AIIMS Situation Unit

Learning Manual

This learning manual has been published for use within CFA. It has been developed having regard to current CFA occupational health and safety guidelines and "Safety First" principles.

Edition 1
September 2009

SAFETY FIRST

AIIMS Situation Unit

Contents

Overview

Introduction

This manual has been designed to support the learning of participants undertaking training in leading the Situation Unit, using the Australasian Inter-service Incident Management System (AIIMS).

It contains information on:

► a review of AIIMS;

► the Situation Unit;

► the role of the Situation Unit;

► the analysis, evaluation and prediction of incident information; and

► leading the Unit.

Relationship to Competency Standards

The Situation Unit course has been aligned to the Public Safety Training Package units of competency:

► PUACOM003A – Manage information;

► PUAFIR401A – Obtain incident information; and

► PUAFIR502A – Develop incident control strategies.

► In addition, participants will receive recognition for a CFA competency "Situation Officer qualified" when they successful completed the requirements.

Prerequisites

Participants undertaking AIIMS related training courses must have successfully completed:

► CFA404 – Introduction to Australasian Inter-Service Incident Management System course (21588VIC). Equivalent courses may include:

► PUAFIR204A – Respond to wildfire;

► PUAFIR303A – Suppress wildfire;

► PUAOPE003A – Navigate In urban and rural environment;

► PUATEA002A – Work autonomously;

► SROOPS003B – Apply weather information; and

► CFA EIMS Mapper course.

Participants must also have basic computer skills.

Participants must also have met the requirements of their individual agency to be eligible to undertake the course, including all specified units of competency in:

► designated technical areas relating to emergency incidents; and

► supervisory and management areas.

Outcomes

On successful completion of the Situation Unit Leader training program, participants will be able to:

► identify the role and describe the functions of the Situation Unit and its position in the AIIMS structure;

► describe interactions of the Situation Unit with other Sections and Units of the incident management structure and external organisations;

► describe the staffing, workspace requirements and specialist tools of the Situation Unit;

► describe and demonstrate the management of information inputs to the Situation Unit;

► describe and demonstrate the management and production of information outputs from the Situation Unit including:

  • predictions of incident position and status;

  • plots of incident position and status;

  • relevant sections of the Incident Action Plan;

  • reports;

  • plans; and

- maps; and

▶ describe the changeover and demobilisation and rehabilitation requirements and responsibilities of the Situation Unit Leader.

Related Resources

Further resources may be available to support your learning. To identify the resources available, CFA members should search the Bookshelf on the Brigades Online website using the title and key terms from this publication. The Bookshelf also contains the current CFA policies and procedures. Familiarity with these will enable you to apply your learning appropriately.

VICSES members should refer to their own website and intranet site for related resources.

Department of Sustainability and Environment (DSE) members should refer to "Fireweb" for related resources.

Assessment

Assessment of competence will be conducted using a variety of methods. These methods may include:

▶ observation of individual and group work completed during training courses;

▶ simulated workplace activity;

▶ on-the-job experience;

▶ role evaluation or third party assessment;

▶ written assessments; and/or

▶ oral questions.

Certification and Endorsement

Participants who successfully complete this course will receive certification that they have successfully attained the following unit(s) of competency:

► PUACOM003A – Manage information;

► PUAFIR401A – Obtain incident information;

► PUAFIR502A – Develop incident control strategies. And

► CFA competency "Situation Officer qualified"

The course does not, however, provide an endorsement in relation to any participant's ability to fill any role in the Situation Unit at an incident.

Such endorsement shall only be provided by each participant's own agency following consideration of the complete training, qualification and experience profile of the participant, and the requirements of the agency.

Chapter 1
Review of AIIMS

This chapter examines:

▶ **the purpose of AIIMS;**

▶ **the outcomes of AIIMS;**

▶ **the principles of AIIMS;**

▶ **incident classification; and**

▶ **incident management facilities.**

Introduction

The planning function is one of four management functions of the Australasian Inter-service Incident Management System (AIIMS). This chapter summarises the important aspects of AIIMS.

AIIMS

AIIMS provides emergency services with a robust incident management system that, when applied to the resolution of any emergency situation, enables the seamless integration of activities and resources of single or multiple agencies. AIIMS achieves this by providing a management framework that starts at the first response and grows with the incident.

AIIMS involves a structure of delegation to ensure that all vital management and information functions are adequately performed. It brings together personnel, procedures, facilities, equipment, and communications to facilitate the efficient management of an incident.

From first notification, incident management procedures are implemented and incident control issues of resourcing and operational planning are considered.

The Incident Controller will be engaged in planning strategies, with consideration of resources and additional actions to resolve the incident. As the size or complexity of an incident escalates, the Incident Controller may delegate some functions.

AIIMS will operate effectively for any type of incident, including:

► fire;

► floods;

► cyclones;

► search and rescue;

► earthquakes;

► wind storm;

► aircraft accidents;

► dangerous goods or hazardous substance spillages;

► tunnel collapse;

► outbreaks of disease;

► transport accidents; and

► the many other situations in which emergency management organisations will be involved.

AIIMS is adaptable and scalable and can be used effectively for incident management by a single organisation, or by two or more organisations working together. AIIMS promotes effective multi-agency operations through the use of common terminology and a structure that provides for communication between organisations at all levels of the incident. It also establishes a cohesive chain of command within the incident management structure.

AIIMS Outcomes

AIIMS is designed to achieve the following outcomes.

► Provide a safe working environment;

► effectively and efficiently control the incident;

► minimise the impact of the incident on the community and environment; and

► provide for the welfare of personnel involved in controlling the incident.

From planning through to operational implementation, decisions at an incident should include consideration of their likely impact on the achievement of these outcomes.

AIIMS Principles

AIIMS is based on three principles. They are:

► functional management;

► management by objectives; and

► span of control.

Functional management

Functional management is the utilisation of specific functions to manage an incident. AIIMS consists of four functional areas. These are:

► control;

► planning;

► operations; and

► logistics.

The functions of planning, operations and logistics have a subordinate relationship to the control function as illustrated in Figure 1.
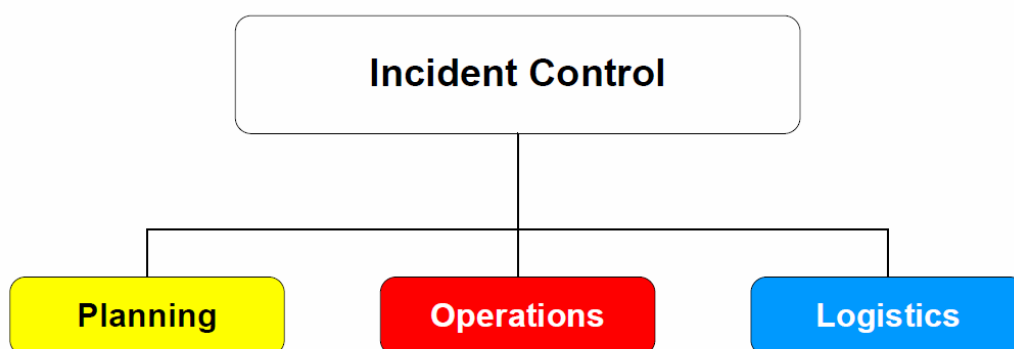
Figure 1 – AIIMS functional areas

In many situations where AIIMS is used to manage an incident, one person manages the four functions. In other situations one or more of the subordinate functions may need to be delegated, and when this occurs an Incident Management Team (IMT) is formed.

The IMT, which can consist of up to four people, uses a consultative approach to manage an incident.

While the formal IMT consist of the four functional managers, personnel filling these roles may require support from many more people undertaking delegated roles and responsibilities within the four functional areas.

As illustrated in Figure 1, each function is associated with a specific colour.

► control: white.

► planning: yellow.

► operations: red.

► logistics: blue.

To assist in identifying functional managers in an IMT, the Incident Controller, Planning Officer, Operations Officer and Logistics Officer should wear white, yellow, red and blue tabards respectively.

Personnel assisting the functional managers in Incident Control Centres (ICC) and similar facilities may also wear tabards, arm bands or name/role tags in these colours to identify their role within the incident management structure.

Personnel required to work on line may not be able to use these colours to identify their role. This is due to the requirement to wear protective clothing that needs to comply with a range of standards relating to factors such as integrity and durability, flammability, visibility, reflectivity and colour.

Control

Incident control is responsible for the overall management of the incident. In accordance with emergency management and agency procedures, an Incident Controller is appointed within this function to take responsibility for managing all activities related to an incident. Responsibilities of an Incident Controller include:

► assessing an incident's potential;

► identifying priorities;

► setting and achieving incident objectives;

► establishing procedures to identify and manage all risks;

► providing a safe work environment; and

► keeping all relevant people, including those in the affected community and any other stakeholders, informed and aware of an incident's progress.

Planning

Planning is responsible for the:

► collection, evaluation and dissemination of information; and

► development of plans to resolve an incident.

Planning is initially undertaken by the Incident Controller, but can be delegated to a Planning Officer. Responsibilities of the Planning Officer include:

► collection, evaluating and disseminating information on the current and forecast situation;

► preparing and disseminating plans which identify objectives and strategies for controlling an incident;

► collecting and maintaining information on resources at an incident; and

► providing management support across an incident.

Operations

Operations are responsible for the implementation of the measures taken to resolve an incident, including tasking and supervising resources.

Operations will be undertaken by the Incident Controller in the initial stages of an incident, but can be delegated to an Operations Officer. Responsibilities of the Operations Officer include:

► establishing an operational structure and allocating resources to resolve an incident;

► supervising resources engaged in implementing strategies to resolve an incident; and

► monitoring the situation to maintain a safe working environment for resources working to resolve an incident.

Logistics

Logistics is responsible for obtaining and maintaining the human and physical resources, facilities, services and materials required to resolve an incident.

The Incident Controller is initially responsible for managing logistics, but the function can be delegated to a Logistics Officer. Responsibilities of the Logistics Officer include:

► assessing the logistical and support requirements of an incident; and

► establishing systems and processes to provide and maintain the logistical and support requirements of an incident.

Management by objectives

Management by objectives is a process of consultative management where the Incident Controller, in consultation with other members of the IMT, determines the desired outcome for an incident, that is, the Incident Objective.

The IMT also determines in broad terms the strategies to be used to achieve the objective. The Incident Objective and these strategies are then communicated to everyone working to resolve the incident in an Incident Action Plan (IAP).

Tactics to implement the strategies are not usually specified in the IAP, but are determined by those responsible for implementing the strategies following an ongoing assessment of the situation.

For simple incidents, the IAP can be developed mentally and communicated verbally. Complex incidents require that the IAP is developed methodically and documented carefully before it is communicated and disseminated.

Each incident can only have one Incident Objective and one IAP. The IMT must constantly review the situation and adjust the IAP as required to ensure it remains current and relevant.

Span of control

Span of control relates to the number of groups or individuals that one person can effectively supervise. Where the span of control is exceeded, the supervising officer should consider delegating responsibility to others.

During an emergency incident, the environment can change rapidly and become

dangerous if not managed effectively. Under the principle of span of control, five individuals or groups is considered to be the desired maximum reporting to a single person. This maintains a supervisor's ability to:

► supervise;

► maintain safety;

► communicate;

► effectively task; and

► monitor and evaluate performance.

Classification of an Incident

As an incident grows in size and/or complexity, management becomes more demanding and the Incident Controller needs to consider the delegation of responsibility for the subordinate AIIMS functions.

AIIMS recognises three classes of incident, namely Level 1, Level 2, and Level 3.

Level 1

A Level 1 incident is a simple incident with minimum complexity. It is able to be resolved in a short time frame through the use of local or initial response resources only.

At a Level 1 incident, the Incident Controller establishes control and maintains responsibility for all AIIMS functions. The major focus is on operations, with control of the incident limited to the immediate area. The Incident Controller will also undertake the functions of planning and logistics concurrently. This will take place from an Incident Control Point located at the incident as shown in Figure 2.
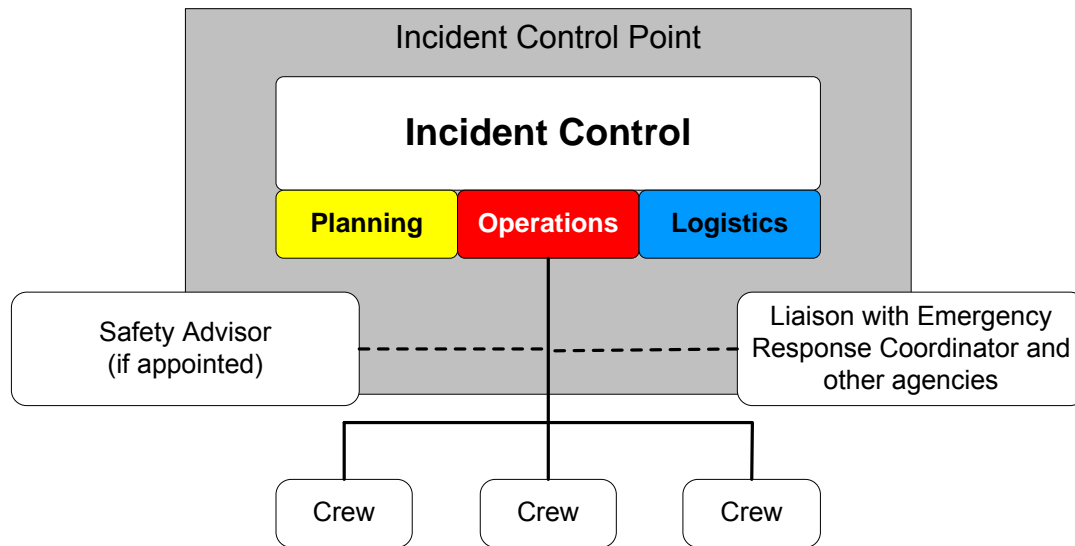
Figure 2 – Incident Control Structure: Level 1 incident

Level 2

A Level 2 incident is more complex either in size, control, or risk factors. Level 2 incidents generally require additional resources to support the initial responders, and require a longer time frame to resolve the incident. As operations are more complex, geographic or functional sectorisation is also usually required.

Level 2 incidents require the:

► delegation of the operations function that is managed by the Operations Officer from an Operations Point at the incident;

► establishment of Staging Areas to assist in registering and deploying resources; and

► delegation of the planning and logistics functions. The Planning and Logistics Officers manage these functions from an Incident Control Centre (ICC). The ICC may be located remote from the incident.

The Incident Controller is also located at the ICC as shown in Figure 3.

AIIMS Situation Unit
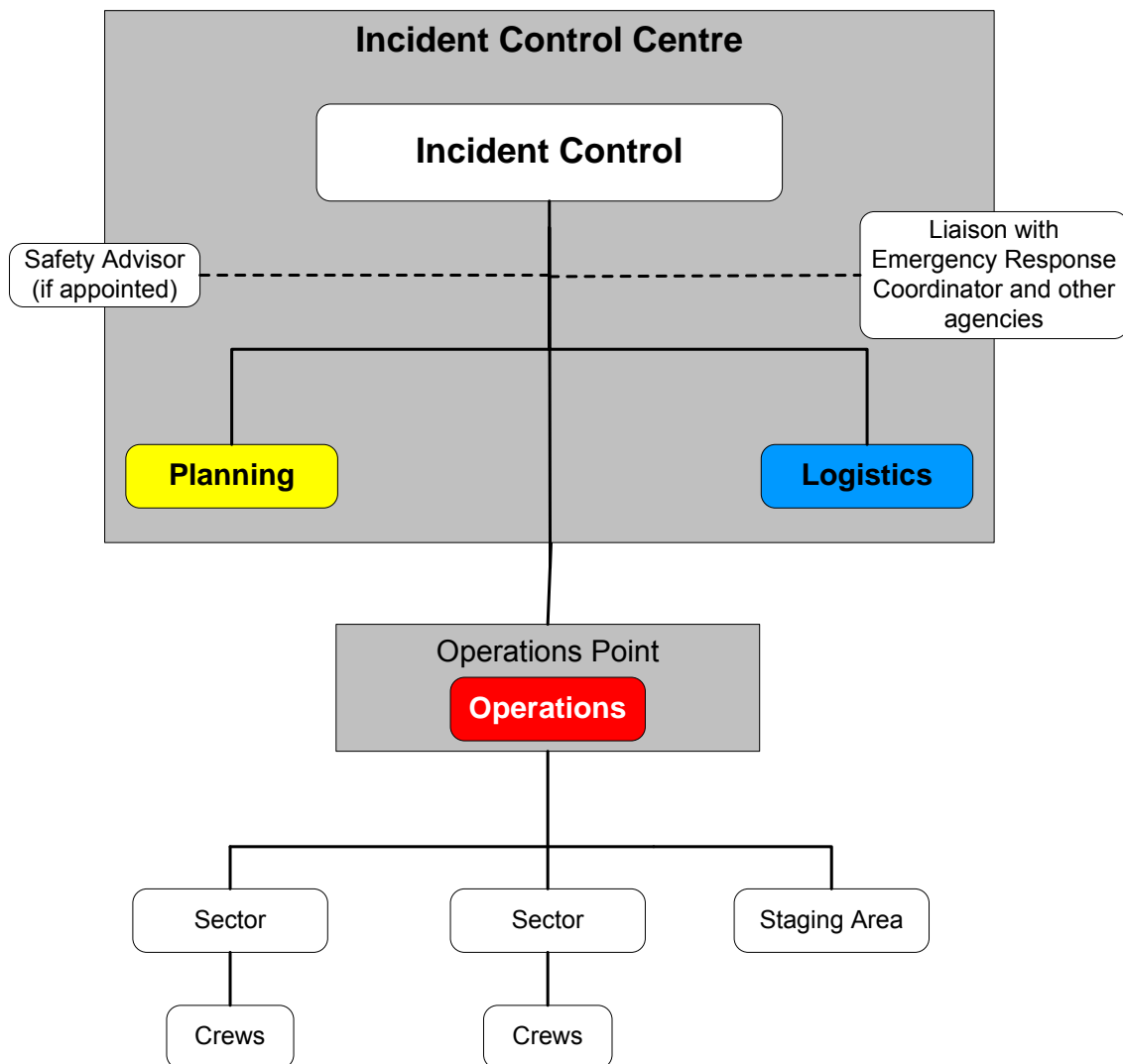
Figure 3 – Incident Control Structure: Level 2 incident

Level 3

A Level 3 incident is characterised by high levels of complexity in terms of size, risk factors and/or difficulty to control. This may involve continually expanding boundaries, continually escalating resources, and long-term operations. The establishment of Divisions to provide efficiencies within the Operations Section is usually also required.

Level 3 incidents require delegation of all AIIMS functions. They also usually require the establishment of fully resourced Planning, Operations and Logistics Sections.

All members of the IMT should be located together at an ICC for Level 3 incidents.
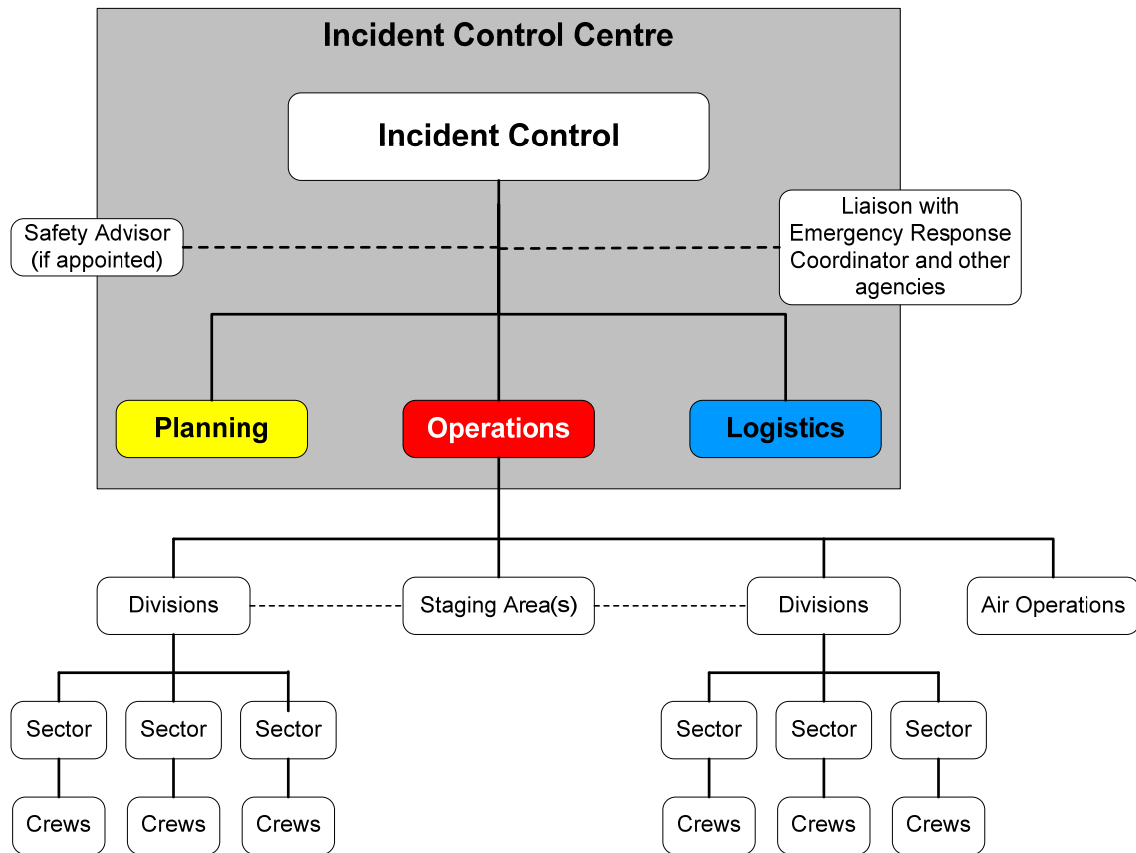
Figure 4 – Incident Control Structure: Level 3 incident

Planning issues associated with Level 1 incidents are usually very simple, and are easily managed by the Incident Controller through adherence to Standard Operating Procedures.

