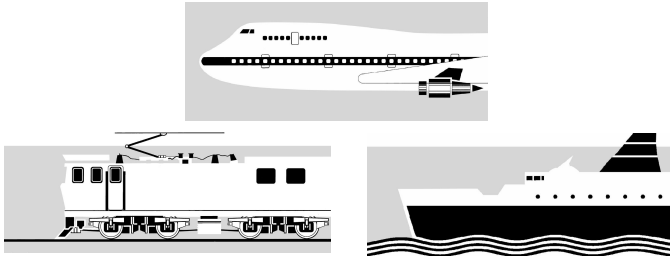


Transport Accident Investigation Commission

Annual Report

2000/2001

Annual Report

of the

Transport Accident Investigation Commission

Te Komihana Tirotiro Aitua Waka

for the period 1 July 2000 to 30 June 2001

Presented to the House of Representatives
as required in paragraph 34 of the schedule to the
Transport Accident Investigation Commission Act 1990

7 August 2001

Minister of Transport
Parliament Buildings
WELLINGTON

Dear Minister

In accordance with paragraph 34 of the schedule to the Transport Accident Investigation Commission Act 1990, the Commission is pleased to submit, through you, its 11th Annual Report to Parliament for the period 1 July 2000 to 30 June 2001.

Yours faithfully

Hon W P Jeffries
Chief Commissioner

Contents

Aim

The aim of the Transport Accident Investigation Commission is to determine the circumstances and causes of accidents and incidents with a view to avoiding similar occurrences in the future.

Te Whainga

Ko te whakatau i ngâ âhuatanga me ngâ take i puta ai ngâ aitua, i tata puta ai rânei ngâ aitua te tino kaupapa E WHÂIA ANA e te Komihana Tiritiro Aitua Waka, kia kore ai e pçrâ anô te puta i ngâ râ tû mai.


Norman Macfarlane
Hon. Bill Jeffries
Phillipa Muir

The Commission

The Transport Accident Investigation Commission (TAIC) is a body corporate established by the Transport Accident Investigation Commission Act 1990. It consists of not more than 5, nor less than 3, members appointed by the Governor-General on the recommendation of the Minister of Transport. Members hold office for a term not exceeding 5 years, and may be reappointed. There are no statutory qualifications for membership except that one of the members of the Commission must be a barrister or solicitor of the High Court who has held a practising certificate for not less than 7 years, or a District Court Judge. The Commission meets 6 to 8 times a year or as the workload requires.

Members of the Commission

There are 3 members. They are:

Hon. Bill Jeffries
Chief Commissioner
Mr Jeffries is a Wellington barrister practising in civil and commercial litigation. He is a former Minister of Transport, Civil Aviation and Meteorological Services, and was also Minister of Justice.

Phillipa Muir
Deputy Chief Commissioner
An Auckland partner and board member of the national law firm Simpson Grierson, Ms Muir is chairperson of the Fletcher Challenge Employee Education Fund, a director of Genesis Power Ltd and co-author of 2 texts on employment law.

Norman Macfarlane
Commissioner
Mr Macfarlane is managing director of the Auckland based Caledon Aviation Management Consultancy. His career spans over 40 years in transport-related industries in the aviation, tourism, international oil and shipping sectors.

Assessors

Assessors are appointed by the Commission for independent technical advice from an operational perspective. The assessors include:

Richard Rayward *Aviation Assessor*
Mr Rayward is the Managing Director (Operations) of Air Safaris and Services (NZ) Ltd in South Canterbury. He holds an Airline Transport Pilots License (Aeroplane), check and training qualifications, and Flight Examiner rating. With 35 years experience in aviation in New Zealand, Mr Rayward has been involved in areas of aviation ranging from bush flying and ski-plane operations to scenic, charter and commuter operations.

Pat Scotter *Aviation Assessor*
Mr Scotter is employed by Air New Zealand Limited as a Boeing 747-400 captain. Over more than 40 years in the aviation industry he has qualified as a flight instructor, a flight examiner, and a licensed aircraft maintenance engineer with an inspection authority. (He runs a part time engineering facility at Rangiora Airfield.) He has a Bachelor of Aviation degree (Massey) and has studied air safety investigation.

Bill Jones *Rail Assessor*
Mr Jones worked for New Zealand Rail (NZR) as a civil engineer for 32 years, including two undergraduate years at University of Canterbury, one postgraduate year at Victoria University of Wellington, and 2 years seconded to British Rail. He was NZR's Chief Civil Engineer for 5 years and Chief Engineer for 2. In the 12 years since leaving NZR's full-time employment, he completed a number of consulting assignments in New Zealand and overseas. Mr Jones has a Bachelor of Engineering degree and Diploma of Public Administration qualifications, is a Fellow of the Institution of Professional Engineers New Zealand and is a Registered Engineer.

Alan McMaster *Rail Assessor*
Mr McMaster has had 30 years experience with railways in New Zealand and during this time held senior management positions in engineering and train operations. Since leaving New Zealand Railways he has carried out assignments for railway operations overseas and is a mechanical engineering consultant for heavy road transport vehicles in New Zealand. He holds a Bachelor of Engineering Degree (Mechanical), is a member of the Institution of Professional Engineers of New Zealand, and is a Registered Engineer.

David McPherson *Marine Assessor*
Mr McPherson spent 37 years working for Union Shipping New Zealand Limited starting as a junior engineer. He retired after holding various senior management positions in the company's maritime operations. He holds a Class 1 Steam and Motor Certificate, is a member of the Institute of Marine Engineers and a member of the Chartered Institute of Transport.

Keith Ingram *Marine Assessor*
Mr Ingram is the Managing Director of Neptune Charters Limited and VIP Publications Limited in Auckland. He is the editor and publisher of NZ Professional Skipper magazine and has more than 35 years marine experience in our coastal waters. As a professional mariner he holds both trade qualifications and a valid seagoing certificate and is a restricted limits shipping industry advisor and consultant.

Other assessors are appointed from time to time as appropriate to assist with specific inquiries.

Staff

These were the staff on 30 June 2001:

(back row from left)

Ken Mathews	*Air Accident Investigator*
Dennis Bevin	*Rail Accident Investigator*
Ray Howe	*Rail Accident Investigator*
Ailsa Wong-She	*Administration Assistant*
John Goddard	*Air Accident Investigator*
Melanie Watts	*Office Manager*
John Britton	*Chief Executive*
Kristen Burne	*Secretary*
Ian McClelland	*Air Accident Investigator*

(front row from left)

Billy Lyons	*Marine Accident Investigator*
Tim Burfoot	*Chief Investigator of Accidents*

(absent)

Jane Terry	*Receptionist*
John Mockett	*Marine Accident Investigator*
Rob Griffiths	*Medical Consultant*

Chief Commissioner's Overview

In previous annual reports I have spoken of the need to maintain the free flow of information to the Commission. Vital information from observers and participants prevents subsequent accidents. The 1999 amendment to TAIC's legislation protects the observers and participants, the primary sources of our information. Participants require protection from the real risk of providing evidence: the chance that the evidence is used against them. Silence is an enemy of effective investigation into cause in order to prevent a future accident and sources of evidence must be and are now well protected by the 1999 statutory amendment. Importantly, I can report that the legislation protecting sources providing evidence to the Commission is working. People are now more comfortable about volunteering sensitive information to the Commission's investigators. However, there is a particular nuance to this situation which ought to be identified in this annual overview.

The protection of information and its sources has certain implications as to how the Commission's reports are considered by those who wish to challenge findings: the protection of sources limits the Commission's capacity to expand on information in the report, because the Commission must not prejudice its sources. It is not the Commission's function to expose false and misleading evidence provided at other proceedings. This has caused occasional difficulties with Coronial Inquests. Coroners have a long-established and important role in determining the cause of death. They may also make recommendations for preventing similar occurrences, the same function as the Commission. Often the Coroner waits for the Commission's report on a fatal accident to be completed and then uses the report as evidence for the Coroner's inquest. In some cases this seems to help the inquest process. In other cases, production of the report merely sets the opening scene for legal and factual dispute. Anyone who believes the accident report shows they contributed to the accident can attempt to discredit the Commission's report. They may do this to protect their reputation, or minimise risks in pending litigation arising from the same accident. The protection accorded by the legislation correctly limits the Commission's ability to respond to such attempts. The public re-litigation of the Commission's report at an inquest is distressing for bereaved families who understood that the causes of the accident had been fully investigated and established.

Coronial inquiries may also independently investigate the causes of an accident and naturally that ancient office will be jealous to preserve its legal process of investigation. However, sometimes the Coroner does not have all the information available to the Commission and inconsistent findings can occur, as between the Commission and subsequent Coronial inquiries.

My comments on the Commission/Coroner interface are necessary because it is unlikely that a workable solution can be developed under current legislative conditions, despite the best attempts of the Commission and the Coroners' Council. Coroners are individually independent, and are not obliged to follow any Council guidelines, so it is impossible to develop a workable protocol which all 70 Coroners are likely to comply with. Legislative amendment may assist in this area. The Commission endorses the Law Commission's recommendation for a review of the law covering Coroners and that the position of a Chief Coroner should be created. The person occupying that position would provide an avenue for discussing and implementing a statutory protocol to bring more consistency and value to any involvement the Commission has in inquests, and the decisions to hold inquests. This should make it easier for Coroners and the Commission to perform their respective roles effectively for the benefit of the public of New Zealand, both in terms of cost and safety.

