The Parliament of the Commonwealth of Australia

NO PORT IN A STORM

A Report by the House of Representatives Standing Committee on Expenditure on the Darling Harbour Fiasco

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FOREWORD

This Report arose from a decision by the Expenditure Committee to enquire into allegations made by Mr Dick Smith concerning the alleged incompetence of the Department of Aviation. The Report is about one particular case study - the Darling Harbour helicopter landing site. The Committee thanks Mr Smith and the other individuals and organisations who have made submissions to this Inquiry. We would also like to thank all the witnesses who gave evidence in Sydney, Cairns and Canberra.

As Chair of the Sub-committee, I would like to thank my fellow Committee members, for the time and effort spent on this inquiry. Thanks are also due to the Secretary of the Committee, Mrs Sue Harlow, and the other Inquiry staff.

The Committee appreciated the co-operation of many officers from the Department of Aviation. We are especially grateful to Mr Leon Norsworthy and Mr George Grunbaum.

The detailed work involved in the investigations and reporting on the Darling Harbour issue will provide a strong base from which the Committee can pursue the broader issues presented in the many submissions to this inquiry. While the Darling Harbour helicopter landing site is now closed, our examination has revealed deficiencies and inconsistencies in the Department's decision-making procedures, which warrant further consideration in our final report.

Ros Kelly, M.P.
Sub-committee Chairman

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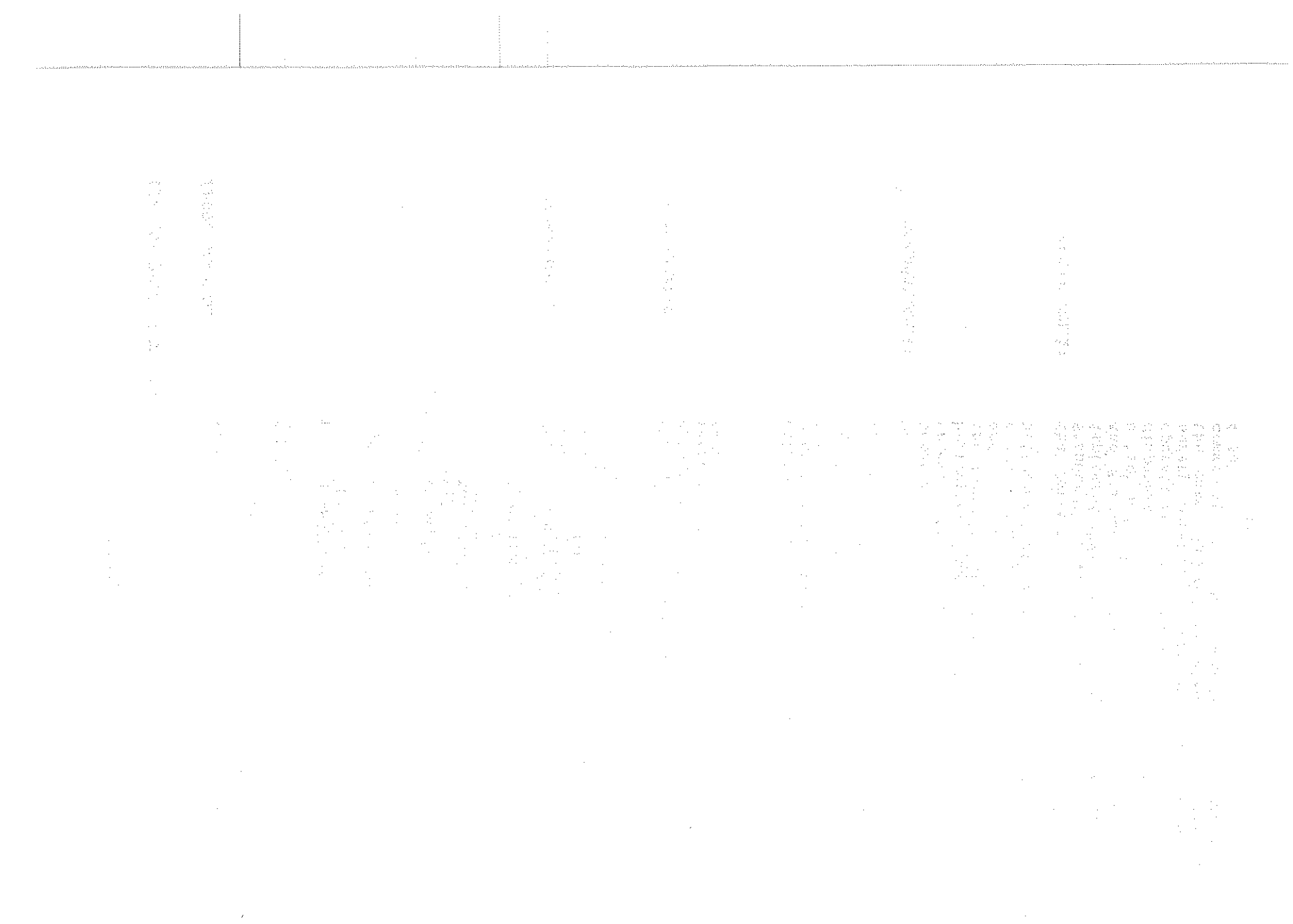


LIST OF RECOMMENDATIONS

Recommendation 1: The Committee recommends that the administrative arrangements be reviewed by the Department of Aviation within the framework of its existing administrative structure. Particular attention should be paid to:

(a) communication between Central Office and Regional Offices;

(b) distribution of information within Central Office; and

(c) communication between divisions within Central Office with particular attention to communication within and between the Airports Division and the Flight Standards Division (paragraph 3.3).

Recommendation 2: The Committee recommends that the Department of Aviation publish a document which clearly explains the operational design criteria and the licensing procedures pertaining to all types of helicopter landing sites (paragraph 3.12).

Recommendation 3: The Committee recommends that a forum be established for the discussion of important matters affecting the helicopter industry.

The Committee believes that the development of this forum should originate within the industry itself but that close consultation with the Department of Aviation should be one of its main functions. The Committee would expect to review the functioning of such a forum in its final report (paragraph 3.33).

Recommendation 4: The Committee recommends that the Department of Aviation when issuing and renewing Instruments of Authorisation for helicopter landing sites should specify the types of use permitted from each site and, if necessary, minimum performance characteristics which must be met by helicopters at each site (paragraph 4.13).

Recommendation 5: The Committee recommends that the Flight Standards Division, as part of the implementation of its Flying Operations and Standards Development Program, accord a high priority to its stated objective of dispensing with or refining all operational requirements where the net safety benefit is not commensurate with the costs imposed on either the aviation community or the Department (paragraph 4.30).

CHAPTER 1

INTRODUCTION

Terms of Reference

1.1 In December 1984, Mr Dick Smith produced a book with the title of 'Two Years In The Aviation Hall of Doom'. In his introduction Mr Smith wrote about his sense of frustration in attempting to solve what he perceived as the serious problems which existed in the Department of Aviation (DofA).

1.2 Mr Smith went on to say:

> '... I am pressing for the positive, constructive step of appointing an outside body to help the Department by looking into its composition and functions.'(1)

1.3 The House of Representatives Standing Committee on Expenditure on 28 February 1985 decided to take up the challenge of this inquiry at a time when public and media interest was extensive. The terms of reference for this inquiry are:

> To enquire into issues raised by Mr Dick Smith in his recent publication 'Two Years In The Aviation Hall of Doom' and matters relating to operational regulatory decisions of the Department of Aviation.

Submissions

1.4 The inquiry was advertised nationally on 29 and 30 March 1985 and the public responded with 800 formal submissions, over 1000 additional letters and many telephone calls.

1.5 Despite the fact that some of the correspondence to the Committee was solicited by various organisations, the submissions were a clear indication that all was not well in the Australian aviation industry and in the industry's relationship with the DofA.

1.6 As a result of the extensive range of submissions received, the Committee now has over 5000 pages of information available to it. Many of the submissions were not confined to the operational decisions of the DofA, but also contained perceptions of the organisation as a whole and the various functions it performs.

Selection of the Case Study

1.7 In the months following the Committee's announcement of its inquiry, while submissions were being lodged with the Committee, one particular case study examined by Mr Dick Smith in Chapter 3 of his book continued to generate public controversy. This case study centred on the Darling Harbour helicopter landing site in Sydney. Mr Smith has alleged that the initial approval of the landing site by the Department and the subsequent decisions concerning the site were an example of 'gross departmental incompetence'(2) and 'a personal feud between Central Office officials and the Regional Office officials'.(3) The Committee in undertaking this particular case study could test the allegations made and the involvement of the NSW Regional Office and Central Office of the Commonwealth Department responsible for aviation safety. This Department was known as the Department of Transport when the site was opened in 1979. The aviation functions of this Department have since been regrouped in May 1982 into a new department known as the Department of Aviation.

1.8 The Darling Harbour helicopter landing site was located at Berth No. 39. This Berth was included in the NSW State Government's plans for the redevelopment of the whole Darling Harbour environment. For this reason, the landing site was eventually closed down in August 1985 and operations were transferred to a temporary site nearby at Piers 22 and 23, Pyrmont.

1.9 Prior to this closure, there was some doubt as to the relocation site and whether or not Sydney would continue to have a Central Business District (CBD) helicopter landing site. No doubt this uncertainty added to the general anxiety and anger certain helicopter pilots and companies openly displayed toward the DofA.

1.10 In order to report to Parliament as quickly as possible, the Committee decided to choose the Darling Harbour helicopter landing site case study as it could be readily isolated from some of the aviation issues of a more general nature. Our inquiry has therefore been initially directed toward the Darling Harbour helicopter controversy and an analysis of Mr Smith's claims in Chapter 3 of his 'Two Years In the Aviation Hall Of Doom' book.

Report Objectives and Structure

1.11 The objectives of this report are to:

(a) examine the facts pertaining to the construction and operation of the Darling Harbour helicopter landing site;

(b) determine the main factors which influenced the Department's involvement in this case;

(c) examine any deficiencies in the Department's administrative procedures as applied to this case and their consequences for the helicopter industry; and

(d) make recommendations designed to overcome any problems revealed in (c) above.

1.12 The history of the Darling Harbour helicopter landing site is detailed in Chapter 2 which includes some necessary background information on the role and functions of the DofA and a description of some aspects of helicopter flight.

1.13 In Chapter 3 the main factors which influenced the Department's decision-making processes are examined. In this chapter deficiencies in departmental procedures are identified. This enables conclusions to be drawn regarding remedial actions designed to overcome the possibility that a similar situation could recur.

1.14 Chapter 4 is a brief conclusion on the effects of operational decisions by the Department relating to Darling Harbour on the development of the helicopter industry and on helicopter safety in Sydney.

1.15 A number of appendices provide additional information. In particular, the reader may find the chronology of events at Appendix VI and the glossary of terms and abbreviations at Appendix IX of some assistance.

CHAPTER 2

HISTORY OF THE DARLING HARBOUR SITE

Functions and Structure of the Department of Aviation

2.1 To understand the role of the Department of Aviation and its predecessors in the selection and operation of the Darling Harbour helicopter landing site it is necessary to briefly describe the functions of the Department, the structure of its operational divisions and the Central Office-Regional Office relationship.

2.2 The DofA is responsible for a number of functions pertaining to civil aviation in Australia. The Department in its own Functional Directory specifies these functions to include:

(a) formulation, implementation and oversight of operational standards and procedures for the safe conduct of flight operations;

(b) planning, provision and operation of airport and airway facilities;

(c) promotion of measures for the enhancement of safety of flight, including the investigation of aircraft accidents and incidents;

(d) provision of advice to the Government on aviation policies and administration of relevant policies; and

(e) research into matters affecting civil aviation.(1)

2.3 The DofA has a Central Office in Canberra and five Regional Offices. Central Office structure consists of three operational divisions, two policy divisions and three co-ordinating divisions.(2) It is the three operational Divisions which are the primary focus of investigation by this Committee, namely:

(a) Airways;

(b) Airports; and

(c) Flight Standards.

Extracts from the DofA Functional Directory which outline the functions and organisational structure of these Divisions are reproduced as Appendix V to this Report.

2.4 The five Regional Offices are the contact points for the Department's customers and the general public. The Regional Offices consist of a number of Branches corresponding, in most cases, with the Divisional break-down at Central Office. Officers in these Branches implement their Department's policies and programs and are responsible to the Regional Director. The Regional Director reports directly to the Secretary of the Department as do the Divisional Heads at Central Office. In practice therefore the Branch officers in the Regions have a dual responsibility - primarily to their Regional Director but also, to a lesser extent, to their operational Division at Central Office.

2.5 The two operational Divisions associated with the Darling Harbour developments were Airports and Flight Standards. When helicopter operations were first commenced at Darling Harbour the Flight Standards Division was known as the Flying Operations and Airworthiness Division.

2.6 The selection of a helicopter landing site for the Sydney CBD required input from two NSW Branches - Airports and Operations. Central Office Divisions were also involved in the operational decisions made with respect to the Darling Harbour site. Most of the action concerned one Central Office Division only - namely Flying Operations and Airworthiness which was later renamed the Flight Standards Division.

Helicopter Landing Site Criteria

2.7 In 1979 the operational criteria regarding helicopter landing sites were explained in a document called AIP AGA-7 which stands for Aeronautical Information Publication, Aerodromes and Ground Aids, Section 7. This document was published by the Department of Transport and detailed the requirements necessary for a landing area to be authorised as a helipad.

2.8 A helipad was defined in this document as:

> 'An area for use as an aerodrome by helicopters during take-off and landing operations and which includes a helipad termination area and a helipad touchdown area.'(3)

Flights within 'populous areas, cities and towns' for helicopters not exceeding 5700 kilograms required a Category Two type helipad. Two of the requirements of this Category helipad were at least two approach paths not less than 150 degrees apart and a minimum obstacle free gradient for these paths of 10 degrees.(4) It was also stated in Paragraph 3.1 of AGA-7 that a helipad shall not be in a control zone for an aerodrome unless specifically approved by the Secretary.(5)

2.9 All these specifications and many others in AGA-7 were capable of objective measurement and therefore it should have been possible to determine in a definite way whether a helipad met the requirements or not.

2.10 However, in Paragraphs 3.2 and 3.2.1 of AGA-7 mention is made of the need for emergency landing areas in case of engine failure. The size of these areas was specified in the AGA-7 document but even so it must be recognised at the outset that the accessibility and size of the emergency areas cannot be measured with any great precision. It becomes a matter of pilot judgement with lower skilled pilots requiring larger and more accessible areas than those with higher skills.

2.11 For this reason the AGA-7 document was a pilot-monitored standard as outlined in Paragraph 3.7 of AGA-7:

> 'These specifications are the minimum permissible and it remains the responsibility of the pilot in command that all reasonable steps are taken to ensure that the performance of the helicopter and the operating technique employed, are such as to permit safe operations ...'(6)

Aspects of Helicopter Flight

2.12 Much of the discussion and evidence presented to this inquiry centred on the question of whether or not the No. 39 Darling Harbour helicopter landing site was 'safe'. The Department after initially endorsing the site as meeting its requirements subsequently banned operations using the southern quadrant because in their view inadequate forced landing areas existed on this approach-departure path.

2.13 The question as to whether safe forced landings are possible or not depends not only on pilot skill but also on the design of the particular helicopter in question. In the event of an engine failure, the conventional helicopter rotor possesses the ability to 'autorotate'. In this condition the rotor still generates the required lift and control but air must flow upwards through the rotor.

2.14 In order to change to autorotation following engine failure, the helicopter must descend quickly to develop this upward flow. The main point is that this initial loss of height is greatest at low forward speeds. If the height at which engine failure occurs does not allow complete entry to autorotation and full control recovery before ground contact, then damage and injury may result.

2.15 Hence, there exists a range of heights at low speed in which it is difficult, or perhaps impossible, to land safely following engine failure. This range is depicted graphically as a 'height-velocity' (H-V) diagram, of the type illustrated in Figure 2.1.

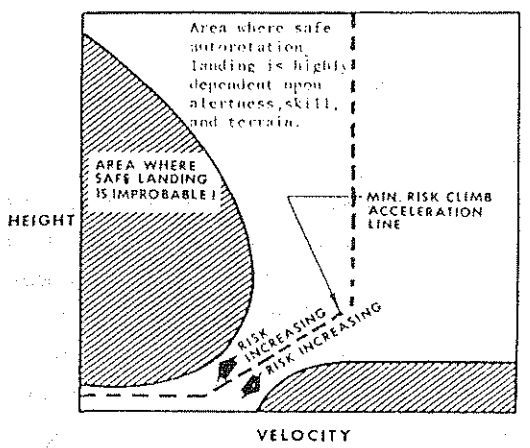


Figure 2.1: A Typical 'Height-Velocity' (H-V) Diagram

Source: Appendix VII

2.16 The 'avoid' area is represented as the shaded portions in Figure 2.1. 'Normal' operation of the helicopter is along the dotted line, where the helicopter accelerates at low altitude to a certain speed and then climbs at the speed shown by the vertical dotted line.

2.17 Each type of helicopter has different operational characteristics and hence a different shaped 'avoid' area when graphed on a height-velocity diagram. Each helicopter has its own H-V diagram included in its Flight Manual.

