

Transportation Safety Board
of Canada

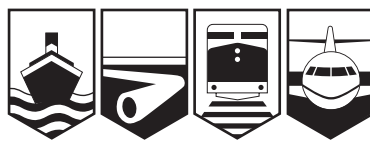


Bureau de la sécurité des transports
du Canada

TSB

ANNUAL REPORT TO PARLIAMENT

2001-2002



Canada

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ANNUAL REPORT TO PARLIAMENT 2001–2002

Place du Centre
200 Promenade du Portage
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Hull, Quebec K1A 1K8
03 June 2002

The Honourable Stéphane Dion, P.C., M.P.
President of the Queen's Privy Council for Canada
House of Commons
Ottawa, Ontario K1A 0A6

Dear Minister:

In accordance with subsection 13(3) of the *Canadian Transportation Accident Investigation and Safety Board Act*, the Board is pleased to submit, through you, its annual report to Parliament for the period 01 April 2001 to 31 March 2002.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'C. Simpson', written in a cursive style.

Charles Simpson
Acting Chairperson

TABLE OF CONTENTS

Members of the Board	1
Chairperson's Message	2
Senior Management	3
Mission of the TSB	3
Occurrences, Investigations, and Safety Action	4
Marine	8
Pipeline	16
Rail	18
Air	28
Appendix A—Glossary	44

LIST OF FIGURES

1 Occurrences Reported to the TSB	4
2 Investigations In Process / Completed	5
3 Safety Action by the TSB	5
4 Board Assessment of Responses to Recommendations	6
5 Marine Occurrences and Fatalities	9
6 Pipeline Occurrences	16
7 Rail Occurrences and Fatalities	19
8 Air Occurrences and Fatalities	29

MEMBERS OF THE BOARD



Acting Chairperson Charles H. Simpson. Transportation executive experience includes Executive Vice-President, Operations, of Air Canada; President of the Canadian Air Line Pilots Association; and Vice-President of the International Federation of Air Line Pilots Association.



Member Jonathan Seymour. Transportation policy and marine management experience includes Executive Director of International Maritime Centre–Vancouver; chartering, commercial, and general manager for several shipping companies; marine policy advisor to the British Columbia government; and policy and economic consultant.



Member Wendy A. Tadros. Transportation and legal experience includes Director of Legal Services for the National Transportation Agency of Canada, Inquiry Coordinator for “The Road to Accessibility: An Inquiry into Canadian Motor Coach Services”, and counsel to the Canadian Transport Commission before the Commission of Inquiry into the Hinton Train Collision.



Member Camille H. Thériault. Public management experience includes Premier of New Brunswick, provincial Minister of Economic Development, and responsibility for the Information Highway Secretariat. Private enterprise experience includes General Manager of the Kent Industrial Commission and Vice-President of the United Maritimes Fishermen’s Cooperative.



Member R. Henry Wright. Management and consulting experience includes auditor for the Ontario Ministry of Community and Social Services, senior management administrator of several non-profit organizations, and consultant in government and public relations.

Note: **The Honourable Benoît Bouchard, P.C.**, retired as Chairperson and Member of the Board on 31 August 2001.

CHAIRPERSON'S MESSAGE

The Transportation Safety Board of Canada (TSB) has established a solid reputation as a technically skilled and professional organization. Its framework of independence makes the TSB a global leader in that regard.

Although the TSB has achieved very credible results in the past, it is committed to seeking ways of enhancing its value to Canadians and the world of transportation safety. The federal government's commitment to becoming more citizen-focused, values-driven, and results-oriented and its dedication to fiscal responsibility will form the basis for ongoing improvements within the TSB. For example, in response to reader feedback, the format of this year's annual report to Parliament has changed. The text is shorter, and the report incorporates more tables to facilitate understanding of the information it presents.

The TSB is committed to building on its achievements and its strengths to make transportation safer for all Canadians. Public interest in transportation accidents is high. The public expects the TSB to respond rapidly to accidents and to determine what can be done to prevent similar occurrences in the future. Canadian companies are increasingly supplying transportation equipment and services all over the globe. Because of international agreements, the TSB is required to represent Canada at investigations when Canadian products are involved in accidents outside the country. As more of these products enter the global market, offshore activity by the TSB will invariably increase.

The global reach of transportation industries has meant that independent safety investigation agencies in various countries increasingly cooperate in their efforts to advance transportation safety and to set safety standards. As part of this international community of agencies, the TSB shares its knowledge with others and benefits from their knowledge in return. All of this information sharing has one goal: the advancement of transportation safety worldwide.

This year's annual report focuses strictly on accident/incident statistics reporting and on investigation activities and results. The very significant efforts to enhance internal planning, management practices, and performance measurement are not reflected herein. More information on those areas is available in the TSB's Report on Plans and Priorities and the departmental Performance Report.



Charles Simpson

SENIOR MANAGEMENT

Executive Director	D. Kinsman
General Counsel	A. Harding
Director General, Investigation Operations	W. Tucker
Director General, Information Strategies and Analysis	G. Hunter
Director, Corporate Services	J. L. Laporte
Director, Marine Investigations	F. Perkins
Director, Rail/Pipeline Investigations	I. Naish
Director, Air Investigations	D. Verreault
Director, Engineering	J. Hutchinson

MISSION OF THE TSB

The *Canadian Transportation Accident Investigation and Safety Board Act* is the legal framework governing the TSB's activities.

The mission of the TSB is to advance transportation safety by

- conducting independent investigations, including public inquiries, into selected transportation occurrences to make findings as to their causes and their contributing factors
- identifying safety deficiencies
- making recommendations designed to eliminate or reduce safety deficiencies
- reporting publicly on its investigations and findings

It is not the function of the Board to assign fault or to determine civil or criminal liability.

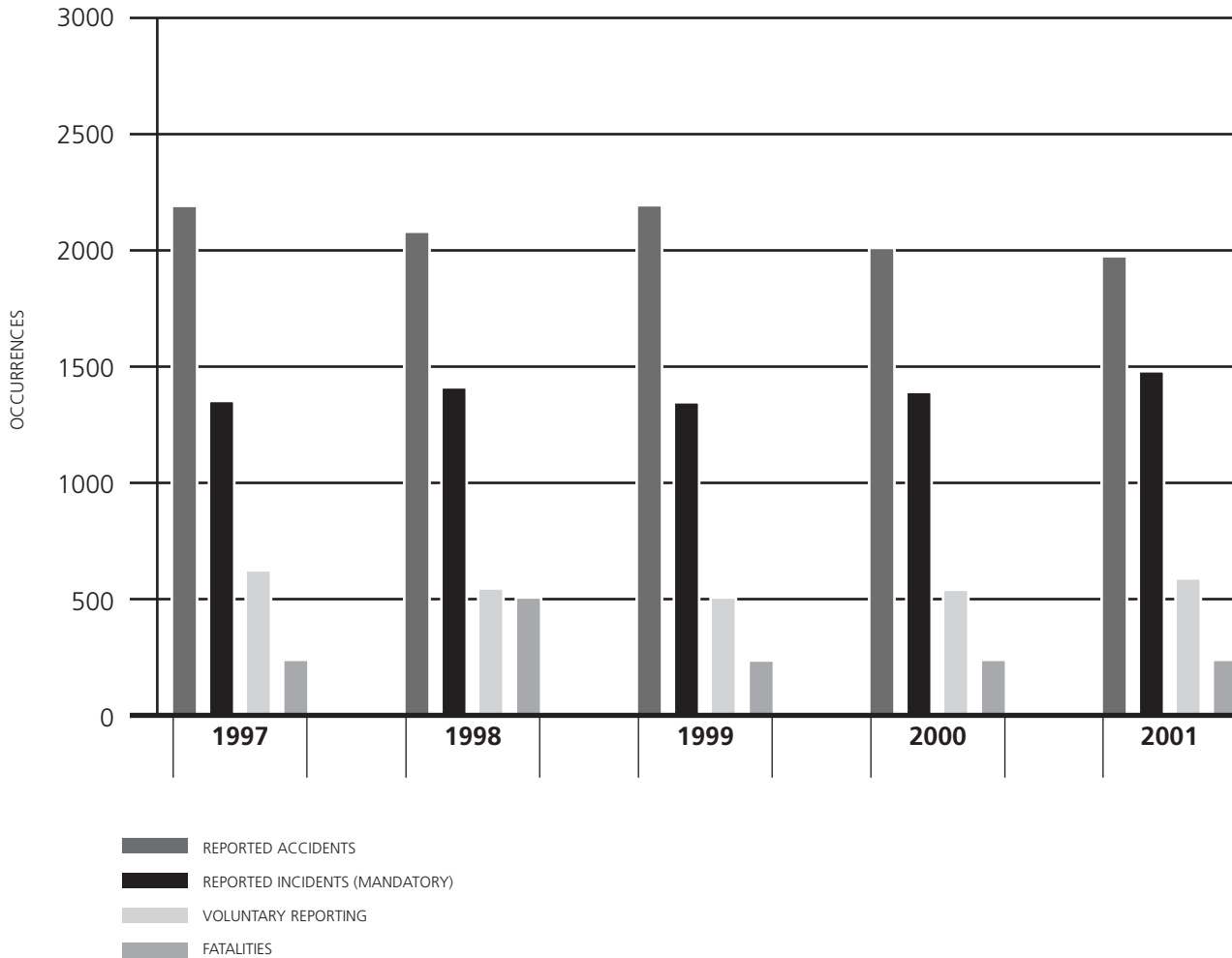
Independence

To encourage public confidence in transportation accident investigation, the investigating agency must be, and be seen to be, objective, independent, and free from any conflicts of interest. The key feature of the TSB is its independence. It reports to Parliament through the President of the Queen's Privy Council for Canada and is separate from other government agencies and departments. Its independence enables it to be objective in arriving at its conclusions and recommendations. The TSB's continuing independence and credibility rest on its competence, openness, and integrity and the fairness of its processes.

OCCURRENCES, INVESTIGATIONS, AND SAFETY ACTION

In 2001, a total of 1959 accidents and 1448 incidents were reported in accordance with the TSB's regulations for mandatory reporting of occurrences.¹ There were also 643 voluntary incident reports. The number of accidents in 2001 decreased by 2% from the 2000 accidents reported in 2000 and by 9% from the 1996–2000 annual average of 2156 accidents.

Figure 1 – Occurrences Reported to the TSB



All reported occurrences were examined in accordance with the Board's Occurrence Classification Policy to identify those with the greatest potential for advancing transportation safety. Investigations were undertaken for 92 of the approximately 4000 occurrences reported to the TSB in fiscal year 2001–2002. In fiscal year 2001–2002, 110 investigations were completed, compared to 87 in the previous year.² The number of investigations in process decreased to 159, at the end of the fiscal year, from 177 at the start. Information on all reported occurrences was entered in the TSB database for historical record, trend analysis, and safety deficiency validation purposes.

¹ While the Board's operations are for the 2001–2002 fiscal year, occurrence statistics are for the 2001 calendar year. Comparisons are generally to the last 5 or 10 years. For definitions of terms such as *accident*, *incident*, and *occurrence*, see Appendix A.

² Investigations are considered complete after the final report has been issued (not after the final report has been approved).

