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COAG Bushfire Inquiry  
Department of the Prime Minister and Cabinet  
3- 5 National Circuit  
Barton ACT 2600

December 5, 2003

Dear Sir/Madam,

On behalf of National Air Support I present our submission to the recently announced inquiry. As an industry leader in highly specialised and dedicated aviation services we have limited our submission to those aspects in which we are technically qualified and competent - delivery of **high quality, safe and effective** special mission aviation services.

I bring the committee's attention to the following key points made in our submission:

- The lack of a national integrated approach to Federal and State funding for aerial fire fighting assets;
- The need for viable funding arrangements to support aerial fire fighting assets on a dedicated standby basis;
- The absence of a national bushfire aviation resources strategy;
- The historical and legislative background that has led to this situation;
- The opportunity to reduce funds expended over time for aerial fire fighting services and more importantly achieve a more effective outcome if such an approach were adopted;
- The use of modern aircraft certificated to international and Australian airworthiness standards; and
- Recognition of the hazards involved in aerial attack of bushfire and the need for organisations who have highly developed systems of safety, training, maintenance and support to deliver these services under long term contract arrangements.

We look forward to supporting the work of the enquiry and confirm our availability and desire in any further development of the aviation issues that may arise in the course of the committee's deliberations.

Yours faithfully

Anthony Patterson  
Director of Business Development  
National Air Support



**SUBMISSION  
To**

**Submission to Council of  
Australian Governments**

**Inquiry on Bushfire  
Mitigation and Management**

December 5, 2003

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## 1. Introduction

National Air Support (NAS) is an aviation company dedicated to the provision of high quality special mission aircraft services. The best known of our operations is the Coastwatch program where subsidiary company Surveillance Australia provides all the aircraft, aircrew and operational support under contract to the Australian Customs Department.

Much of the debate and press coverage over recent fire seasons has concentrated on the use and/or lack of large high volume fire bombing aircraft. Undoubtedly other submissions will argue the merits and benefits of aerial fire fighting aircraft. Our intent is not to enter this debate but rather to concentrate our submission on the key aviation elements crucial to the safe and cost and operationally effective provision of aerial fire fighting services in Australia.

Elements such as;

- Fight Safety Systems
- Aircrew Experience
- Aircrew Training and Checking Systems
- Aircrew Currency
- Audited Quality System
- Maintenance Systems
- Spares Backup
- Use of Modern Aircraft certified under US FAA FAR23 regulation
- System of Operational Control
- Support Systems
- Organisational Experience
- Organisational Culture
- Capability Funding Arrangements
- Security of Funding
- A National Approach

## 2. Aviation and Bushfires – The Australian Experience

Around the world the use of a wide variety of aircraft types in support of ground firefighters and equipment is almost universal, with regional differences in types, preferences for fixed, rotary wing or mixture, light, medium or heavy/ high volume types. In Australia the deployment of aircraft to support suppression efforts in bushfire events first occurred as early as the mid 1920s when light fixed wing were utilised in fire spotting and liaison duties. Typical roles for the various types of aircraft currently in use are;

**Light Aircraft** – Observation, command and control, crew transport and logistics support – delivery of suppressants up to 1000ltrs.

**Medium Aircraft** – Fire attack with delivery of suppressants in the 1000ltr to 3000ltr capacity, logistics transport fire crews, tools and equipment.

**Heavy/High Volume Aircraft** – Specialised high volume air attack aircraft greater than 3000ltr capacity.

The employment of aircraft for Bushfire support has in the main been evolutionary and generally driven by the following factors;

1. Availability of types which can be readily adapted from other roles
2. The relative high cost to fire agency budgets
3. The lack of funds available for standby assets compared with almost limitless funds available during major fire events
4. The availability of funding as a result of previous fire season events
5. The demands or size of the bushfire event
6. Specialist aircraft obtainable or available from overseas and / or at short notice

The Victorian Department of Sustainability and Environment [DSE] has been the most successful fire authority in deploying a structured, dedicated, safe and effective aerial fire fighting capability. However from a national perspective there is no common standard or approach for the employment of aerial fire fighting recognised or adopted by Australian Fire agencies.

