



REPUBLIC OF CROATIA
**AIR, MARITIME AND RAILWAY TRAFFIC
ACCIDENTS INVESTIGATION AGENCY**

NIB ANNUAL REPORT 2017

according to Article 23(3) of Directive 2004/49/EC

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PREFACE TO THE REPORT

A National Investigation Body operates in the Republic of Croatia – Air, Maritime and Railway Traffic Accidents Investigation Agency, Department for Railway Traffic Accidents Investigation – conducting independent investigation of the causes and circumstances of railway accidents and incidents according to Directive 2004/49/EC, the principles and requirements of which have been implemented into the national legislation. The objective of the investigation of the causes and circumstances of railway accidents and incidents is to increase the safety of railways.

This Annual Report is an annual report issued by the National Investigation Body of the Republic of Croatia, Air Maritime and Railway Traffic Accidents Investigation Agency, Department for Railway Traffic Accidents Investigation for 2015, pursuant to Art. 23(3) of Directive 2004/49/EC. It comprises information regarding:

- the National Investigation Body,
- the system of investigation of railway accidents and incidents,
- the investigations of accidents and incidents completed in 2017,
- the safety recommendations issued.

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1 INTRODUCTION TO THE INVESTIGATION BODY

1.1 Legal Basis

The process of the implementation of Directive 2004/49/EC into the national legislation of the Republic of Croatia was completed in 2013 with two legal Acts. The first Act is legal basis for establishing Air, Maritime and Railway Traffic Accidents Investigation Agency - AIA (National gazette No 52/13). The second Act is legal basis for railway traffic accident investigation (National gazette No 82/13, 18/15, 110/15 and 70/17).

AIA investigates accidents and incidents. Accident and Incidents are further divided into the following categories, reflecting their nature and consequences:

- serious accidents,
- accidents,
- incidents.

The accident and incident investigation performed by AIA is independent of any other party and independent of the investigation conducted by other bodies, especially judiciary investigation and the investigation of the causes and circumstances of accidents and incidents conducted by infrastructure managers or railway undertakings.

1.2 Role and Aim

Air, Maritime and Railway Traffic Accidents Investigation Agency, the National Investigation Body, was established on 29st July 2013. The mission is to guarantee independent investigation of the causes and circumstances of railway accidents and incidents. The national legislation of Republic of Croatia does not authorize AIA to investigate accidents and incidents within trams, trolleybuses and cable-cars.

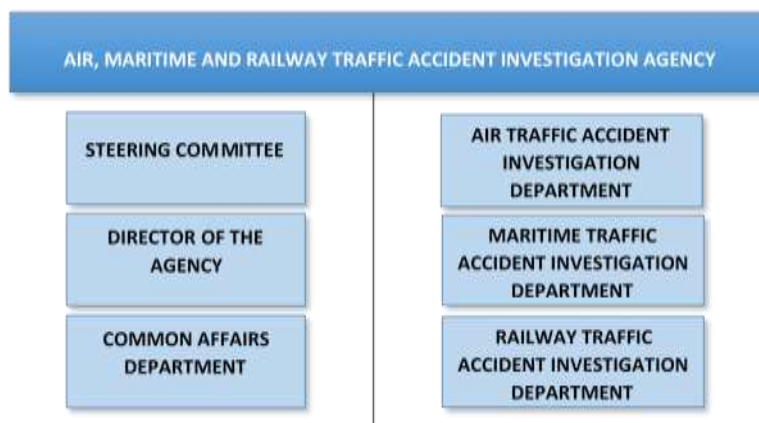
The main goal of AIA work is to prevent the occurrence of accidents and incidents. Therefore, AIA:

- investigates the causes and circumstances of rail accidents and incidents,
- issues reports and safety recommendations to railway undertakings, infrastructure managers, to the National Safety Authority or other authorities and parties.

1.3 Organisation

Air, Maritime and Railway Traffic Accidents Investigation Agency (AIA) – was established pursuant to the provisions of Act 52/2013. AIA is a multimodal institution; it has three independent departments for safety investigations. One of the departments is Department for Railway Traffic Accidents Investigation. The Department was established in April 2014. The Department currently has one investigator in charge and one senior railway advisor. Other two departments are Department for Air Traffic Accidents Investigation, and Department for Maritime Traffic Accidents Investigation.

