

## **Developing a comprehensive performance improvement program**

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### **Abstract**

For many years, the Country Fire Authority, Victoria (CFA) has undertaken reviews of operational preparedness and response, such as operations analysis, debriefs and brigade inspections. There has been limited coordination or consistency of approach between these various review tools. More recently, CFA has been the subject of a number of external reviews of operational performance, including Coronial Inquiries into the January 1997 Dandenong Ranges fire where 3 citizens died (Victorian State Coroner 1999), and the 1998 Linton fire where 5 CFA firefighters died in an entrapment (Victorian State Coroner 2002); and various state and federal government inquiries into the 2003 bushfires that burnt 1.1 million hectares in Victoria, and over 1.6 million hectares in adjacent areas of New South Wales and Australian Capital Territory (Victoria 2003a, Commonwealth of Australia 2003, 2004, McLeod 2003). The outcomes of these internal and external reviews are usually a list of recommendations. In the past, actions to address these recommendations were often developed in an uncoordinated manner with no reference to similar findings from other reviews, and monitoring of progress in implementing the actions was variable in its effectiveness.

CFA is introducing an Operations Performance Improvement program that comprises an integrated suite of performance monitoring tools with consistent performance benchmarks and evaluation processes. Some key monitoring tools have already been introduced, and other tools are currently under development. The program is supported by the Performance Improvement Monitoring System that allows tracking of all recommendations and actions by the officers responsible for implementing the actions or monitoring progress.

The paper outlines the overall strategic direction of the CFA Operations Performance Improvement program, the fundamental principles underpinning the program, and the linkages to the broader corporate reporting framework. A brief description of each of the monitoring tools and the Performance Improvement Monitoring System is also provided.

## **1. INTRODUCTION**

For the last 4 years, CFA has been developing an integrated Operations Performance Improvement program. The aim of the program is to improve the quality of service to the community through organisational improvement across all aspects of operational activity. This paper describes the catalysts for program development, the key steps in the development of the program, and each of the monitoring processes and current status of their development. The supporting management system is also described, as are future challenges for the program.

## **2. CATALYSTS FOR PROGRAM DEVELOPMENT**

In 2001, CFA identified a need to develop an integrated Operations Performance Improvement program, and established the Operations Performance Improvement section within the Operations Directorate. The key catalysts identified were:

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1. The CFA Board requested a review of the existing process for the annual inspection and reporting on the operational efficiency of its 1240 brigades, which were being variably implemented across the state. The existing process focussed on determining a “score” for each brigade, and provided no tangible outcomes for brigade personnel, field staff or the CFA executive.
2. The Linton Coronial Inquest highlighted to CFA the benefits of establishing a real time performance monitoring process during an incident. This requirement was later reinforced in the Coroner’s findings which made a number of recommendations relating to implementing real time wildfire safety audits during incidents (Victorian State Coroner 2002).
3. The CFA Chief Officer identified he required a means to ensure CFA was operationally prepared at regional and state level.
4. CFA identified a need to manage the outcomes of the Linton Coronial Inquest (Victorian State Coroner 2002) and other operational reviews more effectively.

More recently, the devastating fires of January and February 2003 that burnt 1.1 million hectares of predominantly forest land in Victoria, as well as over 1.6 million hectares in adjacent areas of New South Wales and Australian Capital Territory (including significant structure loss in the interface areas of Canberra), required CFA to develop effective processes and tools to effectively conduct operational analyses and near miss investigations, and manage the outcomes of the various state and federal government inquiries that were held (Victoria 2003a, Commonwealth of Australia 2003, 2004).

### **3. KEY STEPS IN DEVELOPING PROGRAM**

#### **3.1. Identify program scope**

The first step was to define the scope of the performance improvement program and develop a plan to implement it. The initial impetus was to address the deficiencies identified above. However, it soon became apparent that there would be significant benefits in broadening the scope of the program to include all processes for reviewing operational performance, including debriefing and operations analysis. Experience from the 2002/03 fire season identified the need to include a review of the processes of investigating accident/near miss incidents as well.