Figure 2 – Investigations In Process / Completed

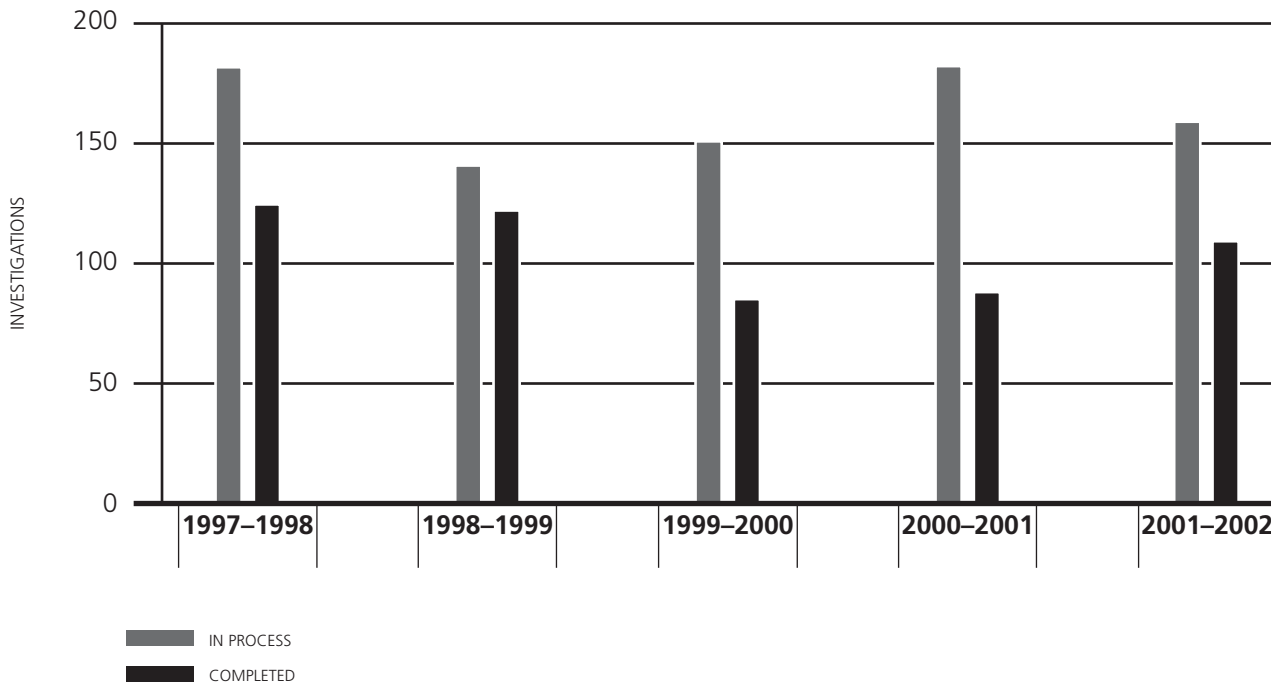


Figure 3 – Safety Action by the TSB

2001-2002	Recommendations ³	Safety Advisories	Safety Information Letters
Marine	5	14	11
Pipeline	0	2	0
Rail	4	7	8
Air	7	14	8
Total	16	37	27

In accordance with the *Canadian Transportation Accident Investigation and Safety Board Act*, a federal minister who is notified of Board recommendations must, within 90 days, advise the Board in writing of any action taken or proposed to be taken in response or reasons for not taking action. The Board considers each response, assessing the extent to which the related safety deficiency was addressed. When a recommendation generates responses from within and outside Canada, the Board's assessment is based primarily on the Canadian response.

³ For definitions of terms such as *recommendation*, *safety advisory*, and *safety information letter*, see Appendix A.

Figure 4 – Board Assessment of Responses to Recommendations

2001–2002	Fully Satisfactory Attention to Safety Deficiency	Satisfactory Intent to Address Safety Deficiency	Attention to Safety Deficiency Satisfactory in Part	Unsatisfactory Attention to Safety Deficiency	To Be Assessed	Total
Marine	1	2	0	0	0	3
Pipeline	0	0	0	0	0	0
Rail	1	7	1	0	0	9
Air	0	5	0	0	0	5
Total	2	14	1	0	0	17

LIAISON WITH CANADIAN TRANSPORTATION COMMUNITY

As part of the TSB's effort to keep abreast of technological change and to maintain contact with the transportation industry in Canada, TSB staff and Board members attend and participate in various conferences and technical meetings pertinent to transportation safety, such as the Corporate Aviation Safety Seminar (CASS) 2001.

Marine staff made safety presentations to the Canadian Marine Advisory Council, the Canadian Passenger Vessel Association, and the fishing operator associations in the Atlantic provinces. They also participated in meetings across Canada involving fishers, commercial operators, and passenger vessel associations.

Rail staff have met formally and informally with the railway industry and regulators. A representative of the TSB attended the annual meeting of the western provincial rail regulators. Staff have given presentations on the TSB to interested agencies and organizations, such as the Railway Association of Canada, Transport Canada's Regional Surface Directors, Transport sur Rail au Québec, the Ontario Rail Safety Symposium, and the Western Provincial Rail Regulators. In addition, the province of Manitoba sent an investigator to be trained in investigation methodologies.

Air staff made presentations to the Northern Air Transport Association and the Association québécoise des transporteurs aériens.

The Chairperson was involved in the public release of investigation reports at Thamesville, Ontario (a Via Rail Canada derailment) and Port Elgin, Ontario (the sinking of the *True North II*). He also presented the fourth set of aviation safety recommendations emanating from the Swissair Flight 111 accident investigation. In addition, he was the closing speaker at National Transportation Week in Montréal, Quebec.

INTERNATIONAL COOPERATION AND KNOWLEDGE TRANSFER

The TSB's mission is to advance transportation safety, not only in Canada but worldwide. This cooperation comes in many forms: participation in safety symposiums, international safety organizations, and international investigations.

The TSB continues its participation in two high-profile transportation accident investigations: first, as the accredited observer for Canada at the investigation into the Air Transat Flight 236 accident in Lajes, Azores (Portugal) and second, as the lead investigator into the Swissair Flight 111 accident off Peggy's Cove, Nova Scotia. The TSB received the International Society of Air Safety Investigators (ISASI) prestigious Lederer Award for its conduct of that international investigation and for its use of non-conventional methodologies that advanced the field of aviation accident investigations.

At that same ISASI meeting, the Chairperson gave the keynote address and investigation staff gave seminars on new investigation techniques and lessons learned from ongoing investigations. The TSB was involved as well in the International Conference on Safety in Transportation, held in Italy, where the Chairperson gave the keynote address. TSB staff also attended other international transportation meetings, including those of the Marine Accident Investigators International Forum, the International Maritime Organization, and the International Civil Aviation Organization.

MARINE

ANNUAL STATISTICS

A TOTAL OF 517 MARINE ACCIDENTS WERE REPORTED TO THE TSB IN 2001. THIS TOTAL REPRESENTS A 25-YEAR LOW, WITH A 2% DECREASE FROM THE 525 REPORTED IN 2000 AND A 12% DECREASE FROM THE 1996–2000 ANNUAL AVERAGE OF 587.

Almost 90% of the accidents were shipping accidents, which involved events such as groundings, strikings, collisions, fires, and sinkings. In 2001, 458 shipping accidents were reported, a 45% decrease from the 840 reported in 1992. Shipping accidents have been decreasing by an average 6% over the last 10 years. This decrease coincides with a continuing decrease in fishing activities and in Canadian-registered commercial shipping activity.⁴

The other marine accident category, accidents to persons aboard ship, includes falls, electrocution, and other types of injuries requiring hospitalization. The number of accidents aboard ship decreased to 59 in 2001, compared to 77 in 2000 and the 1996–2000 average of 65.

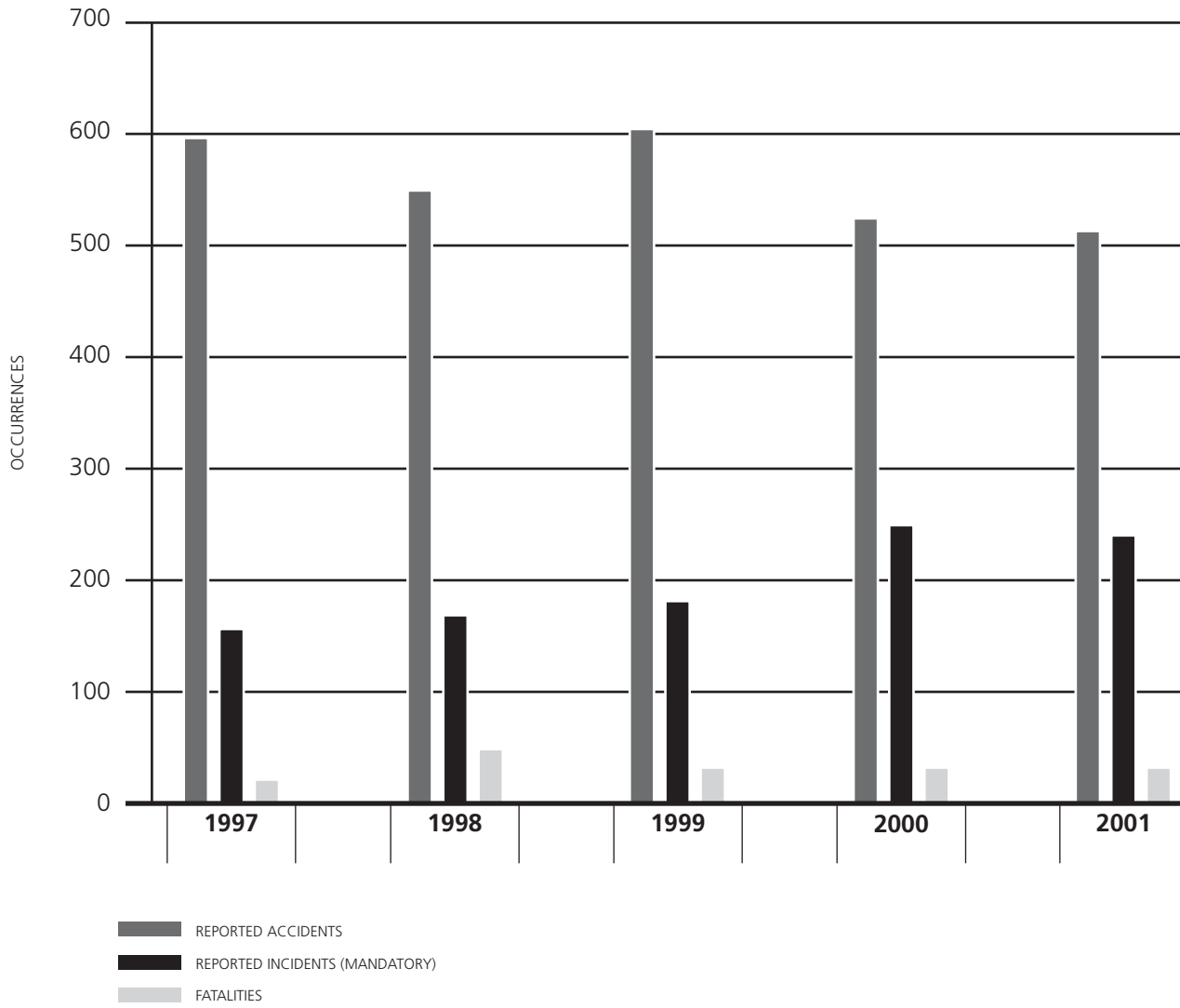
The Canadian commercial vessel accident rate per 1000 trips increased slightly to 3.60 in 2001 from 3.24 in 2000. The foreign commercial vessel accident rate per 1000 trips decreased slightly in Canada to 1.78 in 2001 from 2.05 in 2000. Over the last five years, the Canadian commercial vessel accident rate decreased 16% from the 1996 rate of 4.27, and the foreign commercial vessel accident rate decreased 41% from the 1996 rate of 3.02.

In 2001, shipping accidents resulted in 17 fatalities, and accidents aboard ship resulted in 17 fatalities. Seven fatal accidents resulted in multiple casualties. In 2000, shipping accidents resulted in 16 fatalities, and accidents aboard ship resulted in 15 fatalities. On average from 1996 to 2000, 18 fatalities resulted from shipping accidents, and 13 fatalities resulted from accidents aboard ship. Although the number of vessels reported lost had dropped steadily over the previous 10 years, 46 vessels were reported lost in 2001, up from the 37 reported lost in 2000 and down slightly from the 1996–2000 annual average of 50.

In 2001, 239 marine incidents were reported in accordance with TSB mandatory reporting requirements. This number represents a 4% decrease from 250 in 2000 but a 36% increase over the 1996–2000 average of 176. This increase is primarily attributable to a rise in the reporting of mechanical failures and close-quarters situations by the marine industry.

⁴ From 1992 to 2000, the number of fishing vessels licensed by the Department of Fisheries and Oceans (DFO) declined by 3.8% per year. The DFO does not have actual figures for 2001 yet but estimates that the number remained unchanged or increased slightly. The number of trips by commercial Canadian-flag vessels has decreased by 10.5% since 1992.

Figure 5 - Marine Occurrences and Fatalities



MARINE INVESTIGATIONS STARTED IN 2001–2002

The following information is preliminary. Final determination of events is subject to the TSB's full investigation.

