



Performance audit report

Responses to the
Coroner's
recommendations
on the June 2003
Air Adventures
crash





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Responses to the Coroner's recommendations on the June 2003 Air Adventures crash

This is the report of a performance
audit we carried out under section
16 of the Public Audit Act 2001

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Foreword

In May 2006, the Coroner reported on the June 2003 aircraft crash at Christchurch International Airport. At the Minister of Transport's request, my staff have looked at how the Civil Aviation Authority and the Ministry of Transport considered, responded to, and reported on each of the Coroner's recommendations.

I am pleased that the process and the range of information used by the CAA and the Ministry in forming their conclusions provide evidence that they have properly considered their response to each of the Coroner's recommendations. However, the Ministry should have more proactively monitored the timeliness of its responses and the progress made by the CAA in responding to the Coroner's recommendations.

This is the fourth time that my Office has audited the CAA. The CAA has an important role in promoting civil aviation safety in New Zealand, and it needs to respond in a timely and appropriate way to recommendations for improving its operations. I intended that this audit would also follow up on the CAA's response to the recommendations in my 2005 report. This has not been possible, because the implementation of the certification and surveillance systems (which are aimed at addressing our main recommendations) has taken longer than planned. I have agreed with the CAA that my staff will audit the effectiveness of the new systems in late 2008.

I thank the staff of the CAA and the Ministry for their assistance with this audit.



K B Brady
Controller and Auditor-General

7 May 2008

Contents

Summary	5
Background	5
Our audit	5
Our conclusions	5
The Civil Aviation Authority's response to the Coroner's recommendations	6
The Ministry of Transport's response to the Coroner's recommendations	6
Part 1 – Introduction	9
Background	9
Changes to the original intent of our audit	10
Part 2 – Civil Aviation Authority's response to the Coroner's recommendations	13
Our expectations	13
Summary of our findings	13
Assigning responsibility to qualified personnel	14
Monitoring of progress	15
Signing off the responses to the Coroner's recommendations	16
Documentation and supporting evidence	16
Part 3 – Ministry's response to the Coroner's recommendations	27
Our expectations	27
Summary of our findings	27
Assigning responsibility to qualified personnel	28
Monitoring the timeliness of responses to the Coroner's recommendations	28
Documentation and supporting evidence	29
Completing responses on all recommendations and briefing the Minister	30
Monitoring the Civil Aviation Authority	30
Part 4 – New certification and surveillance systems	35
Background	35
Civil Aviation Authority's response	36
Intended audit approach for the new systems	36
Appendix 1 – Coroner's recommendations	39
Appendix 2 – Recommendations in our 2005 report	43
Appendix 3 – Civil Aviation Authority's response to our recommendations	45
Figures	
1 – The CAA's response to the 11 Coroner's recommendations that it accepted	17
2 – The CAA's response to the nine Coroner's recommendations that it considered were already covered	21
3 – The CAA's response to the four recommendations that it took alternative action on	24
4 – The Ministry's response to the two Coroner's recommendations that it accepted	30
5 – The Ministry's response to the one Coroner's recommendation that it considered was already covered	31
6 – The Ministry's response to the three Coroner's recommendations that it did not accept	32

Summary

Background

In 1997, we carried out a performance audit that identified some serious problems with the standard of the safety audits done by the Civil Aviation Authority of New Zealand (the CAA). Two follow-up audits in 2000 and 2005 established that, while the CAA had made progress by 2005, we still had significant concerns with its certification and surveillance functions.

On 6 June 2003, an aircraft crashed on approach to the Christchurch International Airport, killing the pilot and seven passengers, and two passengers received serious injuries.

The Coroner's report, released in May 2006, raised a number of concerns about the regulation of the general aviation sector (smaller planes, agricultural operators, and helicopters). The report contained 31 recommendations, of which:

- 24 needed to be addressed by the Civil Aviation Authority;
- six needed to be addressed by the Minister of Transport through the Ministry of Transport (the Ministry); and
- one required the New Zealand Institute for Crop and Food Research to review its internal travel policy. We are following up on this recommendation separately with the New Zealand Institute for Crop and Food Research.

Our audit

We have assessed, at the Minister of Transport's request, whether the CAA and the Ministry had properly considered the Coroner's recommendations. We looked at whether they took timely action based on that consideration, and reported accurately on their progress.

We intended to follow up on our own recommendations, made in 2005. However, the CAA had not had its new certification and surveillance systems in place long enough for us to audit them. Instead, we have looked at whether the systems have the potential to address our recommendations. Later in 2008, we will audit the CAA again and see whether the systems have improved the CAA's approach to certification and surveillance.

Our conclusions

Overall, the CAA and the Ministry responded systematically to the Coroner's recommendations. The process used to examine each recommendation, and the range of information used by the CAA and the Ministry in forming their conclusions, provides evidence that each of the Coroner's recommendations was properly considered. Most were responded to in a timely manner.

The CAA's process for monitoring its response to each of the Coroner's recommendations was robust. The Ministry could have better managed the process it used to monitor its own progress to ensure that it completed its responses. The Ministry's process for monitoring the CAA's progress in responding to the Coroner's recommendations should have been more comprehensive.

We were not satisfied that the Ministry adequately considered the need for an independent review of the CAA's responses.

The Civil Aviation Authority's response to the Coroner's recommendations

Of the 24 recommendations the CAA was responsible for, the CAA:

- accepted and completed (or was still taking action to complete) 11;
- concluded that nine were already addressed through the current aviation rules or international standards; and
- had not accepted four but had carried out alternative action in those areas.

The Civil Aviation Authority assigned responsibility for the recommendations to qualified personnel. The recommendations were assessed by the CAA's executive management team (the Executive), and most of the recommendations were assigned to a small project team headed by the retired Deputy Director of Civil Aviation.

The Executive monitored the project team's progress, and progress against "target dates" was regularly reported on the CAA's website. The Executive and the Board reviewed the project team's response before it was accepted, and decisions about responses to the recommendations were documented and supported by appropriate evidence.

The Ministry of Transport's response to the Coroner's recommendations

Of the six recommendations the Ministry was responsible for, the Ministry:

- implemented two;
- concluded that one was covered by the existing legislation; and
- decided not to implement the remaining three.

In one case, two previous studies had found the safety regulation framework to be sound and consistent with international good practice. In the second, changes the CAA had initiated since the Coroner's findings were published put the CAA in a better position to manage its business as the Coroner intended. In the third case,

the Ministry carried out a cost-benefit analysis that did not support setting up a Confidential Incident Reporting Scheme at this time.

The Ministry assigned responsibility for the recommendations to qualified personnel, and decisions about responses to the recommendations were documented and supported by the appropriate evidence. The Ministry's process in monitoring the CAA's progress should have been more comprehensive.

Although the Minister had been briefed about progress on three of the six recommendations, the Ministry did not provide the Minister with a final briefing until February 2008.

The Ministry did not monitor proactively enough the timeliness of its own action or the timeliness of the CAA's performance against its project plan. A planned review of progress after three months by the Ministry's internal auditors was not commissioned. It did not carry out any independent assessment to ensure that the CAA was taking appropriate action.

Part 1

Introduction

Background

- 1.1 The Civil Aviation Authority of New Zealand (the CAA) was set up on 10 August 1992 by an amendment to the Civil Aviation Act 1990 (the Act). The CAA's functions include:
- promoting civil aviation safety and security; and
 - promoting civil aviation security beyond our borders in accordance with New Zealand's international obligations.¹

The Coroner's recommendations

- 1.2 On 6 June 2003, a Piper Navajo Chieftain aircraft operated by Air Adventures New Zealand Limited crashed on approach to Christchurch International Airport in darkness and thick fog. The pilot and seven of the passengers died, and two passengers received serious injuries. The Coroner conducted an inquest into the deaths, with hearings held in July 2003, September to December 2004, and June 2005.
- 1.3 The Coroner released his report on 30 May 2006. The report raised a number of concerns about the general aviation sector (smaller planes, agricultural operators, and helicopters) and about the regulation of that sector. The report contained 31 recommendations, of which:
- 24 needed to be addressed by the CAA;
 - six needed to be addressed by the Minister of Transport, through the Ministry of Transport (the Ministry); and
 - one required the New Zealand Institute for Crop and Food Research to review its internal travel policy.
- 1.4 Appendix 1 lists the Coroner's recommendations.

Our performance audits of the Civil Aviation Authority

- 1.5 We carried out a performance audit in 1997 that identified some serious problems with the standard of the CAA's safety audits. Two follow-up audits in 2000 and 2005 established that, while the CAA had made progress by 2005, we still had significant concerns with the certification and surveillance functions.
- 1.6 Our 2005 report contained 10 recommendations for the CAA. They are listed in Appendix 2.

¹ Section 72B of the Civil Aviation Act 1990.

Civil Aviation Authority's projects to improve certification and surveillance

- 1.7 In 2004, the CAA launched two major projects: the Surveillance Review Project and the Risk Assessment and Intervention Project. The objective of these projects was to improve the efficiency and effectiveness of the surveillance process. A further project, the Certification Project, began in 2005 to improve processes for initial certifications and renewals.
- 1.8 We have met regularly with the CAA to monitor the progress that it has made in implementing the projects.