#### **3.2. Identify relationship between various monitoring processes**

Performance monitoring can be conducted at various times relative to an incident:

- Programmed - conducted irrespective of the occurrence of an incident, e.g. brigade inspections and reporting, regional/state preparedness monitoring
- During the incident, e.g. real time performance monitoring
- After the incident, e.g. operations analysis, near miss investigations, debriefs.

An important step in developing the strategy was to develop an understanding of the relationship between the various operational performance monitoring processes, the different times at which they are conducted relative to an incident, and the different focus of each process, e.g. a regional preparedness review will concentrate primarily on the effectiveness of operational preparedness for a particular element whereas a review during or after an incident will focus on the effectiveness of implementation of that element during response activities.

### **3.3. Develop performance standards**

Establishing the relationship between the monitoring processes highlighted the potential to develop consistent performance standards for measuring similar elements in the various monitoring processes. Wherever possible and appropriate, performance standards have been developed based on existing policies, directives or training. For example, CFA procedures and training require the development of default communications plans, the adoption of these plans at incidents until such time that an alternative communications plan specific for that incident is authorised by the Incident Controller, and for all personnel at the incident to be aware of and comply with the communications plan. When assessing the effectiveness of operational communications, the following evidence may be sought through the various monitoring processes depending on when they occur:

- Programmed – has a default communications plan been prepared at brigade, region and state level?
- During incident – is there a communications plan? Is it appropriate? Has it been communicated to all relevant personnel? Is it being applied?
- After incident – was there a communications plan for the incident? Were there any instances of failure to comply with the communications plan? Were any communications difficulties identified?

### **3.4. Establish program principles**

In addition to the development of consistent and verifiable performance standards, a number of other key principles were established for the various performance monitoring processes:

- Standards are communicated to all personnel that are required to comply with them or monitor them
- Standards are easy to report on
- Individuals can monitor their performance against standards (self assessment)
- Monitoring processes should be open and transparent
- Individuals should know when their performance is being monitored and briefed on the process used

### **3.5. Identify links to performance measurement**

Fire services internationally have struggled to identify effective performance measures of fireground performance. Many fire agencies (particularly urban agencies) focus on measuring response time (the time from receipt of call by the fire brigade until arrival of the first appliance on scene). CFA recognised that there was a need to establish broader and more relevant operational performance measures of fireground performance, as focussing on response time measures alone will fail to identify benefits in performance outcomes that can be derived from investing in improvements in other segments of response, and can lead to inappropriate management and investment decisions at a brigade, regional and agency level. There is significant potential to develop the various operational performance monitoring processes to provide additional qualitative measures of operational performance, including fireground performance. CFA will continue to pursue this opportunity.

### **3.6. Determine relationship to internal audit**

It was also necessary to establish the relationship to the CFA internal audit program. After consideration, it was determined that the CFA internal audit program would not undertake specific reviews of CFA operations but would audit the various performance monitoring processes to ensure that they were being conducted as intended, e.g. at the appropriate frequency and standard. It was also determined that the primary responsibility for reviewing the effectiveness of each of the monitoring processes rested within the Operations Performance Improvement program, although observations for improving the monitoring processes from the internal auditor were also welcomed.

### **3.7. Work with key partners**

CFA interacts with a number of other parties both in conducting operational response and in reviewing performance. In particular, CFA and the land management agency responsible for fire prevention and suppression on public land in Victoria - Department of Sustainability and Environment (DSE) jointly manage fire of mutual interest in rural Victoria under a cooperative agreement that specifies joint processes for operational review (CFA and DSE 2004a). CFA and DSE have worked cooperatively on the development of many of the processes discussed in this paper. CFA has also worked cooperatively with other Australian fire agencies, the Office of the Emergency Services Commissioner, Victorian Workcover Authority, and the Coroner in developing these processes.

### **3.8. Obtain organisational support**

An essential step undertaken early in the process was to obtain executive support for the strategic direction of the program, and to promote knowledge of the program throughout the organisation. This gave people within the organisation the knowledge of the processes being developed and confidence that the identified deficiencies were being addressed.

