



**THE WINSTON CHURCHILL MEMORIAL TRUST OF AUSTRALIA**

**Report by – Stephen Walls – 2002 Fellow**

**The Lord Mayors Bushfire Appeal Churchill Fellowship to study the training of firefighters in the command and control skills necessary to manage major fires.**





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A handwritten signature in black ink, appearing to read "Stephen Walls", with a horizontal line underneath.

**Signed**

**Date** 1/11/2002

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## **Cover Photo:**

**Wandong fire, near Seymour, Victoria 1998.**

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## **1 Introduction**

Australia is arguably the most bush fire-prone continent on earth. Certainly South Eastern Australia is recognised as one of the three most fire prone regions in the world, along with southern California and parts of Europe adjoining the Mediterranean Sea. Of course Australia, in common with other developed countries also has many fires involving residential, commercial and industrial premises, so the term “major fire” does not only refer to wildfires.

Safe and successful firefighting depends to a large degree on the capabilities of personnel in command positions, who operate in very complex, rapidly changing environments.

This report is the result of a 10-week tour of the USA and UK to study different approaches to the training of personnel for command roles. The aim of the project was to investigate current methods of selection, training and skills maintenance for fire service personnel undertaking management roles at incidents, particularly major incidents.

The USA and UK were chosen because of the similarities to Australian incident management structures and the wealth of different venues and agencies available, whilst having minimal language differences. The USA also had the advantage that agencies involved with both structural and wildfire risks could be visited.

### **1.1 Acknowledgements**

Many people helped to make the fellowship a success, but particular thanks are due to Divisional Officer Frank Bowen (Hampshire Fire and Rescue Service), Senior Divisional Officer Martin Muckett (Buckinghamshire Fire and Rescue Service), Captain Tom Maguire (Los Angeles County Fire Department) and Mr Dick Mangan (US Forest Service – retired) for their contribution in arranging visits in their areas and giving practical support.

I gratefully acknowledge the assistance of my employer, the Country Fire Authority of Victoria, through former Chief Officer Trevor Roche and Chief Officer Russell Rees. Introductions facilitated by Mr Len Foster, Chief Executive Officer of the Australasian Fire Authorities Council made the organisation of visits much easier than anticipated. Deputy Chief Officer Geoff Evans and Chief Officer Euan Ferguson (now of the South Australian Country Fire Service) were instrumental in developing my interest in this field, and I thank them for their encouragement.

For the opportunity to undertake this fellowship I thank the Churchill Trust. The support of the Lord Mayors Bushfire Appeal in making this fellowship possible is particularly appreciated.

Finally, the trip would not have been possible without the support and understanding of my wife Catherine and children Nick and Felicity. Thank you.

## **2 Executive Summary**

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The project involved visits to fire services and training establishments throughout the USA and UK. The aim of the project was to investigate current methods of selection, training and skills maintenance for fire service personnel undertaking command roles.

A wide variety of approaches were observed for training personnel in structural and wildfire environments as well as allied fields such as policing.

Similar challenges are facing fire services in the USA and UK as are facing Australian fire services, such as the pending retirement of large numbers of experienced personnel, the cost pressures on training programs and the degree of outside scrutiny faced by fire agencies.

Four main themes were apparent in organisations recognised as demonstrating “best practice”:

- the opportunity to utilise computer technology to support training,
- the importance of maintaining structured training to support “on the job” experience,
- the effective inclusion of case studies, and
- the major role human factors play in the command and control process.

The information gathered through this fellowship will be passed to Australian Fire Services in a number of ways, including the distribution of this report, presentation of papers at conferences and participation in national working parties.

The author would be pleased to elaborate on any aspects of this report for fire agencies or other interested parties.

### **3 Fellowship Program**

This fellowship tour took place during the first three months of 2002.