The lack of coordinated aircraft employment and standards combined with ad hoc usage and availability in Australia is a major impediment to the development of a coordinated and effective aerial fire fighting capability. The States have variations on the basic applications of aircraft in aerial fire fighting, which have developed within the constraints of cost and local availability. This has meant that access to highly specialised aircraft and support organizations has not been possible. This can be directly attributable to the divided responsibility and legislative basis for fire suppression in Australia.

The application of operator standards, except in Victoria, has suffered from the same approach. Only in Victoria do core service providers have dedicated structured contracts with system checks for compliance and call when needed operators under go pre season validation. Outside Victoria this has resulted in recent years in the aviation response during large fire events of an almost anything that flies approach being taken, resulting in numerous incidents and hazards which are in the main avoidable.

The adoption by Civil Aviation Safety Authority (CASA) in recent years of the chain of responsibility in their Safety Systems approach to Flying Safety places considerable responsibility and duty of care obligations on fire authorities contracting aviation services.

### 3. World Wide Recent Experience

The increased activity of large fire events over the past years has also been experienced in other fire prone areas around the world including Europe and North America. The increased use of aviation resources has highlighted the following related issues for fire services, regulators and aircraft operators;

1. The loss of firebombing aircraft due to airframe fatigue and/or age
2. The loss of firebombing aircraft due to operational and/or pilot error
3. The associated loss of aircrew
4. Lack of availability due to maintenance & reliability of aged aircraft combined with high utilisation

Whilst in Australia not all these issues have been experienced certainly the potential exists and a degree of luck has prevailed. Also in relative terms, in Australia, use of aircraft is not in significant numbers compared to Europe and North America.

## 4. Cost V Effectiveness of Aerial Fire Fighting

The most effective use of aircraft in the aerial fire fighting role is when they are used as soon as possible after initial fire detection and maximum effort is expended when the fire is at its smallest size and intensity. Thus preventing small fires becoming large fires. This approach has a much more effective result for the same level of resources than an incremental response to a fire event. However this requires dedicated resources to be available on immediate call much the same as a dedicated metropolitan fire, police or ambulance service.

Unfortunately in most parts of Australia an incremental approach is taken resulting from time to time in large fires where no amount of resources aerial or otherwise are capable of combating or managing the fire. In many areas of Australia initial fire suppression including the cost, is the responsibility of the lowest level of government. Responsibility including financial responsibility only transfers when the fire event exceeds the means of the previous level. In recent fire seasons this has seen extensive use of the military and Federal government funds provided to the States.

Significant funding has generally not been available to place effective numbers of dedicated specialised aircraft on standby/availability for the fire season. However when serious fire events occur large quantities of operational funding become available under existing emergency service major incident arrangements. This results in ad hoc, as available, non role specific aircraft being utilised. Flight Safety is significantly compromised with this approach and the effectiveness of aircraft tasked under these circumstances is less than marginal compared to the effectiveness of dedicated aircraft tasked early in the fire management or attack cycle.

**This incremental approach and funding matrix almost ensures the most ineffective use of aerial fire fighting assets. The real key to the effective use of aerial fire fighting assets is to transfer the funding made available during large fire events under the emergency service provisions into funded standby arrangements for dedicated assets. It can be convincingly argued that this will result in the same level or a reduced level of funding being required over time with a far more effective operational outcome as aircraft are used early in the fire management cycle when they are the most effective and thus preventing small fires becoming large fires.**

## 5. A National Approach

The current division of jurisdictional responsibility for fire management to multiple agencies within each state sets up a system that is predisposed to “penny packet” high cost assets such as aircraft within jurisdiction boundaries and requirements. This results in a dilution of aircraft asset capability and an increase in costs as support infrastructure and management systems are duplicated multiple times.

Due to the inherent flexibility of aircraft and their ability to quickly transit over large distances in short timeframes combined with the a relatively low incidence of concurrent major fire events across Australia, aircraft are well suited to being provided as a national resource across multiple jurisdictional areas. Such an approach would provide for higher capability, quality and reliable assets being provided at reduced cost. When combined with a change in approach to use aircraft earlier in the fire management cycle would produce a double force multiplier effect.

However there are significant natural barriers from the divided jurisdictional responsibility to such a national approach. To achieve such a national approach it will require each of the jurisdictions to broaden their outlook when determining their requirements, funding commitments and systems of control to embrace a national approach. If such an approach was embraced immense benefits to each of the jurisdictional agencies would be available by having access to far larger and capable aircraft assets during a fire event than they would be able afford or justify in their own right.