## **4. MONITORING PROCESSES**

CFA identified that it needed to take a staged approach to the development and implementation of the monitoring processes, as there were insufficient resources to develop all processes simultaneously and, equally as importantly, it would be impossible to implement each of the processes throughout CFA at the same time. The first phase of processes identified was the review of the inspection and reporting process to monitor brigade efficiency, and development of processes for regional/state preparedness monitoring and real time performance monitoring. Development and implementation of these processes is now complete, and the processes are described below. Work has now commenced on reviewing processes for operations analysis, near miss investigations and debriefs, and progress and proposed outcomes for these are also described below.

### **4.1. Brigade Efficiency**

Section 29(b) of the CFA Act 1958 requires the Chief Officer to *“inspect or arrange for the inspection of all brigades and to report to the Country Fire Authority on their state of efficiency or otherwise”*. As a result of the deficiencies described earlier, CFA commenced a review of the brigade inspection and reporting process in 2002

through a project that involved extensive field consultation. The review determined that the key indicators of brigade efficiency for this purpose are training, operational readiness, response performance and fireground performance (Bearzatto 2003). In the revised process, a number of questions are asked in relation to each of the four indicators, and compliance with a predetermined standard is measured. In some cases the standard is set by the Chief Officer, while in others it is determined regionally in consultation with the brigade to reflect the brigade's needs to service the risks for which they are responsible. Where a brigade is found to be non compliant with a particular question, an action plan is developed and agreed to address the deficiency. The process is closely aligned to the new brigade management planning process (Service Delivery Planning Model) that is being developed concurrently by CFA, and measures performance against the brigade management plan where appropriate (CFA 2004). The new "Section 29" brigade inspection and reporting process was introduced on 1 July 2004.

Supporting software has been developed on the CFA intranet to provide reports that are required for the inspection, and allows for direct entry of the inspecting officers comments and agreed actions to address any deficiency. Planned development of the software will enhance the brigade and region's ability to monitor the brigade's performance at any time, not just at the annual "inspection". Thus, the brigade will be able to produce reports on performance on the various elements, such as training or response time, for its monthly meeting, assisting the brigade manage its business more effectively and address any deficiencies as they become apparent.

#### **4.2. Regional /State Preparedness Monitoring**

In 2001, the Chief Officer determined that he required a means of ensuring that each CFA Region, and the State Emergency Coordination Centre (SECC), were operationally prepared to a suitable level, with the initial focus being on wildfire preparedness. The Regional/State Preparedness Monitoring process was developed and implemented prior to the 2002/03 fire season and has been conducted annually since. The objectives of Regional/State Preparedness Monitoring are to provide an assessment of the level of preparedness of CFA to respond to, and manage, fires and incidents within their area of responsibility. A key focus of the program is to share ideas among regional staff through access to best practice models of documentation, processes and procedures developed by their peers.

An annual review is conducted by a peer, and is based on a predetermined set of criteria that focuses on the capability of the Region/SECC to manage or coordinate incidents. Key issues reviewed are:

- Required infrastructure is in place and can be used effectively
- Required documentation is present and current
- Sufficient trained personnel are available and exercised in their roles
- Appropriate liaison has been established with other agencies
- Compliance with agreements with other agencies

In the initial year of implementing the process, monitoring of regional preparedness was focused on preparedness at the Regional Emergency Coordination Centre (RECC) to enable the concept to be developed and trialled, but as the program has developed it has been broadened to include preparedness to implement pre-planned Incident Control Centres, Operations Points and Staging Areas, as well as establishing

suitable liaison with other agencies. The emphasis has been restricted to preparedness for management of wildfire to date to assist in developing the process in a staged way; however expansion of the process to include preparedness for managing structure fire, in particular major structure hazards is proposed.

