TOWARDS A FIRE SUPPRESSION SYSTEM FOR NATURE RESERVES IN THE SOUTHWEST OF WESTERN AUSTRALIA

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SUMMARY

1. Introduction

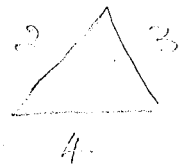
Outline of area of discussion. Questions relating to fire suppression. Department policy - Broad outline:-

> That the Department will attend fires on or threatening Nature Reserves or areas of specifically stated conservation interest for which this Department has a designated responsibility.
>
> Furthermore the Department will also attend prescribed burns adjoining these areas assuming equipment and personnel are not already committed.

2. Personnel

Reserve Management fire crews.
District Wildlife Officers.
Departmental volunteers.

3. Equipment



Standardisation
Choice of vehicles - light, fast.
Fire units - design taking place.
Communication - Adoption of BFB set-up.
Aircraft - Personnel and equipment deployment.
Helicopter and Monsoon fire bucket.

4. Training

Handbook
Informal training seminars.

5. Safety

Personal handled by training
Equipment used is safe.
'Buddy' system.

6. General Aspects

Considerations affecting response and method of attack.
Briefly stated legal considerations.

7. Central Records and Overall Coordination

Cohesive development facilitated.

8. Pre-fire Situation

Management Information System.
Priorities.

9. The Teams

Wanneroo Reserve Management District
Wongan Hills Management District
Pingelly Management District
Katanning Management District

(a) Wanneroo Reserve Management District

Metropolitan and Near-Metropolitan.
Areas without country based teams.

In event of fire with country teams in place:

Support
Communications base
Co-ordination.

(b) Country based teams

Specific area problems
Mutual support.

(c) Two Peoples Bay Nature Reserve

Exceptional fire control strategy.

10. Examples of General Procedure

Fires on Metropolitan Nature Reserves
Fires on Country Nature Reserves - No country team present.
Small fires on Country Nature Reserves - Country team present.
Major fires on Country Nature Reserves - Country team present.

11. Follow-up

1. INTRODUCTION

The area to which this paper applies can briefly be described as that which lies to the southwest of a line joining Geraldton, Southern Cross and Esperance. It is in this area that the major fire related problems on Nature Reserves exist for the Department. These problems are related to population numbers, vegetation and climate types, land uses, public attitudes towards fire, and the design of the reserves themselves. It is expected that this Department will need to develop a response to fires outside this area but at this stage that response can be looked upon as exceptional.

Whilst fire suppression in relation to Nature Reserves is the main topic to be discussed here the Department has a responsibility for a number of other areas to which consideration will need to be given at some stage. For example this Department now has an obligation towards the conservation of gazetted rare and endangered flora. This flora need not be found on a Nature Reserve. During the 1982-83 fire season one prescribed burn was attended specifically to protect a rare and endangered species on private land.

There are basic questions that need to be thought about in order to orientate Departmental policy, strategy, and action in relation to fire suppression and indeed fire abatement in general. Questions such as; Why suppress fires? What type of on site fire suppression should be undertaken? What are the best ways to cover the large areas involved? What type of equipment should be purchased? and so on. As an organisation managing areas from a conservation viewpoint then the answers to the above questions are very much determined by that viewpoint, rather than if the management had a different orientation: For example, timber production.

In the event of a wildfire occurring on a Nature Reserve some response from this Department is necessary in order to ensure that the Department is adopting a responsible approach towards its appointed management tasks. If a management plan is in effect for an area then wildfires may result in the suspension of those plans. Management objectives and the work of many people can be completely negated.

Whilst it is recognised that fire is part of the Australian environment repeated burning of areas may have deleterious effects on the ecology of that area.

From a local viewpoint non-response would imply that the Department does not care what is happening to Nature Reserves. Mainly due to lack of personnel and equipment this attitude has to a certain extent been adopted by local communities. This results in the decisions being made for a reserve being taken out of the hands of the Department. A managed process is no longer occurring. The reversal of this attitude is a difficult one but response to a fire is one of the major ways in which this Department and the reserves system can benefit.

The only fire which should be allowed to occur on a reserve is a Departmentally prescribed burn.

The experience over the last few years has been that Departmental commitment to fire related matters has been an increasing one. This trend is expected to continue. The Departmental policy in dealing with this can briefly be outlined as follows:

> That the Department will attend wildfires on or threatening Nature Reserves or areas of specifically stated conservation interest for which this Department has a designated responsibility.