<b>Location</b>	<b>Principal Establishments Visited</b>
<b>USA</b>	
Sterling, Colorado 10-13 January	Great Plains Wildfire College. <ul style="list-style-type: none"><li>• Participate in ICS Training Course (I-300) as a student.</li></ul>
Tucson, Arizona 14-15 & 17-18 January	National Advanced Resource and Technology Center (NARTC). <ul style="list-style-type: none"><li>• Observe Command &amp; General Staff Course (S-420) conducted by South West Area at NARTC.</li><li>• Discussions with course coordinators of national level Command &amp; General Staff course (S-520) and other National Level Wildfire courses.</li></ul>
Phoenix, Arizona 16 January	Phoenix Fire Department <ul style="list-style-type: none"><li>• Discussions with senior officers about training in incident command.</li><li>• Participate in training for command officers on Rapid Intervention Teams.</li></ul>
Emmitsburg, Maryland 20 January to 1 February	National Fire Academy <ul style="list-style-type: none"><li>• “Command and Control of Fire Department Operations at Multi Alarm Incidents” course as a student.</li><li>• Research using Academy library.</li></ul>
California 4-13 February	Observe Command & General Staff (S-420) Course at Bakersfield. <ul style="list-style-type: none"><li>• Discussion with Training Officers of various agencies re training of personnel for fast moving fires and those in the Urban/Rural interface.</li><li>• Attend fires and incidents with Los Angeles County Fire Department.</li><li>• Visits to various fire service establishments.</li></ul>
Boise, Idaho 13-16 February	National Interagency Fire Center <ul style="list-style-type: none"><li>• Discussion with National coordinators and developers of Wildfire training courses.</li></ul>
Missoula, Montana 16-20 February	Missoula Technology Development Center (USFS) <ul style="list-style-type: none"><li>• Discussion about current research in human factors and equipment development.</li></ul> Missoula Fire Laboratory <ul style="list-style-type: none"><li>• Tour of laboratory facilities,</li><li>• Discussions with researchers.</li></ul> Northern Rockies Training Center <ul style="list-style-type: none"><li>• Discussion about training issues for command roles.</li></ul> Frenchtown Fire Department <ul style="list-style-type: none"><li>• Discussion about command training issues for a rural volunteer fire department.</li></ul>

<b>Location</b>	<b>Principal Establishments Visited</b>
<b>UK:</b> London 22-27 February	London Fire Brigade Command Training Department, Lambeth Southwark Training Centre <ul style="list-style-type: none"><li>• Discussions with brigade training officers about training and skills maintenance,</li><li>• Demonstration of Minerva command simulator.</li></ul>
Moreton-in-Marsh, Gloucestershire 28-29 February	Fire Service College <ul style="list-style-type: none"><li>• Observation of Junior Officer Development course,</li><li>• Discussions with training personnel,</li><li>• Research using College library.</li></ul>
Portsmouth & Southampton area 3-8 March	Hampshire Fire and Rescue service; <ul style="list-style-type: none"><li>• Discussions about operational command training with operational and training staff.</li></ul> Vector Command plc <ul style="list-style-type: none"><li>• Development of wildfire scenarios and Australian version of structural scenarios.</li></ul>
Bramshill, Hampshire 6 March	National Police College <ul style="list-style-type: none"><li>• Observation of “Management of Disasters and Civil Emergencies” course for senior officers,</li><li>• Discussion with college staff about training trends and programs for command roles.</li></ul>
Sandhurst 7 March	Royal Military Academy Sandhurst <ul style="list-style-type: none"><li>• Discussion with senior officers about current and emerging trends in leadership, and transferability of military leadership training to other fields.</li></ul>
Leeds 12-13 March	West Yorkshire Fire Service <ul style="list-style-type: none"><li>• Discussion with senior operational staff about UK requirements for skills maintenance in command roles.</li></ul>
Leicester 18-19 March	Leicestershire Fire & Rescue Service <ul style="list-style-type: none"><li>• Visits to headquarters and fire stations. Discussions about operational command matters.</li></ul>



**Figure 1: US National Fire Academy, Emmitsburg Maryland**

#### **4 Rationale, or “Why Investigate This?”**

*“We shall not cease from exploration  
And the end of all our exploring  
Will be to arrive where we started  
And know the place for the first time.”  
T.S Elliot  
Little Gidding*

Traditionally, preparation for command roles in fire services has been based around experience gained at actual fires and incidents. Up to a point, this approach may still be quite valid. In fact Jonathon Crego of the Metropolitan Police in the UK stated “after 12 years of research costing over £2 million, the only certain outcome was that more experienced personnel make better decisions”.<sup>1</sup>

This project is about how to complement experience with training in order to give personnel the skills they require to manage major incidents.