2.18 At No. 39 Darling Harbour the issue of concern to the Department which resulted in the banning of the southern approach-departure path was the fact that the Department did not believe that adequate safe forced landing areas existed. In other words, departmental officers judged that some types of helicopters, with autorotational abilities reflected in their H-V diagrams, could not operate to the south at Darling Harbour unless they operated inside the 'avoid' areas.

2.19 The Committee engaged a consultant to report on some of the technical aspects. His report is reproduced as Appendix VII to this document. Our consultant reported in regard to helicopter operations in the 'avoid' areas:

> 'Practically all the data for the determination of H-V diagrams has been obtained by highly skilled test pilots under ideal conditions ... There must be some doubt about the probability of the average pilot being able to effect a safe landing from just outside this boundary in real conditions.'(7)

2.20 He went on to say:

- An engine failure at a point within the 'avoid' region of the H-V diagram could be expected to result in damage to the helicopter in the subsequent landing, and possible occupant injury.

- If such landing was not carried out under the idealised conditions for which the H-V diagram was produced then more extensive damage might result with more probability of occupant injury. Such non-ideal conditions might be the presence of adverse wind, uneven ground and significant pilot response time.

- Even from just outside the 'avoid' region of the diagram the average pilot might have difficulty in making a safe landing. Adverse conditions as above could further reduce the possibilities of a safe landing.

- The introduction of a curved flight path could be expected to increase the difficulty and reduce the probability of executing a safe landing.'(8)

Events Prior to Central Office Involvement

2.21 With some basic information regarding the functions and structure of the Department, helicopter landing site criteria and the flight characteristics of helicopters, it is possible to place the events at Darling Harbour into context.

2.22 Before the Committee could evaluate the allegations made by Mr Smith it was necessary not only to understand the technical aspects but also to piece together the history of helicopter landing site selection in Sydney. The Committee is indebted to the DofA and Mr Smith for the documentation provided in their submissions.(9) This source material has been supplemented by information gleaned from other submissions, questions at public hearings and discussions with many of the individuals directly involved over the years. The result of the collection of this information is a chronology of events listed in Appendix VI.

2.23 Ever since the early 1960's the search and selection process for a suitable Sydney helicopter landing site has been underway. However it was not until 20 September 1978, when the State Planning and Environment Commission of New South Wales (SPEC)sought advice from the Commonwealth Department of Transport, concerning the use of helicopters generally in the metropolitan area, that the landing site selection process began to generate controversy.(10)

2.24 In a detailed response to SPEC on 2 November 1978 the NSW Regional Director of the Commonwealth Department of Transport, Mr Langford, included a definition of helipads and heliports which is fundamental to an understanding of subsequent events. Mr Langford wrote:

> 'Helipads ... are places authorised for particular uses by particular types of helicopters and may be used for a one-off operation or for an occasional use for a particular purpose, e.g. at a major hospital or at a TV station. Such places are not open to public use and can only be used with the consent of the owner of the property.'(11)

2.25 Mr Langford continued:

> 'On the other hand, a heliport is a form of aerodrome which is licensed by this Department for public use and would be a more appropriate facility for regular public transport services. Licensed heliports could include passenger terminals, car parks, helicopter loading, parking and maintenance areas, fuelling facilities, etc., as well as one or more helipads for landing and take-offs. No licensed heliports have yet been established in NSW.'(12)

2.26 Following some site examinations Mr Langford again wrote to the NSW State Planning and Environment Commission on 22 November. In this letter the following comments were made about the site at No. 39 Darling Harbour:

> 'The site at No. 39 Darling Harbour provides good approaches from the north to the north west and from the east and south east. The express way to the south provides a hazard which might just be below the required 10° approach slope ... This defect is compensated for by the areas available for auto rotation to the north to the east ... Before giving an unconditional recommendation for this site I must have measured data relative to the approach slope to the freeway ... Subject to this reservation it is my opinion that this is a good site for a commercial helipad.'(13)

2.27 Mr Langford thus referred to a helipad - not a heliport more suitable for regular passenger transport operations as he had stated on 2 November. The signature appears to be Mr Langford's - not Mr Green's, the Assistant Director - Operations (ADO) in the NSW region, as suggested by the Department of Aviation in its submission to this Committee.(14)

2.28 Just two days later, on 24 November 1978, Mr Green signed a letter (on Mr Langford's behalf) directed to SPEC which said, apparently in reference to No. 39 Darling Harbour:

> 'This site more than meets the Heliport requirements promulgated by this department.'(15)

2.29 At this point it is necessary to introduce one further factor which was not fully documented by the DofA in its original submission to this Committee. In a DofA minute written in July 1979 reference is made to a survey of the site:

> 'It was found that a full survey of the site by the Airports Branch has not at this stage been attempted, although this was requested by the Director during November 1978.'(16)

There does not appear to be any record of the survey request. The results of such a survey, if undertaken, have not been available to the Committee.

2.30 Even at this early juncture problems can be seen to be emerging. The concepts of helipad and heliport were quite different, yet advice to SPEC just two days apart refers first to a helipad, then to a heliport. The main proviso seemed to be related purely to the physical characteristics of the site - whether the obstructions intruded into the approach slope of 10 degrees. It would have been the responsibility of Airports Branch to carry out this assessment using survey instruments. Although autorotational requirements were mentioned briefly by Mr Langford he evidently did not consider that meeting these requirements presented a problem. His concern related to the approach slope measurements only.

2.31 The next major development was a press release by the NSW Premier on 31 January 1979, when the development of No. 39 Darling Harbour as a helipad for commercial, government and emergency helicopters was announced.(17) SPEC wrote to the NSW Regional Director, Mr Langford, of the Commonwealth Department of Transport on 12 February 1979 stating that Berth 39 Darling Harbour would be developed as a heliport and that:

> 'Initially there will be one helipad with parking for two helicopters. If there is a demand, the site can be expanded to accommodate an additional helipad.'(18)

2.32 SPEC enclosed a copy of a joint State report prepared by SPEC and the Maritime Services Board. This State report was entitled 'Sydney C.B.D. Heliport - A Study Of Alternative Sites' and included an evaluation of three sites with the recommendation that the heliport be sited at No. 39 Darling Harbour.(19) The report was prepared:

> '(I)n response to the Premier's request for a suitable heliport site for the Sydney C.B.D. to serve Government, emergency and commercial uses.'(20)

2.33 The air navigation requirements as specified in this detailed document make interesting reading:

> 'The proximity of emergency landing areas in the event of engine failure to enable landing by 'autorotation', is another requirement which is satisfied for all three sites by the water areas nearby'(21) (emphasis added);
>
> 'The D.O.T. has confirmed that all of the sites satisfy the air navigation requirements'(22); and
>
> 'There are no D.O.T. specifications for a heliport or a multiple helipad arrangement so the dimensions ... which have been worked out in conjunction with D.O.T. officers are only approximate and require eventual formal D.O.T. approval'.(23) (emphasis added)

2.34 The facilities planned for the heliport included a terminal building, car park and security fencing. The terminal building was to provide for a waiting lounge and toilets, office, store room, emergency and fire fighting equipment.(24)

2.35 With regard to the type of operations to be operated from the heliport, the intentions seem clear. The report quotes the Commonwealth Department of Transport's view that heliports adjacent to the CBD's of Sydney, Newcastle and Wollongong could see the development of regular public transport services.(25)

2.36 The 12 February letter from SPEC became folio 47 of the NSW Regional Office's File No. 73/1528. Mr Langford appears to have written on this folio to the ADO (Mr Green):

> 'I understand you are now going to send the report to C.O.'(26) (C.O. is an abbreviation for Central Office.)

Mr Langford would have required this involvement because the departmental helicopter flight specialists were located in the Flying Operations and Airworthiness Division at Central Office which was then in Melbourne. Meanwhile, the Regional Office was still apparently waiting for a full survey of this site by its Airports Branch. Mr Green apparently had sent a State report to Central Office but informally to an individual officer in the Airports Division, not the Flying Operations and Airworthiness Division. The report the Committee has sighted from Central Office Airports Division is not the joint State report referred to above.

2.37 Unaware that potential problems existed regarding the forced landing areas, the industry, the State Government and the NSW Regional Office could not see any serious difficulties confronting them. Regional Office was waiting for a site evaluation by its Airports Branch, Mr Langford believed that his Central Office had received a copy of the joint State Report; Mr Green had apparently sent a report to Central Office; and a Central Office officer had a copy of a State report.

2.38 From this point on, the technical difficulties which later emerged concerning the suitability of the site were compounded by the administrative procedures followed by the Department.

The Central Office View

2.39 The Regional Office communications with Central Office had been restricted to the Airports Division and then only on an informal basis. Yet it was officers in the Flying Operations and Airworthiness Division, not Airports Division, in Central Office who were considered to be the 'experts' within the Department on aspects of helicopter operations. On the basis of evidence placed before this Committee, these officers had not received information regarding the site selection of No. 39 Darling Harbour. However, Mr Newman, then a Senior Airways Surveyor in the General Aviation Branch of this Central Office Division, had been involved in previous attempts to select a Sydney helipad or heliport site.

2.40 The Central Office Division officers apparently read an article on the development of the Darling Harbour site in 'The Australian' newspaper of 30 May 1979.(27) The source of this article is unknown and these officers claim it was the first time they knew about the selection of the Darling Harbour site. Some of the statements in this article which alarmed the officers from this Division included:

> 'The public access heliport which will be available to all helicopter operators is believed to be the first city-centre project of its type in the world';
>
> and
>
> 'The site will be large enough for nine helicopters to have engines running simultaneously and several times this number could be parked on the one hectare site which may eventually be expanded.'(28)

2.41 These comments refer to a development which is far more ambitious than that suggested in Mr Wran's January press release and the joint State report which both referred to one helipad with parking for two other helicopters.

Mr Newman told the Committee:

> 'I had been involved in two previous interdepartmental committees trying to find a site for a central business district heliport in Sydney. We had made reports to the New South Wales Government and a site had not been selected. I was very surprised that ... a site seemed to have been acquired, particularly as it referred to an area which we had not looked at before.'(29)

2.42 On 5 June 1979 the Central Office Flying Operations and Airworthiness Division requested from the NSW Regional Office details of the site survey and drew that Office's attention to their concerns. Extracts from this memorandum, showed the Central Office view:

> 'Our reservations on the acceptability of the site are not related to the physical specifications which you have confirmed as being satisfied, but concern the question of the availability of suitable areas for an autorotative landing beneath the take-off and landing paths.'(30)

2.43 The concern of Central Office was not just restricted to the autorotational requirements of AGA-7 as the Acting Head of the Flying Operations and Airworthiness Division went on to say in his memorandum:

> 'In regard to multi-engine operations any charter, Reg-203 or RPT operations would be required to be operated to full one-engine-inoperative accountability during all stages of flight. This introduces operating requirements which can rarely be satisfied by the AGA-7 specifications.'(31)

2.44 In other words, Central Office was not just concerned about the site failing to have adequate safe forced landing areas as specified in AGA-7: they were also worried that multiple engined regular passenger transport (RPT) operations authorised under Air Navigation Regulation 203 required operational standards more stringent than the AGA-7 document.

2.45 At this time Mr R. Trewenack held the position of Central Office Examiner of Airmen - Airways Surveyor. He told the Committee that his responsibilities related to helicopter flying and operational standards and he also carried out flight tests, operational inspections of facilities and surveillance in those regions which did not have a helicopter specialist.(32) Mr Trewenack completed a ground and aerial inspection of the site on 25-27 July 1979. In his report of 30 July 1979 Mr Trewenack stated:

> 'The area is not just unsafe, it is highly dangerous for single engine helicopter operations';
>
> and
>
> 'In conclusion I would say without hesitation, that the site is unsuitable for consideration as a city heliport.'(33)

2.46 Clearly, the Department was now in an extremely difficult position.

Correspondence with the Site Lessee and the State Government

2.47 As far as can be ascertained, it was not until 14 August 1979 that the Regional Director, Mr Langford, wrote to the lessee of the Darling Harbour landing site, Brookvale Investments Pty Ltd, a subsidiary company of United Telecasters Sydney Pty Ltd (Channel 10), drawing attention to the autorotational requirements which had to be met by the pilots and operators at the helipad.(34) In this letter, which was written just 15 days before the official opening day, Mr Langford stated:

'Because of the marginal nature of the autorotation provisions there is little likelihood of approval being granted for night or I.F.R. operations. Licensing of the helipad will depend on the standards to be specified but again I am advised that they may be such as to preclude its reaching such status.'(35)

2.48 A copy of this letter was forwarded to the NSW State Planning and Environment Commission. SPEC replied, the day after the opening celebrations, with a letter voicing considerable concerns:

'From our point of view the whole exercise, including the extensive inspections and discussions with your staff were undertaken on the basis of finding a site in or near the Central Business District which the Gosford commercial passenger service could use. These matters were discussed with you and your staff a year or more ago and I find it most disappointing that only as late as this month that because of disagreements in your department there is at least a temporary constraint on the new heliport.'(36)

2.49 Clearly the State Government was not happy. The State wanted a site suitable for regular passenger transport. This necessitated a public use heliport, and a restricted use helipad was no solution at all. Yet that is just what the city of Sydney finished up with. After further inspections and flight tests, Central Office notified the Director of the NSW Region that:

'(T)he site is not suitable for scheduled services, or operations at night by single-engine helicopters or multi-engine helicopters not possessing or not required to operate to one-engine-inoperative performance standards during take-off and landing.'(37)

2.50 Central Office also advised that a number of other restrictions were to be included in the Instrument of Authorisation which was the operating approval issued under Regulation 85 of the Air Navigation Regulations. Some of these restrictions were:

(1) operations would be confined to private, aerial work and charter operations by day under VFR;

(2) the approval should embody the use of a one-way-in, one-way-out concept utilising the northern quadrant; and

(3) take-off and landing operations should not be conducted with a downwind component in excess of five knots.(38)

2.51 Although the Regional Office had the delegated authority to authorise helicopter landing sites, the Secretary of the Department was able to override this decision. The Central Office Division did not have any direct control over the NSW Region and in the event of a stand-off, the only way the Central Office Division could influence the outcome would be for the Secretary to direct that the Region pursue a certain course of action. The Regional Director was now in a difficult position. Mr Langford must have known that the restrictions would effectively cripple the operations at the site and therefore seriously erode the viability of the project. He wrote back to Central Office concerning the interpretation of AGA-7.(39) Central Office replied that:

> '... (W)hatever answer we give to United Telecasters it must, of necessity, not accord with their expectations';
>
> and
>
> 'Clearly none of these expectations is achievable.'(40)

These 'expectations' referred to the staged development of the site and the use of the site for regular passenger transport operations.

2.52 Finally, on 4 January 1980, nearly twelve months after the Premier in a press release announced the development of a Sydney helipad, and an incredible five months after the opening date, the Regional Director wrote to SPEC and United Telecasters (the lessee of the site), including an Instrument of Authorisation for the use of No. 39 Darling Harbour.(41)

2.53 In his letter to SPEC Mr Langford wrote:

> 'I realise that this conclusion conflicts with our letter of 24 November 1978 in which you were told that the helipad met the requirements of AGA-7. Unfortunately more detailed examination has shown this not to be so and because of the safety ramifications I have no alternative but to reverse the view expressed in that letter.'(42)

2.54 Mr Langford's letter to United Telecasters could perhaps best be described as a letter written in an attempt to extricate his Department from a most embarrassing and difficult position. He was not successful.

2.55 In this January 1980 letter, Mr Langford defined the phrase 'commercial operations' so as to exclude regular public transport operations and operations at night. This meant that the site could only be used in the day for private, aerial work, or charter operations. Now this is an interesting definition of commercial operations because Air Navigation Regulations 5 and 191 clearly include RPT operations in the 'commercial' definition and there is no distinction drawn in Regulation 191 between day and night operations.(43)

2.56 Mr Langford also had to licence this helipad even though he had stated in previous correspondence to the lessee:

> 'We do not at present licence helipads.'(44)

2.57 Furthermore, Mr Langford went on to state:

> '... I advised that tests would have to be done to establish to the satisfaction of the Department that the helipad met the requirements of A.G.A.7. I offered to have your pilot participate in those tests and put forward his views.'(45) (emphasis added)

2.58 Mr Wilson, the helicopter pilot for United Telecasters and manager of the Darling Harbour helicopter landing site referred to in Mr Langford's letter, denies being given this opportunity(46) and his statement accords with one of the Departmental officers involved (Mr Newman), that it was a conscious decision of the departmental team not to enter into any discussions with Mr Wilson at the time of the tests.(47) This attitude, while understandable, would have contributed to any communication barriers between the helicopter industry and the Department which may have existed at the time.

2.59 January 1980 therefore marks the end of the first stage of the controversy. It is an appropriate point for the Committee to summarise the state of events. The Commonwealth Department of Transport's NSW Office initially gave advice to the State Government and to the site lessee, which according to Central Office, was incorrect. The Central Office Division responsible for helicopter flying operations had not been informed and when their specialist officer inspected the site, the officer declared the site unsafe and unsuitable. This advice was not acted upon by Central Office. Instead the Department attempted a face-saving solution by severely restricting operations at the site with an Instrument of Authorisation which was issued five months after the site had opened.