Furthermore the Department will also attend prescribed burns adjoining these areas assuming equipment and personnel are not already committed.

The following sections deal with a number of topics for which development has been taking place or needs to take place. The discussion of these topics is not intended to be either comprehensive or conclusive. The intention being to stimulate thought and discussion.

2. PERSONNEL

The personnel available for fire suppression activities are in three categories. These being:

(1) Reserve Management Staff Directly Associated with Fire Control.

(2) District Wildlife Officers.

(3) Western Australian Wildlife Research Centre Staff and Reserve Management Staff Not Directly Associated with Fire Control.

(1) Reserve Management Staff Directly Associated with Fire Control.

It is intended that these people will accumulate a core of knowledge in relation to all fire control matters, in this case specifically fire suppression. In this way a reliable base from which further fire strategies can be formulated is established.

One of the developments most necessary for the continued development in this field is the

establishment of permanent fire crews at the Western Australian Wildlife Research Centre (herafter called Wanneroo Base). Every year men are hired to fight fires, a practical knowledge of fire is accumulated and is then lost once their temporary stay is finished. It is pleasing to note that there is now a trend toward permanency.

Two of the many uses of knowledgeable fire crews are that the people concerned can be loaned out or a permanent fire crew member can take a less knowledgable person as an assistant. This means that availability of personnel and the spread of knowledge in a fire situation is maximised. More units can be committed to fire situations. There are also considerations of increased safety associated with use of experienced personnel.

(2) District Wildlife Officers (WLO's).

Over the past two seasons a number of WLOs have assumed active roles in fire suppression. These have shown that WLOs can be very important in the initial accurate reporting of wildfires and on a number of occasions have contributed markedly to fire suppression operations.

In a wildfire situation the possible tasks of a WLO are varied, the more important ones being:

(1) Advising Reserve Management (RM) fire crews as to the extent and severity of the fire.

(2) Reconnaissance work during the course of the fire.

(3) Official liaison between the Department and local representatives and other Government

fire fighting organisations that may be present.

(4) Assisting in direct fire suppression activities.

The above tasks have very much developed out of experience already gained during wildfire situations. In many cases the WLO is usually at a fire more quickly than a RM team. In terms of a good public image if that officer arrives with a fire unit on his vehicle then the reaction gained from people already at the fire is quite likely to be a positive one.

The WLO usually has a store of information about his area which is invaluable in a fire situation. Information such as local attitudes, fire contacts, areas to be avoided during a fire, availability of equipment, and general information about the properties surrounding the fire.

WLOs are usually immediately recognised by local people as officials of the Department. This aids in their role of liaison and in the event of a prosecution being involved the presence of a WLO makes that task much easier.

The role of the WLO is very important but Reserve Management staff has the final responsibility for the safe control of a fire. A number of issues can appear to become more important during a fire rather than the suppression itself. In helping to deal with those issues the WLO can help to maximise the time that RM teams are involved in direct fire control.

(3) Western Australian Wildlife Research Centre Staff and Reserve Management Staff Not Directly

Associated with Fire Control.

Once a list of volunteers from these groups was drawn up then there are immediately personnel available to act in the following roles:

(1) To drive support vehicles to fires and to maintain that support at a fire.

(2) Act as communications officers.

(3) In company with a fire crew member to man a fire unit so that there can be a greater commitment.

With training these personnel could undertake a greater amount of work in direct fire control activities. This would have beneficial effects if a multiple fire situation arose or a single fire was to burn over an extended time period.

(3) EQUIPMENT

Standardisation

The benefits of standardisation include:

(a) Streamlining of maintenance schedules.

(b) Centralisation of maintenance schedules and reports of problems encountered.

(c) All personnel are able to quickly become familiar with any piece of equipment.

(d) Fire crews are able to transfer from one vehicle to another.

(e) Equipment can be transferred from one vehicle to

another.

Standardisation can be looked at in several general areas:

(1) Vehicles
(2) Fire units
(3) Radio equipment
(4) Safety equipment.

(1) Vehicles

Whilst it can be argued that the standardisation of make of vehicle is not so important certain considerations regarding vehicles in general are. The carrying capacity and dimensions of any vehicle must be taken into account so that a standardised unit can be fitted. By this it is not meant that the Department will have units all of the same carrying capacity but that standard attachments will always be used.

