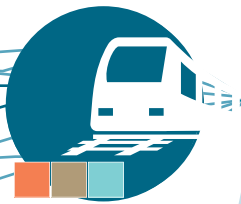




Annual report 2013



Investigation Body
for Railway Accidents and Incidents



The Investigation Body is an organisation created to carry out safety investigations following a railway accident or incident. The Investigation Body is functionally independent of the National Safety Authority, of any regulatory body for the railways or any other instance whose interests could conflict with its investigatory duties.

This report outlines the activities carried out by the rail Accident Investigation Body between 1 January 2013 and 31 December 2013, according to the requirements of Article 54 of the Law of 19 December 2006/Law of 30 August 2013 Article 121.



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1. Foreword

The Investigation Body (IB) set as target for the year 2013 the completion of a large number of investigation reports continuing to formulate internal procedures and ensuring continuity of its service by carrying out newly opened investigations.

The IB has completed 8 investigations in 2013, thus reducing part of the backlog.



The IB has opened 3 new investigations including an investigation into the serious accident in Wetteren requiring major human resources.

In response to the request from the special parliamentary commission, the European agency ERA has conducted an assessment of the measures taken since 2010 by the IB. This audit was aimed at re-evaluating the role and the authority of the IB within the Belgian railway system and its capacity to fulfil requirements and duties established by the Railway Safety Directive.

The evaluation report concluded that, since the first audit report on 30 June 2010, the IB organisation has significantly progressed: the number of staff has considerably increased, its experience and expertise have improved.

Since 2010, the IB has been developing and applying its first processes – a manual and instructions – to be able to continuously carry out its tasks in an adequate, coherent and reproducible way. The IB carries out in practice the duties which come under its responsibility

The relationship between the IB and the judicial services remains vague, however collaboration on the ground has noticeably improved. However, a systematic and structured cooperation for investigations into railway accidents should be approved and formalised.

A protocol agreement has been drawn up by the IB in collaboration with the Railway Police, however it has not yet been approved and signed by all the authorities concerned.

In Belgian legislation, the judicial enquiry predominates over the technical investigation conducted by the IB. Article 46 of the Law of 19 December 2006 stipulates that the IB's powers can only be exercised when the needs of judicial enquiry and investigation do not conflict.

The Law of 19 December was repealed by the Law of 30 August 2013 and this Article, which became Article 119 in the Law of 30 August, has been rectified. This Article mentions at present that «the investigation is carried out independently of any judicial enquiry and investigation and can under no circumstances aim at determining fault or responsibility. The judicial authorities endeavour to allow the Investigation Body to carry out its duties.

The audit has also highlighted various action points to be implemented, which are part of the process of continual improvement in IB performance.



2. The Investigation Body

2.1 Legal basis

The creation of an independent body charged with the investigation of railway accidents and incidents aiming the improvement of safety meets the European Directive 2004/49.

This Directive has been transposed into Belgian law with one law and two implementing decrees:

The Law of 30 August 2013 on the Law on the Rail Code

the Rail Code is intended to codify and assemble three laws on the railways in a single and coherent text. It finalises the transposition of certain directives and provides the alterations to railway legislation made necessary by the experience acquired since adoption of the following three laws:

- the Law of 4 December 2006 on the use of railway infrastructure
- the Law of 19 December 2006 on the operational safety of railways
- the Law of 26 January 2010 on interoperability of the railway system within the European Community.

Royal Decree of 16 January 2007:

amended by the Royal Decree of 25 June 2010 laying down certain rules for investigations into railway accidents and incidents.

Royal Decree of 22 June 2011:

designating the Investigation Body for Railway Accidents and Incidents and repealing the Royal Decree of 16 January 2007.





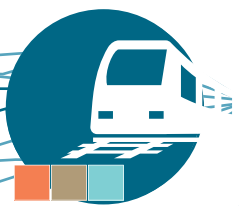
2.2 IB independence

Since its creation in 2007 and until January 2010, the Investigation Body called upon technical, material and operational expertise from the Safety and Environment service of SNCB/NMBS Holding to lead investigations and produce reports, under the supervision of the main investigator of the Investigation Body of the FPS.

The question of independence of the IB however is more complex than simply the relationships between the staff members and SNCB/NMBS Holding. Elements such as the organisational position, decision-making independence, the availability of sufficient resources (financial and human) and the competence of staff are determining factors in the practical independence of an authority. Various legal amendments have intervened to ensure the independence of the IB. For its organisational position, the independence of the IB has been reinforced since 2010, insofar as it now comes under the direct authority of the State Secretary for Mobility. The establishment of the IB is governed by the Royal Decree of 22 June 2011, clearly stipulating in Article 4 that the director and assistant director of the IB can have no links with the NSA, with any regulatory body for the railways or any other instance with interests that could conflict with the task of investigation. In practice, none of the investigators had this type of relationship.

To be able to carry out its duties effectively and with the required level of quality and remaining independent in their decision-making, the IB has an appropriate level of internal technical expertise in the railway domain and experience on the ground. Newly-recruited IB personnel generally have engineering skills and specialised knowledge in areas other than the railway.

In addition, the IB offers its personnel the opportunity to take regular training courses. The aim is that staff become specialised in different disciplines, to allow them to gather and share experiences. The creation of an organic budgetary fund in Article 4 of the programme act of 23 December 2009 is intended to guarantee the financial independence of the Investigation Body. Since 2010, the independence of the IB in its broadest sense has been reinforced.



2.3 Organisation and resources

2.3.1 Budget

The funds are made up of contributions to the functioning of the Investigation Body by the infrastructure manager and railway undertakings. Beside general expenses (staff, offices, operations, equipment), there are also specific operational expenses to ensure the Investigation Body can fulfil its duties: regular external expertise and consulting, individual safety equipment, participation in specialised training and conferences (etc.).

2.3.2 Staff

On 31.12.2013, the IB was composed of

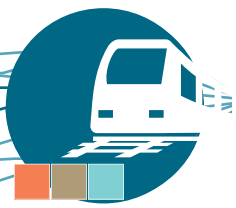
- a principal investigator,
- three permanent investigators,
- two administrators

Investigations are led by the permanent investigators with the support of experts chosen according to the skills considered necessary. The Investigation Body identifies and mobilises experts completely independently.

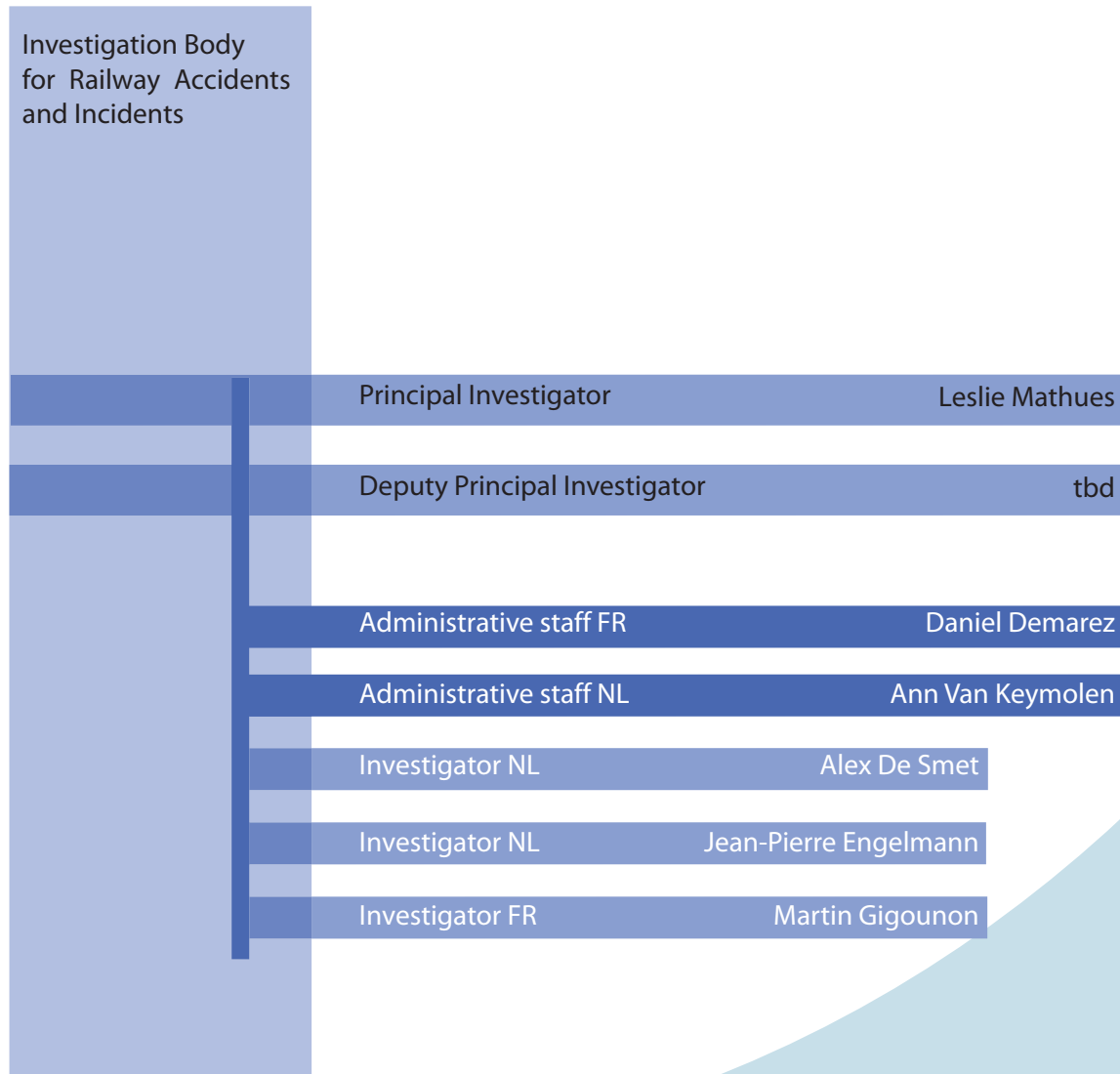
The rules and procedures for «Public contracts» by the FPS Mobility and Transport are applied in the tendering procedure for external experts.

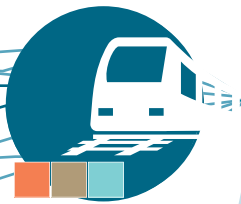
2.3.3 Location

The offices of the IB are on the 5th floor, 56 Vooruitgangstraat, Brussels; near to the North station in the offices of the Federal Public Service Mobility and Transport.



