

Reporting Body

IT  
Ministero delle infrastrutture  
e dei trasporti

ID

IT-740

Occurrence  
Summary

What	Location		
Date of occurrence	29-06-09	Location name	line Livorno - La Spezia, Viareggio station
Local time	23:48	Latitude	43:51:06 North
Event type	Railway vehicle movement events Train derailment	Longitude	10:16:16 East

Description

On 29 June 2009, at 23h48m, the train n.50325 operated by the railway company Trenitalia SpA, going southward and composed of 14 tank wagons carrying butane gas, derailed as it entered the railway station of Viareggio. On the section of the track where the derailment occurred there are no switches. Following the derailment of the 1st wagon (wagon No. 338078182106, owned by GATX Rail Austria GmbH and registered at the German state network DB), the wagon itself hit the platform and the train continued moving until the end of the station. It stopped about 200 m after the platform, with the first 5 tank wagons overturned on the left, with respect to the direction of the train. In total, the train has continued running for about 500 meters beyond the track section where the derailment occurred. The first 5 tank wagons overturned, the 6th and the 7th wagon derailed without overturning and the last 7 wagons remained on the track. After few minutes there was a powerful explosion that damaged very seriously the rail infrastructure (the track, the catenary, the signalling equipments) and the houses on the surroundings, causing several fatalities and serious injuries.

Direct Cause descrip Axle failure due to fatigue

## Final Report

Nam	Desc	Type	Size	Last	Orga	Repo
Viareggio_accident_29.06.09_Final_report.pdf	First part of the investigation	application/pdf	3806203	6/20/2011:57:35 AM		

## Other Attachments

Nam	Desc	Type	Size	Last	Orga	Repo
Recommendations			53248	6/29/2011:00:02 AM		

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**What**

Title Train derailment, 29-06-09, line Livorno - La Spezia, Viareggio station (Italy)

Occurrence type Railway vehicle movement events  
Train derailment

Occurrence Class Serious accident

Date of occurrence 29-06-09

Local time 23:48

Events Railway vehicle movement events - Train derailment  
Rolling stock events - Dangerous goods release

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#### Descriptions

Language	English	Translation provider	Information providers own translation
Description	<p>On 29 June 2009, at 23h48m, the train n.50325 operated by the railway company Trenitalia SpA, going southward and composed of 14 tank wagons carrying butane gas, derailed as it entered the railway station of Viareggio. On the section of the track where the derailment occurred there are no switches. Following the derailment of the 1st wagon (wagon No. 338078182106, owned by GATX Rail Austria GmbH and registered at the German state network DB), the wagon itself hit the platform and the train continued moving until the end of the station. It stopped about 200 m after the platform, with the first 5 tank wagons overturned on the left, with respect to the direction of the train. In total, the train has continued running for about 500 meters beyond the track section where the derailment occurred. The first 5 tank wagons overturned, the 6th and the 7th wagon derailed without overturning and the last 7 wagons remained on the track. After few minutes there was a powerful explosion that damaged very seriously the rail infrastructure (the track, the catenary, the signalling equipments) and the houses on the surroundings, causing several fatalities and serious injuries.</p>		

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Location name	line Livorno - La Spezia, Viareggio station		
Railway System type	Railway	Country	Italy
Location type	Station	Border Country	
Line type	Multiple track	Line number	
Allowed line speed		Km number	
Latitude	43:51:06 North	Longitude	10:16:16 East
Location description	line Livorno - La Spezia, Viareggio station		
Additional location in			
Location type details	Other	Fixed installations	

#### Occurrence details

##### Railway vehicles

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Movement type	Freight train	Train number	50325
RU	Italy Trenitalia Cargo	Wagons overturned	Yes
Train speed at mom		Passengers onboard	No
Vehicle description	tank wagons		

##### Other objects involved in the occurrence

Other objects	Living objects - Person Other object - Other objects (houses)
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Parties involved

IM Involved	Italy - RFI SpA	RU Italy - Trenitalia Cargo
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	Fatalities	Serious injuries	Minor injuries
Passengers	0	0	
Staff	0	0	
Level crossing users	0	0	
Unauthorised persons	0	0	
Others	32	126	
Total	32	126	

Material consequences

Material Damage	Infrastructure Rolling stock 3rd party Environment	Estimated total mate	> 2 000 000 €
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Damage description See the final report in attachment

Images

Name	Description	Type	Size	Last modified	Organization	Repository
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Causation

Causes

Language	English	Translation provider	Information providers own translation
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Direct Cause description

Axle failure due to fatigue

Underlying and root causes description

See the final report in attachment

See the final report in attachment

Causation classification

Railway vehicle movement events - Train derailment

1 - Wheels, axles, bogies and running gear (Axle failure)