Level 2 and Level 3 incidents, however, create specific planning issues. These are best managed by a dedicated Planning Officer as the responsibilities of the Planning Section will become more and more complex and will overwhelm the Incident Controller unless they are delegated.

AIIMS Management Structure

Figure 5 shows all the Sections and Units in the AIIMS Management Structure.
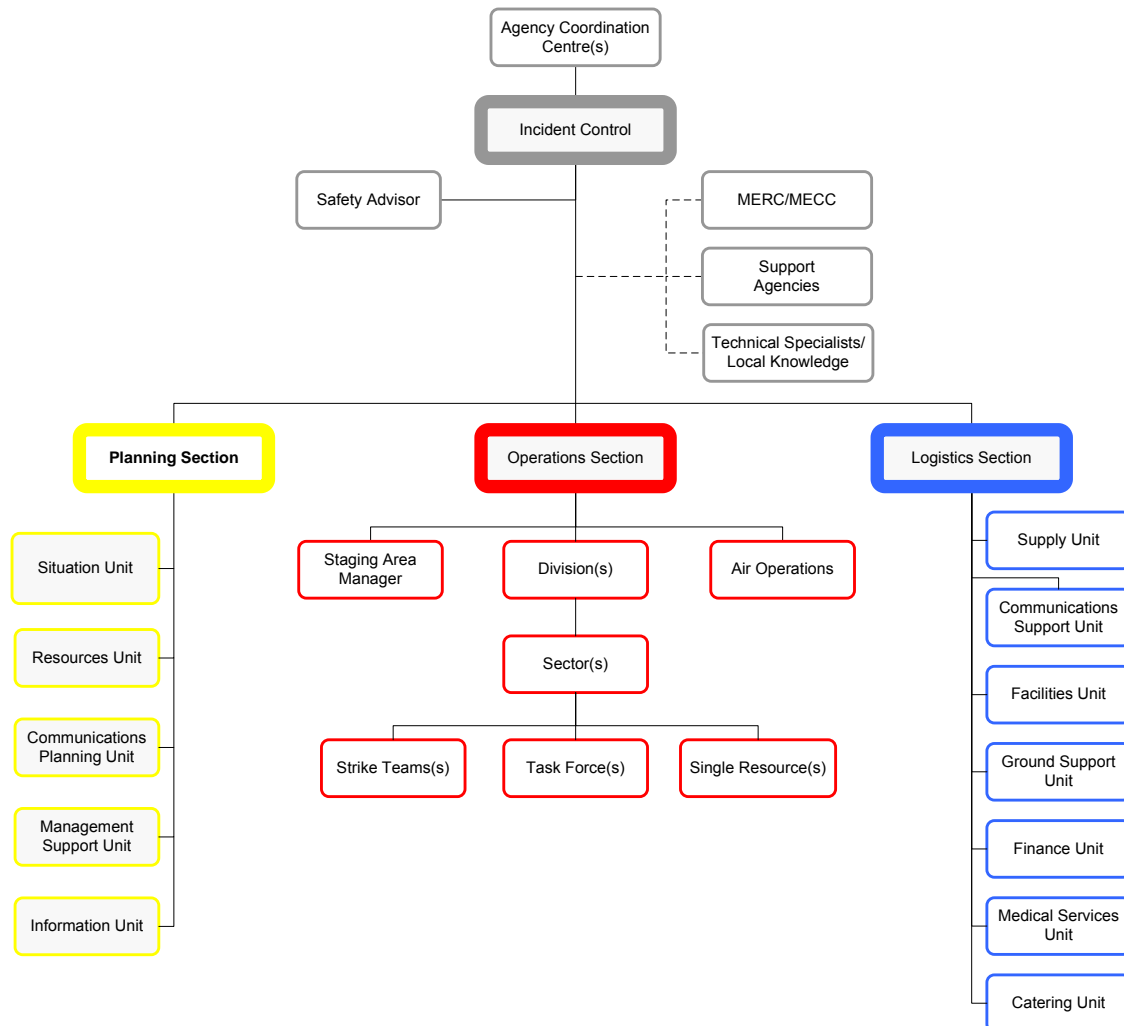
Figure 5 – AIIMS incident management structure

Incident Management Facilities

A number of facilities exist within the State for the control of Level 2 and Level 3 incidents and coordinating resources in support of incidents. They are:

► State Emergency Coordination Centres (SECC);

► Regional Emergency Coordination Centres (RECC);

► Incident Control Centres (ICC); and

► Municipal Emergency Coordination Centres (MECC).

SECC

The SECC is both a facility and an organisational arrangement for State level control and coordination of emergencies. It wil primarily be concerned with the coordination of fires, floods, storms and other emergencies managed by participating agencies. It may also be utilised for coordination of other emergencies on request.

RECC

RECCs are established in each CFA fire control Region and VICSES Regions for the purpose of coordinating resources in support of incidents prior to the establishment of Incident Management Teams (IMTs). The RECC also provides a regional support facility for the rest of that region that is not directly involved in the incident.

ICC

Across the State there are a number fo predetermined Level 2 and Level 3 ICCs. These facilities are provided with a level of communications equipment which should be able to be utilised with the minimum amount of set-up time. These facilities may be the normal work centres for the agency and as such will be maintained by that agency.

MECC

MECCs are located in municipalilites across the State to provide access to specialist and supplementary resources from within the municipality. They may be activated at the request of Victoria Police or a responsible agency when a major emergency occurs in the municipality or in support of response and recovery activities within a neighbouring municipality.

The centres are usually staffed by Councils, emergency service representatives and recovery organisation representatives.
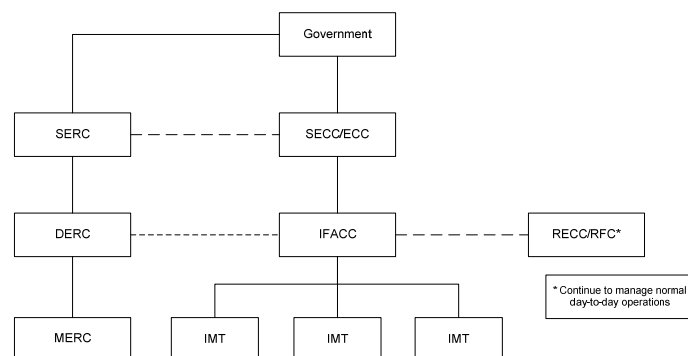
Figure 6 – schematic representation of reporting relationship

Chapter 1
Summary

▶ AIIMS is an incident management system designed to:

- provide a safe working environment;

- effectively and efficiently control the incident;

- minimise the impact of the incident on the community and environment; and

- provide for the welfare of personnel involved in controlling the incident.

▶ AIIMS is based on three principles:

- functional management;

- management by objectives; and

- span of control.

▶ AIIMS classifies incidents as either:

- Level 1, a small simple incident managed from an Incident Control Point by the Incident Controller; or

- Level 2, a more complex incident requiring delegation of operations, planning and logistics and the establishment of an Operations Point, ICC and a Staging Area; or

- Level 3, an incident with major complexities or long-term duration that requires delegation of all functions and full Planning and Logistics Sections. All members of the IMT are located together at an ICC. Divisions may be used to direct operations in the field.

▶ A number of facilities exists within the State for the control of Level 2 and Level 3 incidents and coordinating resources in support of incidents.

Notes

Chapter 1
Self Assessment

Short Answers

1. What is the purpose of AIIMS?

    _____

    _____

    _____

    _____

2. List the four outcomes of AIIMS.

    _____

    _____

    _____

    _____

3. Briefly describe the role of each of the four management functions of AIIMS.

    _____

    _____

    _____

    _____

4. Explain the term "management by objectives".

    _____

    _____

    _____

5.   What is the "span of control" recognised in AIIMS?

_____

_____

6.   Briefly describe the management structure of a:

(a) Level 1 incident.

_____

_____

_____

(b) Level 2 incident.

_____

_____

_____

_____

(c) Level 3 incident.

_____

_____

_____

If you have any problems understanding the material or supplying satisfactory answers, see your Supervisor for clarification and help.

Chapter 2
Situation Unit

This chapter examines the:

▶ **Situation Unit responsibilities;**

▶ **Unit activation;**

▶ **Role and responsibilities of the Situation Unit Leader;**

▶ **Situation Unit roles; and**

▶ **Situation Unit interactions.**

Introduction

Lack of information about an incident invariably leads to poor decision making in incident management. In turn, this can lead to the loss of an opportunity to resolve an incident. It may also compromise the safety of personnel working to resolve that incident.

Situation Unit Responsibilities

The role of the Situation Unit is to collect and analyse information about an incident so that effective decisions can be made by personnel managing the incident.

The Situation Unit is responsible for:

▶ collecting and evaluating information;

▶ preparing information summaries, mapping and information displays;

▶ predicting how an incident may develop;

▶ identifying a preferred objective and alternative objectives for an incident;

▶ preparing a range of strategies for each objective for consideration by the Incident Management Team (IMT);

▶ identifying the resource requirements for alternative objectives and strategies;

▶ evaluating the impact of strategies implemented to achieve the objective;

▶ providing Situation Reports relating to the situation and progress towards achieving the Incident Objective; and

▶ preparing for the transition from response to recovery.

Unit Activation

The Situation Unit should be established when the quantity and complexity of the information relating to the incident and the way it is developing is too much for the Planning Officer to consider and action alone. This will include all Level 2 and Level 3 incident.

Unit size

Smaller and less complex Level 2 incidents may require a Situation Unit of one or two people only. However, larger and more complex incidents which involve a rapidly changing or escalating situation may require a larger number of people to meet the requirements of the Unit.

While the primary function of the Unit needs to be provided from the Incident Control Centre (ICC), some members of the Unit may need to be out-posted to other locations, including Staging Areas and Base Camps, and on-ground at the incident.

Situation Unit structure

Consideration must be given to the skills mix and competency profiles of personnel in the Unit to ensure all aspects of the Unit's role can be fulfilled.

Depending on the nature of the incident, the Situation Unit may need to contain:

▶ Ground Observers and Air Observers to assist in the gathering of information;

▶ personnel with technical and operational knowledge and experience to help with the analysis of technical and operational information;

▶ administrative staff to perform basic clerical and administrative tasks, and operate common communications and administrative equipment;

▶ personnel with the ability to use information technology and communications (ITC) equipment for specific applications;

▶ weather specialists to collect and evaluate weather information;

▶ mapping personnel to prepare maps for the incident;

► Technical Specialists to provide advice on the behaviour of an incident and strategies to control it; and

► sources of local knowledge to help identify the local impacts of the incident.

When the Situation Unit is established, a Situation Unit Leader should be appointed to assist the Planning Officer in managing the Unit and providing the outputs for which it is responsible.

Figure 7 shows an example of a possible structure for the Situation Unit.
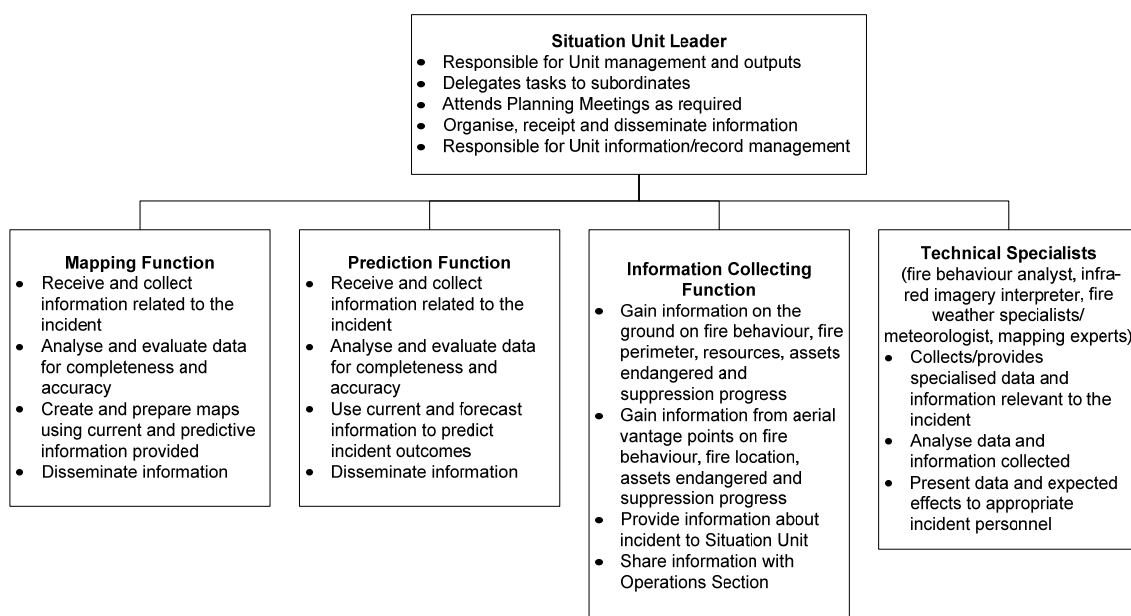
Figure 7 – example of Situation Unit structure

Role and Responsibilities of the Situation Unit Leader

The role of the Situation Unit Leader is to establish and manage the Situation Unit.

Knowledge and skills

The Situation Unit Leader must have:

► good information, backed with extensive field-based experience so that they fully understand the complexities of incident behaviour; and

► a sound technical knowledge and understanding of the factors that are involved with the resolution of an incident.

In many cases they will be responsible for the collation of expert advice into a coherent picture.

Situation Unit Leader responsibilities

The Situation Unit Leader will work as an individual, or as the leader of a team to provide the Planning Officer with the outputs of the Unit. In undertaking this role, the Situation Unit Leader is responsible for:

► obtaining a briefing from the Planning Officer;

► assuming the Situation Unit Leader role;

► establishing and maintaining a Situation Unit Leader log;

► reviewing the situation and establishing a Situation Unit to meet the requirements of the incident;

► setting objectives for the Situation Unit and ensuring Unit members have the skills and resources required to perform their tasks;

► identifying and establishing processes to ensure effective information flow to, from and within the Situation Unit;

► establishing work priorities, performance standards and timeframes for Situation Unit personnel to:

  • establish a network to collect information on the current and projected situation;

  • establish record management and filing systems;

  • establish a weather service to collect information on the current and forecast weather that may affect the incident and personnel at the incident;

  • liaise with Technical Specialists and sources of local knowledge regarding incident behaviour, its likely development, threats created by the incident, and opportunities to resolve it;

  • complete Incident Predictions;

  • identify and prioritise risk exposures and threats;

  • develop alternative Incident Objectives and strategies;

- complete an Options Analysis to identify key outcomes and risks associated with alternative objectives and strategies;

- identify impacts of actions to resolve the incident on life, property and the environment;

- identify issues for recovery;

- recommend a preferred objective for consideration by the IMT;

- prepare mapping and incident information displays for the ICC;

- evaluate the effectiveness of suppression activities and risk mitigation strategies;

- identify and report significant events as they occur;

- prepare Situation Reports to provide updates on the situation, control measures and potential safety issues;

- prepare information displays; and

- contribute to the development of the Incident Action Plan (IAP);

► liaising with the Planning Officer regarding progress in completing Incident Predictions and Options Analysis, and updating Situation Reports;

► providing a safe work environment for Situation Unit personnel;

► preparing for the changeover of the Situation Unit;

► ensuring Situation Unit records are filed and secured; and

► debriefing with the Situation Unit and the Planning Officer.

Area appreciation of area impacted by incident

To be able to properly perform the role required, the Situation Unit Leader needs to have a good appreciation of the incident area impacted or likely to be impacted by the incident.

This is especially critical when operating away from the Situation Unit Leader's normal area, and will require the early introduction of local knowledge into the Situation Unit.

An example is where a Situation Unit Leader goes from the North East of Victoria to the South West of Victoria or visa versa, or from Gippsland to the Grampians. These areas

are very different in their geography and vegetation, fire behaviour, seasons, agricultural practices, population densities and migrations, fuel loads, and weather patterns. All the factors influence fire behaviour.

The Situation Unit Leader is likely to struggle to deal with many of the problems or decisions that need to be made unless they can get a good idea of the area of operation. The Situation Unit Leader's local knowledge may be of little or no use when they operate in an unfamiliar environment. Analysis, predictions, options and objectives provided by the Situation Unit may not be suitable to that situation, or dismissed by Operations Section. This will result in considerable wasted time and effort.

The Situation Unit Leader should:

► have a general overview of the area of the anticipated operation, such as:

- the urban/rural interface;

- the importance of tourism and the number of likely visitors that may be in the area;

- the type and size of industrial activities;

- the type of agriculture; and

- the type and age of forest;

► be aware of the long term and short term weather patterns for the incident area, including:

- the rainfall (snow) received during the immediate past, and predicted for the immediate future;

- the temperature, including the long term above and below average ranges, extended number of consecutive high temperature days and nights with corresponding low day and night relative humidity;

- the effect on fuel loads, moisture, and type of vegetation;

► consider the time of year the incident is occurring, and take into account:

- population movement; and

- crop and pasture condition; and

► be aware of:

- prevention works that are in progress or were completed, such as fuel reduction burns;

- Municipal Fire Plans including roadside fire works;

- agency preparedness plans and works including strategic breaks/roads;

- the fire history including previous fires within the area; and

- the plantation lifecycle stage.

If possible, the Situation Unit Leader should gain information on the incident area at the start of the incident, as this will strongly influence the type and priority of information that may be required by the Incident Controller and the decision that must be made. Examples include a fire:

► in a forested area with little or no impact on people and/or infrastructure, but with potentially serious environmental issues for a catchment, will be dealt with and prioritised differently compared to a fire with an urban/rural interface with the potential for loss of life or critical infrastructure; or

► in a tourist area with limited escape routes that is full of holiday makers who may have little understanding of the threats is different from a fast running grass or crop fire.

The effect of an average or better rainfall in a cropping pasture area, good snow falls and the effect on high country and lower area stream flows should also be taken into account.

The Situation Unit Leader should also be aware the impact of factors such as the potential of previous fire history, the effect of prevention works, and plantation life cycle stages on the fire behaviour to date. This may provide a reduced level of fire behaviour than would be expected and may only have a short term effect or could be utilised as part of the suppression strategy or allow for consideration on deployment of resources.

Log keeping

The Situation Unit Leader **must** keep a formal log of **all radio and telephone communications, important conversations and directions or commands.** A record of assumptions made during calculations or reasons for making certain decisions

should also be kept for future reference, often by the next Situation Unit Leader.

Management Support Unit provides the personnel for operating the radio and some of the telephone systems and are normally located close by. This does not detract from the need for the Situation Unit to still keep their own comprehensive log of all communications both in and out of the Unit. It is essential that all incoming and outgoing transmissions are logged, processed and appropriate actions implemented to resolve the issues. This includes information/requests that are stated face-to-face or passed via a message.

In addition, Situation Unit staff associated with the incident must record any "significant event"' in which they are involved or witness. A "significant event" is defined as any action, occurrence or communication that impacts the suppression operation or an individual. Examples include the notification of a forecast wind change from the Planning Section, or any milestone in the incident such as the completion of a fire control line.

All Unit personnel is encouraged to carry a note book or log book and pencil/pen at all times.

Purpose of maintaining logs and notes

It is not possible to accurately remember detail for extended periods. This problem can be overcome through logs and notes. Keeping a log or notes serves several important purposes. Primarily, it established a record that contains information for instant or later reference/use, and assists in maintaining communications. Logs are also important in operational reviews and debriefs and can be used as evidence in court. The requirement for agencies to provide logs to the police/coroner upon request (in the even of an "incident" or an "accident") places increased importance on the logs kept by personnel associated with suppression operations.

Standard of logs and notes

The content, neatness and format of a log directly influence the ability of a log to serve its purposes.

The establishment of a consistent etiquette in record keeping will assist in the briefing and debriefing process during and after the incident.

► Content. Logs must be meaningful, concise and complete. The phrase "who, what, why, where and when" is a useful prompt.

- Who is being communicated with, who is being given an order, to whom has something significant happened?

- What is the command, what is happening, what is the event?

- Why does the action need to occur, why did the event happen?

- Where does the action need to occur, where did the event happen?

- When does it need to occur, when did it happen?

In general, the level of detail and formality required in logs or notes is dependent on the significance of the events with which the log keeper is associated.

► Neatness and format. Logs must be legible (not just to the author) and, if a logbook is used, formatted under the log headings as explained below.

When making a log entry it must contain the following information.

- Use a 24 hour clock.

- Date/time every entry.

- Incident name or number.

- Name of person preparing the log.

- In the "To" or "From" column indicate who the person is that is speaking. Use full names and surnames, no abbreviations. Where possible and appropriate, add the person's role designation, for example, OO for the Operations Officer, and SC1 for the Sector Commander on Sector 1.

