



Transportation
Safety Board
of Canada

Bureau de la sécurité
des transports
du Canada



Presentation to the Minister of Transport The Honourable Marc Garneau, P.C, M.P.

26 November 2015

Canada

The TSB: We who are

- Created in 1990 by the *Canadian Transportation Accident Investigation and Safety Board Act*.
- Operates at arm's length from other government departments and agencies.
- Reports to Parliament through the Leader of the Government in the House of Commons.
- Consists of up to five Board members, including a Chairperson, and approximately 220 employees.
- Annual Budget of about \$29M.



TSB mandate

To advance transportation safety in the air, marine, rail and pipeline modes of transportation that are under federal jurisdiction by:

- conducting independent investigations
- identifying safety deficiencies
- identifying causes and contributing factors
- making recommendations
- publishing reports

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



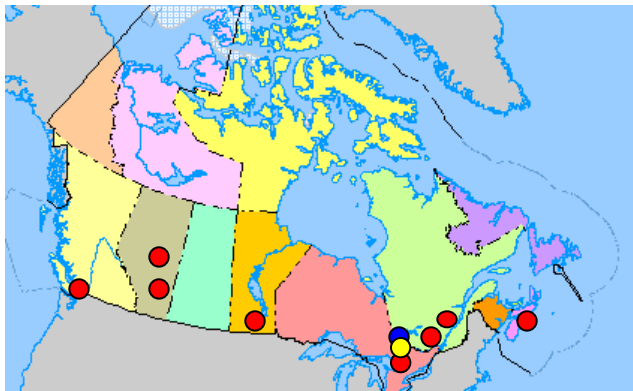
The TSB in a Nutshell

- The TSB has full discretion to determine which occurrences will be investigated and how/when investigation findings will be made public.
- Conducts about 50-75 independent safety investigations each year.
- Communicates safety deficiencies – often during the course of an investigation.
- Participates in foreign investigations.
- Seeks to be a world leader in influencing changes that advance transportation safety.



Our operations span the country

- The Head Office is in Gatineau, Quebec.
- The Laboratory is in Ottawa, Ontario.
- Regional offices located across the country allow investigators to quickly reach accident sites.



- Calgary, Alberta
- Edmonton, Alberta
- Halifax, Nova Scotia
- Montréal, Quebec
- Québec, Quebec
- Toronto, Ontario
- Vancouver, British Columbia
- Winnipeg, Manitoba

Relationship with Transport Canada

- On-going communication
- Exchange of information and training
- Collaboration on joint projects and studies
- Collaboration on outreach to industry
- Keep at arm's length on active investigations
 - Minister's observer
- Normally provide 48 hours advanced notifications and briefings
- No involvement in policy decisions and rulemaking



TSB Safety Communications

In addition to our investigation reports, we have:

- Statistical publications
- Safety information letters
- Safety advisory letters
- Board safety concerns
- Safety recommendations
- Watchlist



Recommendations

- The best recommendation is NO recommendation.
- The Board issues recommendations to eliminate or reduce validated safety deficiencies.
- Will generally do so for the BIG problems – where there is a systemic risk and where the level of risk is high.
- The Act states that the Minister has 90 days to respond to TSB recommendations.
- Board recommendations are not binding but we seek to persuade through sound scientific work and clear arguments for change.



Assessment of Responses

The Board assesses the Minister's response to determine whether the risk has been or will be reduced, and classifies it as being:

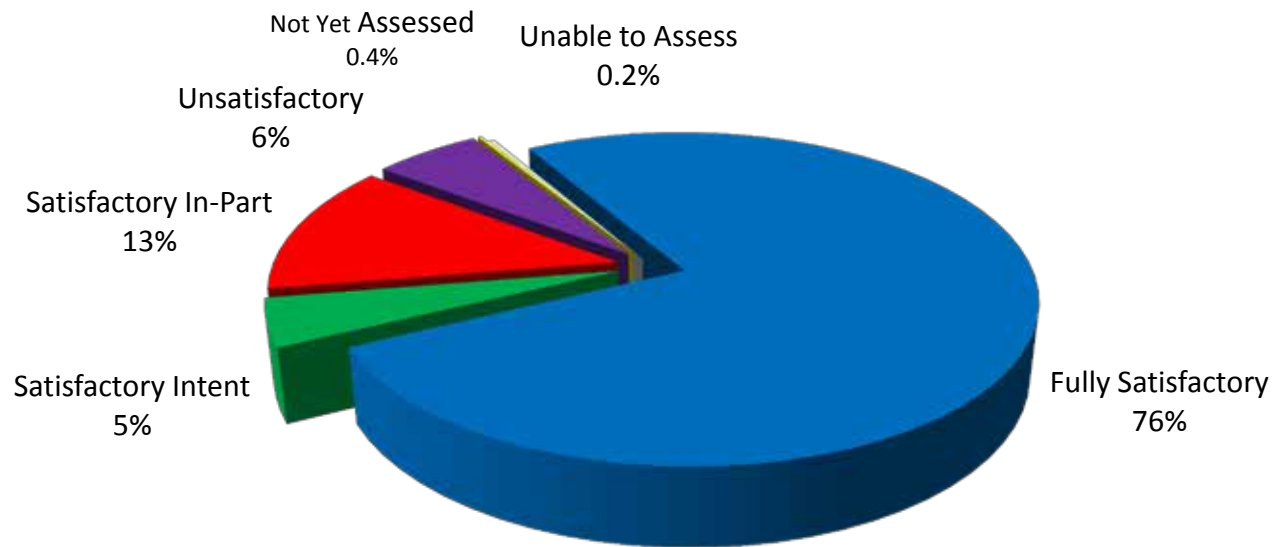
- Fully Satisfactory
- Satisfactory Intent
- Satisfactory in Part
- Unsatisfactory
- Unable to Assess

