

Annual Report 2012

Accident Investigation Board for Civil Aviation and Railways

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Havarikommisjonen

Accident Investigation Board Denmark

Annual Report 2012

Railways

February 2015

Contents

1. FOREWORD	3
2. THE ACCIDENT INVESTIGATION BOARD	4
2.1. Mission and vision	4
2.2. Organisation of the Accident Investigation Board	5
3. THE YEAR'S INVESTIGATION ACTIVITIES	6
3.1. The railways sector	6
3.2. Summary of cases in 2012	6
4. RECOMMENDATIONS	8
4.1. Railways	8
5. STATISTICS ON REPORTED INCIDENTS	9
6. ANNEXES	10
Annex 2	11
Status of recommendations in the railways sector	11
Annex 2	16
Statistics for the railways sector	16

1. FOREWORD

The Accident Investigation Board for Civil Aviation and Railways (the Accident Investigation Board, AIB) is an independent institution under the Ministry of Transport. Its main task is to investigate accidents and incidents in the aviation and railways sectors in Denmark, and in the aviation sector in Greenland and the Faroe Islands.

The Accident Investigation Board's investigations are not concerned with apportioning blame or liability, but are aimed solely at improving railway safety and preventing incidents and accidents in the future.

Through this annual report, the Accident Investigation Board wishes to,

- provide information on the Board's investigation activities over the year;
- report on the implementation status of recommendations made by the Board; and
- provide statistical information concerning the accidents and incidents investigated by the Board.

The annual report contains general information about investigation activities, not detailed information about individual investigations. Reports and statements concerning individual accidents and incidents can be found on the Accident Investigation Board's website (www.aib.dk).

Chapter 2 contains a brief introduction to the Accident Investigation Board.

Chapter 3 provides an overview of the Accident Investigation Board's investigation activities in 2012. This is done on the basis of figures for received and closed cases, which give a highly simplified picture, since investigations vary considerably in scope and form.

Chapter 4 presents an overview of the implementation status of recommendations made by the Accident Investigation Board, which can be studied in greater depth in Annex 1.

Chapter 5 presents the statistical figures which can be found in Annex 2.

2. THE ACCIDENT INVESTIGATION BOARD

The Accident Investigation Board for Civil Aviation and Railways (the Accident Investigation Board) is an independent institution under the Ministry of Transport. The Board's tasks in investigating aviation and railway matters are laid down in the Aviation Act (Consolidated Act No 959 of 12 September 2011) and the Railways Act (Consolidated Act No 1249 of 11 November 2010).

The main task of the Accident Investigation Board is to investigate accidents and incidents in the aviation sector in Denmark, Greenland and the Faroe Islands and accidents and incidents in the railways sector in Denmark. Where Danish passengers or Danish-registered aircraft or trains are involved, the Accident Investigation Board can take part in investigations carried out by another country's investigation authorities.

The Board's investigations are not concerned with apportioning blame or liability, but are aimed solely at preventing incidents and accidents in the future.

2.1. Mission and vision

The Accident Investigation Board's mission is as follows:

The mission of the Accident Investigation Board

Through independent investigations, the Accident Investigation Board is to make recommendations to prevent accidents and incidents on the railways and in aviation.

The role and duties expressed in the mission statement are fundamental to the functioning of the Accident Investigation Board, and, as a supplement to the mission statement, the Accident Investigation Board's vision serves as a guide for its activities.