Department for Railway Traffic Accidents Investigation investigates the causes of railway accidents and incidents independently of any other party and performing preventative inspections of railway safety. As an investigation body it is independent of any infrastructure manager, railway undertaking and regulatory body. The competences of Department include railways (main lines, regional lines, sidings).



1.4 Organisational flow

The structure of railway sector in Republic of Croatia and relationships among the parties involved are defined in Act 82/2013. The legislation applies to the railway transport systems (main lines, regional lines, sidings).

The bodies in the railway sector include Ministry for Transportation, Railway Safety Agency and AIA. Ministry for Transportation is in charge of the national railway legislation, including implementation of the EU railway legislation. Railway Safety Agency is the National Safety Authority carrying out certification and regulation of railway and railway transport operation, according to the national legislation. AIA is the National Investigation Body independent of any party in the railway sector.

All these authorities are involved in the system of maintaining and improving safety of railways and railway transport:

- **Ministry for Transportation** sets the framework by developing railway legislation.
- **AIA (NIB)** investigates railway accidents and incidents and issues safety recommendations.
- **Railway Safety Agency (NSA)** sets and adjusts safety rules for infrastructure managers and railway undertakings.

2 INVESTIGATION PROCESSES

2.1 Cases to be investigated

The national legislation of Republic of Croatia orders the National Investigation Body, in accordance with European principles, to investigate the causes and circumstances of serious accidents on main and regional lines, border railways and sidings.

When making decision whether to investigate or not, AIA takes into account the above mentioned legal requirements, as well as possibility to learn safety relevant lessons from the accident or incident.

2.2 Institutions involved in investigations

Following the occurrence of railway accident or incident, various parties may launch several independent investigations, depending on the occurrence's nature and consequences:

- **Infrastructure manager or railway undertaking** identifies the causes and circumstances of accident or incident, focusing on the drafting of preventative measures and the proposal of responsibility for the occurrence.
- **AIA** investigates the causes and circumstances of accident or incident with a focus on the determination of the causes and issue of preventative safety recommendation.
- **State Attorney and Police** investigate accident or incident with the aim of defining responsibility for the committing of offenses or criminal acts.

2.3 Investigation process or approach of the NIB

The objective of the investigation of the causes of railway accidents and incidents is to gain knowledge for the prevention of accidents and incidents, minimize the consequences and increase the safety of railways.

Investigation performed by the National Investigation Body of Republic of Croatia, Department for Railway Traffic Accident Investigation, focuses on the following aspects of each occurrence:

- independent investigation of the causes and circumstances of accident or incident (serious accidents and selected accidents and incidents only).

When notified about an accident or incident by an infrastructure manager or railway undertaking, the Chief Investigator will decide whether it will immediately go to the accident-site or not. At the Accident-site The Department will launch an independent investigation or just make onsite overview and make decision about launching an investigation later.

If The Department launches an investigation, it will notify The European Union Agency for Railways within seven days, all parties involved in an event and the NSA. The investigation of accident or incident may be launched immediately after the occurrence and/or later, in reaction to specific circumstances.

The Department will publish the conclusions of its investigation in Investigation Report, the structure of which is based on the requirements of Directive 2004/49/EC. If an accident or incident occurred without any violation of legislation or internal regulations of infrastructure manager and/or railway undertaking, The Department issues safety recommendation with the aim of preventing reoccurrence of the accident or incident. Safety recommendation is issued also if there are other findings relevant for the safety.