Discussions undertaken during the study tour reinforce the author’s opinion that experience alone will not necessarily prepare someone to undertake command roles. This is particularly true in the case of major fires and incidents, where a paradoxical situation arises. The number of major fires is quite small, and the opportunities for learning on the job is therefore restricted. However the severity of the incident makes the performance of command personnel even more critical, and poor command performance can have much more significant ramifications than at routine incidents.

One of the major problems with relying solely on the experience of personnel is that experienced gained at one level will not necessarily prepare that person to undertake a command role at the next level. For example a person with many years experience as a crew leader, (and performing quite well) may not be prepared for the different tasks, responsibilities or scope of a role which requires the person to manage a number of crews.

The shortcomings of experience can perhaps be summed up by one of the author’s former supervisors, who wryly commented: “Experience is something you get immediately after you needed it”.<sup>2</sup>

Another paradox is that senior management personnel may have very little day-to-day involvement in operational activities, however they may be required to respond to major incidents to take a significant role in the management structure. Whilst they may have a considerable body of operational experience, the lack of regular and current experience at major incidents is a significant drawback in ensuring that they can be effective commanders at such incidents.

Command roles are widely recognised as being very complex functions, with many rapidly changing functions and inputs and has been described as “Managing in the Garbage Can”.<sup>3</sup> This makes the training and development of personnel a challenge to agencies the world over. The continuing development of techniques reflects the increasing knowledge of the issues involved in command roles, as well as an awareness of the importance of getting it right.

A key driver for continually improving command skills of personnel is that of firefighter safety. Australian fire services, in common with most of their overseas counterparts place a high emphasis on firefighter safety, and a key component of this is to have effective command structures and good decision-making practices in place.

## **5 Program Findings**

During the tour, the author visited a wide range of locations in the USA and UK, as shown above. These locations ranged from formal training establishments to fire departments or fire services, as well as institutions serving allied fields such as policing. The establishments and agencies visited in the USA included those with both structural and wildfire responsibilities, as well as some with major responsibilities in both fields.

The locations visited were those that had been identified as being innovative in their delivery of training or other related issues, recognised as leaders in incident management, or those with major influences on training in that particular country.

Whilst the focus of the fellowship was on the management of major incidents, this often involved a more general overview of command training in order to see how personnel are developed for the various levels of command.

An impressive aspect of many visits was that staff were prepared to volunteer information about aspects of their operations or training programs that they felt needed to be improved, as well as those that they felt were working well. This open attitude certainly assisted in gaining a balanced view of the situation in the locations visited.

### **5.1 Human Factors**

Perhaps the most obvious common thread of the command training observed was the importance attached to issues that could be described under the heading “Human Factors”. A wide range of issues fitting this description are driving the way best practice agencies train for and carry out command in their jurisdictions. This is not to negate the importance of technical knowledge and skills, but there is recognition that there is a greater need for skills in dealing with intra-personal and inter-personal issues, particularly at higher levels.

This was expressed in different ways by different agencies. The US Federal wildfire agencies are currently concerned with improving Fireline leadership skills<sup>4</sup>, and have developed a “Human Factors” course, which is likely to be included in basic firefighter training as well as refresher courses for all levels of personnel.<sup>5</sup>

A number of agencies (both structural and wildfire) seem to be placing a high degree of emphasis on “small group cohesiveness”. This seems primarily a safety related issue, based on the premise that when all else fails, the cohesiveness of the crew may very well be the factor that enables them to survive.