The vision of the Accident Investigation Board

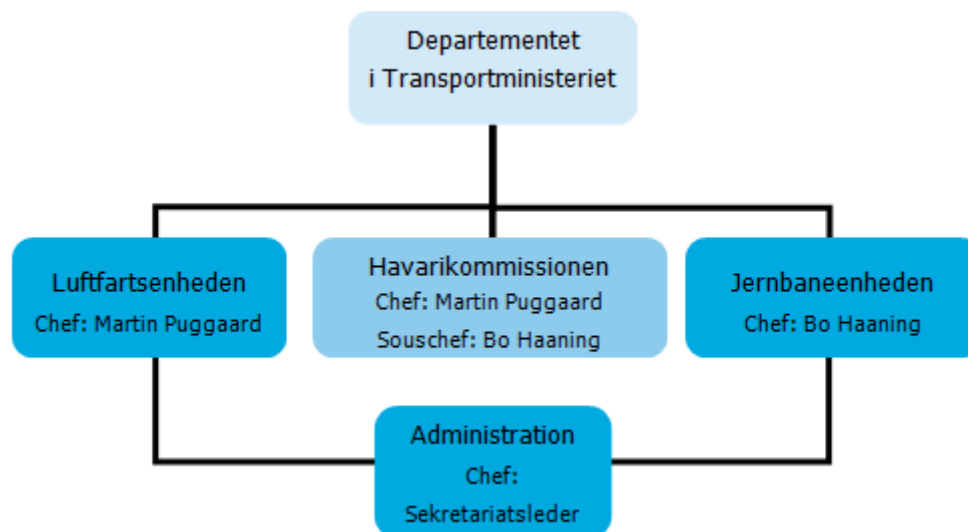
The Accident Investigation Board will develop and continue to:

- deliver an investigation result of a highly professional nature within a time frame which means that the result will be of decisive significance for the prevention of similar events.
- ensure that our role is objective and unbiased, and that our integrity is never in doubt.
- make our Board attractive – both as a place to work and as part of a larger context

2.2. Organisation of the Accident Investigation Board

In 2011 the Accident Investigation Board underwent an organisational change, as reflected in the diagram below.

The organisation of the Accident Investigation Board includes investigation units for both aviation and railways, as well as a director and secretariat.



Departementet i Transportministeriet	Department in the Ministry of Transport
Luftfartsenheden Chef : Martin Puggaard	Aviation Unit Director: Martin Puggaard
Havarikommissionen Chef Martin Puggaard Souschef: Bo Haaning	Accident Investigation Board Director: Martin Puggaard Assistant Director: Bo Haaning
Jernbaneanheden Chef: Bo Haaning	Railways Unit Director: Bo Haaning
Administration Chef: Sekretariatsleder	Director of Administration: Head of Secretariat

The Accident Investigation Board normally has a total of 14 staff, broken down into three employees in the Secretariat, four in the Railways Unit and seven in the Aviation Unit. The Director of the Aviation Unit is also the Director of the Accident Investigation Board, and the Director of the Railways Unit is the Assistant Director of the Accident Investigation Board.

3. THE YEAR'S INVESTIGATION ACTIVITIES

3.1. The railways sector

In 2012, the Accident Investigation Board received 496 reports of accidents and incidents in the railways sector, compared with 540 in 2011.

After initial assessment, it was decided not to carry out an investigation for 463 of the reports. For the remaining reports, a preliminary or full investigation was carried out.

If the results of a preliminary investigation do not indicate that an investigation will lead to results of significance for safety, the preliminary investigation is closed and a brief statement produced – known as a § 21q statement – which provides a brief description of the accident or incident, where appropriate supplemented by the assessment of the Accident Investigation Board.

In the autumn of 2011 and January 2012 the Accident Investigation Board reviewed all open railway cases. In 104 of the cases, following the initial investigation it was estimated that further investigations would not lead to recommendations of a preventive nature or uncover safety-critical issues, and the cases were closed.

3.2. Summary of cases in 2012

The table below provides an overview of cases opened and closed in 2012.

The table first gives the total number of reports received. Some reports are closed following preliminary assessment, while others (referred to in the table as ‘Opened in 2012 after preliminary assessment’) give rise to a preliminary investigation.

The number of cases remaining after preliminary assessment is then divided into accidents and incidents.

The cases closed in 2012 are split according to whether or not they were closed within one year of the incident, in line with the common European objective to close cases within one year wherever possible.