### **4.3. Real Time Performance Monitoring**

Real Time Performance Monitoring (RTPM) is a process of reviewing the functioning of incident management teams at Type 2 (Medium) or Type 3 (Large or complex) wildfires as they are operating. The purpose of RTPM, as defined in the business rules for 2004/05 (CFA and DSE 2004b) is to:

- *monitor the activities of the Incident Management Structure to promote safety throughout the incident, and effective and efficient incident management*
- *promote continuous improvement in incident management by effectively measuring operational performances during incidents, and reinforcing established standards and performance measures*

DSE and CFA met during the latter part of 2001 with a view to jointly developing techniques that could be used to evaluate a selection, each fire season, of the increasing number of jointly managed DSE/CFA wildfires. Subsequently, the adoption of such a process was formally recommended in the Linton Coronial findings (Victorian State Coroner 2002).

A trial of the RTPM process was conducted at a wildfire in March 2002 where two experienced officers from DSE and CFA attended an incident and inspected the Incident Control Centre, fireground, staging areas and the RECC. They also attended the subsequent debrief. Although operating under limited guidance due to the embryonic nature of the process, the officers reported they were well accepted by all personnel at the fire and provided useful observations on a number of issues that required improvements.

Based on the experience of the trial, CFA and DSE further developed the approach for RTPM during 2002 to enable full implementation of the process during the 2002/03 fire season. A group of experienced incident controllers was identified as potential members of Performance Monitoring Teams, and they were briefed on the program. A checklist of 33 key performance parameters was developed. In addition, business rules for the activation and operation of the Performance Monitoring Teams, and their relationship to the Incident Management Teams, were developed.

During each visit, the team is required to liaise closely with the Incident Controller, and conclude each visit with a detailed briefing to the Incident Controller with respect to significant findings or observations the team had made. In addition, Performance Monitoring Teams are required to provide both Chief Officers with an initial report to identifying any significant findings within 24 hours, an interim report of findings within 28 days and a final report within 60 days.

During the 2002/03 fire season, Performance Monitoring Teams were deployed on four separate occasions, and visited eight Incident Control Centres. The process was further refined as a result of the experience gained during 2002/03. Due to the mild fire season experienced in 2003/04, and again in 2004/05 to date, Performance

Monitoring Teams were only deployed on one occasion in each season. A further review of the process will occur following the 2004/05 fire season.

CFA is also in the initial stages of developing a mentoring program. The close relationship between RTPM and mentoring have been recognised and any synergies and overlaps will be further explored as both programs develop, although given the different focus and nature of both processes they are unlikely to completely merge.

#### 4.4. Debrief

Debriefing is integral to the process of continuous improvement in CFA. CFA has identified that, by conducting debriefs, it is able to reinforce positive practices and procedures and, also identifying where things could have been done better to enable improvements to be made.

Prior to 2002/03, CFA generally conducted debriefs of specific incidents on a regular, but ad hoc basis at a local level, with limited transference of any lessons learnt through to other relevant parts of the organization. Following the 2002/03 fire season, CFA and DSE recognized the need to undertake a coordinated and strategic approach to debriefing the extensive campaign, as the “traditional” approach of getting everyone together to talk about the incident was physically impossible. The resultant organizational debrief was coordinated by a joint project team and focused on providing inputs from a number of different processes:

- Agency debriefs that were conducted at workcentre, group or regional level
- Joint agency incident management debriefs
- Joint agency area coordination debriefs
- Input from debriefs from interstate and overseas fire agency personnel and from debriefs held by support agencies

While these processes were independent of each other, they were intended to establish issues in either the context of “*things that went well*” and “*areas that need improvement*”. Debriefs were aimed at identifying actions which had been taken to overcome an issue, and suggestions for further action to resolve an issue.

All identified issues were entered into a purpose built database that allowed for analysis of the data by “themes”. Nearly 6,000 issues were raised through the debrief process, and these were themed into 99 “standardised issues”. Interestingly, there were a number of conflicting views expressed on some topics, e.g. briefings too long vs. briefings too short. A risk assessment was undertaken on each standardised issue, and the 14 identified as the highest risk were the subject of further intensive analysis by joint project teams. A number of operational improvements were identified and most implemented prior to the 2003/04 fire season. Incomplete actions will be incorporated into ongoing improvement processes (Roughead and Woodman 2003).