2.60 In this process it is clear that neither the NSW Regional Director nor the NSW Assistant Director - Operations were fully conversant with the Air Navigation Regulations. Nor were they fully conversant with the operating characteristics of helicopters or the licensing procedures for helicopter landing sites.

Attempts to Lift Restrictions

2.61 Following the issue of the Instrument of Authorisation for the use of the site in January 1980 one could reasonably have expected that this helicopter landing site saga would not continue to have such a high profile. However, this was not the case because the decision to impose the restrictions did not remain unchallenged as the physical characteristics of the Darling Harbour helicopter landing site and its immediate environment changed over time.

2.62 The NSW Regional Director had written to SPEC as follows:

> 'Having concluded that the helipad did not meet the requirements of AGA-7 we must advise the operator to this effect, and until such time as he can produce evidence to refute this conclusion, operations must cease on that basis.'(48) (emphasis added)

2.63 Over the period from 1980 to 1985 the industry and some of the NSW regional officers spent considerable energy trying to convince Central Office that because environmental changes had been considerable, autorotational areas, regardless of whether they were satisfactory or not in 1979, were now available to the south using a curved approach-departure path.

2.64 Central Office defended its original decision. Several flight tests were conducted by the Department which re-affirmed difficulties with the southern approach.(49) There is no evidence to suggest that helicopter pilots from the industry were asked for a formal input into this evaluation process. In January 1985 the DofA conducted a re-assessment of the site. Evidence placed before this Committee indicates that the manager of the landing site was not informed that flight tests were to be carried out.(50) A DofA NSW Regional Examiner of Airmen, Mr Daley, recommended in March 1985 that the night-time limitation be lifted.(51) Central Office employees of the

Department did not agree, not because of safety considerations but because the limitation of 'dead-calm conditions', which they believed needed to be imposed, would make the night-time concession impractical and of little use.

2.65 Eventually, some four months later, on 18 July 1985, the blanket restrictions on night operations were eased and a new Instrument of Authorisation was issued. There does not appear to be any explanation for the length of this delay. By this time the days of the No. 39 Darling Harbour helipad were strictly numbered. The NSW State Government re-development of this area by the Darling Harbour Authority forced the re-location of the helipad to another site nearby. Finally, on 26 August 1985, the helipad was closed.

Operations at the Temporary Helipad

2.66 The Commonwealth Department of Aviation's role in the site selection process is to approve helicopter landing sites in terms of operational safety. The actual site selected is the responsibility of the relevant state government which must take into account other requirements such as environmental considerations.

2.67 Following the closure of the Darling Harbour helipad, a 'temporary' helicopter landing site on Piers 22 and 23, Pyrmont, was developed by the NSW State Government. There are significant environmental problems with this site as East Balmain residents are affected by the noise. Operations at the site are currently subject to litigation. The NSW State Pollution Control Commission (SPCC) has restricted movements to 210 per week (i.e. 15 departures and 15 arrivals per day on average). Night operations have not been requested by the current trustee of the pad, Heli-Aust Pty Ltd.(52)

2.68 Although this site has two suitable approach-departure paths, no scheduled operations can be centred on this landing site. Apart from any additional operational requirements, regular passenger transport services cannot be guaranteed as the daily flight allocations may be used up. Equal access to the pad is allowed to all operators, apparently on a 'first come-first served' daily basis.

2.69 Apparently there is some doubt about the permanency of the site. This site could become the permanent helicopter landing site for the Sydney CBD. Alternatively, the landing site could be incorporated into the redevelopment of Darling Harbour, there could be no permanent CBD site at all, or a totally different site could be developed.

2.70 The Committee understands that the Department of Aviation has approved several CBD sites from an operational point of view. With strict State environmental laws now in operation, it may be difficult for a site to simultaneously meet DofA operational requirements and State noise control limitations. The issue of a public-use, unrestricted heliport for the Sydney CBD is still unresolved.

CHAPTER 3

FACTORS INFLUENCING THE DECISION-MAKING PROCESS

3.1 The Committee has identified four factors which it believes contributed in varying degrees to the chain of events which culminated in the DofA restrictions being placed on the use of the Darling Harbour helicopter landing site. They are:

(1) communication failures within the Department and between the industry and the Department;

(2) confusion regarding the safety standards actually applicable to various classes of helicopter operations;

(3) concern by departmental officers as to the legal implications of certain decisions and the credibility of their Department; and

(4) personality conflicts within the Department and between helicopter pilots and the Department.

Communication Failures Within the Department of Aviation

3.2 Communication breakdowns at critical points in the Department's administrative structure enabled the situation at Darling Harbour to develop to the dissatisfaction of all parties concerned. Had adequate procedures been in place at the time, the unfortunate consequences which followed may have been prevented.

3.3 In particular, the following weaknesses in administration are apparent:

(1) the system of regular reporting to Central Office did not apparently include proposals for the Sydney CBD helicopter landing site. In particular, details of Mr Wran's press release should have been forwarded to Central Office;

(2) there was no procedure to ensure that Regional Office monthly reports were disseminated below Central Office Branch Head level;

(3) there was apparently no mechanism at Central Office to ensure that all appropriate specialist Divisions were consulted prior to a co-ordinated response on policy matters being forwarded to the regions;

(4) there was a real reluctance on behalf of departmental officers to use the telephone to clear any confusion before committing pen to paper;

(5) the regional officers held delegations from the Secretary even though the Secretary did not provide the specialist advice at regional level necessary to make these decisions;

(6) the hierarchical structure in the Department was such that the specialist regional officers reported to their Regional Director rather than their specialist Division Headquarters at Central Office;

(7) the Regional Directors reported directly to the Secretary not to the Central Office Divisional Heads who were recognised as the 'skill heads' in the Department and the individuals ultimately held responsible for the implementation of policy; and

(8) an officer of the Department was able to sign critical correspondence on behalf of his Regional Director which subsequently placed the Regional Director in an untenable position.

Recommendation 1: The Committee recommends that the administrative arrangements be reviewed by the Department of Aviation within the framework of its existing administrative structure. Particular attention should be paid to:

(a) communication between Central Office and Regional Offices;

(b) distribution of information within Central Office; and

(c) communication between divisions within Central Office with particular attention to communication within and between the Airports Division and the Flight Standards Division.

Safety Standards

3.4 There are a number of matters concerning safety which require clarification. Firstly, the Department of Aviation (then Transport) maintained differential safety standards for various classes of helicopter and all other aircraft operations. The Committee understands that the levels of operational safety required are higher for regular passenger transport (RPT) operations than those required for private, aerial work or charter operations. Consideration of this fact is fundamental to an understanding of the Darling Harbour helicopter landing site operational restrictions, as well as to a comparison with other landing sites in Sydney.

3.5 Secondly, the mechanisms adopted by the DofA to implement these standards were unnecessarily complicated and poorly specified. The most contentious point relates to the AGA-7 requirement which was and is supposed to be a pilot-monitored 'standard'. The decision as to the autorotational suitability of a landing site is either left to the pilot or it is not. Yet the Central Office experts imposed restrictions on the site in the belief that these 'standards' could not be met. This experience would suggest that in reality AGA-7 was a pilot-monitored 'standard' in name only. Regardless of the merits or otherwise of a site in relation to AGA-7, the perception of the helicopter pilots could be that the Department has placed itself in a difficult position in effectively delegating responsibility for AGA-7 to the pilots, only to implicitly but not specifically retract this 'right' at a subsequent date. Perhaps many pilots in the industry regarded this decision-making process as an affront to their piloting abilities. There needs to be a clear distinction between the design criteria pertaining to authorised helicopter landing sites prior to construction and the process of pilots monitoring these sites once they are operational.

3.6 The third point the Committee would like to make regarding departmental implementation of safety standards is that the departmental officers were not fully conversant with their own regulations and orders. There is little point in detailing the evidence which leads the Committee to this conclusion. It is perhaps most evident in the Regional Office advice to the lessee of the site and in correspondence between Central Office and the Region.

3.7 The fourth point to be made is that the lack of clear distinction between helipads and heliports (as evidenced in correspondence with the site lessee) and the various classes of helicopter operations contributed to a muddying of the waters. The Committee understands that the DofA has overcome this problem by the use of phrases such as 'authorised landing sites'. Nevertheless, at least from 1978 to 1980 this confusion was apparent.

3.8 Fifthly, the DofA has never had any published safety standards for a licensed heliport, as opposed to a helipad. Yet much of the flavour and rhetoric in departmental minutes and correspondence is based on the view that safety standards must be maintained. For example, in the conclusion to its submission to this Committee the Department wrote:

> 'Where matters of fundamental operational safety are concerned, it is the Department's view that no compromise can be tolerated regardless of the individual or collective embarrassment such a decision may cause.'(1)

3.9 Mr Trewenack concluded his report on Darling Harbour with the words:

> '...(I)t is recommended that safety in operating standards should over rule all else.'(2)

3.10 The Acting Head of Central Office Flying Operations and Airworthiness Division in a memorandum to the NSW Regional Director stated:

> '(T)he conclusion cannot be escaped that you are, in effect, advocating the abandonment of standards based on world-wide recommendations and practices. This, it is believed, we must not do.'(3)

3.11 In the final analysis, it is not of great concern to this Committee what the actual standards were at the time. What is of concern is that the regional officers, responsible for interaction with the community, were not fully conversant with:

(1) the nuances of differential helicopter operational standards;

(2) the licensing procedures for helicopter landing sites; and

(3) the licensing procedures for regular passenger transport services carried out by helicopters.

3.12 Once Central Office became involved, the helicopter industry was virtually excluded from the deliberations by the Department. It is little wonder that the industry was perplexed by the inconsistencies in the decision-making process and angered by the 'closed-door' approach of the Department.

Recommendation 2: The Committee recommends that the Department of Aviation publish a document which clearly explains the operational design criteria and the licensing procedures pertaining to all types of helicopter landing sites.

Legal Liability and Credibility

3.13 The Department believed that operational safety standards were not to be compromised in their decision-making processes. With this fact in mind, the evidence received by the Committee suggests that following the initial assessment of their own helicopter specialist, the Department should have closed the site down completely. This assessment was completed in July 1979.

3.14 The restrictions placed on the site greatly constrained operations. The Department has admitted in its submission to the Committee that a mistake had been made. It had advice that the site was unsafe and yet it failed to act to close it down. To close the site would have dealt a drastic blow to the credibility of the Department and would have been a clear admission that a mistake had been made. Although the question of compensation could have arisen, perhaps one of the alternative sites could have been resurrected as a Sydney licensed heliport, suitable for commuter operations.

3.15 In a memorandum to Central Office, the Regional Director wrote that legal proceedings were possible as a result of the decision that the helipad did not meet requirements.(4) These legal proceedings did not eventuate. Mr Smith has claimed that the Darling Harbour site lessee (United Telecasters) had a helicopter landing site at North Ryde which 'did not comply with the regulations'.(5) Mr Smith further claimed that this site was operating under a dispensation which could be removed by the Department.(6) Therefore, United Telecasters would not act.

3.16 In evidence before this Committee, Mr Wilson, the former manager of the Darling Harbour site and Chief Pilot for Channel 10, also stated:

> 'I urged Channel 10 to take legal action against the Department but it chose not to do so and the reason I was given by Channel 10 was that its television broadcasting licence was up for renewal and it did not want the publicity that a confrontation with a Federal Government department might cause.'(7)

3.17 Mr Tyler, the Honorary Legal Counsel for the Helicopter Association of Australia, quoted the legal officer at Channel 10 as saying:

> '(I)t is not the policy of this Company at the present time to sue the Federal Government. We have a couple of hundred million dollars at stake in respect of a television licence and we are not going to worry about the $100,000 down at Darling Harbour.'(8)

3.18 The end result has been a most unhappy one for the helicopter industry, the lessee of the site and the DofA. The decision to grant an Instrument of Authorisation for this site subject to severe restrictions has not limited the damage sustained to the Department's credibility. However, the DofA is an organisation currently undergoing substantial legislative and managerial change. The Committee believes that these changes have the potential to help overcome problems which existed. The

Committee will continue to monitor the thrust of managerial effort within the DofA over the remainder of the inquiry with a view to making any necessary recommendations in the final report.

Personality Conflicts

3.19 Chapter 3 of Mr Smith's book is entitled 'Brotherly Bureaucratic Love At Darling Harbour'. This title emphasises a major theme of this chapter and is encapsulated in the following extracts:

> 'The evidence shows that, because tremendous personal differences had developed between the Department of Aviation's Central Office bureaucrats and the NSW Region, the Central Office decided to teach the NSW Office a lesson - 'to bring them into line'.'(9);
>
> and
>
> 'I have in my possession what appears to be conclusive evidence, in the form of official documents and statements by former and present departmental officers, that the Darling Harbour snafu reflected a personal feud between Central Office officials and the Regional Office officials.'(10)

3.20 The question of the extent of personality conflicts within the Department has been a most difficult issue to resolve. It is this allegation which has caused the most resentment amongst present and former departmental officers.

3.21 The DofA stated:

> 'It is quite false to attribute the conditions imposed on the approval ultimately given for the use of Darling Harbour to an intra-Departmental dispute.'(11)

3.22 Mr Langford, the NSW Regional Office Director at the time, in a written submission to this Committee, was more direct:

> 'Not once ... did I ever make a decision on a safety issue on the basis of revenge, pay back, lesson teaching or power seeking. Similarly, not once ... can I recall any other departmental officer having such motives.'(12)

3.23 Mr Langford went on to say:

> 'The reversal decision was made by Mr Leslie, First Assistant Secretary, Flying Operations and Airworthiness. I disagreed with his decision but have never disagreed with his right to make it ... I have no hesitation whatsoever in saying that Mr Leslie's decision was based on his and his officers' technical judgement that the pad did not conform with A.G.A.7.'(13)

3.24 Mr Green, the other regional officer involved, is not of the same view. Mr Green told the Committee:

> 'Prior to the disapproval of Darling Harbour, I did not for a moment think that there could be such a thing as personal animosity entering into an operational decision made by the Department. After it, as I said, I was so staggered that I sought to find a reason and I found that this was a possibility.'(14)

3.25 Mr Langford wrote:

> '...(T)he only real relationship problems I ever encountered arose from the confrontational attitudes of Mr Green. It also led to a number of Central Office officers and his colleagues in the NSW Region often doubting the value of his judgement.'(15)

3.26 Of course, Mr Green would have been in quite a difficult position in an operational sense. Without specialist helicopter expertise in the NSW Region but with considerable pressures to reach timely decisions, the Committee can appreciate the sense of frustration apparent in Mr Green's attitude to Central Office. Had specialist resources either been located at, or readily available to, the Sydney Office, this saga may not have occurred.

3.27 From the evidence presented to this Committee, the Committee draws the conclusion that personality conflicts existed within the Department but did not have a major influence on the placement of restrictions on the Darling Harbour site. Therefore the Committee cannot support Mr Smith's assertions that personal differences were the root cause of restrictions on the operations of the site.

3.28 This is not to say that personality conflicts may not have then existed between departmental officers. They probably did and still do, and, as in any large organisation, they probably always will. However, there is no evidence that personality conflicts existed amongst the senior executives in the Department. In particular, Mr Langford and Mr Leslie have not, and still do not, display any animosity towards each other. These two officers were key personnel in the decision-making processes. Furthermore, both the Secretary of the Department and the Deputy Secretary were involved with the action taken to place operational restrictions on the site. To accept Mr Smith's assertions as fact would be to assume that both the Secretary and Deputy Secretary, as well as the Central Office Division Head, all had a personal dislike for one or more Regional officers. Furthermore, for Mr Smith's assertion to hold, this dislike would have to have been carried through in practice.

3.29 If correct administrative procedures were in operation then the existence of personality conflicts, of which there is some evidence, would not by themselves have caused departmental inefficiencies. It is incorrect to reduce the Darling Harbour landing site difficulties down to a personal feud between Central and Regional Office officials, as claimed by Mr Smith. It is not that simple. If the versions of events are stripped of their overlays of emotion then there are few basic differences in the facts presented either as documented evidence or as recollections by departmental officers or others before this Committee.

3.30 Thus, personality differences may well have been a factor which contributed to the difficult situation, but the Department's poor administration exacerbated this problem. Differences of opinion or personality conflicts are not necessarily a bad thing in an organisation. What is administratively disastrous is the absence of procedures within an organisation to ensure that important decisions receive due consideration and that appropriate resources are deployed effectively to enable this to happen.

3.31 It is not the Committee's position or intention to criticise any past or present departmental officer. Indeed, we have some sympathy with the departmental officers, particularly Mr Green and Mr Trewenack, who had to make large numbers of operational decisions without the support of an appropriate administrative framework.

3.32 Intra-departmental differences of opinion aside, the Committee is left in no doubt that severe personality conflicts between certain officers of the Department and certain industry pilots did exist, at least from 1979 onwards and probably much earlier. A detailed description of this evidence in our Report is unproductive as there is little the Committee can do about this unfortunate situation.(16) It is a situation which is indicative of a severe breakdown in communications between the Department and sections of the industry.