Changes to the original intent of our audit

- 1.9 We intended to carry out a follow-up audit on the CAA's response to the 10 recommendations in our 2005 report. However, the CAA did not implement its redeveloped certification and surveillance systems, which are part of its response to our recommendations, until the beginning of May 2007. The final version of the system software was introduced in February 2008. The CAA's surveillance staff have not yet carried out enough audits and follow-up actions for us to test a representative sample. Therefore, we have agreed with the CAA to delay this work until later in 2008.
- 1.10 However, in July 2006, the Auditor-General agreed to a request from the Minister of Transport to check, as part of our audit, whether the CAA and the Ministry had taken action to address the Coroner's recommendations. Therefore, this audit has:
- examined the responses of the CAA and the Ministry to the Coroner's recommendations;
 - looked at the design of the new certification and surveillance systems;
 - assessed whether they are likely to address the recommendations in our 2005 report; and
 - established the expectations we will use to audit the CAA later this year, when there will be enough data available for us to properly assess the CAA's response to our recommendations.

Scope of this audit

- 1.11 We have examined the responses of the CAA and the Ministry to the Coroner's 30 recommendations that were to be addressed by either the CAA or the Ministry. We have formed a view on whether the recommendations were properly considered, and if the CAA and the Ministry took timely action based on that consideration. We also looked at whether the CAA and the Ministry reported accurately on their progress in responding to the recommendations.

- 1.12 We have not formed a view about whether a particular response was the right response to make, because doing so would require aviation expertise. We did not seek independent advice from aviation experts because judging the responses was not the focus of our audit. Our audit sought to provide assurance that the recommendations had been properly considered, acted on in a timely way, and reported accurately.
- 1.13 Where appropriate, we established whether the actions taken in response to the Coroner's recommendations were in line with international practice in the aviation industry by checking the New Zealand standards against the relevant international standards.
- 1.14 The Coroner's recommendation that required the New Zealand Institute for Crop and Food Research to review its internal travel policy did not pertain to the ongoing safety of the civil aviation sector. Although we have focused on the CAA and the Ministry, we were interested in whether all 31 of the Coroner's recommendations had been responded to. We are following up separately with the New Zealand Institute for Crop and Food Research about whether it has properly considered the Coroner's recommendation and taken timely action to respond to it.

Part 2

Civil Aviation Authority's response to the Coroner's recommendations

- 2.1 The CAA was responsible for responding to 24 recommendations from the Coroner.
- 2.2 In this Part, we discuss our assessment of whether the CAA properly considered the Coroner's recommendations, took timely action based on that consideration, and reported its progress accurately. In making our assessment we:
- examined the process that the CAA had used to decide on its response to the recommendations;
 - checked, where action had not been taken in response to recommendations because the CAA considered New Zealand's current practice to be in line with international standards or already allowed for what the Coroner recommended, that this was correct;
 - verified that the decisions the CAA had made about the recommendations, and the actions that it had taken, were documented and supported by appropriate evidence;
 - considered the timeliness of the actions taken;
 - confirmed, where work still had to be done, that a plan was in place to complete the work; and
 - examined the process used by the CAA's executive management team (the Executive) and the Board to sign off the response to each of the recommendations, to ensure that the process was robust.

Our expectations

- 2.3 In assessing whether the CAA properly considered, took timely action on, and accurately reported its responses to the Coroner's recommendations, we expected as a matter of good practice the CAA to have:
- assigned responsibility to an individual or team qualified to consider what action needed to be taken;
 - monitored and reviewed the action taken to ensure that it was sufficient, appropriate, and timely; and
 - ensured that the appropriate authority signed off its acceptance of the decisions made and action taken.

Summary of our findings

- 2.4 In our view, the process used to examine each recommendation, and the range of information used by the CAA in forming its conclusions, provides evidence that the CAA had properly considered each of the Coroner's recommendations and responded in a timely manner.

- 2.5 Overall, we found that:
- responsibility for the recommendations was assigned to qualified personnel;
 - the Executive monitored progress;
 - the Board signed off the Executive's responses to the Coroner's recommendations; and
 - decisions made about the response to each of the recommendations were documented and supported by appropriate evidence.
- 2.6 Having reviewed the way in which the various issues had been considered, and the actions that had been taken, we have confidence in the CAA's decision-making process.

Assigning responsibility to qualified personnel

- 2.7 The Executive assessed the recommendations and assigned them to operational groups. The General Manager of each of the operational groups made a further assessment to determine which recommendations would be handled directly, and which would be assigned to a small project team headed by the retired Deputy Director of Civil Aviation. The retired Deputy Director was appointed head of the project team because of his experience and knowledge of the aviation industry and the CAA.
- 2.8 The project team comprised the retired Deputy Director and a staff member from each of the operational groups: the General Aviation Group, the Airlines Group, and the Personnel Licensing and Aviation Services Group (PLAS). Other members were co-opted when required.
- 2.9 A Steering Group, which comprised the Executive, was set up to oversee the process.
- 2.10 The project team was set up at the end of July 2006. Terms of reference were prepared to set out the scope of the team's work. The terms of reference required the team to:
- assess the assigned Coroner's recommendations, formulate a CAA policy position, and where required decide on consequent action(s);
 - submit the proposed actions to the Steering Group for approval;
 - draft plans for implementing the approved actions and consult with all stakeholders as necessary during the development of the plans;
 - submit the plans to the Steering Group for approval;
 - if necessary, modify draft plans to incorporate Steering Group requirements; and

- hand over final plans to the General Manager of the Group identified as responsible for implementing them.

2.11 Twenty-one of the recommendations were assigned to the project team for research, assessment, and a final judgement about whether they could or should be implemented (in part or in full). The other three recommendations remained with the General Manager PLAS because they belonged more appropriately with this Group.

Monitoring of progress

- 2.12 An Action Tracking Sheet was set up to monitor the progress in implementing the CAA's (and the Ministry's) responses to the Coroner's recommendations. For each of the Coroner's recommendations, the tracking sheet detailed the agency responsible for it, the action that the agency was taking, and the progress that had been made. The tracking sheet was updated periodically (on a monthly or bimonthly basis) and was available on both the CAA's and the Ministry's websites. The CAA and the Ministry set target dates for completing proposed actions. Where a proposed action included more than one significant task, they set proposed dates for completing each task. The milestones that had been achieved since the previous update were also included in the tracking sheet.
- 2.13 We reviewed the timeliness of the CAA's completion of proposed actions against the timeframes published in the tracking sheets. We noted only two instances where the target dates were either not achieved by the target time or not achieved within two months of the target time. One instance was a recommendation (paragraph 586 of the Coroner's report) that required the CAA to consider implementing a system that allowed consumers to gauge the safety record of an operator. The second was a recommendation (paragraph 598 of the Coroner's report) that required the CAA to monitor the individual pilot, separately from monitoring the operator, from a competency and safety perspective.
- 2.14 These items were still incomplete at the end of our audit. Both have been included in the CAA's business planning process. We will see what progress has been made when we return to the CAA later this year.
- 2.15 The project team reported to the Steering Group on 14 September, 5 October, and 31 October 2006. The project team's reports were included as an Appendix to the tracking sheets posted on the CAA's and Ministry's websites.

Signing off the responses to the Coroner's recommendations

- 2.16 The project team gave its assessment of each of the Coroner's recommendations to the Executive in January 2007.
- 2.17 In response to the assessment, further action continued during the next seven months. In August 2007, the Executive prepared a paper for the Board that summarised the work of the project team and the Executive's conclusions on each of the recommendations. The report also detailed the changes that had been made to respond to the recommendations (in some cases the corrective action was still in progress), and the reasons why no action had been taken for some recommendations.
- 2.18 The Board considered and endorsed the report at its meeting on 31 August 2007, subject to a few changes. The final version – *Civil Aviation Authority Report on the Evaluation and Assessment of Coroner's Recommendations* (the evaluation and assessment report) – was completed and approved by the Board at its October 2007 meeting.
- 2.19 Of the 24 recommendations, as at October 2007, the CAA:
- accepted and completed, or was still taking action to complete, 11;
 - considered that nine were addressed through the Act, the current aviation rules, or were in line with international standards; and
 - had not accepted four because the CAA had carried out alternative actions instead.

Documentation and supporting evidence

- 2.20 In Figures 1 to 3, we have paraphrased the evaluation and assessment report approved by the Board in October 2007. We have grouped the recommendations based on the type of response by the CAA (accepting the recommendation and taking action, considering it already dealt with, or taking alternative action). The full version of the report is on the CAA's website (www.caa.govt.nz).
- 2.21 We have audited the information supporting the report. We can confirm that the evaluation and assessment report correctly reports the evaluation process used, the information considered, the conclusions reached, and action taken by the CAA.
- 2.22 Responding to the Coroner's recommendations was a significant piece of work for the CAA. The Coroner's recommendations covered improvements to aviation rules, pilot training and testing requirements, and pilot monitoring (including the effectiveness of the surveillance system). The recommendations required a range

of responses that varied in complexity. Therefore, the time and resources required to respond also varied, from major system changes to considering the adequacy of existing aviation rules. In some cases, the CAA's response was a specific and once-only action, and in other cases the CAA's response has become part of its ongoing business.