## 5.2 Formal Research

In both the USA and UK, there is a large amount of research being done about various aspects of Incident Management. Some of the aspects of research being undertaken relate to:

- Decision Making
- Team interaction
- Managing in complex environments
- Leadership in temporary organisations
- Operational Risk Management
- Effects of stress

In the USA, significant research has been undertaken on human factors for wildfire firefighters. A major report commissioned by the federal agencies and undertaken by the TriData Corporation has been used to identify areas requiring attention in a number of areas.

One of the interesting aspects of the research in the UK is the degree to which the results of the research are being included in fire service training and publications. There are formal links at both national and local levels, and the effect seems to be a very healthy partnership between the practitioners and researchers.

In both countries visited, there is a high degree of interchange between emergency services and other fields and industries. In the USA, the National Wildfire co-ordinating group is drawing heavily on work done by The United States Marine Corps on Leadership and decision-making. In the UK, much valuable work has been done by Professor Rhona Flin and her colleagues at the University of Aberdeen, which emanated from work done for the North Sea oil industry. Both countries utilise the studies from other “High reliability” industries such as the airline industry.



**Figure 2: Two books about command issues that cover contemporary topics in a manner that is understandable to both fire service personnel and academics. Recommended reading.**

Whilst much valuable research is being done in both countries, the author is of the opinion that the fire service in the UK is better at applying the outcomes of this research to the training of personnel. This opinion is shared by Dr Gary Klein<sup>6</sup>, himself a leading researcher into decision making and human factors in the USA. A notable factor in the UK is the amount of research that is being undertaken by operational members of the Fire Service, or sponsored by fire service agencies. This may make the formal integration of research findings somewhat easier than research undertaken independently.

### **5.3 Lessons Learned / Case Studies**

Many agencies have adopted Case Studies as an integral part of training programs. Most of these have involved fires or incidents where something has gone wrong. Rather than try to ignore what went wrong, these agencies use the case studies to educate personnel about the risks of various situations and pitfalls that can await them.

Examples of this include:

- Hampshire Fire & Rescue Service: Digital Fire – Basingstoke
- London Fire Brigade: Villiers Rd and Gillander St fires; Colville Road tunnel rescue; Clapham Rail Crash
- US National Wildfire Co-ordinating Group: Storm King Mountain (South Canyon Fire)
- National Advanced Research and Technology Center (NARTC): “Lessons Learned” program under development

Many of these case studies are used outside the agency that developed them, for example the London case studies are used at The Fire Service College, as well as by other UK fire services.

In all these cases, the services involved have made a conscious decision to share their experiences with not only their own personnel, but with the broader fire service community. The author was very impressed with the forthright manner in which people involved in these and other incidents were prepared to admit mistakes and exhort other people to learn from the experience. Feedback from training staff of the various agencies is that this approach is very effective.

A number of the agencies visited had experienced the tragedy of losing firefighters in operational accidents. This undoubtedly had the effect of spurring improvement in various aspects of the agencies operations. Phoenix Fire Department, widely regarded as a leader in incident command practices had a firefighter killed in a structure fire in 2001. The Department had made a big commitment to identifying and rectifying causes of this tragedy, including updating the training of all officers in issues and practices that were designed to prevent similar occurrences.

## **5.4 Computer Simulation**

Several agencies visited used computer simulation as part of their training program. Importantly, these agencies all described the technology as being integrated into the overall program, and not being the only aspect used.

Several practitioners mentioned that their agencies had hoped to use computer simulation for self study purposes, however all were of the opinion that this was neither desirable nor practical.

The advantages of computer simulation as a training tool are primarily that it is safe, reproducible, can be varied to suit the skill level of the trainee, and can be paused or interrupted should the trainee require prompting.