Ironically, debriefing processes were identified as an area which could be improved, and CFA is currently reviewing it’s debrief processes. Following the review, new procedures will be introduced to help capture and resolve issues raised in debriefs, wherever possible, as they occur and may include holding debriefs:

- During an incident following a significant event (Hot Debrief)
- During an incident at the conclusion of each shift (Shift Debrief)
- During an incident at the conclusion of a Tour of duty (Tour Debrief)

- At the conclusion of an incident (Incident Debrief), and
- At the conclusion of a fire season (Fire Season Debrief)

The use of processes such as After Action Reviews as utilized by the United States Wildland Fire Lessons Learned Center, Post Fire Season Surveys as described below and simple processes such as data entry of lessons learnt into centralized databases at the same time as the fire report is being entered will also be examined.

#### **4.5. Operations Analysis**

CFA has conducted Operations Analysis of significant incidents on an ad hoc basis for many years. CFA has identified that Operations Analysis is an important tool for reviewing operational performance, and is currently reviewing the process. Interim procedures have already been developed that describe terms of reference, business rules for activation and operation of the Operations Analysis team, and report format and timelines (CFA 2005).

However, Operations Analysis are currently only conducted within CFA at a limited number of large incidents as the process is very labour intensive, and the number of personnel with the available time and experience are limited. There are potential benefits in developing a more streamlined version of the process to enable the analysis of operations and the identification of key issues to occur more regularly. Such a simplified process could potentially be delivered by a broader group of suitably trained and experienced personnel at a larger number of fires. Some other fire agencies have achieved this objective through utilising experienced fire investigators already present at the fire to conduct operations analysis. CFA will investigate this approach. In addition, linkages need to be finalised to the CFA Community Safety Post Incident Analysis process that reviews incidents to assess the effectiveness of community safety programs.

#### **4.6. Accident/Near Miss Investigations**

The CFA OHS accident/near miss incident reporting process has been in place for a number of years, and requires notification of incidents and provision of a report that describes personal details, incident details, injury details, and potential preventative actions that the manager may recommend. The process is designed for the reporting of OHS accidents or near misses during the conduct of any CFA business, not only operational response activities (CFA 2005).

During the extensive 2003 bushfires, a total of 381 accidents and near miss incidents were reported to either CFA or DSE. It was determined to conduct a joint detailed analysis of these accidents and near miss incidents to identify improvements to safety and operational effectiveness (Conway and Woodman 2004). All OHS accidents/near misses reports were jointly evaluated by operational officers from CFA and DSE based on the information contained in the OHS report. OHS incidents were excluded from further investigation where it was assessed that the incident involved an accident/near misses with potential for only minor loss or damage with clear (uncontrollable) cause. Thirteen reported OHS incidents were selected for detailed joint investigation, and investigations teams were also appointed to review three recurrent themes that occurred through the reported accidents/near misses (fatigue, dehydration, red flag warnings). In addition, preliminary investigations were made on seven other reported OHS incidents that determined that further formal investigation was not required.

Based on experiences gained by both DSE and CFA during accident /near miss investigations during the 2002/03 fire season, and experience gained by CFA during a earlier internal investigation into the death of a firefighter in December 2001, CFA and DSE are developing an agreed joint process for the investigation of accidents and near misses during operations (CFA 2005). The process will provide a more detailed analysis of operational issues relating to accidents or near misses that occur during operational response. The linkages and relationship of the proposed accident/near miss investigation process to the broader corporate OHS incident reporting processes that operate within both agencies for all agency business (not just operational response) needs clarification.

#### **4.7. Post Fire Season Survey**

Rather than conduct a detailed and resource intensive statewide debrief process in both CFA and DSE at the conclusion of the 2003/04 fire season, CFA and DSE decided to undertake a structured post fire season survey (Conway and Coulter 2004). This process was based on previous successful implementation of post fire surveys by DSE, and by the United States Wildland Fire Lessons Learned Center following the 2003 Southern California fires (Mission-Centred Solutions 2003).