3 INVESTIGATIONS

3.1 Overview of investigations completed in 2017, identifying key trends

Trends of completed investigations in 2017.

| Type of accidents investigated | Number of accidents | Number of victims | | Damages in € (approx.) | Trends in relation to previous year |
|--------------------------------|---------------------|-------------------|-------------|------------------------|-------------------------------------|
| | | Deaths | Ser. injury | | |
| Collisions | 1 | 0 | 0 | <150.000 | -50% |
| Derailments | 3 | 0 | 2 | <150.000 | +200% |
| LC-accident | 2 | 2 | 4 | <150.000 | 0% |
| Fire in RS | 0 | 0 | 0 | <150.000 | 0% |
| Acc. to person | 2 | 1 | 1 | <150.000 | 0% |
| Other | 3 | 0 | 0 | 0 | +300% |

3.2 Investigations completed and commenced in 2017

Investigations completed in 2017

| Date of occurrence | Title of the investigation (Occurrence type, location) | Legal basis | Completed (date) |
|--------------------|---|-------------|---------------------|
| 30 June 2015 | Station Split Predgrađe, run over the shunting worker | i | 16 January 2017 |
| 28 December 2015 | Line L 203, collision on a LC Male Sredice | ii | 07 April 2017 |
| 20 January 2016 | Brake of a wheel on a locomotive, line M201 | iii | 20 January 2017 |
| 08 May 2016 | Derailment of a shunting locomotive, on the Zagreb Zapadni Station | ii | 20 March 2017 |
| 12 May 2016 | Vinkovci Station, a passenger train crossed an unprotected level crossing | iii | 20 June 2017 |
| 08 July 2016 | Derailment of a special railway vehicle near station of Rogitin | ii | 10 July 2017 |
| 14 June 2016 | Accident caused by rollingstock in motion, Sljeme Tunnel | i | 31 August 2017 |
| 05 September 2016 | Collision of two special railway vehicles on the station Zagreb Ranžirni | ii | 25 September 2017 |
| 17 October 2016 | Collision on a LC near town of Ivanec, line 201 | ii | 11 October 2017 |
| 21 November 2016 | Derailment of a shunting locomotive, on the Sesvete Station | ii | 20 June 2017 |
| 06 February 2017 | Line R202, cargo train hit worker | i | 20 June 2017 |

Basis for investigation: i = According to the Safety Directive, ii = On national legal basis (covering possible areas excluded in Article 2, §2 of the Safety Directive), iii = Voluntary – other criteria (National rules/regulations not referred to the Safety Directive).

Investigations commenced in 2017

| Date of occurrence | Title of the investigation (Occurrence type, location) | Legal basis |
|--------------------|---|-------------|
| 11 January 2017 | Line M104 passenger train 2508 did not stop at station Lužani Malino | ii |
| 06 February 2017 | Line R202, train hit worker | ii |
| 19 February 2017 | Line M202 derailment of a shunting on the Karlovac station | ii |
| 10 March 2017 | Line M202 derailment cargo train 46801 near Zvečaj | ii |
| 27 March 2017 | Line M402 derailment tank wagon on the Zagreb Ranžirni | ii |
| 04 April 2017 | Line M201 drop passengers from passenger wagons on the Križevci station | ii |
| 28 April 2017 | Line M101 passenger train hit parapet | ii |

| | | |
|------------------|---|----|
| 12 October 2017 | Deraiment of an shunting cargo train on the station Zagreb Ranžirni | ii |
| 17 October 2017 | Deraiment of an passenger train on the station Duga Resa | ii |
| 27 October 2017 | Line L202, collision on a LC Gornja Stubica | ii |
| 25 November 2017 | A break of cargo train, line M103 | ii |

Basis for investigation: i = According to the Safety Directive, ii = On national legal basis (covering possible areas excluded in Article 2, §2 of the Safety Directive), iii = Voluntary – other criteria (National rules/regulations not referred to the Safety Directive).

3.3 Research studies (or Safety Studies) commissioned and completed in 2017

Safety Studies completed in 2017

| Date of commission | Title of the Study (Occurrence type, location) | Legal basis | Completed (date) |
|--------------------|---|-------------|---------------------|
| 05 of October 2016 | Trains crossed an unprotected level crossing Danica | ii | 27 of February 2018 |

Basis for investigation: i = According to the Safety Directive, ii = On national legal basis (covering possible areas excluded in Article 2, §2 of the Safety Directive), iii = Voluntary – other criteria (National rules/regulations not referred to the Safety Directive).