Finally, the table gives the number of cases unfinished at the beginning and end of 2012.

Accident Investigation Board		
		Railways
Cases opened in 2012		
Number of reports		496
Closed after preliminary assessment		463
Opened in 2012 after preliminary assessment		33
Reported accidents		16
Reported incidents		158
Cases closed in 2012		
Published statements and reports < 12 months		16
Published statements and reports > 12 months		3
Note: Statements and reports include simplified statements (§ 21Q cases)		
Unfinished cases		
Unfinished cases as at 31/12-2012		27
Unfinished cases as at 31/12-2011		117

4. RECOMMENDATIONS

As a result of the investigations carried out, the Accident Investigation Board can make recommendations intended to prevent future accidents. As an independent investigation body, the Board makes recommendations to the relevant safety authorities, whose task is to determine the necessary measures in conjunction with the organisations concerned and which are authorised to implement measures in the sectors.

The railways sector is gradually being developed along more common European lines, but still has a primarily national focus, and the recommendations are therefore made to the Danish Transport Authority, which is the national safety authority.

4.1. Railways

The table below summarises the status of recommendations in the railways sector.

Recommendations published		Implementation status of recommendations			
		Carried out/ Closed		Open	
Year	Total		%		%
2004-2007	40	40	100	0	0
2008	20	19	95	1	5
2009	9	9	100	0	0
2010	4	4	100	0	0
2011	0	0	0	0	0
2012	8	7	88	1	13
Total	81	79	98	2	2

For the railways sector, the 2011 annual report contained five open recommendations, and in 2012 the Accident Investigation Board made a total of eight recommendations. Of those 13 recommendations, a total of 11 were implemented or closed in 2012, so that there are now two open recommendations.

An overview of all open recommendations and recommendations implemented or closed in 2012 in the railways sector can be found in Annex 1.

5. STATISTICS ON REPORTED INCIDENTS

In the railways sector, a common European database (ERAIL) – corresponding to the one for aviation – is currently being developed. When ERAIL is implemented, it is expected that in the longer term a series of standardised parameters will be defined and thereafter systematically recorded, which will make more ample statistical information easily accessible.

The statistical overviews for the railways sector (see Annex 2) are limited to dividing accidents and incidents into level of seriousness, i.e. serious accident, accident or incident and dividing accidents/incidents into the categories derailment, fire/smoke formation, collision, level crossing accident, collision with person, signal passed at danger (SPAD) and other.

The overviews can best be read together with the Danish Transport Authority's annual safety report ('Safety report for the railways 2012'), which is based on annual reports from operators and infrastructure managers in Denmark. These reports also include those accidents and incidents that have not been investigated by the Accident Investigation Board. They describe the evolution of accidents over the years and the accidents can be seen in relation to the volume of transport on the railways (millions of train-kilometres).

6. ANNEXES

1. Overview of recommendations for the railways sector
2. Statistics for the railways sector

Annex 2

Status of recommendations in the railways sector

Explanation of the terminology used by the Accident Investigation Board:

Open: All cases where it has not yet been decided whether to implement a measure, or where implementation has been started but not completed.

Carried out: All cases where, on the basis of the Danish Transport Authority's feedback on 'compliance', a recommendation is deemed essentially to have been fulfilled.

Closed: Cases where the recommendation has not been directly followed, but where initiatives have been implemented and the Danish Transport Authority as safety authority has assessed the initiatives as satisfactory, and will not take any further action.

Rejected: the Danish Transport Authority or other authority to which the recommendation was made has refused to take any action.

2004-2007: In total 40 published, of which none is open.

Published 2008

Derailment near Ellebjerg on blocked track. 18.07.2007	
Three sleeper transport wagons were derailed while shunting on blocked track near the old Ellebjerg station on the S-track to Køge. The track (left track Copenhagen H – Åmarken) was being reconditioned.	
R2 17.07.2008	Open
The Danish Transport Authority should ensure compliance with the requirements on the training of personnel involved in reconditioning track (including subcontractors' personnel), including monitoring the rail safety conditions beyond those relating purely to track reconditioning.	
Response to recommendation: The Danish Transport Authority states that four competence rail standards are being approved on an interim basis by the Danish Transport Authority.	Comments: The Accident Investigation Board is awaiting information on final approval.