2.3.4 Organisation chart





2.4 Missions of the Investigation Body

2.4.1 Investigations

The main task of the Investigation Body is to investigate operational accidents considered as serious, occurring on the Belgian railway network. Beside serious accidents, the IB is entitled to investigate other accidents and incidents with consequences for railway safety.

2.4.2 Database

All events reported by the infrastructure manager and by railway undertakings are put into the IB database. The Investigation Body brings together elements collected in a central database for the purposes of archiving, trend analysis and confirming shortcomings in safety. This allows similar events to be identified in case of accident or incident.

The database also allows access to the common safety indicators foreseen by European Directives and transposed into Belgian law. The database is available to the National Safety Authority.

2.4.3 European consultation

The Investigation Body participates in the activities of the national investigation bodies network (NIB), which take place under the aegis of the European Railway Agency (ERA), intended to draw on the experiences of other investigation bodies and to collaborate towards European harmonisation of regulations and investigation procedures. This allows an exchange between countries on good practices and for guides to be developed on a common interpretation, a common view on the practical application of European directives.

2.4.4 Communication

When the IB investigates an accident, its objectives are to determine what happened, why, to determine direct and underlying causes of an accident and to formulate recommendations in order to maintain or to improve the safety. The reports are made public to inform the parties concerned, the general public, industry, regulatory bodies, etc.

The FPS Mobility and Transport website offers access to the published reports. These reports present the facts, analysis, the causes identified, the measures taken by the parties involved and the recommendations made.



3. Investigation process

3.1 Case which is subject to an investigation

According to the Law of 30 August 2014 in its Article 111, the Investigation Body:



- carries out an investigation following every serious accident taking place on the railway system. Serious accident being defined as any train collision or any derailment with at least one fatality or at least five serious injuries or causing extensive damage to rolling stock, the infrastructure or the environment, and any other similar accident with clear consequences for regulations or the management of railway safety; «extensive damage» means damage that the Investigation Body can immediately estimate at a value of least EUR 2 million in total. The accident is defined as an undesirable or unintentional and unforeseen event, or a particular chain of events of this kind having detrimental effects.

- In addition to serious accidents, it may conduct investigations on accidents and incidents which, under slightly different circumstances, could have led to serious accidents, including technical defects in the structural sub-systems or interoperability constituents of the high speed or conventional railway system. Where applicable, it takes account of criteria determined by the King.

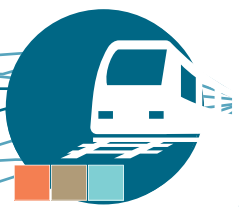
The instructions prepared by the IB foresee certain criteria to be taken into account to decide whether the accident or incident should be subject to an investigation or not.

The decision to proceed to an investigation is taken by the Investigation Body independently.

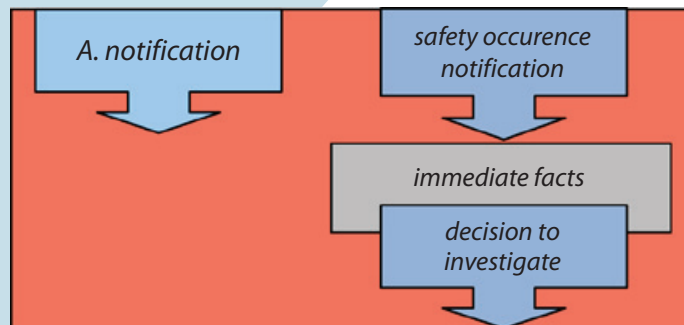
During the year 2013:

- 1 collision fits the definition of significant accident¹
Remersdael → investigation opened
- 4 derailments: 1 fits the definition of serious accident
3 fits the definition of significant accident
Wetteren → investigation opened
Hever → investigation opened
Kortrijk and Leuven → preliminary investigation on the accident site but th IB decided not to investigate.

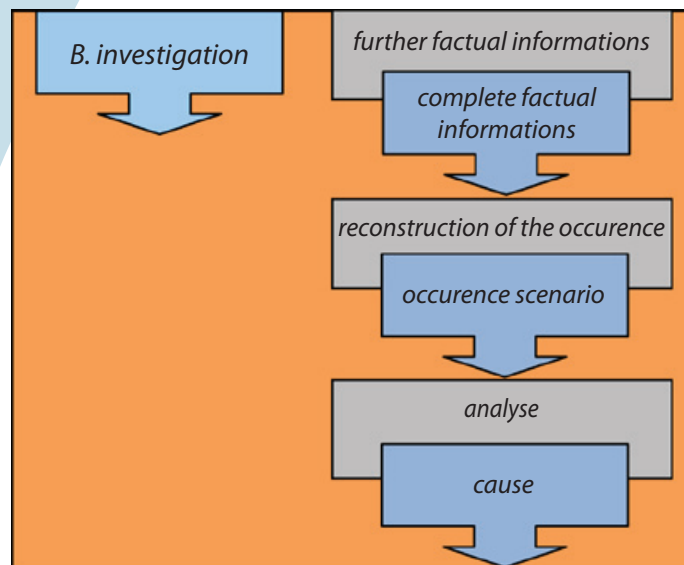
1. Significant accident : any accident involving at least one rail vehicle in motion, resulting in at least one killed or seriously injured person, or in significant damage to stock, track, other installations or environment, or extensive disruptions to traffic. Significant damage to stock, track, other installations or environment means damage that is equivalent to euro 150 000 or more. Extensive disruptions to traffic means that train services on a main railway line are suspended for six hours or more



3.2 Investigations Process



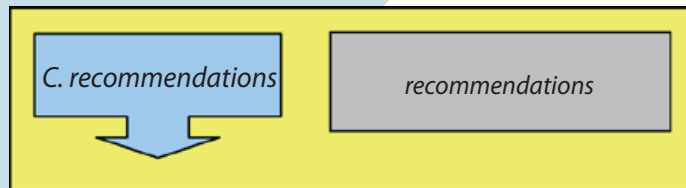
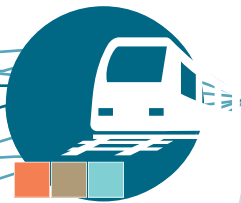
The railway infrastructure manager immediately informs the investigator on duty of any serious accidents or incidents as well as collisions or derailments on the main tracks. The practical formalities are sent by post to the infrastructure manager. The investigation body can be reached 24 hours a day, 7 days a week. The decision by the IB to open an investigation is communicated to the European Railway Agency, to the DRSI, to the railway undertaking and to the infrastructure manager concerned. The parties concerned are consulted from the beginning of the investigation.



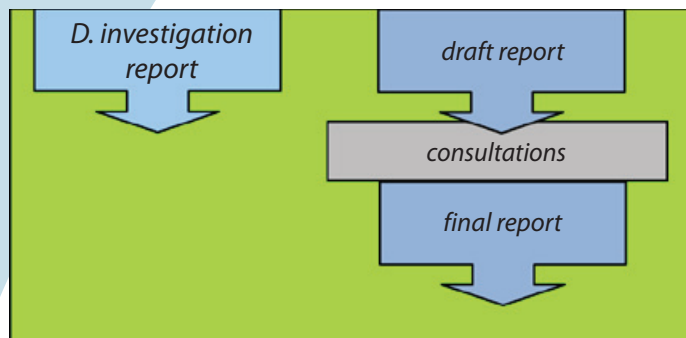
A first step of factual data collection by investigators on the site of the accident or incident involves researching and collecting all the elements, descriptive as well as explicative, likely to explain what led to the unsafe event.

All information, evidence and statements which are available and linked to elements of a situation which has led to the accident or incident, are evaluated so as to check what could be considered as constituting evidence or not. The most probable scenario is established.

The close analysis of a safety management system from three dimensions (technical, human and organisational components) allows possible defects and/or inadequacies to be revealed at various levels of the system and in particular in the management of risks; and this with the aim of preventing accidents.



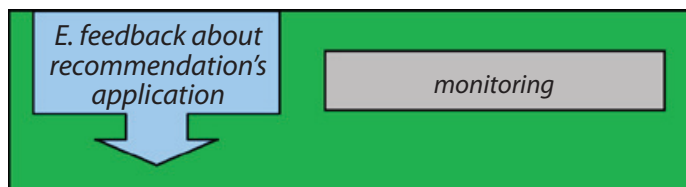
The recommendations in the area of safety are proposals that the Investigation Body makes in order to improve safety on the railway system. The recommendations are centred around accident prevention; their roles are either to minimise the number of potential accidents or to limit the consequences of an accident, or to reduce the seriousness of damage caused. The recommendations in the area of safety made by the Investigation Body are submitted to the National Safety Authority and, if necessary considering the nature of the recommendations, to other Belgian authorities or other Member States.



The investigation reports serve as a record of the accident, in the archives while simultaneously allowing the lessons learned to be maximised in the aftermath of accidents or incidents. The aim here is to encourage the spread of knowledge acquired in the course of the different investigations.

The draft reports are generally sent on two occasions to the parties concerned so that they are informed about the analysis and comment on the reports. The goal is not to alter the content of the report but to add possible necessary details. The conclusions and recommendations are a part of the draft final report sent to parties concerned. The changes accepted by the IB are integrated into the reports.

Additional investigations are sometimes necessary to remove potential ambiguities or to verify new elements made available to the IB.



The law specifies that the addressees of the recommendations inform the IB, at least once a year, of the follow-up to the recommendations.

The IB is not responsible for monitoring the operational follow-up to the recommendations made. The monitoring of this implementation falls to the National Safety Authority for the railways, in accordance with Directive 2004/49/EC.



4. Investigations

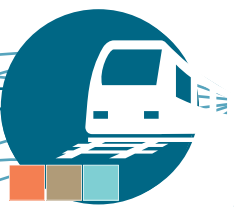
4.1 Investigations completed in 2013

Eight investigations have been completed in 2013.

Place	Date of accident/incident	Type of accident/incident	Date of closure
Diegem	14/11/2008	Collision between a passenger train and a work train	December 2013
Pepinster	28/01/2011	Derailment followed by a sideswipe of a passenger train	December 2013
Dinant	23/05/2009	Passenger boarding accident	January 3
Feluy	08/09/2011	Derailment of a tank-wagon	March 2013
Charleroi	04/07/2011	Face to face situation between 2 passenger trains	March 2013
Tintigny	04/05/2012	Collision between 2 freight trains	October 2013
Godinne	11/05/2012	Collision between 2 freight trains	June 2013
Duffel	14/06/2012	Collision between a passenger train and an excavator	September 2013

The reports are available on the website of the Federal Public Services Mobility et Transports :

- <http://www.mobilit.belgium.be> → Transport ferroviaire → Organisme d'Enquête → Enquêtes clôturées
- <http://www.mobilit.belgium.be> → Spoorvervoer → Onderzoeksorgaan → Beëindigde onderzoeken



4.2 Investigations opened in 2013

Three investigations were opened in 2013 and involve a serious accident and two major accidents.

