Region*, Ballarat.

Department of Environment, Land, Water and Planning 2015d, *Engagement and Communications Plan 2015/16: Midlands District – Grampians Region, Fire Operations Planning, Planned Burn Delivery, Fuel Hazard Delivery (Draft)*, Ballarat.

Department of Environment and Primary Industries 2014, *Strategic Bushfire Management Plan: West Central Bushfire Risk Landscape*, of Victoria, Melbourne.

Department of Sustainability and Environment 2012a, *Code of Practice for Bushfire Management on Public Land*, State of Victoria, Melbourne.

Department of Sustainability and Environment 2012b, *Fire Management Manual 10.1: Planned Burning*, State of Victoria, Melbourne.

Emergency Management Victoria 2015, *Pre-season Update: 2015-16 Summer Season*, State of Victoria, Melbourne.

Emergency Services Commissioner 2005, *Examination of Prescribed Burning Practices*, State of Victoria, Melbourne.

McArthur, A.G. 1962, *Control burning in Eucalypt forests, Forestry and Timber Bureau Leaflet 80*, 31pp.

Inspector General for Emergency Management 2015, *Review of Performance Targets for Bushfire Fuel Management on Public Land*, State of Victoria, Melbourne.

International Organization for Standardization 2009, *ISO 31000:2009, Risk Management – Principles and Guidelines*, First Edition, Geneva.



## 9 Appendices

## 9.1 Appendix 1

### Terms of Reference

#### Independent Investigation of the Lancefield - Cobaw Fire

**Commencement:**

Week commencing 11 October 2015

**Investigators:**

Lead investigator: Mr. Murray Carter, Director WA Office of Bushfire Management Investigation  
Team:

- Trevor Howard (Senior Fire Operations Officer, Department of Parks and Wildlife, WA)
- Kevin Haylock (Director, Sandalwest Forest Management Consultants)
- Vivien Philpotts (Coordinator, Lancefield Neighbourhood House)
- Jo Richards (Director Regional Operations, Parks Victoria)

**Scope:**

Investigate and provide a written report that:

1. Establishes the facts and the circumstances relating to the Lancefield - Cobaw fire, including making findings in relation to:
  - a. the adequacy of planning and resourcing of the 'Lancefield – Cobaw Croziers Track' planned burn (the planned burn);
  - b. the appropriateness of the weather and other conditions for conduct of the planned burn on 30 September 2015;
  - c. what caused the planned burn to break containment lines on 3 October 2015 and on 6 October 2015;
  - d. decision making, management and control of the planned burn, including the adequacy of the patrol strategy adopted following its ignition; and
  - e. the adequacy of communication with the community in the lead up to the planned burn and after it broke containment lines.
2. Based on the findings, make any recommendations for improvement to the Secretary.

The investigation is to focus on the Department of Environment, Land, Water and Planning.

**Delivery of final report:**

The final report is to be delivered to the Secretary of the Department of Environment, Land, Water and Planning within 3 weeks of the commencement of the investigation.

## 9.2 Appendix 2

<i>Date of Issue</i>	<i>Time of Issue</i>	<i>Detail of Forecasts for North Central District</i>
Wednesday 30 September 2015 for the period until midnight EST Saturday 3 October 2015	5:40 am EST	Forecast for Saturday 3 October <ul style="list-style-type: none"> <li>• Mostly sunny.</li> <li>• Light winds becoming northerly 15 to 25 km/h during the morning.</li> <li>• Overnight temperatures falling to between 9 and 12 with daytime temperatures reaching 24 to 29.</li> <li>• Seymour Mostly sunny. Min 11 Max 28</li> </ul>
Wednesday 30 September 2015 for the period until midnight EDT Sunday 4 October 2015	4:15 pm EST	Forecast for Saturday 3 October <ul style="list-style-type: none"> <li>• Mostly sunny.</li> <li>• Winds northerly 25 to 35 km/h.</li> <li>• Overnight temperatures falling to between 9 and 12 with daytime temperatures reaching 24 to 29.</li> <li>• Seymour Mostly sunny. Min 11 Max 28</li> </ul>
Thursday 1 October 2015 for the period until midnight EDT Sunday 4 October 2015	5:40 am EST	Forecast for Saturday 3 October <ul style="list-style-type: none"> <li>• Mostly sunny.</li> <li>• Winds northerly 25 to 35 km/h.</li> <li>• Overnight temperatures falling to between 9 and 12 with daytime temperatures reaching 24 to 29.</li> <li>• Seymour Mostly sunny. Min 11 Max 28</li> </ul>
Thursday 1 October 2015 for the period until midnight EDT Monday 5 October 2015	4:15 pm EST	Forecast for Saturday 3 October <ul style="list-style-type: none"> <li>• Sunny.</li> <li>• Winds northerly 25 to 35 km/h.</li> <li>• Overnight temperatures falling to between 9 and 12 with daytime temperatures reaching 24 to 29.</li> <li>• Seymour Sunny. Min 11 Max 28</li> </ul>
Friday 2 October 2015 for the period until midnight EDT Monday 5 October 2015	5:40 am EST	Forecast for Saturday 3 October <ul style="list-style-type: none"> <li>• Sunny.</li> <li>• Winds northerly 25 to 35 km/h.</li> <li>• Overnight temperatures falling to between 9 and 12 with daytime temperatures reaching 24 to 29.</li> <li>• Seymour Sunny. Min 11 Max 28</li> </ul>
Friday 2 October 2015 for the period until midnight EDT Tuesday 6 October 2015	4:15 pm EST	Forecast for Saturday 3 October <ul style="list-style-type: none"> <li>• Sunny.</li> <li>• Winds northerly 25 to 35 km/h.</li> <li>• Overnight temperatures falling to between 8 and 11 with daytime temperatures reaching 24 to 30.</li> <li>• Seymour Sunny. Min 9 Max 30</li> <li>• Fire Danger: Very High</li> </ul>
Saturday 3 October 2015 for the period until midnight EDT Tuesday 6 October 2015	5:40 am EST	Forecast for the rest of Saturday 3 October <ul style="list-style-type: none"> <li>• Sunny.</li> <li>• Winds northerly 20 to 30 km/h turning north westerly 25 to 35 km/h during the afternoon and evening.</li> <li>• Daytime maximum temperatures 24 to 30.</li> <li>• Seymour Sunny. Max 30</li> <li>• Fire Danger: Very High</li> </ul>