Date	Location	Vessel(s)	Type	Event	Occurrence No.
2001-04-01	Hamilton Harbour, Ont.	<i>Utviken</i>	Bulk carrier	Striking	M01C0008
		<i>Hamilton Energy</i>	Tanker	Striking	
		<i>Provmar Terminal</i>	Tanker	Striking and sinking	
2001-04-18	Off Belle Isle, Nfld.	<i>Fame</i>	Fishing	Abandonment and sinking	M01N0020
2001-05-14	Off Goderich, Ont.	<i>Canadian Transfer</i>	Bulk carrier	Bottom contact	M01C0019
2001-06-13	Wascana Lake, Sask.	<i>Wascana II</i>	Catamaran	Near sinking	M01W0116
2001-06-15	Lake Winnipeg, Man.	<i>Shannon Dawn</i>	Fishing	Swamping	M01C0029
		<i>Rachel M</i>	Fishing		
2001-06-30	Ottawa River, Ottawa, Ont.	<i>Lady Duck</i>	Amphibious	Taking water and sinking	M01C0033
2001-07-29	Off Saint-Ours Island, Que.	<i>Cast Privilege</i>	Container	Grounding	M01L0080
2001-08-11	Welland Canal, Ont.	<i>Windoc</i>	Bulk carrier	Striking and fire	M01C0054
2001-08-22	Sault Ste. Marie, Ont.	<i>Coral Trader</i>	Tanker	Striking	M01C0059
		<i>PML 2501</i>	Barge		
		<i>Adanac III</i>	Tug		
2001-09-02	Niagara Falls, Ont.	<i>Saute Moutons 14</i>	Passenger	Fall overboard	M01C0063
2001-09-05	Baie Sainte-Anne, N.B.	<i>Alain Josée</i>	Fishing	Abandonment and sinking	M01M0100
2001-09-29	Havre Saint-Pierre, Que.	<i>Alex B.I</i>	Fishing	Sinking	M01L0112
2001-10-26	Cape Scott, B.C.	<i>Kella-Lee</i>	Fishing	Foundering	M01W0253
2001-11-16	Near Deschailons-sur-Saint-Laurent, Que.	<i>Cedar</i>	Bulk carrier	Steering-gear failure and grounding	M01L0129
2002-03-17	Belle Isle, Nfld., 80 nm E	<i>Katsheshuk</i>	Fishing	Fire	M02N0007
2002-03-19	Madeleine Islands, Que., 32 nm N	<i>Lake Carling</i>	Bulk carrier	Fracture	M02L0021

MARINE REPORTS APPROVED IN 2001–2002

Date	Location	Vessel(s)	Type	Event	Report No.
1997-08-07	Port of Québec, Que.	<i>Navimar V</i>	Pilot boat	Overturning	M97L0076
1998-04-02	Off Thompson Island, St. Lawrence River, Ont.	<i>Enerchem Refiner</i>	Tanker	Grounding	M98C0004
1998-08-02	Lévis, Que.	<i>Federal Fraser</i>	Bulk carrier	Grounding	M98L0097
1998-10-26	Grande-Anse, Que.	<i>Southgate</i>	Cargo	Fire	M98L0139
1999-04-05	Johnson Point, St. Marys River, Ont.	<i>Algotario</i>	Bulk carrier	Grounding and hull damage	M99C0005
1999-04-09	Prince Rupert Harbour, B.C.	<i>Cape Acacia</i>	Bulk carrier	Striking bottom	M99W0058
1999-04-23	Near Johnson Point, St. Marys River, Ont.	<i>Jean Parisien</i>	Bulk carrier	Contacting bottom without grounding	M99C0008
1999-06-02	Mission, B.C.	<i>Sheena M</i>	Tug	Striking	M99W0078
		<i>Rivtow 901</i>	Barge		
1999-07-15	Steveston Jetty, S. arm of Fraser River, B.C.	<i>Siyay</i>	CCG hovercraft	Striking	M99W0116
1999-08-07	Vancouver Harbour, B.C.	<i>Sunboy</i>	Pleasure craft	Collision	M99W0133
		<i>Jose Narvaez</i>	Tug		
		<i>Texada B.C.</i>	Barge		
1999-10-23	Off Hnaua Harbour, Man.	(no name)	Skiff	Swamping and sinking	M99C0048
1999-12-28	Seattle, WA	<i>Juneau</i>	Barge	Fall overboard	M99F0038
		<i>Seaspan Pacer</i>	Tug		
		<i>Escort Eagle</i>	Tug		
2000-01-15	N. arm of Fraser River, B.C.	<i>Sea Cap XII</i>	Tug	Striking of a bridge	M00W0005
		<i>T.L. Sharpe</i>	Barge		
2000-03-13	Port Alberni, B.C.	<i>C-Joy</i>	Fishing	Accident aboard ship—alongside	M00W0059
2000-05-12	Ottawa River, Hull, Que.	<i>Miss Gatineau</i>	Passenger	Fall overboard	M00L0043
2000-06-16	Georgian Bay, Ont.	<i>True North II</i>	Passenger	Sinking	M00C0033
2000-08-10	Amherstburg Channel, Ont.	<i>Algoeast</i>	Tanker	Contact with bottom	M00C0053
2000-08-25	W. shore of Hudson Bay	<i>Avataq</i>	Fishing	Foundering	M00H0008
2000-09-06	Fraser River, B.C.	<i>Star Queen</i>	Fishing	Fatal accident	M00W0230
2000-09-25	Pelee Passage, Lake Erie, Ont.	<i>Atlantic Huron</i>	Bulk self-unloader	Striking	M00C0069
		<i>Griffon</i>	CCG ship		
2000-10-01	Off Yarmouth, N.S.	<i>Flying Swan VI</i>	Fishing	Capsizing	M00M0104

MARINE RECOMMENDATIONS APPROVED IN 2001–2002

Occurrence	Recommendation	Response Summary	Board Assessment of Response Action	Safety Action Taken
<p>M00C0033 Sinking Passenger vessel <i>True North II</i> Off Flowerpot Island Georgian Bay, Ont. 16 June 2000</p>	<p>M01-01 The Department of Transport establish a timetable to expedite the review of the deficiencies in the inspection and certification process, and that it make interim progress reports to the public demonstrating the extent to which these deficiencies have been resolved.</p>	<p>Transport Canada (TC) agrees with this recommendation. TC established a timetable indicating the proposed target date for each initiative. TC will also issue progress reports.</p>	<p>Fully Satisfactory</p>	<p>TC issued a public progress report on 06 February 2002.</p>
	<p>M01-02 The Department of Transport, Marine Safety, instill within its organization an approach to safety that would enable management and safety inspectors to identify and address all unsafe practices and conditions and not limit inspection only to compliance with rules.</p>	<p>TC supports the intent of this recommendation. TC also states that the rules of the <i>Canada Shipping Act</i> must form the basis of a regulatory inspection.</p>	<p>Satisfactory Intent</p>	<p>TC, Marine Safety, has developed the <i>Marine Safety Quality Manual</i>, detailing the requirements for inspections, audits, and data handling for the Small Vessel Monitoring and Inspection Program. TC is developing a training program that focuses on small passenger vessel inspections and seeks to instill a stronger safety culture within the marine community. TC has committed to improving the quality and control of inspections to ensure that inspectors reinforce their safety culture by verifying operational and equipment performance and prescriptive regulatory aspects.</p>

MARINE RECOMMENDATIONS APPROVED IN 2001–2002 (Cont'd)

Occurrence	Recommendation	Response Summary	Board Assessment of Response Action	Safety Action Taken
M00C0033 (cont'd)	M01-03 The Department of Transport require small passenger vessels to provide pre-departure briefings and to be equipped with a life-raft that is readily deployable, life-saving equipment that is easily accessible, and the means to immediately alert others of an emergency situation.	TC agrees with this recommendation. TC will amend regulations to require pre-departure safety briefings and to address the stowage of life-saving equipment. TC will evaluate the need for more effective distress-alerting capabilities.	Satisfactory Intent	TC has proposed regulatory amendments, some of which came into force on 14 March 2002, concerning pre-departure safety briefings and float-free arrangement for life-rafts. TC issued <i>Ship Safety Bulletin 07/2001</i> about the importance of storing life-saving equipment in a way that is ready for use and highly visible.
M99W0133 Collision between pleasure craft <i>Sun Boy</i> and tug <i>Jose Narvaez</i> , towing barge <i>Texada B.C.</i> Vancouver Harbour, B.C. 07 August 1999	M01-04 The Department of Transport, in collaboration with the Council of Marine Carriers and other industry representatives, ensure that tugs and tows are equipped with navigation lights that meet the safety range of visibility.	Response expected next fiscal year.		TC has worked with industry to develop navigation lights that are more suitable for use on barges. In January 2002, TC accepted a new portable light that offers a greater visibility range and intensity.
	M01-05 The Department of Fisheries and Oceans, in conjunction with the appropriate authorities in the United States, explore ways to ensure that operators of pleasure craft in their respective jurisdictions possess adequate competency and basic knowledge of navigation safety, including the requirements of the <i>International Regulations for Preventing Collisions at Sea</i> .	Response expected next fiscal year.		

REPLIES TO MARINE RECOMMENDATIONS

M01-01

- Transport Canada (TC) agrees with this recommendation.
- TC will issue semi-annual progress reports to keep the public informed on the status of each initiative. These progress reports will continue until all initiatives have been completed.
- TC will provide public updates on its actions in response to this recommendation through press releases and its Web site. It will present its progress reports at the Canadian Marine Advisory Council sessions, which are held in May and November of each year.
- Board Assessment: *Fully Satisfactory*.

M01-02

- TC supports the intent of this recommendation.
- Certain provisions in the *Canada Shipping Act (CSA)* are designed to ensure that no certificate is issued to a vessel if there is any reason to believe that it is not seaworthy.
- Regulatory inspections must follow the rules of the CSA.
- TC instituted the Small Vessel Monitoring and Inspection Program (SVMIP) in 1999 to allow TC to focus its inspection resources on vessels and operators that represent the greatest risk to maritime safety.
- TC developed the SVMIP *Marine Safety Quality Manual*, detailing the requirements for inspections, audits, and data handling. The manual describes how to inspect, how to monitor the level of compliance, and the relevant training required for inspectors.
- The public progress report of 06 February 2002 indicates that TC is also developing a training program that focuses on small passenger vessel inspections and seeks to instill a stronger safety culture within the marine community.
- TC has committed to improving the quality and control of inspections to ensure that deficiencies and shortcomings are promptly identified, reported, and corrected and that inspectors reinforce their safety culture by verifying operational and equipment performance as well as prescriptive regulatory aspects.
- Board Assessment: *Satisfactory Intent*.

M01-03

- TC agrees with this recommendation.
- Regulations amending the *Life Saving Equipment Regulations (LSE)* came into force in May 2001. The regulations now allow passenger vessels less than 25 m long to provide pre-departure safety briefings instead of posting life-saving equipment plans. TC is processing further amendments that will require pre-departure briefings on all Canadian passenger vessels.
- TC is processing amendments to the LSE that will require all vessels less than 25 m long to carry liferafts that will float free in the event the vessel sinks. As an interim measure, TC issued *Ship Safety Bulletin 03/2001* recommending that all vessels have float-free arrangements for their liferafts.

- TC will amend the LSE to require that life-saving equipment be stowed in a readily available manner. An upcoming issue of *Ship Safety Bulletin* will raise the awareness of this subject.
- TC will initiate a review of and will re-evaluate the need for more effective distress-alerting capabilities on small passenger vessels.
- Board Assessment: *Satisfactory Intent*.

OTHER MARINE SAFETY ACTION TAKEN

- Transport Canada (TC) is re-evaluating the best means of communicating safety information to target groups that would most benefit from the safety information.
- A pilotage authority has stated that it will improve its pilot training program to address the adequacy of pilot training, experience, and fatigue.
- A major employer is reviewing its operating procedures on monitoring the medical fitness of employees in safety-sensitive positions.
- The owners of two small passenger vessels implemented a safety policy on wheelchair passengers. Four operators of the vessels voluntarily obtained the Master Limited certificate of competency.
- TC extended its Interim Small Passenger Vessel Compliance Program to 31 December 2002. The program came into effect in June 1999 and was initially to expire on 31 December 2000.
- TC reviewed an oral examination program for limited certificates that uses an evaluation sheet based on the vessel involved and the area of operation.
- TC has stated it will propose amendments to *Ship Electrical Standards* to address the adequacy of the electrical installations of the steering gear central processing unit alarm systems.
- TC is considering submitting a proposal that addresses the electrical arrangements of steering gear systems to the International Maritime Organization.
- TC will work with the Canadian Coast Guard (CCG) and the Canadian Hydrographic Service to issue a ship safety bulletin to raise awareness concerning the use of chart datum and global positioning systems for position-fixing.
- A classification society will use information about the premature release of a lifeboat to prevent other similar accidents.
- TC added a vessel that had inadequate maintenance records to its "Ships of Particular Interest" list. Pilotage authorities are to notify TC inspectors when the vessel reports for an inbound voyage.
- A harbour commission is requiring vessels to use three tugs for berthing at a particular pier until new berthing procedures are implemented.
- The owner of a small passenger vessel instituted a mandatory checklist, which includes the number of passengers on board and the verification of the closure of drain valves, to be used before each departure. The owner modified the vessel to prevent water from entering.
- The owner of a fleet of vessels issued a safety bulletin to all its ships' staff. The bulletin concerned the inspection of the fuel system on the engines in question. The engines were also modified to prevent fuel leaks and fires.
- A vessel owner revised his inspection procedures for main-engine piston pins.