4.2.1 Hever : Derailment of a freight train



On Tuesday 19 February 2013 at 16:36, the driver of passenger train E2736 (Sint-Niklaas – Leuven) signalled to Traffic Control that they had seen sparks coming from the wagons at the rear of a freight train they had just passed. The line controller made contact with the driver of the freight train E47582, but the connection was lost after 30 seconds.

At 16:39, the line controller informed the driver of the freight train E47582 that they suspected a jammed brake at the rear of their train and requested that the train enter the Muizen sidings at a reduced speed to avoid the level crossings being closed for a prolonged period.



At 16:43, the train driver called Traffic Control and signalled that the train was stopped at the entrance signal to the Muizen sidings and that the brake circuit was depressurised, wagons 14 to 19 of the freight train E47582 had derailed on the track change AW 03U at the Hever branch. A broken axle coming from the first derailed wagon was found at the place of derailment.

Train traffic on the line 53 between Mechelen and Leuven was immediately stopped. Damage to infrastructure and rolling stock was considerable, but no injuries or fatalities were reported. Following the derailment, the train traffic between Mechelen and Leuven remained suspended for several days.



It was not a serious accident ; however, pursuant to Article 45 of the Law of 19 December 2006, the IB decided to open an investigation on this accident.



4.2.2 Wetteren : derailment of a freight train carrying dangerous materials

On 4 May 2013 at 01:56, a freight train with destination Terneuzen (NL) travelling via Gent-Zeehaven derailed between Schellebelle and Wetteren. The train, which was coming from the Netherlands, was diverted onto the opposite track at Dendermonde due to works on the normal line at Schellebelle station. The derailment occurred during the return to the normal line



The convoy was transporting chemical substances subject to RID including 5 wagons transporting acrylonitrile. Of the 13 wagons that made up the train, 7 derailed. Three wagons fell on the verge of the tracks and landed on their side. Several tankers were pierced, emptying their load in the ditch. A major fire broke out in the rail tank wagons and spread into the ditch. The two locomotives became detached from the wagons, stayed on the track and continued along it for several metres. Train traffic in the area was suspended entirely.



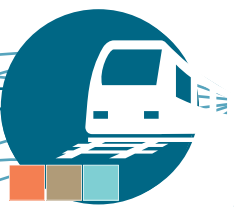
A safety perimeter of 500m was installed, requiring the evacuation of several inhabitants. A number of people feeling unwell had to be taken to the hospital, which was probably linked to the gas emissions; one person deceased. The decision was rapidly taken to widen the safety perimeter to 1 kilometre. The accident site remained inaccessible for several days due to the presence of toxic gasses near to the tank-wagon.

Given the extent of damage to the rolling stock, infrastructure and the environment, the decision to open an investigation was never questioned. This investigation meets the definition of serious accident pursuant to Article 3(2) of the Law of 19/12/2006.



The safety investigation by the IB involves

- a technical study;
- a study of the safety management system of the parties involved, as well as the means put in place to ensure safety;
- a study of the human and organisational factors (HOF) which could have «influenced the system's behaviour and responses in such a way as to affect safety».



4.2.3 Remersdael : Collision between 2 freight trains

On Tuesday 1 October 2013, two freight trains collided at the Galoppe viaduct on the territory of the municipality of Remersdaal, at the kilometre mark 32,790 of the line 24.



The freight train E47540 left from Montzen station, travelling on the normal track on the B section of line 24 in the direction of Genk-Goederen. The freight train Z65292 coming from Aachen in the direction of Antwerp Noord was travelling on the normal track of the B section of the line. The train E47540 pulled away from where it had been stopped at the signal K.12, once it had changed to green.

The second train, Z65292, was travelling at a reduced speed after passing the permissive signal at danger B335 in running at sight. Around 04:07, the train Z65292 crashed into the rear of train E47540, the train driver initiated a GSM-R alarm. The drivers were not injured.



The first train, E47540, was made up of 20 wagons filled with scrap metal. Some of the wagons suffered an impact in the collision but were not derailed. The second train, Z65292, was made up of 19 wagons transporting cars. Several wagons derailed and one of them fell to the bottom of the Galoppe viaduct. Train traffic was suspended in both directions of line 24 for around 18 hours.

Circulation on one track only was in place for several days. The accident did not cause any injuries or fatalities but the damage to the rolling stock and infrastructure was considerable.

It was not a serious accident; however, pursuant to Article 45 of the Law of 19 December 2013, the IB decided to open an investigation on this accident





4.3 Accidents and incidents subject to an investigation since 2007: trends

The table below gives an overview of open and closed investigations since 2007, date of the creation of the Investigation Body and which were completed by 31 December 2013.

No	Date of accident	Type	Place	Death	Article Law 30.08.2013	Article Law 19.12.2006	Status	Date of completion
1	26/04/2007	Collision	Izegem	0	Art 111 §1 2°	Art 45	Closed	07/09/2002
2	19/06/2007	Collision	Genk	1	Art 111 §1 1°	Art 44	Closed	23/07/08
3	02/09/2007	Derailment	Genval	0	Art 111 §1 2°	Art 45	Closed	08/10/08
4	29/11/2007	Staff hit by train	La	2	Art 111 §1 1°	Art 44	Closed	01/04/09
5	14/12/2007	Person hit by train	Morstel	1	Art 111 §1 1°	Art 44	Closed	27/04/09
6	17/12/2007	Person hit by train	Ede	1	Art 111 §1 1°	Art 44	Closed	26/05/08
1	03/03/2008	LX accident	Gembloux	0	Art 111 §1 2°	Art 45	Closed	02/2010
2	03/07/2008	Collision	Hermalle	1	Art 111 §1 1°	Art 44	Closed	02/10/09
3	25/10/2008	Staff hit by train	Walcourt	1	Art 111 §1 1°	Art 44	Closed	02/10/09
4	14/11/2008	Collision	Diegem	0	Art 111 §1 2°	Art 45	Closed	Dec 2013
1	23/05/2009	Boarding incident	Dinant	0	Art 111 §1 2°	Art 45	Closed	Jan 2013
2	15/11/2009	Staff hit by train	Jemelle	1	Art 111 §1 1°	Art 44	Open	
3	19/11/2009	Derailment	Mons	1	Art 111 §1 1°	Art 44	Open	
1	15/02/2010	Collision	Buizingen	19	Art 111 §1 1°	Art 44	Closed	May 2012
2	15/09/2010	Side-swipe collision	Arlon	0	Art 111 §1 2°	Art 45	Open	
1	28/01/2011	Derailment	Pepinster	0	Art 111 §1 2°	Art 45	Closed	Dec 2013
2	04/07/2011	Nose to nose between two trains	Charleroi	0	Art 111 §1 2°	Art 45	Closed	March 2013
3	08/09/2011	Train hitting the catch points	Feluy	0	Art 111 §1 2°	Art 45	Closed	March 2013
1	25/01/2012	Derailment	Remersdael	0	Art 111 §1 2°	Art 45	Open	
2	12/04/2012	Derailment	Melsele	0	Art 111 §1 2°	Art 45	Open	
3	04/05/2012	Collision	Tintigny	0	Art 111 §1 2°	Art 45	Closed	Oct 2013

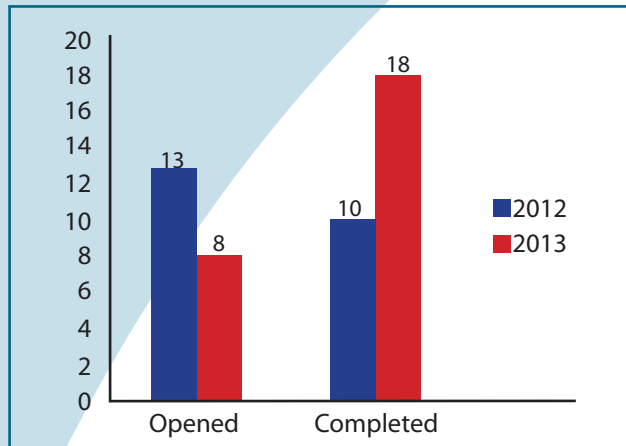
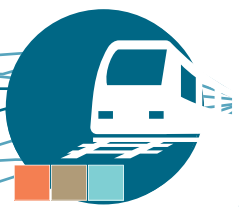


4	11/05/2012	Collision	Godinne	0	Art 111 §1 1°	Art 44	Closed	June 2013
5	14/06/2012	Person hit by train	Duffel	1	Art 111 §1 1°	Art 44	Closed	Sept 2013
1	19/02/2013	Derailment	Hever	0	Art 111 §1 2°	Art 45	Open	
2	04/05/2013	Derailment	Wetteren	1	Art 111 §1 1°	Art 44	Open	
3	01/10/2013	Collision	Remersdael	0	Art 111 §1 2°	Art 45	Open	

Article 44/Article 111(1)1: The accident fits the definition of serious accident, there has been at least one fatality or 5 serious injuries or material damage of more than EUR 2 million

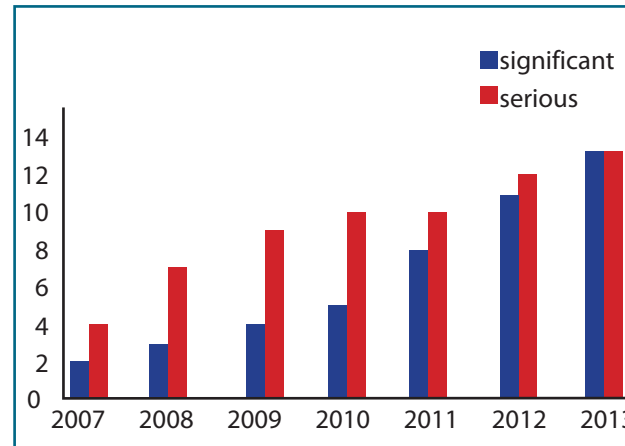
Article 45/Article 111(1)2 The accident does not fit the definition of a serious accident. This is an accident which in slightly different circumstances could have resulted in a serious accident.