- Note the name of the person you are speaking to (and their location/organisation if necessary). Use full names and surnames, no abbreviations. Where possible and appropriate, add the person's role designation.

- In the column titled "Message" record the topic of the communication and brief accurate notes of the content.

- Tick the "Action" column if action is required or mark it with a cross if it is not required. This column can also be initialled.

- Get a contact number for the person you are speaking to if you do not already have one.

- Do not limit each log entry to one line of the log; use ample space and ensure that notes are legible and comprehensive.

- Leave a blank line between each entry.

Collection of logs

The Situation Unit Leader, in association with the Management Support Unit or the Planning Officer must establish a process for the collection and storage of logs, notes and other incident documentation. All documentation must be kept in a safe place of storage for the statutory period. Incident records are collected and collated by the Management Support Unit for handing onto to the District Area/Region where the incident occurred.

Filing/storage of incident information

Information received and processed requires proper storage and filing. The principle of filing is that like information is kept together and filed in a manner that makes it accessible or retrievable in a sequential order.

Management Support Unit is responsible for establishing and maintaining a suitable system of work and storage. Each Unit will have it's own file structure requirements. Units may be required to maintain hardcopy paper based and electronic files. The filing structure in both instances should be consistent.

It is suggested that the following filing structure be used as a base for establishing and maintain Situation Unit Files.

Incident name

Section: Planning

Unit: Situation

► File 1: Maps

- Date and time code: YYYYMMDD_HRMNSC_Map name. An example is 20090903_131546_Tutong. This file naming convention is consistent with CFA's EIMS Mapper file naming conventions.

  ➢ Shift: Day

  ➢ Shift: Night

► File 2: Weather

- Date code: YYMMDD

  ➢ Shift: Day

  ➢ Shift: Night

► File 3: Predictions

- Date code: YYMMDD

  ➢ Shift: Day

  ➢ Shift: Night

► File 4: Sitreps

- Date code: YYMMDD

  ➢ Shift: Day

  ➢ Shift: Night

► File 5: Observations

- Date code: YYMMDD

  ➢ Shift: Day

  ➢ Shift: Night

► Fire 6: General

- Date code: YYMMDD

  ➢ Shift: Day

  ➢ Shift: Night

Management Support Unit will establish a schedule for the collection of files for the incident. It is suggested that the Situation Unit retain the previous shift's files while filing information from the current shift. This will allow the current shift to have a point of reference when developing the current Shift Plans.

The files from each shift should be kept separate. Single files should not be maintained for multiple shifts.

It is suggested that manila or equivalent folders be used for each file. This will allow them to be placed in appropriate file storage boxes within the Management Support Unit. It may be useful to use step file racks (toast racks) for on-desk storage.

All documents received or prepared should have the date and time recorded on the document prior to filing and appropriate annotations made in the Unit Log.

It is imperative that the Situation Unit has access to a suitable photocopier so all information can be copied in the various sizes and quantity to service the all recipients' needs. All information should be managed to ensure it can be distributed as requested and on time.

Always file original documents and use copies for displays or to work on. It helps to stamp them "original" or "copy".

When setting up the record keeping system, consider who needs access to various pieces of information and how often. Information that is frequently used by a number of people may be best displayed on a wall or pin board; for example, current map, weather forecasts. Infrequently used information, for example, Rate of Spread (ROS) calculations, could be filed.

Situation Unit Roles

The five primary roles of the Situation Unit are shown in Figure 8.
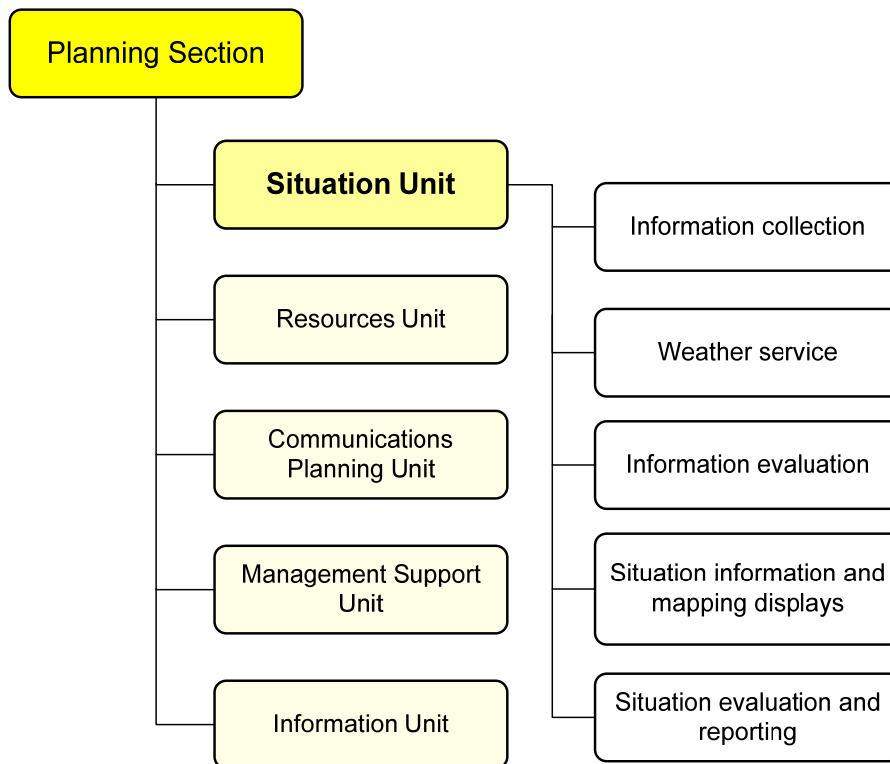
Figure 8 – roles of the Situation Unit

The roles will be discussed in detail in Chapters 3 and 4 of this manual.

Situation Unit Interactions

While the Situation Unit is an independent Unit within the Planning Section and has a defined role, it will not be able to fulfil its role at an incident unless it works closely with a range of other personnel, both within or external to the incident management structure. This may include the following personnel.

► The Incident Controller, who must be kept informed of the status of the incident, its predicted development, and any significant events which may occur.

  The Incident Controller must also authorise Situation Reports before they are disseminated by the Situation Unit.

► The Safety Advisor, who is responsible for providing safety advice to the Incident Controller, and who must be kept informed of the status and development of the incident, significant events and threats created by the incident.

► The Planning Officer, who is responsible for managing the Planning Section and providing strategic direction to the Situation Unit Leader and other personnel in the Unit.

► The Information Unit Leader, who must be kept informed of the status and development of an incident and threats created by the incident. This will help the Information Unit to prepare and disseminate accurate information about the incident to all incident personnel and other stakeholders in a timely manner.

► The Resources Unit Leader, who must be kept informed of the status and development of the incident to enable them to identify resource requirements, and plan for changeover and demobilisation.

The Situation Unit Leader should also confirm with the Resources Unit Leader that opportunities are provided to brief and debrief operational personnel during changeover and demobilisation.

Information about resources available from support agencies that may help with the development of effective strategies and provide alternatives should also be obtained from the Resources Unit Leader.

► The Communications Planning Unit Leader, who must be kept informed of the status and development of an incident to enable the Communications Planning Unit to develop and review the Communications Plan.

► The Operations Officer, who can provide the Situation Unit with operational Situation Reports which can be used to help prepare Incident Predictions and Options Analyses, evaluate the effectiveness of the IAP, and prepare Information Summaries and Displays.

Information provided by the Operations Officer may also help the Situation Unit Leader to identify potential hazards for any Situation Unit personnel deployed in out-posted locations.

The Situation Unit Leader should also ensure that situational information collected by the Situation Unit from sources such as Ground Observers and Air Observers is shared immediately with the Operations Officer.

The collection of information from the Operations Section via the Operations Officer may be best served with standardised forms that will minimise the impact on the

operations personnel. The Situation Report is most likely the best form to use. Information required by the Situation Unit that may not be included in the Situation Report should be requested via the chain of command to enable the Operations Officer to prioritise requests and operational activities.

► The Air Operations Manager or Aircraft Officer, who must be kept informed of the status and development of the incident to ensure the best use of tactical aircraft.

The Air Operations Manager and/or Aircraft Officer, who may also be able to provide information collected by tactical or reconnaissance aircraft which can be used to help predict the development and plan for the control of an incident.

► Staging Area and Base Camp Managers, to help ensure that arrangements are in place to debrief operational personnel during changeover and demobilisation.

This information can be used by the Situation Unit to update Situation Reports and review the Incident Action Plan.

► The Logistics Officer, who must be kept informed of the status and development of the incident to enable the Logistics Section to identify requirements for logistical support for the incident.

► Agency Coordination Centres, that can provide preparedness plans and other information to help predict the development and plan for the control of the incident.

► Technical Specialists and sources of local knowledge, who should be utilised as required to assist the Situation Unit in its role.

► Support agencies. The Situation Unit may determine or predict the level of involvement that another agency will have in the incident. These agencies need to be kept informed of these requirements and pass any relevant information back to the Situation Unit and any other Units affected.

These interactions are illustrated in Figure 9.
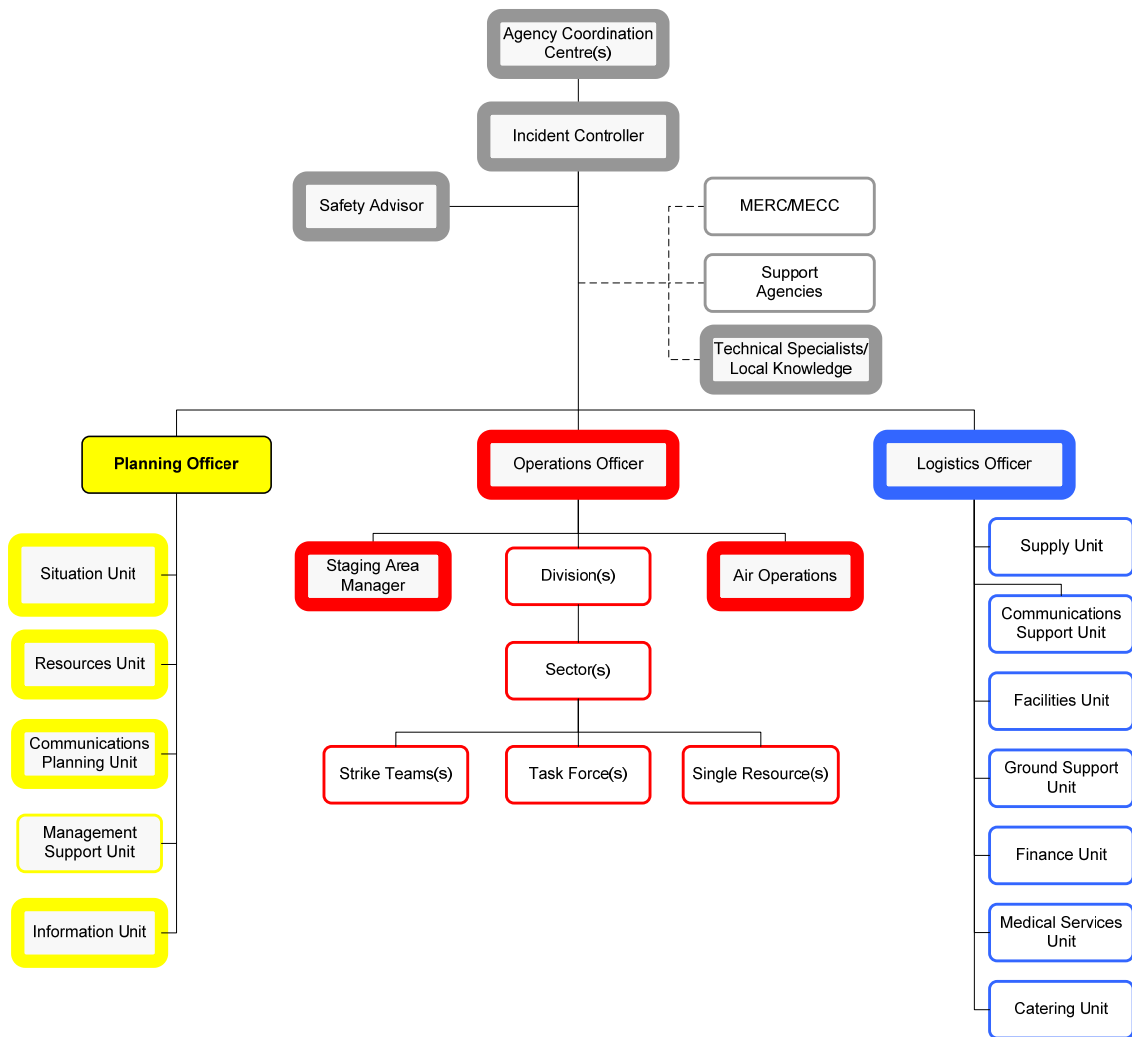
Figure 9 – Situation Unit: key interactions

To ensure the Situation Unit is effective in its role the Planning Officer and the Situation Unit Leader must ensure these interactions are established and maintained when the Unit is established.

Chapter 2
Summary

▶ The role of the Situation Unit is to collect and evaluate information about an incident to enable effective decision making to resolve that incident.

▶ The Situation Unit is responsible for:

- establishing a network to collect information on the current and projected situation;

- liaising with Technical Specialists and local knowledge sources regarding incident behaviour, its likely development, threats created by the incident, and opportunities to resolve the incident;

- establishing a weather service to collect information on the current and forecast weather that may affect the incident and personnel at the incident;

- completing Incident Predictions;

- identifying and prioritising risk exposures and threats;

- developing alternative Incident Objectives and strategies;

- completing an Options Analysis to identify key outcomes and risks associated with alternative objectives and strategies;

- identifying impacts of actions to resolve the incident on life, property and the environment;

- identifying issues for recovery;

- recommending a preferred objective for consideration by the IMT;

- preparing mapping and incident information displays for the ICC;

- evaluating the effectiveness of suppression activities and risk mitigation strategies;

- identifying and reporting significant events as they occur;

- preparing Situation Reports to provide updates on the situation, control measures and potential safety issues; and

- contributing to the development of the IAP.

► The Situation Unit should be established when the quantity and complexity of the information relating to the incident is too much for the Planning Officer to consider and action alone – typically Level 2 or Level 3 incidents.

► The Situation Unit should have good information, backed by appropriate experience and a sound technical knowledge and understanding of the factors that are involved with the resolution of an incident.

► A Situation Unit Leader should be appointed to manage the Situation Unit, and is responsible for:

- obtaining a briefing from the Planning Officer;

- establishing and maintaining a Situation Unit Leader Log;

- reviewing the situation and establishing a Situation Unit to meet the requirements of the incident;

- setting objectives for the Situation Unit and ensuring Unit members have the skills and resources required to perform their tasks;

- identifying and establishing processes to ensure effective information flow to, from and within the Situation Unit;

- establishing work priorities, performance standards and timeframes for the Situation Unit and supervising personnel to provide the outputs of the Unit;

- liaising with the Planning Officer regarding progress in completing Incident Predictions and options analyses, updating Situation Reports, and updating ICC displays;

- providing a safe work environment for Situation Unit personnel;

- preparing for the changeover of the Situation Unit;

- ensuring Situation Unit records are filed and secured; and

- debriefing with the Situation Unit and the Planning Officer.

► The Situation Unit Leader should ensure accurate Situation Unit Logs are kept.

► All working documents and documents, reports and maps produced by the Situation Unit, be it in hard copies or electronic format must be filed and stored in a logical and secure way.

► When the Situation Unit is established, the Situation Unit Leader must establish and maintain key interactions with a range of people to ensure they are effective in their role.

Notes

AIIMS Situation Unit

Chapter 2
Self Assessment

Short Answers

1. Briefly describe the role of the Situation Unit.

2. When should the Situation Unit be activated an incident?

3. Briefly describe the role of the Situation Unit Leader at an incident, and the relationship between the Situation Unit Leader and the Planning Officer.

4. Describe the critical outputs for which the Situation Unit is responsible.

If you have any problems understanding the material or supplying satisfactory answers, see your Supervisor for clarification and help.

Notes

Chapter 3
Role of the Situation Unit

This chapter examines:

► **information collection;**

► **weather service;**

► **information evaluation;**

► **situation information and mapping displays; and**

► **the safety of incident personnel.**

Information Collection

The collection of situation information is critical to the Incident Management Team (IMT) decision-making and is an essential requirement of the Situation Unit.

Collecting incident information

Information from a range of sources must be collected to enable Situation Unit personnel to develop well-informed and sound Incident Objectives and Strategies. Information sources covers:

► all aspects of the incident's development, including:

  • the past behaviours (what has happened);

  • the present behaviour (what is happening now); and

  • predicted behaviour (what will or might happen); and

► the likely impacts on the resolution of the incident.

The Golden rule is to **always** ensure the information is **accurate**. Flawed information produces incorrect predictions. Data and other information can come from a number of sources. The reliability of the data and information must be established before it is used.

Most information required by the Situation Unit will be generated by personnel not in the Planning Section. When important data is not available through other Sections, the Situation Unit Leader must consider appointing specialised personnel to obtain it. The appointment of these personnel will require the approval of the Planning Officer. Information collection personnel may be active around the incident collecting incident information. They may be on foot, in vehicles, in aircraft, or even aboard watercraft. Situation Unit staff may also be placed at the Staging Areas and Base Camps to collect and manage data to be forwarded to the Incident Control Centre (ICC).

Situation Unit Leaders will need to make sure procedures are established for receiving incident information. Where ever possible, formal written reporting processes need to be established; for example, receiving copies of any Sector Situation Reports. The Unit Leader will need to advertise the need and stress the importance of accurate and timely information coming into the Unit and what purpose it has. It will be useful to state the goal of Situation Unit to provide accurate and timely maps and displays to incident personnel to help achieve Unit Objectives.

Information sources

The Situation Unit must establish a network of information sources, which may include:

► documents, for example; pre-plans, maps and census data;

► information systems, for example; chemical data information; and/or

► personnel located at the incident.

Pre-plans and other documentation

Two critical sources of pre-incident planning that should be available to the Situation Unit are:

► Municipal Emergency Response Plans. These Plans provide planning information for a variety of incidents that may impact on the municipality. These should be available at the ICC or alternatively can be sourced through the Municipal Emergency Response Coordinator (MERC); and

► Agency Response Plans. These provide information relating to a response by that agency to a specific incident such as a wildfire, forest or plantation fire.

These documents may provide information on:

► incident behaviour and development, based on the history of previous incidents and/or predication models;

► opportunities for control;

► safety issues and threats;

► agency protocols and procedures;

► inventories of pre-planned facilities;

► inventories of personnel, including competencies and contact details;

► inventories of equipment;

► working sheets and checklists;

► reporting relationships and contacts; and

► Communication Plans.

The Situation Unit Leader should ensure copies of the Municipal Emergency Response Plan and any relevant agency response plans are available to personnel within the Situation Unit.

Other documentation that may be useful to the Situation Unit include:

► maps, such as topographic, rainfall, vegetation, land use, and population density maps;

► charts, such as tide, flood and stream flow;

► local census data and other statistical information;

► timetables, such as train and bus schedules;

► technical data including DATACHEM, building plans, engineering reports and scientific and project reports; and

► aerial photos, both recent and older ones.

This documentation may be available in pre-planned ICCs, or may need to be sourced through the Emergency Response Coordinator, agency coordination centres or Technical Specialists.

Predictive models

► Predictive models are used for calculations on fire behaviour, fire intensity, and suppression options and outputs. These models include:

  • CSIRO Forest Fire Danger Meter Mark 5; and

  • CSIRO "Grassland Fire Danger and Fire Spread" Meters – McArthur.

Reports from operational personnel

Operational personnel are required to provide Reports to the Operations Officer at regular intervals. These reports will contain information that can be utilised by the Situation Unit. The Planning Officer and Situation Unit Leader should ensure that the Situation Unit and Operations Section maintain a close working relationship and establish procedures to facilitate the immediate exchange of this information.

Air Operations personnel can provide information on actual fire behaviour, fire location, progress of combat operations, changes in weather conditions, changes in terrain and access options.

Reports from operational personnel contain valuable information that can:

► provide an outline of the current situation;

► report on progress towards achieving an objective;

► provide information for use by all Sections and Units;

► assist with briefings of operational and support personnel; and

► be used to report up the chain of command and across to other agencies.

Debrief information

Valuable situation information can also be obtained during debriefing sessions that occur during shift changeovers. The Situation Unit Leader should ensure a process is in place to provide the Situation Unit with access to this information. Consideration may need to be given to out-posting a member of the Situation Unit to Staging Areas and other locations where crews come off shift and leave the incident, or where debriefs are conducted.

Ground and Air Observers

Ground Observers are deployed to field locations to collect information and report directly to the Situation Unit. They can be vital in the information collection process. Ground Observers:

► can measure or record information relating to weather and other variables which influence the situation; and

► report on incident behaviour and hazards from locations at the incident.

At a going fire the Air Observer position is another means of obtaining incident information from a different viewpoint. The Air Observer must maintain close liaison with the Operations Officer, Aircraft Officer and Air Attack Supervisor as well as the Situation Unit Leader to ensure safe, efficient and effective use of aircraft.