The future of the Commission depends on it demonstrating independence and impartiality, and the Commission records its appreciation of the respectful understanding successive Ministers of Transport have manifested to the Commission. Examination of State accident investigation agencies overseas shows that independence and public confidence are strengthened by the agency reporting directly to the legislative rather than the executive arm of government. In New Zealand, investigative bodies such as the Ombudsmen, the Commission for the Environment and the Office of the Auditor General report directly to Parliament. The Commission advocates that it too should report to Parliament, rather than through the same transport jurisdiction it is responsible for examining. A further value of such structural independence is that it would provide more direct resolution of concerns sometimes raised by about sufficiency of resources and the Commission's statutory obligations.

The issues mentioned above are important but do not impede in any way the present conduct of the Commission's duties. I am satisfied that despite questions concerning future resources to conduct its work, the Commission is robust and effective. However, like a transport operator in pursuit of greater productivity and a better safety record, we must continually question current operations and be alert to the potential for improvement.

Concluding this overview, Norman Macfarlane and I wish to thank co-Commissioner Phillipa Muir for her contribution to the Commission's work over the last 6 years. Phillipa's second term as Commissioner expires on 31 August 2001. We will miss Phillipa's penetrating contribution to debate on the issues raised by accident investigations and strong advocacy for clarity and coherence in accident reporting.

Hon W P Jeffries
Chief Commissioner

Chief Executive's Report

Over the 2000/2001 year the Commission launched 47 investigations and finalised 36 reports on accidents and incidents of significance to aviation, rail, and marine transport safety in New Zealand. It promulgated 112 safety recommendations. This work was undertaken by a small group of dedicated staff for a total cost of $1.588 million, 0.1 % over our income of $1.586 million.

The report titles and numbers of safety recommendations listed in this annual report hide the solid grind of thorough research, analysis, and scientific argument behind each investigation, and the numbers certainly do not reflect the complexity of causal factors and the lives lost, or lives at risk if action is not taken to implement recommendations. To better illustrate the circumstances, dangers, and, ultimately, the opportunities for better safety, a few reports and the resulting recommendations finalised in the year are described in more detail in the section "Examples of investigations and their safety recommendations". These reports included investigations into the collision in fog of the passenger ferries *Quickcat* and *Quickcat II* on 31 May 2000 in Auckland Harbour, the collision of 2 freight trains at Waipahi on 20 October 1999, and the longstanding deadly problem in aviation: wirestrike, in this case at West Arm, Lake Manapouri on 28 March 2000. The Commission is pleased with the positive responses many of its recommendations have received and hopes that any decisions not to implement its recommendations are backed by appropriate cost-benefit analysis.

An important step promised last year has materialised: the TAIC has introduced a system to record the known status of safety recommendations developed since October 2000. Consistent with its legislation, the TAIC is not responsible for auditing acceptance of its safety recommendations but relies on reports from recipients or the safety authorities to show that the intent of the safety recommendation has been implemented. The system had it origins in a suggestion by a parliamentary Transport Select Committee, and was only possible as a result of the support of the Minister of Transport and the co-operation of the Ministry of Transport and the Safety Authorities. This process will give everyone more confidence that action really been taken, or if it has not been taken, the assurance that there were sound reasons. It will also help the TAIC frame better, and hopefully fewer, recommendations in future. We look forward to being able to comment on the implementation status of our safety recommendations in next year's annual report.

To maximise the safety message, the TAIC website is being redesigned to make it easier to search and retrieve information. Key changes are to include a searchable database of about 500 investigations undertaken by the

Commission (and some earlier ones undertaken by the Office of Air Accidents Investigation) and some 1400 related safety recommendations. Data will include the details of the accident/incident investigation launched, the abstract of the report (unless the investigation was terminated without a report), the full text of any safety recommendations, recipient's replies, and implementation status. Back issues of the more popular occurrence reports will also be made available in electronic file format. The data collection and publication project has been a major undertaking, which started in earnest in August 2000. Completion depends on competing demands for our scarce resources, but we aim to have the work published on our website by 30 December 2001.

Timeliness is important for getting the safety message out to all those who can learn from our reports and who can implement recommendations. While the TAIC has a typically good record for reporting promptly, we did start the year with a significant backlog of rail accident and incident reports. This backlog has now been largely eliminated. Bringing the rail investigation workload under control was only possible when the Government increased our funding in June 1999. The 2 years taken to bring the rail investigation workload under control reflects the length of time taken to recruit an investigator (2 rounds of recruitment were necessary, due to the unattractive starting salary) and train him to the stage where he is now paying dividends for transport safety.

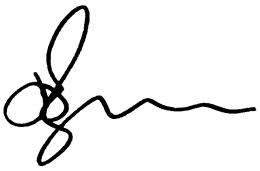
Looking at the facts of accident investigation and the expertise required to conduct sound investigations, we are alert to a very real future risk to staff retention. The departure of one rail or marine investigator doubles the workload of the remaining investigator, leaving no expert coverage when the remaining investigator is absent for training, ill health, or leave. The situation is slightly better in aviation: we have 3 investigators, so each would have to shoulder a 50% increase in workload. With such small staff numbers and limited resources, succession planning is impossible.

We are pleased that staff turnover has been minimal this year: our receptionist, Lucy Clyde, left to join Archives New Zealand, and we welcome Jane Terry to replace her.

We were devastated when Tom Middleton, an aviation assessor and well-known display flying pilot, died in an aircraft accident in December 2000. We have appointed Pat Scotter to take over that work. Charlie Oxley, rail assessor since 1993, has decided to retire, and in recognition of the heavy workload we have appointed 2 assessors to replace him: Alan McMaster and Bill Jones.

F.7

The safety recommendation implementation system and making 10 years' worth of safety lessons available on the internet will be major public achievements for the Commission and complement the work conducted by the staff, Assessors, and Commissioners in investigating the causes and circumstances of individual accidents and incidents. We look forward to continuing this vital work for transport safety for the future.



John Britton
Chief Executive

Functions and Powers

The functions of the Commission are stated in the Transport Accident Investigation Commission Act 1990 as follows:

Functions of the Commission

1. The principal function of the Commission shall be the investigation of accidents and incidents.

2. Without limiting the principal function under subsection (1) of this section, the Commission shall also have the following functions:

   (a) To make such inquiries as it considers appropriate in order to ascertain the cause or causes of accidents and incidents.

   (b) To co-ordinate and direct all such investigations and to determine which other parties (if any) should be involved in such investigations.

   (c) To prepare and publish findings and recommendations (if any) in respect of any such investigation.

   (d) If requested by the Minister, to deliver a written report on each investigation to the Minister, including any recommendations for changes and improvements that it considers will ensure the avoidance of accidents and incidents in the future.

   (e) To co-operate and co-ordinate with other accident investigation organisations overseas, including taking evidence on their behalf.

   (f) Where (i) a notification under Section 27 of the Civil Aviation Act 1990, or (ii) a notification under Section 39c of the Transport Services Licensing Act 1989, or (iii) a notification under Section 60 of the Maritime Transport Act 1994 has not been received, to request from the Civil Aviation Authority, the Land Transport Safety Authority, or the Maritime Safety Authority, as the case may be, such further information as it considers appropriate regarding any accident that the Commission believes is required to be investigated under Section 13 (1) or Section 13 (2) of the Transport Accident Investigation Commission Act.

(g) To perform any other function or duty conferred on it by the Transport Accident Investigation Commission Act or by any other Act.

Powers of the Commission

The Commission's powers include the same powers as are conferred on a Commission of Inquiry by the Commissions of Inquiry Act 1908, and subject to the provisions of the Transport Accident Investigation Commission Act, all the provisions of that Act except Sections 11 and 12 and all other powers reasonably necessary or expedient to enable it to carry out its functions.

The Commission's investigators, under warrant issued by the Chief Commissioner, have the power to:

- enter and inspect any transport-related thing
- inspect, copy, or retain any documents or records
- prevent tampering with evidence, prohibit access to an accident site or related things
- direct a transport-related thing to be taken to a nominated place
- seize, detain, remove, preserve, protect or test any place or thing.

Promoting the Free Flow of Information

Consistent with the Commission's responsibility to ensure that it has the best possible access to vital information, the TAIC Act requires the Commission and other parties to keep certain types of information confidential. These same obligations give informants certainty that information they provide to the TAIC for an investigation into an air, rail, or marine accident or incident will not be revealed, except in a de-identified form in the TAIC final report and if the information is pertinent to the analysis of the occurrence. The practice has international precedents in Australia and Canada and is advocated by the International Civil Aviation Organisation which has for a number of years recognised that people will not provide information if they are afraid about the possible uses to which that information may be put.