PIPELINE

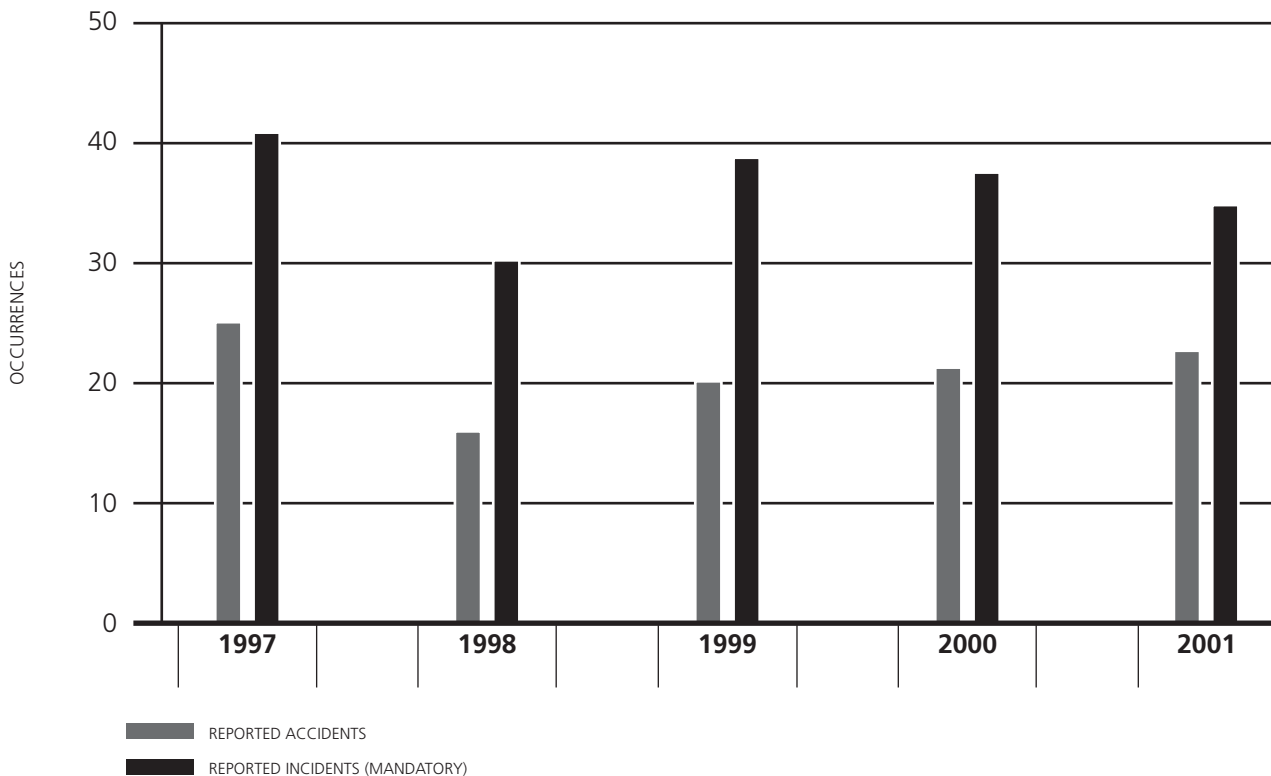
ANNUAL STATISTICS

A TOTAL OF 23 PIPELINE ACCIDENTS WERE REPORTED TO THE TSB IN 2001, UP ONE FROM LAST YEAR AND TWO ABOVE THE 1996–2000 ANNUAL AVERAGE. THE LAST FATAL PIPELINE ACCIDENT IN THE PORTION OF THE INDUSTRY UNDER FEDERAL JURISDICTION OCCURRED IN 1988. NO SERIOUS INJURIES RESULTED FROM PIPELINE ACCIDENTS IN 2001. BETWEEN 1996 AND 2000, SIX SERIOUS INJURIES OCCURRED, INCLUDING FOUR FROM ONE ACCIDENT IN 1998.

Since 1996, pipeline activity level has increased by an average of 5% per year. The accident rate in 2001 was 1.77 pipeline accidents per exajoule, down from 1.79 in 2000 and the 1996–2000 average rate of 1.98.

In 2001, 34 pipeline incidents were reported in accordance with TSB mandatory reporting requirements. This is down from 37 in 2000 and from the 1996–2000 average of 35. Historically, most incidents have involved the uncontained or uncontrolled release of small quantities of gas, oil, or high vapour-pressure products.

Figure 6 – Pipeline Occurrences



* NO PIPELINE FATALITIES WERE REPORTED DURING 1997–2001.

PIPELINE INVESTIGATIONS STARTED IN 2001–2002

The following information is preliminary. Final determination of events is subject to the TSB's full investigation.

Date	Location	Company	Event	Occurrence No.
2001-09-29	Binbrook, Ont.	Enbridge Pipelines Inc.	Crude oil pipeline rupture	P01H0049

PIPELINE REPORTS APPROVED IN 2001–2002

Date	Location	Company	Event	Report No.
1999-05-20	Regina, Sask.	Enbridge Pipelines Inc.	Crude oil pipeline rupture	P99H0021
2000-08-07	Zopkios Rest Stop, Coquihalla Highway, B.C.	Westcoast Energy Inc.	Natural gas pipeline rupture	P00H0037
2001-01-17	Hardisty, Alta.	Enbridge Pipelines Inc. (formerly IPL)	Crude oil pipeline rupture	P01H0004

PIPELINE SAFETY ACTION TAKEN

- A company has redesigned and reconstructed its compressor station, based on the issues raised in the safety advisories.
- A company continued to investigate crack growth rates, long seam cracking, and the behaviour, signal characteristics, and tool tolerance of crack detection tools after a rupture. The company has also scheduled crack detection in-line inspections on other pipelines within its system.
- A company voluntarily imposed a pressure restriction on the area of its pipeline affected by a rupture and reran an in-line inspection tool on that line.

RAIL

ANNUAL STATISTICS

A TOTAL OF 1060 RAIL ACCIDENTS WERE REPORTED TO THE TSB IN 2001. THIS NUMBER IS COMPARABLE TO LAST YEAR BUT REPRESENTS A 7% DECREASE OVER THE 1996–2000 ANNUAL AVERAGE OF 1138. RAIL ACTIVITY INCREASED BY 2.6 MILLION TRAIN-MILES OVER LAST YEAR, RESULTING IN AN ACCIDENT RATE OF 12.8 ACCIDENTS PER MILLION TRAIN-MILES, COMPARED TO 13.3 IN 2000 AND THE 1996–2000 AVERAGE OF 14.5. MAIN-TRACK ACCIDENTS (COLLISIONS AND DERAILMENTS) IN 2001 TOTALLED 134, A 4% INCREASE COMPARED TO 129 IN 2000, DUE MAINLY TO A 6% INCREASE IN MAIN-TRACK DERAILMENTS. HOWEVER, THIS FIGURE IS 12% LOWER THAN THE 1996–2000 AVERAGE OF 153. NON-MAIN-TRACK DERAILMENTS NUMBERED 385 IN 2001, COMPARABLE TO LAST YEAR BUT A 3% INCREASE OVER THE 1996–2000 AVERAGE OF 373. NON-MAIN-TRACK COLLISIONS TOTALLED 86 IN 2001, A 23% DECREASE FROM 113 IN 2000 AND THE 1996–2000 AVERAGE OF 112.

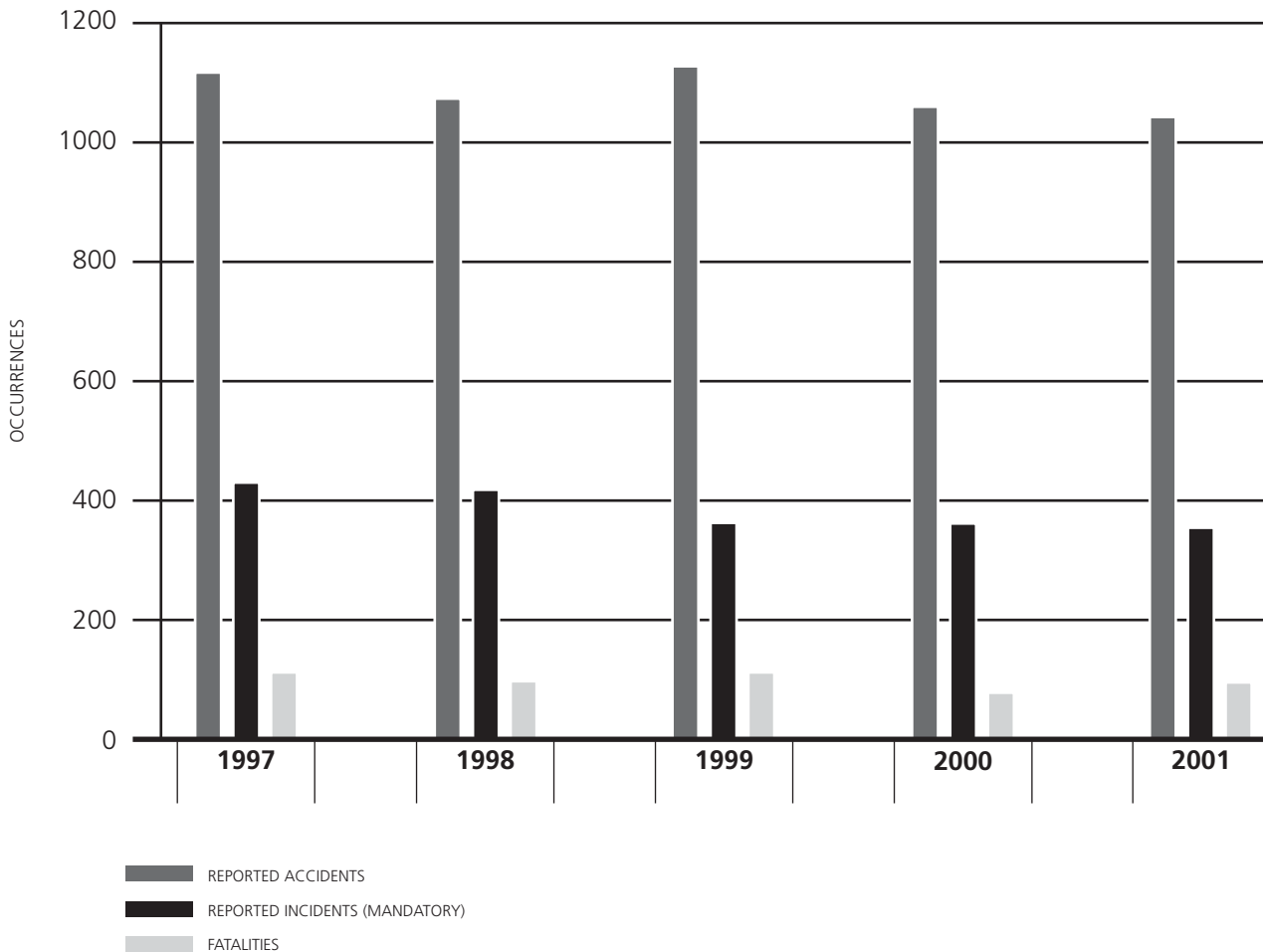
There were 278 crossing accidents in 2001, up from 263 in 2000 but lower than the 1996–2000 average of 298. Trespasser accidents (individuals—primarily pedestrians—struck by rolling stock on railway rights-of-way other than at railway crossings) totalled 79 in 2001, equal to the 2000 figure but below the 1996–2000 average of 95. Crossing and trespasser accidents resulted in 97 fatalities in 2001, a 13% increase from 86 in 2000 but a 3% decrease from the 1996–2000 average of 100. This increase over last year is due mainly to a 24% increase in crossing-related fatalities from 33 last year to 41 this year.

In 2001, 204 accidents involved railcars carrying or having recently carried dangerous goods, compared to 249 in 2000 and the 1996–2000

average of 273. Of the 204 accidents, 6 resulted in release of product. Accidents involving passenger trains totalled 76 in 2001, a 17% increase over 65 in 2000 but equal to the 1996–2000 average. Most accidents involving passenger trains either occur at crossings or involve trespassers being struck by the train.

Rail incidents reported in accordance with TSB mandatory reporting requirements numbered 322 in 2001, a 2% decrease from 330 in 2000 and a 20% decrease from the 1996–2000 average of 401. Dangerous-goods leakers not related to train accidents annually account for the largest proportion of total incidents. There were 194 dangerous-goods leakers in 2001, up from 188 in 2000 but lower than the 1996–2000 average of 248.