Accidents Article 19 1 2	2007	2008	2009	2010	2011	2012	2013	Total
Collision of trains or with an obstacle	1	1	0	1	0	1	0	4
Train derailment	0	0	1	0	0	0	1	2
Accident at a level crossing	0	0	0	0	0	0	0	0
Casualty caused by moving stock	3	1	1	0	0	1	0	6
Fire in rolling stock	0	0	0	0	0	0	0	0
Other accidents	2007	2008	2009	2010	2011	2012	2013	Total
Collision of trains or with an obstacle	1	1	0	1	1	1	1	6
Train derailment	1	0	0	0	1	2	1	5
Accident at a level crossing	0	1	0	0	0	0	0	1
Casualty caused by moving stock	0	0	1	0	0	0	0	1
Fire in rolling stock	0	0	0	0	0	0	0	0
Incidents	2007	2008	2009	2010	2011	2012	2013	Total
	0	0	0	0	1	0	0	1
TOTAL	6	4	3	2	3	5	3	26



The Investigation Body has completed 8 investigations in 2013. Since its creation in 2007, 18 investigations have been carried out.

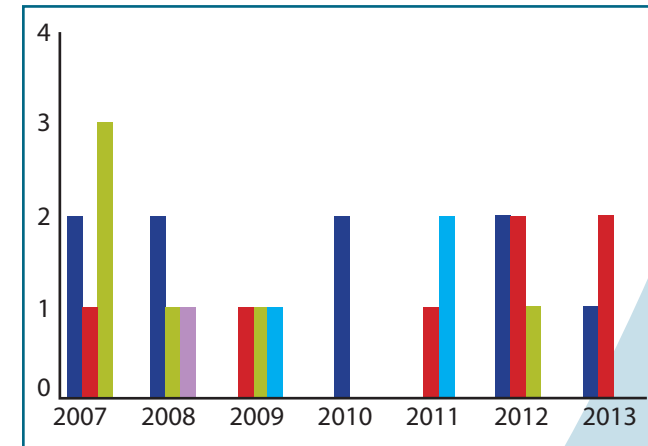
On 31 January 2013, there were 8 investigations ongoing including the 3 started in the course of 2013



As well as serious accidents, the IB also investigates accidents, near misses, major accidents which, had the circumstances been slightly different, could have led to serious accidents.

The near misses are linked to the potential for a major accident to the extent that they alert undertakings to the operating status of their safety management system.

It is important, before choosing appropriate risk mitigation strategies, to understand why the existing management and defence system was inappropriate.



Categorisation of accidents according to the CSI and having been subject to an investigation by the IB since 2007

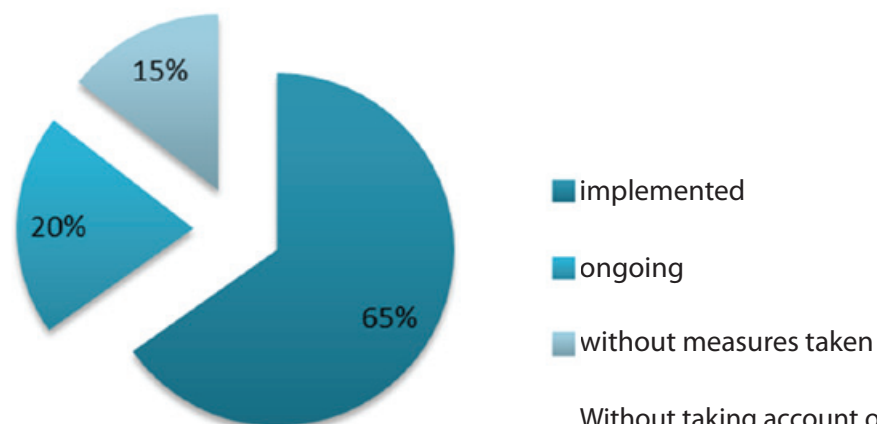
- collision
- derailment
- casualty
- accident at a level crossing
- other



5. Recommendations

The follow-up to recommendations is carried out by the National Safety Authority, the DRSI. According to procedures defined by the DRSI, the actors concerned (infrastructure manager, railway undertakings) are responsible for providing an action plan 6 months after the publication of the IB investigation report.

Number of recommendations made in the course of the year		No. implemented	No. ongoing	No. without measures taken	No response
2007	5	5			
2008	10	8		2	
2009	23	18		5	
2010	4	4			
2011	0	0			
2012	9	3	6		
2013	30	7	8	3	12
Total	81	45	14	10	12



Without taking account of recommendations published in the course of the second semester 2013



6. Follow-up of recommendations

An extract of the «Recommendations» database created by the IB is printed in the Annex.

Only the recommendations made since 2012 are listed, the other recommendations are considered as closed by the DRSI.

The report sent by the DRSI on 30 June 2014 as provided for in the Law of 30/08/2013 involves, according to their internal procedure, a follow-up to recommendations made in the course of the first semester of 2013. The various bilateral meetings between the undertaking and the safety authority took place during the first trimester of 2014 and involved the activities carried out in the course of 2013.

Key to the colour code used for the infrastructure manager and the railway undertakings

- Completed actions
- Actions underway
- No action

Key to the colour code used for the DRSI

- Completed actions
- Actions taking place according to the timetable outlined
- Actions not taking place according to the timetable

PLACE **BUIZINGEN**

DATE OF REPORT PUBLICATION **05-2012**

N° RECOMMENDATION **R1.1**

TYPE **CAUSE DIRECTE-INDIRECTE**

ADRESSED TO **SSICF**

EXECUTION BY **INFRABEL + SNCB**

CONSTATION - ANALYSE

ACTION OF IM [REDACTED]

Infrabel submitted a detailed plan to the DRSI at the end of August 2012.
This plan was received on 31/08/2012.

RECOMMENDATION

The IB recommends that Infrabel and SNCB/NMBS provide a detailed action plan to respond to the IB's various recommendations to the SSICF within a maximum of 3 months including the time estimated for realisation.

ACTION OF RU [REDACTED]

A detailed action plan was provided to the DRSI by the SNCB/NMBS on 01/08/2012 including estimated dates of work carried out.

COMMENTS & ACTION OF NSA

[REDACTED]

PLACE BUIZINGEN

DATE OF REPORT PUBLICATION 05-2012

N° RECOMMENDATION R1.2

TYPE CAUSE DIRECTE-INDIRECTE

ADRESSED TO SSICF

EXECUTION BY SSICF

CONSTATION - ANALYSE

ACTION OF IM

N.A.

RECOMMENDATION

The IB recommends that the SSICF verifies the need to distribute recommendations to other railway undertakings

ACTION OF RU

N.A.

COMMENTS & ACTION OF NSA

During consultation meetings, the DRSI reminded railway undertakings of the importance of TBL1+ installation allowing the risk of collision to be reduced and while awaiting installation of the ETCS system.

PLACE BUIZINGEN

DATE OF REPORT PUBLICATION 05-2012

N° RECOMMENDATION R2.1

TYPE CAUSE DIRECTE-INDIRECTE

ADDRESSED TO SSICF

EXECUTION BY INFRABEL + SNCB

CONSTATION - ANALYSE

The accident has revealed a failure in a fundamental safety principle of the railway system which requires that drivers respect signals at danger. The operational context provides elements that could explain the overrunning and the leads are suggested through an analysis of the failure in the report:

- the removal of the interruption of the double yellow - red sequence by unmanned stopping points;
- standardise the means of communication for the TO signal;
- the imposition of a wait for the lineclear signal before any TO information;
- taking into account the fatigue risk in driver timetable planning.

RECOMMENDATION

The investigation body recommends that SNCB/NMBS and Infrabel take concrete steps to prevent collisions resulting from the overrunning of signals at danger and to reduce the consequences of collisions between trains.

COMMENTS & ACTION OF NSA

ACTION OF IM

Infrabel has updated its global action plan "Overrunning of signals" and submitted it to the DRSI at the end of August 2012.

This global action plan "Overrunning of signals" involves 4 sections. Its implementation is ensured by quarterly reporting on the global action plan on safety. In accordance with the third amendment of the management contract, this action plan has been revised and reworked in consultation with the railway sector. It was communicated to all interested parties on 21/05/2013.

ACTION OF RU

Installation of the TBL1+ system allows the risk of collision to be reduced while awaiting installation of the ETCS system. The SNCB/NMBS confirms that all of its fleet was equipped with the TBL1+ functionality at the end of 2013. The SNCB/NMBS has also prepared and validated the document "Strategy for migration to the ETCS system within the SNCB/NMBS". Concerning signal overrunning, these are considered to be a predominant causal factor in collisions and/or derailments. The overrunning of signals is therefore under examination in the management of risks. The increase in the number of signals passed at danger is monitored by the Management Board.

Specific measures including the training and organisation of the work of train drivers are based on this reporting and on experience of line management.

PLACE BUIZINGEN

DATE OF REPORT PUBLICATION 05-2012

N° RECOMMENDATION R2.2

TYPE CAUSE DIRECTE-INDIRECTE

ADDRESSED TO SSICF

EXECUTION BY SNCB + INFRABEL

CONSTATION - ANALYSE

The accident has revealed a failure in a fundamental safety principle of the railway system which requires that drivers respect signals at danger. The operational context provides elements that could explain the overrunning and the leads are suggested through an analysis of the failure in the report:

- the removal of the interruption of the double yellow - red sequence by unmanned stopping points;
- standardise the means of communication for the TO signal;
- the imposition of a wait for the lineclear signal before any TO information;
- taking into account the fatigue risk in driver timetable planning.

RECOMMENDATION

The investigation body recommends that the SNCB/NMBS and Infrabel take concrete measures to reduce the number of signals overrun at danger and the short and long-term consequences in a systematic way.

COMMENTS & ACTION OF NSA

ACTION OF IM

likewise the undertaking action in the context of the recommendation R2.1

ACTION OF RU

The whole of the SNCB/NMBS fleet is equipped with the TBL1+ function
The timetable foresees that the whole of the SNCB/NMBS fleet will be equipped with ETCS by 2023.

PLACE **BUIZINGEN**

DATE OF REPORT PUBLICATION **05-2012**

N° RECOMMENDATION **R3**

TYPE **CAUSE DIRECTE-INDIRECTE**

ADDRESSED TO **SSICF**

EXECUTION BY **SSICF EN COORDINATION AVEC LE
OU LES SERVICES CONCERNÉS DU SPF MT**

CONSTATION - ANALYSE

Following the accident in Buizingen, the two companies Infrabel and SNCB/NMBS have presented an accelerated plan for fitting the TBL1+ system for infrastructure (end 2015) and for rolling stock (end 2013). This plan constitutes an urgent catch-up acceptable for the expressed requirement. Nevertheless the driver assistance system TBL1+ is not a full supervision system. Its accelerated installation on the Belgian network can only constitute a provisional solution and linked with installation of the ETCS system.