Ground Observers

The role performed by Ground Observers can require them to work in a hazardous environment. The Situation Unit Leader must work with the Ground Observers, the Operations Section, and the Logistics Section to ensure that Ground Observers:

► have personal protective clothing and equipment (PPC/E) and resources appropriate to their role;

► have adequate communications and local guides where practicable;

► work in conjunction with Operational Commanders;

► do not enter the field without formal advice and acknowledgement from the Operations Officer or relevant Operational Commanders;

► operate within the operational structure which has been established;

► immediately report any significant events to the Situation Unit and any relevant Operational Commanders; and

► report when they change locations to both the Situation Unit and Operational Commanders.

Equipment used by Ground Observers to collect situation information will depend on the type and complexity of the incident, and may include:

► fire behaviour and fuel hazard guides;

► air monitoring equipment;

► hydrology gauges;

► radiation detectors;

► weather observation equipment;

► mapping templates;

► global positioning systems (GPS) and geographic information systems (GIS) technologies;

► portable field information technology kits; and

► cameras, for example; video, still and thermal imaging cameras.

Aerial reconnaissance

Aircraft provide a useful platform for collecting and feeding situation information to the Situation Unit. The Situation Unit Leader should look at how aerial reconnaissance can assist the Situation Unit when the Unit is established.

Air Observers may be activated and tasked with providing the Situation Unit with:

► an estimate and/or plot of the affected area;

► weather information;

► topography details;

► an assessment of the incident potential;

► present and future risk or threats;

► details of losses;

► possible access points for vehicles;

► details of threats to life and property; and

► the locations of water points and natural barriers.

While Air Observers do not usually report to the Operations Section, it may be necessary for them to make direct contact with operational resources when they observe an immediate threat to personnel or property.

Aerial reconnaissance can also be provided by specialist aircraft, including aircraft fitted with forward looking infra-red equipment, or linescan and GPS mapping equipment.

Air Observers and specialist aircraft should be activated by the Situation Unit Leader through protocols established for the activation of these resources by their agency.

Information provided

The Ground and Air Observers perform a vital function for the Situation Unit and Operations Section in providing timely, accurate observations of:

► assets endangered, for example; the location, type and potential timeframe;

► fire location and perimeter;

► fire behaviour, including Rate of Spread (ROS) and direction, flame height, spotting;

► weather conditions, including temperature, relative humidity, wind speed and direction, and atmospheric stability;

► overall fuel hazards; for example, vegetation type, fuel type, amount, distribution, and moisture content;

► access routes, including signposting, road conditions, map references, and location;

► topography, including soil type, slope and aspect, gully location, direction and steepness;

► safety hazards; for example, hazardous materials storage areas, excessive fire behaviour, restricted access, burning trees, and possible entrapment situations;

► safety refuge areas; for example, rock outcrops, water sources, and low fuel areas;

► suppression activity, including existing and potential control lines, effectiveness, location of work, and work still to be done;

► resource information, for example; location, numbers, type required, vehicle identification, and current task;

► incident facilities, for example; sites for Staging Areas, Base Camps and Operations Points; and

► potential water points, including the location, access, and quantity.

The Ground and Air Observers' findings may be used in post-fire debriefs and in legal actions. Thus it is important to keep good written records of this data with time, date, location and the name of the person making the report clearly recorded.

The information can be communicated to the Situation Unit by:

► radio – usually with brief concise details

► mobile phone or landline. Observers will need to know contact phone numbers in the Situation Unit;

► runner/driver – it may be possible for someone to take the map or documentation or a photocopy of it to the Situation Unit and allow the Observers to keep progressing;

► oral debriefing – usually when fieldwork is completed for the day; and

► written documentation – date, time and sign all forms, documents and maps. Originals should be filed but photocopies may be handy for comparison the following day.

Note: When information collection people are working around the incident it is critical that the Operations Officer knows their activities, location and communication details. The Operations Officer is responsible for the safety of all personnel on the incident ground. Information gathered by information collection personnel may be of immediate use by the Operations Officer in directing combat activities. It is vital that information regarding the possible endangerment of combat personnel, major hopovers or major values at risk is immediately forwarded to the Operations Officer.

Relative value of ground vs air information collection

Ground information collection is generally better for obtaining detailed information; for example, how much water is in the waterhole. It is also easier to gain access to people in a face-to-face situation to obtain or provide specific information.

► Aerial information collection on the other hand can cover a large area quickly. It can provide information on areas inaccessible to ground personnel. These areas may be remote or too dangerous. Aerial information collection is particularly useful to

provide a strategic overview and obtain information on areas/items away from the incident; for example, approaching weather conditions.

Other sources

Other sources at the incident may be able to provide operational and situation information based on their observations at the incident include:

► support agencies;

► utility service/infrastructure and maintenance crews such as power companies, communications providers, roads and water authorities;

► the media; and

► external organisations, for example:

  • indigenous and non-indigenous cultural and heritage sites registers;

  • local environmental groups or "Friends of" groups with detailed knowledge of recovery/rehabilitation work they have carried out in the incident area; and

  • information from the public and local landowners. This information can be useful in plotting the incident and identifying values at risk. They can also provide important local knowledge.

The Situation Unit Leader should establish links to ensure information collected from external organisations is made available to the Situation Unit.

Local knowledge

Community members may be able to provide the Situation Unit with valuable information based on their knowledge of the area. Examples of the information they may provide include:

► incident location;

► history of previous events;

► anticipated development and behaviour;

► access and egress routes;

► topography;

► fuel loads;

► "at risk" properties; and

► probable road closures.

Technical Specialists

To gain an understanding of how some incidents may behave and how they may be resolved, the Situation Unit may require information and assistance from personnel with technical or specialist knowledge.

Technical Specialists may be provided to work in a dedicated role within the Situation Unit, or may be a more general resource shared by the Situation Unit and other Units within the incident management structure.

In these situations they should be established as an independent Unit in the Planning Section.

Other Units within the incident management structure

Planning Section

► Resources Unit can provide information on the type, number and location of resources assigned to the incident. This Unit can also provide information on the skills and abilities of various people, and the capabilities of equipment and appliances.

► Information Unit can provide information that has come from external sources such as media and members of the local community. This may include information on fire behaviour and location, assets at risk, and community concerns.

► Management Support Unit provides a focal point for all information relating to the incident. It is personnel from this Unit who deal with a major part of the information flow into and around an incident and the control structure set up to deal with it. This information flow may be by radio, phone, fax, computer, or messenger. The Situation Unit Leader will need to provide Management Support Unit with a list of information requirements that the Unit needs to complete its tasks.

► Communications Planning Unit can provide information on how to contact various people as part of the Communications Plan; for example, phone numbers, radio callsigns, radio channels.

Logistics Section

Several Units within the Logistics Section can provide relevant information to the Situation Unit. Examples of this include:

▶ the Supply Unit that can advise of types, number and expected time of arrival of resources ordered;

▶ the Ground Support Unit can provide extensive information on the fire location, fire behaviour, combat operations, weather and terrain conditions and available access; and

▶ the Finance Unit will provide information on likely costs of various strategies prepared by the Situation Unit.

Additional sources of information

Additional sources of information and inputs are available from:

▶ the Safety Adviser who will provide comment on the strategies and tactics prepared to ensure the safety of incident personnel is maintained;

▶ various other agencies' liaison personnel which will provide information on other agencies concerns and priorities; and

▶ the Incident Controller who will provide final approval for objectives, strategies and Incident Control Plans prepared.

Agency specific resources

The Situation Unit will need to access information provided by various sections of agencies. Generally, this information can be accessed via the local agencies' Area or Regional offices.

Necessary information may be found in the Districts Fire Control Working Plan, approved Management Plans for various areas, Interim Management Guidelines, Local Government Authority Plans, Area Management Plans and Fauna/Flora recovery plans.

Types of information

Incident status

Information on the status of the incident, past, present and predicted is required. This could include information on the fire's:

► point of origin and cause;

► current perimeter location; and

► expected development.

A timeline of important developments; for example, ignition/detection time, time of major impacts, and expected time for any changes in status or development, would be required to plan for future requirements.

Information on the progress of combat operations and the expected outcomes would also be required.

Incident environment

Information would be required on the physical environment that was influencing the fire's current and future development and combat operations. This would include information on:

► the current and predicted weather;

► fuel types and overall fuel hazard;

► topography including slope, aspect, valley profiles (location, direction, steepness); and

► soil types.

Environmental considerations such as rare flora and fauna locations, requirements for disease control and aesthetic and visual resource management requirements may all impact on the progress of combat operations.

Information on the availability and access to adequate water supplies would be required to plan combat strategies and tactics.

Operations

Particular information required regarding operational matters would include objectives, and strategies and tactics being implemented to combat the incident. Progress on achieving these and any problems which may adversely affect their achievement would also need to be known. Information on the anticipated time of control is also required.

Information on the command structure, particularly relating to the separation of the incident resolution effort into Divisions and Sectors, their location/function and name would be required by the Situation Unit.

Very important information would be that relating to the safety of incident personnel and others impacted by the incident. This information would include times or locations where/when an adverse change in the incident may occur. Safety related operational information could also include information on escape routes and potential safety zones.

Other operational information required by the Situation Unit might relate to the location of; for example, the Operations Point, Staging Areas, helipads, and access roads.

Assets endangered

To allow the development of predictions on the impact of the incident and resolution operations, information is required on the assets at risk.

► Primary assets are those relating to human life, including fireline personnel, and property. These assets are most often congregated at the rural/urban interface.

► Other assets include:

  • cultural heritage sites;

  • infrastructure, such as power, water, fixed line and mobile phones;

  • recreational activities; for example, recreation sites, walking trails, and campsites.

► Land use assets include:

  • developed farmlands;

  • pine/hardwood plantations;

  • regenerated forests;

  • water reservoirs and reticulation; and

- mine sites.

▶ Environmental assets would include the protection of, for example:

- flora and fauna, including rare and endangered species;

- visual/aesthetic resources;

- water catchments; and

- special land forms.

Hazards

The Situation Unit would need to continually check for any hazards which may impact on the safety of personnel at the incident and front line operations. Hazards might include:

▶ powerlines and gas pipelines;

▶ hazardous material storage facilities; for example, explosives magazines;

▶ cave areas or where there are mine sites with large open holes; and

▶ quarries or steep cliffs.

Hazardous locations may also be those places where sudden adverse changes in fire behaviour may occur due to a variations in the natural environment. Such hazards may be patches of heavy fuels or steep gullies.

Hazardous times may include the arrival of sudden wind changes.

Rehabilitation and recovery considerations

The adverse impact of an incident and incident resolution operations on the community and the environment may require rehabilitation on the completion of operations. The first information needed is to identify and map any communities, people or areas adversely affected which may require future assistance to recover. Once this information is available, then plans can be prepared to deal with it and the appropriate specialist knowledge, assistance and equipment identified.

Rehabilitation needs must be identified as early as possible to minimise the adverse impact of the incident or incident resolution operation. Priority may be given to the replacement of powerlines or fences burnt down, reopening major arterial roads,

unblocking and/or removing creek crossings, and finding carers for injured fauna.

Communication

The Situation Unit must have good communications links with all the Operations and Logistics Sections of the incident management structure to facilitate the gathering of accurate and relevant information. Communication methods used by all parts of the agency need to be identified. Appropriate methods can then be implemented by the Situation Unit to gather relevant information. Communication methods may include face-to-face, radio, phone, or computer.

Weather Service

Weather is a component of the environment that can significantly impact on incident behaviour, control activities, and the safety and welfare of personnel. As a result, it is often necessary for the Situation Unit to monitor the weather during the incident and obtain observations and forecasts for the incident area.

Weather information which may be of use includes:

► daily weather estimates;

► synoptic charts;

► weather outlooks;

► spot weather forecasts and spot weather observations;

► remote automatic weather stations (RAWS) and/or portable automatic weather stations (PAWS) data;

► severe weather warnings;

► forecast charts detailing the movement of wind changes, fronts, cloud cover, and thunder storms;

► long-term forecasts; and

► historic information.

Ground Observers equipped with portable weather recording equipment may also be able to collect information and report on weather and its impact on an incident.

Information relating to weather must be shared with other Sections within the incident management structure. To enable this, the Situation Unit Leader must:

► ensure that weather information which has been collected is displayed, updated and disseminated to other members of the IMT; and

► advise other members of the IMT on changes in the weather, particularly where a continuing trend or change may result in a safety issue, or compromise the Incident Objective.

Information Evaluation

Once information has been collected, it needs to be categorised and evaluated.

When the information is sorted, the Situation Unit is able to commence the process of completing Incident Predictions and Threat Analysis. Alternative objectives can be established and an Options Analysis completed. This process builds a platform from which the plan to resolve the incident is developed.

Incident Prediction

Incident history

To assist with the best possible predictions and formulation of objectives and strategies, the Situation Unit Leader should know information about the incident. This should include the following information.

► Where and when the incident started and its current status.

► How far has the fire travelled in what time?

► Why has it travelled that far?

► What factors influenced the Forward Rate of Spread (FROS)**:**

• fire behaviour (FROS, intensity, spotting), in fuel type/condition; in what terrain/topography; under weather conditions; or

• other factors, such as multiple lightning strikes; single lightning strike with a severe down burst; or arson.

The above relates to situational awareness, in other words, what can be learned from what has occurred to date. Questions to consider include:

> is the fire behaviour being dictated by factors such as fuel, weather, topography or a combination of these?;

> if the fire has behaved like this at this time of day, potentially what is going to happen from now on?;

> has the fire burnt in a consistent fuel type or not?;

> has it spread up or slowed down due to factors that need to be considered?

► The effectiveness of the suppression effort, including:

- what is working, what is not working and the reasons;

- if the suppression efforts continue to be successful even during deteriorating conditions;

- the availability of additional resources include:

  > numbers and types; and

  > current and past deployment; and

- other factors that have assisted in suppression efforts such as breaks in fuel or topographic features.

► If losses have occurred, what are the factors and reasons that contributed to the losses?

- Could it be due to lack of warnings, fire behaviour, access/egress constraints, or initial resource deployment time and space and number?

- What can be done to reduce future losses?

- What factors are within or outside control?

► Information inflow.

- Quantity of information that has been received to date. Does the quality provide a clear picture of what has and is happening?;

- Is there sufficient information from the entire incident or is it only from certain portions with major gaps?

- Is it accurate? Does the information from a number of sources corroborate each other?

- Has the information been verified and how can it be verified?

- Is the information being received occurring at regular times?

- What needs to be put in place to get the information?

Prediction of incident future

The prediction of an incident's future development is an important component of planning for its eventual resolution.

An Incident Prediction can be used to identify:

► where an incident perimeter may be at a certain time;

► short- and long-term threats to operational personnel, local communities, assets, infrastructure and the environment;

► control opportunities;

► resource requirements; and

► incident duration.

An Incident Prediction aims to calculate how an incident will progress if no control activities are implemented, and as such provides a worst case scenario. To conduct an Incident Prediction the Situation Unit must obtain accurate information on:

► the current incident location and behaviour; and

► variables that will affect the incident. Some examples of these variables may include weather, fuel and topography.

To develop the Incident Prediction it may be necessary to record data using templates and documents designed for that specific purpose. Predictive tools such as fire spread meters may also be used.

Maps and diagrams can also be prepared to provide a visual image of the predicted development of the incident. This is a particularly effective way of identifying how an indecent may develop.

Once completed, the Incident Prediction can be used to identify threats created by the incident for:

► response personnel;

► communities and individuals exposed to the incident;

► personal assets and community infrastructure; and

► the environment.

This allows all threats to be prioritised.

Objective setting

An Incident Objective is a statement of the desired outcome for the incident.

Once the Situation Unit has completed an Incident Prediction and identified and prioritised the threats created by the incident, potential objectives to resolve the incident can be identified and considered by the Incident Management Team (IMT).

When developing objectives the Situation Unit should:

► review the current situation;

► review the Incident Prediction;

► identify time and space issues;

► identify threats to life, property and the environment;

► identify any time critical events;

► identify other areas of concern;

► identify requirements for, and the availability of resources; and

► establish a time frame for achieving the Incident Objective.

To do this the Situation Unit will need to work closely with the Operations Section.

Objectives should be clear and simple and state what is to be achieved. The SMART model can be used to assist in the formulation of objectives.

SMART is an abbreviation for the following.

► Specific. The objective statement should clearly and unambiguously identify the outcome to be achieved, and should specify the action to be taken to resolve the incident.

► Measurable. The objective must be able to be measured in terms of both progress towards achieving the outcome and ultimately achieving the outcome.

► Achievable. The objective must be achievable, taking into account the:

 • current situation and incident behaviour;

 • tasks required to be completed; and

 • time and resources required to complete the tasks.

► Relevant. The objective must relate to the current and/or predicted situation, and/or address the identified threats.

► Time framed. The objective should consider time critical events such as a wind or tide change, and/or a time by which the objective should be completed.

An examples of objectives statements that meet the SMART criteria is: "Contain the fire before it reaches Brown's Road and black out the eastern flank prior to the wind-change at 1600 hours today."

While simple incidents can require only one objective to be developed, more complex incidents require a different approach.

► The Incident Prediction process for these incidents may identify a number of priorities which need to be considered. Where this is the case it is important that the objective is not focused on trying to deal with every priority at once, but focuses on the immediate priority in the first instance.

► It should also consider what can actually be achieved given the status of the incident and the limitations created by time and space, resources, and work-load parameters.

As the immediate priority is dealt with the incident should be re-assessed. A new objective should then be established to deal with the next priority. This process should continue until the incident is fully resolved.

At complex or dynamic incidents it may also be necessary to identify more than one objective for the IMT to consider. This will ensure the most appropriate objective is selected and may also provide a fall-back objective if the initial objective is unsuccessful.

In these circumstances an Options Analysis should be conducted for each objective so that the IMT is able to consider each alternative.

Options Analysis

An Options Analysis is a systematic review of the alternatives that might be undertaken to achieve an objective.

When applied to an objective identified during the Incident Predication process, an Options Analysis should:

► identify the alternative strategies which can be used to meet the objective. For example: wildfire – direct, indirect or parallel attack;

► evaluate and rate each strategy against other strategies, using relevant factors such as:

  • safety of response personnel;

  • safety of community members;

  • impact on community and personal assets and community infrastructure; and

  • impact on the environment;

► socio-economic, legal or political issues;

► resources required to implement the strategy;

► access/egress for resources;

► weather, topography and fuel factors;

► constraints created by available time and space; and

► costs versus benefit.

Tools which may be utilised to evaluate and rate one strategy against another will vary from incident to incident and from agency to agency. They may include a formal risk management process using the Australia/New Zealand Standard or a less formal

process such as a Dynamic Risk Assessment that provides each strategy with a high, moderate or low rating in relation to its impact on the factors considered.

The Options Analysis process should also:

► estimate the probability of success of each strategy;

► describe any significant issues relevant to each strategy; and

► recommend to the IMT a preferred strategy.

The preferred strategy should be selected on the basis of:

► the outcomes of the evaluation and rating of one strategy against another;

► the probability of success; and

► the impact of any significant issues that are relevant to any strategy.

Once this process has been completed, the Planning Officer will be able to present the alternative objectives and strategies to the rest of the IMT at a Planning Meeting. The IMT will then be able to fully consider these alternatives and confirm the objective and strategies for the incident.

Situation Information and Mapping Displays

The Situation Unit is responsible for the preparation and display of situation and mapping information in the ICC. These displays should provide other Sections and Units with the information they require to carry out their roles. It is also the responsible for the production of Situation Unit Reports.

Information displays

Information displays may be used to display:

► the current situation and predicted area of impact;

► threats to operational personnel, community members, community assets and infrastructure, and the environment;

► safety messages and warnings;

► losses;

► Incident Objectives and strategies;

► incident management structure and additional agencies involved;

► Communication Plans;

► key personnel and shift change details;

► media liaison details;

► resources at the incident;

► current weather information and forecasts; and

► maps and aerial photographs of the area.

Information displays should also identify the time the information was prepared, and the time of next review.

Mapping

Mapping information and relevant supporting documentation is important for summarising and describing an incident. Maps can be used to allow personnel to visualise information in terms of time and space and can be used to:

► record and communicate situation information;

► identify objectives, strategies and tactics;

► facilitate briefings; and

► provide a record of the incident and of activities undertaken to resolve it.

Maps prepared by the Situation Unit should include details of:

► the origin of the incident;

► current and predicted perimeters;

► key focus areas such as hot spots and threat areas, assets and infrastructure at risk;

► critical timings;

► operational boundaries;

► key locations such as the ICC, Operations Points, Division/Sector Command Points, Staging Areas, re-supply, service and welfare locations;

► access/egress routes; and

► wind speed and direction.

A variety of base maps may be used by the Situation Unit to prepare incident maps, including:

► street directories;

► topographic or cadastral maps;

► land use and vegetation maps;

► service reticulation maps; and

► intelligence maps prepared by GIS personnel.

The Situation Unit Leader should identify which maps are most suitable for use and arrange the supply of these maps through the Logistics Section.

Aerial photographs may also be available, and while these photographs do not show contours which accurately indicate terrain, they can sometimes be combined with relevant mapping layers to achieve this.

Aerial photographs can be used to identify structures, vegetation and other features within the area of impact.

Whichever type of map is used, it is important that:

► information displayed on the map is clear and legible;

► the date and time of preparation is displayed on the map;

► the legend and information contained on the map is not erased or distorted; and

► clarity is maintained during photocopying.

Information and mapping displays will also be required at locations other than the ICC, including:

► Operations Points;

► Staging Areas;

► Air Bases;

► Base Camps; and

► locations of briefings and community meetings.