The survey was developed to seek the opinions of current senior operational personnel and Incident Management Team personnel within both agencies regarding their knowledge, and views about the effectiveness of implementation of the key actions that arose from the debrief process of the 2002/03 fire season. A combination of closed and open questions were utilised, and respondents were given the opportunity to make additional comments. Individual's responses to the survey were collated and analysed both in total and on agency specific lines.

Given the pioneering nature of the survey, comparison against benchmarks is not possible. The limited marketing and tight timeline imposed limited the level of responses. However, the results of the analysis were encouraging, with confirmation of effective implementation of a number of initiatives arising from the 2002/03 debrief process, and clear deficiencies identified that still require addressing. This technique appears to be capable of providing reliable, strategic feedback on operational performance in a very efficient manner compared to the very resource intensive debrief processes. It is proposed to continue to develop this process for use following the current 2004/05 fire season.

### **5. MANAGEMENT SUPPORT TOOLS**

An important element of the Operations Performance Improvement program has been the development of management support tools to assist personnel who are conducting reviews, implementing outcomes, or reporting on progress with implementation. The key support tool developed is the Performance Improvement Monitoring System (PIMS), which is described in more detail below. Additional supporting tools have also been developed to support the Brigade inspection and reporting process, the regional/state preparedness monitoring process, and the debrief process, due to the different focus and requirements of these processes.

#### **5.1. Performance Improvement Monitoring System**

As described above, CFA has been the subject of a number of external reviews of operational performance, and various government inquiries into the 2003 bushfires.

The outcomes of these internal and external reviews are generally a list of recommendations. In the past, actions to address these recommendations were often developed in a disjunct or uncoordinated manner with no reference to similar findings from other reviews, and monitoring of progress in implementing the actions was difficult.

CFA identified that it required a management database to assist in recording and managing relevant information from all operational reviews, and developed the Performance Improvement Monitoring System (PIMS), first as a stand alone prototype in Access, and more recently on the CFA intranet, which allows the user to:

- Register a review when commenced
- Record all Recommendations
- Assigns Responsibility for each Recommendation to Managers using a Theme Framework based on the PPRR principle – this allows for each Theme Manager to consider a recommendation within the context of all other recommendations assigned to a particular theme,
- Determine CFA's Position – PIMS records the outcome of the consideration of the recommendation by CFA as either Accepted, Accepted in principle, Further research, Rejected, or Not Relevant
- Identify Action(s) – Either existing action(s) being undertaken by CFA in response to previous reviews that will address the recommendation in whole or part, or new action(s)
- Report on progress with implementing Actions by the Action Officer
- Prepare executive reports on progress in addressing each recommendation

PIMS is being progressively utilised for managing external reviews such as coronial inquests and inquiries, e.g. Victorian Bushfire Inquiry (Victoria 2003a), Auditor General Report on Fire Prevention and Preparedness (Victoria 2003b); and internal operational reviews such as real time performance monitoring, operations analysis and near-miss investigations. The outcomes of the 2002/03 fire season debrief have also been entered.

## 6. CHALLENGES

There are many types of actions usually identified in response to recommendations and findings generated by a review. These generally take the form of amendments to legislation, agreements, policies, procedures, guidelines, practices, or equipment. These then flow through to amendments to training materials, and education of current personnel regarding the changes through operational updates, memos, briefings, articles in internal newsletters, etc. The challenge for any organisation attempting to implement improvement is to coordinate all of these processes to obtain a clear and ongoing change in behaviour. Other challenges that are faced by CFA in implementing the operations performance improvement program include:

- Maintaining momentum and corporate commitment to development and implementation of the program
- Developing effective lessons learnt processes to share learnings with other agencies
- Establishing effective linkages to corporate performance improvement processes

- Developing effective processes for routine analysis of small “bread and butter” incidents both during and after the incident
- Improving functionality and efficiency of PIMS
- Evaluating the relevance and usefulness of human factors and situational awareness concepts and implementing accordingly

The systems and processes being developed in the Operations Performance Improvement program will hopefully address many of these challenges effectively. The proof will be in the pudding!

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