A wide range of computer simulation programs are used, some of which may be familiar to Australian fire service personnel. Computer simulators viewed included:

- Vector Command
- Minerva
- Hydra
- National Fire Academy system

The National Fire Academy System was developed specifically for use at the Academy at Emmitsburg, Maryland and uses a Silicon Graphics platform. The author understands that NFA intends to move towards a similar system running on a more conventional platform, citing high costs of developing and maintaining the existing system as reasons for the change.



**Figure 3: Control Room for National Fire Academy Fire Simulator**



**Figure 4: A command exercise underway at the National Fire Academy. The computer simulation can be seen projected onto the screen in the background.**

There was widespread support for the view that computer simulation on its own is not effective unless properly integrated into the training structure. Effective use of the various computer simulators still requires a high level of staffing from both instructional and support staff, as well as a structured analysis process after the simulation.

In the UK, both fire and police agencies are now utilising Hydra and Minerva to conduct multi agency exercises with promising results. London Fire Brigade is a leading user of the Minerva simulator particularly for training of senior officers.



**Figure 5 : The author observing a simulation exercise using Minerva at the National Police College, Bramshill, UK.**

Whilst a number of Australian fire services have purchased the Vector simulator, and there is at least one Minerva simulator in use by an Australian police force, the use of computers for higher-level command training has not been widely used by Australian fire services.

The various simulators studied have different strengths. Vector is actually able to determine whether particular strategies and tactics are effective, based on known fire behaviour and suppression principles. Hence the simulator is very effective at determining whether the tactics are effective, but may not adequately test other aspects of command. The Minerva and Hydra systems on the other hand have no in-built means of determining the effectiveness of suppression methods, but rather rely on an evaluation by the facilitator. The strength of Minerva and Hydra lies very much in the ability to test the interaction between the various personnel who are managing the incident. By enabling a number of different viewpoints of the fire to be displayed in different rooms, Minerva effectively simulates multi-sector incidents and requires the Incident Commander\* to effectively coordinate allocation of resources and manage information flowing from a number of sources.

## **5.5 Team Exercises**

Wildfire agencies (particularly federal agencies) in the USA have conducted “Command and General Staff Courses” for many years, designed to train and assess personnel on their ability to interact with other members of the incident management team. These are at two levels- the 2 week S-520 course is a pre-requisite for personnel to be included on one of the 16 National Type 1 Incident Management Teams. Several Australian personnel had the opportunity to observe this course in Arizona in 2001.

The S-420 course is a one-week course, which is a pre-requisite for personnel wishing to serve on a Type 2 Incident Management team.

In both cases, personnel have already met the skill requirements for their particular role on the Incident Management Team, and the courses test their ability to carry out these roles under conditions that are designed to simulate a real wildfire incident.

The author had the opportunity to observe two of the S-420 courses, run in different locations by different instructional groups. These courses are very resource intensive, with a large number of instructors, coaches and role players required to conduct the course. For a course of 30 students, up to 20 instructors and coaches were utilised, with a further 50 staff being required on the day of the major exercise to run the simulation and act as role players and support staff. Whilst recognising the high cost of these courses, agencies support these as being important to ensure that the teams function effectively.

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\* Australian terminology is “Incident Controller”

The instructional staff were very experienced incident management personnel, which gave a high degree of credibility to the courses.

One of the S-420 courses was run in Arizona by personnel predominantly from federal land management agencies, whilst the California course had federal, state, county and city fire agencies involved both as instructors and students. From the author's perspective, the California course had a higher level of emphasis given to issues such as the urban/ rural interface and liaison with large numbers of local agencies.

The advantages of these programs are that they provide a standardised program that applies a high degree of pressure to the trainees, without the disadvantages of learning the same role at a real incident. If a trainee makes a mistake it can be addressed in the debriefing process, but there are not real lives and property at stake.

Nearly all the agencies visited identified that the assessment of team skills presented some challenges, being largely subjective. Nevertheless some agencies were confident that their approaches were effective in ensuring that interpersonal issues were addressed

Interestingly, the importance of team cohesiveness is recognised by some fire services in the UK, which are considering the introduction of Incident Management Teams to improve performance on the fireground.