Rolling stock events - Dangerous goods release

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Recommendations  
Recommendation

Issuing information

Recommendation title Recommendation n.1

Recommendation ID REC-000190 End implementer Other

Status Sent to addressee Addressee

Issue date 02-04-12

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Recommendation texts

Language	English	Translation provider	Information providers own translation
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Recommendations text

To establish supranational laws for the maintenance and monitoring activities aimed at the safe transport of railway wagons carrying dangerous goods, individuating "mandatory" operational procedures to apply to maintenance activities on rolling stock and components as well as for reassembly activities performed within the European Union and also in the territories of non-EU member states belonging to COTIF and having the scope and validity to ensure their effects on all wagons circulating in the European Union territories.

Those "mandatory" procedures must be a complement to the best practices already adopted for maintenance in the rail sector, avoiding redundancies and duplications .

For this purpose it is recommended that:

?the European Railway Agency in its position of a board for the trend orientation of the NSAs

?the OTIF

?the Italian National Agency for Railway Safety - ANSF

?The Ministry of Infrastructures and Transports (Department for Transports, shipping, informative and statistics systems )

strive in order that will be started and completed the implementation of a regulatory framework for

maintenance, described in theirs essential aspects in the subsequent recommendations from No. 2 to No. 10.

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Implementation information

Implementation status	Implementation date
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Unknown

NSA Response

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NIB Comment

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#### Recommendation

##### Issuing information

Recommendation title	Recommendation n.2		
Recommendation ID	REC-000191	End implementer	Other
Status	Sent to addressee	Addressee	
Issue date	02-04-12		

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##### Recommendation texts

Language	English	Translation provider	Information providers own translation
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##### Recommendations text

To constitute, within the organization with the maximum international partnership, a single register (European and/or international Data-Base) of rolling stock carrying dangerous goods, circulating on the railway networks of the territories referred to Recommendation No. 1. This register shall include computer data suitable for the identification of the rolling stocks carrying dangerous goods, in terms of: technical and homologation data, date of construction and/or reassembly, maintenance history of their major components for safety, mileage of wagons and of their components

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##### Implementation information

Implementation status	Implementation date
Unknown	

##### NSA Response

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##### NIB Comment

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#### Recommendation

##### Issuing information

Recommendation title	Recommendation n.3		
Recommendation ID	REC-000192	End implementer	
Status	Sent to addressee	Addressee	
Issue date	02-04-12		

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##### Recommendation texts

Language	English	Translation provider	Information providers own translation
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##### Recommendations text

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To establish a general rule of application of sanctions against the subjects involved in various processes that have behaved in a different manner from those provided by the rules and regulations that could be defined in consequence of the Recommendations from n. 2 to n. 10

These sanctions have to be imposed by the national organizations responsible for safety with regard to the territory under their jurisdiction, without prejudice to the right of each Member State to adopt measures restricting the circulation.

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## Implementation information

Implementation status

Implementation date

Unknown

NSA Response

NIB Comment

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**Recommendation**

Issuing information

Recommendation title Recommendation n.4

Recommendation ID REC-000193

End implementer

Status Sent to addressee

Addressee

Issue date 02-04-12

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Recommendation texts

Language

English

Translation provider

Information providers own  
translation

Recommendations text

To introduce in the rules the prediction of maintenance interventions for safety purposes that have to be carried out with "temporal" frequency and with "fixed distances". These methodologies have to be used in combination and in correlation.

This need arises from the increased use of the wagons and important components for the rail safety resulting from the modification of the legal arrangement and organizational architecture of the sector in Europe.

That forecast must also include the principle of intensification of the frequency of the checks in function of the progress of the age of wagons carrying dangerous goods.

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## Implementation information

Implementation status

Implementation date

Unknown

NSA Response

NIB Comment

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#### Recommendation

##### Issuing information

Recommendation title	Recommendation n.5		
Recommendation ID	REC-000194	End implementer	
Status	Sent to addressee	Addressee	
Issue date	02-04-12		

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##### Recommendation texts

Language	English	Translation provider	Information providers own translation
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##### Recommendations text

To establish an obligation requirement of certification of the authorized personal that performs maintenance aimed at the safety of transport, on rolling stocks transporting dangerous goods circulating within the European Union. The certification must be set under the control of the member states and it must exclude any hypothesis of self-certification.

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##### Implementation information

Implementation status	Implementation date
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##### NSA Response

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##### NIB Comment

#### Recommendation

##### Issuing information

Recommendation title	Recommendation n.6		
Recommendation ID	REC-000195	End implementer	
Status	Sent to addressee	Addressee	
Issue date	02-04-12		

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##### Recommendation texts

Language	English	Translation provider	Information providers own translation
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##### Recommendations text

To establish a rule that defines a limited service life of important components for rail safety. In order to prevent train accidents is necessary to introduce a maximum time limit for the use of components related to safety (axles, wheels, bushings, suspension, etc.), taking into account the concept of cyclic fatigue, to which certain mechanical components are subjected to during their operational life.

