

A SYSTEMATIC APPROACH TO EMBEDDING SAFETY, WELL-BEING AND RISK MANAGEMENT WHEN RESPONDING TO INTERSTATE AND INTERNATIONAL DEPLOYMENTS

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ABSTRACT

The State of Victoria is a signatory to a variety of mutual aid arrangements to support partner agencies both interstate and internationally, during times of emergency.

The Department of Environment, Land, Water and Planning (DELWP), Parks Victoria, Melbourne Water, and VicForests, as Forest Fire Management Victoria (FFMVic), contribute to an overall Victorian deployment group when requests are made.

Notwithstanding, DELWP, and its FFMVic partners, has legislative obligations to ensure, as far as is reasonably practicable, the health and safety of our workforce including whilst deployed interstate and internationally under the control of partner agencies.

Working in strange landscapes with different people, systems, practices and equipment present a range of heightened risks for FFMVic personnel. Additionally, deployments frequently transpire when the requesting state / country has been managing protracted and large-scale events associated with widespread natural disasters and impacts on local communities.

Sound and comprehensive deployment planning and processes are the foundations to begin to mitigate those increased risks. Additionally, it has been recognised that planning for the wellbeing and safety of our staff extends well beyond the deployment window.

High level systems for managing emergencies fall under the Australasian Interservice Incident Management System (AIIMS). This system is nationally recognised and relatively consistent across Australia.

Yet, for on-ground management, control agencies have agency-specific safety systems, operational protocols, plant, equipment and tactics. These are best reviewed in advance of a specific deployment request to ensure that they are understood and are of an acceptable standard. If FFMVic believe them to be insufficient, additional mitigations and controls may need to be considered to ensure FFMVic staff are deployed into a safe workplace.

This paper presents a risk based approach and methodology to comparing partner agencies' safety systems. FFMVic has already carried out comparisons with a range of partner agencies and high-level learnings from these reviews will be presented.

INTRODUCTION

The Department of Environment, Land, Water and Planning (DELWP) is a signatory to a variety of mutual aid arrangements that provide support to partner agencies both interstate and internationally.

DELWP (and other FFMVic partner agencies) has a requirement under the Victorian *Occupational Health and Safety Act 2004* to ensure, so far as is reasonably practicable, that it provides and maintains a working environment that is safe and does not pose risks to the health and safety of people under its management and control.

This paper summarises a risk based methodology and comparative work that has been carried out to support the deployment of FFMVic personnel in support of interstate and international partner agencies.

BACKGROUND

DELWP currently has 13 different partnership agreements with other organisations which include interstate and international multi agency arrangements through the Forest Fire Management Group (FFMG), Emergency Management Victoria (EMV), Emergency Management Australia (EMA) and National Aerial Firefighting Centre (NAFC) including the National Resource Sharing Centre (NRSC).

The purpose of these mutual aid agreements and arrangements are to promote and facilitate exchange of emergency management resources between partner agencies and organisations for the delivery of emergency management in Victoria as well as providing mutual support and aid during the emergency management activities in other Australian States, New Zealand, Canada and United States.

These mutual aid arrangements are managed on behalf of the State of Victoria by EMV. DELWP, Parks Victoria, Melbourne Water, and VicForests, as Forest Fire Management Victoria (FFMVic) contribute to overall Victorian deployments when requests are made and dispersed across Victorian emergency agencies.

While FFMVic staff are working interstate or internationally and under the control of the interstate and international agency, the host agency has a requirement under local occupational health and safety legislation to ensure a safe workplace. However, DELWP (and FFMVic partner agencies) also has a responsibility to ensure that our staff are being placed into a safe workplace, so far as is reasonably practicable.

High level systems for managing bushfires or for undertaking planned burning falls under the Australasian Interservice Incident Management System (AIIMS). This system is the nationally recognised system of incident management for the nation's fire and emergency service agencies structure and this is consistent across Australia. Hence, when it comes to overall management systems, there is a common doctrine and these are well established.

When it comes to the on-ground management of emergencies, individual agencies have different conditions and hazards which may require different operational protocols, plant, equipment and tactics. These protocols must be reviewed in advance to ensure that they are of an acceptable standard, or if DELWP believe them to be insufficient or significantly different, allow the department time to implement additional controls to ensure their staff are so far as is reasonably practicable placed in a safe workplace.

It is now common place across emergency management policies and procedures in all agencies that safety of responders is top priority. However, working in unfamiliar landscapes interstate or internationally with different people, systems, practices and equipment present a range of heightened risks for FFMVic personnel.