Paragraph 5.12 of Annex 13 to the Convention on International Civil Aviation states: *Information … which includes information given voluntarily by persons interviewed during the investigation of an accident or incident could be utilised inappropriately for subsequent disciplinary, civil, administration and criminal proceedings. If such information is distributed, it may, in the future, no longer be openly disclosed to investigators. Lack of access to such information would impede the investigative process and seriously affect* [transport] *safety.*

Records such as witness statements, submissions (for example, on preliminary reports), records of interviews, and notes or opinions taken down by the TAIC investigators in the course of an investigation cannot be released by the TAIC other than for accident investigation. These records cannot be obtained from the TAIC by execution of a search warrant, by order of the Court, nor through an inquiry by the Ombudsman or Privacy Commissioner.

The TAIC Act gives similar protection to cockpit voice and video recordings, transcripts of such recordings, and records (other than those included in the preceding paragraph) held by the Commission containing information about an identifiable natural person. However, the Court may order their disclosure for civil proceedings if the Court determines that the interest of justice outweighs the adverse impact disclosure may have on the investigation to which the record relates, or any future investigation.

The protection provided by the Act still allows people who have provided information to the TAIC to make the same (or different) statements to others. If a person does not wish to make the same statement to others, their reason may be precisely that which would have inhibited that person from making the statement to the TAIC had the TAIC not been able to protect their information.

The TAIC Act also allows other agencies and individuals to carry out their own investigations and to make their own inquiries. Alternatively, TAIC reports are freely available in libraries or from TAIC at a modest charge.

The Commission seeks to ensure that its investigation processes are well understood and is happy to explain these. It has a policy of responding to public and news media inquiries as promptly as practicable and as helpfully as possible.

Accidents and Incidents to be Investigated

The Commission is required to investigate an accident or incident in the following circumstances:

a) The Commission believes that the circumstances of the accident or incident have, or are likely to have, significant implications for transport safety, or may allow the Commission to establish findings or make recommendations which may increase transport safety; or

b) In the case of an accident or incident that the Commission has decided not to investigate under paragraph (b) of this subsection, the Minister directs the Commission to undertake an investigation in respect of that accident or incident.

The Commission is not required to investigate marine accidents or incidents relating to maintenance while a vessel is not at sea, loading or unloading unless directed to by the Minister.

The Commission may investigate aviation accidents in neighbouring states which do not have adequate accident investigation capabilities, when requested to do so by the state concerned. The Commission recovers its costs for these engagements.

Commission Consultative Procedures

The principal purpose of the Transport Accident Investigation Commission is to determine the circumstances and causes of accidents and incidents with a view to avoiding similar occurrences in the future, rather than to ascribe blame to any person.

The Commission aims to ensure that its procedures are fair and open and comply with the principles of natural justice. It must also produce its reports and recommendations in a timely and efficient manner, having regard to its contractual obligations to the Minister of Transport and the public interest to publish an accurate, comprehensive report promptly after a transport accident or incident. The following consultative procedures contribute to these objectives.

Consultation on reports

Before publishing a final report on an accident or incident, the Commission produces a preliminary report. If the preliminary report states or infers that a person's conduct has contributed to the cause of the accident or incident such a person becomes an **interested party**, and the Commission gives that person an opportunity to comment on or refute that statement. Because the preliminary report may contain inaccuracies, it is sent to interested parties in confidence to enable those parties to comment on it to the Commission. The Commission may also invite comment from other parties it considers may materially contribute to the accuracy of the report. No party is permitted to make public comment on or add to public speculation about the contents of the preliminary report, since this would breach natural justice and could impede the free flow of information to and thus the effectiveness of the Commission in future. It would also breach section 14B of the Transport Accident Investigation Commission Act 1990.

Under section 14B of the TAIC Act, any person to whom the Commission has provided information in confidence for the purpose of the Commission's investigation (for example, for comment on the preliminary report) must obtain the written consent of the Commission before they can disclose that information to any other party. The Commission will give its consent for interested parties to disclose the preliminary report or the information within the report to a support person or a legal advisor, as long as the interested party makes that person aware that they must not disclose the report or the information within it to any other person or organisation. Every person who discloses information so provided in confidence without the Commission's written consent commits an offence under section 14L of the TAIC Act, and is liable to a fine up to $10,000. An organisation is liable to a fine of up to $25,000.

The TAIC Act does not prevent an interested party disclosing their own information to anyone else, including the police and other government or civilian investigators, and the news media. Nor does the TAIC Act prevent an interested party disclosing information gained from sources other than the Commission. When doing so, however, the interested party must be careful not to include the information supplied in confidence by the Commission, nor information which the interested party has derived from anything supplied in confidence by the Commission. Including those types of information would be a breach of confidence and may amount to an offence under section 14L.

The TAIC Act law on disclosing information promotes and protects the free flow of information to the Commission, so that it has the best opportunity to find out the truth of what happened and tell the state and the public how to prevent people being killed by similar accidents. If you are an interested party and are not sure which information you can disclose to others, please discuss it first with the Commission's Investigator-in-Charge, or contact your lawyer for advice.

The Commission evaluates the written comments from interested parties if received by the Commission within 21 days and may modify the preliminary report on the basis of these submissions. No further opportunity to comment on the report is provided unless the Commission makes changes which imply a greater contribution by an interested party to the reported cause of the accident or incident.

The modified report is submitted to the Commission for final consideration and approval as its **final report** prior to publication. The Commission forwards a copy of the final report in confidence to interested parties a few days before public release. The same requirements for confidentiality that applied to the preliminary report also apply to the advance copy of the final report until it is released to the public by the Commission. Once the final report is made public interested parties are free to make public comment on the final report and its contents. However, they may not make public comment on the other information provided to them in confidence by the Commission, including the contents of the preliminary report and preliminary safety recommendations if different from the final report. Neither the preliminary report nor the final report is admissible as evidence in a civil or criminal court.

Consultation on safety recommendations

The ultimate goal of the TAIC is to improve transport safety. To this end the Commission prepares and publishes **safety recommendations** when it identifies substantive opportunities for improvement. Safety recommendations may be made at any time during an investigation and are made in general or specific terms, whether they are directly derived from causal factors or have been prompted by other factors in the investigation. Each safety recommendation is made to the **recipient** (any organisation, entity, or person) in the best position to implement it. The Commission has no power to enforce its safety recommendations.

Following initial discussion between the Investigator-in-Charge and the recipient, the Commission forwards a **preliminary safety recommendation** to the recipient and invites comment within 10 or 21 days, depending on the urgency of the recommendation. Like a preliminary report, the preliminary safety recommendation and accompanying material is supplied to the recipient in confidence and must not be disclosed as this could result in inappropriate speculation or a breach of natural justice and would amount to an offence. The Commission considers the recipient's comments before formulating the **final safety recommendation** which the Commission forwards again in confidence to the recipient. The Commission asks the recipient to reply within 10 or 21 days stating whether or not the recipient will implement the safety recommendation.

If the recommendation is very urgent the Commission issues a final safety recommendation without first issuing a preliminary safety recommendation.

Public hearings

The Commission may hold a public hearing if it is likely to provide any significant advantages for determining the causes and circumstances of an accident or incident over the Commission's normal procedure of gathering information in camera. The Commission will conduct the hearing according to such rules of procedure appropriate to its purpose under the TAIC Act and the powers conferred on it by the Commissions of Inquiry Act 1908.

Safety Recommendations: Levers for Change

"The ultimate goal of a truly effective investigation is to improve safety. To this end recommendations are made in general or specific terms in regard to matters arising from the investigation whether they be directly affected by causal factors or have been prompted by other factors in the investigation."[1]

Safety recommendations (SRs) are arguably the Commission's most important product for avoiding similar occurrences in the future. Consultation on preliminary SRs will not always reveal the difficulties or cost of putting the final SR into practice, so it is not reasonable to expect all SRs to be implemented. It would also be inappropriate for TAIC to enforce all its SRs as this would erode the Commission's independence. If a recipient does not implement a SR, the option always exists for the state to assess importance, cost, and benefit, and if necessary intervene and enforce implementation.

TAIC's 1500 SRs made in the last 10 years may have gone unheeded. However, given the relevant information, TAIC can provide an opinion on whether a SR has been implemented, or whether a decision not to implement is reasonable.

Recognising the potential importance of TAIC's SRs, the Minister of Transport in October 2000 asked the safety authorities to participate in returning information to TAIC showing completed action to implement all new SRs. TAIC now forms a view as to whether the evidence proves beyond reasonable doubt that each new SR has been implemented. The process covers all SRs developed since October 2000.

If the recipient of a SR or the safety authority provides sufficient evidence of completed action, TAIC records the SR status as "closed – acceptable". Seven SRs were "closed – acceptable" since October 2000. While the number closed sounds low in relation to the 112 SRs finalised, this system is in its infancy. It may take some time to implement an SR to ensure lasting benefit through appropriate integration with existing systems.

If sufficient evidence is provided that the SR cannot be implemented, for example cost outweighs benefit, TAIC records the status as "closed – cancelled". No SRs have been assigned "closed – cancelled".
Until sufficient evidence is received to close the SR, the status remains "open".

[1] From International Civil Aviation Organisation's Manual of Accident Investigation.

F.7

The text of all SRs will be published on the TAIC website www.taic.org.nz, together with the status of the SR. The status of all SRs developed before the status system was launched will be listed as "unknown", unless information received (for example, a subsequent investigation) enables TAIC to assign another status.