3.33 The Committee has attempted to set out the factors which have contributed to this impasse. Sections of the helicopter industry are angry with the DofA and understandably so.

Recommendation 3: The Committee recommends that a forum be established for the discussion of important matters affecting the helicopter industry.

The Committee believes that the development of this forum should originate within the industry itself but that close consultation with the Department of Aviation should be one of its main functions. The Committee would expect to review the functioning of such a forum in its final report.

CHAPTER 4

CONCLUSION

Effects on the Helicopter Industry

4.1 The Committee is left in no doubt that the decision-making processes in the DofA concerning the Darling Harbour site have had unnecessary adverse effects on the development of the helicopter industry in Sydney.

4.2 Some of the effects would be quantifiable, at least in part. The immediate effect on the site lessee would have been a downwards revision in the expected financial viability of the site. The commercial traffic expected to be generated as a result of the opening of the site was always something of an unknown. SPEC and the Maritime Services Board (MSB) recognised this factor in their joint State report prepared early in 1979. The MSB had proposed a reduction in rent to $5000 per annum for the first three years of operation at the site, compared with a site rental commercially based on site land values.(1)

4.3 The Committee makes no judgement as to the legal redress for financial loss suffered by the lessee of the site, nor has it assembled detailed estimates related to costs and projected earnings from the site with and without the operational restrictions. However, the complexity of the situation is compounded by the fact that the site lessee did not sign the original lease agreements and that the exact legality of operations prior to the issue of the January 1980 Instrument of Authorisation would possibly need to be determined in a court of law.

4.4 Mr Smith has claimed in his book that because of the operational restrictions the Sydney-Gosford helicopter passenger service had closed down:

> '(S)acking all its staff; the helicopters are in mothballs; and a fortune has been lost.'(2)

When giving evidence before the Committee, Mr Smith stated that there was actually another reason why the passenger service closed down - it may have been of doubtful financial viability even it it had been permitted to operate to a Sydney CBD site rather than to the Kingsford-Smith Airport.(3)

4.5 Just as there existed more than one factor influencing the Department's handling of the Sydney CBD helicopter site, so too there existed more than one factor which would have contributed to the closure of the commuter helicopter service.

4.6 The site selection process for the Sydney CBD has also been an extremely divisive one for the fragmented helicopter industry. In the absence of direct government support it could be expected that a property would only be used as a landing site if the returns justified the land rental costs. Location in any business can be crucial and a helicopter business based at a Sydney CBD heliport would probably have a marked locational advantage over one which operated from the Kingsford-Smith Airport.

4.7 It can be argued therefore that helicopter operators located at other airports in the Sydney area may have had a vested interest in ensuring that a competitor was not permitted to operate at a new, more advantageous site. This point illustrates the fact that it would be unlikely that the helicopter industry would present a united front to the Department on matters related to the selection of a new heliport suitable for commercial operations.

4.8 There is also an inherent difficulty for the Department of Aviation in the site selection process. It is charged with the responsibility for the implementation of safety standards throughout the Sydney area. Yet the Department also controls the operations and leases at Kingsford-Smith Airport. The helicopter enterprises located at this Airport would have to compete with the businesses located at any new site and their profitability may therefore be adversely affected. Some may have to relocate to the new CBD site if the CBD site arrangements permitted it.

4.9 The effect on the revenues generated at Kingsford-Smith Airport are indirect and imprecise but the general direction is clear. Although there is no evidence that restrictions on the Darling Harbour site were in any way influenced by the possibility of adverse effects on departmental revenue due to competition, the Committee must emphasise that industry perceptions are important. The DofA will always be placed in a difficult position when it has responsibility for safety rules and is also a major airport operator in its own right.

4.10 For this reason, the Committee is pleased that the Department is divesting many of its airports, including Kingsford-Smith, to a new Federal Airports Corporation.

4.11 The Department can then be seen to be judging any new heliport or helipad site purely on its merits with regard to operational safety requirements and its role in this respect should be crystal clear. Although potential site operators and

helicopter industry pilots may not agree with the particular operational decisions, the decision-making processes themselves should be designed to have minimal adverse effects on the industry.

4.12 The requirements for authorised helicopter landing sites (HLS) for private, aerial work and charter operations are specified in AIP AGA-7. This document unfortunately does not differentiate between a public use and a private use HLS.

4.13 This is yet another problem that both the helicopter industry and the Department must cope with, particularly as many Sydney private use helipads did not have any restrictions originally placed on their use. Although the Committee understands that the Department is adding these restrictions to the Instruments of Authorisation, the Department would need to handle this most sensitive issue in a delicate manner. For instance, a restriction on a helipad could be limited to certain types of helicopters engaged in private use, rather than a blanket restriction which prohibited all helicopters except those belonging to the owner of the particular helipad.

Recommendation 4: The Committee recommends that the Department of Aviation when issuing and renewing Instruments of Authorisation for helicopter landing sites should specify the types of use permitted from each site and, if necessary, minimum performance characteristics which must be met by helicopters at each site.

Effects on Helicopter Safety in Sydney

4.14 When the Committee takes into consideration helicopter operations in the rest of Sydney, more difficulties arise concerning the effect on helicopter safety standards of the DofA's decision-making procedures.

4.15 Until its closure, the Sydney-Gosford commuter service operated to the Kingsford-Smith Airport.(4) Evidence was placed before this Committee that the helicopters on this service were often directed by Air Traffic Controllers to fly over densely populated environments where autorotational areas were not available.(5) In the event of an engine failure, as well as the occupants of the helicopter being placed in a dangerous situation, there was also a risk to the population on the ground.

4.16 There is also the unresolved issue concerning the Gosford end of the commuter service. Central Office expressed concern over the safety of the Darling Harbour site, yet its officers were apparently neither concerned nor involved in the assessment and approval of the Gosford authorised landing site. Apparently Central Office only became involved when requested by the NSW Regional Office.

4.17 Additionally, further reference has been made to helicopters landing at other private helipads in the Sydney area which, at least in the minds of many operators, did not appear more 'safe' than the Darling Harbour site.

4.18 At no stage during the deliberations of this Committee did the Department offer convincing evidence that operational standards for helicopters were consistently being applied. There is no evidence that there has been analysis of the relative risks attached to the various operational procedures or objective evaluation as to which pattern of helicopter operations, flying techniques, sites, etc., provides the community with the 'safest', in a relative sense, helicopter industry in Sydney.

4.19 Despite some extensive discussions on the autorotative abilities of various helicopters, and whether the restrictions in use were validly imposed or not, the question still remains - what practical effect did the restrictions have on helicopter operations and therefore helicopter safety in the Sydney region?

4.20 The Committee believes a number of fundamental questions regarding the safety of helicopter operations remain not just unanswered, but in Departmental processes, unposed:

(i) What is the probability of engine failure necessitating a forced landing in the southern quadrant at Darling Harbour? One estimate of the chance of putting down safely after engine failure was made by an officer of the DofA at 40%.(6) The assessment of 'risk' could therefore be the probability of an unsafe landing (0.6) multiplied by the chance of an engine failure.

(ii) What is the probability of engine failure necessitating a forced landing in the northern quadrant at Darling Harbour? If the probability of engine failure is independent of the direction of take-off or landing, then it could be assumed to be similar to the degree of risk attached to southerly movements. But once the helicopter without floats hits the water (or, say, the Pyrmont Bridge), what is the chance that the occupants will escape without injury? Is it more or less than 40%? In other words, is the northern flight path, in practice, more or less safe than the southern one at Darling Harbour?

(iii) Whether the commuter helicopter service between Gosford and Sydney (to Kingsford-Smith Airport) was, in practice, more or less safe than a similar service terminating at the Darling Harbour site?(7) The DofA has made their point of view plain regarding the Darling Harbour site - it was unsuitable for regular passenger transport operations. But was it any more 'unsafe' than the alternative: single engined helicopters at times operating without appropriate autorotational areas, thereby exposing, not only the occupants, but the people on the ground to the risk of injury or death?

4.21 The DofA's and its predecessors' operational decisions regarding helicopter operations in Sydney have in practice been extremely inconsistent. More seriously, there is a real chance that certain decisions designed to facilitate safe operations have actually had the reverse effect in practice.

4.22 The President of the Helicopter Association of Australia (HAA) stated in evidence to this Committee:

> 'Overall, with regard to Darling Harbour, I agree that when the heliport was first constructed and even though it met most, if not all, of the angular and linear dimensions, it is questionable that it would have met the forced landing requirements.'(8)

4.23 The President went on to say that the Helicopter Association would like to examine papers submitted to this Committee by the DofA on the public safety aspects of helicopter operations and until this process had been completed:

> '(W)e are tentatively reluctant to tackle fully matters regarding public safety.'(9)

The Committee has arranged for the HAA to obtain these documents.

4.24 It is an oversimplification to conclude that the industry pilots all viewed the Darling Harbour site as 'safe', whereas the DofA officers all regarded it as 'unsafe', at least for certain classes of operations.(10) Some helicopter pilots in the industry regarded the site as 'unsafe' and certain DofA officers believed that operations to the south using a curved approach-departure path were acceptable.

4.25 Some industry pilots were as unhappy with the northern approach and departure path as the Department's operational specialists. There was a risk imposed by the Pyrmont Bridge to the north, which was operational at the time and evidently handled a high volume of traffic.(11) The other risk posed to the north was the chance of an unsuccessful evacuation by the pilot and passengers from a helicopter which might be forced to autorotate into the water following an engine failure.

4.26 The Committee has some difficulty with the Department's application of safety standards at Darling Harbour. The Department had allowed helicopter operations from this helipad to the north over water without floats. It had recognised the danger of Pyrmont Bridge to the north but had not outlawed this flight path. It had disallowed operations in the southerly quadrant, but at the same time it had permitted the flouting of these restrictions by the pilots and the site lessee.

4.27 The Committee believes the Darling Harbour saga is symptomatic of a general problem within the Department regarding operational standards. Attempts to impose stringent requirements in particular cases give no guarantee that safety will be improved as a result of the imposition of certain rules.

4.28 The plain fact is that it is not possible to devise a body of operational standards and approve a group of helicopter landing sites in such a way that helicopter operations will be absolutely 'safe'.

4.29 Regardless of the actual body of rules and standards in place, the Committee cannot understand why the DofA has promulgated various rules when it has very little hope of effectively policing them. As an example, the Committee cites the five-knot down-wind limitation and the ban on southern approaches and departures at Darling Harbour. Evidence presented to this Committee indicated an alarming disregard for these restrictions by the site lessee, the pilots and, even more seriously, the Department itself.(12) This situation only serves to make a mockery of safety standards.

4.30 There seems little point in devising rules which are honoured more in their breach than observance and which are not policed, either because they cannot be or because the rule-making authority is not so inclined. Failure of the regulatory authority to take action when it knows of the breaches may be viewed as a tacit admission that the rules or restrictions being broken do not rest on a sound base.

Recommendation 5: The Committee recommends that the Flight Standards Division, as part of the implementation of its Flying Operations and Standards Development Program, accord a high priority to its stated objective of dispensing with or refining all operational requirements where the net safety benefit is not commensurate with the costs imposed on either the aviation community or the Department.

4.31 A strong theme in recent addresses by world experts in aviation safety is that safety by regulation 'has reached its limits'.(13) Indeed, some have argued that further regulation can be counter-productive and that the emphasis should be on human relations in aviation safety.

4.32 The evidence the Committee has assembled on the Darling Harbour helicopter landing site would support this view. The current Head of the Flight Standards Division, Mr O'Day, agrees that more emphasis must be placed on the human relations factor.(14) Mr O'Day is also on record to the Committee as saying:

> 'Flight Standards Division is now a significantly different organisation to that which was involved in the Darling Harbour key decisions.'(15)

4.33 The DofA has recognised the need for the Flight Standards Division to improve its control of regional activities and a reorganisation came into effect on 1 July 1985 involving two new branches, the Standards Development Branch and the Flying Operations Branch.

4.34 It is too early to see the benefits of the July 1985 restructuring of this Division. The Committee will monitor the progress and performance of this Division throughout the remainder of the inquiry and seek to offer constructive advice where necessary. Recent actions taken by the Division provide good grounds for optimism.

LEO McLEAY, MP
CHAIRMAN

NOVEMBER 1985

ENDNOTES

Chapter 1

1. Smith, Dick, Two Years In The Aviation Hall of Doom, December 1984, p. 7
2. ibid., p. 17
3. ibid., p. 22

Chapter 2

1. Commonwealth Department of Aviation, Functional Directory, AGPS, Canberra, 1985, p. 2
2. ibid., p. 1
3. Submission No. 586, p. 3261
4. ibid., p. 3264
5. ibid., p. 3261
6. ibid., p. 3262
7. Appendix VII, p. 93
8. ibid., p. 95
9. The Department of Aviation main submission is recorded in the Committee's records as Submission No. 586, pp. 3040-3257. Mr Smith has lodged many submissions with the Committee. His submission recording his correspondence with the Department is recorded as Submission No. 49, pp. 225-463.
10. Submission No. 586, pp. 3249-3250
11. ibid., p. 3251
12. ibid., p. 3251
13. ibid., p. 3259
14. ibid., p. 3241
15. ibid., p. 3260

16. ibid., p. 3285

17. ibid., p. 3266

18. ibid., p. 3267

19. Submission No. 133, p. 928

20. ibid., p. 930

21. ibid., p. 930

22. ibid., p. 930

23. ibid., p. 931

24. ibid., p. 931

25. ibid., p. 933

26. Submission No. 586, p. 3267

27. ibid., p. 3268

28. ibid., p. 3268

29. Evidence, p. 62

30. Submission No. 586, p. 3269

31. ibid., p. 3269

32. Evidence, p. 181

33. Submission No. 586, p. 3286

34. ibid., pp. 3288-3289

35. ibid., p. 3289

36. ibid., pp. 3290-3291

37. ibid., p. 3296

38. ibid., p. 3296

39. ibid., pp. 3298-3300

40. ibid., p. 3302

41. ibid., pp. 3304-3310

42. ibid., p 3308

43. Air Navigation Regulations in force under the Air Navigation Act 1920

44. Submission No. 586, p 3288

45. ibid., p 3305

46. Evidence, p. 363

47. Evidence, p. 122

48. Submission No. 586, p. 3307

49. ibid., pp. 3311-3322

50. Evidence, p. 405

51. Submission No. 586, p 3317

52. Heli-Aust Pty Ltd is a subsidiary company of Heli-Muster Pty Ltd. The lease of the No. 39 Darling Harbour site was transferred from United Telecasters Sydney Ltd to this group on 1 May 1985.

Chapter 3

1. Submission No. 586, p. 3248

2. ibid., p. 3286

3. ibid., p. 3301

4. Smith, Dick, op. cit., p. 21. Confirmed in correspondence from the Department of Aviation dated 15 October 1985.

5. ibid., p. 24

6. ibid., p. 24

7. Evidence, p. 328

8. Evidence, p. 440

9. Smith, Dick, op. cit., p. 17

10. ibid., p. 22

11. Submission No. 586, p. 3237

12. Submission No. 800, p. 4772

13. ibid., p. 4773

14. Evidence, p. 176

15. Submission No. 800, p. 4772

16. The Committee has received conflicting evidence regarding the flying time and accident record of helicopter pilots. In particular, Mr Wilson had claimed to have flown 'approximately 24,000 hours as a pilot in command, about 12,000 hours of this on helicopters' (Evidence, p. 320). The DofA has stated that Mr Wilson's record at licence renewals indicated that at no stage has he claimed more than 4,000 plus hours helicopter experience (Submission No. 806, p. 4795). A number of allegations have also been made against a DofA employee, Mr R. Trewenack. The DofA is 'concerned to ensure that the malicious and false accusations made against Mr Trewenack are exposed and that the public record is corrected' (Submission No. 806, p. 4795). Mr Trewenack's rebuttal of these allegations are provided in Submission No. 806 (pp. 4798-4804).

Chapter 4

1. Submission No. 133, p. 941
2. Smith, Dick, op. cit., p. 22
3. Evidence, p. 31
4. Evidence, pp. 27-29
5. Evidence, pp. 27-29 and p. 202
6. Submission No. 586, p. 3294
7. Evidence, pp. 27-29, p. 202
8. Evidence, p. 384
9. Evidence, p. 371
10. Evidence, pp. 338-339
11. Submission No. 586, p. 3312
12. Evidence, pp. 106-112
13. Ramsden, J.M., 'How Shall Safety Be Maintained?'; paper presented at Travel and Transport Writers' Seminar, Gold Coast, Queensland, October 8-10, 1984; and Shaw, R.R., 'Airline Safety In The Last Half Century: 1950-2000', The Royal Aeronautical Society, Sir Charles Kingsford-Smith Memorial Lecture 1984, Sydney, 26 September 1984
14. O'Day, R.C., 'Where Aviation Safety Is Going: An Australian Point of View'; paper presented at Travel and Transport Writers' Seminar, Gold Coast, Queensland, October 8-10, 1984
15. Evidence, p. 472

APPENDIX I

CONDUCT OF THE INQUIRY

The Committee resolved on 20 March 1985 to conduct an inquiry into allegations made by Mr Dick Smith concerning the Department of Aviation and its operational regulatory decisions. A Sub-committee was appointed to conduct the inquiry chaired by Mrs R.J. Kelly, M.P.