The Australian Coastwatch Operation is a world leading example of such an approach. It was the result of the Federal Government in the 1980's taking a leadership role in combining the disparate aerial surveillance activities of multiple federal government departments and combining them into a single entity. The entity of the Coastwatch Program was created under the Customs Department but with equal responsibilities to the client government departments who retained legislative responsibility for the activities conducted by Coastwatch. The Coastwatch Program clearly demonstrates that taking such a national approach provided capabilities and outcomes to each of the client governments departments far greater than any were able to justify or afford in their own right. The loss of control was negligible and far out weighed by the capability and outcome benefits.

The AFAC National Aerial Firefighting Strategy (NAFS) is a tentative first step in achieving a National Strategy but the structure of the NAFS and the ‘penny packet’ outcome of the recent tender process still reflects the jurisdictional requirements predominating over the interests of a national strategy. None the less it is a positive start down the path as long as the momentum is maintained.

## 6. Key Elements Of A Safe And Effective Aerial Fire Fighting Capability

### 6.1. Aviation Safety

The use of aircraft in aerial fire fighting offers some significant challenges to any operator. The environments in which fires are fought generally offer conditions of poor visibility, rising terrain, degraded aircraft performance due heat, strong winds, rapid fatigue of Aircrew and ground support personnel due high rate of effort. The standards, which support and control this demanding work on the operator, need to be the highest and the systems in place should include but not be limited to:

1. Aircrew check and training systems to an airline quality standard (not regime)
2. Audited Regulatory compliance requirement
3. Structured Aircrew resource training system
4. Structured and Proactive Safety management system
5. Well developed Risk management profile/assessment
6. Quality systems of control – maintenance, management functions
7. Experienced and competent aircrew, engineers, and support staff
8. Aircraft that are proven suitable and capable for the task

The above are the minimum elements that any operator should have in place if delivering such a vital and demanding service.

### 6.2. Organisational Culture

In a special mission operation such as aerial fire fighting an organisational culture that embraces the unique nature of the task whilst at the same time manages the resultant aviation risk factors is essential for a safe and effective operation.

### 6.3. Aircrew Training & Experience

The deployment of trained, experienced and current aircrew is paramount to a safe and successful aircraft fire attack or support roles. This has been recognised by aviation regulators world wide and varying degrees of competency standards are required to be met prior to conduct of operations. In the past the Australian fire agencies have relied on variable experience requirement for such aircrew but this has been loosely interpreted or ignored in times of high activity or bushfire emergency. Training and Currency requirements have largely being compromised.

This approach has caused concern for the industry and regulator as the fire role presents significant hazards and risks. The Australian CASA has been working with the aerial agricultural, helicopter industries and State Fire agencies in promulgating a system of training and endorsement, which is anticipated to be implemented in time for the 2005 fire season.

In addition to the regulatory aspects a safe and effective operation requires a committed aviation organization with a dedicated check and training structure run to an airline standard. Whilst a MINIMUM standard for this requirement is stipulated by the regulator, committed aviation organisations of substance embrace the opportunity to develop a culture of proactive flying safety, advancement, competency, and personal development based around the key role as aircrew member delivering effective outcomes in a complex aviation environment.

#### 6.4. Audited Quality System

An accredited quality system is designed to compliment the vital functions of Engineering, Flight Operations and Business Management. The quality systems approach allows all team members to consistently provide a standardised, quantifiable and traceable approach to processes that are undertaken in the delivery of aviation services.

#### 6.5. Maintenance Systems

Aircraft manufacturers and regulators provide rules and compliance standards for the conduct of service and maintenance of aircraft. A committed aviation service provider identifies these standards as a minimum requirement, and utilise the acquired experience of their staff and operator experience to develop systems, which significantly exceed the regulatory minimum requirement.

#### 6.6. Support Systems

The use of support systems is successfully undertaken by experienced operators who understand that in utilising highly specialised/modified aircraft in demanding roles requires an understanding that additional focused support enhances the safety and reliability of any operation – these should include, dedicated Flight Safety Officers, Operations Support Personnel, Technical Systems Support and Logistics co-ordinators.