Safety Studies commenced in 2017

| Date of commission | Title of the Study (Occurrence type, location) | Legal basis | Completed (date) |
|--------------------|---|-------------|---------------------|
| 05 of October 2016 | Trains crossed an unprotected level crossing Danica | ii | 27 of February 2018 |

Basis for investigation: i = According to the Safety Directive, ii = On national legal basis (covering possible areas excluded in Article 2, §2 of the Safety Directive), iii = Voluntary – other criteria (National rules/regulations not referred to the Safety Directive).

3.4 Summaries of investigations completed in 2017

See the Annex of the Report.

3.5 Comment and introduction or background to the investigations

Investigations commenced in 2017 and not followed

| Date of occurrence | Title of the investigation (Occurrence type, location) | Legal basis | Reason of non-following or suspension of investigations | Who, why, when (decision) |
|--------------------|---|-------------|---|---------------------------|
| | none | | | |

Basis for investigation: i = According to the Safety Directive, ii = On national legal basis (covering possible areas excluded in Article 2, §2 of the Safety Directive), iii = Voluntary – other criteria (National rules/regulations not referred to the Safety Directive).

3.6 Accidents and incidents investigated during last five years (in 2013-2017)

Rail investigations completed in 2013–2017

Department for railway traffic accidents investigation has become operational in April 2014, so first investigation was opened in 2014.

The table groups investigations by year of their completion.

| Accidents investigated | | 2013 | 2014 | 2015 | 2016 | 2017 | TOT |
|-----------------------------------|---|----------|----------|----------|----------|-----------|-----------|
| Serious accidents (Art 19, 1 + 2) | Train collision | 0 | 0 | 1 | 0 | 1 | 2 |
| | Train collision with an obstacle | 0 | 0 | 2 | 2 | 0 | 4 |
| | Train derailment | 0 | 1 | 1 | 1 | 3 | 6 |
| | Level-crossing accident | 0 | 0 | 2 | 2 | 2 | 6 |
| | Accident to person caused by RS in motion | 0 | 0 | 0 | 2 | 2 | 4 |
| | Fire in rolling stock | 0 | 0 | 1 | 0 | 0 | 1 |
| | Involving dangerous goods | 0 | 0 | 0 | 0 | 0 | 0 |
| Incidents | | 0 | 0 | 2 | 0 | 3 | 5 |
| TOTAL | | 0 | 1 | 9 | 7 | 11 | 28 |

4 RECOMMENDATIONS

4.1 Short review and presentation of recommendations

A safety recommendation can be issued only on a basis of an independent investigation performed by The National Investigation Body (NIB). Safety recommendation is usually issued when an accident occurred without any violation of legislation or internal regulations of infrastructure manager and/or railway undertaking, or if there are other findings relevant for the safety.

According to national legislation, safety recommendations are not legally binding. When a recommendation is issued, railway undertakings and infrastructure managers are obliged to adopt their own preventative safety measures based on issued safety recommendation.

Implementation of recommendations during 2013 – 2017

| Recommendations issued | | Recommendation implementation status | | | | | |
|------------------------|-----------|--------------------------------------|------------|-------------|------------|-----------------------|------------|
| | | Implemented | | In progress | | Not to be implemented | |
| Year | [No.] | [No.] | [%] | [No.] | [%] | [No.] | [%] |
| 2013 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2014 | 4 | 2 | 50% | 2 | 50% | 0 | 0 |
| 2015 | 7 | 4 | 58% | 1 | 14% | 2 | 28% |
| 2016 | 11 | 2 | 18% | 9 | 82% | 0 | 0 |
| 2017 | 7 | 4 | 58% | 1 | 14% | 2 | 28% |
| TOTAL | 29 | 12 | 41% | 13 | 45% | 4 | 14% |