On 29 and 30 March 1985, the Sub-committee advertised nationally inviting submissions. Over 800 submissions were received as a result of these advertisements. The Sub-committee commenced its investigations by inquiring into the events concerning the Darling Harbour helicopter landing site in Sydney. Public hearings were held on 5 August (Sydney), 7 August (Cairns) and 18 September (Canberra). The Sub-committee has also inspected the Darling Harbour environment. Hearings to date have mainly been restricted to a consideration of the Darling Harbour issue.

The Sub-committee intends to pursue the broader issues raised in submissions in 1986, with an extensive program of hearings in all State capitals commencing in February.

APPENDIX II

WITNESSES

	Dates of Appearance Before Committee at Public Hearings
Mr Richard Harold Smith, Spokesman, Aviation Committee of Review Proposal and Member, Federal Committee of the Helicopter Association of Australia, Terrey Hills, New South Wales	5.8.85 18.9.85
Mr Richard Hugh John Thompson, Regional Director for New South Wales, Department of Aviation, Sydney, New South Wales	5.8.85
Mr Robert Charles O'Day, First Assistant Secretary, Flight Standards Division, Department of Aviation, Canberra, Australian Capital Territory	5.8.85 18.9.85
Mr Alan Reginald David Newman, Assistant Secretary, Standards Development Branch, Flight Standards Division, Department of Aviation, Canberra, Australian Capital Territory	5.8.85
Mr Raymond Leo McNamara, Regional Director, South Australia-Northern Territory Region, Department of Aviation, Adelaide, South Australia	5.8.85
Mr Holger Von Muenchhausen, Acting Director, Special Operations Section, Flight Standards Division, Department of Aviation, Canberra, Australian Capital Territory	5.8.85 18.9.85
Mr Carl Daley, Examiner of Airmen, Regional Office, Department of Aviation, Sydney, New South Wales,	5.8.85

Mr Robert Mathieson Green, 1 Barriedale Grove, Frankston, Victoria	5.8.85
Mr Reginald Llandaff Trewenack, Examiner of Airmen, Department of Aviation, Victoria-Tasmania Region, Melbourne, Victoria	5.8.85
Mr Peter Stroud Langford, 111 Melwood Avenue, Killarney Heights, New South Wales	5.8.85
Captain Peter Jensen, Operations Manager, Air Queensland Ltd, 62 Abbott Street, Cairns, Queensland	7.8.85
Mr Paul David Phelan, Special Projects Manager, Air Queensland Ltd, 62 Abbott Street, Cairns, Queensland	7.8.85
Mr W. John Richmond, Maintenance Supervisor, Air Queensland Ltd, 62 Abbott Street, Cairns, Queensland	7.8.85
Mr Colin Wilson Shedden, Consultant, Air Queensland Ltd, 62 Abbott Street, Cairns, Queensland	7.8.85
Mr Bruce Lionel Evans, Managing Director, Helitrans/Sunbird Airlines Australia Pty Ltd, Airport, Cairns	7.8.85
Mr William Robert Wilson, Managing Director, Wilson Aviation Pty Ltd, P.O. Box 578, Mascot, New South Wales	18.9.85
Mr Peter Vincent, President, Helicopter Association of Australia, P.O. Box 223, Willoughby, New South Wales	18.9.85
Mr Christopher Johnson, Chief Pilot, Helicopter Association of Australia, P.O. Box 223, Willoughby, New South Wales	18.9.85
Mr Daniel Elwain Tyler, Honorary Legal Counsel, Helicopter Association of Australia, P.O. Box 223, Willoughby, New South Wales	18.9.85

APPENDIX III

INDEX OF SUBMISSIONS RELATED TO THE DARLING HARBOUR ISSUE

APPENDIX IV

EXHIBITS

Exhibit No.	Description
1.	Exhibit Sydney 5 August 1985 - Letter from Chief Pilot, Helicopter Rescue Service to the Regional Director, Department of Transport in Sydney
2.	Exhibit Sydney 5 August 1985 - Notes on a letter from Department of Transport by Mr Wilson
3.	Exhibit Sydney 5 August 1985 - Letter from Department of Transport to Chief Pilot, Channel 10 re the operations of the Darling Harbour Helipad
4.	Exhibit Sydney 5 August 1985 - Instrument of Authorisation - Air Navigation Regulation 85
5.	Exhibit Sydney 5 August 1985 - three photographs of approaches to Sydney Airport Helipad site
6.	Exhibit Sydney 5 August 1985 - Instrument of Authorisation of Places as Aerodromes for use as Helicopter Landing Sites for the purpose of Landing and Taking Off of Helicopters
7.	Exhibit Sydney 5 August 1985 - Policy Statement 10 - Helicopter Services conducted under the provisions of ANR 203, Department of Transport
8.	Exhibit Sydney 5 August 1985 - Letter to the Editor - Scruse Family
9.	Exhibit Sydney 5 August 1985 - The Darling Harbour Helipad - An examination of the Southern Approach/Departure Path
10.	Exhibit Sydney 5 August 1985 - four photographs of Darling Harbour Helipad

11. Exhibit Cairns 7 August 1985 - Notes on Noosa meeting organised by GAA - discussion topic 'A Day in the Life of a Legal Operator'

12. Exhibit Canberra 18 September 1985 - Helicopter Association of Australia - Various documents

13. Exhibit Canberra 18 September 1985 - C. Johnson - Submission to the House of Representatives Standing Committee on Expenditure, dated August 1985

14. Exhibit Canberra 18 September 1985 - 'Review of Administrative Decisions of the Department of Transport, Australia', A paper delivered to the N.S.W. Branch

15. Exhibit Canberra 18 September 1985 - 'The Constitutional Framework for Regulating Aviation in Australia', A Paper by Mr Justice Ryan, Supreme Court of Queensland

16. Exhibit Canberra 18 September 1985 - Graph

17. Exhibit Canberra 18 September 1985 - Letter from United Telecasters Sydney Limited to Department of Transport - re Darling Harbour

18. Exhibit Canberra 18 September 1985 - Letter from Department of Transport to Mr W.R. Wilson - granting of licence to operate a Helipad at Darling Harbour

19. Exhibit Canberra 18 September 1985 - Letter from United Telecasters Sydney Limited to Department of Transport - re Darling Harbour

20. Exhibit Canberra 18 September 1985 - Letter from Department of Transport to United Telecasters Sydney Limited - re Darling Harbour

21. Exhibit Canberra 18 September 1985 - Letter from United Telecasters Sydney Limited to Department of Transport - re Darling Harbour

22. Exhibit Canberra 18 September 1985 - Article in 'Flight International' Magazine, 'Listen to the Message'

23. Exhibit Canberra 18 September 1985 - 'Programs and Plans to 1990', Flight Standards Division, Department of Aviation, July 1985

24. Exhibit Canberra 18 September 1985 - Department of Aviation - Submission to the House of Representatives Standing Committee on Expenditure Inquiry into Dick Smith's Allegations

25. Exhibit Canberra 18 September 1985 - 'Applications and Approvals for Helicopter Landings in City Areas'

26. Exhibit Canberra 18 September 1985 - Letter from NSW Planning and Environment Commission to Department of Transport - re Darling Harbour

27. Exhibit Canberra 18 September 1985 - Minute from J. Davis to Director - re layout of proposed heliport

APPENDIX V

FUNCTIONS AND ORGANISATION OF DEPARTMENT OF AVIATION OPERATIONAL DIVISIONS

Extracts from the Department of Aviation's Functional Directory are reproduced below for the three operational Divisions. A brief description of the functions performed by each Division is accompanied by the relevant organisational charts.

AIRWAYS DIVISION

Within the policy framework laid down by the Commonwealth Government, Airways Division has carriage for national policy on infrastructure, enabling operation of facilities and services for aircraft under normal and emergency conditions. This involves planning, research and design of communication, navigation, radar surveillance and emergency facilities in order to provide and operate: air traffic control; flight service; operational control; search and rescue; rescue and fire fighting services; aviation security and environmental services; and the production and monitoring of aeronautical information to the industry.

Principal Adviser

Long-term planning (10-20 years) of future national airways systems; development and integration of the planning functions in the Division to produce the National Airways Plan; research and development of air traffic systems and airways facilities required to satisfy predicted future requirements.

Airways Facilities and Emergency Services Branch

Develops policies, plans and standards for the provision of electrical and mechanical facilities and the installation and maintenance (and performance monitoring) of airways facilities; develops the standards and practices for rescue and fire fighting services, including provision of equipment and facilities; provides technical assistance to developing countries; provides airways drafting service.

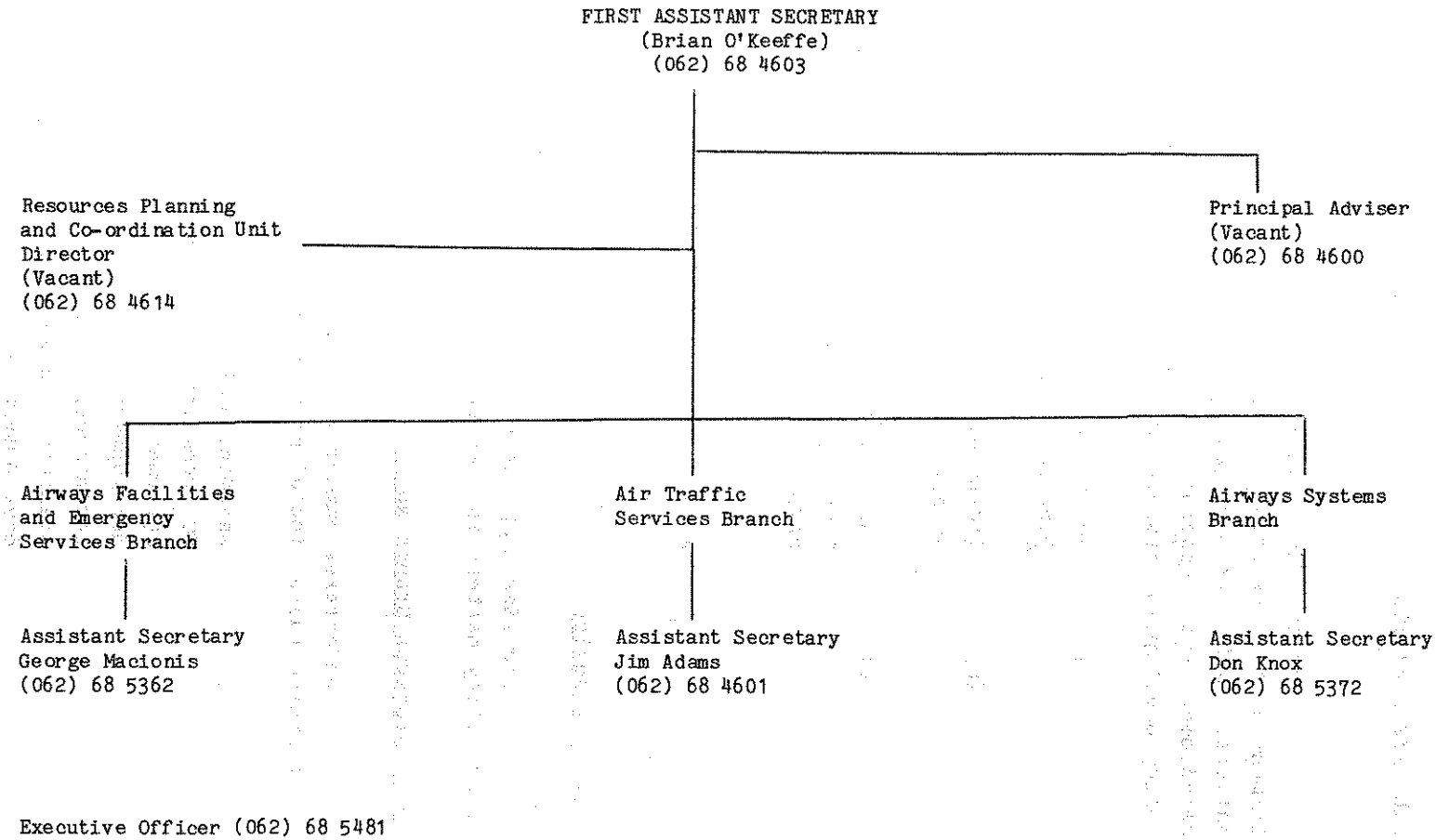
Air Traffic Services Branch

Develops national standards, operating procedures and manpower requirements for air traffic control and flight service, including search and rescue, and provides an aeronautical information service; develops standards and procedures for reduction of aircraft noise and the effect of aircraft operations on the environment and is a focal point for aviation security matters.

Airways Systems Branch

Develops the policy and plans for airway facilities and services in 5-10 year time scale; specifies the requirements, design (including provision) and performance standards of the required facilities, which include communication, visual and non-visual navigation and surveillance radar facilities as well as all the facilities required to provide an integrated airways system; provides a scientific measurement and calibration laboratory.

AIRWAYS DIVISION - ORGANISATIONAL STRUCTURE



Executive Officer (062) 68 5481

Source: Department of Aviation, Functional Directory, AGPS, Canberra, 1985, p. 14

AIRPORTS DIVISION

Within the policy framework laid down by the Commonwealth Government, Airports Division has carriage for national policy on the planning, provision and maintenance of aerodromes and aerodrome facilities. These functions include policy development associated with the:

(a) administration of the Aerodrome Local Ownership Plan;

(b) licensing and authorisation of places for use as aerodromes;

(c) business concessions, property management and development and control of surface traffic at airports; and

(d) control over buildings at airports and marking obstructions likely to endanger air navigation in the vicinity of aerodromes.

Principal Adviser

Provides high level advice to the Divisional Head on broad policy matters and resource management.

Major Projects Branch No. 1

Undertakes specific major airport development projects and planning tasks, including aerodrome master planning:

. assuming prime carriage and/or provision of CO consultancy services and resources (by agreement with the Region) as required; development and research - for new techniques, guidance material, and national standards associated with the planning, development and operation (including safety and maintenance) of airports, provides drafting services.

Major Project Branch No. 2

Airport planning and development of specific projects in Brisbane and Sydney areas; advice on environmental matters.

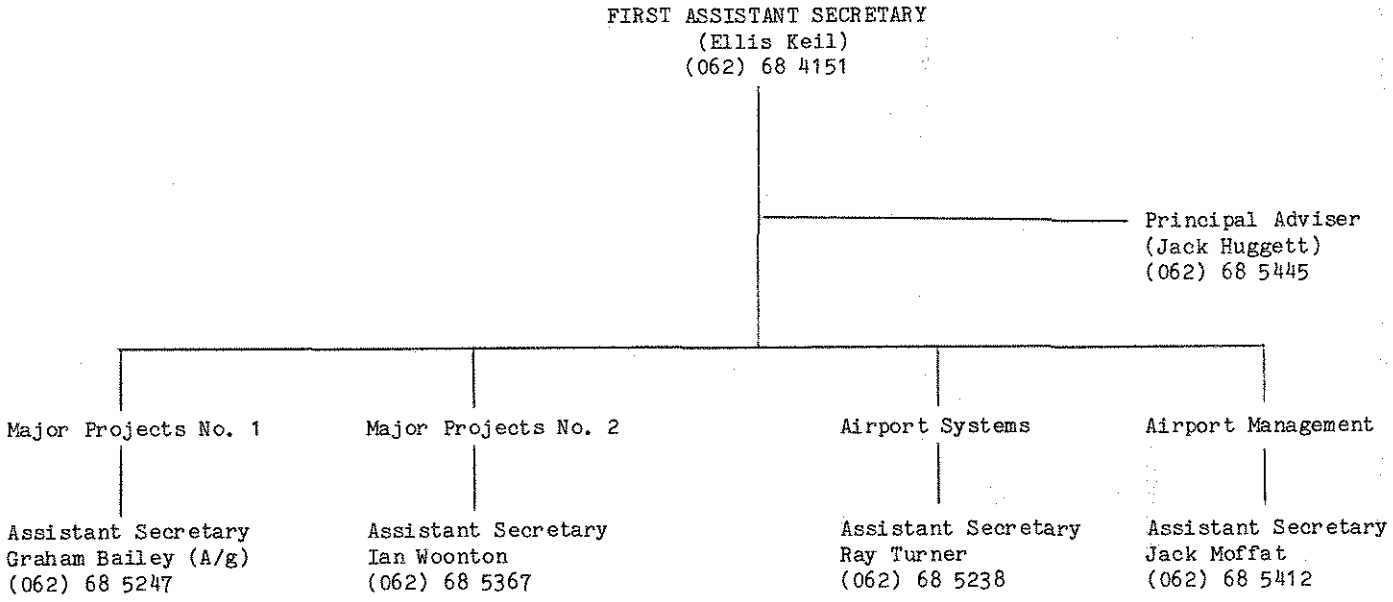
Airport Systems Branch

National policy associated with administration of the Aerodrome Local Ownership Plan; development of National Aerodrome Plan and National Aerodrome Facility Plan for the provision of future facilities; provides technical assistance to developing countries, as required.