#### 6.7. Use of Modern Aircraft

The use of aerial assets in the support of bushfire attack has traditionally utilised ex military or expired no longer viable commercial aircraft and helicopters. This has partly been driven by the budget available for standby arrangements and aircraft availability issues. Experiences of the last 10 years particularly in the USA has seen that these aircraft are becoming structurally non viable – having in the main been constructed in the 1960s using manufacturing techniques developed in the 1940s and originally designed for passenger transport. The use of these types of aircraft has resulted in numerous documented aircraft losses and the death of the aircrew in recent fire seasons in both the USA and Europe. This has resulted in the US Federal Aviation Authority (FAA) grounding many of these types and implementing structural assessments of other types in the last 12 months.

The most significant changes in aircraft construction has taken place in the last 10 to 15 years and international regulatory requirements have now mandated these changes in their current standards [FAA/JAR] for crashworthiness, crew survival, and structural integrity to name a few. The hazards and stresses encountered in fire attack and support role are significant and only modern aircraft offer acceptable and achievable margins of safety and performance required. For this reason only aircraft that meet US FAA FAR23 or equivalent in their fire fighting configuration should be considered.

#### 6.8. Caution on Foreign Registered Aircraft

Aircraft registered in Australia are subject to the full requirements of the Australian Regulatory Authorities. The regulations provide for the operation of foreign registered aircraft where they are only in Australia for short period specialised tasks. Unfortunately this provision can be utilised to operate aircraft under a foreign register that would not meet Australian regulatory standards. Hence when considering aircraft for the fire fighting role they must be capable of being registered on the Australian register. A case in point being the Mil 26 recently announced as being contracted under the AFAC NAFS tender process does not meet Australian CASA regulations for the issue of Australian registration suitable for commercial use and hence will be operated under an eastern European registration.

## 6.9. Long Term Contract Arrangements

In order to ensure access to high quality, safe, reliable and effective aircraft resources for fire fighting duties sufficient funding needs to be provided on a long term viable basis. The use of short term contract (less than 5 years) will in effect pre prescribe the use of older more marginal aircraft and not provide the certainty for operators to invest in high quality systems and well developed experienced operations. Long term contracts allow operators to invest in high quality, modern, high cost but effective and safe aircraft and provide the certainty to invest in the development of high quality operations.

Other Government contracted aviation operations have recognised and benefited from this approach with the majority of government aviation service contracts being in the 7-10 year range and moving out to 15 year terms. Examples of this approach are the Australian Customs Service Coastwatch program, New South Wales & Victorian Air Ambulance and RAAF Search and Rescue contracts.

## 7. Summary

The use of aviation in support of the fire services for bushfire events in Australia has slowly evolved over the past 60 years. This evolution has been on a state by state and agency by agency basis. In the main the utilisation has been on an infrequent, opportunistic or “call when needed” basis which has not supported the development of an effective and capable national aerial fire fighting capability.

Safe, effective and risk managed aviation operators recognise that the regulatory requirements are the minimum standard. Commitment to the following attributes are highly desirable:

Appropriate Organisational Safety Culture, Aircrew training and experience, Audited quality system, Maintenance systems, Support systems, Utilisation of modern aircraft.

Long term contract commitments allow operators to acquire and retain experience and invest in high quality, modern, high cost but effective and safe aircraft and provide the certainty to invest in the development of high quality systems and operations.

**The real key to the effective use of aerial fire fighting assets is to transfer the funding made available during major fire events under the emergency service provisions into funded standby arrangements for dedicated assets. It can be convincingly argued that this will result in the same level or a reduced level of funding being required over time with a far more effective operational outcome as aircraft are used early in the fire management cycle when they are the most effective, thus preventing small fires becoming large fires.**

The Australian Coastwatch model is an appropriate and world leading model when considering a national approach. It demonstrates the inter-related benefits of long term funding and contract arrangements and the acquisition and use of modern technology in a cost effective manner. It also demonstrates a multi-jurisdictional model that retains responsibility with the jurisdictional agency whilst providing highly effective operational outcomes across the client agency base and from a national perspective in a most cost effective manner

The recent Australian Fire Authorities Council, National Aerial Fire Fighting Strategy is to be commended as a first step to a national approach but much work is still required before a real national approach and resultant benefits are achieved from a national perspective.