Figure 7 – Rail Occurrences and Fatalities



RAIL INVESTIGATIONS STARTED IN 2001–2002

The following information is preliminary. Final determination of events is subject to the TSB's full investigation.

Date	Location	Company	Event	Occurrence No.
2001-04-12	Stewiacke, N.S.	Via Rail Canada	Main-track derailment	R01M0024
2001-05-09	Burlington, Ont.	Canadian National	Pedestrian fatality	R01T0129
2001-08-29	Montréal, Que.	Canadian National	Non-main-track derailment	R01D0097
2001-09-24	Richmond Hill, Ont.	Canadian National	Main-track collision	R01T0255
2001-10-01	Brandon, Man.	Canadian Pacific Railway	Main-track derailment	R01W0182
2001-10-06	Drummond, Que.	Canadian National	Crossing collision	R01M0061
2002-01-12	Whitby, Ont.	Via Rail Canada	Collision with object	R02T0008
2002-02-15	Dartmouth, N.S.	Canadian National	Non-main-track derailment	R02M0007

RAIL INVESTIGATIONS STARTED IN 2001–2002 (Cont'd)

Date	Location	Company	Event	Occurrence No.
2002-02-22	Port Hope, Ont.	Canadian Pacific Railway	Main-track collision	R02T0047
2002-03-03	Carmangay, Alta.	Canadian Pacific Railway	Main-track derailment	R02C0013
2002-03-18	Éric, Que.	Quebec North Shore & Labrador Railway	Main-track derailment	R02Q0021
2002-03-24	Glenogle, B.C.	Canadian Pacific Railway	Main-track collision	R02C0022

RAIL REPORTS APPROVED IN 2001–2002

Date	Location	Company	Event	Report No.
1998-11-26	Concord, Ont.	Canadian National	Yard derailment	R98T0292
1999-01-31	Jasper, Alta.	Canadian National	Main-track collision	R99E0023
1999-04-13	Bégin, Que.	Canadian National	Main-track derailment	R99Q0019
1999-06-05	Bellamy, Ont.	Via Rail Canada	Crossing accident	R99T0147
1999-07-14	Hornepayne, Ont.	Via Rail Canada	Collision at crossing	R99H0009
1999-08-06	Windsor, Ont.	Via Rail Canada	Crossing accident	R99S0071
1999-08-15	Messiter, B.C.	Canadian National	Derailment	R99V0141
1999-08-27	Cornwall, Ont.	Canadian National	Runaway cars	R99D0159
1999-10-09	Bedford, N.S.	Canadian National	Derailment	R99M0046
1999-11-01	Near Poplar Point, Man.	Canadian Pacific Railway	Derailment and collision	R99W0231
1999-11-23	Bowmanville, Ont.	Canadian National	Crossing accident and derailment	R99T0298
		Via Rail Canada		
2000-03-10	Brossard, Que.	Canadian National	Derailment	R00D0026
2000-03-14	Temagami, Ont.	Ontario Northland Railway	Main-track derailment	R00T0067
2000-08-30	La Tuque, Que.	Via Rail Canada	Collision and derailment	R00D0098
2000-12-19	Imperial Mills, Alta.	Athabasca Northern Railway	Crossing accidents	R00C0159
2001-05-09	Burlington, Ont.	Canadian National	Pedestrian fatality	R01T0129

RAIL RECOMMENDATIONS APPROVED IN 2001–2002

Occurrence	Recommendation	Response Summary	Board Assessment of Response Action	Safety Action Taken
R98T0292 Yard derailment Canadian National Train No. M333-31-26 Mile 0.0 Halton Subdivision MacMillan Yard Concord, Ont. 26 November 1998	R01-04 The Department of Transport and the Railway Association of Canada ensure that maintenance standards and practices address the level of risks in heavy tonnage “other than main tracks”.	TC supports the intent of this recommendation. TC granted a three-year extension to the <i>Track Safety Rules</i> exemption so as to refine the new inspection regime.	Satisfactory Intent	TC has facilitated a pilot project that may lead to modifying the <i>Track Safety Rules</i> .
R99T0298 Crossing accident and derailment Canadian National Freight train No. M-321-21-22 and Via Rail Canada Passenger train No. 68 Mile 292.59 Kingston Subdivision Bowmanville, Ont. 23 November 1999	R01-05 The Department of Transport expedite the promulgation of new grade crossing regulations.	TC agrees with this recommendation.	Satisfactory Intent	TC plans to publish new grade crossing regulations in 2002.
	R01-06 The Department of Transport’s new regulations include horizontal alignment standards for approaches to private and farm crossings.	TC agrees with this recommendation and the need to include horizontal alignment standards in the proposed new grade crossing regulations.	Satisfactory Intent	TC plans to publish new grade crossing regulations in 2002.
	R01-07 The Department of Transport, in cooperation with Canadian National, comprehensively examine all private and farm crossings on the Kingston Subdivision with a view to closing or consolidating crossings and, where identified as necessary, upgrade those remaining to lessen the safety risk.	TC agrees with this recommendation and will review the issue of private and farm grade crossings with Canadian National.	Satisfactory Intent	TC plans to publish new grade crossing regulations in 2002. TC is also planning a funding program to encourage consolidation of crossings.

RESPONSES RECEIVED IN 2001–2002 TO RECOMMENDATIONS APPROVED IN 2000–2001

Occurrence	Recommendation	Response Summary	Board Assessment of Response Action	Safety Action Taken
R98V0148 Rear-end train collision Canadian Pacific Railway Train No. 839-020 and Train No. 463-11 Mile 78.0 Shuswap Subdivision Notch Hill, B.C. 11 August 1998	R00-04 The Department of Transport and the rail- way industry imple- ment additional back- up safety defences to help ensure that signal indications are consis- tently recognized and followed.	Transport Canada (TC) agrees with the intent of this recommenda- tion. The industry is studying new tech- nologies, and TC is monitoring the testing.	Satisfactory Intent	No new implementa- tion plans are in effect; however, TC continues to participate in the development of new technologies.
	R00-05 The Department of Transport assess the impact of noise on voice communication in locomotive cabs and ensure that crew mem- bers can effectively communicate safety- critical information.	TC accepts this recom- mendation. TC is mon- itoring for compliance to communication rules. TC has assessed that noise levels meet <i>Canada Labour Code</i> standards relating to hearing loss.	Satisfactory Intent	TC is monitoring for compliance to rules and standards and has indicated participation and support for improvements.
R99H0007 Derailment and collision Via Rail Canada Passenger train No. 74 Mile 46.7 Canadian National Chatham Subdivision Thamesville, Ont. 23 April 1999	R01-01 The Department of Transport require the development of additional permanent system defences that permit a means to help ensure safety when trains approach main-track switches in Occupancy Control System territory.	Transport Canada (TC) supports the intent of this recommendation. TC is supporting the development of tech- nology systems in the railway industry.	Satisfactory in Part	TC has approved a modification to an operating rule and has funded a research pro- ject to identify feasible technology systems.

RESPONSES RECEIVED IN 2001–2002 TO RECOMMENDATIONS APPROVED IN 2000–2001 (Cont'd)

Occurrence	Recommendation	Response Summary	Board Assessment of Response Action	Safety Action Taken
R99H0007 (cont'd)	<p>R01-02 The Department of Transport, the Railway Association of Canada and provincial authorities responsible for train operations review the system design specifications for computer-assisted and non-computer-assisted Occupancy Control System in Canada to ensure all components of these systems are designed with sufficient regard to human error.</p>	<p>TC supports the intent of this recommendation. TC proposes to jointly develop an instrument for the railways to analyze system design specifications.</p>	Satisfactory Intent	<p>TC and stakeholders are discussing this issue.</p>
	<p>R01-03 The Department of Transport review the current regulatory framework and industry policy to help ensure that an adequate level of safety is maintained regarding the storage of dangerous goods within the rail transportation system and during the transition of shipments of dangerous goods to or from the rail transportation system.</p>	<p>TC agrees with this recommendation. TC is reviewing with stakeholders the safety issues affecting the storage of dangerous goods on railway property.</p>	Fully Satisfactory	<p>TC has published new <i>Transportation of Dangerous Goods Regulations</i> that will come into effect in July 2002.</p>

REPLIES TO RAIL RECOMMENDATIONS

R00-04

- Transport Canada (TC) agrees with the intent of this recommendation.
- The industry is studying new technologies, and TC is monitoring the testing.
- Board Assessment: *Satisfactory Intent*.

R00-05

- TC accepts this recommendation.
- TC is monitoring for compliance to communication rules.
- TC has assessed that noise levels meet *Canada Labour Code* standards relating to hearing loss.
- TC is monitoring an industry study on headsets.
- Board Assessment: *Satisfactory Intent*.

R01-01

- TC supports the intent of this recommendation.
- TC has facilitated the changing of the maximum permissible speed at which trains can proceed when approaching main-track switches in Occupancy Control System (OCS) territory.
- TC has funded a research project to identify the feasible technology systems that would identify the position of switches.
- Board Assessment: *Satisfactory in Part*.

R01-02

- TC supports the intent of this recommendation.
- TC, with the Railway Association of Canada, intends to review the system design specifications for computer-assisted and non-computer assisted OCS in Canada.
- TC proposes to jointly develop an instrument for the railways to analyze the system design specifications, including the consequence of human error, on their own OCS operations.
- TC will review the railways' self-analysis and, based on the results, will initiate the necessary appropriate action.
- Board Interim Assessment: *Satisfactory Intent*.

R01-03

- TC agrees with this recommendation.
- TC is reviewing with stakeholders the safety issues affecting the storage of dangerous goods on railway property.
- TC has published the clear-language version of the *Transportation of Dangerous Goods Regulations* with changes to redefine the term “in transport”, clarify when a shipment is considered to have been delivered, mandate that documentation accompany the shipment, and prescribe the possession of and responsibility for the shipment.
- Board Assessment: *Fully Satisfactory*.

R01-04

- TC supports the intent of this recommendation.
- TC exempted Canadian National (CN) from certain Track Safety Rules at MacMillan Yard so that CN could implement and evaluate an inspection regime specifically tailored to that rail yard.
- CN's new inspection regime categorizes tracks into high, medium, and low usage.
- CN increased its monthly inspections of entrance and exit tracks at the test site to bi-weekly.
- TC granted a three-year extension to the exemption from certain Track Safety Rules so as to refine the new inspection regime.
- After the first-year implementation of the pilot project, TC inspectors found improved safety conditions relating to inspections and maintenance of the yard tracks.
- TC and the railway industry have agreed to form a working committee to recommend amendments to the *Track Safety Rules* and railway industry practices.
- TC will keep the TSB informed of developments regarding this recommendation.
- Board Assessment: *Satisfactory Intent*.

R01-05

- TC agrees with this recommendation.
- TC is currently finalizing the new grade crossing regulations.
- Board Assessment: *Satisfactory Intent*.

R01-06

- TC agrees with this recommendation and the need to include horizontal alignment standards.
- The proposed grade crossing regulations are intended
 - to set clear safety standards for all grade crossings,
 - to address requirements for horizontal alignment of approaches for private and farm crossings,
 - to regulate the width of the crossing surface and the angle of intersection to ensure appropriate sight lines,
 - for responsible authorities to perform detailed safety assessments of their crossings and to upgrade grade crossings to current standards before any significant changes to the infrastructure or traffic patterns are made,
 - to prohibit new grade crossings where train speeds exceed 80 mph, and
 - to clearly define the responsibilities of railway companies, public road authorities, and private road owners.
- Board Assessment: *Satisfactory Intent*.

R01-07

- TC agrees with this recommendation and will
 - review the issue of private and farm grade crossings with CN,
 - conduct random inspections of private and farm crossings to identify safety concerns,
 - require responsible authorities to perform detailed safety assessments of their crossings and to upgrade grade crossings to current standards before any significant changes to the infrastructure or traffic patterns are made,
 - put in place a funding program as an incentive for stakeholders to give up grade crossings.
- Board Assessment: *Satisfactory Intent*.