These displays should be prepared and maintained by the Information Unit in accordance with the Information Plan for the incident.

Evaluating and reporting

Situation Reports should be prepared by the Situation Unit, using information provided by the Operations Section and other sources of intelligence. They should be detailed in accordance with agency requirements, and may include detail such as:

► the time and date of report;

► the name and role of the person(s) who prepared and authorised the report;

► a situation summary, including details of the current and predicted incident behaviour;

► Incident Objective and Strategies;

► resource allocation;

► administration and logistical arrangements;

► the command structure and communications in use;

► key relationships at the incident; and

► critical issues and safety messages.

Before preparing a Situation Report the Situation Unit should consider the effectiveness of the strategies being used to control the incident and include this information in the Report.

This will assist in identifying strategic shortfalls and in making timely adjustments to the Incident Action Plan (IAP).

The Situation Unit Leader should seek direction from the Planning Officer about the frequency for completing Situation Reports. Agencies may have different requirements in this area, but as a general rule. Situation Reports should be provided every 30 minutes or hourly for dynamic and complex incidents that are not yet controlled. In more stable situations, a Situation Report may only be required following a change in

the status of the incident, or every two to three hours.

Safety of Incident Personnel

The safety of personnel working to resolve an emergency incident must always take priority in the incident action planning and risk management processes conducted by the IMT. An emergency cannot be controlled efficiently if personnel and resources working to control the incident become casualties themselves.

Situation Unit recommendations for objectives and strategies identified must be evaluated to minimise all risk to incident personnel. The options analysis process conducted by the Situation Unit when alternative objectives and strategies are developed should ensure that "Safety of Incident Personnel" is always prioritised when one strategy is compared to another.

Resources in the Operations Section are most obviously exposed to risk at an emergency. The operational risk to these resources is effectively managed through:

► the use of strategies that have been evaluated to identify risk;

► the application of appropriate tactics by incident commanders;

► the use of trained, competent and experienced personnel in command/supervisory and task focused roles;

► the provision of adequate resources, including personal protective clothing and protective equipment;

► the use of ongoing Dynamic Risk Assessment processes by incident commanders;

► active supervision by incident commanders;

► the use of an appropriate span of control; and

► the use of Safety Advisors in locations where there are critical safety issues.

While it is sometimes less obvious, personnel working in roles outside the Operations Section are also exposed to safety issues. Members of the Planning and Logistics Sections along with personnel in other support roles are often subjected to stress and anxiety caused by working to tight time-lines without access to all the information they might require. These personnel will also require OH&S and welfare support as identified above.

Chapter 3
Summary

► The Situation Unit utilises information from a range of sources to be able to develop well-informed and sound Incident Objectives and Strategies. These sources may include:

- documents, for example pre-pans, maps and census data;

- information systems; and

- personnel located at the incident.

► Pre-plans may include Municipal Emergency Response Plans and agency response plans. Copies of these plans should be available in the ICC.

► Predictive models, including the CSIRO Forest Fire Danger Meter and the Grassland Fire Danger and Fire Spread meters assist Situation Unit personnel in calculations on fire behaviour.

► Situation Reports and debriefings from operational personnel provide information about the incident and the effectiveness of tactics and strategies in resolving the incident.

► Ground and Air Observers are another important source of information about the environment of the incident, the development of the incident and the impact of combat actions.

► The Situation Unit Leader should also ensure that all information relevant to the Situation Unit is obtained from sources not directly involved in the incident management structure. These sources may include support agencies, utility/infrastructure and maintenance crew, the media and local knowledge.

► Technical specialists can assist Situation Unit personnel to gain an understanding of the likely behaviour of an incident.

► Other Units and Sections in the incident management structure may have information that may be vital in assisting the Situation with the preparation of Incident Predictions and the development of Incident Objectives and Strategies.

► Types of information that may be required by the Situation Unit may include:

  • incident status;

  • the incident environment;

  • updates and status reports from operations;

  • assets that are endangered;

  • hazards that may impact on the safety of personnel at the incident and front line operations;

  • rehabilitation and recovery considerations; and

  • communication links.

► Weather is a component of the environment that can significantly impact on incident behaviour. The Situation Unit Leader must ensure that processes are in place to obtain all information about weather, be it from the Bureau of Meteorology (BoM), Ground or Air Observers or other personnel. Relevant weather information must be made available to the Operations Section, the Incident Management Team (IMT) and displayed for viewing by other interested incident personnel.

► Collected information must be categorised and evaluated to enable the Situation Unit to commence the process of completing Incident Predictions and Threat Analysis, alternative objectives and options analysis.

► Incident predictions should take into account all available information about the incident, including:

  • where and when the incident started and its current status;

  • how far the fire has travelled in what time;

  • the reasons for the distance travelled;

  • the factors that influenced the FROS;

  • the effectiveness of the suppression effort;

  • the factors that contributed to all losses; and

  • effective and accurate information flows.

► Predicting the incident's future is a key component of the planning for its eventual resolution. An Incident Prediction aims to calculate how an incident will progress if no control activities are implemented, and as such provides a worst case scenario.

► An Incident Objective is a statement of the desired outcome for the incident. Incident Objectives should be in the SMART format.

► An Options Analysis is a systematic review of the alternatives that might be undertaken to achieve an objective.

► The Situation Unit is also responsible for:

  • The development of Situation Reports

  • Information displays

  • Development of maps and relevant supporting documentation that summarises and describes the incident.

► The safety of all incident personnel is paramount. When developing incident objectives, strategies and tactics the safety of personnel must be taken into account.

Notes

AIIMS Situation Unit

Chapter 3
Self Assessment

Short Answers

1. List at least four sources of information the Situation Unit will use to develop its outputs.

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2. List at least six types of observations that Ground and Air Observers may provide to the Situation Unit.

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3. What information can be provided by the following Units that may be activated as part of the incident management structure?

(a) Resources Unit:

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(b) Information Unit

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(c) Communications Planning Unit

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(d) Supply Unit

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(e) Ground Support Unit

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4. What types of information would the Situation Unit require to prepare its outputs?

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5.   What type of weather information may be useful to the Situation Unit?

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6.   What type of information about the incident history would assist the Situation Unit to prepare predictions and formulate objectives and strategies?

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7.   What is an Incident Objective?

8.   What is an Options Analysis?

9.   List at least six types of information an information display may be include.

10. What information should be included in maps prepared by the Situation Unit?

11. What information may be included in Situation Reports prepared by the Situation Unit?

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If you have any problems understanding the material or supplying satisfactory answers, see your Supervisor for clarification and help.

Notes

Chapter 4
Analyse, Evaluate and Predict Incident Information

This chapter examines:

► **analysing and evaluating incident information;**

► **prediction of incident information;**

► **prediction tools;**

► **information for planning suppression strategy and tactics;**

► **operational analysis;**

► **examining new or alternative containment objectives;**

► **risks and hazards; and**

► **reports**

Analysing and Evaluating Incident Information

The Situation Unit Leader, when appointed, is to obtain a briefing from the Planning Officer and confirm Unit priorities. The Situation Unit Leader will then gather all current situation information available – a map of the incident is vital – and make a quick appreciation and analysis to project current incident behaviour forward. This enables the Situation Unit Leader to determine whether the current chosen objective and strategies are likely to achieve the Incident Objectives.

When performing a quick analysis the main factors to take into account are:

► date and time;

► current fire behaviour;

► accessing current and forecast weather information;

   • looking for significant wind changes in speed and direction;

   • wind direction changes that may impact the situation;

► threatened lives and property and other assets at risk;

► access to resources such as firefighters and machinery and their ability to resolve the incident;

► current resource allocation and activity;

► terrain, steep slopes, and valleys; and

► vegetation/fuel types and weight.

If the initial attack is likely to fail, the Planning Officer will ask for alternative strategies in helping to achieve the objective. This will involve providing predictions of where the incident may impact upon at a given time.

The relevant information is to be collected and then evaluated for accuracy. The information will need to be:

► analysed for discrepancies;

  • Note differences from different sources.

  • Do not display information of questionable accuracy; and

► verified:

  • Contact operations personnel for confirmation.

  • Send a Ground or Air Observer to obtain accurate information.

A detailed Situation Analysis then needs to be performed. This will also involve the creation of a more detailed map based on current information.

To start the analysis develop an Options Analysis.

The Options Analysis allows the Situation Unit Leader to identify the assets, current incident behaviour and other factors that may restrict or decide incident objectives. Where appropriate the analysis should also be used to re-examine the current objectives.

The completed Options Analysis and information received by the Situation Unit from various sources will help to develop strategies for chosen Incident Objectives.

The Options Analysis sets parameters to assist in the selection of the best strategy to meet each incident objective. It is then given to the Planning Officer who will discuss the strategies with the Incident Controller and the Operations Officer to decide which option (if any) will be adopted.

The Situation Unit Leader, in consultation with the Planning Officer, is responsible for developing alternatives for the Incident Controller's consideration. In situations where the original objective is no longer appropriate, alternative objectives must be developed. Objectives should have alternative strategies developed to ensure that the best option is taken.

Technical Specialists may be employed at large and complex incidents to assist in the development of plans to resolve the incident and help predict incident behaviour. The Situation Unit Leader will need to work closely with these Technical Specialists when developing plans and alternative strategies for the Incident Controller's approval.

However, strategies are developed based on current and predictive analysis of the incident. Before the Option Analysis is completed, predictions about the projection of the growth of the fire and suppression efforts must be completed. The use of Incident Prediction Wildfire Predictions is beneficial in completing these projections.

These two forms aid the Incident Controller to assess whether there are sufficient resources available to suppress the fire. The assessment will also highlight if there are surplus forces which may be used elsewhere. Note that where fire behaviour is extreme the suppression forces may not be able to produce effective fire line control, and therefore production capacity should not be directly applied to calculations of controlling the fire.

Prediction of Incident Information

Incident Prediction

Incident Prediction is the combined summarisation of current fire behaviour, weather (current and forecast), topography and fuels to determine future fire behaviour, which in turn provides necessary information for determining objectives, evaluating alternative strategies and setting tactics for the incident. Also derived from this information are alternative operational options in case those selected can no longer be achieved. This information is then made available for other Units to interpret for their individual purposes, such as resource travel times and incident duration.

The purpose of an Incident Prediction is to enable the Situation Unit Leader to establish:

► where the incident perimeter and combat effort might be at a certain time, for example four hours later;

► what assets may be at risk and when;

► what is the likely position of incident development when it is controlled or reaches a satisfactory stage;

► the length of time before the incident is brought to a satisfactory stage; and

► the need for further allocation of resources to manage the intermediate stages and to achieve the final satisfactory or defined stage of control.

It is import to develop a prediction of how the incident will be successfully resolved. This can only be done if all the information is integrated into a coherent picture of the final incident dimensions. This will be the basis of implementing strategies, determining resource requirements and identifying impacts such as:

► likely incident development, particularly further threats;

► potential safety hazards; for example, hazardous materials or difficult terrain; and

► prediction of future damage or losses.

Making predictions requires that the following steps be followed.

► Record actual incident behaviour and spread.

► Record predicted incident behaviour and spread.

► Record worst case incident behaviour and spread.

► Record most likely incident behaviour and spread.

The following is a lists of points which may be used as a checklist when making predictions.

► Test the predictions against known fire behaviour and combat efforts.

► Test every two hours during the day and every four hourly at night.

► Check against known fireline data as often as possible.

► Watch out for poor quality information from the fireline.

► Make predictions for each hour of each work period.

► Look for instability factors that could tip the balance of the fire behaviour or combat effort away from that predicted.

► Look for consistent over or under predictions.

► Check consistency of diurnal weather patterns.

► Determine the sectors on the fireline where fire behaviour could be dangerous or predictions are uncertain.

► Make predictions from confirmed data sources about the fire location and spread wherever possible.

► Record weather, fuel, other data and assumptions used for each prediction.

► Keep records of actual and predicted fire edge and combat effort by time.

Using the predictions

The Situation Unit Leader and the Planning Officer need to consider the inputs to the predictions before providing a report to the Incident Management Team (IMT) regarding the likely incident outcomes. The following needs to be allowed for:

► Incident behaviour. Fireline intensity determines whether a line can be held or will be effective.

► Variations in success of tactics. Rates and line construction vary with terrain, vegetation, equipment, crew experience and fitness.

► "Accidents" do happen – Murphy's Law often prevails.

Predictions of what the situation will be at stages during the incident and at the final stage will influence the activities of Operations and Logistics Sections. It is critical that the Planning Officer can explain the basis of the predictions, the probabilities of the outcomes, and the consequences of events unfolding in a different manner. For instance the predictions of final incident size are a synthesis of forecasts of incident development, forecasts of suppression activities, observations of incident behaviour and weather variables.

The Incident Controller will use predictions to set priorities, perhaps between competing incidents, and will advise senior personnel on appropriate control actions. These may have significant social, economic, legal or political ramifications.

The Operations Officer will consider predictions in terms of combat activities. A properly developed prediction of final incident size and shape can prevent unsafe, unnecessary and wasteful combat activities.

The Logistics Officer must interpret the predictions and determine the likely future demands on the Logistics Section. This will take place in the IMT meetings, but details are likely to be resolved only through interaction between personnel in the Planning and Logistics Sections.

Formulating and developing predictions is perhaps the most difficult and complex task a Situation Unit Leader has to do. It is critical that care be taken as people's lives depend on the assessment of the situation.

Final fire shape

As part of the Situation Unit specifically and Planning Section generally, it is important to be able to generate an estimate of what the final shape (map plot) of the fire will be. This must take into account the predictions of fire spread and the suppression efforts being applied.

The Final Fire Shape (FFS) must be consistent with the control objectives for the fire, and will be a representation of the on-ground consequences of the decisions made by the IMT about the strategies and tactics to be employed. These will be generated by analysis of the fire behaviour, terrain, resource availability, values at risk, and considerations of firefighter safety.

Early development of a realistic FFS enables the Situation Unit to develop an early appreciation of number of sectors, resources required, likely suppression tasks to be undertaken and development of priorities. The "jump" ahead to predict the final fire shape may allow the Situation Unit to provide guiding information and structure to the suppression effort, and to enable early decisions about work priorities to be identified.

The value of the FFS prediction is especially apparent where the suppression strategies require the use of parallel and/or indirect suppression techniques, and where fire behaviour or intensity may require a defensive stance to be taken. In these instances the FFS will enable difficulties to be recognised as early as possible.

The Situation Unit should examine the proposed FFS to see whether there are any factors that would create difficulties or invalidate it. These may include:

► heavy or old fuels adjacent to the boundary;

► steep slopes below the boundary;

► gullying winds onto the boundary;

► difficulty of constructing an effective control line when using machine, or hand tools;

► difficulty in defending boundary;

► the safety of firefighters defending boundary;

► difficulties in backburning from or burning out to the fire the boundary (especially allowing sufficient time;

► the time of day when the fire will reach the boundary; and

► the potential for spotting and fuel characteristics outside the proposed final fire area.

The important thing is to not only look for weaknesses, but also to look at what are the consequences of failing to hold the fire within the proposed boundary.

Prediction Tools

Numerous prediction tools have been developed to help personnel predict the rate of incident change. However, these must be adapted to local conditions using the local knowledge of experienced operators. The construction options and rates are vastly different between sites.

The prediction tools are only a guide and they have many limitations. The data still need to be interpreted to identify what is likely to happen.

The basics of Fire Behaviour/Resource Prediction are as follows.

► Predictive models do not replace experience, local knowledge or professional intuition.

► Predictive models are only accurate for the conditions for which they were developed.

► All models must be used with caution.

► Nothing replaces continuous observation of actual fire behaviour and combat effort in the field.

Prediction tools provide a guide to help identify the impact on assets at risk and reduce severe resource wastage by pursuing strategies that cannot or are unlikely to succeed. The deployment of resources in the pursuit of achievable goals is the outcome sought and the reason behind developing predictions.

It is desirable that the Situation Unit Leader has an understanding all of the prediction tools relevant to Victorian conditions. This increases their knowledge, enabling them to be a competent Situation Unit Leader for all of Victoria, not just confined to their own area/region.

Fire behaviour prediction

When making predictions the fundamental principles of fire behaviour must be borne in mind.

► Fire behaviour is the reaction of fire to the environment.

► The three most important fire behaviour phenomena are:

- rate of spread of fire front (head fire);

- height of flames; and

- spotting quantity and distance.

► Prediction of fire behaviour involves knowing the:

- moisture content of fuels;

- wind speed at the fire front;

- type, quantity, age and arrangement of fuels; and

- terrain and slope.

Two fire prediction calculations to keep in mind when using a topographic map are Slope Calculation and Rate of Spread for the tail and flank of the fire.

Slope calculations

A slope is an inclined ground surface that forms an angle with the horizontal plane (flat ground). The amount of inclination or steepness, is called slope. Slope can be expressed in degrees, grade or percent.

The estimation of the amount of slope can help determine whether or not a bulldozer, tanker, or hand crew can work the topographic area. It is also used as an input for making fire behaviour calculations.

The amount of slope measured in degrees can be calculated from the grade or percent. It can also be physically measured in the field using a clinometer.

When using grade to measure the amount of slope, it is described in units of vertical rise or fall over a specified distance. For example, a rising grade of 1:3 means there is a vertical rise of 1 unit for every 3 horizontal units.

If using percent to describe the amount of slope, a one percent slope indicates a vertical rise or fall of one unit over a distance of 100 horizontal units. For example, a one percent slope rise would indicate a one meter rise over a 100 meter horizontal distance if the mapper was working in meters.

Percent slope can be converted to grade using the calculations below. For example, 45 degrees = 1:1 grade = 100%. Use the Conversion Tables to convert it to degrees.

Elevation/vertical difference

Slope can be determined in several different ways in the field, or it can be calculated from a topographic map. In order to obtain a slope grade or percentage from a topographic map, determine the difference in elevation between two different points in the area of concern.

1. Determine the elevation of each location.

2. To find the elevation of a point, locate the index contour nearest the point.

3. Count the contour lines up or down to the point.

4. Subtract one elevation from the other.

5. The difference is the vertical difference (rise).

Estimating slope is a simple mathematical process. The formula is:

Percent Slope = (VD x 100)/HD or (RISE x 100)/RUN

► VD or RISE = Vertical Distance (difference in elevation between two points; subtract one point in elevation from the other point).

► HD or RUN = Horizontal Distance measured with ruler on a map, from one point to the other).

Example:

RISE is (500 m – 100 m) = 400 m

RUN is 1600 m

400 ÷ 1600 = 0.25

0.25 x 100 = 25% = 1:4 grade.

When using the table:

► check the map scale and contour intervals; and

► measure the distance between contours over the slope to calculated. Be aware that an average slope for the calculations is being sought. The slope may vary over short distances.

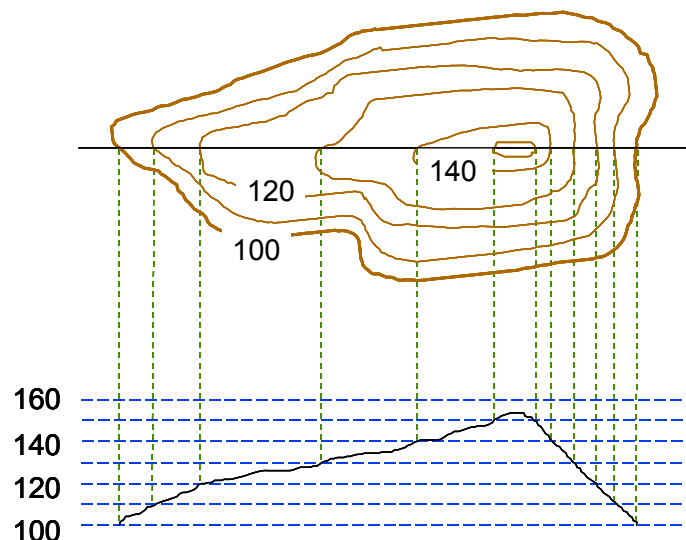## Flank and tail fire Rate of Spread calculations

Figure 10 – example of "teardrop" forest fire

In forest fires, the increase in fire width is half the fires increase in length. If a forest fire develops in a normal "teardrop" shape, the widest part of the fire is usually immediately behind the head fire. Flank fire behaviour will vary along the flank from that similar to the head fire at the front through to mild fire behaviour similar to the tailfire at the rear of the flank.

Each flank will, on average, have fire behaviour similar to half of the equivalent head fire behaviour (Rate of Spread (ROS) and intensity). However, flank fire spreading uphill may exceed the head fire's ROS. Variations in wind direction and slope can turn flanks into head fires. This can occur rapidly and is a major cause of fire entrapment of firefighters. It is what is known as working in the "Deadman Zone".

The tail fire ROS is difficult to calculate. The stronger the wind, the slower it will be. Do not simply apply a constant factor (¼ or ⅛) to head fire ROS as this will give an increasingly false impression of true fire ROS as wind speed increases.

Continuity of fuel is critical for the tail (backing) fires. Any discontinuity will potentially stop the spread of fire. Fuel age (years since last burn) is a key aspect determining the likelihood of sustained tail fire spread. Due to the reduced intensity fuel moisture content (FMC) is also important. Tail fires will stop spreading at lower FMC than head fires. Depending on the presence and dryness of larger fuels a backing tail fire may even self extinguish.

Slope will also affect the flank and tail fire ROS. The slope calculation table will assist with these calculations.