Airport Management Branch

Develops national policies and procedures for the management and operation of airports, the operation of business concessions at government airports and departmental property; negotiation and management of major national commercial contracts.

AIRPORTS DIVISION - ORGANISATIONAL STRUCTURE



Executive Officer (062) 68 5477

Source: Department of Aviation, Functional Directory, AGPS, Canberra, 1985, p. 16

FLIGHT STANDARDS DIVISION

Flight Standards Division is responsible for development and uniform national application of standards relating to the training and licensing of flight crew; standards of aircraft airworthiness and maintenance; procedures governing the operation of aircraft.

Standards Development Branch

Develop and review policies, standards and practices for flight crew and operational requirements for the operation of all categories of aircraft. Maintain and oversight the implementation of flying operations standards, practices and policies for helicopters, aerial agriculture and sport aviation.

Flying Operations Branch

Oversight national implementation of flight crew and operational standards and the monitoring of the application of operational criteria for airports, airways, meteorological and Air Traffic services and facilities.

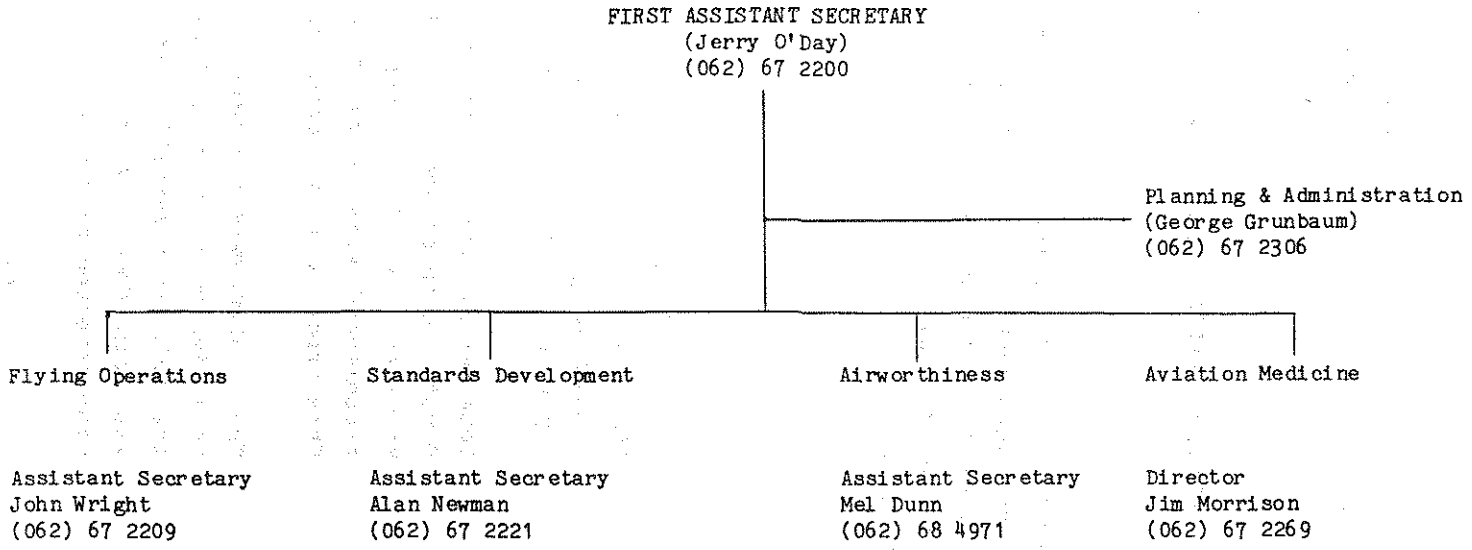
Airworthiness Branch

Development of standards in relation to design, construction and certification of civil aircraft and equipment; certification of aircraft; monitoring and control of aircraft in service; issue of mandatory modifications and inspections; licensing of aircraft maintenance engineers; approval and surveillance of organisations; co-ordination of research work; provision of engineering and laboratory support to other Divisions; maintenance of the Australian Aircraft Register; assistance to developing countries, as required.

Aviation Medicine Branch

Development of medical standards relating to the licensing of aircrew and air traffic controllers; Commonwealth airport health requirements; and the co-ordination of research projects into aspects of Aviation Medicine; occupational health and safety matters affecting the operation of the Department.

FLIGHT STANDARDS DIVISION - ORGANISATIONAL STRUCTURE



Source: Department of Aviation, Functional Directory, AGPS, Canberra, 1985, p. 18

APPENDIX VI

CHRONOLOGY OF EVENTS - DARLING HARBOUR HELICOPTER LANDING SITE

Most of the information contained in this Appendix has been obtained from the Department of Aviation's submission to this Committee. This submission appears as No. 586 in the Committee's records. The page numbers under each entry refer to this source unless otherwise stated.

Early 1960's:	Mr Green (Assistant Director Operations, NSW Region, Civil Aviation, Department of Transport) and the Chief Helicopter Pilot of TAA selected a helicopter landing site after a request from the Lord Mayor of Sydney - lapsed due to lack of funding.
Early 1970's:	Commonwealth/State Committee set up under Deputy Commissioner of Main Roads with Mr Green as DofA representative. Sites recommended were Dawes Point or Farm Cove. This report was not acted upon.
1974:	The Commonwealth-State Committee was re-activated by Premier Lewis. Mr Newman was the DofA representative and the site chosen was Farm Cove. After the election Premier Wran rejected this site.

1978: The Committee was reformed and recommended a pontoon off Mrs Macquarie's Chair. This was opposed by the Maritime Services Board. The Committee's report was never released.

20 September - The State Planning and Environment Commission (SPEC) sought advice from the Commonwealth Department of Transport's NSW Regional Office concerning the provision of helicopter landing facilities in Sydney's CBD. This request occurred after representations to the NSW Government by a commuter operator. (pp 3249-3250)

2 November - The NSW Regional Director, Mr Langford, responded to SPEC pointing out the operational requirements. (pp 3251-3257)

22 November - Mr Langford recommended to SPEC the site at No. 39 Darling Harbour as one of four suitable sites, subject to further assessment. (pp 3258-3259)

24 November - Mr Green signed a letter on Mr Langford's behalf to SPEC stating that 'This site more than meets the Heliport requirements promulgated by this department'. (p 3260)

November: A full survey by the Airports Branch of the Department of the Darling Harbour site was requested but was apparently not carried out. (p. 3285)

1979:

21 January - NSW Premier Wran announced that Sydney was to get an inner city helipad at 39 Darling Harbour. (p 3266)

12 February - The State Planning and Environment Commission (SPEC) wrote to the Department confirming the Premier's announcement and thanking Mr Green for his help. A joint report on the proposed Sydney CBD heliport prepared by SPEC and the Maritime Service Board was enclosed with this letter. This letter became folio 47 of the NSW Regional file No. 73/1528. (p 3267)

16 February - The date that Mr Langford may have annotated the 12 February SPEC letter with: 'ADO - I understand you are now going to send the report to C.O.'. (p 3267)
Note that this annotation could have taken place after 16 February

10 April - Mr Langford cleared file 73/1528 to Mr Green with the notation on folio 49 of file No. 73/1528: 'ADO - Have we sent the report to C.O.?'

30 May - The Central Office of the Commonwealth Department of Transport claimed it first became aware of the No. 39 Darling Harbour development through an article in 'The Australian' published on this day. (p 3268)

5 June - A memorandum was sent from the Central Office to the NSW Regional Director, marked to the attention of Mr Green, requesting survey details of the site. (pp 3269-3270)

8 June - Mr Green apparently cleared file 73/1528 which contained Mr Langford's annotations.

1979 Cont.

8 June - NSW Regional Office forwarded a report to Central Office on the establishment of a helicopter landing facility in the Sydney CBD. The covering memorandum stated that a request for the issue of an Instrument of Authorisation was expected in approximately one week's time. (pp 3271-3275)

19 June - In a Central Office internal minute Mr Newman, a Senior Airways Surveyor in the General Aviation Branch of the Central Office Division, recommended that an Instrument of Authorisation be withheld until a Departmental helicopter specialist had assessed the situation for clear autorotative areas and airport officers had surveyed the approach and departure paths. (pp 3276-3277)

6 July - Central Office wrote to the Regional Office expressing reservations on the suitability of the Darling Harbour site and stated that their preference would be for the Instrument of Authorisation to be withheld. Note that the Head of this Central Office Division did not have the authority to directly override Regional Office. (pp 3278-3284)

30 July - Central Office Examiner of Airmen - Airways Surveyor (Mr Trewenack) after inspections reported that the area was unsafe and highly dangerous for single engined helicopters. The site was also classed as unsuitable for a city heliport. (pp 3285-3286)

1979 Cont.

10 August - Central Office wrote to Regional Office stating that the recent inspection by Mr Trewenack had not dispelled their reservations concerning the availability of clear areas for emergency autorotative landings. (p 3287)

14 August - The Regional Director notified the lessee (Brookvale Investments) and SPEC of operational problems. Approval to use the site was granted but was limited to operations in visual meteorological conditions (VMC) in daylight only. (pp 3288-3289)

30 August - SPEC replied to the 14 August letter expressing concern at these limitations - particularly those pertaining to night and commuter operations. (pp 3290-3291)

30 October - Mr Newman of Central Office reported on a 17 October inspection of the helicopter landing site confirming Mr Trewenack's earlier assessment. Mr Newman also noted that a detailed survey of the site was still not available. (pp 3294-3295)

31 October - The NSW Regional Office was provided with a copy of the 30 October inspection report and the conditions to apply to the Instrument of Authorisation (pp 3296-3297)

6 November - The NSW Regional Director, Mr Langford, wrote to Central Office questioning Central Office's interpretation of the operational standards. (pp 3298-3300)

1979 Cont.

13 November - Central Office replied with the comment that the lessee and SPEC should be informed that adequate clear areas suitable for an autorotative landing did not exist in the southerly quadrant departure path. Central Office suggested that the authorisation be limited by the restrictions as outlined in the 31 October minute. (pp 3301-3303)

1980:

4 January - SPEC and United Telecasters, the lessee of the site, were notified of restricted conditions pertaining to the use of Darling Harbour by the NSW Regional Director. This correspondence included an Instrument of Authorisation for the No. 39 Darling Harbour site. (pp 3304-3310)

7 August - Two Central Office officers, Mr Von Muenchhausen and Mr Trewenack, undertook a series of test flights to assess the changed geography of the Darling Harbour southern approach. They reported that it was still unsuitable for commuter operations and questioned the suitability for any category of helicopter operation. However, limited use of the site was still permitted. (pp 3311-3313)

1984:

December - 'Two Years in the Aviation Hall of Doom' was published by Mr Dick Smith.

1985:

11 January - Two officers from Central Office, Mr Von Muenchhausen and Mr Bell, and a Regional Office Examiner of Airmen, Mr Daley, made a flight re-assessment of the Darling Harbour helipad. (p 3320)

12 March - Mr Daley prepared a report on the flight re-assessment of 11 January. A recommendation was made to lift night operational restrictions. Mr Daley prepared this report on behalf of all three officers involved but it was not signed by Messrs Von Muenchhausen and Bell. (pp 3314-3319)

1 April - A copy of Mr Daley's report was made available to the Helicopter Association of Australia - they were informed by Mr McNamara, the NSW Assistant Regional Director, Flight Standards, that he would not act on this report and alter the Instrument of Authorisation. (Evidence, p 136).

2 April - Mr O'Day, First Assistant Secretary, Flight Standards Division, Central Office, reported Mr Daley's recommendation to Mr Newman who was an officer in Flight Standards Division. Mr Newman claimed that he had not sighted the report at this stage. (Evidence, p 136).

7 May - The two Central Office officers involved in the 11 January 1985 re-assessment, Messrs Von Muenchhausen and Bell, sent a minute to Mr Newman confirming an earlier oral report of this re-assessment. Their

oral report to Mr Newman apparently included the point that the area to the south-west of the helipad could not be used as an acceptable approach/departure path. They did not support Mr Daley's recommendation concerning night operations. (p 3320)

18 July - A new Instrument of Authorisation was issued lifting the restriction previously imposed concerning the ban on night operations provided certain limitations were observed. (Evidence, p 146)

26 August - The helicopter landing site at No. 39 Darling Harbour ceased operation at 2.39pm and a temporary CBD landing site was opened at Piers 22 and 23, Pyrmont.

APPENDIX VII

REPORT BY CONSULTANT ON TECHNICAL ASPECTS

This Appendix is a copy of a report presented to the Committee on 10 October 1985. It was prepared by Mr John Blackler, a consultant to the Committee who is a helicopter technology specialist. The report includes observations on the technical aspects of evidence presented to the Committee.

The works referred to in Mr Blackler's paper are cited at the end of this Appendix. The appendices to Mr Blackler's paper have not been reproduced as part of the Committee's report.

1. Introduction

This report is concerned with evidence presented at the two hearings of the Sub-committee on issues relating to the Darling Harbour helicopter pad, on Monday 5th August, 1985, and Wednesday, 18th September, 1985.

In the absence of any specific questions or any direct instructions from the Sub-committee regarding technical aspects of the evidence presented, the following general topics seem to warrant further comment and explanation. The topics dealt with in some detail below are:

- safety,
- the helicopter 'Height-Velocity' diagram, and
- commercial flying experience of officers of the Department of Aviation.

The considerations on safety were prompted by the Darling Harbour evidence but obviously have a much wider application through the many aspects of the inquiry. The points raised in relation to safety are not meant to be in any way a definitive study of the subject, but rather to suggest considerations which have been or might be used by a regulatory body monitoring safety standards.

2. Safety

No definition of 'safety' was presented, although possibly all witnesses and Committee members used the term in some context at some time, with at least slightly different connotations. Mr Langford attempted to quantify 'safety' in terms of fatalities per so many passenger hours, while Mr Smith showed a different understanding by nominating the helipad of Channel 2 as the most difficult to land on, yet claimed that it was 'perfectly safe'.

There were also comments that 'safety' in some instances might be concerned primarily with the protection of life and property on the ground, while at other times the well-being of passengers and crew was of equal, if not greater, concern. There was also the implication that an emergency resulting in a landing into the harbour must preserve the helicopter occupants during the initial impact, but that subsequent survival in the water seemed to be of no great concern.

The impression may have also been given that the determination of 'safe' conditions or 'safe' operation was very much a subjective exercise, and as such could be expected to result in significant variations between concerned persons. There is then the implication that such subjective assessment was open, either consciously or sub-consciously, to influences of perceived responsibility, personality, and even expediency.

Through all of this, deep down, lies the question of 'the public good', and who is, or should be, the arbiter of such.

Without wishing to enter into the deeper philosophical aspects of the question of 'safety', the following points are presented for consideration in respect of the inquiry.

(i) No field of human endeavour can be assured of 100% safety. In all endeavours there is some risk, no matter how apparently small, to human well-being, generally considered in respect of physical, mental or emotional injury, or even death.

(ii) People are generally prepared to accept, with or without conscious consideration, different levels of risk to their well-being, in different spheres of activity.

(iii) People are prepared to accept higher risk situations to obtain some other benefit, such as convenience, time saving, financial gain, thrill, etc.

It is against this latter aspect that most aviation activities might be considered.

2.1 Levels of Safety

It is sometimes possible to determine from significant operational experience the probabilities of an occurrence which affects human well-being in some specified way. If the 'rarity' of such occurrence is generally 'accepted' by the community, then such probabilities can be used to indicate minimum community-accepted standards of safety.

Such an approach requires extensive and comprehensive operational data, a valid statistical approach, and a means of representing this experience for subsequent use in monitoring operational safety.

The application of this approach is in general quite complex and unwieldy, but it can provide guidelines against which operational requirements may be assessed.

Langford in Reference 1 considers this in some detail, and a relevant extract from that Reference is given below:

> LEVEL OF AIRWORTHINESS AND SAFETY
>
> Complete safety and total freedom from airworthiness defects and accidents are, of course, not practically achievable if the benefits of aviation are to be enjoyed.
>
> Before a proper system can be established, therefore, the level of safety to be achieved must be determined. As a guide to the factors involved, I would refer you to a paper ... which I read to a General Aviation Seminar at Maroochydore, Queensland in April 1974. Some of this bears repeating here.
>
> The level is limited in one direction to what the public, industry and government are prepared to pay, and in the other, by what they are prepared to accept having regard to such things as emotion, liability, cost of failure, publicity, consequences, need, etc. These limits are impossible to quantify and are ill-defined. The level of safety achieved is of course relatively easy to quantify in terms such as fatalities per hundred million passenger miles or engine shutdowns per 10,000 flights, but it is by no means as simple to apply such statistics to establish the need for a variation in any of the airworthiness parameters. There are likewise few indicators as to what costs would be acceptable to the public, industry and government.
>
> The period over which accident or fatality rates are recordable is also important in the selection of a level of safety. A large number of small accidents over a period of time might not have the same impact on the public as one accident with a large number of fatalities. Such an accident would almost certainly give rise to greater pressures for a higher level of safety than would a number of accidents to small aircraft over a period of time. It has been argued therefore, with good logic, that as aircraft increase in size, the level of safety, in terms of the rate of occurrence of accidents, should be improved and not merely maintained.