Interstate and international deployments frequently transpire when the requesting state / country has been managing protracted and large-scale events associated with widespread natural disasters and impacts on local communities. The emergency sector has seen a real growth in the interest and management of psychological wellbeing with well reported cases of post-traumatic stress being documented and discussed in mainstream and social media.

Thus, there is increasing interest and need in ensuring that agencies account for not only the safety but also the wellbeing, particularly psychological, of personnel under their control.

Feedback and reported data tell us that key risks for FFMVic personnel when deployed interstate and internationally are:

1. Driving to and from events
2. Tree hazard risks
3. Fatigue
4. Working in isolation
5. Psychological wellbeing

METHOD

A risk based approach was used to identify the criteria for the safety systems comparison methodology:

1. Working alone or in isolation procedures.
2. Hazardous tree management processes.
3. Briefings, information and communication procedures.
4. Dynamic risk assessment policies and application.
5. Incident reporting and investigation procedures.
6. Deployment suitability procedures and guidelines.
7. Medical classifications and fit for fire procedures.
8. Fatigue management protocols.
9. Hydration policies.
10. Personal protective equipment standards.
11. Mobile plant operation and management.
12. Vehicle operation and management.
13. Radio operation.
14. Hand tools and equipment operation and standards.

Interstate reviews were initiated with identified agencies that DELWP regularly works with or receives assistance requests from. Contact was made to introduce the reviews and to provide additional context.

Once initial contact took place, arrangements were made for DELWP staff to travel to the relevant agency, review documentation and obtain further clarification and context. Often advanced copies of management systems and operational procedures were sent to the review team which allowed for a more in-depth review beforehand and more time for face-to-face discussion.

A spreadsheet was then populated with information against each of the review elements which were being assessed. It must be noted that this was not a compliance audit or a review of the entire management system. Only key elements of the agencies' systems were reviewed via a desktop exercise which focused on key operational topics. No field inspections or audits were completed on compliance to interstate agencies systems.

The review spreadsheet was also shaded as a traffic light document for the benefit of all agencies.

- Green identified that the system element was assessed as equal to that of DELWP's and no additional controls are required for staff on deployment.
- Yellow identified there were differences in the agencies' policies and that additional control measures should be considered for DELWP staff while on deployment.
- Red identified that there were significant differences and that DELWP must implement additional controls for staff while on deployment.

Assumptions were made on the strength of the agencies' documentation. No field visits were made to validate how well procedures had been implemented and how well they are adhered to.

Copies of the review spreadsheets were then shared between agencies to confirm their contents and to provide details of DELWP systems. Copies of documents were also exchanged in the interest of information sharing and, where possible, to strive towards a common operating doctrine within Australia.

PARTICIPATING AGENCIES AND STRUCTURE

Depending on the structure and responsibilities of the individual agency, it is possible that DELWP would be deployed to the lead agency i.e. Department of Environment, Water and Natural Resources (DEWNR) South Australia, however be under the management and control of the South Australian Country Fire Service (SNCFS) in an operational sense.

In such circumstances, all attempts were made to review the doctrine of the organisation that DELWP staff would be under the management and control of, however this often included a mixture of both agencies documentation. This is another element to be considered when planning and mobilising interstate and international deployments.

The following agencies were reviewed as part of this project.

- Tasmania Fire Service, Tasmania
- National Rural Fire Authority, New Zealand
- Department of Conservation, New Zealand
- Department of Parks and Wildlife, Western Australia
- Department of Environment, Water and Natural Resources, South Australia
- Country Fire Service, South Australia
- New South Wales Rural Fire Service, New South Wales

Meetings were also held, however no formal reviews were undertaken, with the Australian Capital Territory Parks and Conservation Service.

Additional agencies are also mentioned in agreements and arrangements for DELWP to potentially be deployed and assist, however such deployments were deemed to be unlikely and as such no reviews were undertaken.

