



The Secretary
Joint Committee of Public Accounts and Audit
Parliament House
CANBERRA ACT 2600

Dear Sir,

SUPPLEMENTARY SUBMISSION ON
ANTARCTIC AND SOUTHERN OCEAN SURVEILLANCE

In July 1999 the Australian Antarctic Division released the results of an Antarctic Air Transport Scoping Study. Paragraph 2.2.5 addressed other potential benefits from this service, one of which was:

"An enhanced ability to conduct airborne surveillance over Australian Antarctic Territory and the Southern Ocean to contribute to environment, tourism and fisheries management objectives and search and rescue operations."

In August 2000, the Scoping Study was followed by an Invitation to Express Interest (No 00/575). Whilst the Invitation explains that the full Statement of Requirement will be developed, the abbreviated one in the Invitation concentrates on required air transport services and facilities. As it is assumed that the surveillance benefit outlined in Paragraph 2.2.5 of the Scoping Study will be addressed in the full Statement of Requirement, this submission will address the feasibility of using Antarctic Air Transport (AAT) aircraft for surveillance of Australia's Antarctic and Southern ocean areas of interest.

Aircraft Types

Two different types of aircraft will probably be used to meet the requirements of the AAT. A large aircraft such as a C130 Hercules would carry out the intercontinental journey, whilst smaller ski equipped aircraft would be used for intra continental travel. Both of these aircraft types, particularly the C130 Hercules, can be suitably equipped for surveillance operations.

Intercontinental Aircraft

The C130 Hercules (or similar) will need an extended range capability to fly the long Hobart to Antarctic route and has good low level, low speed handling characteristics. It will therefore be extremely suitable as a surveillance aircraft, particularly if it is fitted with a specialist radar. Investigation has shown that it can be fitted with a 210 – 240 degree nose-mounted surveillance radar with similar detection capability to that already fitted in the Coastwatch Dash 8 – 200 aircraft. Such an aircraft will have the capability to search the Herd/McDonald Islands, remote areas of the Southern Ocean or the Antarctic Coastline with the high levels of search effectiveness inherent in electronic searches.

Its search area per each hour for a ship with a radar cross section of 150 meters square in high sea states (ie 4 to 6) will be in the order of 40,000 square nautical miles. Combination of the surveillance system with long range electro-optics (as in the US Coastguard C 130 aircraft) will markedly enhance overall search capability as detailed in our previous submission. As the aircraft has a rear ramp it could also be used for search and rescue equipment drops or visual search.

Intra continental aircraft

The intra continental aircraft will have much shorter range than the larger aircraft, but because they can operate from ski-ways will have an ability to operate from any of the Australian bases.



This will give them the flexibility to search the Antarctic coastline within a radius of action of around 350 – 400 nautical miles from base.

The low speed handling characteristics of these aircraft make them an ideal visual surveillance platform. If fitted with a small ground mapping radar, which would be suitable for detecting the larger vessels operating in the Antarctic area, they could also have a reasonable electronic capability. In the visual mode search capacity of around 3000 square nautical miles per hour could be achieved whilst in the electronic mode this would be increased to around 5000 square nautical miles per hour. If specialist surface surveillance radar were fitted this could be increased to around 20,000 square nautical miles per hour. Many of the aircraft being considered for the intra continental role have already been or are capable of being fitted with sophisticated surveillance radars.

System Capability

The Australian Antarctic Division, through their AAT requirement will retain specialist aircraft. During the summer months these aircraft will be used at a low rate of effort. This leaves a capacity for other tasking during summer without markedly increasing the cost to the Commonwealth as the aircraft Charges will not markedly increase. There is thus a potential to use these aircraft for Antarctic or Southern Ocean surveillance at minimal increases in cost, especially over a ten year contract term (the AAT is for five plus five years), that will allow surveillance equipment cost to be amortised at a low annual rate.

During the winter months, aircraft could be used to supplement the increased activity rates seen by Coastwatch in the northern dry season. In this role and especially if fitted with surveillance radar they would provide a very long range search capability and logistic capacity not found in the present fleet.

Conclusion

The proposed Request for Proposal for a AAT presents an opportunity for the Commonwealth to enhance its Southern Ocean, Antarctic and Coastwatch surveillance capability. Likely aircraft used for AAT are easily modified for surveillance and could become multi-role aircraft without detriment to the primary task of AAT. More importantly the larger inter continental aircraft will have the range and endurance to conduct meaningful electronic surveillance of the Southern Ocean islands or to supplement extremely long range Coastwatch operations. They can also provide a logistic support capability not present in Coastwatch.

Such an approach would enable the Commonwealth to obtain maximum benefit from the services it procures.

Yours Sincerely,

Anthony Patterson

General Manager

Surveillance Australia Pty Ltd.