As it is quite probable that people may have to change from one vehicle to another it is important that they are aware of the capabilities and controls of that vehicle. Obviously using a vehicle of known performance aids this.

(2) Fire units

As has been mentioned previously it is not so much the amount of water that a fire unit can carry but a standardisation of attachments that is important. Briefly that standardisation relates to:

(a) Design of the tank to optimise stability

(b) Type of pump

(c) Type of pump motor

(d) Hoses

(e) Method of hose attachment

(f) All types of fittings, e.g. taps.

The reasons for the above points barring the first relate to ease of use by all personnel and interchangeability of parts.

(3) Radio equipment

Fire control vehicles should have the same radios fitted to them. The radios should have all the necessary frequencies available. At present the available radio combination is one VHF set fitted with low band Bush Fires Board (BFB) frequencies and one HF set fitted with Departmental frequencies, BFB frequencies, and a Royal Flying Doctor Service frequency.

The feasibility of fitting all WLO vehicles capable of carrying a fire fighting unit with the correct radios is at present being considered. The outcome of this appears to be dependant on funding.

(4) Safety equipment.

At this stage the safety equipment available within this Department is very basic (overalls, gloves, hard hats, goggles). The standardisation of the equipment is a relatively straightforward process. Once the basic equipment is established then the introduction of more sophisticated equipment can be considered.

Having looked at four areas requiring standardisation these same areas can be viewed in more general terms with regards the choice of equipment.

Vehicles

As a basis for fire control work it has been the experience of the Wanneroo and Pingelly Reserve Management teams that the best vehicles to use are comparatively light, fast four wheel drive vehicles.

There is at present discussion taking place as to whether those vehicles should be all 2 tonne vehicles or a combination of 1 tonne and 2 tonne vehicles. This discussion has resulted because at present the 1 tonne vehicles in use (Toyota Landcruisers) carry 680 litres of water and with the associated equipment they are on the borderline of being overweight. This has implications as far as legal and safety aspects are concerned. In order for the 1 tonne vehicles to be within their capacity around 550 litres of water would need to be carried. This amount is considered by a number of organisations to be too little. It is felt that it results in the vehicle spending more time in filling up operations than should be necessary.

Regardless of the final outcome of the discussions some of the reasons for favouring light, fast vehicles are as follows:

(a) The need to respond quickly to fires over a large area.

(b) The need to provide vehicles able to perform multipurpose roles.

(c) The need to provide vehicles with proven capabilities.

(d) The fact that as a general rule large vehicles able to carry an increased amount of water are not needed. (That problem can be overcome in other ways).

(e) Light vehicles are able to work in more difficult conditions than large trucks.

(f) An increased level of expertise is required to safely operate large four-wheel drive trucks in difficult conditions.

(g) The lower maintenance costs of the lighter vehicles.

In the event of heavier vehicles definitely being required for tanker or support purposes then there are several sources available.

One is to have such vehicles based at Wanneroo so that all country based teams could have immediate access. Another one is to hire the necessary vehicles and equipment.

Fire Units

The first steps have recently been taken to assess the type of unit best suited to Departmental needs. One rule of thumb that is being kept in mind is that the more simple a system is the less likely it is to go wrong and if that does eventuate the easier it is to fix. The assessment of fire unit design will take into consideration the opinions of other fire fighting organisations as well as the knowledge within this Department.

Communications

The need to maintain a good communications network cannot be overstressed. Apart from good Departmental communications it is important to develop a system of contact with those organisations likely to be involved in a fire situation.

Broadly one of two options is available for the development of a communications system. Either the Department develops direct access to all fire fighting organisations or the Department adopts the standardised fire fighting radio system being developed by the BFB. The latter course has very much been chosen for the following reasons:

(a) The BFB are well established as a rural bush fire liaison organisation. In the event of a fire situation involving a number of authorities then the BFB will be able to maintain contact with everyone involved.

(b) The number of local authorities and Government bodies adopting the BFB VHF system is increasing.

Safety Equipment

To be discussed under SAFETY

Aircraft

Recent times have seen this Department adopting new approaches to the use of aircraft. In terms of Departmental fire suppression activities it constitutes a whole new field.