OTHER RAIL SAFETY ACTION TAKEN

- The major railways in Canada are equipping all main-track switches with high-security switch locks.
- Transport Canada (TC) worked with the Railway Association of Canada to revise the *Railway Passenger Car Inspection and Safety Rules* (16.1), issued on 28 June 2001, by incorporating the latest American Passenger Train Association standards on the crashworthiness of the side walls of some passenger cars.
- TC approved the *Railway Passenger Car Inspection and Safety Rules* (20.2) to require emergency accesses to have a minimum unobstructed opening of 26 inches horizontally by 24 inches vertically for all new cars ordered after 01 April 2001.
- TC is preparing an amendment to Canada Motor Vehicle Safety Standard 111, which governs the design and the performance of mirror systems fitted to new motor vehicles manufactured in or imported into Canada. If approved, the amendment will allow the required reflected field of view to be fulfilled with smaller rearview mirrors that present less direct view obstruction.
- Because of the potential for unloading equipment to lift railcar bodies during container unloading, a rail company implemented a mandatory inspection procedure by a certified car inspector at all its container unloading facilities before the movement of railcars after unloading.
- TC issued a notice to a railway regarding tie conditions. As a result, the railway installed 4000 new ties on 40 miles of track.
- Via Rail Canada featured the sleeper car bed securement instructions of Maintenance Procedure No. C604/003 in a safety campaign directed at on-board train service personnel.

AIR

ANNUAL STATISTICS

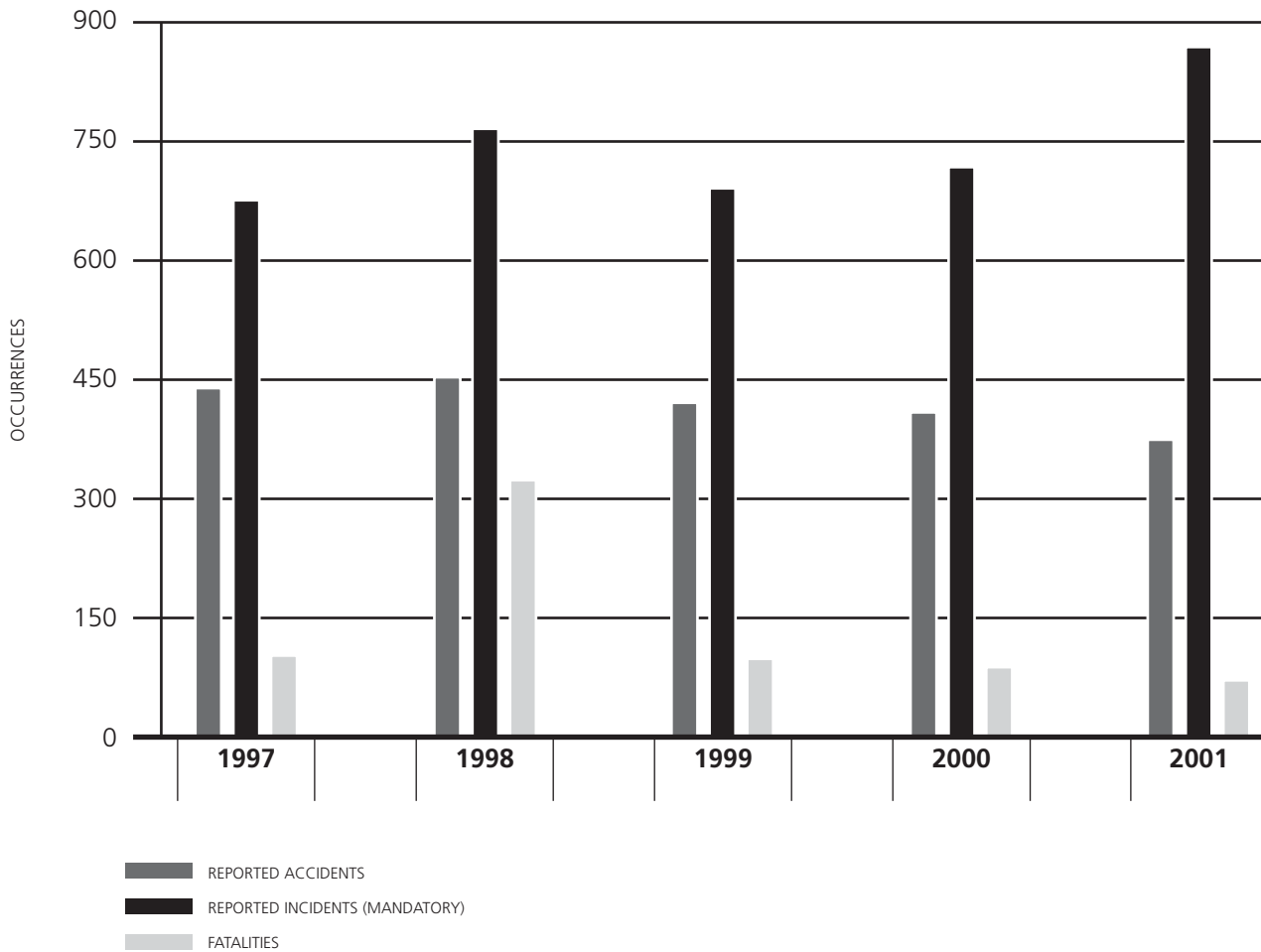
CANADIAN-REGISTERED AIRCRAFT (OTHER THAN ULTRALIGHTS) WERE INVOLVED IN 295 REPORTED ACCIDENTS IN 2001. THIS TOTAL REPRESENTS A 25-YEAR LOW, WITH AN 8% DECREASE FROM THE 319 REPORTED IN 2000 AND A 15% DECREASE FROM THE 1996–2000 ANNUAL AVERAGE OF 349. FLYING ACTIVITY IN 2001 TOTALLED 3 860 000 HOURS, A 3% DECREASE FROM 3 990 000 HOURS IN 2000.⁵ THIS YIELDS A 2001 ACCIDENT RATE OF 7.6 ACCIDENTS PER 100 000 FLYING HOURS, WHICH IS LOWER THAN THE 2000 ACCIDENT RATE OF 8.0 AND THE 1996–2000 AVERAGE RATE OF 8.8. THE 2001 ACCIDENT RATE IS ALSO A 25-YEAR LOW. CANADIAN-REGISTERED AIRCRAFT (OTHER THAN ULTRALIGHTS) WERE INVOLVED IN 33 FATAL ACCIDENTS IN 2001, WITH 62 FATALITIES. THIS IS SLIGHTLY FEWER THAN THE 1996–2000 AVERAGE OF 37 FATAL ACCIDENTS, WITH 71 FATALITIES. OF THE FATAL ACCIDENTS IN 2001, 17 INVOLVED PRIVATE- OR STATE-OPERATED AIRCRAFT AND 6 INVOLVED HELICOPTERS.

The number of accidents involving ultralights decreased slightly to 35 in 2001 from 38 in 2000. Fatal accidents remained relatively unchanged with 6 in 2001 and 8 fatalities compared to 5 fatal accidents in 2000 and 9 fatalities.

In 2001, 853 incidents were reported in accordance with TSB mandatory reporting requirements. This represents an 18% increase from the 725 reported in 2000 and a 19% increase from the 1996–2000 average of 717.

The number of foreign-registered aircraft involved in accidents in Canada increased to 29 in 2001 from 21 in 2000. However, fatal accidents remained the same at 8, with 10 fatalities in 2001 and 19 fatalities in 2000.

Figure 8 – Air Occurrences and Fatalities



AIR INVESTIGATIONS STARTED IN 2001–2002

The following information is preliminary. Final determination of events is subject to the TSB’s full investigation.

Date	Location	Aircraft Type	Event	Occurrence No.
2001-04-03	Sydney, N.S., 65 nm W	de Havilland DHC-8-100	Power loss—first engine	A01A0030
2001-04-04	St. John’s Int’l Airport, Nfld.	Boeing 737-200	Runway overrun	A01A0028
2001-04-04	Toronto / Buttonville Municipal Airport, Ont., 10 nm NW	Robinson R22 Beta	Loss of control— collision with terrain	A01O0099
2001-04-28	Baker Lake, Nun., 26 nm N	McDonnell Douglas 369E (HU50)	Forced landing— dynamic roll-over	A01C0064
2001-05-12	New Westminster, B.C.	Airbus A320	Air proximity— safety not assured	A01P0111
2001-05-16	Abbotsford, B.C., 10 nm E	Cessna 172M Robinson R22 Beta	In-flight break-up	A01P0100

AIR INVESTIGATIONS STARTED IN 2001–2002 (Cont'd)

Date	Location	Aircraft Type	Event	Occurrence No.
2001-05-22	Yellowknife Airport, N.W.T.	Boeing 737-210C	Hard landing	A01W0117
2001-05-25	Russell, Man.	Piper PA-28-140	Engine power loss—collision with trees	A01C0097
2001-05-25	Red Earth Creek, Alta., 33 nm NE	Cessna T310Q	Loss of control—collision with terrain	A01W0118
2001-05-31	Edmonton, Alta.	Boeing 747-200 Airbus A340-300	Loss of separation	A01W0129
2001-06-05	Charlottetown, Nfld., 1.5 nm W	Piper PA-31-310	Collision with terrain	A01A0058
2001-06-08	Duxar Intersection, B.C., 110 nm NW	Boeing 737-200	Loss of separation	A01P0126
		McDonnell Douglas DC-10-30		
2001-06-09	Vancouver Int'l Airport, B.C.	Boeing 767-200	Loss of separation	A01P0127
		Airbus A340-300		
2001-06-10	Lat. 64°00'N, Long. 080°00'W, Nun.	Boeing 767-300	Loss of separation	A01C0115
		Boeing 747-300		
2001-06-14	Victoria Int'l Airport, B.C.	Bombardier CL-600-2B19	ILS false localizer capture	A01P0129
2001-06-15	Empress, Alta., 5 nm W	Boeing 737-200	Loss of separation	A01W0144
		Boeing 737-200		
2001-06-17	Toronto / Buttonville Municipal Airport, Ont., 1.4 nm WNW	Cessna 172N	Engine stoppage on take-off	A01O0157
2001-06-18	Lake Lavielle, Ont.	Cessna 210L	In-flight break-up	A01O0165
2001-06-20	Uxbridge, Ont.	Cessna 170B	In-flight collision	A01O0164
		Robinson R22 Mariner		
2001-06-27	Roberval, Que., 80 nm N	Bell 212	Power loss—other engine	A01Q0105

AIR INVESTIGATIONS STARTED IN 2001–2002 (Cont'd)

Date	Location	Aircraft Type	Event	Occurrence No.
2001-07-04	Empress VOR, Alta., 40 nm W	Boeing 737-200	Loss of separation	A01W0160
		Fokker F28 Mk 1000		
2001-07-07	Nestor Falls, Ont., 2 nm NW	de Havilland DHC-2 Mk. I	Collision with power line	A01C0152
2001-07-13	Red Lake, Ont., 35 nm SE	Boeing 757-200	Loss of separation	A01C0155
		Airbus A320-200		
2001-07-14	Gloucester, Ont.	Aerostar RX-7	Collision with object—wirestrike	A01O0200
2001-07-18	Cultus Lake, B.C.	Cessna U206G	Overturned on water landing	A01P0165
2001-07-18	Dorval / Montréal Int'l Airport, Que., 6 nm NE	Cessna 172N	Risk of collision	A01Q0122
		de Havilland DHC-8-102		
2001-07-20	Corcaigh Int'l Airport, Ireland	Boeing 727-225	Cargo door opening on take-off	A01F0094
2001-07-22	Abbotsford, B.C., 10 nm E	Pilatus PC-6T	Power loss— first engine	A01H0003
2001-07-23	KELSEY Intersection, B.C.	Cessna 421	Loss of separation and risk of collision	A01P0171
		de Havilland DHC-7		
2001-07-26	Haines Junction, Y.T., 25 nm SW	Cessna A185F	Collision with terrain	A01W0186
2001-07-30	Grande Cache, Alta., 13 nm W	Aerospatiale AS 350BA	Loss of control— uncontrolled rotation	A01W0190
2001-08-03	Timmins, Ont.	Cessna 182Q	Controlled flight into terrain	A01O0210
2001-08-04	Fort Lauderdale, FL	Boeing 737-200	Power loss—first engine	A01F0101
2001-08-09	Baffin Island, Nun.	McDonnell Douglas 369D (500D)	Collision with terrain	A01Q0139
2001-08-13	Juniper Station, N.B., 42 km NE	Bell 206B	Loss of control— collision with terrain	A01A0100
2001-08-13	Mackenzie Lake, B.C., 4 nm NE	de Havilland DHC-2 Mk. I	Collision with terrain	A01P0194
2001-08-20	Valemount, B.C., 37 nm SE	Helio H-295	Structural failure	A01P0203
2001-08-24	Invermere, B.C.	Pitts S2A-E	Engine power loss	A01P0207

AIR INVESTIGATIONS STARTED IN 2001–2002 (Cont'd)