Figure 1
The CAA's response to the 11 Coroner's recommendations that it accepted

Coroner's recommendation	That the CAA examines the requirement as to reporting of occurrences to ensure understanding and consistency of application. <i>Paragraph in the Coroner's report: 555</i>
The CAA's response	The CAA reviewed how it engaged with the aviation sector to improve awareness of: <ul style="list-style-type: none"> • the obligation to report occurrences; • the mechanisms available for reporting occurrences; and • the need to report occurrences to build a reliable statistical data base.
Action taken by the CAA	The CAA has implemented the recommendation. The CAA will continue with efforts to increase awareness in the aviation sector of the need to report occurrences, and the methods for doing so.
Coroner's recommendation	That the CAA give close consideration to Dr Sharples' submissions and sources in considering outcomes from this inquest with particular reference to mandatory reporting of colleagues where aviation practice falls below acceptable professional standards. <i>Paragraph in the Coroner's report: 581</i>
The CAA's response	The CAA considered Dr Sharples' submission in the context of existing CAA surveillance policy. The CAA concluded that: <ul style="list-style-type: none"> • mechanisms are in place to report safety concerns or risks with the performance and practice of others in the sector to the CAA; and • how the CAA uses the information reported to it is an important issue.
Action taken by the CAA	The CAA has: <ul style="list-style-type: none"> • reviewed and revised its policies on the use of information reported by industry participants; and • restructured to enable more effective and transparent relationships between its investigatory and safety information functions.

<p>Coroner's recommendation</p>	<p>That the CAA urgently review and upgrade single-pilot IFR training and testing requirements, including night flying and flying in adverse meteorological conditions.</p> <p><i>Paragraph in the Coroner's report: 559</i></p>
<p><i>The CAA's response</i></p>	<p>The CAA considered the practices of other civil aviation authorities, and the weather conditions associated with comparable rules in those countries.</p> <p>The CAA determined that the existing rules could be improved by raising the requirements for single-pilot Instrument Flight Rules and night operations.</p>
<p><i>Action taken by the CAA</i></p>	<p>The CAA has upgraded training requirements for single-pilot Instrument Flight Rules and night operations.</p> <p>The CAA has completed proposed rule amendments. Instrument Flight Rules and night flight examination requirements were being reviewed.</p>
<p>Coroner's recommendation</p>	<p>That the CAA urgently review single pilot IFR processes, requirements and best practices, including the use of coupled approaches and the identification and assistance to pilots who demonstrate any difficulty in IFR procedures.</p> <p><i>Paragraph in the Coroner's report: 564</i></p>
<p><i>The CAA's response</i></p>	<p>The CAA reviewed New Zealand Civil Aviation Rules Parts 61.37 (c) and 61.807. The CAA:</p> <ul style="list-style-type: none"> • agreed with the recommendation to review single-pilot Instrument Flight Rules processes, requirements, and best practice, including the use of coupled approaches; but • considered that identifying and helping pilots who show difficulty in Instrument Flight Rules Procedures was already addressed by the New Zealand flight training system.
<p><i>Action taken by the CAA</i></p>	<p>The CAA:</p> <ul style="list-style-type: none"> • published an advisory circular in February 2006; • upgraded minimum flight experience and training requirements for pilots of small aeroplanes in commercial air operations; and • was reviewing whether the Rules should require currency for single pilot operations in the single-pilot role.
<p>Coroner's recommendation</p>	<p>That there is a mandatory requirement for a mechanism of passenger complaint for passengers on commercial flights in the GA sector.</p> <p><i>Paragraph in the Coroner's report: 578</i></p>
<p><i>The CAA's response</i></p>	<p>The CAA reviewed existing mechanisms for passengers on commercial flights in the General Aviation Sector to make complaints.</p> <p>The CAA concluded that:</p> <ul style="list-style-type: none"> • existing systems provide a mechanism for complaints, but they could be made easier for passengers to access and understand;

<i>Action taken by the CAA</i>	<ul style="list-style-type: none"> passengers make complaints when they are aware of potential risks, issues, or concerns; and the CAA website could be more user friendly. <p>The CAA:</p> <ul style="list-style-type: none"> will amend the rules to make passenger safety briefing cards (including details on how to lodge a complaint on safety concerns) mandatory; will investigate ways to inform the public about the 0507 4 SAFETY telephone number; and has revised and updated its website.
Coroner's recommendation	<p>That the CAA adopt a lower threshold than was apparent from the evidence at this inquest with respect to the activities of Air Adventures and Mr Bannerman, to toleration of deviation from the Rules that affect the safety of passengers.</p>
<i>The CAA's response</i>	<p><i>Paragraph in the Coroner's report: 582</i></p> <p>The CAA reviewed its Surveillance Policy to determine whether it was clear about the use of available regulatory tools and the circumstances in which they could be applied.</p> <p>The CAA agreed that the threshold referred to by the Coroner must be clearly recognised by all CAA staff, and that staff must have clear guidance in identifying the regulatory tools to be used.</p>
<i>Action taken by the CAA</i>	<p>The CAA:</p> <ul style="list-style-type: none"> revised and reissued its Surveillance Policy (which now includes guidance on regulatory tools available to enforce compliance); and is improving induction and ongoing training.
Coroner's recommendation	<p>That the CAA gives consideration to implementing a system whereby consumers can gauge the safety record of an operator.</p>
<i>The CAA's response</i>	<p><i>Paragraph in the Coroner's report: 586</i></p> <p>The CAA considered that the recommendation should be subject to further policy evaluation before such a system could be implemented.</p> <p>The CAA agreed with the Coroner's recommendation. Subject to the relevant policy analysis, an amendment could be sought to the Act to enable an Operator Safety Rating System to be introduced.</p>
<i>Action taken by the CAA</i>	<p>The CAA will:</p> <ul style="list-style-type: none"> do policy work on developing an Operator Safety Rating System; and provide an information pack to the public that outlines the safety issues and risks associated with different types of aviation activity.

Coroner's recommendation	That the CAA implements a process of monitoring the individual pilot, separate from monitoring the operator, from a competency and safety perspective. <i>Paragraph in the Coroner's report: 598</i>
<i>The CAA's response</i>	The CAA assessed this recommendation in the context of the Act and associated rules. The CAA database allows for monitoring pilots. When specific concerns about a pilot's behaviour are registered with the CAA, the system has been shown to be responsive.
<i>Action taken by the CAA</i>	The CAA will do more policy work on the safety benefits of monitoring individual pilots (as well as monitoring operators and/or organisations).
Coroner's recommendation	That the CAA further consider and improve the effectiveness of its surveillance system for operators and pilots in the GA sector and give consideration to the merits of the information being made available to the operator. <i>Paragraph in the Coroner's report: 605</i>
<i>The CAA's response</i>	The CAA agreed with the recommendation. In 2004, it started to review its audit and intervention processes. The CAA concluded that the Surveillance Review Project and the Risk Assessment and Intervention Project would address the recommendation.
<i>Action taken by the CAA</i>	The CAA will: <ul style="list-style-type: none"> • continue to develop its Surveillance and Risk Assessment and Intervention processes; and • provide an updated risk profile to each operator or organisation audited.
Coroner's recommendation	That the CAA require operators with three or less aircraft operating from two or less bases to have a simple form of organisational management system which reflects the reality of the operation and reflects safe practices. <i>Paragraph in the Coroner's report: 607</i>
<i>The CAA's response</i>	The CAA assessed the requirements in the Rules. The CAA accepted the Coroner's recommendation and has amended its operator certification and surveillance procedures.
<i>Action taken by the CAA</i>	The CAA is strengthening its certification procedures to ensure that an operator's management system appropriately reflects the complexity of their business.
Coroner's recommendation	That the CAA reviews the [Minimum Equipment List] MEL process to ensure the adequacy of the process to require safe, up-to-date and operable instruments for flights with fee-paying passengers. <i>Paragraph in the Coroner's report: 612</i>
<i>The CAA's response</i>	The CAA reviewed its Minimum Equipment List process and the relevant rules governing Minimum Equipment Lists.