The ambitious timetable for the equipping of the ETCS system suggested by Infrabel and by SNCB/NMBS envisaging complete equipping (ground + on board) of the Belgian network before 2025 involves an acceptable medium and long-term response.

ACTION OF IM

N.A.

ACTION OF RU

N.A.

RECOMMENDATION

The investigation body recommends the SSICF, in coordination with the service or services concerned within FPS Mobility and Transport, provide a follow-up to the deployment of the ETCS with an overview of the development of safety, with the intention to check that the rate of deployment is being respected, and at the same time to check that the transition, and in particular the deactivation of existing systems, is not being done to the detriment of safety.

COMMENTS & ACTION OF NSA

DRSI regularly receives updates on ETCS deployment. A working group "change desk" has been put in place where changes occurring on the network are communicated to the actors concerned.

PLACE **BUIZINGEN**

DATE OF REPORT PUBLICATION **05-2012**

N° RECOMMENDATION **R4**

TYPE **CAUSE DIRECTE-INDIRECTE**

ADDRESSED TO **SSICF**

EXECUTION BY **INFRABEL + SNCB**

CONSTATION - ANALYSE

The investigation has shown that the suitability and managing of the methods for risk management and systematic and organisational analysis of incidents and accidents remains incomplete for Infrabel as well as SNCB/NMBS and does not allow these organisations to sufficiently question their beliefs and their current safety model. By reacting to events separately and by looking at the cause of each overrunning, the reasoning encourages an understanding centred on the actions and the "errors" on the front line. What is more, the training programmes for investigators does not involve training in technical investigation or the systematic analysis of incidents and accidents. The attempt at an analysis of the historical development of automatic protection provisions for trains in Belgium has revealed that decisions are not sufficiently documented and supported by an explicit evaluation of risks. With any decision involving management, it is advisable to take into account the direct and/or indirect effects on safety. It is necessary to be aware of the transparency of decisionmaking processes.

RECOMMENDATION

The investigation body recommends that Infrabel and SNCB/NMBS submit to the SSICF a review of their manuals for Safety Management Systems to positively develop and take the appropriate measures to compensate for the insufficiencies identified in the investigation report.

COMMENTS & ACTION OF NSA

ACTION OF IM

Infrabel has entirely revised its Safety Management System (SMS) in the context of its request for a new safety certificate. The revised SMS was transferred to the DRSI on 21/12/2012. The safety certificate was renewed on 17/05/2013.

ACTION OF RU

The SNCB/NMBS is currently involved in revising its safety management system in the context of the renewal of its safety certificate A. The management of daily risks and in case of amendments was formalised in an Opinion at the end of 2012. This Opinion emphasises the traceability of decisions and documents. In terms of investigators, they have just been trained in investigation techniques and in the analysis of accidents. All recruited investigators began their role at the beginning of 2014.

PLACE BUIZINGEN

DATE OF REPORT PUBLICATION 05-2012

N° RECOMMENDATION R5

TYPE CAUSE DIRECTE-INDIRECTE

ADRESSED TO SSICF

EXECUTION BY INFRABEL + SNCB

CONSTATION - ANALYSE

The safety perimeter was installed at around 10:30 even though the accident took place around 08:30. Several people were able to access the installations before it was cordoned off. Infrabel was able to work on the crocodile and in the signal housing.

It should be reminded that taking measures, or carrying out repairs is prohibited without prior authorisation from the judicial authority and/or the investigation body.

RECOMMENDATION

The investigation body recommends that Infrabel and SNCB/NMBS remind its personnel to respect the instructions for access to the site of an accident, to remind personnel that taking measures, or carrying out repairs is forbidden without prior authorisation from the judicial authority and/or the investigation body, that access should be strictly limited to the emergency services and to the investigators.

COMMENTS & ACTION OF NSA

ACTION OF IM

Infrabel will integrate the rules for access to accident sites and the rules concerning measures and repairs on site, to the Infrabel Internal Emergency Plan and to the RGE 212 (General Operational Regulation) The Emergency Plan and the RGE 212 were partially reworked in June 2013.

The Emergency Plan and the RGE 212 were thoroughly revised by the end of 2014.

ACTION OF RU

The B-P11 (SNCB response plan) came into force via the Opinion 8 B-CF/2013. The local instructions in the emergency plan are up-to-date. An audit in connection with the B-P11 was planned for around 08/2012 but has ultimately been postponed until the first half of 2014 by the internal audit.

PLACE **BUIZINGEN**

DATE OF REPORT PUBLICATION **05-2012**

N° RECOMMENDATION **R6**

TYPE **CAUSE DIRECTE-INDIRECTE**

ADDRESSED TO **SSICF**

EXECUTION BY **INFRABEL + SNCB**

CONSTATION - ANALYSE

The configuration of the terrain, the wall along the tracks, the distance to the station and the train 1557 stopped next to the accident created serious problems for access by the emergency services in transporting the injured to the ambulances. Emergency workers had to move long distances on foot.

SNCB/NMBS took the initiative to propose buses to transport passengers. This action is commendable but a list of the names of the persons on board the trains was not available before transporting them to other stations.

RECOMMENDATION

The investigation body recommends that the infrastructure manager and SNCB/NMBS adjust their emergency plans for the evacuation of the injured, passengers etc. according to the lessons learned from this accident.

COMMENTS & ACTION OF NSA

The DRSI does not agree and the SNCB/NMBS must revise this.

ACTION OF IM

At the end of June 2013, Infrabel adapted the Emergency Plan, the RGE 212 and the regulations (RSEIF/VVESI 5.5 and RGE 616) for the evacuation of victims, taking into account the experience gained in the accident at Buizingen.

The Emergency Plan and the RGE 212 were thoroughly revised by the end of 2014.

ACTION OF RU

Without purpose on the part of the SNCB/NMBS.

PLACE BUIZINGEN

DATE OF REPORT PUBLICATION 05-2012

N° RECOMMENDATION R7

TYPE AUTRES

ADDRESSED TO SSICF

EXECUTION BY INFRABEL

CONSTATION - ANALYSE

The investigation body of FPS Mobility and Transport was belatedly informed of the accident. The information arrived at the IB more than an hour after the accident.

RECOMMENDATION

The law of 19 December 2006 forces the infrastructure manager to immediately inform the investigation body.

The IB recommends that Infrabel reviews its priorities for informing parties to allow everyone to carry out their duties.

ACTION OF IM

Infrabel modified its priorities for the participants in an accident and the Emergency Plan and the RGE 212 were amended accordingly at the end of June 2013.

The Emergency Plan and the RGE 212 were partially reworked at the end of June 2013. The priorities for the participants in case of accident were revised in this version.

The Emergency Plan and the RGE 212 were thoroughly revised by the end of 2014.

ACTION OF RU

N.A.

COMMENTS & ACTION OF NSA

PLACE BUIZINGEN

DATE OF REPORT PUBLICATION 05-2012

N° RECOMMENDATION R8

TYPE AUTRES

ADDRESSED TO SSICF

EXECUTION BY INFRABEL

CONSTATION - ANALYSE

The H-E.1 signal was not emitting its normal brightness at the time of the accident. Even though the visibility of the H-E.1 signal was not the principal cause of this accident, the lack of luminosity could have had an impact on the perception of the signal by the driver in other weather conditions.

RECOMMENDATION

Infrabel is recommended to propose an amendment to its safety management manual to the SSICF to ensure respect of the periodic signal maintenance and of its clear-cut traceability.

ACTION OF IM

Infrabel has improved the monitoring of maintenance activities via maps and using SMARTER-M. An action plan should be developed before the end of 2012.

The action plan was developed in December 2012.

ACTION OF RU

N.A.

COMMENTS & ACTION OF NSA

PLACE BUIZINGEN

DATE OF REPORT PUBLICATION 05-2012

N° RECOMMENDATION R9

TYPE AUTRES

ADDRESSED TO SSICF

EXECUTION BY INFRABEL EN CONCERTATION AVEC
LES OPÉRATEURS

CONSTATION - ANALYSE

Systematic guarantees via the safety points, that all routes authorised and travelled by a train cannot be crossed or subject to a face-to-face situation in the case of an overrunning of a signal by any other movement, are impossible requirements to satisfy in current operational situations without severely restricting operations or without massively adapting the infrastructure.

RECOMMENDATION

The IB recommends that Infrabel, in the conception of new installations or for major readjustments of existing installations, limits, in consultation with operators, the risk that an authorised and travelled route may be crossed or result in a face-to-face situation in the case of the overrunning of a signal by any other movement.

COMMENTS & ACTION OF NSA

Part of the actions have been carried out, the other part is still ongoing.

ACTION OF IM

Infrabel prepared additional directives for the placing of signals. As soon as this document has been officially published, it will be implemented in the new installations that have been studied. The official publication of this document took place on 04/07/2013 in the Circular 20 I-I/2012.

Infrabel revised the distance between the signal and the first dangerous point for new installations before the end of 2012.

We work with a table which records the separate standards in the context of the main line/secondary line, reference speeds, new or existing installations which have been completely altered. Proposal presented to the management board for validation on 30/06/2013.

In the context of the generic dossier ETCS L1, the Monte-Carlo simulations have been developed by Infrabel.

The results will be available in the course of the first half of 2014. This model for the calculation of braking curves will be used in the future to calculate/justify the distance between the signal and the first dangerous point for the new installations or those which are subject to an amendment.

Infrabel has redesigned certain elements of trackside signalling (signs) before the end of 2013.

The railway sector has declared itself to be in favour of the placing of balises in front of independent warning signals.

Infrabel has taken the necessary initiatives to adapt the regulations. Infrabel has received an assent from the DRSI. This entered in force on 9 June 2013.

Infrabel has carried out benchmarking with Prorail concerning their "conflictvrij rijden" (conflict-free running) project.
The conclusions should be drawn by the end of June 2013.

There has been an exchange between Infrabel and Prorail on the principle of "conflict-free running". Infrabel is still looking at the feasibility and effectiveness of the introduction of a concept such as this on the Belgian railway network.

By September 2012, equipping of signalling centres with GSM-R so as to allow trains to be halted from the signalling centre in case of an emergency call.
This was carried out on 15 October 2012 (Circular 15 I-TN/2012 - recorded in the RGE 612).

ACTION OF RU
N.A.

PLACE CHARLEROI

DATE OF REPORT PUBLICATION 03-2013

N° RECOMMENDATION 1

TYPE CAUSE DIRECTE-INDIRECTE

ADDRESSED TO DVIS

EXECUTION BY INFRABEL

CONSTATION - ANALYSE

Departures in minor movement are often used during peak hours to allow trains to move forward into the holding sidings without train routes crossing all over the station.