Examples of Investigations and Safety Recommendations

Finalised in the year ended 30 June 2001

Aviation

Aerospatiale AS 350B helicopter ZK-HWK, collision with terrain (report 00-003)

On Tuesday, 7 March 2000, Aerospatiale AS 350BA helicopter ZK-HWK was on a local charter flight from Raglan to Mount Karioi, carrying technicians to service telecommunications equipment located on the summit. It was being flown in conditions of reduced visibility resulting from local cloud when it collided with trees and the ground, killing all 4 occupants.

The time of the accident and the detail of the flight path could not be conclusively established, but the pilot may have inadvertently lost visual reference with the surface in deteriorating visibility.

A safety issue identified was the desirability of a less vulnerable ELT location in helicopters.

One safety recommendation was made, for the Civil Aviation Authority (CAA) to:

- initiate appropriate regulatory action, such as an airworthiness directive, to require where possible the relocation of ELTs to a less vulnerable location than the nose section, on all helicopters. (051/00)

The Director of Civil Aviation replied:

> I accept this recommendation as worded and will initiate appropriate regulatory action, such as an airworthiness directive, to require where possible the relocation of ELTs to a less vulnerable location than the nose section, on all helicopters. This will be implemented by Thursday 28 September 2000.

Hughes 369FF helicopter ZK-HJN, wire strike, West Arm (report 00-005)

On Tuesday, 28 March 2000 at 1014 hours, ZK-HJN, a Hughes 369FF helicopter, was on a charter flight from Te Anau Aerodrome to West Arm, Lake Manapouri. Approaching to land, the helicopter struck a power line and impacted the ground heavily. The pilot and 4 passengers on board died in the accident, and the helicopter was destroyed.

Safety issues identified were the criteria for the marking of wires and overhead structures, and the requirement to expedite amendments to Civil Aviation Rules for wire marking.

The following safety recommendations were made to the Director of Civil Aviation:

- ❑ review the planned criteria for the marking of overhead wires and structures, to give increased priority to large spans, like West Arm (058/00)

- ❑ include "established structures" in the Notice of Proposed Rule Making on assessment of new or altered structures that comprise overhead wires or cables, and to expedite the production of a draft final Civil Aviation Rule to the Minister. (059/00)

The Director of Civil Aviation advised that he will adopt these safety recommendations, and he expected that the Final Rule will be submitted to the Minister by the end of this year.

Rail

Shunting fatality (report 00-108)

On Wednesday, 10 May 2000 at about 1130, while the Middleton yard shunt was propelling a rake of 5 wagons into the freight centre grid, the shunter fell under the leading wagon of the rake as he tried to board it and was killed instantly.

Safety issues addressed in the report are:

- the potential for inexperienced staff to be involved in shunting fatalities
- the lack of a support programme for newly qualified entrants into safety-critical areas such as the shunting environment
- the rostering process not recognising experience levels when grouping individuals into work groups in safety-critical areas
- the suitability of footsteps on over-width wagons.

Two safety recommendations were made to the operator. They were:

- ❑ develop and implement a support programme for newly qualified entrants to jobs in safety-critical areas, such as the shunting environment, focusing on ongoing safety awareness, on-the-job training and ability to perform tasks to include such initiatives as peer review, mentoring and supervisory observation (133/00)

- ❑ develop and implement procedures to ensure that personnel with less than 6 months experience in roles in safety-critical areas, such as the shunting environment, are not rostered to work together as part of the same work group. (134/00)

The operator replied:

> Tranz Rail accepts recommendation 133/00, however please note this is already largely in place. Several strategies are being developed and are in various stages of implementation to raise on-going safety awareness in the shunting environment. Strategies include:
>
> - establishment of up to 46 site Health and Safety Action teams

- Shunt Safety Improvement Committees at major sites overseen by the National Shunting Council. The National Shunting Council meets regularly each month.

Systems promoting the reporting of near-hits, and formal hazard identification and assessment are being rolled out to each shunting terminal. On the job training will continue to receive the highest priority, as will the progression of the Safety Observation System. Peer review and mentoring will be initiated via the Performance Enhancement Program, scheduled for roll-out to each site during the next period.

Tranz Rail accepts recommendation 134/00. This can be implemented forthwith, however there are a number of minor issues that will require further consideration. For example, small sites with only one or two operators may have difficulty meeting the requirements where more than one new employee is engaged at one time. These issues will be worked through during the next month, at which time Tranz Rail will provide an update to the Transport Accident Investigation Commission.

Express freight Train 938 and intercity express freight Train 919, collision (report 99-122)

At about 0702 hours on Wednesday, 20 October 1999 Train 938, a northbound express freight, collided with Train 919, a southbound intercity express freight, which was stationary on the main line within station limits at Waipahi on the Main South Line.

The locomotive engineer of Train 919 was fatally injured, and the locomotive engineer of Train 938 was seriously injured.

The two locomotives on Train 919 and the single locomotive on Train 938 were extensively damaged, as were a number of wagons and containers.

Causal factors included one locomotive engineer's misunderstanding of his track warrant limit and the limited effectiveness of the action taken by the operator and the regulator to minimise the possibility of such misunderstandings.

Recommendations regarding the transfer of warrants at crew changes made to the LTSA in 1996 by its consultants, and to Tranz Rail by the Commission in 1996, were not tested against the criteria of safety at reasonable cost. Neither was the recommendation made to the LTSA by its consultants in 1996 regarding the need for Tranz Rail to build on communication requirements.

The following safety recommendation was made to the Director of Land Transport Safety:

- obtain quantified costs and benefits of implementing recommendations, arising from audits or safety studies commissioned by LTSA, that are intended to reduce undesirable risk exposure as perceived by the recommendations' author, and compare these costs and benefits against the criteria of safety at reasonable cost when deciding whether implementation should be left to the operator's discretion or enforced. (006/00)

The Director of Land Transport Safety replied:

> Whilst the LTSA agrees that the value of requiring a cost/safety benefit study is implicit in consideration of the adoption of safety recommendations made by a third party, under the present provisions of the Transport Services Licensing (TSL) Act, in many instances, it would not always be possible for this Authority to enforce implementation of any such recommendations made. A pre-requisite of the legislation is that before requiring a recommendation to be implemented by the operator, there be sufficient grounds for the Director to believe that a person was likely to be placed at significant risk of death or serious injury, if the recommendation was not implemented.
>
> It is not always possible to establish these grounds. Therefore, even though a recommendation may meet the safety at reasonable cost criterion, it may still be challenged by the operator as not meeting the second requirement.
>
> We have recommended to the Ministry of Transport that the legislation be reviewed to remove this additional 'hurdle', as part of the expected legislative changes required to implement the findings of the Wilson Inquiry into the Occupational Health and Safety practices of Tranz Rail.

Safety recommendations made to Tranz Rail were:

- ❑ take note of staff perceptions and experiences revealed by interviews carried out during this investigation and put processes in place, including regular personal familiarisation with operating practices, to improve corporate safety culture and its understanding at field level (065/00)

- ❑ undertake a comprehensive zero-based revision of the TWC Regulations (and their associated practices) to ensure that adequate defences are in place to combat foreseeable risks arising out of human error (066/00)

- ❑ decide whether flexible interpretation of Regulation 10(b)(i) by other than train control is to be permitted, and if so amend the regulations and introduce procedures to control any exceptions. (084/00)

Tranz Rail replied that it accepted all the safety recommendations.

Express freight Train 378, derailment (report 00-113)

On Saturday, 22 July 2000, at about 1927, express freight Train 378 derailed when it entered a crossover at the north end of Te Maunga while travelling too fast. The locomotive was severely damaged when it overturned following the derailment. The locomotive engineer suffered minor injuries. The train controller had incorrectly set a medium speed route to Mount Maunganui instead of the intended high speed route to Tauranga. The locomotive engineer did not react to the unexpected signal aspects displayed.

Safety issues identified included:

- non-adherence to basic train control techniques
- the distracting train control environment
- an emerging pattern of serious operating irregularities involving train controllers
- the potential for locomotive engineers to misinterpret unexpected medium speed signals.

Safety actions taken and recommendations made to the Land Transport Safety Authority (LTSA) and the operator address these issues.

The following safety recommendation was made to the Director of Land Transport Safety:

- ❑ carry out an LTSA investigation, or initiate a specific audit, of Train Control operations, such investigation or audit to include:
  - the resources available to meet the workload demand
  - the suitability of the roster system
  - the maximum shift desirable
  - the adequacy of arrangements for meals and other breaks during shifts
  - the adequacy of the current training system
  - the suitability of staff trained under any other system
  - the effectiveness of the safety observation and compliance monitoring system
  - the suitability and control of the work environment
  - the ability to immediately relieve any train controller involved in a serious operating incident. (009/01)

The Director of Land Transport Safety replied:

> We have considered your recommendation for the LTSA to conduct a Review of Tranz Rail Ltd (TRL) Train Control Operations. Although we consider that our proposed course of action will allow for appropriate monitoring of TRL actions on the issues regarding train control we acknowledge that there may be some benefit in commissioning the recommended independent review. On this basis we will accept your recommendation.
>
> As we consider that the proposed review will divert technical expertise within TRL we will discuss with them the most effective means of meeting the terms of the review. I am meeting with the TRL CEO on Friday 8 June and I will raise the matter of this review at that time.
>
> We have drafted a Terms of Reference for this Review and we are actively considering appropriate reviewers noting the potential for conflict of interest where any of the main rail consultancies are also involved in bidding for aspects of TRL business.