<i>Action taken by the CAA</i>	<p>The CAA considered that the process was robust and appropriate. However, it conceded that the rule requiring 100% operability in the absence of a Minimum Equipment List is impracticable for day-to-day flight operations.</p> <p>The CAA will consider whether amending the rules to require a Minimum Equipment List in all Instrument Flight situations is justified.</p>
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Figure 2
The CAA's response to the nine Coroner's recommendations that it considered were already covered

Coroner's recommendation	<p>That the CAA reviews the adequacy of existing Rules as to:</p> <ul style="list-style-type: none"> (i) Minimum Decision Altitude requirements for single-pilot IFR; and (ii) Minimum visibility requirements for making an instrument approach.
<i>The CAA's response</i>	<p><i>Paragraph in the Coroner's report: 552</i></p> <p>The CAA compared New Zealand's minimum requirements to international standards – in particular, the Joint Aviation Authorities Joint Aviation Requirements.</p> <p>The CAA concluded that the existing standards were in line with international standards and practice.</p>
<i>Action taken by the CAA</i>	<p>The CAA will review the Rules to ensure that the intention of the Rules is reflected in the wording.</p>
Coroner's recommendation	<p>That the CAA in conjunction with the Airways Corporation consider the adequacy of compulsory reporting of certain categories of Incident including where safety has been apparently compromised by the actions of the pilot of an aircraft.</p>
<i>The CAA's response</i>	<p><i>Paragraph in the Coroner's report: 557</i></p> <p>The CAA, in consultation with the Airways Corporation of New Zealand:</p> <ul style="list-style-type: none"> • considered the effectiveness of the current Rules; and • reviewed two specific occurrences involving Air Adventures to assess whether the occurrences should have been reported. <p>They concluded that the existing Rules for incident notification were effective, and that the two cases identified in the Coroner's report did not suggest need for amendment.</p>
<i>Action taken by the CAA</i>	<p>No further action.</p>
Coroner's recommendation	<p>That the CAA considers the adequacy of Rule 61.37(c) in relation to instrument approach and use of autopilot.</p> <p><i>Paragraph in the Coroner's report: 561</i></p>

<i>The CAA's response</i>	The CAA reviewed Civil Aviation Rule 61.37(c). The CAA concluded that the rule was adequate, and that it would be inappropriate to link the rule with instrument approaches and the use of the auto-pilot.
<i>Action taken by the CAA</i>	No further action.
Coroner's recommendation	That the CAA review the adequacy of Rules for non-certified GPS systems in relation to instrument landings to ensure a pilot-in-command cannot use the GPS system in instrument approaches and consider amending the Rules to require non-certified GPS systems to be disengaged before a pilot commences an instrument approach. <i>Paragraph in the Coroner's report: 567</i>
<i>The CAA's response</i>	The CAA reviewed the rules regulating the use of non-certified Global Positioning Systems in instrument landings. They concluded that the rules were adequate and already prohibited the use of non-certified Global Positioning Systems equipment in instrument landings.
<i>Action taken by the CAA</i>	No further action.
Coroner's recommendation	That consideration be given to the CAA Rules being amended with respect to GA operators and pilots operating in the GA sector, to introduce a system of "demerit points" to take account on a cumulative basis (with appropriate time limitation periods) of any history of non-compliance with the Rules by the operator or, as the case may be, the pilot. <i>Paragraph in the Coroner's report: 583</i>
<i>The CAA's response</i>	The CAA reviewed the provisions in the Civil Aviation Act, and in particular the provisions of section 10. The CAA concluded that: <ul style="list-style-type: none"> • the Act enabled it to assess participants' 'fit and proper person' status and that this became part of their record of performance; and • a change in the Act to introduce demerit points was not warranted because of the relatively low number of participants who would be issued with them.
<i>Action taken by the CAA</i>	No further action.
Coroner's recommendation	That the CAA strengthens the criteria for requiring dual pilots for flights with fee-paying passengers. <i>Paragraph in the Coroner's report: 590</i>
<i>The CAA's response</i>	The CAA evaluated the current requirements for flight crewing, the safety risks associated with different types of operation, and the practical issues that arise from the Coroner's recommendation. The CAA concluded that New Zealand conforms with international practice.
<i>Action taken by the CAA</i>	No further action.

Coroner's recommendation	To monitor more effectively the safety of the General Aviation sector that the CAA obtain independent verification of all flight test results as they happen. <i>Paragraph in the Coroner's report: 600</i>
<i>The CAA's response</i>	The CAA assessed the recommendation in accordance with the division of responsibilities specified in the Civil Aviation Act, under which the Director monitors the exercise of the privileges and responsibilities of flight examiners. The CAA concluded that existing regulatory tools for monitoring the performance of Flight examiners and Instructors were satisfactory.
<i>Action taken by the CAA</i>	No further action.
Coroner's recommendation	That the CAA be empowered to investigate the financial viability of an operator's business, where the CAA has reasonable belief that the safety of the operation could be compromised. <i>Paragraph in the Coroner's report: 609</i>
<i>The CAA's response</i>	The CAA reviewed the powers vested in the Director under the Civil Aviation Act. The CAA concluded that the Act provides the Director with the power to investigate the financial records of an operator in the interests of aviation safety.
<i>Action taken by the CAA</i>	No further action.
Coroner's recommendation	That autopilots be subject to regular functional tests to ensure their reliability for all purposes. <i>Paragraph in the Coroner's report: 614</i>
<i>The CAA's response</i>	The CAA reviewed existing rule requirements, relevant aircraft Flight Manuals, and Airworthiness Directives that apply to auto-pilot systems. The rules do not require the auto-pilot to have a coupled approach mode and this is in line with international practice. Auto-pilots are required to be maintained in accordance with the manufacturer's instructions. The rules specify routine procedures for rectifying defects noted by the pilot.
<i>Action taken by the CAA</i>	No further action.

Figure 3**The CAA's response to the four recommendations that it took alternative action on**

Coroner's recommendation	That the CA Act and/or the Rules be amended to allow for all Occurrence Reports, ARCs and safety information relevant to a pilot and/or an operator, to be made available to the Flight Examiner of that pilot or any Instructor conducting type rating training carrying out competency checks. <i>Paragraph in the Coroner's report: 595</i>
The CAA's response	The CAA reviewed the existing flight training system and processes for carrying out competency checks, including issues of consistency with Flight examiners and Instructors, and the effectiveness of guidance information provided to Flight examiners and Instructors. The Flight examiner's role is to apply objective competency standards at the time of the test. The CAA surveyed the opinions of practising Flight examiners. There was little support for the recommendation on the grounds of safety benefit, attendant risks to voluntary occurrence reporting, reduced objectivity, predetermination, privacy concerns, and practical implementation difficulties.
Action taken by the CAA	The CAA does not intend to adopt the recommendation. However, the CAA has introduced a comprehensive set of Flight Test Standards Guides for Flight examiners and Instructors, and conducts biennial Flight examiner and Instructor standardisation seminars for industry.
Coroner's recommendation	That the CAA take steps to encourage, where possible, Flight Crew Competency Checks for an individual pilot over a period to be carried out by different Flight Examiners. <i>Paragraph in the Coroner's report: 602</i>
The CAA's response	The CAA assessed current systems for Flight Crew Competency Checks and sought comment from practising Flight Examiners on the benefits and usefulness (or otherwise) of requiring tests to be performed by different Flight Examiners.
Action taken by the CAA	The CAA considered that the step taken to provide additional flight test information and to improve standardisation by regular instructor/examiner seminars addresses the issue.
Coroner's recommendation	That the CAA Rules require all aircraft providing passenger air transport services, be fitted with appropriate safety warning devices and other up-to-date instruments, regardless of the age of the aircraft. <i>Paragraph in the Coroner's report: 611</i>
The CAA's response	The CAA assessed the requirements of the current Rules that apply to passenger air transport services. The CAA concluded that, given the requirements in section 33 of the Act about rule-making, the recommendation was too broad in scope to be practical.

<i>Action taken by the CAA</i>	A rule requiring the fitting of terrain awareness and warning systems in aircraft operating under Instrument Flight Rules is intended to be in place by mid-2008.
Coroner's recommendation	(i) That the CAA implement measures to enforce the provisions of Rule 91.7(a) with respect to IFR flights; and (ii) that the CAA consider Rules as to any pilot-in-command or co-pilot having a cell phone in his or her possession in the cockpit of an aircraft during flight.
<i>The CAA's response</i>	<p><i>Paragraph in the Coroner's report: 616</i></p> <p>The CAA reviewed:</p> <ul style="list-style-type: none"> • the requirements of the Act and the rules about using cell phones on aircraft; • safety risks associated with pilots not being able to access cell phones to communicate in certain circumstances; and • existing educational and guidance information about using cell phones on aircraft. <p>The CAA considered whether pilots should be banned from having cell phones in the cockpit during a flight, and concluded that such a ban would be counter to safety.</p>
<i>Action taken by the CAA</i>	<p>The CAA will continue to educate pilots on the current rule. It will enhance the enforcement of its provisions by drawing them to the attention of passengers through briefing cards. The briefing cards will also set out how to direct a complaint to the CAA.</p> <p>Otherwise, no further action will be taken.</p>

Part 3

Ministry's response to the Coroner's recommendations

- 3.1 The Ministry was responsible for responding to six recommendations from the Coroner.
- 3.2 In this Part, we discuss our assessment of whether the Ministry had properly considered the Coroner's recommendations, took timely action based on that consideration, and reported accurately on its progress. In making our assessment, we examined how the Ministry:
- decided on its response to the recommendations; and
 - ensured that those actions were taken.
- 3.3 The Ministry is responsible for monitoring the CAA's performance, so we also examined how the Ministry had monitored the sufficiency, appropriateness, and timeliness of the CAA's response to the Coroner's recommendations.

Our expectations

- 3.4 In assessing whether the Coroner's recommendations had been properly considered, we expected as a matter of good practice the Ministry to have:
- assigned responsibility to an individual or team qualified to consider what action needed to be taken;
 - monitored and reviewed the action taken in response to the recommendations, to ensure that the action taken was sufficient, appropriate, and timely;
 - ensured that the appropriate authority signed off its acceptance of the decisions made and action taken; and
 - ensured that decisions made in response to the recommendations were documented and supported by appropriate evidence.
- 3.5 In monitoring the CAA's responses to the recommendations, we expected the Ministry as a matter of good practice to have met regularly with the CAA to discuss the sufficiency, appropriateness, and timeliness of the CAA's responses. We also expected the Ministry to have considered having the sufficiency and appropriateness of the CAA's responses independently reviewed by an expert in the aviation sector.