Responses are re-assessed on a regular basis to monitor progress.



Responses to Recommendations

Board Assessments of Responses to Recommendations from 29 March 1990 to 30 September 2015



TSB aims to increase fully satisfactory responses to 80% by March 2017.



Responses to Recommendations by Mode

Board Assessments of Responses to Recommendations from 29 March 1990 to 30 September 2015

Rating	Air		Rail		Marine		Pipeline		Total	
Fully Satisfactory	160	63%	125	90%	122	83%	20	100%	427	76.1%
Satisfactory Intent	9	4%	7	5%	10	7%	0	0%	26	4.6%
Satisfactory In-Part	57	22%	7	5%	8	5%	0	0%	72	12.8%
Unsatisfactory	26	10%	0	0%	7	5%	0	0%	33	5.9%
Unable to Assess	1	0%	0	0%	0	0%	0	0%	1	0.2%
Not Yet Assessed	2	1%	0	0%	0	0%	0	0%	2	0.4%
Total	255	100%	139	100%	147	100%	20	100%	561	100%



TSB Watchlist

- **What:** Eight critical safety issues that need to be addressed to make Canada's transportation system safer.
- **Goal:** To increase awareness, stimulate action and ultimately increase the uptake on TSB recommendations.



TSB Watchlist 2014

- Loss of life on fishing vessels
- Railway crossing safety
- Transportation of flammable liquids by rail
- Following railway signal indications
- On-board video and voice recorders
- Approach and landing accidents
- Risk of collisions on runways
- Safety management and oversight



Current Topics of Interest

- Assessment of responses to recommendations on child restraints
- Release of OC Transpo / VIA collision investigation report
- Joint Study on Locomotive Voice and Video Recorders
- Safety Issue Investigation on Air Taxi Operations
- Safety management and oversight
- Length of regulatory process
- Annual reassessments



Assessment of responses to child restraint recommendations

- A15-01
 - The Department of Transport require commercial air carriers to collect and report, on a routine basis, the number of infants (under 2 years old), including lap-held, and young children (2 to 12 years old) travelling.
- A15-02
 - The Department of Transport work with industry to develop age- and size-appropriate child restraint systems for infants and young children travelling on commercial aircraft, and mandate their use to provide an equivalent level of safety compared to adults.
- Assessments will be made public on 30 November 2015.



OC Transpo / VIA Rail investigation report

- Final report will be made public on 2 December 2015
- New recommendations will be issued
- Advanced briefing session for Transport Canada is planned on 30 November 2015
- Copy of the report and the recommendations will be provided to TC
- Minister's responses to the recommendations within 90 days, therefore by 1 March 2016



Joint Study on Locomotive Voice and Video Recorders

- Jointly led TSB / TC study with participation of some railways
- Labour representatives invited to participate but have not yet joined
- Objectives:
 - Conduct small pilot projects to demonstrate potential safety benefits in context of SMS
 - Identify and assess technological issues
 - Identify legislative and regulatory considerations
- Results of study will help develop a concrete action plan, including any recommended legislative and regulatory changes
- Time line = September 2015 to April 2016



Safety Issue Investigation on Air Taxi Operations

- The air taxi sector of the aviation industry has seen 175 deaths over the last 10 years - 65% of all commercial aviation fatalities.
- We need to determine why.
- We'll be analyzing historical data and case studies of selected accidents in Canada, as well as occurrences from other nations.
- We'll also be engaging industry, the regulator and other stakeholders in the coming months to gain a full understanding of the issues affecting air taxi operations.
- Time line = May 2015 to October 2016