RESULTS

| Area: | Reference: | Category: | Sub reference: | Task / Condition: | Tasmania Fire Service | National Rural Fire Agency Standards - New Zealand | Department of Conservation - New Zealand | Department of Parks and Wildlife - Western Australia | Department of Water and Natural Resources - South Australia | Rural Fire Service - New South Wales | |
|--------------------------------|--------------------------------------|---|---|--|-----------------------|--|--|--|---|--------------------------------------|--|
| Procedural | 1 | Working in isolation | 1.1 | Procedure | | | | | | | |
| | | | 1.2 | Operational role (working) | | | | | | | |
| | | | 1.3 | Operational role (supervisory) | | | | | | | |
| | | | 1.4 | Other roles on fire line not directly associated with fire suppression | | | | | | | |
| | | | 1.5 | Other tasks off fire line | | | | | | | |
| | 2 | Hazardous trees | 2.1 | Assessment / management during burn preparation works | | | | | | | |
| | | | 2.2 | Assessment / management during fire suppression works | | | | | | | |
| | | | 2.3 | Identification / marking hazardous trees | | | | | | | |
| | | | 2.4 | Treating / managing hazardous trees. | | | | | | | |
| | | | 2.5 | Training for hazardous tree identification and treatment | | | | | | | |
| | 3 | Briefings / information / communication | 3.1 | Pre deployment | | | | | | | |
| | | | 3.2 | Upon arriving in deployment state / territory | | | | | | | |
| | | | 3.3 | Pre-shift briefings | | | | | | | |
| | | | 3.4 | Receiving information on the fire line | | | | | | | |
| | | | 3.5 | Communication / approval process when re-deploying staff or changing roles | | | | | | | |
| 4 | Dynamic risk assessment | 4.1 | Tools | | | | | | | | |
| 5 | Incident reporting and investigation | 5.1 | Requirements for reporting internally and back to home agency | | | | | | | | |
| | | 5.2 | Requirements for investigation | | | | | | | | |
| | | 5.3 | Notification of incidents to Regulator (when required). | | | | | | | | |
| Competency, Health and Fitness | 6 | Assessing suitability for deployment | 6.1 | Deployment | | | | | | | |
| | 7 | Medical classifications / fit for fire | 7.1 | Minimum requirements for working in an operational role | | | | | | | |
| | | | 7.2 | Minimum requirements for working in an office based role | | | | | | | |
| | 8 | Fatigue management | 8.1 | Standard shift lengths (days) | | | | | | | |
| | | | 8.2 | Standard length of deployment (days) | | | | | | | |
| | | | 8.3 | Shift extension | | | | | | | |
| | | | 8.4 | Maximum shift length | | | | | | | |
| | | | 8.5 | Rest days / hours after shift length or deployments | | | | | | | |
| | 9 | Hydration | 9.1 | | | | | | | | |
| | Equipment | 10 | Personal Protective Equipment | 10.1 | Operational role | | | | | | |
| 10.2 | | | | Operating a chainsaw | | | | | | | |
| 10.3 | | | | Operating a piece of plant | | | | | | | |
| 10.4 | | | | Rappel crew | | | | | | | |
| 10.5 | | | | Other | | | | | | | |
| 11 | | Plant | 11.1 | Pre-start inspection | | | | | | | |
| | | | 11.2 | Training, licencing and accreditation | | | | | | | |
| | | | 11.3 | Offsider (when, how close etc.) | | | | | | | |
| | | | 11.4 | ROPS / FOPS structures | | | | | | | |
| | | | 11.5 | Maintenance / servicing requirements | | | | | | | |
| | | | 11.6 | Systems of work | | | | | | | |
| 12 | | Vehicles | 12.1 | Pre-start inspection | | | | | | | |
| | | | 12.2 | Training, licencing and accreditation | | | | | | | |
| | | | 12.3 | Offsider (when, how close etc.) | | | | | | | |
| | 12.4 | | Systems of work | | | | | | | | |
| 13 | Radios | 13.1 | Radio type | | | | | | | | |
| | | 13.2 | Radio operation | | | | | | | | |
| | | 13.3 | Induction | | | | | | | | |
| 14 | Equipment | 14.1 | Safe operating instructions / safe work procedures / other for the use of equipment | | | | | | | | |

The table above highlights the following areas that generally require more attention at the point of deploying FFMVic personnel to support interstate or international partners:

1. hazardous trees;
2. working in isolation;
3. fatigue management; and,
4. vehicles and plant.

DISCUSSION

Throughout the reviews there were many similarities and quite a few differences in approach regarding the operational protocols. A summary of some of the key topics is presented below and a comprehensive document capturing the reviews of individual agencies was formulated to inform future interstate or international deployments.

1. WORKING ALONE OR IN ISOLATION PROCEDURES

All agencies have an implemented process when staff are working on a fire line in an operational role to work minimum of 2-up. Crews have hand held and vehicle mounted radios as well as mobile phones and other means of communication where required.

Some roles require staff to work one-up on the fire line however, these are for roles such as Divisional / Sector Commander, Safety Officer or to complete other specialist tasks such as ground truthing. In such circumstances, there are requirements to maintain communications with their supervisor as per the fire chain of command.