Summary of our findings

- 3.6 In our view, the process used to examine each recommendation, and the range of information used by the Ministry in forming its conclusions, shows that the Ministry properly considered each of the Coroner's recommendations.
- 3.7 However, the Ministry's process should have been more comprehensive and timely in its monitoring of the sufficiency, appropriateness, and timeliness of the action taken by the CAA in addressing the recommendations.

3.8 We also consider that the Ministry could have been more proactive in monitoring its own action on recommendations that it was responsible for, to ensure that the recommendations were addressed in a timely manner and that actions were completed. A planned review of progress after three months by the internal audit team was not commissioned.

3.9 We were also not satisfied that the Ministry adequately considered the need for an independent review.

Assigning responsibility to qualified personnel

3.10 The Ministry assigned responsibility for investigating and reporting on the recommendations to qualified staff. The Ministry's Principal Legal Adviser reviewed the recommendations to establish which ones should be addressed by legal staff, and which should be addressed by policy staff.

3.11 Two recommendations were assigned to the legal staff:

- Recommendation 565, which required the Minister to consider amending section 17 of the Civil Aviation Act to empower the Director of Civil Aviation to immediately suspend a General Aviation Operator Certificate, was addressed by the Principal Legal Advisor.
- Recommendation 588, which required the Civil Aviation (Offences) Regulations 1997 to be reviewed and, where possible, be amended with every rule change, was addressed by a solicitor within the legal team.

3.12 The other four recommendations were considered to be policy issues and were assigned to policy advisory staff within the Ministry.

Monitoring the timeliness of responses to the Coroner's recommendations

3.13 The Minister stated publicly that the Ministry would monitor progress against the recommendations in the Coroner's report and in our 2005 report. Progress reports would be updated each month on the Ministry's and the CAA's websites. The Ministry was assigned responsibility for ensuring that this happened. In July 2006, the Ministry briefed the Minister on the process that it would put in place to ensure that it monitored and reported on progress.

3.14 The process included:

- monthly reporting of progress against the Coroner's recommendations and against our 2005 report (through the Action Tracking Sheet discussed in paragraph 2.12);

- having the progress reports signed off by the Secretary for Transport and the Chairperson of the CAA, and posted on the Ministry's and the CAA's websites;
- the Ministry discussing with us the role that we might have in verifying that recommendations had been dealt with, and the Ministry reporting back to the Minister on the outcome to those discussions; and
- the Secretary for Transport having the Ministry's internal auditors carry out a review of progress after three months.

3.15 We assessed how well this process had worked. We found that:

- Action Tracking Sheets were issued monthly for June, July, and August 2006, then every second month for September/October and November/December 2006, January/February and March/April 2007, and May 2007.
- Over time, the Ministry and the CAA had increasing problems with the timeliness of the reports. The June report was posted on the website on 12 July 2006, the July report was posted on 16 August 2006, the August report was posted on 27 September 2006, and the September report was not posted until 14 November 2006.
- The Auditor-General agreed to a request from the Minister of Transport in July 2006 to check whether action had been taken to address the Coroner's recommendations. The Ministry met with us in August 2006 to discuss the scope of the audit.
- The Ministry did not commission its internal auditors to audit the Ministry's progress in responding to the Coroner's recommendations. However, in February 2008 the Ministry asked its internal auditors to assist it in implementing a system to track and manage recommendations to the Ministry and transport agencies from future external reviews.

3.16 Ministry staff told us that the Ministry considered having an independent expert review the CAA's response to the Coroner's recommendations. However, senior managers decided not to use an independent reviewer, because, in their view, it seemed unnecessary. The Ministry did not document its decision and rationale for not having an independent review of the CAA's response to the Coroner's recommendations.

Documentation and supporting evidence

3.17 Figures 4, 5, and 6 present a summary of the process the Ministry used, its response to each recommendation, and the action it took.

3.18 We have audited the information supporting the progress that was reported. We can confirm that the evaluation process used, the information considered, the conclusions reached, and the action taken by the Ministry were correctly reported.

Completing responses on all recommendations and briefing the Minister

- 3.19 We note that actions on all the recommendations were not fully completed until February 2008, when the Ministry presented a paper to the Minister of Transport with advice on the Coroner's recommendation at paragraph 458 of the Coroner's report. The paper also provided a final report on all the responses to the Coroner's recommendations.

Monitoring the Civil Aviation Authority

- 3.20 The Ministry's monitoring of the CAA's implementation of the recommendations was limited to agreeing the format, wording, and timing of the monthly reports. The Ministry did not meet regularly with the CAA to discuss in detail the sufficiency, appropriateness, and timeliness of the CAA's actions in response to the Coroner's recommendations.
- 3.21 Figures 4, 5, and 6 describe how the Ministry has responded to each of the Coroner's recommendations it was responsible for.

Figure 4

The Ministry's response to the two Coroner's recommendations that it accepted

Coroner's recommendation	That the Offences regulations under the Civil Aviation Act be reviewed, and wherever possible, be amended with every Rule change. <i>Paragraph in the Coroner's report: 588</i>
The Ministry's response	The Ministry has put in place, with the CAA, a process to ensure that the Civil Aviation (Offences) Regulations will be updated as future rule changes are brought into force. Civil Aviation (Offences) Regulations 1997 were replaced and updated on 1 August 2006 by the Civil Aviation (Offences) Regulations 2006.
Action taken by the Ministry	The Ministry and the CAA have agreed a process that will capture requirements for consequential regulations (offences and charges) as part of rules projects. A final report that detailed the action taken for this recommendation and sought the Minister's agreement to closing the recommendation was approved by the Minister of Transport in February 2008.
Coroner's recommendation	That the Minister of Transport and the Commissioner of Police consider the circumstances of the search for ZK NCA and the response of emergency services as set out in Inspector Cairns' report (exhibit 123) and Section 10 of these Findings (including a map of the search area with timings of significant events included as an annexure to the Findings) as the basis of a case study for Airport Authorities other than Christchurch, and SAR. <i>Paragraph in the Coroner's report: 626</i>

<i>The Ministry's response</i>	The Police, the Ministry, and the NZ Research Secretariat worked together to prepare a search and rescue case study based on the incident.
<i>Action taken by the Ministry</i>	<p>The case study was sent to the 26 certified aerodromes in New Zealand (the aerodromes that are required to have aerodrome emergency plans) in August 2006.</p> <p>The letter enclosed with the case study asked the aerodrome's authorities to distribute the case study to all relevant search and rescue personnel within the authorities' sphere of influence.</p> <p>The case study was also circulated to Police regional search and rescue co-ordinators for their information.</p> <p>A final report that detailed the action taken for this recommendation and sought the Minister's agreement to closing the recommendation was approved by the Minister of Transport in February 2008.</p>

Figure 5**The Ministry's response to the one Coroner's recommendation that it considered was already covered**

Coroner's recommendation	<p>The Minister of Transport give consideration to amending section 17 of the Civil Aviation Act to empower the Director of Civil Aviation to immediately suspend a General Aviation Air Operator Certificate in the case of seriously adverse findings against the operator affecting safety of air operations, whether such findings are determined at audit or otherwise.</p> <p><i>Paragraph in the Coroner's report: 565</i></p>
<i>The Ministry's response</i>	<p>The Ministry's Principal Legal Adviser looked at the recommendation and noted that there was no detailed discussion within the report to show what gave rise to the recommendation. The Principal Legal Adviser then considered the current provisions of the Act. The Ministry concluded:</p> <p><i>Section 17 provides the Director with the ability to suspend immediately an operator against whom the Director had made seriously adverse findings affecting safety. This is because the section allows immediate suspension and any case of "seriously adverse findings affecting safety" is highly likely to fall under section 17(1)(d). That being the case an amendment is not required as the Director already has the legal ability to take the action sought by the Coroner.</i></p>
<i>Action taken by the Ministry</i>	A briefing to the Minister of Transport on this issue was incorporated in the final report to the Minister in February 2008. The report sought the Minister's agreement to closing the recommendation.