Marine

Passenger charter vessel *Sweet Georgia*, fire and grounding (report 00-202)

On Friday, 10 March 2000 at about 2000, the passenger vessel *Sweet Georgia* was on a charter cruise in Wellington Harbour when a fire started in the engine room. The fire was contained by the actions of the skipper but the control cables for the engine were damaged, causing the engine to slowly manoeuvre astern. Other vessels in the vicinity were able to evacuate the 58 passengers and 4 crew without injury. The skipper remained aboard the *Sweet Georgia*. The astern movement of the vessel caused it to ground on reclaimed land, where the fire service boarded and extinguished the fire. The skipper suffered smoke inhalation but nobody was injured.

The principal factor contributing to the fire was a fault in the house battery alternator.

Safety issues identified included:

- substandard marine electrical installations on small craft
- lack of consistency and the adequacy of rules governing standards for marine electrical installations on small craft.

The Commission had previously investigated Report 98-211, an electrical fire on board another passenger vessel in 1998. Substandard electrical installation contributed to the fire, and the Commission had made a safety recommendation to the Maritime Safety Authority (MSA) as a result.

The following safety recommendations were made to the MSA after the *Sweet Georgia* fire:

- ❑ implement safety recommendation 008/99 made by the Commission in report 98-211 which reads as follows:

  > Conduct a random survey of New Zealand passenger vessels to determine the extent of the problem regarding substandard electrical and machinery installations, and initiate a strategy involving all Maritime Safety Authority approved surveyors to progressively upgrade the New Zealand passenger fleet to comply. (075/99)

- ❑ develop an industry training standard that would enable automotive electricians to learn the basic safety requirements and peculiarities of marine electrical installations. (077/00)

The Director of Maritime Safety replied:

> The Maritime Safety Authority has reconsidered (recommendation 075/00) based on the events of this report and the identical recommendation (008/99) contained in TAIC report 98-211. MSA does not intend to adopt this recommendation for the following reasons.
>
> We would note that the appropriate point for compliance checking of electrical system installation is during construction, or when a vessel is inspected for inclusion in a Safe Ship Management System. Considering the small number of incidents resulting from poor electrical installation that have occurred on vessels whilst in service in relation to the total number of vessels operating, we do not support the proposal for random auditing nor believe that the costs involved in conducting this audit would be justified.
>
> We do, however, intend to advise operators of these incidents and the need for routine inspections to ensure that the installation is compliant and maintained to the electrical standard applicable at the time of construction or when the vessel is entered into a Safe Ship Management System.
>
> The Maritime Safety Authority does not support recommendation 077/00 for similar reasons to recommendation 075/00.
>
> Further, the Maritime Rule 40 series which details the Design, Construction and Equipment of non-SOLAS ships has detailed electrical standards which will apply during the construction of any new vessel, or acceptance of a vessel into Safe Ship Management after 1 February 2001.
>
> All contractors and surveying bodies involved in the installation or inspection of electrical systems on board vessels will need to comply and work to these standards from that date.

The following safety recommendation was made to the owner of the vessel:

- ❑ install a fire detection system in the engine room of the *Sweet Georgia* and ensure that the poor electrical installation standards identified in this report are rectified. (074/00)

The owner replied:

> (We are) installing a fire detection system in the engine-room and rectifying the deficiencies identified in the report.

Refrigerated cargo carrier *Caribic*, grounding (report 00-204)

On Sunday, 7 May 2000, at about 2000 hours, the refrigerated cargo carrier *Caribic* departed Tauranga with 10 crew and a harbour pilot on board. The vessel successfully negotiated the Cutter Channel and turned to starboard to round Mount Maunganui into the departure channel. The rate of turn became excessive and the master and pilot were unable to reduce it sufficiently to prevent the vessel grounding inside Tanea number 2 buoy. The vessel was refloated and returned to its berth assisted by 2 harbour tugs. There were no injuries but the vessel suffered moderate hull bottom damage.

Safety issues identified included:

- the crewing level on the bridge of the *Caribic*
- the inability to fulfil the principles of bridge resource management
- serviceability of navigational and monitoring equipment on board the *Caribic*
- a critical manoeuvring characteristic of the vessel was not adequately conveyed to the pilot.

The Commission made safety recommendations for the chief executives and harbourmasters of all regional councils to:

- ❑ introduce the following directions into the harbour bylaws covering their ports, to emphasise the intent and principles of STCW and SOLAS:

    - all vessels, whether under pilotage or pilot exempt, shall have an agreed passage plan for transits within harbour limits
    - the number of crew members on the bridge shall be sufficient to safely carry out the agreed passage plan
    - in determining the composition of the bridge team, due regard shall be taken of the need to steer, operate manoeuvring machinery, monitor the progress of the vessel visually, use all available aids to navigation and refer to an appropriate navigational chart. (009/00 to 123/00)

Of the 15 regional councils:

- 1 accepted and implemented in full
- 1 accepted and implemented with rewording
- 3 accepted and put it forward in draft bylaws
- 6 agreed in principle and are including in review of bylaws
- 1 agreed but implemented it through pilots and exempt masters
- 1 is carrying out further research
- 2 disagreed and declined to implement.

Safety recommendations were also made to the operator, Seatrade Groningen B.V. to:

- ❑ incorporate in the company safety management system, instructions to masters requiring them to operate the bridge with at least one other crew member during manoeuvring situations (101/00)

- ensure that crewing levels on the company vessels are sufficient to allow the master to operate the bridge with at least one other crew member during manoeuvring situations and have enough crew to safely conduct mooring and unmooring operations (102/00)

- ensure that masters and senior officers receive bridge resource management training and adopt the principles as part of company operational policy and procedure. (103/00)

Seatrade Groningen B.V. replied that it will take or has taken the following steps to avoid same in the future.

- Instructions will be added to the existing procedure SAF.PR.02 "Voyage Planning Sailing & Arrival" indication that key positions on the bridge must be covered adequately.

- All our vessels have a Safe Manning Document. Furthermore "Seatrade" has their own safety manning standard which is exceeding the "Safe Manning Document". In this respect we can guarantee that we have enough crew on board to safely conduct mooring and unmooring operations.

- A number of Masters have received the Bridge Resource Management Training in the meantime. This program will be completed in due course. However we will undertake a maximum effort that the Master of the M.V. Caribic will follow the relevant training upon the next convenient opportunity.

Passenger ferries *Quickcat/Quickcat II*, collision in fog (report 00-205)

At about 0914 on Wednesday, 31 May 2000, the passenger ferries *Quickcat* and *Quickcat II* were operating on the ferry service between Waiheke Island and Auckland when they collided about 0.5 miles east of the northern leading light in Auckland Harbour. The visibility in the area at the time of the collision was about 50 m due to fog. There was a total of 127 passengers and 7 crew aboard the 2 vessels, none of whom were injured.

Safety issues identified included:

- the speed of the 2 vessels in restricted visibility
- the inefficient use of radar for collision avoidance
- non-compliance with the collision regulations
- the adequacy of the documented passage plan
- the absence of high-speed navigation techniques
- the number of scheduled ferry services within Auckland enclosed limits and the need for a system to manage vessel traffic.

The following safety recommendations were made to the Auckland Regional Council harbourmaster:

- ❑ require all ferry operators offering scheduled ferry services within Auckland enclosed water limits to submit for approval to the council a detailed route operational plan for all scheduled ferry routes, then coordinate between operators to ensure that such passage plans as far as practical avoid ferries meeting on opposing tracks. The approved route operational plans should be required to form part of operators' safe ship management system (106/00)

- ❑ establish the main ferry routes within Auckland enclosed water limits and arrange to have them marked on the appropriate charts with an appropriate warning for other harbour users that ferries regularly ply those routes. (107/00)

The harbourmaster of the Auckland Regional Council replied:

> Currently we have only four scheduled operators in the Auckland Harbour, Fullers, Pacific, Subritzky's and Stella Shipping. I have arranged a meeting with them this Friday to ensure that they will submit detailed route operational Plans and will include these in their Safe Ship management systems.
>
> Following agreement on this, I will arrange the appropriate Notices to Mariners and amendments to the relevant charts. If it does not cut across any protocols, may I suggest that a press release be issued by Council on this with maybe a map showing the ferry routes for the information of the public.