Most agencies did not have a policy document to capture requirements for working alone or in isolation. All agencies did have a basic practice to monitor staff whereabouts. This was either via a 'T-card' system or other process for calling in.

2. HAZARDOUS TREE MANAGEMENT PROCESSES

There was an inconsistent approach amongst agencies when it came to hazardous tree management.

All agencies had a dynamic element of hazardous tree identification and management implemented, however this is where the similarities ended. Most agencies relied upon this rather than actively identifying and treating hazardous trees prior to igniting a planned burn or a back burn as part of fire suppression.

There were also inconsistencies in the level of training provided to staff on hazardous tree management.

The inconsistencies should be considered and interim arrangements put into place to ensure the risk is appropriately managed when on interstate and international deployments.

3. BRIEFINGS, INFORMATION AND COMMUNICATION PROCEDURES

It was established that information is provided to incoming staff when they are first deployed. This generally consisted of reaffirming behavioural expectations, accommodation arrangements and an overall situation update.

Agencies could confirm that briefings were provided throughout the deployment process and then via an incident shift plan / incident action plan document format that is relevant to the incident. Where this differs amongst agencies is the level of detail that is provided in these documents and how well it is explained to staff at the start of any shift.

In relation to providing information on the fire line, the chain of command was used to pass information up and down the chain of command. It was also confirmed that Red Flag warnings were used to pass on important information such as significant changes to weather, across all agencies.

4. DYNAMIC RISK ASSESSMENT POLICIES AND APPLICATION

The dynamic risk assessment process was an element of all agencies systems and was seen to be an important tool for identifying and managing risks in an uncontrolled environment, such as fire suppression activities. There were different variations of the dynamic risk assessment process with L.A.C.E.S and Take 5 being the most common in use.

The application of the dynamic risk assessment process varied amongst organisations with some relying on it more than others in the absence of systems of work.

The heavy reliance some agencies have on the dynamic risk assessment process is something DELWP is now aware of and need to consider implementing additional controls when deploying staff.

5. INCIDENT REPORTING AND INVESTIGATION PROCEDURES

All agencies had sound processes in place for incident reporting, investigation and notification to their Regulator should it be required.

All processes allowed for timely reporting and for information to be relayed back to the supporting agency via incident reporting systems or via Departmental Liaison Officers.

There was also provision for joint investigations to be undertaken in the event of a significant incident or near miss.

6. DEPLOYMENT SUITABILITY PROCEDURES AND GUIDELINES

The selection of staff for deployment is an area that is left to the supporting agencies systems and processes.

When DELWP provides staff, the process is relatively straightforward as there are medical and fitness requirements for each role that staff are deployed to. Where this process requires further management is if staff are redeployed into different roles whilst on deployment. In this scenario the Department Liaison Officer must be made aware and ensure that redeployed staff are undertaking roles within their medical and fitness classifications.

If DELWP are the host agency, the department must ensure that staff who are deployed to work under DELWP's management and control are of an appropriate and equivalent medical and fitness standard. This becomes problematic when agencies do not have a fit for fire program.

7. MEDICAL CLASSIFICATIONS AND FIT-FOR-FIRE PROCEDURES

The medical and fitness program differed between most agencies. Some agencies were equivalent to DELWP's process, others had fitness and medical requirements for certain roles, and other agencies did not have a process.

This difference in medical and fitness requirements between agencies should not be an issue for DELWP staff when they are deployed to work under another agency as internally we can ensure these staff hold an appropriate medical and fitness clearance for the roles they are being deployed into. As mentioned above, where it becomes an issue is when DELWP is the host agency and the requirement to ensure that staff are at an equivalent medical and fitness level is the responsibility of the support agency.

8. FATIGUE MANAGEMENT PROTOCOLS

The management of fatigue via restricted deployment lengths and specified rest periods was an area that differed between agencies.

There was a level of consistency in the standard shift length being scheduled, which is 12 hours. Shifts can be extended to 14 or 16 hours (excluding first attack) with varying levels of approvals depending on the agency. Rest breaks in between shifts are also agency specific however are generally a minimum of eight hours, this may increase depending on how long the previous shift was.

Deployment lengths vary from anywhere between four to seven days plus travel on either side. Rest days between deployments are generally two days minimum.

Managing the length of deployments should be considered well before the departure to ensure that adequate rest is provided between shifts and deployments.

9. HYDRATION POLICIES

The management of hydration is consistently well managed by all agencies.

All agencies had available guidance which reaffirmed the requirement to manage hydration, and included aids such as urine colour charts.