Fire intensity

Fire intensity is a measure of how much heat the fire is producing. It is an important factor affecting our ability to combat a fire. Increased intensity occurs due to increased fuel loadings or increased Rate of Spread (ROS) which leads to increased combustion of fuel in a given time.

Fire intensity is calculated by the following formula.

$$I = whr$$

Where   w = weight of fuel

                     h = heat of combustion

                     r = rate of spread of fire

Given that "h" is a constant in forest fuels and using the units t/Ha for weight and m/hr for the rate of spread, this formula may be simplified to:

$$I = wr/2 \quad \text{measured in kW/lineal metre of fire edge.}$$

Example:

   w = 12 t/Ha,

   ROS = 250 m/hr.

   I = 12 x 250/2 = 1500 kW/m

This means that only a slight increase in the rate of spread and fuel consumed will significantly increase intensity and simultaneously reduce the chances of successful fire suppression.

Australian forest fire prediction models

Fuel type, availability and weight, along with weather (forecast and present) and topography provides the basis for developing predictions. To assist with wildfire prediction there are a number of tools, guides and models in circulation, including:

► McArthur Forest Fire Danger Meter Mk 5;

► CSIRO Fire Spread Meters (Grassland);

► CSIRO Grassland Fire Danger Meters;

► Project Vesta; and

► weather tools.

The McArthur Mk 5 model:

► provides fire behaviour prediction systems for predicting fire spread;

► is based on data from short duration experimental fires;

► is good for predicting behaviour of low intensity fires;

► is used extensively for prescribed burning;

► is widely used to rate forest fire danger;

► has limited application for moderate to high intensity fires; and

► has a tendency to under predict the ROS by up to a factor of three and sometimes more.

The McArthur Forest Fire Danger Meter is applied throughout south-eastern Australia including New South Wales, Australian Capital Territories, Victoria and Tasmania.

The Grassland Fire Danger Index

The Grassland and Forest Fire Danger Rating Systems are used to calculate a Fire Danger Index (FDI) which provide a basis for:

► setting readiness levels for fire agencies;

► public fire weather warnings and fire bans (grasslands); and

► judging the difficulty of fire suppression.

The Grassland FDI is based on the following input factors:

► grass curing;

► temperature;

► relative humidity; and

► wind speed.

The FDI is a logarithmic index ranging from 1 to 200.

The FDI is not directly related to fire spread but can indicate the chances of a fire starting, the difficulty of control and the amount of damage the fire will do. It is useful for setting levels of preparation required or establishing levels of fire restrictions on a regional basis.

At an index of two (Fire Danger Rating of "Low"), fires either will not burn or will burn so slowly that control presents little difficulty. At a Fire Danger Index of 100 or more, fires will burn so hot and fast that control is virtually impossible.

CSIRO Fire Spread Meter for Grassland

The Grassland Fire Spread Meters is used to predict the head fire rate of fire spread in grasslands. These meters use different relationships between the input factors than those applied to Grassland Fire Danger meter.

Both meters share the following inputs:

► grass curing;

► temperature;

► relative humidity; and

► wind speed.

The Grassland Fire Spread Meter also uses pasture condition.

Definition of pasture condition

Pasture can be defined as being in a natural, grazed or eaten out condition.

► Natural. Undisturbed and/or very lightly grazed natural grasses or improved pasture, generally more than 50 centimetres high.

► Grazed. Grazed or mown pastures, generally less than 10 centimetres (0.1 m) high. This is the common condition through the agricultural zones of southern Australia during the summer. It is the recommended pasture condition for predicting the spread of wildfires across the landscape as it is the vegetation type that most closely resembles the standard fuel load assumed for this meter.

► Eaten-out. Very heavily grazed and eaten-out pastures, generally less than three centimetres (0.03 m) high and with scattered patches of bare ground. Common in southern Australia during severe droughts.

The meters each provide outputs of rate of spread (of head fire) and flame height. The Situation Unit can then use this information to prepare fire behaviour predictions, plot fire location and consider fire suppression alternatives.

Project Vesta

This fire research project is designed to improve accurate predictions of fire behaviour in dry eucalypt forests, particularly for fires burning under summer conditions, and to quantify the effects of fuel age and condition on fire behaviour. This is important information for evaluating the effectiveness of fuel reduction burning as an aid to the control of wildfires.

One of the most important findings to date is that that fire size affects Rate of Spread (ROS).

Fires starting from a line fire greater than 100 m long will burn at their potential rate of spread almost immediately. Fires starting from point ignitions will take up to 20 minutes to reach their potential rate of spread. Gusty winds and unstable atmospheric conditions are conducive to rapid fire development because wind gusts widen the head of the fire and push out the flanks. This information is important when considering fire attack strategies, for example:

► can the fire be attacked before it reaches its potential ROS?;

► will a flank attack down both flanks narrow and slow down the head fire ROS?; and

► is a long narrow tongue of fire (particularly grass fire) burning at its potential maximum ROS?

Project Vesta studies have also demonstrated that the effect of fuel load on ROS is conditional on wind speed.

► Fuel load has little effect on ROS if wind less than 12 km/h*.

► ROS increases with increasing fuel load when winds are 12 to 18 km/h*.

► Effect of fuel load on ROS is amplified when wind greater than 18 km/h*.

* = wind speeds refer to 10 m height with open exposure.

This is important when considering the potential ROS of a fire particularly when a fire is burning in heavy fuel but under light winds. The arrival of stronger winds may produce an abnormal increase in fire behaviour endangering firefighting personnel and reducing the chances of success.

Use of weather in fire behaviour analysis and prediction

Accurate weather information is vital in the prediction of fire behaviour. The Bureau of Meteorology (BoM) provides specific fire weather forecasts information for Victoria.

Spot Weather Forecasts can also be requested from the BoM. These forecasts provide current weather observations, particularly wind speed and direction, near the fire location which will assist in the preparation of good quality spot forecasts.

The BoM can provide a great deal of expert advice on weather. Their personnel generally remain at their own offices where they have access to all their tools of trade. There are circumstances, however, in which forecasters are outposted to an incident and work closely with other incident personnel. If this is the case then the incident management structure should reflect this. They would generally be recognised as a Technical Specialist in the Situation Unit, or be grouped in a separate Technical Specialist Unit reporting to the Planning Officer.

Weather service webpage

Vital up-to-date fire weather and other relevant weather resources can be accessed via the CFA and DSE websites. Products include:

► forecasts and warnings;

► current observations (AWS);

► radar imagery, showing thunderstorms and rain;

► satellite imagery; and

► lightning occurrence.

Additional specialised weather information is available on the BoM Registered Users web page.

Field observation

The best method to obtain an accurate weather forecast is to provide actual field weather measurements from the site.

These readings should include:

► dry bulb temperature;

► wet bulb temperature;

► relative humidity;

► wind speed and direction; and

► general information on cloud type, coverage and direction of travel.

Onsite weather readings can be taken using a portable automatic weather station (PAWS) or hand held instruments.

Information for Planning Suppression Strategy and Tactics

Once predictions on fire behaviour are available, the production of maps with hourly predictions of the incident(s) can commence.

An accurate plot of the fire's current and projected perimeter will provide information such as the incident size and shape, terrain, vegetation types, soil types. When coupled with information on fire behaviour and intensity, consideration of appropriate suppression strategies can commence. Development of suppression strategies also requires taking into account the number and type of resources which may be required, are available or on their way to assist in combating the incident.

Control line construction

There are a number of aspects that must be considered when examining the construction of control lines in fire suppression. A control lines as also referred to as a fire line.

Control line construction factors

Three key factors in determining strategy and tactics at a wildfire incident are the:

► assets at risk;

► fire behaviour and intensity; and

► the rate of control line construction.

These will influence where the control line will be located and the resources required to construct and consolidate the line.

To successfully contain a wildfire, the rate of control line construction must be greater than the rate of fire perimeter increase.

Control line construction rates

A number of factors influence the rate of construction of a fire control line, such as:

► terrain;

► time of day;

► fire behaviour;

► standard of control line required; and

► available resources.

Construction rates will also be affected by the following factors to some extent.

► Hazardous fuels – dangerous conditions may put crews at risk;

► difficult vegetation – heavy scrub/heath which slows hand tool crews;

► slope –this can work for or against crews. Cross cutting slows machine production rates;

► rocks – often present a barrier to even the largest bulldozer;

► time of day – construction is slower at night when using plant and crews;

► backburning – usually quicker at night due to less containment problems and lower ROS/intensity and winds;

► high humidity however can actually slow or even stop burning; and

► natural features; for example, granite outcrops, creeks, and gullies.

It should also be taken into account that:

► fire intensity influences control line construction;

► radiation from fires induces fatigue in crews;

► wind speed and direction may result in dangerous, fire instability;

► spotting in front of the control line can put crews at risk;

► wider breaks should be planned if spotting is predicted; and

► the wider the break, the slower the construction rate.

It is important to match weather and environmental conditions of the expected control tactic with the standard of the control line being constructed. The number, type and combination of resources will influence the rate of construction, for example:

► aircraft – whether foam (short term) or retardant is being used, and the time taken to reload and return;

► personnel – fitness, experience, shift length, travel times from staging area; and

► machines – size and type of machine, attachments fitted and operator experience/ability.

Construction options

There are a range of options available to the Operations Officer for control line construction.

The most common of these are:

► machines; for example, bulldozers, or front-end loaders;

► hand tool crews;

► tankers – wet lines and hose-lay;

► backburning from existing tracks and trails;

► aircraft – rotary of fixed wing; and

► retardant or foam.

Prediction guides and tables

A number of tables have been developed to help with the calculation of the construction rates of control lines and resource requirements. These include:

► Park and Forest Firefighting Resources Guide (DSE 2003); and

► Guideline for Planning and Designing Fire Control Lines (DSE Version 1, September 2008).

When using these tables:

► identify from "Table" the most appropriate machinery and crews;

► check what is on site/en route from the Resources Unit; and

► check what is available and when (from the Supply Unit).

In many locations, the calculation of construction rates and timeframes is still very much a case of trial and error, and data gathered from each fire control line constructed should be gathered and recorded.

Considerations

In many locations the construction of control lines is problematic. Incident Controllers should take account of a number of important issues when considering or directing the construction of fire control lines or estimating construction rates and times.

Points to consider include:

► the safety of fire fighting personnel and the public;

► whether the option or method selected is the most effective;

► whether the selected option is cost effective;

► environmental issues, including disease, retardant, foam, salt water, erosion, weeds and pest animals, rare flora and fauna;

► environmental management policies; and

► whether other planning documents have been consulted.

When it is know what and when resources that will be present, then calculations on rate of construction and times for suppression can be calculated.

Strategy development

Once predictions of fire behaviour, resource availability and construction rates are available, appropriate strategies can be determined.

Incident Shift Plan

The Incident Shift Plan (ISP) provides detail at the Sector level. It specifies the strategies and tactics to be used on each sector. It also lists resources to be allocated to the Sector and the time they will be available.

The ISP is prepared by the Situation Unit and the Resources Unit on the advice of the current Operations and Planning Officers. It should be presented to any incoming Sector Commanders along with a briefing and other documentation such as maps.

Operational Analysis

The analysis of an operation takes place both during and after the incident.

During the incident

The Situation Unit must be able to analyse the performance of the control effort. This should be done during the incident to ensure that the objectives, strategies and tactics are working, and to find out the causes where they are not.

The information that will be of importance for operational analysis during an incident will be the same information that the Planning Section should be collecting as a matter of course. The main source of this information is the Operational Situation Reports and information collected by the Air and Ground Observers.

Particular effort should be made to debrief personnel as they come off shift. These people will have the latest information on fire behaviour and suppression activity. Mechanisms to obtain this debrief information must be put in place prior to the shift change, and personnel made aware of the expectation put on them. Debriefs should not be overly formal, and should not require personnel to delay going to rest for long periods of time. This may mean that Situation Unit personnel may have to travel to the Operations Point and Staging Areas to receive the debriefs.

Information gathered at the debriefs should be recorded and distributed to those who may be affected by it.

After the incident

There are a number of different types of post-incident analysis, including:

► agency debrief;

► agency "investigation" (formal);

► coronial inquiry; and

► investigation due to litigation by or against the agency.

Information that will be needed in a post incident analysis must be collected, collated and where possible processed to facilitate the analysis.

Examining New or Alternative Containment Objectives

In circumstances where the achievement of a Incident Objective is not certain, or where the consequences of non-achievement are significant; for example, a large increase in the area or assets at risk, then it is appropriate to undertake some identification of work that would be required to secure what would be the new Incident Objective.

The first step in this process is to develop a new final fire shape. This should then be broken in segments that have similar terrain, aspect, and fuels and will require similar works to be secured.

Each of the segments should then be described and examined so that if information collection or work is required it can be performed in a systematic manner. Factors to be looked at include:

► location;

► description;

► machinery requirements;

► burning requirements;

► resource requirements;

► weather conditions required; and

► aspects of concern for control, and constraints; for example; environmental, and social.

Each segment may form one or more Divisions or Sectors when actual operations take place. For the purposes of this work the emphasis is on uniformity of operational activities in the form of preparation, actual burning operations, and weather requirements. It takes no account of the practicalities of Span of Control and other management considerations. Where information collection is required this must be identified and the information to be collected identified.

The importance of this segmentation is evident when the overall requirements are determined and priorities and sequences of activities are determined. Without the larger picture it is likely that work will be undertaken on the basis of working out from the older control lines rather than in a manner that maximises the effectiveness and efficiency of the resources applied.

The value in undertaking this work before the failure of existing objectives is that valuable time and effort will not be wasted in the event of change being required. In addition such work that does not unnecessarily commit the control structure can be commenced (for example upgrading existing roads and tracks), and proposed new control lines can be walked and taped.

Risks and Hazards

It is important that the Situation Unit Leader look beyond the current situation to see the risks and hazards that may be involved with an incident escalating significantly. The Situation Unit Leader as part of the overall analysis must examine the implications of large fire runs.

In terms of the advice delivered to the IMT by the Planning Officer, a prediction of the final incident position is probably the most valuable. It provides a succinct visual summary of the analyses carried out by the Situation Unit, and provides a focal point for discussion by the IMT.

Reports

It is essential that the various functions within the incident management structure receive specific information designed to facilitate the achievement of tasks. This allows for standardising reports and information collection and also enables the agencies to meet their requirements in terms of duty of care, audit and effective management. Other Units rely on information from the Situation Unit regarding fire behaviour, assets at risk and suppression response to perform their own duties, especially in the area of

scaling up and down.

The Incident Situation Report is produced by the Situation Unit for the IMT to provide a summary of the incident. The Situation Unit compiles this report relating to the area burnt, situation, losses, objectives, strategies, comments and estimated time of control. The Resources Unit provides information regarding resources.

Once completed, this report is approved and forwarded by the Incident Controller to all appropriate people. It also provides basic information for a variety of other Units, for example the Information Unit.

Note:

► *It is extremely important to meet required deadlines as resource allocation to multiple incidents may depend on information contained forming the IAP.*

► *The information is not released unless approved by the Incident Controller*

AIIMS Situation Unit

Chapter 4
Summary

▶ Immediately after appointment, the Situation Unit Leader should:

- obtain a briefing from the Planning Officer;

- confirm Unit priorities;

- ensure all available information is gathered,

- set up networks and processes to ensure the continuous flow of information to the Situation Unit; and

- make a quick appreciation and analysis to project current incident behaviour forward.

▶ The Situation Unit is responsible for performing a detailed Situation Analysis, using all the available tools and prediction models applicable to the incident, before producing an Options Analysis.

▶ The Options Analysis will assist in the development of strategies for chosen Incident Objectives.

▶ An Incident Prediction is a combined summarisation of current fire behaviour, weather, topography and fuels to determine future fire behaviour.

▶ The Incident Predictions for the various times and stages of the incident duration will influence the activities of Operations and Logistics Sections, while the Incident Controller will use these predictions to set priorities.

▶ The Situation Unit is responsible for the production of an estimate of the Final Fire Shape in the form of a map plot.

▶ Various prediction tools are use to assist the Situation Unit in producing the Unit outcomes. It is the responsibility of the Unit Leader to ensure the appropriate tools are used in the correct way. The tools may include:

- fire behaviour predictions;

- slope calculations;

- flank and tail fire rate of spread calculations;

- fire intensity calculations;

- forest fire prediction models;

- grassland fire danger index

- CSIRO fire spread meter for grasslands;

- Project Vesta;

- weather in fire behaviour analysis and predictions; and

- control line construction rate calculations.

► Analysis the performance of the control effort during the incident will ensure that the objectives, strategies and tactics are working and if not, why not.

► It is standard agency procedures to conduct post-incident analysis. This may tale the form of agency debriefs, formal agency "investigations" coronial inquiries, or investigations due to litigation by or against the agency. It is therefore important that all information be diligently collected, collated and filed.

► Due to the type and nature of an incident, it may be appropriate to undertake some identification of work that would be required to secure what would be new Incident Objectives. This may include the development of a new Final Fire Shape, divided into segments that have similar terrain, aspect and fuels and require similar work.

► The Situation Unit Leader should identify possible risks and hazards that may be involved with an incident escalating significantly.

► The timely production of required reports by the Situation Unit for distribution to various Units and Sections of the incident management structure will contribute to the achievement of all tasks and objectives.

Chapter 4
Self Assessment

Short Answers

1. Name at least four factors the Situation Unit Leader should take into account when conducting the first quick analysis?

_____

_____

_____

_____

_____

2. What is the first step in performing an Situation Analysis?

_____

_____

3. What does the Option analysis allows the Situation Unit Leader to identify:

_____

_____

4. What is an Incident Prediction?

_____

_____

5. What is the purpose of an Incident Prediction?

_____

_____

6. List at least five factors that may create difficulties or invalidate the proposed Final Fire Shape (FFS).

_____

_____

_____

_____

_____

_____

_____

7. List at least five fire prediction tools that may be used by the Situation Unit.

_____

_____

_____

_____

_____

_____

_____

If you have any problems understanding the material or supplying satisfactory answers, see your Supervisor for clarification and help.

Chapter 5
Leading the Unit

This chapter examines requirements for:

► **establishing priorities for the Unit;**

► **establishing the Unit;**

► **leadership and team management within the Unit;**

► **tasking and resourcing the Unit;**

► **establishing timelines and workflows for the Unit;**

► **information flows within the Unit;**

► **establishing files for Unit records;**

► **providing a safe work environment for Unit personnel;**

► **monitoring the Unit;**

► **reviewing the structure of the Unit;**

► **changeover of the Unit; and**

► **demobilising the Unit.**

Introduction

The four functions of incident management identified by the Australasian Inter-service Incident Management System (AIIMS) are:

► control;

► planning;

► operations; and

► logistics.

Each function is responsible for ensuring a range of roles are established and maintained and tasks completed when AIIMS is used to manage an incident. The control function is ultimately responsible for:

► controlling the incident; and

► ensuring every incident is managed safely and effectively and has minimal impact

on the community and the environment.

The success of the Incident Controller in achieving this will often dependants on the effectiveness of the Incident Management Team (IMT) members and their teams, particularly for Level 2 and Level 3 incidents where there are complexities involved with the incident, or large numbers of resources are involved.

To ensure success it is important that good leadership is provided so that the people working towards the control of the incident can complete the required work and tasks in an effective manner.

Each Unit Leader has a role and this chapter provides some information that may assist people required to act as a Unit Leader.

Establishing Priorities for the Unit

A Unit Leader who is unsure of the role will not be able to establish and manage the Unit. The Unit may comprise large numbers of personnel working in a variety of roles in numerous locations. The process of managing the Unit must therefore commence with gaining an understanding of the role and establishing priorities for the Unit.

On appointment, the Unit Leader should receive a briefing from either the:

► IMT member of the Unit; or

► outgoing Unit Leader.

It is critical that during this briefing the IMT member or the outgoing Unit Leader:

► updates the Unit Leader on the size, nature, location and complexity of the incident; and

► clearly identifies the priorities and the tasks that the Unit will be required to meet, both immediately and longer term.

Where these priorities are not identified during the briefing the Unit Leader should draw on AIIMS and agency checklists to ensure that they have answers to key question related to the incident. Some of these questions are summarised in Table 1.

Planning Unit	Questions
Situation	► What is the current area of impact?
	► What is the current incident behaviour?
	► What impact is the weather and other variables having on the incident?
	► What is the predicted area of impact?
	► What is at threat?
	► What is the Incident Objective?
	► What strategies are in place?
	► How effective are these strategies?

Table 1 – questions about the role

Answers provided to these questions will help identify both known and unknown aspects of the Unit's role, and allow a risk assessment to be conducted. Given what we know and do not know:

► what is likely to happen?; and

► what are the consequences if it does happen?

Rating these consequences in consultation with the IMT member, will help the Unit Leader:

► confirm the priorities for the Unit; and

► identify staffing requirements for the Unit.

Establishing the Unit

Having established the priorities of the Unit, the Unit Leader should be able to identify the required structure to meet the required outputs.

While ultimately responsible for all related activities, the Unit Leader must recognise when it is appropriate to retain the duties and functions, and when they should be delegated.

Indications that the Unit Leader may need to delegate responsibility for roles within the Unit include:

▶ the Unit Leader is unable to keep up with the quantity of demand;

▶ the Unit Leader is totally committed to performing some roles to the detriment of others;

▶ important decisions within the Unit are delayed and/or opportunities are missed; and

▶ the span of control within the Unit is exceeded.