The following safety recommendations were made to the vessel's operator, Fullers Group:

- ❑ develop a comprehensive passage plan for each of the company routes that utilises all available resources aboard company vessels, and make it company policy for all vessels to follow the plans as closely as practicable in all conditions of visibility (096/00)

- ❑ revise the Fog and Poor Visibility section of the Quality Procedures Manual to clearly identify the responsibilities of the skippers under the collision regulations with particular regard to safe speed (098/00)

- ❑ arrange for skippers employed by the company attend a high speed navigation course (099/00)

- ❑ continue the training of deckhands employed by his company to a level where they can competently assist or relieve the master as necessary. (100/00)

The operator replied:

- Comprehensive passage plans for the company routes are being worked on with the Auckland Regional Harbour Master and hopefully will be finalised before the end of December 2000.
- The fog and poor visibility section has been revised and a copy is enclosed.
- In conjunction with the Maritime School, Captain Tim Wilson has formulated the course for the company and the Masters will be attending this through 2001.
- Rule 31B will require all deckhands to have at least an Advanced Deckhand Certificate and I am confident that through this we will meet your requirements.

Summary of Occurrences Investigated

Within the period 1 July 2000 to 30 June 2001 the Transport Accident Investigation Commission initiated investigations into 15 aviation occurrences, 19 rail occurrences and 13 marine occurrences. Over the same period, work continued on completing investigations launched the previous year.

Aviation investigations

reference	date	locality	aircraft	operator	injuries
00-007	1 Jul 00	Great Mercury Island	Piper PA 32-260 ZK-DSQ	Great Barrier Airlines Limited	Nil
over-run on landing					
00-008	6 Jul 00	near Methven	Aerostar S-81A hot air balloon ZK-SKY	Aoraki Balloon Safaris Limited	Nil
power line incident					
00-009	17 Oct 00	Te Anau	McDonnell Douglas Helicopter Company 369E ZK-HFT	Southern Lakes Helicopters Limited	Nil
loss of engine power					
00-010	27 Oct 00	Wellington	Fairchild SA 227-AC Metroliner ZK-OAA	Eagle Air Limited	Nil
runway excursion					
00-011	28 Oct 00	Taupo	Cameron A180 hot air balloon ZK-FAS	Balloons over Taupo Limited	Nil
collision with power line					
00-012	25 Oct 00	Christchurch	N/A	Airways Corporation of New Zealand Limited	Nil
temporary loss of air traffic control communications systems					
00-013	1 Dec 00	near Los Angeles	ANZ B747 ZK-SUJ and NMAC B737	Air New Zealand Limited	Nil
airspace incident (assisting investigation by NTSB)					
00-014	14 Dec 00	Gisborne	PA23 Aztec ZK-DIR	Sunair Aviation Limited	Nil
nose gear collapse on landing					
00-015	19 Dec 00	Mt Leslie Amuri Range	Piper PA-28-140 ZK-CIK	Nicholas Derek Rivers	C: 1 f P: 2 f
loss of control, impact with terrain					
01-001	28 Feb 01	Chatham/ New Plymouth	Convair 580 ZK-CIB	Air Chathams Limited	Nil
engine failure					
01-002	10 Mar 01	Tauranga	Fairchild SA227 ZK-RCA	Eagle Air Limited	Nil
bird strike, double engine stoppage					
01-003	23 Mar 01	Milford Sound	MD 369D ZK-HMN	Milford Helicopters Limited	Nil
in-flight engine failure					

Aviation investigations continued

reference	date	locality	aircraft	operator	injuries
01-004	19 May 01	Auckland	B767-30 ZK-NCH	Air New Zealand Limited	Nil
in-flight loss of flap component					
01-005	4 Jun 01	Taumarunui	Bell UH-1H Iroquois ZK-HJH	Wanganui Aero Works Limited	C: 1 f P: 2 f
loss of control					
95-008	9 Apr 01	near Gisborne	Piper PA 28-161 ZK-MBI	Massey University School of Aviation	C: 1 f
missing aircraft 21 May 1995					

Piper PA23 Aztec, ZK-DIR, nose undercarriage collapse after landing, Gisborne Aerodrome, 14 December 2000 (investigation 00-014). There were no injuries.

Piper PA 28-161, ZK-MBI, missing after departing from Gisborne, 21 May 1995, and found on 9 April 2001 (investigation 95-008). The pilot died in this accident.

Rail investigations

reference	date	locality	vehicle	operator	injuries
00-112	18 Jul 00	Palmerston North	passenger express train 201	Tranz Rail Limited	P: 1 f
passenger fatality (nrp)					
00-113	22 Jul 00	Te Maunga	freight train 378	Tranz Rail Limited	C: 1 m
derailment					
00-114	19 Sep 00	Woodville	shunting service P28	Tranz Rail Limited	Nil
signal passed at danger					
00-115	22 Sep 00	Westmere	freight train 521	Tranz Rail Limited	C: 1 m
derailment					
00-116	4 Oct 00	Te Kauwhata	HRV and train 225	Tranz Rail Limited	Nil
near collision					
00-117	26 Nov 00	Kai Iwi	freight train 540	Tranz Rail Limited	Nil
derailment					
00-118	5 Dec 00	Te Wera	express freight train 520	Tranz Rail Limited	Nil
derailment					
00-119	6 Dec 00	Pareora	express train 920	Tranz Rail Limited	Nil
derailment					
00-120	6 Dec 00	Shag Point	express train 922	Tranz Rail Limited	Nil
derailment					
00-121	8 Dec 00	Middleton	freight train 951 and express freight train 828	Tranz Rail Limited	C: 3 m
collision					
00-122	8 Dec 00	Opapa	express passenger train 601	Tranz Rail Limited	Nil
derailment					
00-123	28 Dec 00	Elerslie	DMUs 3130 and 3134	Tranz Rail Limited	C: 1 m P 1 m
collision					
01-101	8 Jan 01	Makikihi	Southerner passenger express train 901 and stock truck	Tranz Rail Limited	C: 2 s P: 1 s 4 m
collision					
01-102	23 Feb 01	Paerata	express freight trains 237 and 144	Tranz Rail Limited	Nil
collision					
01-103	2 Mar 01	Te Kawa	express freight train 234	Tranz Rail Limited	Nil
derailment					
01-104	7 Mar 01	Mokoia	express freight trains 547 and 531	Tranz Rail Limited	Nil
collision					
01-105	28 Apr 01	Waharoa	express freight train 333 and shunt R36	Tranz Rail Limited	Nil
near collision					

Rail investigations continued

01-106 collision	6 May 01	Muri	express passenger train 600 and excavator	Tranz Rail Limited	Nil
00-107 broken wheel	6 Jun 01	Otaihanga	passenger baggage car, train 201	Tranz Rail Limited	Nil

Train 951 and 828, collision, Middleton, 8 December 2000 (investigation 00-121). Both locomotive engineers suffered minor injuries.

courtesy of the New Zealand Police

Southerner passenger express Train 901 and stock truck and trailer unit, collision, Makikihi Beach Road level crossing between Timaru and Oamaru, 8 January 2001 (investigation 01-101). Two crew members and a passenger suffered serious injuries, and 4 other passengers received minor injuries.

Marine investigations

reference	date	locality	vessel	operator	injuries
00-208	5 Jul 00	Auckland	tug *Mahia* bulk carrier *Dorothy Oldendorf*	Thomson Towboats Limited	Nil
tug towlines parted					
00-209	17 Nov 00	Great Barrier Island	fishing charter vessel *La Nina*	Fighting Fish Charters	C: 1 s
grounding and foundering					
00-210	18 Nov 00	Wellington Harbour	restricted limit passenger *Sweet Georgia*	Sweet Georgia Cruising	Nil
fire in engine room (nrp)					
00-211	19 Nov 00	Auckland	harbour tug *Waka Kume*	Ports of Auckland Limited	Nil
loss of control					
00-212	13 Dec 00	Cook Strait	passenger ferry *Aratere*	Tranz Rail Limited	Nil
engine failure (nrp)					
01-201	25 Jan 01	Taupo	jet boat *Huka Jet 3*	Huka Jet Limited	P: 4 s 4 m
grounding					
01-202	12 Feb 01	Queenstown	jet boat *Shotover 6*	Shotover Jet Limited	P: 4 m
collision with rock					
01-203	13 Feb 01	Auckland	container ship *Nicolai Maersk*	Maersk Sealand Limited	C: 1 f 3 s 3 m
fatal lifeboat drill					
01-204	9 Mar 01	Auckland	tug *Nautilus III*	Thomson's Towage	Nil
capsize and sinking					
01-205	15 Mar 01	Port Otago	coastal cargo ship *Spirit of Enterprise*	Pacifica Shipping Limited	Nil
grounding					
01-206	15 Apr 01	Manukau Harbour	gas carrier *Boral Gas*	Origin Energy Contracting Limited	Nil
grounding					
01-207	14 May 01	Tolaga Bay	charter vessel *Osprey*	Tolaga Bay East Cape Charters	P: 1 f 1 s
swamping and manoverboard					
01-208	7 Jun 01	Cook Straight	passenger ferry *Arahura*	Tranz Rail Limited	Nil
machinery space flooding					

Key to abbreviations:

c = crew
p = passenger
m = minor
s = serious
f = fatal
nrp = no report published

Tug *Nautilus III*, capsize and sinking, Auckland Harbour, 9 March 2001 (investigation 01-204). There were no injuries.

Coastal cargo ship *Spirit of Enterprise*, which ran aground in Port Otago, 15 March 2001 (investigation 01-205). There were no injuries.