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Implementation information

Implementation status	Implementation date
Unknown	

NSA Response

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NIB Comment

Recommendation

Issuing information

Recommendation title	Recommendation n.7	
Recommendation ID	REC-000196	End implementer
Status	Sent to addressee	Addressee
Issue date	02-04-12	

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Recommendation texts

Language	English	Translation provider	Information providers own translation
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Recommendations text

To introduce a requirement for full traceability of all axels and components that a specific working group has to study to highlight as "fundamental" for safety and for the dynamic stability of the wagons, with particular regard to components subjected to cyclic efforts.

At the time of the activity of maintenance and/or reassembly, the subject responsible must:

- uniquely identify the components of the rolling stock on which maintenance is performed by punching an identification code (if not already punched). This code must be affixed already by the manufacturers at the time of production according to procedures to be defined.
- Insert in the Data-Base described in Recommendation No. 2, the evidence of transactions on the component, which must be identified as described in the previous paragraph, all its structural and geometrical data collected, the maintenance work performed, the execution date and the date scheduled for further maintenance. This Database will be accessible - for inspection - by entities that are responsible for controls and - for the operation - by all the certified and notified responsible for the maintenance.

All test results of a sensitive nature (Non Destructive Testing, ultrasound tests, Magnetoscopic checks, work sheets, etc.) performed on the components which are important for safety of rail transport will be placed in the same Database in hidden or clear format but not manipulatable, in order to verify at a later time the state of the component or the evolution of any defects or anomalies detected during the entire life of the component itself.

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Implementation information

Implementation status	Implementation date
Unknown	

NSA Response

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NIB Comment

#### Recommendation

Issuing information

Recommendation title	Recommendation n.8	
Recommendation ID	REC-000197	End implementer
Status	Sent to addressee	Addressee
Issue date	02-04-12	

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#### Recommendation texts

Language	English	Translation provider	Information providers own translation
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Recommendations text

To establish a requirement for the destruction of components important for safe transport, for which it isn't possible to reconstruct the history of maintenance and operational through a continuous tracking. If the history of the component is not completely clear, it is necessary to require its destruction, giving the proof this to the safety organizations.

This condition must be realized since the first useful opportunity in correspondence to a normal maintenance carried out according to the maintenance plan expected. the first phase of application of the rule needs a short period of transition to the new protocol for the components already in circulation. Beyond this period they must be destroyed anyway.

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#### Implementation information

Implementation status	Implementation date
Unknown	

NSA Response

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NIB Comment

#### Recommendation

Issuing information

Recommendation title	Recommendation n.9	
Recommendation ID	REC-000198	End implementer
Status	Sent to addressee	Addressee
Issue date	02-04-12	

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#### Recommendation texts

Language	English	Translation provider	Information providers own
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translation

## Recommendations text

To define, on the basis of legal requirements to be introduced in consequence of the previous recommendations, a procedure for conducting inspections on those responsible for the maintenance of wagons carrying dangerous goods or their components. These inspections must be made by Railway Undertakings (RU) as a part of its Safety Management System (SMS) to ensure safe operation of its part of the system. The supervisory role of NSAs on RUs remains unchanged. Therefore, Railway Undertakings must include in their Safety Management System adequate check procedures on the staff responsible for maintenance of the rolling stock that RUs haul.

## Implementation information

Implementation status

Implementation date

Unknown

NSA Response

NIB Comment

## Recommendation

Issuing information

Recommendation title Recommendation n.10

Recommendation ID REC-000199

End implementer

Status Sent to addressee

Addressee

Issue date 02-04-12

## Recommendation texts

Language

English

Translation provider

Information providers own  
translation

## Recommendations text

To impose the use of Detectors of Derailment Devices (DDD) for all wagons carrying dangerous goods, starting from the older ones.

The application of such devices must make possible to activate automatic actions of brakes, needing an evolution of the detection techniques as much as possible free from false alarms.

These devices should also be installed necessarily on the wagons carrying normal freights when they are in composition with those carrying dangerous goods.

To provide for the production of new wagons, the obligation to adopt such devices taking into account possible technological developments towards more advanced solutions, also in terms of selectivity and modulation of the braking reactions.