Published 2009

Collision with combine harvester at crossing near Borris, 28.07.2008	
A combine harvester was hit at a crossing and was thrown into a field, where it landed on its roof and burst into flames.	
R1 08.01.2009	Closed
Together with the Danish Road Directorate, the Danish Transport Authority is to assess the practicalities of driving across railways in high, slow vehicles and the possibilities of creating high visibility road signals on crossings for vehicles with elevated driving positions.	
Response to recommendation: 'After discussion with the Accident Investigation Board, the Danish Road Directorate drove over a crossing with the same type of combine harvester. No problems were noted in terms of the visibility of	Comments:

the signals. We do not consider the fact that the combine harvester is slow-moving to be a problem. The Danish Road Directorate will not be taking this matter any further.’ ‘The Danish Transport Authority considers the recommendation to have been complied with, since there is nothing which indicates that “high” vehicles have a problem in seeing signals at crossings. If special vehicles cannot see markings on the road that are required by law, this is not a matter that falls within the Danish Transport Authority’s jurisdiction.’	
R2 08.01.2009	Carried out
In conjunction with the Danish Road Directorate, the Danish Transport Authority should assess the rate at which unmanned crossings (crossings secured with warning signalling) are being upgraded to manned crossings (crossings secured with barriers), if necessary with crossings taken out of service, including assessing the rules for equipping railways with unmanned and/or manned crossing facilities.	
Response to recommendation: The Danish Road Directorate has previously stated that ‘It is the policy of the Danish Road Directorate to modernise crossing facilities based on the criterion of age, and to coordinate with other activities on private tracks, in order to optimise economy.’ ‘The Danish Transport Authority can report that when upgrading train speeds or road traffic at existing crossing facilities, these will normally either be closed down or converted into secure facilities with barriers. Since the Danish Transport Authority subscribes to the Danish Road Directorate’s comments, the Danish Transport Authority considers the recommendation to have been complied with.’	Comments:

Published 2010

Train collided with lorry on crossing near Soderup, 19.09.2009	
Shortly after leaving Tølløse, a unit collided with a lorry on a crossing secured with a half-barrier. An engine driver and the lorry driver were killed in the collision, the train was derailed and the lorry burned out completely, and parts of the crossing facilities were destroyed.	
R1 30.06.2010	Closed
The Danish Transport Authority – if appropriate in collaboration with the Danish Road Directorate – should assess what further measures can be taken to reduce the risk of collision with heavy road vehicles by reducing the number of times such vehicles use railway crossings.	
Response to recommendation: ‘The Danish Transport Authority is not the competent authority in this field, but has referred to the recommendation in connection with the crossing forum. The Danish Transport Authority will not be taking the matter any further and considers the recommendation closed.’	Comments:
R2 30.06.2010	Closed

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The Danish Transport Authority should assess the need for ongoing evaluation of safety conditions by the road authorities on secured railway crossings.	
Response to recommendation: 'The Danish Transport Authority is not the competent authority in the area, but has referred to the recommendation in connection with the crossing forum. The Danish Transport Authority will not be taking the matter any further and considers the recommendation closed.'	Comments:

Published 2011

None

Published 2012

IC4 unit passed signal at 'stop' at Marslev, 07.11.2011 (Preliminary statement)	
High-speed train 47 passed a signal at Marslev station at high speed, and stopped immediately behind a freight train (G9233) that was stopped at the subsequent entry signal (I-signal). The train stopped 651 m after automatic block signal (AM-signal) 2173 and 542 m after the danger point. High-speed train 47 consisted of an IC4 unit (MG5627). The Accident Investigation Board recommends that the Danish Transport Authority take the following into account	
DK-2012 R 1 30.01.2012	Open
- that in particularly slippery conditions, the IC4 units' wheel blocking system (WSP system) cannot protect against the whole/partial blocking of the train's wheels	
Response to recommendation:	Comments:
DK-2012 R 2 30.01.2012	Carried out
- that whole/partial wheel blocking will result in incomplete recording of the actual distance covered and actual speed while braking in particularly slippery conditions.	
Response to recommendation: The Danish Transport Authority has required DSB to ensure that the actual distance covered and the actual speed are recorded under all conditions, which DSB has ensured for the present by disengaging axle 5.	Comments: Will also be included in the final report.
DK-2012 R 3 30.01.2012	Carried out
- that the lack of data for the ATC system on the actual distance covered and the actual speed could lead to the safety system (ATC) not being able to intervene as expected.	
Response to recommendation: The Danish Transport Authority has required DSB to ensure that the actual distance covered and the actual speed are recorded under all conditions, which DSB has ensured for the present by disengaging axle 5.	Comments: Will also be included in the final report.

Work vehicle passed entry signal at 'stop' and slipped points, 11.09.2011
In connection with the overhaul of the line between Aarhus and Hobro, trolley 083 passed an entry signal at Hobro in the 'stop' position because the brakes did not work properly. The trolley collided with a train at standstill on track 1. The trolley stopped on track 1 at the southern end of Hobro station. At Hobro station Intercity train 116 (IC 116) had permission to depart from track 1. Before it could depart, IC 116 was stopped by Banedanmark's remote control manager (from FC Aarhus Nord).

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DK-2012 R 4 10.07.2012	Closed
The Danish Transport Authority to ensure procedures / instructions for checking braking function / braking tests for work vehicles without traditional railway air brakes.	
<p>Response to recommendation:</p> <p>The Danish Transport Authority oversees the existence of procedures / instructions for the maintenance and preparation of work vehicles. The Danish Transport Authority does not oversee individual cases, but ensures that railway undertakings and infrastructure managers accept their liability by pointing out errors or shortcomings, regardless of the source.</p> <p>The Danish Transport Authority considers the recommendation to have been complied with.</p>	<p>Comments:</p> <p>The Danish Transport Authority has indicated that when it considers a recommendation to have been carried out, this also includes its having assessed the existing and any new measures to be completely satisfactory from a safety point of view.</p>

Cyclist hit by train on crossing at the Port of Århus, 29.06.2012	
Train 4713 (an IC3 unit) from Århus H heading for Østbanetorvet hit a cyclist on crossing 10 at the Port of Århus. The cyclist turned to the right (towards the train) from the cycle path on the coast road, in order to be able to turn to the left at Nørreport. The cyclist later died as a result of injuries sustained in the collision.	
DK-2012 R 5 12.09.2012	Closed
The Accident Investigation Board recommends that the Danish Transport Authority has safety conditions on and around the crossing modified so that cyclists cannot inadvertently get closer to the track than the normal safety distance of 1.75 m	
<p>Response to recommendation:</p> <p>The Danish Transport Authority has reported that the local traffic agencies and highways authorities are responsible for road safety approaching level crossings. The Danish Transport Authority is not authorised to require these to change the safety measures.</p> <p>The Danish Transport Authority has contacted Banedanmark to make sure that Banedanmark handles the situation in an appropriate manner. The Danish Transport Authority has asked Banedanmark to re-assess the road-oriented safety measures, even though this is not the Danish Transport Authority's province.</p> <p>One of the factors that complicates a case such as this is that it takes place in an area of overlap involving several authorities.</p> <p>The Danish Transport Authority considers the recommendation to have been complied with</p>	<p>Comments:</p> <p>The Accident Investigation Board agrees that the involvement of several different authorities complicates the handling of the recommendation.</p>