Summary of Safety Recommendations Finalised

Aviation

Over the year 10 safety recommendations were finalised to improve aviation safety:

2	to reduce the possibility of wire strikes
2	to improve checklists and checklist procedures
1	to improve warning systems
1	to result in a higher percentage of ELT activations in accident aircraft
3	to enhance the safety of small air transport operation aircraft when operating into marginal airstrips
1	to improve the management of air traffic services.

Rail

Over the year 41 safety recommendations were finalised to improve rail safety:

11	to reduce derailments
5	to reduce collisions between trains
2	to reduce collisions between trains and obstructions
3	to reduce accidents of operating staff
1	to reduce conditional Stop Board overruns
3	to improve safety culture
2	to improve defences against track warrant operating errors leading to collisions
1	to reduce undesirable and known risk exposure
6	to improve the integrity of train control operations
1	to improve rule understanding
2	to improve compliance monitoring
4	to improve fatigue management

Marine

Over the year 61 safety recommendations were finalised to improve marine safety:

5	to prevent vessel or component design anomalies contributing to accidents
5	to avoid fires on board vessels, or to improve fire detection and fire fighting capability
3	to make the safe ship management system more robust and effective
32	(of which 15 were the same recommendation, but sent to different recipients) to improve operator policies, procedures, and risk management, for passenger and crew safety through safer operations
6	to improve industry training standards
7	to improve the standard of repair and maintenance of safety-critical items in vessels
3	to reduce the likelihood of collisions within congested or confined waters.

The full text of all safety recommendations and replies is published on the Commission's website www.taic.org.nz.

Transport Accident Investigation Commission

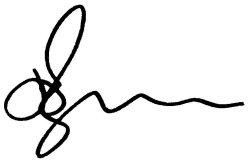
Statement of Responsibility
For the Year Ended 30 June 2001

In the financial year ended 30 June 2001, the Commissioners and management of the Transport Accident Investigation Commission were responsible for:

(a) the preparation of financial statements and the judgements therein

(b) establishing and maintaining a system of internal control designed to provide reasonable assurance as to the integrity and reliability of financial reporting.

In the opinion of the Commissioners and management of the Transport Accident Investigation Commission, the financial statements for the financial year reflect fairly the financial position and operations of the Transport Accident Investigation Commission.



Hon W P Jeffries
Chief Commissioner

John Britton
Chief Executive

Dated 7 August 2001

Transport Accident Investigation Commission
Financial Statements
Statement of Accounting Policies
For the year ended 30 June 2001

1. Reporting entity

The Transport Accident Investigation Commission is an independent Crown entity established under the Transport Accident Investigation Commission Act 1990.

The Commission investigates aviation, marine and rail accidents and incidents, the circumstances of which have, or are likely to have, significant implications for transport safety. The Commission publishes safety recommendations and reports on accidents and incidents to avoid similar occurrences in future.

The Commission also represents New Zealand at accident investigations in which New Zealand has a specific interest, conducted by overseas authorities, and exchanges accident and incident information with overseas government accident investigation authorities.

The Commission's air accident investigation capability is occasionally extended, on a cost recovery basis, to Pacific Island states with no similar agency.

2. Measurement system

The financial statements have been prepared on a historical cost basis.

3. Particular accounting policies

The following particular accounting policies which materially affect the measurement of financial performance and financial position have been applied:

(a) Forecast figures

The forecast figures are those approved by the Commission at the beginning of the financial year.

The forecast figures have been prepared in accordance with generally accepted accounting practice and are consistent with the accounting policies adopted by the Commission for the preparation of the financial statements.

(b) Revenue

The Commission derives revenue through the provision of outputs to the Crown, for services to third parties and income from its investments. Such revenue is recognised when earned and is reported in the financial period to which it relates.

(c) Fixed assets are shown at cost less accumulated depreciation and have been depreciated on a straight line (SL) basis at Inland Revenue published rates which are anticipated to write them off over their estimated useful lives.

Fixed asset type	Useful life (years)
buildings (store)	33
motor vehicles	5.6
furniture and fittings	10 - 18
office equipment	2.5 - 8.0
EDP equipment	3.3 - 4.2

(d) Receivables

Receivables have been valued at expected net realisable value.

(e) GST

These financial statements have been prepared exclusive of GST.

(f) Statement of Cash Flows

Cash comprises monies held in the Commission's bank accounts and short term deposits.

(g) Employee entitlements
Provision of employee entitlements is recognised when employees become eligible to receive the benefits.

(h) Taxation
The Commission is a public authority in terms of the Income Tax Act 1994 and consequently is exempt from income tax.

(i) Operating leases
Operating lease payments, where the lessor effectively retains substantially all the risks and benefits of ownership of the leased items, are charged as expenses in the periods in which they are incurred.

(j) Financial instruments
The Commission is party to financial instruments as part of its normal operations. These financial instruments include bank accounts, short-term deposits, debtors and creditors. All financial instruments are recognised in the statement of financial position and all revenues and expenses in relation to financial instruments are recognised in the statement of financial performance.

4. Changes in accounting policies

There have been no changes in accounting policies during the period under review.

Transport Accident Investigation Commission
Statement of Financial Position
As at 30 June 2001

	Note	Actuals 30/06/01 ($)	Forecast 30/06/01 ($)	Actuals 30/06/00 ($)
Assets				
Fixed assets	1	136,048	119,000	153,652
Current assets				
Cash at bank		107,041	113,000	94,648
Short-term deposits		150,000	150,000	150,000
Receivables	2	2,020	5,000	7,410
Accrued interest		1,312	-	1,289
Prepayments and advances		8,335	5,000	10,933
Total Current assets		268,708	273,000	264,280
Total Assets		404,756	392,000	417,932
Represented by:				
Liabilities and Taxpayers' funds				
Current liabilities				
Payables and Accruals	3	113,460	100,000	121,601
Provision for employee leave entitlements	4	64,934	60,000	68,334
Total Current liabilities		178,393	160,000	189,935
Taxpayers' Equity		226,363	231,997	227,997
Total Liabilities and Taxpayers' funds		404,756	391,997	417,932

Hon W P Jeffries
Chief Commissioner

John Britton
Chief Executive

The accompanying notes and statement of accounting policies should be read in conjunction with these financial statements.

Transport Accident Investigation Commission
Statement of Financial Performance
For the year ended 30 June 2001

	Note	Actuals 30/06/01 ($)	Forecast 30/06/01 ($)	Actuals 30/06/00 ($)
Revenue				
Crown revenue		1,552,000	1,552,000	1,486,222
Other income		17,692	20,000	18,267
Profit on sale of fixed assets		-	-	1,853
Interest earned		16,420	14,000	14,030
Total Revenue		1,586,112	1,586,000	1,520,372
Expenditure				
Audit fees		7,500	8,000	8,000
Commissioners' fees		50,299	55,000	46,547
Depreciation		38,326	40,000	30,399
Lease, rentals and outgoings		99,128	105,000	99,451
Capital charge	5	22,700	17,000	19,798
Personnel costs		869,238	871,000	854,685
Loss on sale of fixed assets		3,411	-	-
Other operating costs		497,144	486,000	441,462
Total Expenditure		1,587,746	1,582,000	1,500,342
Net Surplus/(Deficit)		(1,634)	4,000	20,030

Transport Accident Investigation Commission
Statement of Movements in Equity
For the year ended 30 June 2001

	Note	Actuals 30/06/01 ($)	Forecast 30/06/01 ($)	Actuals 30/06/00 ($)
Opening Taxpayers' equity at 1 July 2000		227,997	227,997	207,967
Plus:				
Net Surplus/(Deficit)		(1,634)	4,000	20,030
Total recognised revenues and expenses for the year		(1,634)	4,000	20,030
Closing Taxpayers' equity at 30 June 2001		226,363	231,997	227,997

The accompanying notes and statement of accounting policies should be read in conjunction with these financial statements.

Transport Accident Investigation Commission
Statement of Cash Flows
For the year ended 30 June 2001

	Actuals **30/06/01**	Forecast **30/06/01**	Actuals **30/06/00**
Cash flows from operating activities	($)	($)	($)
Cash was received from:			
Crown revenue	1,552,000	1,552,000	1,486,222
Other income	24,989	20,000	18,713
Interest received	16,398	14,000	12,985
	1,593,387	1,586,000	1,517,920
Cash was disbursed to:			
Payments to suppliers and employees	1,534,161	1,555,000	1,446,355
Capital charge	22,700	17,000	19,798
Net cash flows from operating activities	36,526	14,000	51,767
Cash flows from investing activities			
Cash was received from:			
Sale of fixed assets	17,333	18,000	22,140
Cash was applied to:			
Purchase of fixed assets	41,466	55,000	113,541
Net cash flows from investing activities	(24,133)	(37,000)	(91,401)
Net movement in cash for the period	12,394	(23,000)	(39,634)
Opening bank balance	244,648	71,000	284,282
Closing bank balance	257,041	48,000	244,648

The accompanying notes and statement of accounting policies should be read in conjunction with these financial statements.