Figure 6
The Ministry's response to the three Coroner's recommendations that it did not accept

Coroner's recommendation	<p>That the Minister of Transport consider some form of independent assessment of the Civil Aviation Act in relation to the General Aviation sector and its reliance on industry responsibility and self-regulation</p> <p><i>Paragraph in the Coroner's report: 544</i></p>
The Ministry's response	<p>The Ministry considered the different models that exist to regulate aviation – government regulation, co-regulation, and self-regulation. It reviewed previous studies, in particular the 1998 report of the Ministerial Inquiry into Various Aspects of the Civil Aviation Authority's Performance by John Upton QC (the Upton report). That report concluded that the overall aviation safety regulatory framework in New Zealand was sound, world leading, and a model for other states to follow.</p> <p>The Ministry conducted a performance review of the CAA in 2001, which assessed the structure of civil aviation safety regulation and found the structure to be consistent with international good practice.</p> <p>The Ministry concluded that the general aviation sector was not self-regulating, as suggested in the Coroner's recommendation, but regulated through a combination of prescriptive rules and performance-based standards.</p> <p>The Ministry did not believe there were any factors in the past few years that would invalidate the conclusions of the Upton report and the performance review.</p> <p>The Ministry concluded that the Act provided a comprehensive legal framework to regulate the general aviation sector, and that an independent assessment of the Act was not necessary.</p>
Action taken by the Ministry	<p>The Minister of Transport was briefed in October 2006 and advised that the Act provides a comprehensive legal framework to regulate the general aviation sector. An independent assessment of the Act was not considered necessary.</p> <p>The paper was posted on the Ministry's website to give the public four months to comment.</p> <p>A final report that detailed the action taken for this recommendation and sought the Minister's agreement to closing the recommendation was approved by the Minister of Transport in February 2008.</p>
Coroner's recommendation	<p>The Minister of Transport review whether the law Enforcement role currently carried out by the Civil Aviation Authority should be separated from the safety enforcement management role.</p> <p><i>Paragraph in the Coroner's report: 548</i></p>

The Ministry's response

The Ministry determined that the Coroner's intent with this recommendation was to enable the Law Enforcement Unit to take timely and appropriate action against operators who persistently and deliberately broke Civil Aviation Rules.

The Ministry noted that the CAA had restructured to create a Safety Information Group that comprised Communication and Safety Education, Law Enforcement, Safety Analysis, and Safety Investigation. The Group was headed by a new General Manager and became effective on 16 July 2007.

The Ministry considered that the changes made by the CAA enabled more effective and transparent relationships between its investigation and safety information functions and that the CAA was in a better position to effectively manage its business in the way the Coroner intended.

The safety information collected by the CAA was able to be assessed and channelled to the appropriate Group and acted on to enable the CAA to respond to safety issues in individual cases (for example, air operators) as well as trends in the safety of the civil aviation system.

This change in approach ensured that the CAA analysed and acted on safety-related information in a more effective way than would be achieved by completely separating the safety reporting management and law enforcement groups, as advocated by the Coroner. The new structure enabled a more informed assessment of the importance of the information for aviation safety and the appropriate action taken.

Action taken by the Ministry

A paper was given to the Secretary for Transport and was posted on the Ministry's website for public comment.

A final report that detailed the action taken for this recommendation and sought the Minister's agreement to closing the recommendation was approved by the Minister of Transport in February 2008.

Coroner's recommendation

That consideration be given to the feasibility and desirability of establishing an independent confidential air safety incident reporting system in New Zealand taking account of previous difficulties with the system known as Icarus, and/or an Office of Aviation Ombudsman.

Paragraph in the Coroner's report: 575

The Ministry's response

The Ministry reviewed international requirements and the intended purpose of Confidential Incident Reporting Schemes (CIRS). It noted that Australia, the United States of America, and the United Kingdom operate successful CIRS schemes.

The Ministry reviewed previous work on CIRSs in New Zealand, identifying:

- the reasons for the failure to continue two previous CIRSs – the Independent Safety Assessment Scheme introduced in 1987 and the Information Confidentially Accepted then Reported Universally for Safety (Icarus) introduced in 1996;

- the outcome of two reviews in 2001 that recommended the Transport Accident Investigation Commission establish a voluntary CIRS; and
- that the issue was included in the 2003 Government Transport Sector Review but was not addressed in the review team's recommendations.

In considering the second part of the recommendation, the Ministry looked at the purpose of other Parliamentary Ombudsmen and noted that they provided opportunities for individuals to resolve disputes without going to court.

The Ministry concluded that there was a gap in past analysis in that a cost-benefit analysis had not been done. Such an analysis has since been completed, and has established that the cost-benefit of a stand-alone CIRS is marginal.

The Ministry concluded that the philosophy behind the Ombudsman schemes, which is based on disputes resolution, does not offer a good fit with the goal of gaining information about incidents to provide safety information to the aviation sector.

Action taken by the Ministry

The Ministry prepared a briefing paper to the Minister of Transport outlining the analysis done and recommending a cost-benefit analysis. This paper was posted on the Ministry's website, and public comment was invited.

A further briefing paper was prepared in August 2007 detailing the method and findings of the cost-benefit analysis. The briefing paper sought the Minister's agreement that, pending the outcome of the CAA information management project, no move be made to establish a new CIRS in the medium term.

A final report that detailed the action taken for this recommendation and sought the Minister's agreement to closing the recommendation was approved by the Minister of Transport in February 2008.

Part 4

New certification and surveillance systems

- 4.1 In this Part, we discuss:
- the design of the new certification and surveillance systems;
 - our assessment of whether it is likely to address the recommendations in our 2005 report; and
 - the expectations we will use when we audit the CAA later this year.

Background

- 4.2 Our 1997 audit identified some serious problems with the standard of safety audits of civil aviation operators carried out by CAA safety inspectors.
- 4.3 Our audit in 2000 established that, while the CAA had made progress, we still had concerns.
- 4.4 The CAA introduced a new organisational structure in May 2000 and most recently in 2007. In 2000, the safety audit unit (a unit within the Safety Certification Group) was amalgamated into the operational groups. In addition, small aircraft operators were required to gain certification by February 2003, which effectively changed the surveillance approach taken by the CAA safety inspectors towards these operators.
- 4.5 Our audit in 2005 covered both the certification and surveillance functions, to assess whether:
- the certification (or entry) function ensured that prospective operators understood and were capable of complying with the Civil Aviation Act, the Civil Aviation Rules, and the conditions of their aviation document(s); and
 - an effective surveillance function was operating, to ensure that an acceptable level of civil aviation safety was maintained.
- 4.6 While the certification process used by the Airline Group (which covers planes carrying 10 or more passengers) was generally sound, the process used by the General Aviation Group (which covers smaller planes, agricultural operators, and helicopters) was not as good. Six out of the 11 operators that we reviewed for the General Aviation sector appeared to have been certified without their understanding, or being able to comply with, their own expositions¹ and the Civil Aviation Rules.

¹ An exposition is a set of manuals containing information about an operator's (or operation's) general policies, duties, operational control policy, procedures, and the responsibilities of personnel. The exposition is the principal means of showing that the management and control systems required under the Civil Aviation Rules are in place. Part 119 requires these manuals to include the instructions, procedures, and information necessary to permit the personnel concerned to perform their duties and responsibilities with an acceptable degree of safety. The information that must be addressed in the exposition depends on the scope of the operation.

4.7 We also still had significant concerns with the surveillance (safety audit) function. The areas that we had particular concerns about were:

- the effectiveness of the risk analysis and risk assessment processes;
- ensuring that the risk analysis informed the surveillance process; and
- ensuring that operators, or groups of operators, that were assessed as “high risk” were appropriately targeted in both the depth and frequency of the surveillance carried out.

4.8 Our report in 2005 contained 10 recommendations (see Appendix 2).

Civil Aviation Authority’s response

4.9 In 2004, the CAA launched two major projects – the Surveillance Review Project and the Risk Assessment and Intervention Project. The objective of these two projects was to improve both the effectiveness and efficiency of the surveillance process.

4.10 Improvements in the effectiveness of the surveillance process would be achieved by providing managers with an up-to-date risk profile of each operator (based on relevant risk indicators) to enable them to target their surveillance activities. The project was also designed to provide managers with guidance on the most appropriate regulatory intervention for that risk profile.

4.11 Improvements in efficiency were to be achieved by automating the process and also by ensuring that staff carried out their assigned role – that is, that auditors audited, managers managed, and administrators carried out the administrative tasks.

4.12 A further project, the Certification project, began in 2005 to improve the processes for initial certifications and renewals.

4.13 Appendix 3 sets out the actions that the CAA has told us that it has taken (as at 6 December 2007) to address the recommendations in our 2005 report. Our next audit will examine the action that the CAA has said it has taken, and the effectiveness of the new systems that it has established.

Intended audit approach for the new systems

4.14 The new certification and surveillance systems should address our 2005 recommendations, if the system works in practice as it has been described to us.

4.15 In our next audit, we will examine whether:

- the surveillance staff follow the policies and procedures set out for certification and surveillance functions;

- during the certification process, the surveillance staff check the exposition to ensure that it addresses the aviation rules;
- the initial risk profile is reflected in the surveillance plan or audit modules and electronic checklists;
- the surveillance staff actually carry out the level of surveillance identified using the system, and that reasons for changes to the levels of sampling are clearly documented and properly approved;
- the surveillance staff consider changes to the risk assessment and the scope of the surveillance audit before they carry out a surveillance audit;
- the risk assessment and surveillance plan is refined as a result of a surveillance audit;
- the surveillance staff take appropriate follow-up action to address the findings of the surveillance audit;
- the surveillance staff take action when they are notified of a change in an operator's risk profile;
- the surveillance plan results in a higher frequency of visits for high risk operators; and
- the surveillance plan results in all the rules being covered during the period of the licence.

4.16 We will also check that:

- guidelines have been prepared to indicate when instances of non-compliance should be referred to the CAA's Law Enforcement Unit for further action; and
- finding notices are being issued for all identified instances of non-compliance and non-conformance, and that operators are taking timely corrective action in response to those finding notices.