**Figure 6: Scenes from the fire simulation exercise during the Command and General Staff (S-420) Course in Bakersfield, California**

## **5.6 Suitability for Volunteers**

One of the locations visited, the Great Plains Wildfire Academy, was specifically designed to offer flexible training that suits volunteers as well as career personnel. Rather than being a physical “bricks and mortar” training establishment, this is an annual event, this year held in the township of Sterling in North Western Colorado. 2000 Churchill Fellow, Mark Thomason, attended an allied event, the Colorado Wildfire Academy. Similar events are now being held in a number of American states, including Texas, Wyoming and New York.

These events run a series of different modules required to qualify for different roles in the wildfire fire organization over a period of 7 to 10 days. Most of the courses are from the National Wildfire Co-ordinating group curriculum, and consequently are recognised throughout the US wildfire community.

This format allows volunteers to attend a short duration course in reasonably close proximity to their home. The volunteers felt that these format courses were suitable for their needs. Most of the courses offered were aimed at the firefighter and crew leader levels, with very little being offered at these type of events for higher-level roles. This does need to be taken in context with the wildfire arrangements in the US, where paid personnel, particularly from the federal agencies are more likely to be in command roles in the larger or long duration incidents.

The National Fire Academy conducts some courses in formats to suit volunteers at locations throughout the United States. They also make course material available for states and individual fire departments to run, and self-study material has been developed so that personnel can learn flexibly without having to attend classes. This material includes some basic simulation available on CD ROMs, however the author understands that this is intended to be used under guidance rather than in isolation.

In the UK, retained personnel\* have access to various courses in command roles both locally and at the Fire Service College (FSC). Training staff from a number of fire services as well as the FSC were concerned about the impact of new UK competency standards on the retained personnel, particularly about the significant time commitment required to retain competence.

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\* Part time firefighting personnel who are paid a retainer and a fee for attending fires and incidents. Some Australian fire services have this system, particularly in urban areas.

## 5.7 Command Model

In order to teach people command skills, there has to be a good knowledge of what constitutes the skills and processes involved. Given the complex nature of command roles, this is harder than it sounds.

Somewhat surprisingly, some individuals and agencies were of the opinion that command could not be documented, and could only be picked up by experience. Nevertheless, a number of agencies visited had formally adopted a command process, which then became the basis for training and assessment of personnel, as well as forming the basis of post-incident analysis. The advantage of that approach is that the same process is used for evaluating training and operations, and that the full range of command functions are included in the evaluation.