Transport Accident Investigation Commission

Reconciliation of Cash Flow with Statement of Financial Performance
For the year ended 30 June 2001

	30/6/01 ($)	30/6/00 ($)
(Deficit)/Surplus from Statement of Financial Performance	(1,634)	20,030
Add: Non-Cash Items		
Depreciation	38,326	30,399
(Profit)/loss on sale of fixed assets	3,411	(1,853)
	41,737	28,546
Add/(Less) movements in Working Capital Items		
Decrease (increase) in Receivables	5,390	446
Decrease (increase) in Accrued interest	(23)	(1,046)
Decrease (increase) in Advances and Prepayments	2,598	5,586
Increase (decrease) in Creditors and Accruals	(8,141)	(3,037)
Increase (decrease) in Provisions	(3,401)	1,242
Total working capital items	(3,577)	3,191
Net cash flows from operating activities	36,526	51,767

The accompanying notes and statement of accounting policies should be read in conjunction with these financial statements.

Transport Accident Investigation Commission
Notes to the Financial Statements
For the year ended 30 June 2001

1. Fixed assets

2001	Cost ($)	Accumulated Depreciation ($)	Book Value ($)
Buildings	29,798	10,595	19,203
EDP equipment	113,285	87,469	25,816
Office furniture, fittings and equipment	187,789	153,335	34,454
Motor vehicles	67,076	10,502	56,574
	397,949	261,901	136,048
2000	($)	($)	($)
Buildings	29,798	9,701	20,097
EDP equipment	105,556	72,615	32,941
Office furniture, fittings and equipment	187,789	143,547	44,242
Motor vehicles	71,056	14,684	56,372
	394,200	240,548	153,652

2. Receivables

	30/06/01 ($)	**30/06/00** ($)
Gross Receivables	2,020	7,410
Less: Provision for doubtful debts	-	-
Net Receivables	2,020	7,410

3. Payables and Accruals

	30/06/01 ($)	**30/06/00** ($)
Trade creditors	68,796	61,548
Accrued expenses	44,664	60,053
Total Payables and Accruals	113,460	121,601

4. Employee leave entitlements

	30/06/01 ($)	**30/06/00** ($)
Annual leave	47,644	52,494
Retirement leave	17,290	15,840
	64,934	68,334

5. Capital charge

Levied at 10% on the taxpayers' funds for 2001. For the 2000 year the rate was 10%.

6. Financial instruments

The Commission has various financial instruments comprising both financial assets and liabilities which are stated at their estimated fair value in the Statement of Financial Position.

Financial instruments which potentially subject the Commission to credit risk consist of cash at bank and accounts receivable. All financial instruments are unsecured and do not require collateral or other security. There are no significant concentrations of credit risk.

Term deposits are currently placed with WestpacTrust - Wellington and funds are invested pursuant to investment powers granted under Section 25 of the Public Finance Act 1989.

The Commission incurs minimal foreign currency risk through payables and accruals in the normal course of its business.

7. Related party disclosures

On 10 December 1996 the Secretary for Transport stated that in the event of an accident or incident which the Commission considers is significant and has the authority to investigate, or in the event of a significant court action involving issues fundamental to Transport Accident Investigation Commission and its ability to operate effectively, the matter of availability of finance should not become the determining factor as to whether or not the Commission proceeds.

8. Employee remuneration

Total remuneration and benefits	Number of Employees
$000	
$100-$110	1
$150-$160	1

The Chief Executive's remuneration and benefits is in the $150,000 -$160,000 band.

9. Commission members

Commission members earned the following fees during the year:

Member	Fees
Hon B Jeffries (Chief Commissioner)	$27,000
Ms P Muir	$12,094
Mr N Macfarlane	$11,205

9. Statement of commitments

The Transport Accident Investigation Commission has ongoing leases of the following amounts:

	30/6/01	**30/6/00**
	($)	($)
Less than 1 year	60,738	90,290
1 - 2 years	22,500	59,685
2 - 5 years	-	22,500
5+ years	-	-
	83,238	172,475

10. Statement of contingent liabilities

There were no contingent liabilities existing at balance date.
(2000: Nil.)

Transport Accident Investigation Commission

Statement of Objectives and Service Performance
For outputs in the Year Ended 30 June 2001

Output

This output class covers the investigation and reporting on certain aircraft, rail and marine accidents and incidents in New Zealand and the waters over which it has jurisdiction. Investigations for safety are conducted in order to identify the causes of accidents and incidents and make recommendations to minimise the risk of such events occurring again. This output also covers international co-operation and exchange of accident information with similar safety investigation bodies overseas.

Outcome

This output contributes to safe and sustainable transport at a reasonable cost.

Financial objectives

Resources employed	Actual 12 months to 30/06/01 $000	Actual 12 months to 30/06/00 $000	Performance Agreement with the Minister 12 months to 30/06/01 $000
Revenue			
Crown	1,552	1,486	1,552
Other	34	34	34
Total revenue	1,586	1,520	1,586
Expenditure	1,588	1,500	1,582
Surplus/(Deficit)	(2)	20	4

Service performance

Service measured	Note	Actual 12 months to 30/06/01	Actual 12 months to 30/06/00	Performance Agreement with the Minister 12 months to 30/06/01
Air Accidents/Incidents				
New investigations begun		15	8	15
Reports finalised		10	6	n/a
Investigations ceased without publishing a final report		2	1	n/a
Rail Accidents/Incidents				
New investigations begun		19	22	20
Reports finalised		15	18	n/a
Investigations ceased without publishing a final report	1	4	7	n/a
Marine Accidents/Incidents				
New investigations begun		13	11	20
Reports finalised		11	9	n/a
Investigations ceased without publishing a final report	1	2	4	n/a

Service measured	Note	Actual 12 months to 30/06/01	Actual 12 months to 30/06/00	Performance Agreement with the Minister 12 months to 30/06/01
Timeliness				
% of all reports finalised in the year completed within 9 months		64	48	90
Availability of Accident Investigators (hr/days)		24/365	24/365	24/365
Quality				
Number of published reports requiring revision and republishing with changed causes, findings or safety recommendations		0	0	0
% of reports which determined the probable cause(s) of occurrences investigated		92	94	70
% of responses in a triennial readership survey which will rate the investigation reports as “good” or better for their contribution to transport safety	2		-	
Air		86		70
Rail		84		70
Marine		93		70

Note

1. Investigations are ceased without publishing a report where the circumstances of the accident or incident do not have, or are unlikely to have, significant implications for transport safety.

2. These figures have been adjusted on a pro-rata basis to account for some respondents selecting more than one quality rating.

Audit New Zealand

REPORT OF THE AUDIT OFFICE

TO THE READERS OF THE FINANCIAL STATEMENTS OF THE TRANSPORT ACCIDENT INVESTIGATION COMMISSION FOR THE YEAR ENDED 30 JUNE 2001

We have audited the financial statements on pages 48 to 59. The financial statements provide information about the past financial and service performance of the Transport Accident Investigation Commission and its financial position as at 30 June 2001. This information is stated in accordance with the accounting policies set out on pages 48 and 49.

Responsibilities of the Commission

The Public Finance Act 1989 requires the Commission to prepare financial statements in accordance with generally accepted accounting practice which fairly reflect the financial position of the Transport Accident Investigation Commission as at 30 June 2001, the results of its operations and cash flows and the service performance achievements for the year ended 30 June 2001.

Auditor's responsibilities

Section 43(1) of the Public Finance Act 1989 requires the Audit Office to audit the financial statements presented by the Commission. It is the responsibility of the Audit Office to express an independent opinion on the financial statements and report its opinion to you.

The Controller and Auditor-General has appointed Paul D Helm, of Audit New Zealand, to undertake the audit.

Basis of opinion

An audit includes examining, on a test basis, evidence relevant to the amounts and disclosures in the financial statements. It also includes assessing:

- the significant estimates and judgements made by the Commission in the preparation of the financial statements *and*
- whether the accounting policies are appropriate to the Transport Accident Investigation Commission's circumstances, consistently applied and adequately disclosed

We conducted our audit in accordance with generally accepted auditing standards, including the Auditing Standards issued by the Institute of Chartered Accountants of New Zealand. We planned and performed our audit so as to obtain all the information and explanations which we considered necessary in order to provide us with sufficient evidence to give reasonable assurance that the financial statements are free from material misstatements, whether caused by fraud or error. In forming our opinion, we also evaluated the overall adequacy of the presentation of information in the financial statements.

Other than in our capacity as auditor acting on behalf of the Controller and Auditor-General, we have no relationship with or interests in the Transport Accident Investigation Commission.

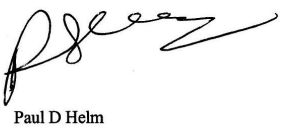
Unqualified opinion

We have obtained all the information and explanations we have required.

In our opinion, the financial statements of the Transport Accident Investigation Commission on pages 48 to 59:

- comply with generally accepted accounting practice *and*
- fairly reflect:
  - the financial position as at 30 June 2001
  - the results of its operations and cash flows for the year ended on that date *and*
  - the service performance achievements in relation to the performance targets and other measures adopted for the year ended on that date.

Our audit was completed on 7 August 2001 and our unqualified opinion is expressed as at that date.



Paul D Helm
Audit New Zealand
On behalf of the Controller and Auditor-General
Wellington, New Zealand

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