Appendix 1

Coroner's recommendations

1. That the Minister of Transport consider some form of independent assessment of the CA[A] Act in relation to the General Aviation sector and its reliance on industry responsibility and self-regulation. (Paragraph 544)
2. That the Minister of Transport review whether the law enforcement role currently carried out by the CAA should be separated from the safety enforcement management role. (Paragraph 548)
3. That the CAA reviews the adequacy of existing Rules as to:
 - (i) Minimum Decision Altitude requirements for single pilot IFR; and
 - (ii) minimum visibility requirements for making an instrument approach. (Paragraph 552)
4. That the CAA examines the requirement as to reporting of Occurrences to ensure understanding and consistency of application. (Paragraph 555)
5. That the CAA in conjunction with the Airways Corporation consider the adequacy of compulsory reporting of certain categories of Incident including where safety has been apparently compromised by the actions of the pilot of an aircraft. (Paragraph 557)
6. That the CAA urgently review and upgrade single pilot IFR training and testing requirements, including night flying and flying in adverse meteorological conditions. (Paragraph 559)
7. That the CAA considers the adequacy of Rule 61.37(c) in relation to instrument approach and use of autopilot. (Paragraph 561)
8. That the CAA urgently review single pilot IFR processes, requirements and best practices, including the use of coupled approaches and the identification and assistance to pilots who demonstrate any difficulty in IFR procedures. (Paragraph 564)
9. That the Minister of Transport give consideration to amending section 17 of the CA Act to empower the Director of Civil Aviation to immediately suspend a General Aviation Air Operator Certificate in the case of seriously adverse findings against the operator affecting safety of air operations, whether such findings are determined at audit or otherwise. (Paragraph 565)
10. That the CAA review the adequacy of Rules for non-certified GPS systems in relation to instrument landings to ensure a pilot-in-command cannot use the GPS system in instrument approaches and consider amending the Rules to require non-certified GPS systems to be disengaged before a pilot commences an instrument approach. (Paragraph 567)

11. (To the Minister of Transport): That consideration be given to the feasibility and desirability of establishing an independent confidential air safety incident reporting system in New Zealand taking account of previous difficulties with the system known as Icarus, and/or an office of aviation ombudsman. (Paragraph 575)
12. That there be a mandatory requirement for a mechanism of passenger complaint for passengers on commercial flights in the GA sector. (Paragraph 578)
13. That the CAA give close consideration to Dr Sharples' submissions and sources in considering outcomes from this inquest with particular reference to mandatory reporting of colleagues where aviation practice falls below acceptable professional standards. (Paragraph 581)
14. That the CAA adopt a lower threshold than was apparent from the evidence at this inquest with respect to the activities of Air Adventures and Mr Bannerman, to toleration of deviation from the Rules that affect the safety of passengers. (Paragraph 582)
15. That consideration be given to the CAA Rules being amended with respect to GA operators and pilots operating in the GA sector, to introduce a system of "demerit points" to take account on a cumulative basis (with appropriate time limitation periods) of any history of non-compliance with the Rules by the operator or, as the case may be, the pilot. (Paragraph 583)
16. That the CAA gives consideration to implementing a system whereby consumers can gauge the safety record of an operator. (Paragraph 586)
17. (To the Minister of Transport): That the Offences Regulations under the CA Act be reviewed, and wherever possible, be amended with every Rule change. (Paragraph 588)
18. That the CAA strengthens the criteria for requiring dual pilots for flights with fee-paying passengers. (Paragraph 590)
19. That the CA Act and/or the Rules be amended to allow for all Occurrence Reports, ARCs and safety information relevant to a pilot and/or an operator, to be made available to the Flight Examiner of that pilot or any Instructor conducting type rating training carrying out competency checks. (Paragraph 595)
20. That the CAA implement a process of monitoring the individual pilot, separate from monitoring the operator, from a competency and safety perspective. (Paragraph 598)
21. To monitor more effectively the safety of the General Aviation sector that the CAA obtain independent verification of all flight test results as they happen. (Paragraph 600)

22. That the CAA take steps to encourage, where possible, Flight Crew Competency Checks for an individual pilot over a period to be carried out by different Flight Examiners. (Paragraph 602)
23. That the CAA further consider and improve the effectiveness of its surveillance system for operators and pilots in the GA sector and give consideration to the merits of the information being made available to the operator. (Paragraph 605)
24. That the CAA require operators with three or less aircraft operating from two or less bases to have a simple form of organisational management system which reflects the reality of the operation and reflects safe practices. (Paragraph 607)
25. That the CAA be empowered to investigate the financial viability of an operator's business, where the CAA has reasonable belief that the safety of the operation could be compromised. (Paragraph 609)
26. That the CAA Rules requires all aircraft providing passenger air transport services, be fitted with appropriate safety warning devices and other up-to-date instruments, regardless of the age of the aircraft. (Paragraph 611)
27. That the CAA reviews the MEL process to ensure the adequacy of the process to require safe, up-to-date and operable instruments for flights with fee-paying passengers. (Paragraph 612)
28. That autopilots be subject to regular functional tests to ensure their reliability for all purposes. (Paragraph 614)
29. (i) That the CAA implement measures to enforce the provisions of Rule 91.7(a) with respect to IFR flights; (ii) that the CAA consider Rules as to any pilot-in-command or co-pilot having a cell phone in his or her possession in the cockpit of an aircraft during flight. (Paragraph 616)
30. That Crop and Food review its travel policy and procedures taking account of appropriate advice and add to that policy that air travel be through Airline sector operators (first priority) and if that is not possible, that it be in dual pilot aircraft. (Paragraph 620)
31. (To the Minister of Transport and to the Commissioner of Police): That the circumstances of the search for ZK NCA and the response of emergency services as set out in Inspector Cairns' report (exhibit 123) and Section 10 of these Findings (including the map of the search area with timings of significant events included as an annexure to the Findings) be considered as the basis of a case study for Airport Authorities other than Christchurch, and SAR personnel. (Paragraph 626)

Appendix 2

Recommendations in our 2005 report

1. That the CAA continue to establish measures to better assess the effectiveness of its safety interventions.
2. That the CAA improve its analysis of industry information by:
 - including more analysis of the information in the Aviation Safety Report and the Aviation Safety Summary Report to support further action, and to improve the timeliness of these reports; and
 - improving analysis of accident and incident data (for example, by identifying further opportunities – such as the CAA’s joint study of pilot-caused and controller-caused airspace incidents), from which the CAA will draft recommendations for safety intervention mechanisms.
3. That the CAA further develop the tools it uses to assess the risk associated with individual operators. For example:
 - For the non-compliance index to be more effective, CAA inspectors need to correctly record all instances of non-compliance, as well as the actual audit hours spent with each operator. Operators need to be further encouraged to advise the CAA of instances of non-compliance.
 - For the quality index score to be more consistent, it should be supported by the information in the routine audit report, and reasons for significant changes should be explained.
 - For client risk assessments to be more useful to the surveillance process, the CAA needs to re-assess their function. These assessments identify changes to a company’s operation, but not necessarily changes to risk. We recommend that this tool be used to highlight any changes in the company’s operations for inspectors, who would then be responsible for assessing the effect of those changes on the risk of an individual operator.
4. That the CAA use better indicators of the financial status of operators when assessing operator risk, both at certification and during surveillance.
5. That the CAA ensure that its inspectors follow the policies procedures set down for certification.
6. That the CAA continue with its review of its surveillance function. In undertaking this review and designing a new approach, the CAA should:
 - ensure that the audit process directs resources at the highest-risk operators;
 - direct appropriate activities and interventions at high-risk Safety Target Groups;

- give priority to the sampling project (a sampling methodology will allow inspectors to make informed decisions on the work necessary to cover the assessed risk);
 - assess where reliance can be placed on operator's own quality and risk management systems, so that audits can be targeted at higher-risk areas;
 - ensure that the depth and frequency of surveillance is adjusted to reflect operator and operation risk; and
 - develop guidelines to indicate when instances of non-compliance should be referred to the CAA's Law Enforcement Unit for further action.
7. That CAA inspectors issue a Finding Notice for all identified instances of non-compliance and non-conformance.
8. That CAA establish a system that ensures that operators take quick and effective corrective action when inspectors tell them to do so. This system should include re-assignment of responsibility for that function when an inspector leaves the CAA.
9. That CAA inspectors ensure that they record all time spent on the surveillance function. Continuing to do otherwise will affect the accuracy of the CAA's risk analysis tools, and its ability to produce accurate business cases.
10. That the CAA:
- ensure sufficient investment in training CAA staff so that they develop and maintain the appropriate skills to carry out their functions;
 - review its staffing levels when the current review of the surveillance function has been completed, to ensure that it has sufficient resources to undertake this function (both the review of the surveillance function and the review of staffing levels need to take account of the potential pressures or "surges" put on inspectors as a result of unanticipated requests for certifications);
 - ensure that the operational groups comply with the CAA's generic policies and procedures (particularly relating to Quality Assurance);
 - promote consistent standards of quality and practices throughout the operational groups by ensuring that they address internal audit Finding Notices; and
 - ensure that the internal audit section is appropriately staffed to enable the CAA's operations and inspectors to be audited on a more regular basis.