The Forests Department has proved the worth of fixed wing aircraft during a wildfire. They not only speed up the assessment of the characteristics of the fire

but can be used as observation platforms to give indications of distribution of personnel and equipment, where those resources would be best put, tracks and firebreaks in the vicinity, escape routes for ground crews in the event of an uncontrollable situation, water supply, and topographical and vegetation features likely to affect fire behaviour. Aircraft can be used in the rapid deployment of personnel and light equipment.

The Department has recently been testing the use of a 'monsoon fire bucket'. This is a fibreglass container of 580 litres capacity which is suspended under a helicopter. A mixture of water and fire retardant is dropped onto a fire. This system is used extensively in New Zealand and to an increasing extent in the eastern states of Australia.

The use of fire buckets can be looked at in both the short and long terms. In either case the helicopter and fire bucket combination can be used to extinguish small fires, 'hop-overs', 'hot spots', and lay retardant firebreaks. Fire control can be improved in the metropolitan and near metropolitan areas, for major fires in country areas, and for fires on islands (where, because of the abundant supply of water, ground crews are not as essential).

Short Term

At present there is only one bucket available and even within the next few years they will most probably remain in short supply. The helicopters available in Western Australia do not have the optimum lifting capacity and pilots need to gain experience in this field. Ground crews will need to be already in place and all necessary equipment to keep the helicopter and fire bucket operational will need to be supplied by them.

Long Term

With the presence of more fire buckets and larger helicopters the following procedure could be adopted:

(a) In the event of a fire a helicopter is hired to fly two men, the fire bucket, portable radio communications, and a lightweight high capacity pump to the scene of the fire.

(b) On arrival one man would assume ground control setting up the pump near a safe water source.

(c) The other man would undertake reconnaissance and assist the pilot in the placement of water drops.

It is considered that the optimum use of the fire bucket is as support to ground crews.

The Department will use the same safety and general operational procedures as those adopted in New Zealand. These procedures will be outlined at a future date preferably in a Departmental handbook.

(4) TRAINING

It is essential that personnel act in a professional and safe manner. Whilst it is understood that people within the Department may feel that they know what to do at a fire it is important that everyone is aware of what should be done. In this way people are able to rely on one another more quickly.

One of the first stages towards a training scheme would be the production of a handbook. The training scheme proper and the handbook would look at all aspects of fire suppression, for example:

(a) Procedures to follow on notification of a fire.

(b) Personal safety.

(c) How a pump works.

(d) How to drive a four-wheel drive to best advantage.

(e) How to start a chainsaw and use it.

(f) General equipment maintenance.

(g) Equipment available for use.

(h) Radio procedure.

(i) On site fire fighting techniques.

(j) Legal Aspects.

One of the benefits of getting people to a training session is that not only is knowledge given out but also people can present their views and help develop the scheme even further. Such training sessions could be conducted in an informal manner.

With training everyone is in a position of knowing what to do, what they can expect from the Department and as such a more professional approach is adopted. The public sees an efficient group of people in action and as well the job involved becomes easier.

(5) SAFETY

It is hoped that personal and more general aspects of safety would, as has been stated, be handled by the Departmental handbook and training sessions. Apart from that there are a number of more general safety

aspects relating to equipment and safety systems that need to be considered.

Vehicles

(1) All fire fighting vehicles at Wanneroo Base carry basic safety equipment. It is hoped that in the near future all vehicles likely to be involved in a fire situation will carry this equipment.

The feasibility of fitting portable breathing units to fire fighting vehicles is being considered. The reasons behind this are that downwind from a fire smoke can become extremely thick. One of two situations could occur. Firstly people are overcome by smoke and secondly people think they are being overcome by smoke and panic. In either case a breath of fresh air is important.

(2) The cabs of fire fighting vehicles as far as is practical should be fitted out with fire proof or fire resistant materials. The main concern is that the materials used should not give off toxic fumes when hot or smouldering.

(3) With the purchse of new vehicles to be used for fire fighting the fitting of air conditioning units should be considered. In a fire situation whilst smoke inhalation might be one problem encountered, heat exhaustion is another. The presence of an air conditioning unit makes the job of working downwind much easier. Also long distances often have to be travelled by fire crews in the heat of summer.

One of the problems to be overcome is that any air conditioning unit must be carefully matched to the vehicle concerned so that both the

performance and reliability of that vehicle are not affected.