The train pulls out, it travels about a hundred metres and then starts breaking to allow it to stop at the small stop ground signal GY-H.20 placed 279 metres from the departure signal IY-H.20.

This procedure is used to ensure that trains are more punctual. However from a safety perspective, the risk of passing a signal at danger is increased. The incident has highlighted the failures or inadequacies at different levels of the barrier recovery system: no system is provided in the driver's cabin to alert the driver to the minor movement speed.

No system is provided in the driver's cabin to alert the driver to the overrunning of a small stop signal at danger.

There is no plan to equip the small stop signals with the automatic braking system TBL1+. In the present case, the danger point is protected by a small stop ground signal.

ACTION OF IM

Planned via execution of stages from the Roadbook Safety Culture plan (I-AR.26).

ACTION OF RU

RECOMMENDATION

The Safety Authority should ensure that the infrastructure manager analyses the relevance of the systematic use of the procedure and verify the validity of the procedure: real gain in time in relation to the increase in the risk of overrunning of small signals and where applicable the setting up of defence barriers.

COMMENTS & ACTION OF NSA

PLACE CHARLEROI

DATE OF REPORT PUBLICATION 03-2013

N° RECOMMENDATION 2

TYPE CAUSE DIRECTE-INDIRECTE

ADDRESSED TO DVIS

EXECUTION BY GI - EF

CONSTATION - ANALYSE

The organisational and systems analysis of the different protections/barriers is not a part of the internal investigation reports by Infrabel as well as the SNCB/NMBS. The investigation reports do not allow these organisations to sufficiently question their safety model.

RECOMMENDATION

The Safety Authority should ensure that the infrastructure manager and the railway undertaking structures the investigation reports to reveal the organisational and systems analysis.

COMMENTS & ACTION OF NSA

ACTION OF IM

Planned via execution of stages from the Roadbook Safety Culture plan (I-AR.26).

ACTION OF RU

The team of investigators has been at full capacity since 2014. In this context the investigators are involved in training in investigation techniques and systems analysis in particular.

PLACE CHARLEROI

DATE OF REPORT PUBLICATION 03-2013

N° RECOMMENDATION 3

TYPE CAUSE DIRECTE-INDIRECTE

ADRESSED TO DVIS

EXECUTION BY GI - EF

CONSTATION - ANALYSE

The near misses are linked to the major accident potential to the extent that they alert undertakings to the operation of their safety model. It is right that near-collisions are part of the criteria in the decision to open an in-depth investigation.

RECOMMENDATION

The Safety Authority should ensure that the infrastructure manager and the railway undertaking have, and put into practice, a procedure for deciding when to open in-depth investigations into near misses.

ACTION OF IM

Amendment of the RGE 211 point 2.4 and 2.5: on the basis of an HIPO analysis, the investigators will determine if a more thorough investigation of a near miss is necessary.
(Target date June 2014)

ACTION OF RU

In the continuity of the R2, the decision-making process for the opening of investigations has now been improved and this is in consultation with the investigators themselves.

COMMENTS & ACTION OF NSA



PLACE FELUY ZONING

DATE OF REPORT PUBLICATION 03-2013

N° RECOMMENDATION 1

TYPE CAUSE DIRECTE-INDIRECTE

ADRESSED TO DVIS

EXECUTION BY SNCB LOGISTICS

CONSTATION - ANALYSE

As a result of the accident, the company SNCB/NMBS Logistics will provide a deputy manager to carry out a weekly service of checks (RID and others) in the facilities in Feluy.

ACTION OF IM

N.A.

ACTION OF RU

SNCB Logistics transmitted an action plan to the DRSI 6 months after the publication of the IB investigation report.

RECOMMENDATION

The Safety Authority should ensure that the company SNCB/NMBS Logistics puts in place, in the context of these control processes, an effective monitoring based on the risks for all the tasks carried out by its personnel.

COMMENTS & ACTION OF NSA

The RU action plan has not yet been received for 2013. The DRSI has requested that the RU send the action plan at the latest two weeks before the first bilateral consultation at the beginning of 2014.

PLACE FELUY ZONING

DATE OF REPORT PUBLICATION 03-2013

N° RECOMMENDATION 2

TYPE CAUSE DIRECTE-INDIRECTE

ADRESSED TO DVIS

EXECUTION BY SNCB - LOGISTICS

CONSTATION - ANALYSE

The organisational and systems analysis of the different protections/barriers carried out by SNCB/NMBS Logistics is not recorded in a structured investigation report.

ACTION OF IM

ACTION OF RU

SNCB Logistics transmitted an action plan to the DRSI 6 months after the publication of the IB investigation report.

RECOMMENDATION

The Safety Authority should ensure that the analysis carried out by the company SNCB/NMBS Logistics in the context of an investigation after an accident, is structured within an investigation report, so as to highlight the organisational and systems analysis.

COMMENTS & ACTION OF NSA

The RU action plan has not yet been received for 2013. The DRSI has requested that the RU send the action plan at the latest two weeks before the first bilateral consultation at the beginning of 2014.

PLACE DINANT

DATE OF REPORT PUBLICATION 02-2013

N° RECOMMENDATION 1

TYPE CAUSE DIRECTE-INDIRECTE

ADRESSED TO DVIS

EXECUTION BY EF - IF

CONSTATION - ANALYSE

The conductor returns to the platform and may only close the door once the train wheels have made one half turn.

This procedure was established to ensure user safety: it allows the conductor to do a final check of the platform to ensure the safety of passengers. During this "grey area", the conductor should keep the final door open and prevent any passengers from boarding without physical intervention.

RECOMMENDATION

The Safety Authority should ensure that the railway undertaking and the infrastructure manager put in place the new departure procedure including the transition period between the current procedure and the future one.

COMMENTS & ACTION OF NSA

The new departure procedure (DICE = Departure In Controlled Environment) is in a development phase. See the annual safety report for progress in this dossier.

ACTION OF IM

A new procedure is being studied since June 2009 by the SNCB/NMBS and Infrabel.

A pilot project will emerge in 2013, while the system will need to be approved and obtain the necessary certificates before the end of 2014. From 2015, the implementation of computer tools and technical alterations will start on the platforms and on board trains.

From 2017, trains will be required to leave with the doors closed to comply with requirements in European interoperability.

ACTION OF RU

The new departure procedure (DICE = Departure In Controlled Environment) is in a development phase.

PLACE DINANT

DATE OF REPORT PUBLICATION 02-2013

N° RECOMMENDATION 2

TYPE CAUSE DIRECTE-INDIRECTE

ADDRESSED TO DVIS

EXECUTION BY EF

CONSTATION - ANALYSE

It would seem that there was no announcement in the train on arrival in the station to indicate to passengers that a train travelling to Libramont and stopping at Houyet was on track 1, B side.

ACTION OF IM

N.A.

ACTION OF RU

The studies are still being carried out and the results are expected at the start of 2014.

RECOMMENDATION

The Safety Authority should ensure that the railway undertaking proposes measures to compensate for the risks of confusion resulting from the lack of information on possible connections when the train is arriving "in the station" and carries out increased monitoring.

COMMENTS & ACTION OF NSA



PLACE DINANT

DATE OF REPORT PUBLICATION 02-2013

N° RECOMMENDATION 3

TYPE CAUSE DIRECTE-INDIRECTE

ADDRESSED TO DVIS

EXECUTION BY GI

CONSTATION - ANALYSE

It would seem that there was no announcement in the train on arrival in the station to indicate to passengers that a train travelling to Libramont and stopping at Houyet was on track 1, B side. An announcement of imminent departure from track 3 would have been heard by the passengers and prompted movement to track 3.

RECOMMENDATION

The Safety Authority should ensure that the infrastructure manager proposes measures to compensate for the risks of passengers crossing the tracks via the service routes without being invited to do so by qualified personnel and carries out increased monitoring.

ACTION OF IM

Every track change should be announced in real time by the (info) personnel present in the signalling centres.

Infrabel gives a general recommendation to also inform the personnel on the platform of every track change so that they may, if necessary, ensure the channelling of passengers.

Announcements by loudspeaker for passengers are done precisely and on time.

ACTION OF RU

COMMENTS & ACTION OF NSA

PLACE DINANT

DATE OF REPORT PUBLICATION 02-2013

N° RECOMMENDATION 4

TYPE CAUSE DIRECTE-INDIRECTE

ADDRESSED TO DVIS

EXECUTION BY GI

CONSTATION - ANALYSE

Nothing was displayed to expressly prohibit the crossing of tracks by passengers. Currently an E5 sign is displayed on the crossing but nothing marks the ban (ie. barrier, chain) and nothing indicates that crossing is only possible under supervision, authorised by qualified personnel.

ACTION OF IM

Infrabel Infrastructure has now received planning permission for the construction of a passenger bridge over the station in Dinant which will eliminate the risk of passengers and staff crossing the tracks. Execution: 2014.

ACTION OF RU

RECOMMENDATION

The Safety Authority should ensure that the infrastructure manager proposes measures to compensate for the risks of passengers crossing the tracks via the service routes without being invited to do so by qualified personnel and carries out increased monitoring.

COMMENTS & ACTION OF NSA

PLACE DINANT

DATE OF REPORT PUBLICATION 02-2013

N° RECOMMENDATION 5

TYPE CAUSE DIRECTE-INDIRECTE

ADRESSED TO DVIS

EXECUTION BY EF

CONSTATION - ANALYSE

The emergency stop signal is not found next to the doors, but at the entrance to the passenger carriages. The conductor was not able to press the alarm signal.

ACTION OF IM

ACTION OF RU

The alarm signal measure in the rolling stock complies with the TSIs in force.

RECOMMENDATION

The Safety Authority should ensure that the railway undertaking suggests measures to compensate for this particular measure for rolling stock involving the emergency stop signal.

COMMENTS & ACTION OF NSA

The technical criteria that the wagons must fulfil are determined by European regulations (TSI). These rules, which do not need to be transposed into Belgian law, are in application for all wagons which may circulate on the Belgian network (and not only those of the SNCB).

The recommendation concerning the criteria that passenger stock must fulfil, which is the only way to ensure that this recommendation is applied in the long run to all wagons, should be brought to the attention of the competent authority for this purpose.

PLACE DINANT

DATE OF REPORT PUBLICATION 02-2013

N° RECOMMENDATION 6

TYPE CAUSE DIRECTE-INDIRECTE

ADRESSED TO DVIS

EXECUTION BY EF

CONSTATION - ANALYSE

On the day of the accident, when the two conditions were fulfilled, the driver, not having seen anything unusual, pulled out.