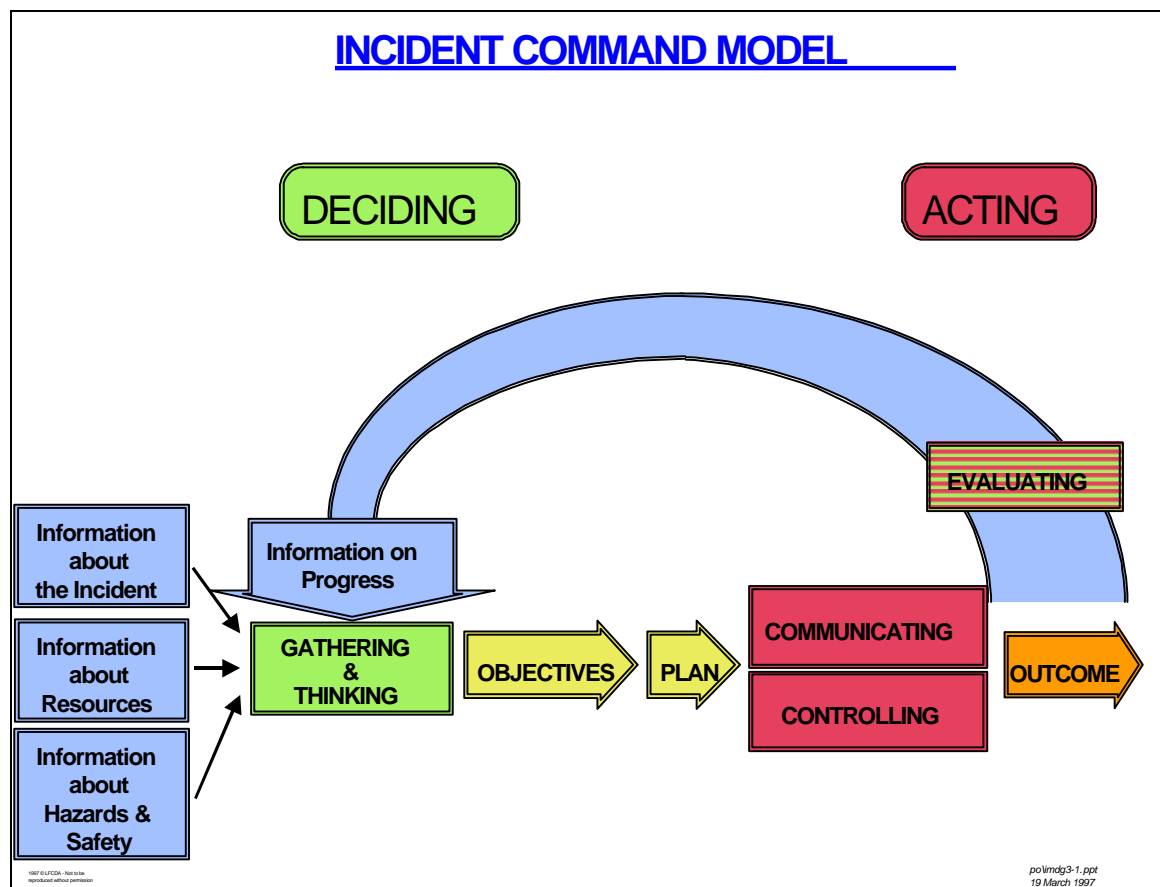


Figure 7: London Fire Brigade Incident Command Model

## **5.8 Skills Maintenance & Professional Development**

Many agencies visited had a requirement for personnel to maintain their skills by regular performance of command roles either at fires and incidents, or at formal exercises.

To give an example, London Fire Brigade conduct exercises on Minerva for each Senior Officer twice per year, as well as additional attendances prior to promotional assessments.

The US federal wildfire agencies have a comprehensive requirement for personnel to perform the roles for which they are qualified on a regular basis. This is well documented, however the training staff of the Bureau of Land Management were of the opinion that this could be significantly improved, particularly in the area of monitoring performance, and maintaining an overview of the whole workforce.

A number of agencies have requirements for senior personnel to complete certain professional development activities. Phoenix Fire Department, for example require 26 hours of approved development activities each year, in addition to maintaining technical and command skills.

## **6 Conclusions**

This fellowship enabled the author to study a number of examples of innovation and best practice. Many Australian fire agencies are using similar techniques and approaches already, and there is no suggestion that Australian approaches are not entirely effective. However the opportunity to benchmark ourselves against others is one that all fire and emergency services and land management agencies should embrace.

Much emphasis has been given (in fire service the world over) to the importance of having a common system for managing incidents. The authors experience is that for a system to be considered to be “worlds best practice”, there has to be many more aspects to the system than just a structure.

For incident management to be effective, the system used must include not only the structure, but also address the skills, experience and personal attributes of the people involved, not only as individuals, but also as members of a team.

Whilst command and control is a subject that has not exactly been ignored, the formalisation of processes and training in those processes has certainly been recognised in recent years.

Based on the author’s experience, fire services that can be considered to be demonstrating “best practice” will have particular strengths in the following areas:

- Strong links with academic research and use of current material in training programs;
- Effective inclusion of “Lessons Learned from Case Studies”, of their own and other agencies;
- Integration of computer simulation into training for command personnel;
- Inclusion of “Human Factors” issues in training and development for command personnel;
- Exercises that recognise the importance of team interaction to successful Incident Management;
- A skills maintenance program for command personnel at all levels;
- A recognition that effective command training may be resource intensive, but that capital investment (eg computer simulators) cannot take the place of appropriate staffing for command training;
- A formal process of analysing effectiveness of individuals and teams following operations and exercises.