Date	Location	Aircraft Type	Event	Occurrence No.
2001-09-02	Red Lake, Ont.	Pilatus PC-12/45	Engine power loss	A01C0217
2001-09-13	Swan Lake Airstrip, Y.T.	Beech UC45-J	Loss of control after take-off	A01W0239
2001-09-27	Winnipeg Int'l Airport, Man., 2 nm N	Beech 95	Loss of control and collision with terrain	A01C0230
2001-10-05	Fort Simpson, N.W.T., 2 nm S	McDonnell Douglas 369HS	Power loss—fuel starvation	A01W0255
2001-10-08	Mont-Joli, Que., 23 nm S	Piper PA-23	Collision with terrain	A01Q0165
2001-10-08	Mollet Lake, Que.	de Havilland DHC-2 Mk. I	Collision with terrain	A01Q0166
2001-10-11	Shamattawa, Man., 1 nm N	Fairchild SA226-TC	Collision with terrain	A01C0236
2001-10-15	Fort Liard, N.W.T., 1 nm S	Piper PA-31-350	Controlled flight into terrain	A01W0261
2001-10-23	Toronto / Lester B. Pearson Int'l Airport, Ont.	Tractor 197 with Airbus A310	Runway incursion	A01O0299
		Boeing 767-200		
2001-10-24	Peace River, Alta.	de Havilland DHC-8-100	Landed beside runway	A01H0004
2001-11-02	Inuvik, N.W.T., 4 nm NE	Cessna 208B	Loss of control	A01W0269
2001-11-08	Cranbrook, B.C., 20 nm NW	Aerospatiale AS 315G	Operations-related event	A01P0282
2001-12-03	Boundary Bay Airport, B.C.	Cessna 152	Collision with object	A01P0296
2001-12-11	Victoria VOR, B.C., 5 nm N	Piper PA-31-350	ATS-related event	A01P0305
		Cessna 208B		
2001-12-18	Yellowknife Airport, N.W.T., 3 nm E	Eurocopter EC120B	Power loss—first engine	A01W0297
2001-12-31	Fort Good Hope, N.W.T., 25 nm S	Cessna 172N	Collision with terrain	A01W0304
2002-01-04	Victoria Int'l Airport, B.C.	Boeing 737-200	Altitude-related event	A02P0004
2002-01-08	Campbell River, B.C.	Shorts SD-3-60	Air proximity	A02P0007
		Beech 1900D		
2002-01-17	Vancouver Int'l Airport, B.C.	Airbus A330-300	Component/system malfunction	A02P0010
2002-01-20	En route Gaspé to Québec, Que.	Piper PA-28-160	Missing aircraft	A02Q0005
2002-02-01	Abbotsford, B.C.	Boeing 737-200	Power loss—first engine	A02P0021
2002-02-14	Brookfield, N.S., 10 nm ENE	Cessna 172L	Collision with object	A02A0015

AIR INVESTIGATIONS STARTED IN 2001–2002 (Cont'd)

Date	Location	Aircraft Type	Event	Occurrence No.
2002-03-04	Goose Bay, Nfld.	Fairchild SA227-AC	Landing event	A02A0030
2002-03-05	La Ronge, Sask., 40 nm N	Hawker Siddeley HS-748-2A	ATS-related event	A02C0043
		Beech 1900D		
2002-03-27	Saint John, N.B.	Fokker F28 Mk 1000	Landing event	A02A0038

AIR REPORTS APPROVED IN 2001–2002

Date	Location	Aircraft Type	Event	Report No.
1998-06-18	Mirabel / Montréal Int'l Airport, Que.	Swearingen SA226-TC	In-flight fire— landing gear well	A98Q0087
1998-12-03	Iqaluit, Nun.	Hawker Siddeley HS-748-2A	Rejected take-off / runway overrun	A98Q0192
1999-01-13	Mayne Island, B.C.	Douglas DC-3C	Controlled flight into terrain	A99P0006
1999-03-19	Davis Inlet, Nfld., 2 nm NNE	de Havilland DHC-6-300	Controlled flight into terrain	A99A0036
1999-04-13	Gaspé, Que.	Cessna 335	Loss of control	A99Q0062
1999-07-04	Kaslo, B.C., 35 nm NW	Bell 214B	Power loss— fuel starvation	A99P0075
1999-08-01	St. John's, Nfld.	Fokker F28 Mk 1000	Runway overrun	A99A0100
1999-08-12	Sept-Îles, Que.	Beech 1900D	Controlled flight into terrain	A99Q0151
1999-08-20	Penticton, B.C.	Cessna 177RG Mooney M20C	Midair collision	A99P0108
1999-09-24	St. John's, Nfld.	Airbus A320-211	Landing short	A99A0131
1999-11-20	Cloverdale, B.C.	ERCO Aircoupe 415C Cessna 152	In-flight collision	A99P0168
1999-12-24	Calgary Int'l Airport, Alta.	Airbus A320-211	Engine fire	A99W0234
1999-12-28	Abbotsford Airport, B.C.	Cessna 208	Loss of control	A99P0181
2000-01-20	Goldbridge, B.C.	Eurocopter Lama SA 315B	Power loss	A00P0010
2000-03-17	Vancouver Int'l Airport, B.C.	Airbus A330-200	Fan cowl separation	A00P0040
2000-03-22	Fox Harbour, N.S.	Israel Astra Spx	Collision with trees	A00A0051
2000-03-23	Innisfail Airport, Alta.	Rotorway Exec 90	Loss of control	A00W0072
2000-03-31	Victoria Int'l Airport, B.C., 8 nm N	de Havilland DHC-6 Cessna 172	Air proximity event	A00P0047

AIR REPORTS APPROVED IN 2001–2002 (Cont'd)

Date	Location	Aircraft Type	Event	Report No.
2000-04-11	Sydney, N.S., 95 nm N	Airbus A340	Loss of separation	A00H0002
		Airbus A340		
2000-04-11	Maniwaki, Que.	Cessna 172L	Incorrect assembly of aileron control system	A00Q0043
2000-04-15	Fox Lake, Y.T.	Cessna 172RG	Visual flight rules flight into terrain—reduced visibility	A00W0080
2000-04-27	Beloil, Que.	Bell 206B-III	In-flight break-up	A00Q0046
2000-05-06	Sydney, N.S.	Piper PA-28	Loss of control / stall	A00A0071
2000-05-10	Cabot Island, Nfld.	Bell 212	Collision with water	A00A0076
2000-05-11	Edmonton Int'l Airport, Alta.	Douglas DC-9	Rejected take-off / runway overrun	A00W0097
2000-05-20	Resolute, Nun., 35 nm SW	Bell 206L	Loss of control—collision with level ice	A00C0099
2000-05-30	Tofino, B.C., 17 nm E	Boeing 747-400	Loss of separation	A00P0090
		McDonnell Douglas MD-80		
2000-05-30	Calling Lake, Alta.	Cessna 177B	Loss of control—stall	A00W0109
2000-06-01	Helmut, B.C.	Bell 206B	Collision with fence	A00W0105
2000-06-01	Kamloops, B.C., 3 nm N	Stits Playmate SA-11A	Collision with terrain	A00P0094
2000-06-12	Kelowna, B.C., 120 nm NE	Boeing 737-200	Cabin depressurization	A00P0101
2000-06-13	Mclvor Lake, B.C.	Cessna 180E	Loss of control	A00P0099
2000-06-13	Peterborough Airport, Ont., 0.5 nm W	Dassault-Breguet Falcon 20E	Controlled flight into terrain	A00O0111
2000-06-19	Hotnarko Lake, B.C.	de Havilland DHC-2	Loss of control	A00P0103
2000-07-17	Harding, Man.	Piper PA-25-150	Loss of control—collision with terrain	A00C0162
2000-07-23	Dorval / Montréal Int'l Airport, Que.	Boeing 747-200	Runway excursion	A00Q0094

AIR REPORTS APPROVED IN 2001–2002 (Cont'd)

Date	Location	Aircraft Type	Event	Report No.
2000-08-14	Teslin Lake, B.C.	Cessna 208	Loss of control—collision with water	A00W0177
2000-08-17	Green Lake, B.C.	Cessna 185F	Collision with water	A00P0157
2000-08-26	Dorval / Montréal Int'l Airport, Que.	Airbus A319-114	Runway incursion	A00Q0114
2000-08-29	Dorval / Montréal Int'l Airport, Que., 1 nm W	Airbus A319-114	Risk of collision	A00Q0116
		Cessna 152		
2000-09-06	Lumsden, Sask., 45 nm W	Boeing 747	Loss of separation	A00C0211
		Airbus A319		
2000-09-13	Toronto / Lester B. Pearson Int'l Airport, Ont.	Airbus A320-232	Fan cowl separation	A00O0199
2000-09-13	Kingston, Ont.	Cessna 150G	Difficulty to control	A00O0210
2000-09-14	Vancouver Harbour Heliport, B.C.	Sikorsky S-61N/SP	Input freewheel unit malfunction	A00P0182
2000-09-15	Ottawa, Ont.	Boeing 727-200A	Runway overrun	A00H0004
2000-09-22	Clearwater, B.C., 18 nm NW	de Havilland DHC-2T	Collision with terrain	A00P0184
2000-09-27	La Grande 4, Que.	Convair Liner 340 (580)	Runway excursion	A00Q0133
2000-09-28	Smithers, B.C., 80 nm NW	Cessna 185F	Controlled flight into terrain	A00P0194
2000-10-02	Golden, B.C., 3 nm NNE	Cessna 310R	Loss of control	A00P0195
2000-10-02	Fort Nelson, B.C., 90 nm E	Eurocopter AS 350BA	Power loss—mechanical malfunction	A00W0215
2000-10-03	Ottawa, Ont.	Diamond DA 20-A1	Engine failure—forced landing	A00O0214
2000-10-08	Vancouver, B.C.	de Havilland DHC-8	Hazardous situation—air traffic control irregularity	A00P0199
2000-10-08	Port Radium, N.W.T.	Short Brothers SC-7	Collision with terrain	A00W0217
2000-10-12	Rendell Creek Airstrip, B.C.	Piper PA-24-250	Collision with terrain on take-off	A00P0197
2000-10-25	Vancouver Int'l Airport, B.C.	de Havilland DHC-8-100	Runway incursion	A00P0206
		de Havilland DHC-8-200		
2000-10-31	Mt. Modeste, B.C., 5 nm NW	McDonnell Douglas MD 369D	Main-rotor blade failure	A00P0208

AIR REPORTS APPROVED IN 2001–2002 (Cont'd)

Date	Location	Aircraft Type	Event	Report No.
2000-11-06	Winnipeg Int'l Airport, Man., 2 nm S	Piper PA-31-350	Collision with terrain	A00C0260
2000-11-13	Fredericton, N.B.	Boeing 737-217	Engine failure	A00A0176
2000-12-02	Vancouver, B.C., 30 nm NW	Learjet 35A	Loss of aileron control	A00P0225
2000-12-04	Ottawa / Gatineau Airport, Que.	Beechcraft King Air A100	Gear-up landing	A00H0007
2000-12-18	Windsor Airport, Ont.	Antonov 124-100	Incident—runway overrun	A00O0279
2000-12-31	Okanagan Mountain, B.C.	Piper Aerostar 602P	Controlled flight into terrain—on approach	A00P0244
2000-12-31	Fox Creek, Alta., 45 nm W	Hughes 500D	Collision with trees	A00W0267
2001-01-13	Mascouche, Que.	Piper PA-28-140	Loss of control on take-off	A01Q0009
2001-01-20	Victoria, B.C., 6 nm S	Cessna 172M	Loss of control	A01P0010
2001-01-24	Toronto / Lester B. Pearson Int'l Airport Central De-icing Facility, Ont.	Boeing 747-430	Collision	A01O0021
		De-icing truck		
2001-03-05	Sydney, N.S., 23 nm SE	Boeing 767-400	Loss of separation	A01H0002
		Boeing 767-300		
2001-03-15	Victoria Int'l Airport, B.C.	Schweizer 269B	Loss of control—tail-rotor drive decoupling	A01P0047
2001-03-15	Vancouver, B.C.	de Havilland DHC-8 Airbus A319	Loss of separation	A01P0054
2001-03-30	Teslin, Y.T.	Cessna 210F	Controlled flight into terrain	A01W0073
2001-05-25	Russell, Man.	Piper PA-28-140	Engine power loss—collision with trees	A01C0097
2001-06-15	Empress, Alta., 5 nm W	Boeing 737-200	Loss of separation	A01W0144
		Boeing 737-200		
2001-06-17	Toronto / Buttonville Municipal Airport, Ont., 1.4 nm WNW	Cessna 172N	Engine stoppage on take-off	A01O0157