(4) Whenever possible diesel powered vehicles should be purchased. The reasons for this relate to such factors as the risk of fuel leaks, the flammability of petrol, and vapourization problems that sometimes occur with petrol motors.

(5) Vehicles to carry a full range of spares for both the vehicle and all aspects of the fire unit.

(6) Only the number of people who can safely fit in the cab of the vehicle are carried and that people should always try to travel in the cab of the vehicle.

The opposition to people travelling on the backs of vehicles is based on the lack of cover from falling trees, branches and ash, lack of protection from heat, and the very real possibility of falling from a moving vehicle. During a fire visibility can become poor, noise levels can become quite high and if anything happens to personnel on the back of a vehicle the driver may not be aware of it.

'Buddy' System

This Department should implement a buddy system when fighting fires. This system comprises a driver and a 'hose man'. Responsibilities of the driver include looking after the vehicle and unit, remaining within hearing distance of the radios as much as is practical, keeping an eye on the hose man, making every effort to assist the hose man reel out and reel in the hose, and prevent hose tangles. In this way the risk of someone inadvertently entering a dangerous situation is minimised. This also points to four man

country based teams being instituted.

General Considerations

One of the problems associated with requesting assistance from WLOs is that in most cases they are unable to operate a buddy system and must work alone for extended periods. It is intended that if a WLO goes to a fire then an effort will be made by RM to get another person to him as quickly as possible.

It has been suggested that to augment fire crews local personnel are used. Whilst this has advantages with regards to local knowledge,. the disadvantages outlined below clearly show that this course of action should be avoided.

(a) The person is not aware of how the Department operates.

(b) The level of fire knowledge and orientation of that knowledge may be open to question.

(c) The person may not know how to operate the equipment at all or at least not efficiently.

(d) Safety equipment could not be supplied by the Department.

(e) A certain obligation must be shown by Departmental staff to ensure that the person involved does not get injured. This means that not only is the efficiency of the unit compromised but also everyones confidence and safety.

(6) GENERAL ASPECTS CONCERNING FIRE SUPPRESSION

It is important that the Department takes a very flexible approach to suppressing a fire and makes best

use of all available resources whether Departmental or not.

Every fire tends to be tackled on an individual basis but general approaches can be viewed such as close suppression, firebreak construction, and back burning operations. These approaches are not mutually exclusive and are determined by many considerations amongst which are the following:

(a) Type of country.

(b) Weather.

(c) Values associated with an area.

(d) Level of local co-operation and resources.

(e) Time before suppression measures implemented.

(f) Size of the area involved.

(g) Fire abatement measures already in place.

These same considerations have an effect on the degree and type of response initiated following the notification of a fire.

Officers of this Department are under a legal obligation to follow the instructions of an appointed fire control officer or forester. This could mean that the conservation values of an area might be unnecessarily compromised. Fire control officers will generally accept advice from Departmental officers and many will allow those offices to tackle a fire as they see fit.

In view of the fact that any independent action by Departmental officers is to a certain extent illegal

it is important that a local fire control officer is kept informed at all times and his approval is sought.

This Department should make all attempts to build up and maintain good liaison with those people who may be asked to attend or find themselves in the position of attending fires on Nature Reserves.

(7) CENTRAL RECORDS AND OVERALL CO-ORDINATION

With the continued commitment of the Department to fire control it can be assumed that people within the system will build up their own levels of expertise and encounter problems with the system, vehicles and equipment. It is proposed that a centralised record be kept of all details and developments. By this method people can have an immediate input into the system and a co-ordinated effort can be maintained. The system develops in a cohesive manner and everyone involved can be kept informed of 'the state of the art'.

(8) PRE-FIRE SITUATION

It is important that each team builds up a store of knowledge prior to a fire situation. That knowledge fits neatly into the management information system which is the subject of a separate paper.

At present this Department will attend all wildfires affecting areas associated with Departmental interests. Even so a priority system should be drawn up for those reserves considered to be of major value so that the format to be followed in the event of a fire is clear cut.