Fire in roof of points stopping machine SSR 532, 30.03.2012	
While transporting points stopping machine SSR 532 and two personnel carriers from Esbjerg to Roskilde as a work vehicle, the driver of SSR 532 noticed a fire in the roof.	
DK-2012 R 6 16.11.2012	Carried out
The Accident Investigation Board recommends that the Danish Transport Authority assess the authorisation procedures for tunnel travel for work and positioning movements for these types of train, as well as the requirements for fire-fighting equipment	

<p>Response to recommendation: Banedanmark has explained the rules and procedures in relation to driving through tunnels, and has stated, <i>inter alia</i>, that tunnel check (SIN) only applies to passenger trains, and that there is a preparation procedure that addresses, among other things, the requirements for fire-fighting equipment (number and type). There are no special requirements (from the infrastructure manager) for the carrying of equipment in tunnels, although there are requirements relating to the carriage of hazardous goods, as well as requirements on tunnel training. Drivers of work vehicles for Banedanmark are not automatically trained in fire-fighting.</p> <p>The Danish Transport Authority has carried out an inspection at Banedanmark in relation to the maintenance of rolling stock. The Danish Transport Authority carries out ongoing inspections at Banedanmark (of the safety management system) in relation to Banedanmark's ensuring that stock is maintained, and that the preparation procedure is implemented.</p> <p>The Danish Transport Authority considers the recommendation to have been complied with.</p>	<p>Comments: The Danish Transport Authority has also indicated that when it considers a recommendation to have been carried out, this also includes its having assessed the existing and any new measures to be completely satisfactory from a safety point of view.</p>
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Collision with person on platform crossing at Tølløse station, 13.02.2012	
Train 1528, which was arriving from Tølløse on track 2 from Vipperød, hit a person on the public platform crossing at the northern end of the station. The person concerned died in the collision.	
DK-2012 R 7 13.12 2012	Carried out
The Accident Investigation Board recommends that the Danish Transport Authority assess whether the safety of crossings that are generally used for public traffic other than access to and from trains is satisfactory with the current arrangements	
<p>Response to recommendation: The Danish Transport Authority has conducted a nationwide survey to identify crossings that are generally used for public traffic other than access to and from trains, and has assessed Banedanmark's proposal for additional safety measures at individual crossings.</p>	Comments:
DK-2012 R 8 13.12.2012	Closed
The Accident Investigation Board recommends that the Danish Transport Authority ensure that Banedanmark has and applies procedures for replacing and checking safety-critical components in signal boxes	
<p>Response to recommendation: The Danish Transport Authority has previously noted that Banedanmark has and applies procedures relating to the replacement of components. Change management is an integral part of the oversight of the undertakings' safety management systems, and will therefore be followed up as part of that oversight. The Danish Transport Authority considers the recommendation to have been complied with.</p>	<p>Comments: The Danish Transport Authority has also indicated that when it considers a recommendation to have been carried out, this also includes its having assessed the existing and any new measures to be completely satisfactory from a safety point of view.</p>

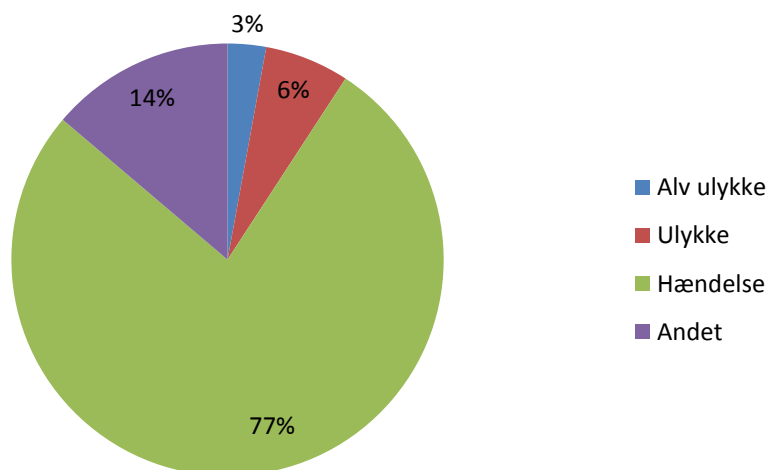
Annex 2

Statistics for the railways sector

The statistical overviews for the railways sector are currently limited to presenting data from 2012 in relation to

- the breakdown of accidents and incidents by level of seriousness, and
- the breakdown of accidents/incidents by category.