When delegating responsibility within the Unit, the Unit Leader should also identify the:

▶ staffing level which that Unit will require to be effective in its role; and

▶ resources which the Unit will require to achieve its outputs.

When considering the delegation of a role, the Unit Leader should also weigh up the consequences of not delegating the tasks and functions maintained by the Unit. They need to remember that responsibility for the functions performed by Units that are not established remain the responsibility of the IMT member.

Once the delegation of responsibility for a Unit has been made, the Unit Leader should be empowered to make decisions and implement actions without unnecessary reference to the IMT member.

Leadership and Team Management

Throughout the process of establishing the Unit, the Unit Leader must remember that in essence the Unit is a team, and the Unit Leader is the Team Leader.

It is essential that the Unit Leader acts as a leader and approaches the role with a level of confidence from which team members can draw confidence. The Unit Leader should have a thorough understanding of the Unit's role.

The Unit Leader must provide strong direction through briefings and explanations of what is happening, and what is required of the team.

The Unit Leader must always:

▶ remain approachable to team members;

▶ be willing to listen to problems or concerns raised by team members; and

► be able to provide advice and direction to resolve these issues or present them to the Incident Controller or other IMT members for resolution.

The incident management environment is often a high stress environment. The Unit Leader must be seen to reduce opportunities for team members to be exposed to stress by:

► managing the workload of team members; and

► providing the resources and staff required for the team to meet the expected outputs.

The Unit Leader must also be proactive in ensuring adequate rest breaks are provided to team members, and in ensuring the welfare requirements of the team are met so that team members are able to maintain a high level of performance throughout their shift.

Team members should be able to draw confidence from regular contact with the Unit Leader through a process of active supervision. They should be provided with regular feedback on the outputs that are being produced and through acknowledgement of the efforts being made. Where the Unit Leader becomes aware of a decline in performance within the team, quick and direct action must be taken to support the team.

Tasking and Resourcing the Unit

In managing the Unit, the Unit Leader must clearly identify the tasks to be completed by each team member. Objectives must be set both for the Unit as a whole, and specific objectives for each team member.

This should be done during the briefing provided by the Unit Leader when each role is established. All Unit personnel must understand:

► the objectives for the Unit; and

► that these objectives are based on the priorities for the Section previously established by the IMT member.

In identifying these objectives to Unit members, the Unit Leader should also explain their relationship to the Incident Objective.

Tasks that need to be completed to achieve the objectives for the Unit and Planning Section should be discussed with the Unit Leader and the Unit members. The Unit

Leader should clearly identify the:

► priorities for the completion of different tasks;

► standard of work which is required to be produced; and

► timeframe for completing the work.

When tasking roles in the Unit, the Unit Leader must also identify any specific skills and resources that are required for the Unit to be effective.

Establishing Timelines and Workflows

Right personnel

In many instances the biggest challenge for the Unit Leader at an incident is ensuring the expected outputs are provided in a timely manner.

Personnel working in the Unit should be selected on the basis of having the training and experience necessary to know their role and be able to competently undertake the tasks for which they are responsible.

Completing tasks on time

Factors such as ineffective information flow and lack of integration between Sections or Units within the incident management structure, for example, a task not completed on time by one Unit preventing another Unit commencing another task, leads to situations where individuals and Units have difficulty in completing tasks on time.

Timelines

To assist in overcoming the difficulties of completing tasks on time, the Unit Leader should establish a timeline for the Unit that clearly identifies the times of Key Events during a work-shift, and tasks that need to be completed by different Units in the lead up to, and following, these events.

Key Events may include:

► the start of a shift;

► any anticipated significant events;

► Section meetings;

► Planning Meetings and other meetings of the IMT;

► times for finalising the Incident Action Plan (IAP);

► changeover; and

► the end of a shift.

In addition to events such as those listed above, and outputs from other Sections or Units which the Unit is dependent upon and which is a prerequisite for completing Unit tasks should also be identified as a Key Event. For example, Operational Situation Reports need to be completed before the Planning Section can complete Incident Predictions and Incident Situation Reports.

Once all Key Events that impact on the Unit have been identified, the tasks and outputs for which the Unit is responsible can be identified on the timeline. The completed timeline can then be displayed to assist all Units in the Section by providing a visual aide which identifies what is expected of the Unit in terms of both tasks and timeframes.

Many of the Key Events are determined by the requirements of the Section to manage the incident effectively and efficiently.

An example of such a timeline for the Planning Section is shown in Figure 11.
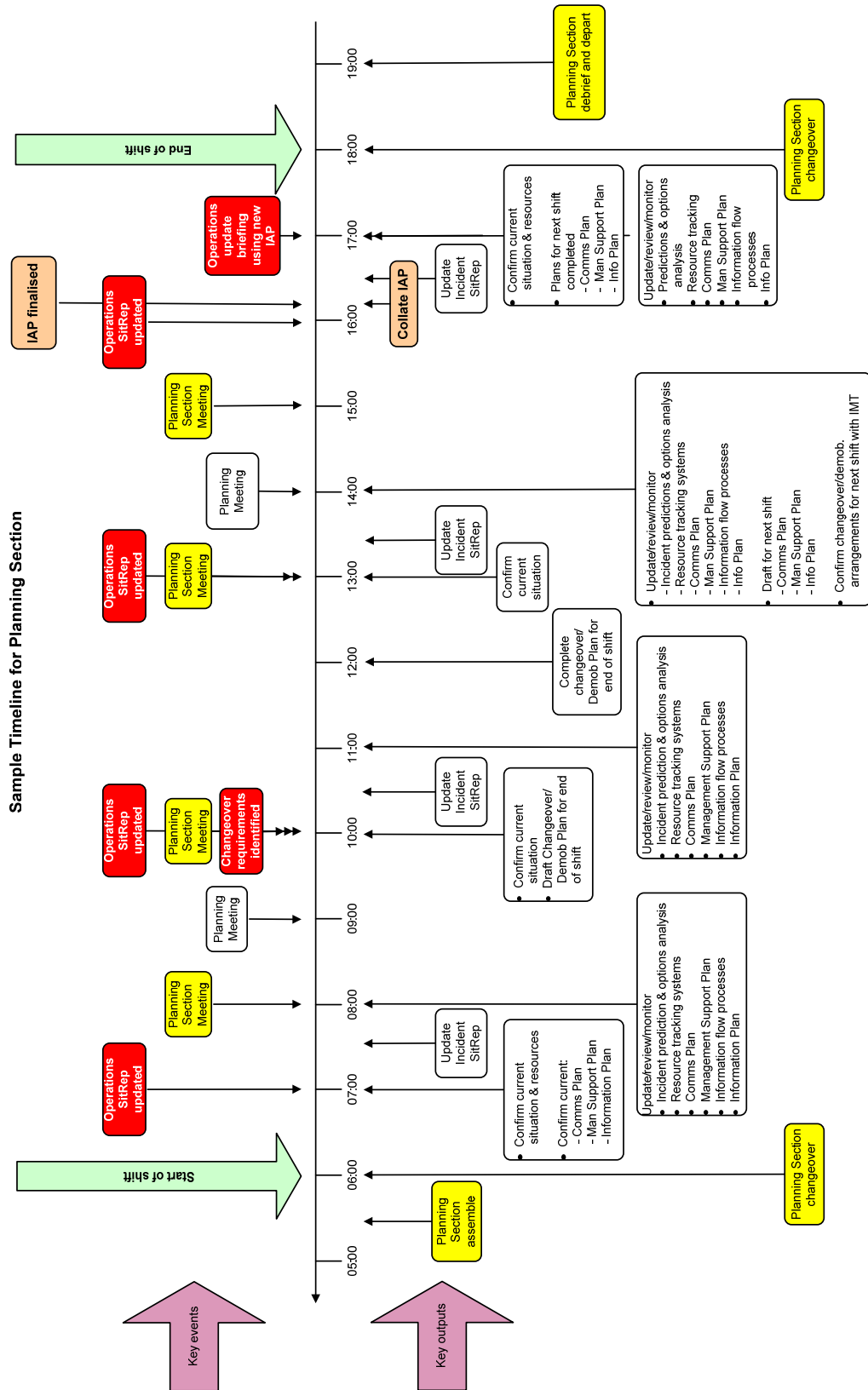
AIIMS Situation Unit

Sample Timeline for Planning Section

Figure 11 – example timeline for the Planning Section

Note: The timeline illustrated in Figure 11 is only an example. It illustrates how timelines for the Planning Section may be developed.

The example Planning Section timeline is based around a 12-hour shift that includes two scheduled Planning Meetings as Key Events. While this cycle may be suitable for some incidents, it will not necessarily suit others. It is important that any timeline develop by the IMT member is specific to the needs of the incident and the situation. Because of this, the IMT member must consult with the Incident Controller and other IMT members when developing the timeline. Timelines may also need to:

► vary from shift to shift; or

► only relate to part of a shift to allow a new timeline to be developed following a significant event that may alter the situation significantly.

Timelines may also need to be adjusted mid-shift following an unforseen change in the situation, or due to the occurrence of a critical event and its impact on the situation.

In some situations it may be possible to develop a single timeline that is applicable to the whole of the Section. In other situations individual timelines for some or all of the Units in the Section may be required. This will assist the Unit Leader to recognise what is required for the Unit more easily, and will help focus all members of the Unit in providing the outputs of the Unit on time.

Unit timelines should be based on the Section timeline, and developed in the same way as the Section timeline. This means the Key Events must be identified first, then all the tasks and outputs of the Unit. The Key Events should include any outputs of other Units or Sections which are pre-requisites for outputs of the Unit.

When identifying Key Events, the IMT member should ensure that only those which are relevant to the outputs of the Unit are included.

A sample timeline for the Situation Unit is provided in Figure 12.
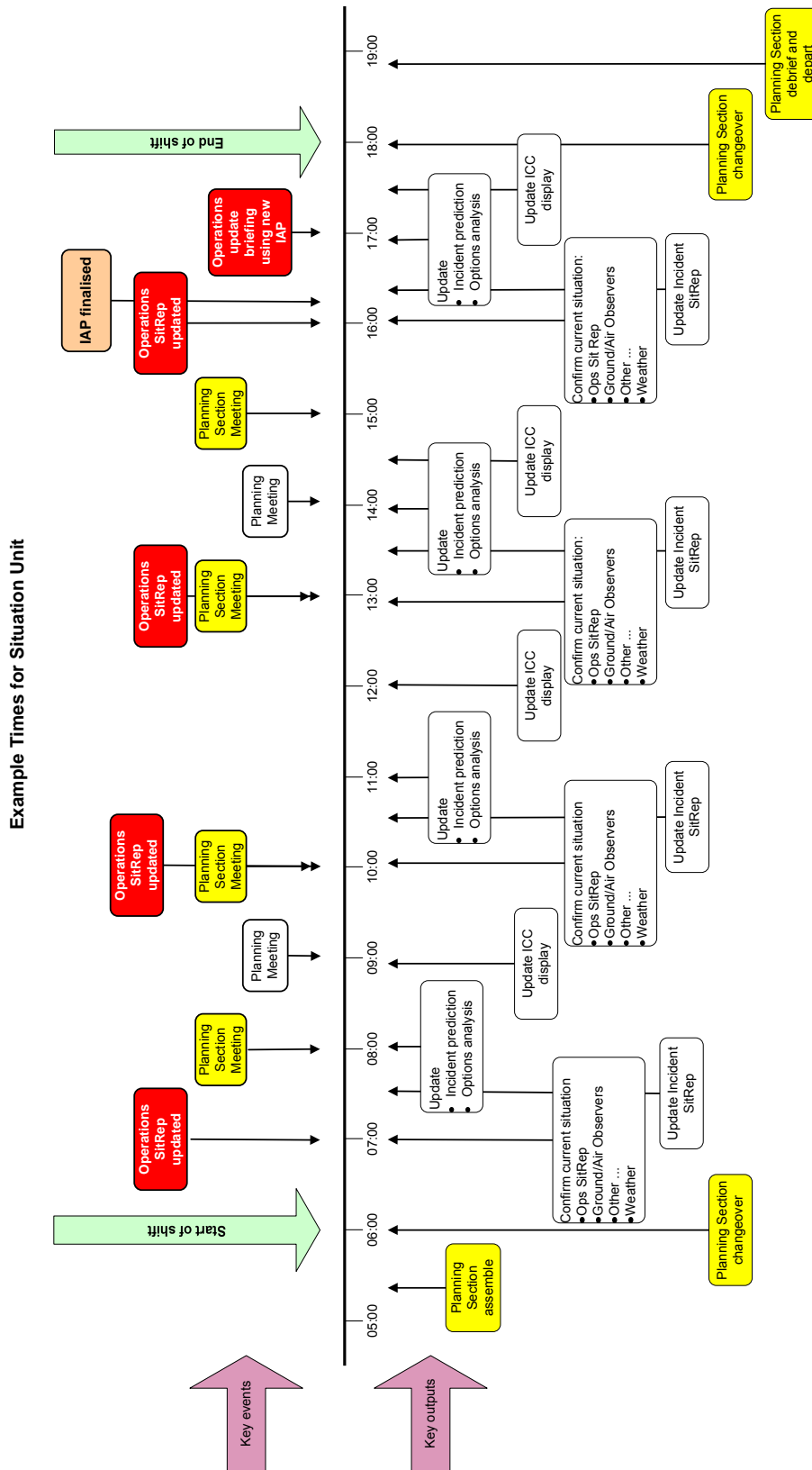
Example Times for Situation Unit

Figure 12 – example timeline for the Situation Unit

The example timeline for the Situation Unit in Figure 12 is based on the Planning Section timeline illustrated in Figure 11. It includes the same two Planning Meetings as Key Events. It also identifies Planning Section Meetings scheduled before and after each Planning Meeting. The specific tasks and outputs that are required of the Situation Units in the lead-up to and following each of these Planning Meetings and Planning Section Meetings are also identified on the timeline.

It is most important that Situation Unit timelines are developed to suit the particular needs of the incident and the situation.

Timelines that are specific to an incident will be of assistance to both the IMT member and to all Unit Leaders. They provide a visual reminder of what tasks need to be completed by each Unit and clearly identify the timeframe available for completing different tasks. They can also help identify the relationship between tasks that may be reliant on other tasks, which in turn helps integrate the work being undertaken by all Sections and Units.

This will help maintain continuity of activity in all Sections and Units, particularly around the times of IMT meetings and meetings between IMT members and their teams, and changeovers.

Information Flows

In managing the Section, the IMT member must ensure information flows within the Section are established and maintained. As part of the Section, each Unit Leader also has a part to play in maintaining information flows.

An effectively laid out and resourced Incident Control Centre (ICC) used to manage the incident will facilitate the sharing of real-time information gathered from a range of sources both at the incident and off-site by all Units. The layout and resourcing of the ICC must allow for this information to be shared within the Section.

The IMT member and Unit Leader must also ensure that resources and processes are in place to share information with all other Sections of the incident management structure in a timely manner.

Establishing a processes for information flow

To ensure access to up-to-date information for the Unit is provided in a timely manner, the Unit Leader, in association with the Planning Officer, must establish an effective flow of information into, within, and out from the Unit.

The Unit Leader, together with the Planning Officer should ensure that:

► facilities used in the incident management are:

  • effectively located and laid out; and

  • resourced and supported with management support staff to receive information from a range of sources both at the incident and off site; and

► resources and processes are in place to:

  • allow for incoming information to be registered, recorded, and disseminated so that the sharing of real-time information between all Sections and Units in the incident management structure is facilitated, and supports incident management activities; and

  • facilitate the flow of information from the IMT:

    ➢ up the chain of command;

    ➢ across to the Emergency Response Coordinator, support agencies and municipal representatives; and

    ➢ out to community groups, individuals, the media and other stakeholders affected by the incident.

Figure 13 illustrates these information flows.
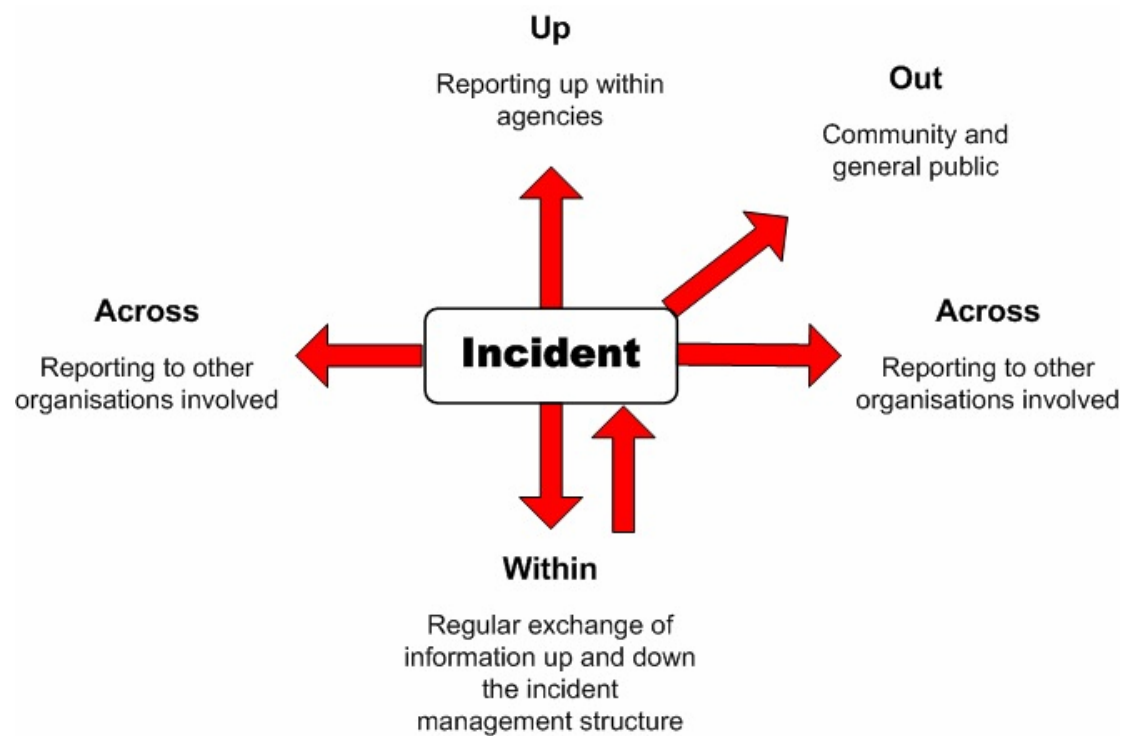
Figure 13 – information flows

Establishing Files for Unit Records

It is critical that all documentation generated and received during the incident in all locations is retained and filed, either to assist with the retrieval of information during an incident, or for post-incident reviews and analysis.

In leading the Unit, the Unit Leader must ensure that documentation generated and received by the Unit during an incident is filed in accordance with agency requirements for incident records.

This may require:

► primary files to be established to file documents by AIIMS function and secondary files established to file documents by document type;

► documents to be filed chronologically, for example, shift-by-shift, day-by-day, with the most recent information at front;

► cover sheets or similar to be prepared to identify the file contents, for example; AIIMS Function, Document Type, and Date and Shift;

► original documents to be registered and clearly identified as originals;

► copies of documents to be clearly identified as copies;

► a registration process to identify how and to whom the documents are to be disseminated;

► filing to occur at the point of origin and final destination; and

► files to be secured for collection and archiving at the end of the incident.

The Unit Leader should also ensure that all files are collated and provided to the Management Support Unit at the agreed intervals during the incident and at the conclusion of an incident and secured for collection by the control agency.

Providing a Safe Work Environment

Leading the Unit requires the Unit Leader to ensure that all personnel in their team are provided with a safe work environment. It also requires the Unit Leader to manage ongoing welfare requirements, and provide any necessary occupational health and safety (OH&S) support for personnel.

Incidents create varying levels of risk and stress for personnel working to resolve it. Unit Leaders and their teams in particular can be exposed to high levels of personal stress when working to complete complex tasks inside tight timeframes. All Unit Leaders need to understand their role in monitoring personnel within their Unit, ensuring:

► they have sufficient rest breaks during their shift;

► the welfare of those they supervise with regard to OH&S and safe working practices; and

► where personnel in the Unit are from more than one agency, adherence to the varying working conditions and differing OH&S or welfare applying to those personnel. Where this is the case, every effort should be made to meet the specific conditions and welfare requirements of each individual;

Where personnel are required to work away from the ICC the Unit Leader shares responsibility for the safety and welfare of the Unit member with the supervisor of the location to which that person is attached. The Unit Leader should liaise with that supervisor to ensure the safety and welfare requirements of the Unit member are properly provided.

The Unit Leader must ensure that all Unit personnel deployed to work in facilities remote from the ICC:

► have the necessary minimum skills to operate in the location and environment where they are deployed;

► are fully briefed on their role, including any safety issues associated with travelling to, or working at, that location;

► have been provided with all the necessary PPC/E, resources and communications equipment required to complete their role;

► follow the established processes when moving to these locations and their movement is coordinated through the operational command structure where required; and

► have their movements tracked using the resource tracking system.

Monitoring the Unit

The Unit Leader is responsible for identifying priorities and for establishing a structure to provide the outputs required to satisfy those priorities. Personnel appointed to roles within the Unit must be adequately briefed on their role and their priority tasks. Once this has been completed, the Unit Leader must focus on monitoring the performance of the Unit and its personnel.