Contributions to the achieved overall level of safety are made by many separate aspects of aviation. Some of these are controllable by man and some, such as weather, are not. For example, the level of safety achieved is the summation of the effects of such parameters as the airworthiness of an aircraft, the skill and knowledge of the operating crew, the air traffic control system, the effectiveness of navigation aids, weather forecasting, the skill and knowledge of maintenance personnel, etc. Assuming that these all have an effect roughly comparable one with another, a percentage increase in level of safety achieved in any one field only improves the overall level of safety by a fraction of that percentage. For example, if there are 10 equal fields of influence and improvements in the level of safety achieved is one in 10%, the overall level is improved by at the most 1%. On the other hand, if the fields do not have equal levels of safety, an improvement in the level of safety in the least safe field produces a proportionately greater increase in the overall level of safety than does a comparable increase in the field having a higher level of safety.

The parameters involved in setting a proper level of safety are complex and interwoven and if one tried to quantify them one would get lost in the statistics and achieve little. It must be left to judgement based on experience and this is how it is done.

Based on these philosophies, the airworthiness control system must be set to provide a minimum level of airworthiness having regard for the following variables, also shown in Fig. 4:

(a) the relationship of airworthiness to other fields affecting overall safety;

(b) equality of level of safety across all airworthiness parameters;

(c) the cost of achieving particular levels of safety;

(d) the type of operation; and

(e) the acceptability of the level of safety to the public, industry and Government.

2.2 *Safety - v - Cost*

In the above extract from Reference 1, Langford notes that safety levels must be considered against the cost of achieving and maintaining such levels and the community acceptance of both safety levels and the cost that they must bear either directly or indirectly.

Walter Tye, of the former Air Registration Board of the U.K., has written many papers on air safety and the regulation for same. In Reference 2 he puts the above considerations of safety and cost in reasonable perspective. The following is an extract from that Reference ...

> ECONOMICS OF AIR SAFETY
>
> A fully fledged analysis of costs is extremely difficult to make for lack of data and the need to make debatable assumptions. I therefore propose to fall back on a much simplified approach which I first made some twenty years ago but which still seems valid. The argument runs as follows. The total cost of providing air transport is made up of three parts. First, a large proportion is spent on providing the vehicles and operating system however unsafe they may be. Second, a smaller part is spent in making the system as safe as it is. Third, a tiny percentage is spent in paying for the damage to the hardware and in compensation for loss of life resulting from the accidents which do occur.
>
> About two-thirds of the total costs arise from indirect costs and from the fuel burnt. These *costs have nothing to do with the level of safety* of the operation. About one-third goes to pay for the aircraft, its upkeep, crew salaries, airfields, ATC, and so on. If more is spent in these areas we can expect some improvement in safety. In reverse, if safety was of no importance at all these costs would reduce, but they would not disappear altogether, as a highly unsafe aircraft with inferior crews would still cost something if the aircraft is to fly at all. If one can conceive of a kind of 'zero-safety' operation, at a guess the one-third of total cost might be halved.

I have illustrated this in Fig. 1. You may view this with grave suspicion based as it is on such wild guesses. However I believe it gives a correct qualitative picture and that certain deductions can be drawn from it.

First there is a clear indication of the existence of an optimum level of safety corresponding to minimum cost. The position of the optimum depends on the slope of the line representing the cost of providing safety. Provided, however, this line has a positive slope, there must be an optimum. Second the total cost curve has a flattish bottom, so over a small range of safety levels costs are not much affected. Third, and perhaps most important, if safety levels were to slip badly, a rapidly rising cost would result, so apart from other objections it would be poor economic sense to allow such a slippage.

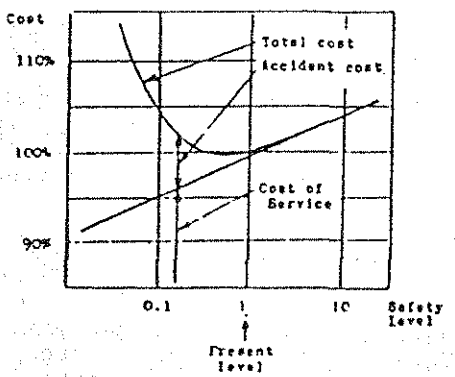
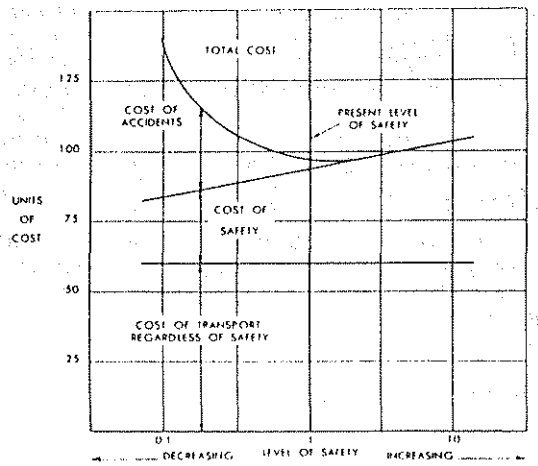


Figure 1.

In another place, Lederer (Ref. 4) presents a similar picture, an extract of which is reproduced below:



For the purpose of this chart, the total cost for operating aircraft consists of the basic cost of transport, plus the cost of safety, plus the cost of accidents. As shown to the left of the median line, a substandard expenditure for safety will result in a high cost for accidents which, in turn, will result in higher total operating costs. However, as expenditures for safety are increased, the cost for accidents will decrease until a point is reached where safety costs add to rather than decrease total operating costs. It is at this point (where, for example, the expenditure of $80 millions for crash-fire rescue equipment may only save 10 lives annually) that the laws of economics raise policy questions of monumental difficulty for private operators and public authorities.

Source: Walter Tye, British Air Registration Board, "Unresolved Civil Airworthiness Problems", Institute of the Aerospace Sciences, Inc, 1959

2.3 Safety of a Particular Operation

In considering the safety of a particular operation, one which has been continuing for some time, there is the tendency on the part of the operator to examine this from a narrow parochial point of view, with possibly little or no regard for more extensive experience in similar operations elsewhere.

The writer has, in his role as a professional engineer, frequently been confronted with an operator's justification of the safety of his equipment or procedures in the form of 'we've been doing this for some time now, and nothing has ever gone wrong, therefore it must be safe'.

Such an approach almost always ignores the fact that in all probability the most critical operating situations have not yet been experienced, and it takes no account of the accumulated experience of other similar operations where safe operation may have been found wanting.

The fact that a large number of helicopter movements have occurred at Darling Harbour without accident or noted incidents, does not prove or even indicate that safe operation is likely to continue indefinitely. It certainly does not of itself indicate that operational restrictions have been overly severe and could be eased, since the apparent present level of safety may well be, at least partly, a result of such restrictions.

2.4 Other Aspects

Tye in Reference 2 considers other relevant factors in determining and setting levels of safety. The following extract explains these clearly.

OTHER FACTORS

From the forgoing, while it is clear that economic considerations tend to decide the broad band of what safety level it is practicable to go for, they do not pinpoint a precise figure. Other considerations are therefore relevant. What do the users of air transport really want?

One of the problems here is that individuals differ a great deal in their attitude to risk taking. Sometimes we are foolish enough to take considerable risks, like jumping into an already moving train, for the small benefit of avoiding waiting a few minutes for the next one.

I suspect that most people take greater risks when they imagine themselves to be in control of the situation. How else can one account for the reckless car driver who would be appalled to find himself flying behind an airline captain behaving in the same reckless fashion. I also believe that many persons are more careless with their own safety than that of their near and dear. Within all these individual variations there must be an average man's view of what is a respectable safety level.

This average man's view is difficult to determine. On the whole the public is not well informed about safety levels: some are disinterested: few could express a view in a quantitative way. This is not surprising. Safety figures are difficult to convey in a meaningful form to the man in the street. On the other hand the Press is only too willing to publicise the horrors of the latest accident. This leaves the public with a distorted picture. Those who are inclined to worry probably do so more than the facts justify.

PRESS AND POLITICAL PRESSURES

Lacking a sure way of determining what the public want, there is a temptation to assume that those who purport to speak for the public know the answers. I refer to the Press and politicians. Generally their views are pro-safety. I confess to some doubts about these sources of opinion. Those of us in aviation are painfully familiar with the outcry which follows a nasty accident. Someone must do something, and instantly. But when things go awry, knocking the authorities is a form of national sport. Bad news sells newspapers particularly if the powers-that-be seem to be the guilty party. Earnest politicians no doubt want to do the right thing, but with some exceptions they are not technically well-informed.

In some respects these pro-safety pressures are beneficial. They keep safety authorities on their toes. But the danger is that ill-founded pressure can result in panic measures which are not in the long run the most beneficial to safety. A single accident is often not the best guide to action. It is very important for authorities, when seeking safety improvements, to be quite sure that they have embarked on the most cost-effective approach.

It is of course easy to see why aviation safety is specially vulnerable to political pressure. More emotion is stirred up by accidents in which several persons are killed at one time. This is very evident from road versus aircraft accidents. In the UK some 20 persons are killed each day on the roads, usually one or two per accident. Only a serious motorway pile-up rates a mention in the national Press. By contrast, about 100 persons are killed in air crashes in a whole year in the UK, but these could well be concentrated in a single major accident, and this becomes a national catastrophe. To those who suffer, a major air accident is of course a catastrophe, but so are the 100 deaths which occur every five days in road accidents.

THE VIEW OF THE PUBLIC

With all the difficulties in discovering the real wishes of the public, and having reservations about the opinions expressed by the Press and politicians on their behalf, it is easy for an authority to take a dictatorial attitude, deciding what is best for the public. But this is really not good enough. In Western society the passenger is free to choose whether or not to fly. It follows that there is an obligation on the safety authority to serve the public by paying heed to their demands, however nebulously these demands are expressed.

Some aspects of public demand are clearer than others. First most users of aircraft want to be assured that no one is playing fast and loose with their lives. They are understandably angry if they suspect negligence. They are not too happy if an airline or constructor cuts safety corners which other more conscientious ones observe. In other words the public looks to the safety authority to ensure that the providers of air services stick to proper rules.

However this does not answer the question whether the user wants more safety or how much he is prepared to pay for it. As I have said, individual attitudes vary and all that can be expected of an authority is to try to cater for the 'average man'.

In so far as it is possible to generalise, I think there are two main types of airline passenger - the irregular user and the regular one. The former is the person who flies once or twice a year on holiday journeys. I doubt whether he gives much thought to safety, but he is very concerned about the price of the ticket. If he did put his mind to the matter, I suspect he would not demand more safety if it pushed up the ticket price. The 'economic optimum' suits him well.

On the other hand the regular user, often the business man, tends to think more about the risk element, sometimes demonstrating this by taking out extra insurance. He may also pick and choose between airlines. He is not quite so concerned about the ticket price, perhaps because this is often a business expense. I suspect that his attitude is a preference for improvement in safety, even at a little extra cost. His preferred safety level is a little higher than the economic optimum.

If these suppositions are correct, the approach followed by most safety authorities seems to be about right. A safety authority's actions are usually directed towards improvements in safety levels, but within the limits imposed by the avoidance of prohibitive cost increase.

But I feel a sense of dissatisfaction that one is driven to make guesses, as I have just been guilty of doing, about public demand. After 50 years of air transport, we ought to have more facts to work on. It is curious that most authorities give much attention to the views of people in the business of aviation, but do not make much effort to find the views of the ultimate user. The excuse is that the user is inarticulate and not organised to express a collective view. I accept the difficulties but the authorities are servants of the public and should make it their business to ascertain their masters' requirements.

PRIVATE FLYING

I have spoken mainly about the fare paying passenger. The private owner is a very different case. I referred earlier to the relatively high accident rates in general aviation. Is this an acceptable state of affairs?

The users of general aviation, of whom many are private owners or club members, are generally better informed people about flying risks. Most of them fly because they enjoy it, rather than as a semi-necessity of modern life. It could be argued that a purely private individual, knowing what he is doing, and with only his own safety at stake should be accorded complete freedom to do what he wants. Government intervention is an erosion of personal freedom which many citizens deplore.

In practice, whatever one's philosophy about individual freedom may be, it is difficult to grant total freedom. Often the lives of others are at stake, for example the friends of the private owner who fly with him. People on the ground have a right to be protected against the risk of crashes on themselves or their property. Safety authorities usually follow a compromise line. They do not set out to ensure the high level of safety regarded as necessary for airline passengers, but they do maintain a degree of control.

Private owners usually clamour for greater freedom than they are permitted. They object to the restrictions and costs imposed on them. I do not construe these objections as meaning that private owners regard flying as being too safe. Rather they believe that safety would not be lowered if restrictions were relaxed.

In the other direction, it is hard to see ways and means of achieving substantial improvement without incurring penalties which I expect would be unacceptable. For instance, the use of single-engined aircraft inevitably means a number of forced landing accidents, fortunately usually non-fatal. These could be obviated by a requirement to fit two engines. This would be costly in a small aircraft, and the additional training to fly a twin would be a further burden.

3. The Helicopter 'Height-Velocity' (H-V) Diagram

An understanding of the helicopter Flight Manual-included 'Height Velocity' diagram is important in relation to the evidence presented on safe operation to and from the Darling Harbour heliport. Quite different impressions seemed to exist as to the consequences of engine failure when operating in the nominated 'avoid' region. These seemed to range from 'you're dead' to 'a good pilot could put the helicopter down safely'.

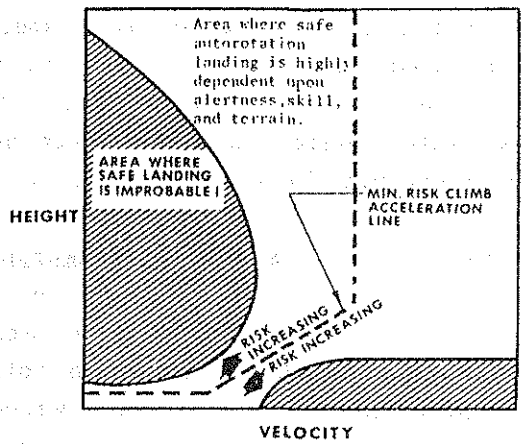
3.1 Behaviour after Engine Failure

The conventional helicopter rotor possesses the ability to 'autorotate' with no power applied from the engine. In this condition the rotor continues to turn quite freely while generating the required life and control. There is however, quite a difference in air flow through the rotor.

In powered flight, air is drawn downwards through the rotor; in autorotation (no power applied) air must flow upwards through the rotor. In order to change to autorotation following engine failure, the pilot must rapidly reduce the collective pitch (through the lever in his left hand) to the value needed for autorotation, and the helicopter must descend quickly to develop this upward flow. The initial loss of height in so doing is greatest at low forward speeds. If the height at which engine failure occurs does not allow complete entry to autorotation and full control recovery before ground contact occurs, high landing loads can be experienced, which can even cause substantial structural damage.

However, if such engine failure occurs very close to the ground, then it is possible to use the energy stored in the rotor to lower the helicopter gently to the ground without seeking to enter autorotation.

Hence, there exists a range of heights at low speed between which it is difficult, even impossible, to land safely following engine failure. This range decreases with forward speed, and is generally expressed on a 'Height-Velocity' diagram, sometimes known as a 'Dead Man's Curve'. Each helicopter has its own particular diagram (or diagrams showing variations with weight, altitude, etc.), and a shape typical of such a diagram is shown below.



A typical "Height-Velocity" diagram

The highest point on the 'avoid' region may be as high as 800-900 feet for some helicopters, or as low as 300-350 feet for others.

Normal operation of the helicopter is along the dotted line, where the helicopter accelerates at low altitude to a certain speed and then climbs at the speed shown by the vertical dotted line.

3.2 Consequences of Operation in the 'Avoid' Region

While the region is generally labelled as an 'avoid' area, such a description does not convey the true implications of an engine failure in such a region.

It should be noted that many specialised helicopter operations do take place in this 'avoid' region, such as rescue operations in difficult terrain. It is only the low probability of an engine failure which gives a degree of apparent 'safety' in such cases.

The Federal Aviation Agency of the U.S.A. in Reference 5 describes this 'avoid' region as

> '...an envelope of airspeed and height above the ground from which a safe power-off or OEI (one engine inoperative) landing cannot be made.'

References 6, 7 and 8, which are concerned with techniques for the establishment of the H-V diagram, all describe very real practical dangers of operating even close to the boundaries of the curve during controlled test flying. Reference 5 states

> 'This test is the least predictable of all performance items.'

Reference 3 states

> 'In addition, an unusually large number of helicopters have been damaged under these 'controlled' conditions which were used to obtain the data.'

The writer has spoken to a former RAAF test pilot who has witnessed severe damage to a helicopter during a demonstration in the USA of a simulated engine failure from a point on the boundary of the H-V curve, the helicopter being flown at the time by an experienced flight test crew.

It can be deduced from such statements, typical of many, that operation within the boundary of the H-V curve will almost certainly result in damage to the helicopter in the event of engine failure, and from deep within such boundary probable injury to the occupants.