Appendix 3

Civil Aviation Authority's response to our recommendations

The table describes the CAA's response, as at 6 December 2007, to the 10 recommendations we made in our 2005 report.

Our recommendation	CAA's response
<p>We recommend that the CAA continue to establish measures to better assess the effectiveness of its safety interventions.</p>	<p>The Risk Assessment & Intervention Project, focusing primarily at the operator/participant level, is in the implementation phase.</p> <p>A research project with the objective of providing an indication of the safety benefit provided by the full range of higher level interventions, including for example training and education, inspection and monitoring, and enforcement, has yet to be scoped and carried out.</p>
<p>We recommend that the CAA improve its analysis of industry information by:</p> <ul style="list-style-type: none"> • including more analysis of the information in the Aviation Safety Report and the Aviation Safety Summary Report to support further action, and to improve the timeliness of these reports; and • improving analysis of accident and incident data (for example, by identifying further opportunities – such as the CAA's joint study of pilot-caused and controller-caused airspace incidents), from which the CAA will draft recommendations for safety intervention mechanisms. 	<p>A project is underway to define the needs of the three operational groups and to investigate the ability of the Safety Analysis Unit to provide the necessary information and interpretation.</p> <p>The CAA is reviewing the mechanisms and capability to enhance its ability to identify safety improvement opportunities and make recommendations for safety initiatives and interventions.</p>
<p>We recommend that the CAA further develop the tools it uses to assess the risk associated with individual operators. For example:</p> <ul style="list-style-type: none"> • For the non-compliance index to be more effective, CAA inspector need to correctly record all instances of non-compliance, as well as the actual audit hours spent with each operator. Operators need to be further encouraged to advise the CAA of instances of non-compliance. • For the quality index score to be more consistent, it should be supported by the information in the routine audit report, and reasons for significant changes should be explained. 	<p>This has been actioned by the CAA through staff directives and training. The new audit report format produced as part of the Surveillance Project makes it less likely that non-compliance findings are unrecorded in the audit report. Internal audits of the operational groups for the past year show a significant improvement in recording non-compliance.</p> <p>The Quality Index has been embedded in the risk profiling system that has been developed as part of both the Surveillance Review Project and the Risk Assessment and Intervention Projects. So far as the operator or participant is concerned, it has effectively been replaced by what is now known as the 'Risk Profile', which is now recorded in the Audit Report. The management of the Risk Profiles is under on-going action by CAA management and staff.</p>

Our recommendation	CAA's response
<ul style="list-style-type: none"> For client risk assessments to be more useful to the surveillance process, the CAA needs to re-assess their function. These assessments identify changes to a company's operation, but not necessarily changes to risk. We recommend that this tool be used to highlight any changes in the company's operations for inspectors, who would then be responsible for assessing the effect of those changes on the risk of an individual operator. 	<p>This is a core focus of the Risk Assessment and Intervention Project and linked directly to the Surveillance Review Project. Both these projects are now in the implementation phase. Also, the CAA Policy Unit is working on a policy paper to better define policy for the use of safety information within the CAA. The outcome of this work is intended, in part, to improve the handling and use of such information within the organisation. This should improve the accuracy of risk assessments, and enable more effective intervention at the operator or participant level.</p>
<p>We recommend that the CAA use better indicators of the financial status of operators when assessing operator risk, both at certification and during surveillance.</p>	<p>A review of available academic and aviation literature has not established a firm link between organisational safety performance and financial condition. Therefore, the CAA will retain the current financial risk parameter in the risk profiling system that examines a client's financial status with respect to the CAA.</p> <p>Further, the Director of Civil Aviation has the power under the Civil Aviation Act to require detailed financial data from a client for certification or monitoring.</p>
<p>We recommend that the CAA ensure that its inspectors follow the policies and procedures set down for certification.</p>	<p>The Director of Civil Aviation has issued a directive to staff that CAA are to adhere to approved policy and procedures. In addition, the Certification Project, which is intended to improve the consistency and effectiveness of certification, is nearing completion.</p> <p>The improvement, maintenance, and updating of CAA policies and procedures is an ongoing process. The CAA Internal Audit Unit (the Professional Standards Unit) reports that all CAA Groups and Units are satisfying this responsibility. CAA Document Control Procedures require all internal documents to be reviewed each year to ensure that they remain current.</p>
<p>We recommend that the CAA continue with its review of its surveillance function. In undertaking this review and designing a new approach, the CAA should:</p> <ul style="list-style-type: none"> ensure that the audit process directs resources at the highest-risk operators; 	<p>The Risk Assessment and Intervention Project and the Surveillance Review Project have provided the tools to both direct interventions for high risk operators and to conduct surveillance on-site. The General Aviation Group is now moving from a time-based surveillance programme to one directed by the operator risk profile.</p>

Our recommendation	CAA's response
<ul style="list-style-type: none"> • direct appropriate activities and interventions at high-risk Safety Target Groups; • give priority to the sampling project (a sampling methodology will allow inspectors to make informed decisions on the work necessary to cover the assessed risk); • assess where reliance can be placed on operator's own quality and risk management systems, so that audits can be targeted at higher-risk areas; • ensure that the depth and frequency of surveillance is adjusted to reflect operator and operation risk; and • develop guidelines to indicate when instances of non-compliance should be referred to the CAA's Law Enforcement Unit for further action. 	<p>The Risk Assessment and Intervention Project and the Surveillance Review Project have provided tools to assist inspectors when planning and conducting an audit. In addition, as noted above, the Risk Assessment and Intervention project provides the information for conducting risk-targeted oversight and interventions.</p> <p>The new Risk Assessment and Intervention Project provides the tools to allow this to occur, with the automated process providing an assessment of the operator's overall safety risk. However, a 'post implementation' review of the risk profiling system is planned for May 2008 and one of the issues that will be considered then is whether an explicit assessment of an operator's quality or safety management system should be added as one of the parameters on which the assessment is made.</p> <p>The Risk Assessment and Intervention Project and the Surveillance Review Project have provided tools to direct interventions at highest risk operators and to conduct surveillance on-site. The General Aviation Group is now moving from a time-based surveillance programme to one directed by the operator risk profile.</p> <p>The CAA's Surveillance Policy was updated in December 2006 to provide guidance on when instances of non-compliance should be referred to the CAA's Law Enforcement Unit for further action.</p>
<p>We recommend that CAA inspectors issue a Finding Notice for all identified instances of non-compliance and non-conformance.</p>	<p>The Surveillance Review Project, which is currently in its implementation phase, improves the requirement for findings notices to be raised. Improved manager review has also been introduced as part of the changed business processes.</p>
<p>We recommend that CAA establish a system that ensures that operators take quick and effective corrective action when inspectors tell them to do so. This system should include re-assignment of responsibility for that function when an inspector leaves the CAA.</p>	<p>The Surveillance Review Project has established the business process for ensuring that operators take quick and effective corrective action when inspectors tell them to do so, and for reassigning responsibility when an inspector leaves the CAA.</p>

Our recommendation	CAA's response
<p>We recommend that CAA inspectors ensure that they record all time spent on the surveillance function. Continuing to do otherwise will affect the accuracy of the CAA's risk analysis tools, and its ability to produce accurate business cases.</p>	<p>The Director of Civil Aviation has issued a directive to staff to ensure that all time spent on surveillance activities is recorded. This item is routinely audited during CAA internal audits.</p>
<p>We recommend that the CAA:</p> <ul style="list-style-type: none"> • ensure sufficient investment in training CAA staff so that they develop and maintain the appropriate skills to carry out their functions; • review its staffing levels when the current review of the surveillance function has been completed, to ensure that it has sufficient resources to undertake this function (both the review of the surveillance function and the review of staffing levels need to take account of the potential pressures or "surges" put on inspectors as a result of unanticipated requests for certifications); • ensure that the operational groups comply with the CAA's generic policies and procedures (particularly relating to Quality Assurance); • promote consistent standards of quality and practices throughout the operational groups by ensuring that they address internal audit Finding Notices; and • ensure that the internal audit section is appropriately staffed to enable the CAA's operations and inspectors to be audited on a more regular basis. 	<p>A training database has been developed as a tool to manage the training programme and the level of investment made. A policy and some procedures are being developed.</p> <p>The CAA has been subject to a number of reviews in recent years, and in July 2007 it restructured to improve its cohesiveness and effectiveness. The final staff appointment resulting from the restructure will occur early in 2008. Following the restructure, the Director is considering the need for additional resources in operational areas. This work remains linked, at least partially, to implementation of the Risk Assessment and Intervention Project and the Surveillance Project, which will not be fully in place until June 2008. It will be difficult to fully assess the resource implications of the projects until after June 2008.</p> <p>Procedures have been revised to ensure that the operational groups comply with the CAA's generic policies and procedures.</p> <p>The issue of consistency in standards and practices has been resolved. The review of open internal findings is carried out fortnightly by the Professional Standards Group and regularly reported to the CAA Audit and Risk Management Committee.</p> <p>The current staff level for the internal audit section is considered sufficient to perform the required role.</p>

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