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Implementation information

Implementation status	Implementation date
Unknown	

NSA Response

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NIB Comment

**Recommendation**

Issuing information

Recommendation title	Recommendation n.11	
Recommendation ID	REC-000200	End implementer
Status	Sent to addressee	Addressee
Issue date	02-04-12	

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Recommendation texts

Language	English	Translation provider	Information providers own translation
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Recommendations text

To set up by the Italian Infrastructure Managers an analytical study on the current distribution on the territory of the Italian railway network of thermal bushings revelators, taking into account the topological layout of the railway network, including railway interconnections and the multiple paths that can be run by trains. The study is intended to highlight the paths longer than 60 km that are not yet covered by the revelators and that have to be equipped immediately by automatic systems, in order to overcome the current procedure that admits a possible visual detection.

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Implementation information

Implementation status	Implementation date
Unknown	

NSA Response

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NIB Comment

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#### Recommendation

##### Issuing information

Recommendation title	Recommendation n.1 (investigation part 2)		
Recommendation ID	REC-000201	End implementer	IM
Status	Sent to addressee	Addressee	NSA
Issue date	31-05-13		

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##### Recommendation texts

Language	English	Translation provider	Information providers own translation
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##### Recommendations text

The NSA (ANSF) will consider to bind the Infrastructure Manager (RFI Spa) so that, as an alternative, the IM:

- studies and implement a targeted plan of gradual removal of the "planimetric adjustment vertical pegs" following a process that starts from the sites most exposed, for degree of urbanization of contiguous areas, replacing them with control systems for the horizontal and vertical alignment of the geometric stability of the curves, systems characterized by a null value compared to the risk of setting a potential tool for cutting and/or tearing;
  - initiate a gradual installation of systems of protection and confinement of the same "planimetric adjustment vertical pegs" which cancel out the inherent potential to become a tool for cutting and tearing, still following the hierarchical principle of the primacy of the sites most exposed for degree of urbanization neighbor.
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##### Implementation information

Implementation status	Unknown	Implementation date	
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##### NSA Response

##### NIB Comment

#### Recommendation

##### Issuing information

Recommendation title	Recommendation n.2 (investigation part 2)		
Recommendation ID	REC-000202	End implementer	IM
Status	Sent to addressee	Addressee	NSA
Issue date	31-05-13		

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##### Recommendation texts

Language	English	Translation provider	Information providers own translation
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##### Recommendations text

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The NSA (ANSF) will consider the opportunity to ask to the Infrastructure Manager (RFI Spa) to carry out an analysis and a consequent overall assessment of the potential risk of setting a cutting tool and/or laceration, by objects or components of the 'infrastructure that are not technically disposable or replaceable: this in order to reduce the risk.

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Implementation information

Implementation status

Implementation date

Unknown

NSA Response

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NIB Comment

#### Causation links

Railway vehicle movement events - Train derailment

    Subsystem - Rolling stock - Wagons - Wheels, axles, bogies and running gear (Axle failure)

Rolling stock events - Dangerous goods release

#### Other

Subject

Additional recommendation text

Date

03-04-12

Due to the website restrictions for length and number of recommendations, please see the Recommendations file in attachment.

Subject

Occurrence-related (Starting of second stage of the investigation)

Date

27-07-12

The Italian NIB starts the second stage of the investigation, concerning the individuation of the causes of the rupture of the tank, as a consequence of the fact that new technical evidences will be collected.

Subject

Occurrence-related (3D video reconstruction)

Date

09-09-13

The 3D video reconstruction of the accident is available at the following link:  
<http://www.mit.gov.it/mit/media/dgif/DGIF-Viareggio.avi>

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**Investigation details**

Legal Basis National rules imposed by implementing of the Safety Directive 2004/49/EC - in light of Article 19, §1 of SD

Other reason descrip

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National investigatio		Investigator in charge	
Occurrence creation	02-07-09 18:39:15		
Decision to investigate	29-06-09		
Declaration date	03-04-12		
Date of IM/RU notific			

Report Type	Final report	Workflow Status	Validated
Report Version	3	Investigation Status	Closed

Other Attachments	Name	Descriptio	Type	Size	Last	Organizati	Repositor
	Recomme ndations Viareggio accident 2009 30 3 2012.doc			53248	6/29/2012 10:00:02 AM		
	Raccoman dazioni_p arte_2.pdf	Recomme ndations Viareggio accident 31 5 2013	applicatio n/pdf	851626	6/20/2013 12:45:39 PM	Softeco	

Final Report	Name	Descriptio	Type	Size	Last	Organizati	Repositor
	Viareggio _accident _29.06.09 ___Final_r eport.pdf	First part of the investigati on	applicatio n/pdf	3806203	6/20/2013 11:57:35 AM		
	Integrazio ne_relazio ne_incide nte_ferrov _o_del_29 _06_2009 .pdf	Second part of the investigati on	applicatio n/pdf	9888458	6/20/2013 11:59:43 AM		

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