Supervision

A Unit Leader who adopts a "hands-on" role, rather than a supervisory role, will quickly find the performance of the Unit faltering because there is nobody available to actively supervise the Unit and ensure the personnel in the Unit remain focused on their role. Similarly there will not be anyone available to ensure that adequate staffing and resources are available within the Unit to provide the outputs on time, or to the required standard.

This approach allows the Unit Leader to:

► identify when any outputs of the Unit fall below the standard required;

► provide direction and assistance to Unit members; and

► provide solutions to any problems which arise within the Unit.

Reviewing the Structure of the Unit

Incidents are dynamic events that may be subject to continual change in type, size, location, or complexity. To be effective, incident management structures need to be based around the requirements for managing an incident. As an incident changes, so too should the incident management structure to ensure that it can remain effective.

While Level 2 and Level 3 incidents generally require some Units to be activated, the demands placed on different Units will vary and will change during the incident in line with changes in the situation. As a result, there may be instances where it is possible for one person to manage multiple Units, while in other instances each Unit might require a dedicated Unit Leader with support staff. The IMT member needs to continually review the incident, its demands and the structure to ensure it is matched to the requirements for managing the incident.

This will allow for an upgrading of the structure or an increase in staffing levels in anticipation of the incident escalating, or for downgrading the structure and decreasing staffing levels as control of the incident is established and resources are scaled down.

Given that the role of each Unit is vastly different, getting the balance right is challenging. A time of high activity for one Unit might coincide with a slow period for another Unit. For example, the end of a shift:

► will be a busy time for personnel in the Resources Unit as they track the movement of resources coming off and going on shift; and

► may be a slow time for the Communications Planning Unit that has already completed the Communications Plan for the next shift period.

By constantly monitoring the incident and the performance of the Unit in meeting deadlines and completing tasks to the required standard, the Unit Leader will be able to gauge how each team member is performing. The organisational structure can then be adjusted to ensure both structure and staffing levels remain appropriate.

Changeover of the Unit

Changeover is a process that applies to all functional sections at an incident.

The challenges in conducting an effective changeover are numerous. A poor changeover can have a significant impact on the management of an incident. The focus of a changeover cannot be on a single Section alone, as a poor changeover of

other Sections can also adversely affect how effectively an incident is being managed.

The Unit Leader must ensure the changeover of the Unit members is conducted as efficiently as possible. A poor changeover may have an impact throughout the incident.

The IMT member must work actively with all Unit Leaders to prepare for the changeover. All Unit Leaders must be made aware of:

► when changeovers are scheduled;

► their role during changeover; and

► any expectations to help with pre-changeover briefings and post-changeover debriefings; both within their own Unit and within the wider incident management structure.

The IMT member should ensure:

► Unit Leaders are provided with sufficient time to:

   • fully prepare their Unit for the changeover; and

   • have all documentation completed in time to brief incoming personnel; and

► that incoming personnel receive a full briefing from their outgoing counterparts. This briefing should follow the SMEACS-Q format where appropriate, and be supported with up-to-date and fully completed documentation wherever possible. At the conclusion of the briefing, incoming personnel should understand the:

   • objective and strategies for the incident and/or the Unit to which they are attached;

   • tasks completed;

   • tasks in progress;

   • tasks still to be completed;

   • timelines, deadlines and performance standards;

   • critical issues; and

   • documentation in use.

The Unit Leader should also ensure that incoming personnel:

► ask questions to ensure the outgoing team has not assumed knowledge or forgotten relevant points;

► allow for fatigue of the outgoing team who may have been working for extended periods;

► examine documentation while the outgoing team is still present; and

► maintain the same work systems set up by the outgoing team.

In preparing the Unit for changeover, the Unit Leader must be aware that personnel from other agencies working within the Unit may have differing shift and changeover requirements. There may need to be a degree of flexibility in the timing of changeovers to respond to these requirements.

Following the changeover the IMT member must also ensure the Unit Leaders are debriefed so that:

► things that went well and things that need improvement can be recorded; and

► recommendations for improving the way the Section has been operating can be actioned appropriately.

Demobilising the Unit

As de-escalation and demobilisation processes continue, the Planning Officer will liaise with Unit Leaders, the Incident Controller and other IMT members, and release the Planning Section personnel when the roles they fill can be combined with other roles or are no longer required. Prior to their release all personnel requirements for welfare, including food, rest and accommodation and transport are provided as required.

The Unit Leader should also ensure that:

► a debrief is conducted with all Unit personnel to identify and record:

  • "things that went well"; and

  • "things that require improvement"; and

► any personal welfare issues that will require follow up action are recorded.

Securing Unit records

Unit records should be collected regularly and filed chronologically, using a consistent filing system for the incident across all Units. The Unit should ensure all files established by the Unit are provided to, or collected by, the Management Support Unit.

Securing incident records

Securing all records and documentation generated during the incident will help ensure their availability for any debrief or operational analysis, or to assist with the preparation of any reports, investigations, inquests or compensation and insurance claims that may be required following the incident.

During the de-escalation and demobilisation phases, each Section and Unit within the incident management structure should secure and file all logs and other documents and records generated by, or distributed to, the Section and/or Unit.

Notes

Chapter 5

Summary

► The IMT member is responsible for establishing:

- priorities for the Unit; and

- Units that are able to address these priorities and provide all required outputs.

► The Unit Leader must provide leadership and direction for the team and maximise the performance of the team by ensuring the team is properly tasked, fully understands its role, and is adequately resourced.

► The Unit Leader must ensure timelines are provided for the production of key outputs and milestones.

► The Unit Leader should ensure there is an effective flow of information into, within and out from the Unit.

► The Unit Leader and must ensure all documents and records generated or received by the Unit are filed in accordance with agency requirements.

► The Unit Leader must ensure a safe work environment is provided for all personnel attached to the Unit.

► The Unit Leader must monitor the Unit to ensure all members continue to work effectively and provide key outputs as required, and to ensure the structure of the Unit is matched to the requirements of the incident and the demands on the Unit at all times.

► The Unit Leader must ensure the Unit is fully prepared for changeover so that continuity of work within the Section and within the wider incident management structure is not compromised during and following the changeover.

Notes

Chapter 5
Self Assessment

Short Answers

1. Briefly describe a process for establishing priorities.

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2. Describe four indicators which show there may be a need to delegate responsibility for a task within the Unit.

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3. Outline the process the Unit Leader should use to establish the Unit.

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4.   Briefly describe a process which the Unit Leader should use when tasking members of the Unit.

5.   Who should the Unit Leader liaise with to ensure the Unit is provided with all requirements for personnel, or for materials, facilities and services?

6.   Describe the benefits which can be gained by the Unit Leader using timelines to identify work requirements for the Unit.

7.   What are some key events that might be identified on a timeline?

8. Describe the structure of a filing system that a Unit Leader might use to file Unit records.

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9. How can the Unit Leader help ensure that Unit personnel working in out-posted locations are properly managed from a welfare and OH&S perspective?

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10. Briefly describe ways in which the Unit Leader might monitor the performance of the Unit.

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11. Why is it critical that the changeover of the Unit is conducted as quickly and efficiently as possible?

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12. What must an incoming Unit Team be provided with during a changeover?

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If you have any problems understanding the material or supplying satisfactory answers, see your Supervisor for clarification and help.

Self Assessment Answers

Chapter 1 – Introduction to AIIMS

Short Answers

1. What is the purpose of AIIMS?

► Provide a robust incident management system that, when applied to the resolution of any emergency situation, enables the seamless integration of activities and resources of single or multiple agencies.

2. List the four outcomes of AIIMS:

► provide a safe working environment;

► effectively and efficiently control the incident;

► minimise the impact of the incident on the community and environment;

► provide for the welfare of personnel involved in controlling the incident.

3. Briefly describe the role of each of the four management functions of AIIMS:

► Control: responsible for the overall management of an incident.

► Planning: responsible for the collection, evaluation and dissemination of information and the development of plans to resolve an incident.

► Operations: responsible for the implementation of measures to resolve an incident, including tasking and supervising of resources at the incident.

► Logistics: responsible for obtaining and maintaining the human and physical resources, facilities, services and materials required to resolve an incident.

4. Explain the term "management by objectives"?

► A process of consultative management where the Incident Controller in consultation with the IMT, determines the desired outcome, or the Incident objective, for an incident.

5. What is the "span of control" recognised in AIIMS

► Desirable maximum of 1: 5.

6. ***Briefly describe the management structure of a:***

(a) ***Level 1 incident:***

► Incident managed from an Incident Control Point by the Incident Controller who maintains responsibility for all AIIMS functions.

(b) ***Level 2 incident.***

► Incident managed from an ICC where the Incident controller works with appointed Planning and Logistics officers to support operations which are directed from an Operations Point at the incident.

► Staging Areas are also established.

(c) ***Level 3 incident.***

► Incident managed by a full IMT working together in an ICC.

► Operations are usually directed through Divisions, and Staging Areas are established to facilitate the deployment and maintenance of resources.

Chapter 2 – The Situation Unit

Short Answers

1. ***Briefly describe the role of the Situation Unit***

► Gather and analyse information about an incident to enable effective decision making to resolve that incident.

2. ***When should the Situation Unit be activated an incident?***

► When the quantity and complexity of the information relating to the incident too much for the Planning Officer to consider and action alone. – typically Level 2 or Level 3 incidents..

3. ***Briefly describe the role of the Situation Unit Leader at an incident, and the relationship between the Situation Unit Leader and the Planning Officer.***

► Establish and manage the Situation Unit in the Planning Section. The Situation Unit Leader will work as an individual, or as the leader of a team to provide the Planning Officer with the outputs of the Unit.

4. Describe the critical outputs for which the Situation Unit is responsible.

(a) Information gathering:

► establishing a network to collect information on an incident.

(b) Information analysis:

► analysing information and completing an Incident Prediction to confirm the current and forecast situations, threats to life property and the environment, and opportunities to resolve the incident;

► establishing alternative objectives and strategies for an incident; and

► completing an Options Analysis for alternative objectives and strategies and recommending a preferred objective and strategies.

(c) Situation Information and Mapping Displays:

► preparing and maintaining Situation Information and Mapping Displays for the ICC.

(d) Evaluating and reporting:

► evaluating the effectiveness of measures to resolve an incident and manage risk at an incident, and preparing Situation Reports for an incident.

Chapter 3 – Situation Unit

Short Answers

1. List at least four sources of information the Situation Unit will use to develop its outputs.

► Pre-plans such as Municipal Emergency Response Plans and agency response plans;

► predictive models;

► Situation Reports from operational personnel;

► debriefing information;

► Ground Observer information;

► Air Observer information;

► support agencies;

► media;

► external organisations;

► local knowledge.

2. *List at least six types of observations that Ground and Air Observers may provide to the Situation Unit.*

► assets endangered;

► fire location and perimeter;

► fire behaviour;

► weather;

► overall fuel hazards;

► access routes;

► topography;

► safety hazards;

► safety refuge areas;

► suppression activities;

► resource information;

► incident facilities; and

► potential water points.

3. *What information can be provided by the following Units that may be activated as part of the incident management structure?*

(a) *Resources Unit*

► information on the type, number an location of resources assigned to the incident, and the skills and abilities of personnel, equipment and appliances.

(b) Information Unit

► information that has come from external sources such as media and members of the local community.

(c) Communications Planning Unit

► information on how to contact various people as part of the Communications Plan.

(d) Supply Unit

► advise on the types, number and expected time of arrival of resources ordered.

(e) Ground Support Unit

► information on the fire location, fire behaviour, combat operations, weather and terrain conditions and available access.

4. What types of information would the Situation Unit require to prepare its outputs?

► Information on the status of the incident, including the point of origine and cause, current perimeter locations, and expected development.

► Incident environment, including the current and predicted weather, fuel and overall fuel hazard, topography and soil types.

► Operation information, particularly objectives and strategies and tactics being implemented to resolve the incident, the command structure such as Divisions and Sectors, the safety of personnel and the location of Operations Points, Staging Areas, Base Camps and Air Bases, and access and egress routes.

► Endangered assets, including primary assets, land use assets and environmental assets

► Hazards such as power lines and gas pipelines, hazardous material storage facilities, and terrain hazards such as caves, abandoned mine shafts, quarries and steep cliffs.

► Rehabilitation and recovery considerations.

► Communications links.

5. ***What type of weather information may be useful to the Situation Unit?***

► daily weather estimates;

► synoptic charts;

► weather outlooks;

► spot weather forecasts and spot weather observations;

► remote automatic weather stations (RAWS) and/or portable automatic weather stations (PAWS) data;

► severe weather warnings;

► forecast charts detailing the movement of wind changes, fronts, cloud cover, and thunder storms;

► long-term forecasts; and

► historic information.

6. ***What type of information about the incident history would assist the Situation Unit to prepare predictions and formulate objectives and strategies?***

► Where and when the incident started and its current status.

► How far has the fire travelled in what time?

► Why has it travelled that far?

► What factors influenced the Forward Rate of Spread (FROS)**:**

► The effectiveness of the suppression effort.

► If losses have occurred, what are the factors and reasons that contributed to the losses?

► Information inflow.

7. ***What is an Incident Objective?***

► A statement of the desired outcome for the incident.

8. *What is an Options Analysis?*

► A systematic review of the alternatives that might be undertaken to achieve an objective.

9. *List at least six types of information an information display may be include.*

► the current situation and predicted area of impact;

► threats to operational personnel, community members, community assets and infrastructure, and the environment;

► safety messages and warnings;

► losses;

► Incident Objectives and strategies;

► incident management structure and additional agencies involved;

► Communication Plans;

► key personnel and shift change details;

► media liaison details;

► resources at the incident;

► current weather information and forecasts; and

► maps and aerial photographs of the area.

10. *What information should be included in maps prepared by the Situation Unit?*

► the origin of the incident;

► current and predicted perimeters;

► key focus areas such as hot spots and threat areas, assets and infrastructure at risk;

► critical timings;

► operational boundaries;

► key locations such as the ICC, Operations Points, Division/Sector Command

Points, Staging Areas, re-supply, service and welfare locations;

► access/egress routes; and

► wind speed and direction.

11. What information may be included in Situation Reports prepared by the Situation Unit?

► the time and date of report;

► the name and role of the person(s) who prepared and authorised the report;

► a situation summary, including details of the current and predicted incident behaviour;

► Incident Objective and Strategies;

► resource allocation;

► administration and logistical arrangements;

► the command structure and communications in use;

► key relationships at the incident; and

► critical issues and safety messages.

Chapter 4 – Analyse, Evaluate and Predict Incident Information

Short answers

1. Name at least four factors the Situation Unit Leader should take into account when conducting the first quick analysis?

► date and time;

► current fire behaviour;

► accessing current and forecast weather information;

  • looking for significant wind changes in speed and direction;

  • wind direction changes that may impact the situation;

► threatened lives and property and other assets at risk;

► access to resources such as firefighters and machinery and their ability to resolve the incident;

► current resource allocation and activity;

► terrain, steep slopes, and valleys; and

► vegetation/fuel types and weight.

2. What is the first step in performing an Situation Analysis?

► Perform an Option Analysis.

3. What does the Option analysis allows the Situation Unit Leader to identify:

► the assets, current incident behaviour and other factors that may restrict or decide incident objectives.

4. What is an Incident Prediction?

► The combined summarisation of current fire behaviour, weather, topography and fuels to determine the future fire behaviour.

5. What is the purpose of an Incident Prediction?

► The purpose of an Incident Prediction is to enable the Situation Unit Leader to establish:

• where the incident perimeter and combat effort might be at a certain time, for example four hours later;

• what assets may be at risk and when;

• what is the likely position of incident development when it is controlled or reaches a satisfactory stage;

• the length of time before the incident is brought to a satisfactory stage; and

• the need for further allocation of resources to manage the intermediate stages and to achieve the final satisfactory or defined stage of control.

6. ***List at least five factors that may create difficulties or invalidate the proposed Final Fire Shape (FFS).***

► heavy or old fuels adjacent to the boundary;

► steep slopes below the boundary;

► gullying winds onto the boundary;

► difficulty of constructing an effective control line when using machine, or hand tools;

► difficulty in defending boundary;

► the safety of firefighters defending boundary;

► difficulties in backburning from or burning out to the fire the boundary (especially allowing sufficient time;

► the time of day when the fire will reach the boundary; and

► the potential for spotting and fuel characteristics outside the proposed final fire area.

7. ***List at least five fire prediction tools that may be used by the Situation Unit.***

► fire behaviour predictions;

► slope calculations;

► flank and tail fire rate of spread calculations;

► fire intensity calculations;

► forest fire prediction models;

► grassland fire danger index

► CSIRO fire spread meter for grasslands;

► Project Vesta;

► weather in fire behaviour analysis and predictions; and

► control line construction rate calculations.

Chapter 5 – Leading the Unit

Short Answers

1. Briefly describe a process for establishing priorities

► Identify both known and unknown factors relating to the role of each Unit and possible outcomes from knowing and not knowing these factors.

► Identify the likelihood of these possible outcomes occurring, and the consequences if they do occur.

► Rate these consequences in consultation with the IMT to identify priorities for the Unit.

2. Describe four indicators which show there may be a need to delegate responsibility for a task within the Unit.

► The IMT member or Unit Leader is unable to keep up with the quantity of demand.

► The IMT member or Unit Leader is totally committed to performing some roles to the detriment of others.

► Important decisions within the Section/Unit are delayed and/or opportunities are missed.

► The span of control within the Section/Unit is exceeded.

3. Outline the process the Unit Leader should use to establish the Unit.

► Identify the task, authority and responsibilities to be delegated;

► identify an appropriately trained and endorsed person for the Unit Leader role;

► brief the new Unit Leader on the incident situation and requirements of their role;

► receive acknowledgement of the delegation and responsibilities;

► notify relevant IMT personnel of the appointment of the Unit Leader; and

► document the delegation and ensure the structure chart and the communications plan are adjusted.

4. Briefly describe a process which the Unit Leader should use when tasking members of the Unit.

► Use of a briefing format, for example, SMEACS-Q.

5. Who should the Unit Leader liaise with to ensure the Unit is provided with all requirements for personnel, or for materials, facilities and services?

► The IMT member.

6. Describe the benefits which can be gained by the Unit Leader using timelines to identify work requirements for the Unit.

► Provide a visual reminder of tasks which need to be completed and identify the timeframe for completing different tasks.

► Identify the relationship between tasks which helps integrate work of different Sections and Units.

► Help maintain the continuity of activity in all Sections and Units.

7. What are some key events that might be identified on a timeline?

► Start of shift;

► any anticipated significant events;

► Planning Section meetings;

► IMT meetings, for example, Planning Meetings;

► changeover; and

► end of shift.

8. Describe the structure of a filing system that a Unit Leader might use to file Unit records.

► Documents filed chronologically by AIIMS Function and Document Type.

9. How can the Unit Leader help ensure that Unit personnel working in out-posted locations are properly managed from a welfare and OH&S perspective?

► Ensure they have appropriate levels of training and experience for their role;

► ensure they have appropriate PPC/E, equipment and support to perform their role;

► ensure they are adequately briefed and aware of the requirements for travelling and moving in out posted locations; and

► ensure they are appropriately supervised at that location.

10. *Briefly describe ways in which the Unit Leader might monitor the performance of the Unit.*

► Actively supervise and observe performance of the Unit and the ability of personnel to complete tasks.

► Monitor the effectiveness of information flow processes maintained by the Unit.

► Schedule Section meetings with team members and IMT member.

11. *Why is it critical that the changeover of the Unit is conducted as quickly and efficiently as possible?*

► To maintain information flow processes which enable the continuity of activity across the incident.

12. *What must an incoming Unit Team be provided with during a changeover?*

► A detailed understanding of:

  • objectives and strategies for the incident and or the Unit to which they are attached;

  • tasks completed;

  • tasks in progress;

  • tasks still to be completed;

  • timelines, deadlines and performance standards;

  • critical issues; and

  • documentation in use.

Notes

Abbreviations

The following abbreviations have been used in this manual.

Abbreviation	Meaning
AIIMS	Australasian Inter-service Incident Management System
BoM	Bureau of Meteorology
CFA	Country Fire Authority
CIS	Critical Incident Stress
DSE	Department of Sustainability and Environment, Victoria
FDI	Fire Danger Index
FFS	Final Fire Shape
FMC	Fuel moisture content
FROS	Forward Rate of Spread
GIS	Geographic Information Systems
GPS	Global Positioning System
HAZMAT	hazardous materials
IAP	Incident Action Plan
IC	Incident Controller
ICC	Incident Control Centre
IMT	Incident Management Team
ISP	Incident Shift Plan
IT	Information technology
ITC	Information technology and communications
MECC	Municipal Emergency Coordination Centres
MERC	Municipal Emergency Response Coordinator
MSO	Management Support Officer
OH&S	Occupational Health and Safety
PAWS	Portable automatic weather station
PPC	Personal Protective Clothing
PPE	Personal Protective Equipment
RAWS	Remote automatic weather station
RECC	Regional Emergency Coordination Centre
ROS	Rate of Spread
SECC	State Emergency Coordination Centre
SOP	Standard Operating Procedures
VICSES	Victoria State Emergency Service

Bibliography

The following resources where used in the development of this Manual.

► *The Australasian Inter-service Incident Management System*, Third Edition, 2005.

► *Situation Unit Management Learning Manual as at 12/10/2004* – Department of Environment and Conservation, of Western Australia.