AIR RECOMMENDATIONS APPROVED IN 2001–2002

Occurrence	Recommendation	Response Summary	Board Assessment of Response Action	Safety Action Taken
A99A0036 Controlled flight into terrain Provincial Airlines Ltd. de Havilland DHC-6-300 Twin Otter C-FWLQ Davis Inlet, Nfld. 2 nm NNE 19 March 1999	A01-01 The Department of Transport undertake a review of its safety oversight methodology, resources, and practices, particularly as they relate to smaller operators and those operators who fly in or into remote areas, to ensure that air operators and crews consistently operate within the safety regulations.	Transport Canada (TC) is actively pursuing changes to current regulations and practices that will provide the largest benefit to aviation safety.	Satisfactory Intent	TC completed a comprehensive review of its safety oversight program in July 2001. TC is implementing a safety management system in aviation organizations and has re-allocated staffing resources to increase safety oversight.
A98H0003 Smoke in the cockpit Swissair MD-11 HB-IWF Peggy's Cove, N.S. 02 September 1998	A01-02 For the pressurized portion of an aircraft, flammability standards for material used in the manufacture of any aeronautical product be revised, based on realistic ignition scenarios, to prevent the use of any material that sustains or propagates fire.	TC, with the Federal Aviation Administration (FAA), will advance material flammability certification standards. TC will revise Canadian regulatory standards in conjunction with other airworthiness authorities.	Satisfactory Intent	TC, with the FAA, is pursuing initial research on improved material flammability standards under the auspices of the TC/FAA-sponsored International Aircraft Fire Test Working Group.
	A01-03 A certification test regime be mandated that evaluates aircraft electrical wire failure characteristics under realistic operating conditions and against specified performance criteria, with the goal of mitigating the risk of ignition.	TC declared a limited endorsement of the recommendation. TC agrees that evaluation of aircraft wiring should be based on realistic operating conditions. It plans to work with the FAA to review and improve aircraft wiring performance and test requirements.	Satisfactory Intent	The FAA has established a Wire Systems Harmonization Working Group to revise the standards for wiring performance and test requirements. Additionally, the FAA's Aging Transport Systems Rulemaking Advisory Committee will study a wire certification requirement.

AIR RECOMMENDATIONS APPROVED IN 2001–2002

Occurrence	Recommendation	Response Summary	Board Assessment of Response Action	Safety Action Taken
A98H0003 (cont'd)	A01-04 As a prerequisite to certification, all aircraft systems in the pressurized portion of an aircraft, including their sub-systems, components, and connections, be evaluated to ensure that those systems whose failure could exacerbate a fire in progress are designed to mitigate the risk of fire-induced failures.	TC states that, along with the FAA and the Joint Aviation Authorities (JAA), it is committed to realizing the objectives of the recommendation. However, TC does not clearly define its proposed action to address the safety deficiency.	Satisfactory Intent	TC will work with the FAA and the JAA to define an appropriate action plan.
A99P0075 Power loss— fuel starvation East West Helicopters Ltd. Bell 214B Helicopter C-GEWT Kaslo, B.C., 35 nm NW 04 July 1999	A01-05 The Bell 214B and Bell 205 flight manuals be modified to provide information regarding the inaccuracy of fuel quantity indications, thereby allowing pilots to make informed decisions in the event of a loss of fuel boost pump pressure.	TC requested that the FAA, the regulatory authority responsible for the design standards for Bell 214 and 205 helicopters, review the fuel system design and revise the flight manuals and the emergency procedures. TC is issuing an advisory to operators of Bell 214 and 205 helicopters in Canada.	Satisfactory Intent	
A99Q0151 Controlled flight into terrain Régionnair Inc. Raytheon Beech 1900D C-FLIH Sept-Îles, Que. 12 August 1999	A02-01 The Department of Transport expedite the approach ban regulations prohibiting pilots from conducting approaches in visibility conditions that are not adequate for the approach to be conducted safely.	Response expected next fiscal year.		

AIR RECOMMENDATIONS APPROVED IN 2001–2002 (Cont'd)

Occurrence	Recommendation	Response Summary	Board Assessment of Response Action	Safety Action Taken
A99Q0151 (cont'd)	A02-02 The Department of Transport take immediate action to implement regulations restricting pilots from conducting approaches where the ceiling does not provide an adequate safety margin for the approach or landing.	Response expected next fiscal year.		

REPLIES TO AIR RECOMMENDATIONS

A01-01

- Transport Canada (TC) is continually reviewing the methodology, resources, and practices of its safety oversight program.
- The *Canadian Aviation Regulations* replaced the *Air Navigation Orders* in October 1996.
- The Safety Air Taxi Operations Task Force produced its final report in May 1998.
- In December 1999, TC published *Flight 2005: A Civil Aviation Safety Framework for Canada*, which identified six evolving directions that require needed adjustments by TC in order to maintain and enhance aviation safety as the industry grows.
- TC hired a consulting firm in 1999 to conduct a comprehensive review of the Civil Aviation safety oversight program for commercial operations. The review was completed in July 2001.
- Board Assessment: *Satisfactory Intent*.

A01-02

- TC agrees with the need to revise flammability standards for materials used in the pressurized portions of aircraft.
- TC is working with the Federal Aviation Administration (FAA) and the Joint Aviation Authorities (JAA) to adopt a harmonized approach.
- The FAA has advised TC that it agrees with the recommendation.
- The FAA is developing new test requirements to bring flammability levels down to that proposed for acoustical insulation.
- As improved standards become available, certification standards will be incorporated in Canadian regulatory standards.
- Board Assessment: *Satisfactory Intent*.

A01-03

- TC agrees that aircraft wiring should be evaluated based on realistic operating conditions.
- The FAA has advised TC that it agrees with the recommendation.
- The FAA has initiated a project to revise standards for wiring performance and test requirements.
- The FAA is evaluating the requirement for installation of arc fault circuit breakers to further reduce fire hazard.
- TC is participating in the FAA Aging Transport Systems Rulemaking Advisory Committee on wiring standards. The committee has identified wire system certification requirements as a study issue.
- TC will continue to cooperate in such research and will introduce appropriate certification changes as required.
- Board Assessment: *Satisfactory Intent*.

A01-04

- TC agrees that any system used in the pressurized portion of an aircraft should be evaluated before certification to ensure it will not contribute to the propagation of an on-board fire.
- The US Federal Aviation Regulations certification process for on-board equipment requires that a safety analysis be conducted to ensure that a failure will not adversely affect the safety of the aircraft.
- Airworthiness authorities and the industry are conducting extensive projects to develop improved flammability standards of aircraft materials.
- TC is cooperating with the FAA to clarify any additional amendments, using a fail-safe methodology, to the present certification standard.
- TC will harmonize required changes with other airworthiness authorities as appropriate.
- Board Assessment: *Satisfactory Intent*.

A01-05

- TC agrees with the need to modify Bell 214B and 205 models' flight manuals concerning the inaccuracy of fuel quantity indicators.
- TC sent a letter to the FAA asking the certification authority to review the helicopter's fuel system design and revise the flight manual and emergency procedures as appropriate.
- TC is issuing an advisory to Canadian operators of this type of helicopter.
- TC will monitor the FAA's action and follow up with corrective action as required for Canadian operators.
- Board Assessment: *Satisfactory Intent*.

OTHER AIR SAFETY ACTION TAKEN

- An aircraft manufacturer is taking action to reduce the possibility of loss of aileron control. The revised maintenance manual procedures will include inspection criteria for worn or damaged seals and more complete lubrication instructions. An article emphasizing the importance of proper brush seal maintenance will appear in a customer newspaper.
- Transport Canada (TC) issued Service Difficulty Alert AL-2000-06 after a number of fan cowl separations on carrier aircraft. The alert was targeted at all operators of large jet transport aircraft in Canada.
- A company directed its flight operations department to develop a list of restricted airports where inclement weather and/or aircrew experience may present unacceptable risk factors. The company further directed its aircraft crews that cross-cockpit manoeuvring is not acceptable in airport terminal areas when weather is below visual flight rules minima.

- An engine manufacturer issued two service bulletins to update criteria in its repair manual, as per a technical instruction issued to all field repair shops. The technical instruction requires replacing in-service couplings with new ones at overhaul or repair and ensuring that replacement couplings, if not serialized from the factory, are etched with the serial number of the reduction gearbox at installation and recorded on the reduction-gearbox log cards.
- Nav Canada has taken steps to reduce the possibility of conflict between opposite-direction aircraft near the Empress VOR (very high frequency omnidirectional radio range). A new intersection (SHAWI) north of the Empress VOR will form part of a routing for westbound aircraft destined for Calgary, Alberta. Airway Jet 504 will primarily be used for eastbound traffic.
- TC notified the manager of the US Federal Aviation Administration (FAA) Suspected Unapproved Parts Program of the safety concerns of TC and the TSB regarding a failed fuel control unit screw. The part manufacturer has provided instructions for inspecting and replacing non-conforming screws. The inspection includes screw inventories and fuel controls on aircraft and in repair facilities, including spare units.
- The Royal Canadian Mounted Police (RCMP) reinstated and is staffing dedicated positions for aviation safety officers and training officers. The RCMP is also developing concise and up-to-date standard operating procedures for operations that do not fall under Canadian Aviation Regulation 604.
- After an engine failure on a training aircraft, an operator replaced three engines as a precaution against further defects, now uses the recommended automobile fuel (mogas) in the appropriate engines, checks propeller balance every 200 hours, and carries out oil sample analysis in a more timely manner. The propeller manufacturer also recommended that the propellers be maintained by an authorized service station to avoid incidents such as an unbalanced propeller.
- TC communicated the content of two TSB advisories concerning fuel tank drains on the Piper PA-31-350 Chieftain aircraft to the FAA.
- After a runway overrun by a large aircraft, a specialized firm removed rubber from the runway in question, thereby restoring the friction coefficient to above the required standard.
- TC periodically conducts safety seminars for pilots. The hazard of power lines is now a permanent item on the agenda for these seminars.
- The operators involved in an instrument landing system (ILS) false localizer capture provided copies of an aviation notice on this topic to all their pilots.
- Nav Canada has changed the type of electrical connections used on the ILS connection panel to improve the electrical contact at the connections. Nav Canada is considering additional measures to prevent cross-connection.

- Nav Canada issued Operations Bulletin 2001-056 at Gander Area Control Centre (ACC). The bulletin amended coordination procedures between Moncton and Gander ACCs to ensure that prior coordination is accomplished in accordance with *Air Traffic Control Manual of Operations* 432.2 for aircraft operating at altitudes not appropriate to direction of flight. The bulletin also reiterated the requirement to “place ‘WW’ and the reason (both in red) in the altitude box for all assigned altitudes not appropriate to direction of flight.”
- Nav Canada issued Operations Bulletin 2001-130 directing Gander ACC controllers to put an RSiT (radar data-processing system situational display) halo around any aircraft entering Gander domestic airspace at an altitude inappropriate to direction of flight.
- Nav Canada has issued directives to Gander ACC controllers to use the available handover checklist during handover briefings. Nav Canada has also indicated that annual refresher training and a formal evaluation process is in place to constantly monitor the use of position handover checklists.
- At Gander ACC, controllers now must complete the briefing checklist when assuming responsibility for a sector.
- Nav Canada amended control towers’ writing procedures for flight progress strips in the fall of 2000. These procedures now instruct controllers to highlight the runway number assigned for take-off on the flight progress strip whenever the runway differs from those normally assigned according to established procedures.
- Recurrent refresher training provided by Nav Canada to control tower staff in the spring of 2001 covered teamwork, communications, and the need to adhere to standard operating procedures.
- Datalink capabilities for controller-pilot datalink communications (CPDLC) with FANS-1/A–equipped aircraft have been developed and demonstrated at Nav Canada facilities. There is currently only limited implementation. Once fully implemented, aircraft position reports should be received in a more timely manner without significantly adding to the controller’s communication workload.
- TC is modifying the administrative procedures for the monitoring and the follow-up of pilot medical assessments to improve the procedures’ effectiveness.

APPENDIX A—GLOSSARY

Accident	in general, a transportation event (marine, pipeline, rail, or aviation) that results in serious injury or death to persons or damage to property or the environment (for a more precise definition, see the <i>Transportation Safety Board Regulations</i>)
Incident	in general, a transportation event (marine, pipeline, rail, or aviation) that results in minor injury to persons or minor damage to the vehicle/equipment; a situation that could potentially have turned into an accident (for a more precise definition, see the <i>Transportation Safety Board Regulations</i>)
Occurrence	a transportation accident or incident
Recommendation	a formal way to draw attention to systemic safety issues, normally warranting ministerial attention
Safety Advisory	a less formal means for communicating lesser safety deficiencies to officials within and outside of government
Safety Information Letter	a letter that communicates safety-related information, often concerning local safety hazards, to government and corporate officials