Practically all the data for the determination of H-V diagrams has been obtained by highly skilled test pilots under ideal conditions ... There must therefore be some doubt about the probability of the average pilot being able to effect a safe landing from just outside this boundary in real conditions. The following extract from Ref. 7 suggests a reasonable view of this.

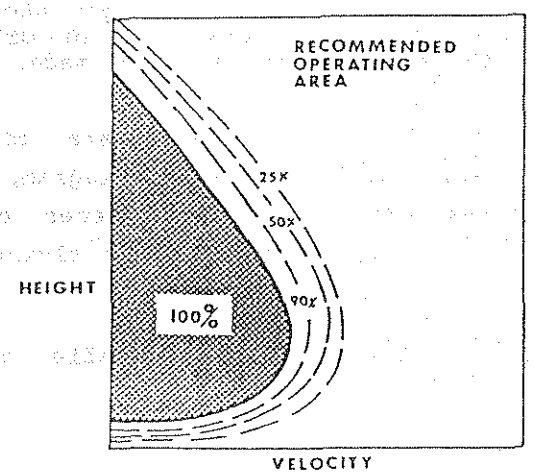


Figure 7: Proposed height-velocity diagram

For a given height-velocity curve as shown in Fig. 7, there exists a degree of risk commensurate with any desired operation. The inner curve is considered to be the maximum performance available from the aircraft/pilot system. This curve is based on the best performance obtained under ideal testing conditions utilizing the optimum technique based on the results of the computer program. Past experience in this type of testing indicates that the curve is not entirely repeatable and is not realistic for other than a controlled pilot/environment situation.

The 90% risk area is intended to represent a performance area that is repeatable by the test pilot with a certain amount of margin for each technique variation. These variations will result in sink rates and forward touchdown speeds that may cause damage to the aircraft for other than ideal landing terrain.

The lower 50% risk area is a performance that can be easily and consistently demonstrated under the controlled test conditions. The technique is important though not so critical as for the higher risk areas. There is sufficient margin for such as excessive delays, variations in pushovers, dives and flares. Any one of these should introduce no dire consequences; however, a combination of these may be another matter. This was the area where most experienced pilots performed after the technique had been demonstrated to them. This may also be the highest risk area that operational pilots can realistically be expected to master without extensive, special training.

The 25% risk area may be the performance most common to the operational pilot of today. These pilots are not normally trained in maximum performance height-velocity techniques. Their experience has been limited primarily to making landings from steady state autorotational descents. This, in effect, gave them experience in the safest portion of the curve and gave little insight as to how to cope with the more critical conditions. Notable performance-compromising characteristics demonstrated were shallow dive angles from low speeds, tendencies to use high flare speeds, inadequate use of rotor energy available, and low flare angles.

It would seem from the above that in the context of operations to and from Darling Harbour heliport, the following might apply.

- An engine failure at a point within the 'avoid' region of the H-V diagram could be expected to result in damage to the helicopter in the subsequent landing, and possible occupant injury.

- If such landing was not carried out under the idealised conditions for which the H-V diagram was produced then more extensive damage might result with more probability of occupant injury. *Such non-ideal conditions might be the* presence of adverse wind, uneven ground and significant pilot response time.

- Even from just outside the 'avoid' region of the diagram the average pilot might have difficulty in making a safe landing. Adverse conditions as above could further reduce the possibilities of a safe landing.

- The introduction of a curved flight path could be expected to increase the difficulty and reduce the probability of executing a safe landing.

4. Commercial Flying Experience of Officers of the Department of Aviation

There has been much comment by witnesses regarding the commercial helicopter flying experience of officers of the Department of Aviation entrusted with fact-finding, safety assessments and decision making. The relevant flying hours of most industry witnesses have been emphasised by the witnesses themselves, and those hours of officers of the Department have been commented upon with different emphases by such officers and by industry witnesses. There is the unmistakable impression that the industry believes that only Department officers with large amounts of civil operational flying experience and commercial exposure are competent to make decisions on operational matters.

It is quite obvious that a significant level of relevant experience is highly desirable, even necessary, of at least some officers who will input into the decision making process. However any insistence that all responsible officers should have a high level of such experience is very much akin to insisting that all who make our road rules should have been truck drivers or taxi drivers, or preferably both!

It is important that considerations based on significant commercial helicopter experience should be balanced by considerations of technical matters, past regulatory experience, anticipated developments and the wider public interest, to name but a few.

There is always the possibility that significant commercial experience can lead to a narrow perspective, reduce the sensitivity to other requirements and interfere with the objectivity so necessary for determining the overall public interest.

It is recommended that these observations should be considered when evaluating the evidence presented to the inquiry.

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REPORT BY CONSULTANT ON GENERAL MATTERS

This Appendix is a copy of a paper prepared by a group of four consultants co-ordinated by Mr B.N. Teague.

1. General Comments

The Dick Smith assertions and the Department of Aviation's response appear to address five topic areas on which the advisory group can comment now:

(1) the management and control of air space;

(2) certification matters (aircraft design, performance verification, crew complements, etc.);

(3) aircraft operational performance (i.e. in service);

(4) aircraft operations (runway requirements, dispensations - flying and maintenance); and

(5) relationships with other industry sectors and the public.

As necessary, these topics may be further divided into fixed-wing and rotary-wing aircraft and/or into public and private transport operations.

Dick Smith's book makes a number of complaints about the Department's methods, procedures and objectives. It presents them in a colourful and sometimes emotional style.

A quick glance at subsequent submissions to the Inquiry suggests that other people have taken a similar approach. Some are just plain 'bitches', some are more carefully constructed. However, the quantum and content of submissions strongly indicate that the Inquiry is both necessary and justified.

A substantial dichotomy seems to exist. In an industry where conservatism is almost mandatory, i.e. in the handling of aircraft, particularly those with members of the public on board, the participants are crying out for more sympathetic and progressive treatment of their needs. They question the relevance and appropriateness of the Department's functions and performance.

Broadly, the Department's response (3 June 1985) tends not to address the reasons behind the complaints. It outlines very well the process that makes up its handling of public and industry requests but it seems to have difficulty in establishing a reference point against which to judge dissent or progress. That is a large task, of course, but a very necessary one.

While the Department admits to failings in some matters, (for example the Heron Island and Citation SP issues both of which were discussed as case studies in Dick Smith's 'Doom' book), its response leaves aside the question of how it might handle such problems in the future, other than to say that it is generally modernising its management structure and positively seeking the involvement of the industry. This is helpful but it may be small comfort to some industry members, especially the less 'important' or less informed ones. It may be discouraging to those who place a high value on their own professionalism but who also lack the means - time, money, Government knowledge, and so on - to sort out the regulatory hassles which they face in everyday flying.

The causes are probably quite basic and longstanding.

Aviation has been and still is a highly institutionalised business in Australia. It has been heavily dominated by the Department, Ansett and TAA, and to some extent Qantas for more than a generation (often for good reason, of course). It has also been a heavily politicised process because the Department has always been multi-functional. Operational, economic, construction, communication, engineering, regulatory, finance, foreign affairs and even social welfare considerations have all fallen under the Department's purview to one degree or another.

This sort of stuff can be frightening to the bloke who just wants to fly a few customers from A to B and earn a living for his family. But he has to conform because he is just one part of a big system.

It has also been suggested that the Department, in the environment in which it must work, has been forced to adopt an elitist outlook - at least until recent times.

But, as Alan Rainbird, a Deputy Secretary of the DofA, points out, the Department has made strenuous efforts over the last three years to better communicate with the industry ...

- direct consultation with the industry
- the Aviation Regulatory Proposal system
- decentralisation of responsibility to the regions
- industry representation on interview committees.

However, it may be too much to expect 30 or more years of perceived 'intimidation' to be remedied overnight.

The use of the quite nasty word 'intimidation' would certainly attract the ire of the Department. And, with the isolated exception to which every organisation is subject, it is probably an unjustified term. Nevertheless, its use reflects a feeling which is widespread throughout the industry, whether justified or not. The industry has identified an adversary element, perhaps historical, which underlies dealings between 'them' and 'us'. Whether this is logically-based or not, the important thing is that it exists. Copies of Dick Smith's book are still sitting on counters in Aero Clubs and Flying Schools around the country.

No doubt all parties would agree that a Department which works, and is seen to work, <u>for</u> the industry and for the community is an objective worth seeking. Indeed, the recent actions of the Department are aimed in that direction, but perhaps more through evolution than revolution.

It may be a useful starting point to look at the Department's comments on the public interest - a notoriously hard subject to define, but one of major importance that deserves separate and independent analysis.

In this age of technology and sophistication, the Department's method of assessing public interest through an examination of mail received does not encourage confidence.

Many ways exist to better handle that job - ways that major Australian companies use every day. While the Department (or some part of it) is and must remain the final arbiter of many public interest matters, especially those relating to operational safety, there is no reason why it should claim unusual expertise in assessing the public need. In fact, the necessary conservatism within a technical regulatory organisation makes it even more important to seek external evaluation of public need and interest, even if only as part-input to the Department's own decision-making process.

For example, Alan Rainbird admits that the Department took 'an inordinately long time' to finalise the Citation crewing matter. With sufficient external pressure, it may have been possible to sharply reduce that time and so pass benefits more quickly on to the public.

The Inquiry may therefore look at:

(1) The effectiveness and timeliness of the Department's dealings with the industry.

(2) The input of changing community needs and standards to the Department's decision-making processes (i.e. is there a lag and, if so, what can be done about it; are inputs relevant?).

(3) The relative weight attached to technical excellence and to social or community arguments in drafting rules which directly affect public air transport services (i.e. safety is critical but we do not live in a perfect world).

(4) The sometimes conflicting demands placed on the Department because of its multi-functional role in addressing

   (a) the public interest (whatever that may be),

   (b) the needs of the consumer,

   (c) the needs of providers of air services,

   (d) the goal of technical excellence,

   (e) its legal obligations, and

   (f) the implementation of Government fiscal or policy decisions from other fields.

2. Brief Notes on Miscellaneous Subjects

2.1 Darling Harbour Heliport

The operational difficulties highlighted by Mr Smith seem to depend on the acceptability of the requirement for safe auto-rotative landing capability - following engine failure at any point in the take-off or approach paths.

Four separate surveys by highly experienced Departmental helicopter pilots have been conducted and their conclusions were virtually unanimous.

The initial differences of opinion between the Region and the Central Office of the Department should be considered as a separate issue, despite the fact that such differences seemed to produce confusion and disappointment among potential and current users.

Analytical evaluation of auto-rotative capability is not possible and it is considered that only flight evaluation by pilots experienced in such assessments can yield valid answers.

No specific reason has been advanced to suggest that the Department's present policy should be varied.

2.2 Helicopter Certification - Overseas Visits

Overseas visits, efficiently conducted, can be of significant value in the initial certification of aircraft for Australia. More importantly, they may provide a depth of understanding of design philosophies and parameters. This could be useful for later evaluation of airworthiness and operational problems.

It should be noted, in this context, that many helicopter characteristics are complex in nature and are still imperfectly understood. The addition of new technologies may introduce further uncertainties and therefore Departmental studies of these aspects during overseas visits can only be of ultimate benefit to the community.

2.3 Twin-Engined Helicopters

The relative safety of twin and single-engined helicopters should not be considered as directly analogous to the safety of twin and single-engined fixed-wing aircraft.

The overall safety of a twin-engined helicopter, following failure of one engine, may be considered to be less than that of a twin-engined fixed-wing aircraft in a similar position (especially where full accountability is not required during take-off and landing).

This situation is compounded when it is realised that most twin-engined helicopters have a single gearbox, rotor shaft, rotor and blades, tail rotor drive and tail rotor. Problems in any element of these may necessitate an immediate landing.

2.4 Certification and Pilot Complement

It is difficult to see any reason, other than an overseas precedent, for relating the pilot requirement to the number of seats in the aircraft. Logic would suggest that this requirement should be based on factors which affect pilot workload - namely, systems complexity, aircraft speed (particularly in the terminal area) and airport and Air Traffic Control environment.

2.5 Certification - General

Aviation Regulatory Proposal 84/15 (which related to aircraft just over 5,700 kg maximum weight) notes that the Canadians propose to take an independent line. It may engender more confidence in our decision-making process if the Department could be seen to be doing likewise in consultation with the local aviation industry.

One very significant difference between the Department's approach to Airworthiness Standards and that of the British CAA is brought out on page 2 of Attachment 3 where it states that '(T)he (British) Civil Aviation Act 1982 requires the Authority to consider advice from the Airworthiness Requirements Board, whose members include nominees of manufacturers, operators, insurers and pilots of aircraft. The Act provides that if the Authority decides not to proceed in accordance with the advice of the ARB it must publish the fact, so that the public may be aware ... The Authority has great confidence in the Board's advice and would think long and hard before disregarding it.'

2.6 The Metro Example

The Department outlines the use of a flexible approach to aircraft certification by the FAA for aircraft just over 5,700 kg maximum weight. Its discussion of this issue is, however, not well balanced.

Its current approach reverses that of six years ago but it gives no reason for that delay - an arguably costly one for intending Australian customers. Its continued requirement for a Flight Data Recorder requires an economically unfeasible re-design of the aircraft (while an inferior but identically sized model of the same aircraft has been approved without question). The upgraded Metro 111 did not emerge during U.S.

deregulation as stated but was a firm growth plan of the original designer and builder. The use of four comparison aircraft is quite misleading. They are all more expensive to buy and operate: two are totally unsuitable for commuter routes and the CASA 212 is a very modest and slow performer. In any event, it would seem desirable to base decisions on the merits of the case, rather than on comparisons which are properly the province of the operator.

2.7 Personalities

In general, to criticise individual Departmental officers does not seem to be a productive course to follow. The issue should be whether the Department's procedures and results are appropriate.

2.8 Liability

That the Department's otherwise progressive and well-considered analysis might be hindered by legal liability questions may be unfair to the Department and potentially harmful to the travelling public.

A definitive review of this subject seems warranted.

2.9 Safety

Now is not the appropriate time to comment specifically on this subject. As indicated in the earlier list of 'matters to be looked at', a thorough overhaul and review of the how, what, where, why and when of safety assessment might be regarded as of prime importance to this Inquiry.

We have heard the FAA publicly state that their function is 'to promote safety, not to ensure it'.

2.10 Responsibility

It is again premature to speak specifically but during the Inquiry's consideration of many subjects it may be worthwhile assessing the merits of the major aviation organisations, particularly the airlines, accepting an even greater share of the 'regulatory' burden, thereby leaving larger resources available to the Department to guide smaller organisations with less in-house expertise. Such a measure may have the additional benefit of improving communications with those industry groups.

APPENDIX IX

GLOSSARY OF TERMS AND ABBREVIATIONS

AD	Aerodrome
ADDGM	Aerodrome Diagrams
ADF	Automatic Direction Finder
ADIZ	Air Defence Identification Zone
ADO	Assistant Director, Operations
AGA-7	Aerodromes and Ground Aids, Section 7 - an Aeronautical Information Publication produced by the Department of Aviation
ALA	Authorised Landing Area
ANO	Air Navigation Orders
ANR	Air Navigation Regulations
ASDA	Accelerate Stop Distance Available
ATIS	Automatic Terminal Information Service
Autorotation	A type of helicopter flight when no power is applied to the rotor system from the engine. Autorotation is usually required following engine failure to enable a safe landing
AVBL	Available
BRG	Bearing
BS	Broadcast Station
CAA	Civil Aviation Agency (UK)
CBD	Central Business District
CMSD	Commissioned
CO	Central Office
CWY	Clearway

DCMSD	De-commissioned
DME	Distance Measuring Equipment
DofA	Department of Aviation
ELB	Emergency Locator Beacon
ELBA	Emergency Locator Beacon Aircraft
ERS	Enroute Supplement
FAA	Federal Aviation Administration (USA)
FAC	Facilities
GFY	Glider Flying
GP	Glidepath
HAA	Helicopter Association of Australia
HAC	High Altitude Chart
HLS	Helicopter Landing Site
IATA	International Air Transport Association
ICAO	International Civil Aviation Organisation
IFALPA	International Federation of Airline Pilots Associations
IFR	Instrument Flight Rules - non-visual flight
KHZ	Kilohertz
LDA	Landing Distance Available
LLZ	Localizer
LOE	Lane of Entry
LSALT	Lowest Safe Altitude
MSB	Maritime Services Board of NSW
NOTAM	Notice to Airmen
NVMC	Night Visual Meteorological Conditions
OCA	Oceanic Control Area
OEI	One Engine Inoperative
PERM	Permanent
PFIB	Pre Flight Information Bulletin
RCC	Rescue Co-ordination Centre
REV	Review
RFF	Rescue and Fire Fighting
RPT	Regular Passenger Transport
SPCC	State Pollution Control Commission
SPEC	State Planning and Environment Commission
TCTA	Trans Continental Control Area
TKOF	Take Off
TODA	Take Off Distance Available
TORA	Take Off Run Available
TWY	Taxyway

UFN	Until Further Notice
US	Unserviceable
VASIS	Visual Approach Slope Indicator System
VFR	Visual Flight Rules
VLF	Very Low Frequency
VOR	Very High Frequency Omni Range
VSB	Very High Frequency Survival Beacon