There is also the provision of ample water, electrolytes and meals available to staff to ensure that they can stay well hydrated.

10. PERSONAL PROTECTIVE EQUIPMENT STANDARDS

Personal protective Equipment (PPE) is relatively consistent between agencies.

11. MOBILE PLANT OPERATION AND MANAGEMENT

The management and utilization of mobile plant is different depending on the agency and also the environment they operate in.

Some agencies do not have an internal fleet of mobile plant and as such this is outsourced. Contractors may be engaged from a central panel or register, or this may be managed

locally. Other agencies do have both an internal fleet and engage external plant from a well-established and high-quality panel arrangement.

Operationally there are also differences in the expectations of how plant is managed. All plant is expected to be accompanied by a water carrying appliance as an off-sider. However, only some agencies dictate that Roll Over Protective Structures (ROPS) and Falling Object Protective Structures (FOPS) are mandatory.

The variances in requirements in the management of both internal and external plant should be considered when deploying staff to assist interstate and international agencies as there is potential for staff to be working near mobile plant.

12. VEHICLE OPERATION AND MANAGEMENT

The operation and management of vehicles is another element that differs amongst the agencies that were reviewed.

All agencies had a minimum requirement for staff to hold a valid driver's license for their State or Country, however there were differences in the required levels of training thereafter. Some agencies had no requirement for additional training, others had training that was not aligned to National Units of Competency (NUC) and some had additional endorsements required to operate a vehicle under lights and sirens.

The differences in requirements to operate vehicles should be considered on a case by case basis when providing staff to other agencies for interstate or international deployments.

13. RADIO OPERATION

Radios used by agencies consisted of either Motorola, Tait, Sargin or Simoco. Generally, an induction is provided to the incoming agency to ensure they are familiar with their use.

General information on radio channels is provided during incoming inductions and is documented specifically for each event in the Incident Shift or Incident Action plan.

14. HAND TOOLS AND EQUIPMENT OPERATION AND STANDARDS

Hand tools and equipment that are used by agencies were similar and generally consisted of rake-hoes, shovels, Pulaskis, chainsaws and other tools.

Staff are generally inducted on how to use the equipment or undergo formal training in their operation prior to use.

STRENGTHS AND LIMITATIONS

The methodology allows for a systematic review of safety and work systems in advance of deployment requests that frequently transpire under intense pressure.

The method implemented is not a full audit of safety systems as implemented in field operations. It is a desk based review of the doctrine and procedures of partner agencies to reveal differences in approach to safe work systems between agencies and allow advance

thought about where we might target additional mitigations and controls for FFMVic personnel when deployed under another agency's control.

Aircraft operations were excluded in the initial review because it was considered that national processes were in place to manage aviation safety. However, future risk assessments may need to consider how aircraft operations interact with ground crews and the processes involved across agencies.

This advanced thinking and application of a systematic review has led to additional mitigations and control measures being implemented for FFMVic personnel whilst away on recent interstate and international deployments.

CONCLUSION

Some high-level challenges have been identified by the study:

1. Challenges of different cultural approaches to safety and safe work systems between agencies.
2. The reliance on and use of dynamic risk assessment rather than documented safe work systems.
3. How to get nationally consistent approaches to safety and wellbeing that facilitates sharing of personnel resources between agencies under times of duress. An example of this under development is the AFAC led national process for hazardous tree management.
4. In addition to incident reporting, there is a need for improving reporting of near-misses and hazards in the field to better understand real risks in the landscape and between different geographies in Australia and internationally.
5. There is a need for some critical roles for any interstate and international deployment including:
 - a. strengthening the role of the FFMVic liaison officer to include specific safety and wellbeing responsibilities; and,
 - b. potential need to deploy home agency safety officers.

This methodology is a starting point and is not exhaustive. Any deployment and the taskings required are unique to that specific incident or event. Therefore, the methodology and risk assessment needs to be undertaken at the point of any deployment. However, by comparing safety systems in advance, the deployment risk assessment is truncated to changes and marginal differences specific to that deployment or to capture any changes in safety systems since the initial assessment.

The methodology presented has been written up to support future interstate and international deployments. It is published in the FFMVic *Bushfire Management Manual 2 Preparedness* as a Standard Operating Procedure and supporting work instructions:

- 2.7.2 SOP – Interstate and International Deployments – Outbound
- 2.7.2.1 WI – Interstate and International Deployments – Safety Systems Comparison
- 2.7.2.2 WI – Interstate and International Deployments – Risk Assessment