The accident demonstrates that the current procedure does not completely correspond to the requirements in RSEIF/VVESI 4.1 (Safety Regulations for the exploitation of the railway infrastructure) by the infrastructure manager, stipulating that the driver must make sure the conductor is present on board.

ACTION OF IM

ACTION OF RU

The new departure procedure should overcome this problem.

RECOMMENDATION

The Safety Authority should ensure that the railway undertaking suggests measures to guarantee the presence of the conductor on board the train.

COMMENTS & ACTION OF NSA

PLACE GODINNE

DATE OF REPORT PUBLICATION 06-2013

N° RECOMMENDATION 1

TYPE CAUSE DIRECTE-INDIRECTE

ADDRESSED TO SSICF

EXECUTION BY GI

CONSTATION - ANALYSE

The accident has highlighted that the risk of an over voltage by the rolling stock had not been identified by the infrastructure manager.

RECOMMENDATION

he Safety Authority should ensure that the infrastructure manager

- carries out an evaluation to verify the degree to which the identified risk, over voltage caused by the rolling stock, has an effect on the risk analysis carried out for the signalling present on the network and
- puts in place a process ensuring that this risk is taken into consideration in all future risk analysis.

ACTION OF IM

A galvanic isolation module has been developed. It prevents the injection into sensitive circuits of potential over voltage from the rolling stock. It should be noted that modern installations with logic programming (EBP/PLP) are already protected against this problem with additional control circuits.

The analysis and safety dossiers drawn up in I-I 3 take into account the over voltage and electrical load in accordance with the international standards in this sector. The roll-out has begun.

ACTION OF RU

COMMENTS & ACTION OF NSA

PLACE GODINNE

DATE OF REPORT PUBLICATION 06-2013

N° RECOMMENDATION 2

TYPE CAUSE DIRECTE-INDIRECTE

ADRESSED TO SSICF

EXECUTION BY GI

CONSTATION - ANALYSE

The recurring problems on different network points and the information available via the EBP signalling centres did not allow the problem of over voltage on the safety relays to be identified at the warning signal b779 at Godinne.

Since 8 October 2012, the information has been centralised in a database with the intention of ultimately implementing a dispatch system (RIOCI).

RECOMMENDATION

The Safety Authority should ensure that the system put in place by the infrastructure manager allows better management of recurring problems and ensures that useful and complete information is made available to technicians on the ground.

COMMENTS & ACTION OF NSA

ACTION OF IM

Different sources of information have been identified for anomalies encountered in the field. They are recorded in a regular review process to take into account and implement adequate corrective measures.

Corrective maintenance interventions are recorded in a central computer application within the RIOCI (RIOCI - Calls). Centralised management is therefore assured. The messages are regularly analysed and the required actions are communicated and taken.

ACTION OF RU

PLACE GODINNE

DATE OF REPORT PUBLICATION 06-2013

N° RECOMMENDATION 3

TYPE CAUSE DIRECTE-INDIRECTE

ADDRESSED TO SSICF

EXECUTION BY GI

CONSTATION - ANALYSE

In the case of the logical command type signalling system present in Godinne, the analysis carried out in the design had not considered, nor even envisaged that an over voltage at the safety relay points via the crocodile could produce an over voltage so that the mobile part of the contacts remained fused in the high position leading directly to a catastrophic consequence.

A galvanic isolation has been fitted between the equipment connected in the box, particularly the safety relays, and the equipment on the tracks, the crocodile and the rails in particular.

A permanent supervision of the crocodile on every warning signal is currently being set up. This system, known as DGN croco, continuously checks that the crocodile is working and looks at the correlation between the condition of the crocodile and the appearance of the signal. In case of an anomaly, an alarm will be automatically generated at the Rail Infrastructure Operations Centre (RIOC).

RECOMMENDATION

The Safety Authority should ensure that it receives a list of the signals concerned, a timetable of installation of galvanic isolation on these signals and a follow-up report from the infrastructure manager.

The Safety Authority should ensure that it receives a list of the signals concerned, a timetable of installation of the DGN croco system on these signals and a follow-up report from the infrastructure manager.

COMMENTS & ACTION OF NSA

ACTION OF IM

The DGN croco system has been developed and is being installed. Around fifty signals have been equipped. Various corrective interventions have already been made possible in this way with much shorter intervention timescales than with the existing E361 procedure.

ACTION OF RU

PLACE GODINNE

DATE OF REPORT PUBLICATION 06-2013

N° RECOMMENDATION 4

TYPE CAUSE DIRECTE-INDIRECTE

ADRESSED TO SSICF

EXECUTION BY EF

CONSTATION - ANALYSE

The procedures for communication between the infrastructure manager and the SNCB/NMBS on the one hand, and within the SNCB/NMBS on the other, did not allow the SNCB/NMBS repair service staff to detect the damaged cables under the railcar chassis: the identification by the infrastructure manager of the type of fault in the rolling stock was not brought to the attention of the maintenance staff.

If there is a process that brings together the information on maintenance, failures, faults and repairs made to rolling stock, then the analysis of this information did not allow the necessary conclusions to be made so as to carry out the repairs in good time.

RECOMMENDATION

The Safety Authority should ensure that the railway undertaking SNCB/NMBS carries out an evaluation of internal communication procedures implemented within its safety management system and on their correct application by the different services and hierarchical levels.

COMMENTS & ACTION OF NSA

The analysis of the internal communication procedures has led to the conclusion that these were correctly applied in this exceptional and rare situation.

ACTION OF IM

ACTION OF RU

The internal communication within the B-TC to report and handle technical problems has gone well. The comments in the reports were too general and too few to allow observations to be made on the specific problem. The announcement "affects signalling" led the technical team to look for a fault in the high-voltage circuit which could have led the 50Hz circuit to influence the signals.

PLACE GODINNE

DATE OF REPORT PUBLICATION 06-2013

N° RECOMMENDATION 5

TYPE CAUSE DIRECTE-INDIRECTE

ADRESSED TO SSICF

EXECUTION BY EF

CONSTATION - ANALYSE

Through the various interviews, it was revealed that a similar incident occurred about twenty years ago. It was not possible to provide a copy of the internal investigation report.

A mentoring system has been put in place within the engineers to enable the transfer of this type of knowledge. A large number of new arrivals and staff taking retirement have complicated implementation. The mentoring system should be accompanied by a formalising of procedures to be able to identify the reasons for adapting the sheets and working procedures, particularly when this is following an accident or incident.

RECOMMENDATION

The Safety Authority should ensure that the railway undertaking SNCB/NMBS formalises, within its safety management system, the procedure for revision of sheets and maintenance staff work procedures, with the aim of transferring knowledge to future generations.

ACTION OF IM

ACTION OF RU ■■■■■■■■■■

The SNCB/NMBS has revised the instructions for the revision of the sheets.

Separate working instructions with additional information have not been systematically prepared for every sheet, often the sheet is enough in itself. There is not a sheet or working instructions for every task. B-TC effectively functions with training systems such as "teach the teacher" and "coaching". The development of these support routes can be followed in the individual quarterly training reports kept in the workshop where the person was trained and is working.

COMMENTS & ACTION OF NSA ■■■■■■■■■■

PLACE GODINNE

DATE OF REPORT PUBLICATION 06-2013

N° RECOMMENDATION 6

TYPE CAUSE DIRECTE-INDIRECTE

ADRESSED TO SSICF

EXECUTION BY GI
EFs

CONSTATION - ANALYSE

No European or Belgian rule currently exists for the positioning of wagons containing dangerous goods. The freight wagons of the railway undertaking SNCB/NMBS Logistics which use the Belgian railway network are not all sorted in Belgium.

To form a freight train, various companies bring their wagons to a marshalling yard. The freight train is then formed according to the destination.

RECOMMENDATION

The Safety Authority should ensure that there is consideration by the actors of the railway sector involved in the risks of train formation, including the economic, organisational and operational constraints in a context of European competition between railway undertakings and between transport modes.

ACTION OF IM

The Safety Authority has requested that Infrabel share their estimation of the risk with regard to the measures suggested in the Ministerial Decree. This risk analysis is ongoing.

The estimation of the effectiveness of the measures proposed is currently being integrated into a global study. This study involves the development of a risk analysis model recording the most relevant accident scenarios. For every scenario, a risk score is established. A simulation of the use of measures will be carried out for every relevant scenario to see the impact on the risk score.

ACTION OF RU

A risk analysis, led collaboratively between Infrabel and the SNCB/NMBS, has shown that the taking of measures would not improve safety. In certain cases, it would reduce the safety level. We consider this point as closed.

COMMENTS & ACTION OF NSA

PLACE **GODINNE**

DATE OF REPORT PUBLICATION 06-2013

N° RECOMMENDATION 7

TYPE CAUSE DIRECTE-INDIRECTE

ADRESSED TO SSICF

EXECUTION BY **GI**
EF

CONSTATION - ANALYSE

The drivers have not always filled in and sent off the E361 documents to report the absence of a current pulse in a crocodile.

RECOMMENDATION

The Safety Authority should ensure that the railway undertakings and the infrastructure manager lead a reflection on this subject so as to optimise the processes for filling in and transmitting the various forms (E361 M510, etc.), taking into account the risks linked to the activities of all concerned parties.

COMMENTS & ACTION OF NSA

ACTION OF IM

A new form is planned which will incorporate E361 and the internal SNCB/NMBS form (TP 460). The E360 form is planned to report every "infrastructure anomaly".
Form planned for the end of June 2014.

ACTION OF RU

The SNCB/NMBS revised its procedure for handling the E361 forms on 01/07/2012.

This procedure ensures that when a repetitive incident is reported, a check is carried out to see whether drivers on previous and subsequent journeys had also reported it. The drivers are aware of the need to systematically report incidents.

Infrabel is planning an amendment to the RSEIF/VVESI 5.5 and the introduction of a new E 360 form by 08/06/2014.

SNCB/NMBS Logistics

The document M361 will soon be replaced by a corrected document.

PLACE **GODINNE**

DATE OF REPORT PUBLICATION **06-2013**

N° RECOMMENDATION **8**

TYPE **CAUSE DIRECTE-INDIRECTE**

ADRESSED TO **SSICF**

EXECUTION BY **EF**

CONSTATION - ANALYSE

The investigation has shown that the formation of the train E48785 was reversed in relation to the available information in the railway undertaking's ICS application.

This had no consequences in the context of the accident in Godinne, but could create confusion for the emergency services.