Safety Management and Oversight of Industry

- Aviation
 - Buffalo Airways – A13W0120
 - Perimeter Aviation - A12Q0216
 - Kananaskis - A12W0031
 - Gogal Air - A12C0154
 - Sunwing – A11O0031
 - Aéropro – A10Q0098
 - La Grande Rivière – A10Q0117
 - Fox Harbour - A07A0134
- Rail
 - Tisdale - R13W0260
 - Lac-Mégantic - R13D0054
 - Nanticoke – R09T0057
- Marine
 - Princess of Acadia - M13M0287
 - Louis Jolliet – M13L0067
 - Jiimaan – M12C0058



Length of Regulatory Process

- Aviation
 - Runway End Safety Areas – **7** years (A07-06)
 - Training re: pilot decision-making – **14** years (A00-06)
 - Crew resource management – **19** years (A95-11, A95-12)
 - FDR and CVR standards – **20** years (A99-02, A99-03, A94-04)
 - TAWS – **17** years (A95-10) **now completed**
- Rail
 - Grade crossing regulations – **13** years (R01-05) **now completed**
 - Following signal indications – **14** years (R00-04)
 - Voice recorders – **11** years (R03-02)
- Marine
 - Fishing vessels regulations – **22** years (M92-07, M94-06, M94-33, M00-09, M03-07, M08-04)
 - Small passenger vessel SMS – **10** years (M04-01)

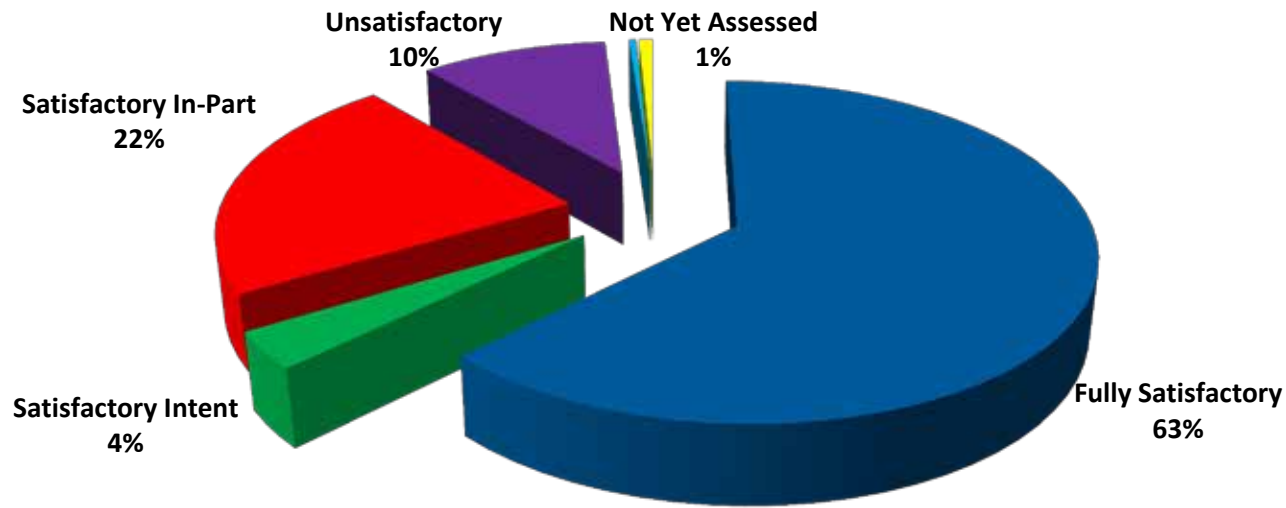


Supplementary Information



Aviation

Board Assessment of Responses to Recommendations from 29 March 1990 to 30 September 2015



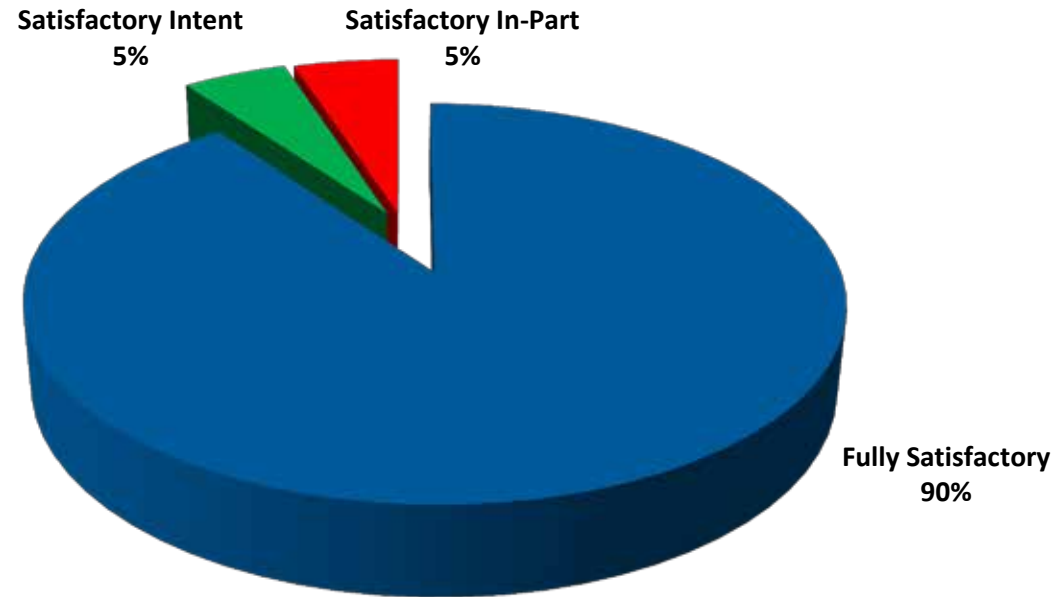
Key Outstanding Recommendations:

- 300 m runway end safety areas or a means of stopping aircraft that provides an equivalent level of safety.
- Commercial balloon operations have an emergency fuel shut off and provide a level of safety equivalent to aircraft carrying same number of people.
- Seaplanes have emergency exits to allow for rapid egress following a survivable collision with water.
- Removal of the "extremeley remote" provision from certification for category A helicopters.
- Reduce the number of survivable post impact fires by for instance eliminating ignitions sources.
- Safety Management Systems for Canada's smaller carriers.
- Light weight flight recorders for small aircraft.



RAIL

Board Assessment of Responses to Recommendations from 29 March 1990 to 30 September 2015



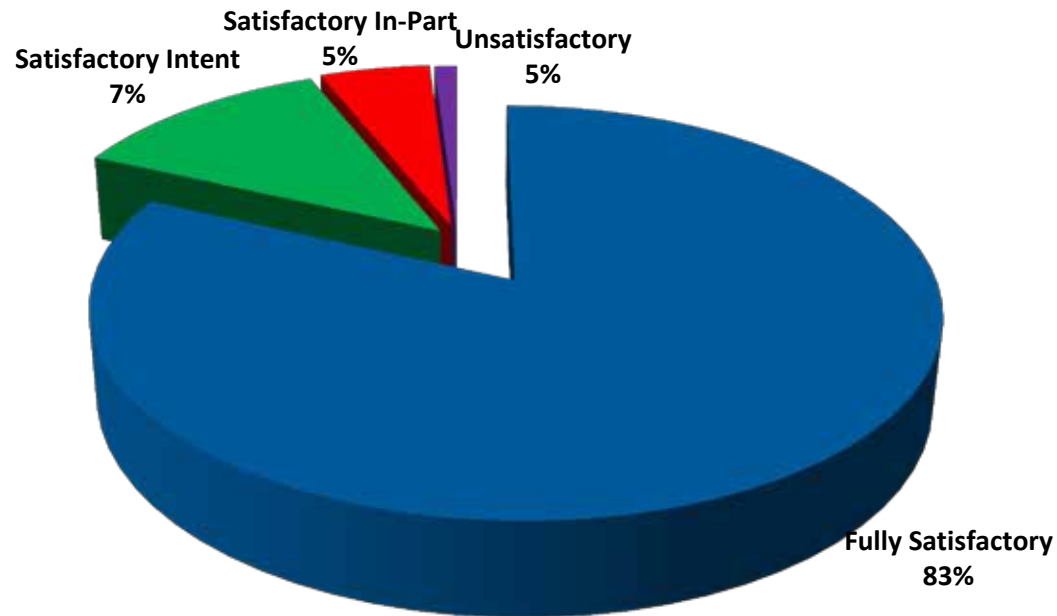
Key Outstanding Recommendations:

- Establish a requirement for on-board cab voice and video recordings interfaced with on-board communications system.
- Conduct safety assessments of level crossings on the high-speed passenger rail Quebec-Windsor corridor and ensure that defences are adequate to mitigate the risk of road vehicle / train collisions.
- Implement enhanced standards for Class 111 tank cars.
- Require Canadian railways to put in place additional physical defences to prevent runaway equipment.
- TC audit the safety management systems of railways in sufficient depth and frequency to confirm that the required processes are effective and that corrective actions are implemented to improve safety.
- Require major Canadian passenger and freight railways implement physical fail-safe train controls, beginning with Canada's high-speed rail corridors.



Marine

Board Assessment of Responses to Recommendations from 29 March 1990 to 30 September 2015



Key Outstanding Recommendations:

- Changes to Fishing Vessel Regulations to focus on safety issues like: survival suits, plain language, stability booklets, emergency positioning indicating radio beacons and a Code of Best Practice.
- Safety management for smaller marine operations.



Canada