(9) THE TEAMS

That part of the state under discussion has been

broadly divided into four management areas; Wanneroo Reserve Management District (Metropolitan and Near-Metropolitan areas), Wongan Hills Reserve Management District (roughly north of the Great Eastern Highway), Pingelly Reserve Management District (Great Eastern Highway south to and including the Narrogin Shire), and the Katanning Reserve Management District (south of Narrogin to the coast). At this stage only the Pingelly RM team is in place but fortunately the Katanning team is in the throes of placement. Even with the Wongan Hills team also eventually becoming functional there will still be a need for continued development. It is hoped that any fire control system would be flexible enough to immediately facilitate such development and indeed assist that development.

Wanneroo Reserve Management Teams

It is expected in terms of fire control that these teams will have two general areas of interest. Firstly they will be responsible for fire control for the metropolitan and near-metropolitan areas (including islands) and for those areas not under the control of a country based RM team.

Secondly they will perform the function of providing full support for country based teams. In the event of a fire Wanneroo Base will assume the functions of:

(a) Communications and co-ordination.

(b) Back-up fast attack units.

(c) Mop-up operations.

(d) Specialised equipment supply.

It is important that people feel free to request

assistance from Wanneroo Base. Often people comment that such long distances are involved. Everyone in operation from Wanneroo Base is aware of this and sees it as part of the job. In the event of country RM team being unable to control a fire it is far better for teams to be on the way than still waiting for a call.

In the event of Wanneroo Base teams not being required whilst they are on the way a recall procedure operates. This means that fire crews whilst travelling contact Wanneroo Base on the hour every hour (usually by radio).

Wanneroo will have greater immediate access to more man power and equipment than country teams. For example; tanker units, high capacity pumps, mobile radio facilities, mobile accommodation, aircraft, and senior personnel in other fire fighting organisations. The facilities which will be available for country teams based at Wanneroo are continuously being developed.

It is also hoped that Wanneroo will assume the role of coordination of all fire related aspects within the Department, leaving country teams more time to devote to area specific matters.

Country Based RM Teams

Whilst the first priority of a team is toward their area all teams will be part of a mutual support system. With the full commitment of the Wanneroo teams country teams may be required to assist outside of their areas.

During a fire in an area where a country team is present that team would remain in full charge.

Two Peoples Bay Nature Reserve

Two Peoples Bay Nature Reserve is in the unique position, along with the Woodvale Nature Reserve, of having permanent staff living on the reserve. Because of its great importance within the Nature Reserve system in the event of a fire on or threatening the reserve the general format which should be followed is:

Two Peoples Bay Reserves officer contacts Wanneroo Base.

Full mobilisation of available units. Only one person will be in each vehicle to drive it to the reserve.

All other available personbnel will travel to Jandakot airport, fly to Albany and travel to the reserve by taxi.

Assistance will be sought from the WLO Albany and the nearest country RM team.

Other country teams will be placed on standby.

The Two Peoples Bay Reserves Officer will remain in full charge at all times.

Along with the above procedure it is hoped that a store of fire retardant chemicals can be built up at the reserve and also a monsoon fire bucket will be purchased. The use of a helicopter and fire bucket to aid fire suppression in this area is seen as having great application.

(10) EXAMPLES OF GENERAL PROCEDURES

(1) Any fire on or near a Metropolitan Nature

Reserve.

Full mobilisation of available units from Wanneroo.

Volunteer staff made aware of the situation.

(2) Fire on a country Nature Reserve - No country teams.

Assistance requested from WLO.

One team despatched from Wanneroo Base.

With the possible escalation of the fire:

More teams leave Wanneroo Base.

Support crews and vehicles organised.

Assistance requested from country RM teams.

(3) Small fire on a country Nature Reserve - Country team present.

Country team to inform Wanneroo Base.

Wanneroo Base placed on standby.

Country team able to suppress.

(4) Major fire on a country Nature Reserve - Country team present.

Country team informs Wanneroo Base and requests assistance. Appraisal is that a major fire is in progress or there is a high risk of a major fire developing.

Two units despatched from Wanneroo Base.

Assistance requested from WLO.

More personnel placed on standby.

Major fire continues:

Full commitment from Wanneroo Base.

Another WLO requested.

Possibility of several days involvement:

Mobile radio base and support vehicles despatched driven by volunteer crews. Available personnel placed on a roster to form relief crews.

Along with the above procedures would be the probable use of aircraft.

(11) FOLLOW UP

At this stage the Department is testing many new pieces of equipment and approaches associated with fire suppression. As such it is important that good records are kept so that a follow up of the system can be undertaken to ensure that as informed decisions as possible are made.