RECOMMENDATION

The Safety Authority should ensure that the railway undertaking SNCB/NMBS Logistics takes measures to eliminate the identified risk (freight wagon formations being reversed).

ACTION OF IM

ACTION OF RU [REDACTED]

The accident took place in the first few weeks of the implementation of the ICS (Integrated Cargo System), which replaces the GEM. Since then several versions have been brought in, which have corrected various bugs.

COMMENTS & ACTION OF NSA [REDACTED]

PLACE DUFFEL

DATE OF REPORT PUBLICATION 10-2013

N° RECOMMENDATION 1A

TYPE CAUSE DIRECTE-INDIRECTE

ADDRESSED TO DVIS

EXECUTION BY IB

CONSTATION - ANALYSE

The infrastructure project in Duffel was approved in 2008 and work started in 2009.

Since 2010, a new measure has been introduced for the new public contracts awarded by the infrastructure manager. This measure involves the implementation of a badge system which is required for the contractor and their sub-contractor staff. The wearing of a badge is the formal proof that the contractor's staff and their sub-contractors have ready knowledge, which has been assessed, of the specific risks of the work site in question. The supervising official is responsible for checking that this procedure is respected and in case of a violation, they have the power to take away badges and refuse access to the site.

ACTION OF IM

ACTION OF RU

RECOMMENDATION

The DRSI should ensure via the infrastructure manager that this measure is extended to public contracts which were ordered prior to the application of this measure and which are still being carried out.

COMMENTS & ACTION OF NSA

PLACE DUFFEL

DATE OF REPORT PUBLICATION 10-2013

N° RECOMMENDATION 1B

TYPE CAUSE DIRECTE-INDIRECTE

ADRESSED TO DVIS

EXECUTION BY IB

CONSTATION - ANALYSE

The operators directly concerned were insufficiently informed of the safety measures to be respected in the different areas of the site and along the tracks, as well as their periods of application. In the risk analysis of the method with lifting straps, the dangers were insufficiently covered. Communication was insufficient. It was not explicitly stated what to do if the assignment became unworkable.

ACTION OF IM

ACTION OF RU

RECOMMENDATION

The DRSI should ensure via the infrastructure manager that, for the work started prior to 2010 as well as for that started after 2010, there is sufficient motivation for everyone to work in total safety on railway work sites, and that it remains that way.

COMMENTS & ACTION OF NSA

PLACE DUFFEL

DATE OF REPORT PUBLICATION 10-2013

N° RECOMMENDATION 2

TYPE CAUSE DIRECTE-INDIRECTE

ADDRESSED TO DVIS

EXECUTION BY IB
AANNEMERS

CONSTATION - ANALYSE

Stricter safety rules than on other sites had been imposed on the site in Duffel. Thus, three types of encroachment had been defined with associated safety measures (stricter than those contained in Folder 63 version 1). Despite these stricter rules a weakening of the rules and the associated safety measures occurs over time. Thus, on the day of the accident, a TSR and a Minime were installed on the tracks, next to the middle platform:

- TSR (notification of temporary speed restriction) on one of these tracks restricting speed to 90km/h instead of 60km/h during the day as foreseen in the Duffel rules;
- The Minime installed on track B of line 25 was for a single direction on the normal track while for track A of line 27, it served for both directions.

ACTION OF IM

ACTION OF RU

RECOMMENDATION

The DRSI should ensure, via the infrastructure manager and the contractors involved in the work carried out on railway infrastructure, that the safety rules and safety measures in force on all sites with similar conditions:

- are uniform
- are correctly applied
- reach the highest level of safety

COMMENTS & ACTION OF NSA

PLACE DUFFEL

DATE OF REPORT PUBLICATION 10-2013

N° RECOMMENDATION 3

TYPE CAUSE DIRECTE-INDIRECTE

ADRESSED TO DVIS

EXECUTION BY IB

CONSTATION - ANALYSE

A multitude of application rules for works close to the tracks in service have been referenced.

ACTION OF IM

ACTION OF RU

RECOMMENDATION

The DRSI should ensure via the infrastructure manager that a reunification and rationalising of the rules is implemented for clearer rules for all and so that interpretations and divergences are as few as possible and for which the number of exceptions is reduced to an absolute minimum.

COMMENTS & ACTION OF NSA

PLACE DUFFEL

DATE OF REPORT PUBLICATION 10-2013

N° RECOMMENDATION 4

TYPE CAUSE DIRECTE-INDIRECTE

ADDRESSED TO DVIS

EXECUTION BY IB

CONSTATION - ANALYSE

The safety rules for infrastructure works and safety rules for maintenance works can vary in the same area even when similar activities are being carried out, because stricter safety rules for infrastructure works are recorded in the specifications.

ACTION OF IM

ACTION OF RU

RECOMMENDATION

The DRSI should ensure via the infrastructure manager that, for infrastructure works as well as for maintenance works, the same strict safety rules are applied, according to the nature of the work, the operational possibilities and local conditions.

COMMENTS & ACTION OF NSA

PLACE DUFFEL

DATE OF REPORT PUBLICATION 10-2013

N° RECOMMENDATION 5

TYPE CAUSE DIRECTE-INDIRECTE

ADDRESSED TO DVIS

EXECUTION BY IB

CONSTATION - ANALYSE

In some cases, a person who is in charge of independently monitoring the safety of workers on the tracks and in the vicinity of these is also authorised to take part in the work. Following the accident in Duffel, this rule has been removed from the specifications in the North-West district.

ACTION OF IM

ACTION OF RU

RECOMMENDATION

The DRSI should ensure via the infrastructure manager and the contractors of railway works that the persons who are called upon to monitor the arrival of trains and to alert other workers are trained in the same way and should in no way perform other activities than monitoring the safety of works along the railway lines still in service.

COMMENTS & ACTION OF NSA

PLACE TINTIGNY

DATE OF REPORT PUBLICATION 10-2013

N° RECOMMENDATION 1

TYPE CAUSE DIRECTE-INDIRECTE

ADRESSED TO SSICF

EXECUTION BY GI
EFs

CONSTATION - ANALYSE

When a train driver crosses the final permissive signal at danger separating them from the train behind them, and they continue in running at sight in a section occupied by another train, no technical measure takes over to assist the driver:

- There is no signalling element guaranteeing the space between trains and avoiding overtaking.
- no contact is envisaged between the signalling centre and the driver to inform them of the conditions in the section they are entering.

RECOMMENDATION

- The Safety Authority should ensure that the infrastructure manager and the railway undertaking take the necessary measures to compensate for the identified risk of a collision following the overtaking of a train by another during running at sight after overrunning a permissive signal at danger.
- The Safety Authority should verify the necessity to extend the recommendation to other railway undertakings.

COMMENTS & ACTION OF NSA

ACTION OF IM

ACTION OF RU

SNCB Logistics transmitted an action plan to the DRSI 6 months after the publication of the IB investigation report.

PLACE TINTIGNY

DATE OF REPORT PUBLICATION 10-2013

N° RECOMMENDATION 2

TYPE AUTRES

ADDRESSED TO SSICF

EXECUTION BY EF

CONSTATION - ANALYSE

The braking sheet of the train E44883, prepared during the formation of the train by the SNCF (partner of SNCB/NMBS Logistics for carriage of diffuse traffic Belgium-France), does not indicate the presence of dangerous materials in the train. The presence of dangerous materials (tanks empty but not degassed) was indeed indicated in the documents for each vehicle. This led to confusion in the exchange of information between the driver of train EE44883 and Traffic Control, and as a result, the emergency services had to carry out an additional check.

ACTION OF IM

ACTION OF RU

RECOMMENDATION

The Safety Authority should ensure that the railway undertaking SNCB/NMBS Logistics carries out an audit of the procedures adopted by the sub-contractors and their partners so as to verify the procedures for preparing documents during the formation of trains in particular.

COMMENTS & ACTION OF NSA

PLACE PEPINSTER

DATE OF REPORT PUBLICATION 12-2013

N° RECOMMENDATION 1

TYPE CAUSE DIRECTE-INDIRECTE

ADDRESSED TO SSICF

EXECUTION BY ENTREPRISE FERROVIAIRE

CONSTATION - ANALYSE

The acceleration in combination with factors such as a push movement and a small-radius S curve caused the derailment in Pepinster as well as other derailments like those identified in the report (chapters 3.7).

ACTION OF IM

ACTION OF RU

RECOMMENDATION

The Safety Authority should ensure that the railway undertaking better identifies the risks of derailment following an acceleration combined with factors such as a push movement and a small-radius S curve and ensure that measures are taken to reduce the risks linked to these factors, through inspections, training, instructions, etc.

COMMENTS & ACTION OF NSA

PLACE PEPINSTER

DATE OF REPORT PUBLICATION 12-2013

N° RECOMMENDATION 2

TYPE AUTRES

ADDRESSED TO SSICF/DVIS

EXECUTION BY EF

CONSTATION - ANALYSE

The SNCB/NMBS instructions describe the methodology for the coupling of wagons.

The risk of derailment or uncoupling due to insufficient tightening of the tension adjusters is not systematically recorded in the technical documentation and the instructions have not been standardised.

ACTION OF IM

ACTION OF RU

RECOMMENDATION

The Safety Authority should ensure that the railway undertaking makes sure that the risks are better outlined with regard to the incorrect tightening of a coupling and that the rules or instructions concerning the building, inspection and use of couplings are standardised.

COMMENTS & ACTION OF NSA

PLACE PEPINSTER

DATE OF REPORT PUBLICATION 12-2013

N° RECOMMENDATION 3

TYPE CAUSE DIRECTE-INDIRECTE

ADDRESSED TO SSICF/DVIS

EXECUTION BY EF

CONSTATION - ANALYSE

The Safety Authority communicates the requirements to obtain an authorisation for the placing into service of converted wagons known as I10Kmod.

The SNCB/NMBS converts the wagons and orders an independent body to inspect the requirements of a wagon 'type' according to the national rules applicable at the time (SB module).

As a result, not all the wagons have been inspected.

The SB module does not include checking for written instructions for the assembly and inspection of alterations within a quality system.

The yaw dampers were incorrectly installed on one of the converted wagons I10Kmod.

The absence of internal procedures or incorrect use of procedures should be updated with new inspection modules.

ACTION OF IM

ACTION OF RU

RECOMMENDATION

The Safety Authority should ensure that the railway undertaking's safety management system guarantees that, for an alteration to the rolling stock, the risk that work may be poorly executed is identified and that measures are taken to compensate for the identified risk.

COMMENTS & ACTION OF NSA



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