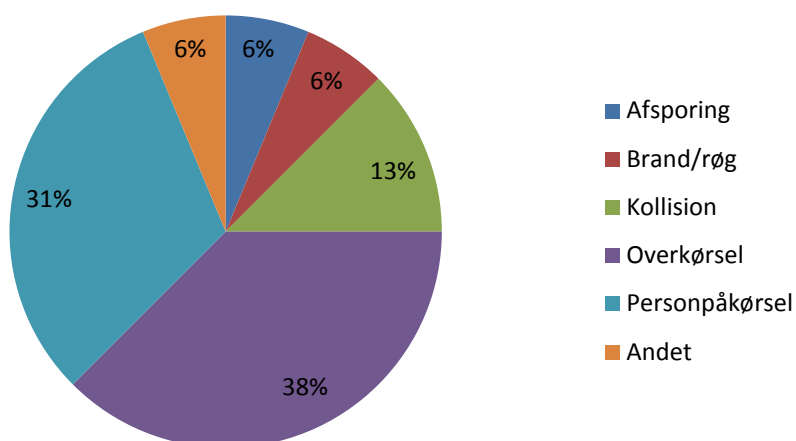
Breakdown of 174 reports in 2012 by seriousness



Alv ulykke	Serious accident
Ulykke	Accident
Hændelse	Incident
Andet	Other

In 2012, 16 accidents were reported to the Accident Investigation Board, and these fell into six categories – derailments, fire, collisions, level-crossing accidents, collisions with persons and other.

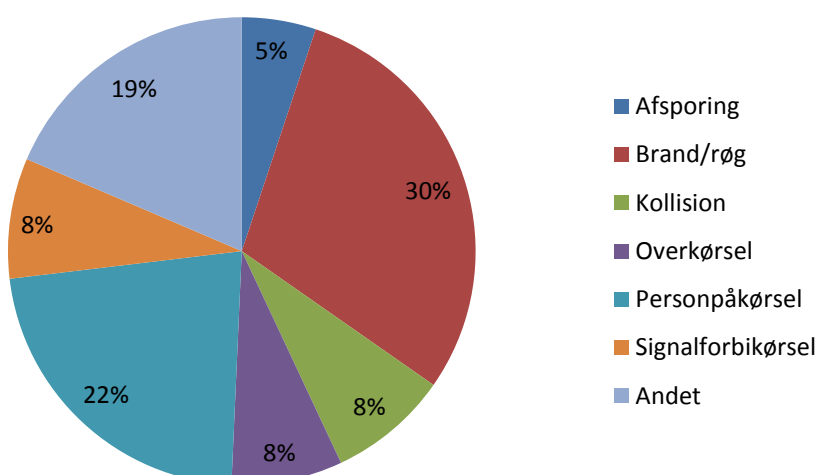
Breakdown of accidents in 2012 by category



Afsporing	Derailment
Brand/røg	Fire/smoke
Kollision	Collision
Overkørsel	Level crossing
Personpåkørsel	Collision with person
Andet	Other

In 2012, 174 incidents were reported to the Accident Investigation Board, and these were spread across all seven categories used by the Accident Investigation Board when recording incidents, with fire/smoke formation as the most represented single category.

Breakdown of incidents in 2012 by category



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Afsporing	Derailment
Brand/røg	Fire/smoke
Kollision	Collision
Overkørsel	Level crossing
Personpåkørsel	Collision with person
Signalforbikørsel	Signal passed at danger (SPAD)
Andet	Other