The training of personnel for command roles is certainly complex, however there are many approaches from which we can learn. Australia is recognised as having a good framework for command training<sup>7</sup>, however we need to be constantly working on the way we deliver the training. By looking overseas to investigate innovation and best practice, we can make a complex task more manageable.

A commitment to investing time, money and effort in this field will ensure that Australian personnel from all agencies have sufficient skills, knowledge and experience to manage major fires and can be regarded as “competent to command”.

## **7. Recommendations**

As a result of this study tour, the author recommends that Australian fire services and land management agencies:

1. Investigate the use of high-level command simulators such as Hydra or Minerva by Australian fire agencies.
2. Continue to support the development of Australian scenarios of Vector command simulator.
3. Establish links with key agencies and individuals in the UK and USA in order to exchange information.
4. Disseminate information from overseas sources within each agency with a particular emphasis on getting information to personnel likely to manage major incidents.
5. Support research into human factors issues related to command roles.
6. Continue to review material from USA, UK and other countries to determine potential for use in Australian training programs.
7. Promote links with academic researchers both in Australia and overseas
8. Promote and support research by fire service personnel into operational command issues.
9. Establish exchange programs to allow serving members of Australian fire agencies to participate in command training and observe operational activities with leading fire services in the UK and USA.
10. Ensure that qualifications to undertake command roles include an evaluation of both the individual's role related skills, and ability to work as a member of a team.
11. Take every opportunity to disseminate Case studies of lessons learned from major incidents throughout Australian fire services, identifying both good and bad lessons learned.
12. Support future study tours (whether by Churchill fellows or not) to investigate relevant areas of interest in similar fields.

## **Appendix 1 – Select Bibliography**

Those who are interested in finding out more about this field may be interested in the following publications. The material listed here is thought to be generally available to interested persons.

### **Books:**

Brunacini, Alan (1985); "Fire Command", Quincy, Massachusetts, USA: National Fire Protection Association, 262pp including index.

Dunn, Vincent (1999); "Command and Control of Fires and Emergencies", Saddlebrook NJ, USA: PennWell, 291pp including index

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Ranch House Fire

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## Appendix 2 – Glossary

Command	<p><i>“The direction of members and resources of an agency in the performance of the organisations role and tasks.</i></p> <p><i>Authority to command is established in legislation or by agreement within an agency. Command relates to agencies and operates vertically within an agency.”</i></p> <p>Source: Incident Control System – The operating system of AIIMS(1992)<sup>8</sup></p>
Command and Control	<p>A general term covering the range of management functions involved in managing the response to an emergency incident.</p>
Competence	<p>For the purpose of this report, competence can be defined as the “ability to undertake a job to a consistent standard using skill and knowledge in a range of circumstances.”<sup>9</sup></p>
Control	<p><i>“The overall direction of response activities in an emergency situation.</i></p> <p><i>Authority for control is established in legislation or an emergency response plan, and carries with it the responsibility for tasking and co-ordinating other agencies in accordance with the needs of the situation. Control relates to situations and operates horizontally across agencies“</i></p> <p>Source: Incident Control System – The operating system of AIIMS(1992)<sup>10</sup></p>
ICS	<p>In Australia the abbreviation refers to “Incident Control System”, a formal system to manage incidents whether large or small. In both the USA and UK the abbreviation refers to “Incident Command System”.</p> <p>In a general sense, the term refers to any formal system used for managing emergency incidents.</p>

### **Appendix 3 - References**

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- <sup>9</sup> London Fire and Emergency Planning Authority; "Best Practice Assessment- Guidance Notes", (undated), p 1.
- <sup>10</sup> AARFA Publications Association, Inc; "Incident Control System – The operating system of AIIMS, 2<sup>nd</sup> Edition.", Ringwood East, Australia (1992), p64