Accidents with safety recommendations issued in 2013 – 2017

| Date of occurrence | Title of the investigation (Occurrence type, location) | Status of implem. | Completed (date) |
|---------------------------|--|--------------------------|-----------------------------|
| 11 July 2014 | Derailment of a rolling stock near the Madjarevo station SP/14 | Implemented | 22 December 2014 |
| 19 September 2014 | Collision on level crossing in city of Krapina SP 1/14 | implemented | 02 April 2015 |
| 19 September 2014 | Collision on level crossing in city of Krapina SP 2/14 | Accepted | 02 April 2015 |
| 19 September 2014 | Collision on level crossing in city of Krapina SP 3/14 | Accepted | 02 April 2015 |
| 19 September 2014 | Collision on level crossing in city of Krapina SP 1/15 | Not accepted | 02 April 2015 |
| 22 June 2014 | Line M102 near miss in the Dugo Selo station, long-distance passenger train no 782 and commuter train no 8087 SP3/15 | Accepted | 23 October 2015 |
| 4 September 2014 | The Varaždin Station, fire in DMU SP 2/15 | Implemented | 18 May 2015 |
| 12 January 2015 | Collision on a level crossing in village Kupinec SP 6/15 | Not implemented | 22 December 2015 |
| 10 November 2014 | Derailment of shunting locomotive in Sisak SP 4/15 | Implemented | 5 December 2016 |
| 11 September 2014 | Rock slide near the Kaštel Stari station SP 7/15 | Implemented | 03 March 2016 |
| 27 February 2015 | Accident on LC in village Kosovo SP 1/16 | Accepted | 07 March 2016 |
| 27 February 2015 | Accident on LC in village Kosovo SP 2/16 | Accepted | 07 March 2016 |
| 27 February 2015 | Accident on LC in village Kosovo SP 3/16 | Accepted | 07 March 2016 |
| 27 February 2015 | Accident on LC in village Kosovo SP 4/16 | Accepted | 07 March 2016 |
| 27 February 2015 | Accident on LC in village Kosovo SP 5/16 | Accepted | 07 March 2016 |
| 11 November 2014 | Accident caused by rolling stock in motion, Zdenčina SP 5/15 | Implemented | 02 November 2015 |
| 10 July 2015 | Serious accident on the LC in village Švogari SP 6/16 | Implemented | 12 September 2016 |
| 10 July 2015 | Serious accident on the LC in village Švogari SP 7/16 | Accepted | 12 September 2016 |
| 10 July 2015 | Serious accident on the LC in village Švogari SP 8/16 | Accepted | 12 September 2016 |
| 10 July 2015 | Serious accident on the LC in village Švogari SP 9/16 | Accepted | 12 September 2016 |

| Date of occurrence | Title of the investigation (Occurrence type, location) | Status of implem. | Completed (date) |
|--------------------|---|-------------------|---------------------|
| 10 July 2015 | Serious accident on the LC in village Švogari SP 10/16 | Accepted | 12 September 2016 |
| 30 June 2015 | Station Split Predgrađe run over the shunting worker SP 11/16 | Implemented | 16 January 2017 |
| 28 December 2015 | Line L 203, collision on a LC Male Sredice SR 1/17 | Implemented | 07 July 2017 |
| 28 December 2015 | Line L 203, collision on a LC Male Sredice SR 2/17 | Not implemented | 07 July 2017 |
| 12 May 2016 | Vinkovci Station, a passenger train crossed an unprotected level crossing SR 3/17 | Implemented | 28 June 2017 |
| 14 June 2016 | Accident caused by rollingstock in motion, Sljeme Tunnel SR 4/17 | Non information | 31 August 2017 |
| 17 October 2016 | Collision on a LC near town of Ivanec, line L 201 SR 5/17 | Not implemented | 11 October 2017 |
| 17 October 2016 | Collision on a LC near town of Ivanec, line L 201 SR 6/17 | Implemented | 11 October 2017 |
| 05 September 2016 | Collision of two special railway vehicles on the station Zagreb Ranžirni SR 7/17 | Implemented | 25 October 2017 |

4.2 Safety Recommendations issued in 2017

| No of the recommendation: SP 11/16 | |
|--|---|
| Date of occurrence | Title of the investigation |
| 30 June 2015 | Station Split Predgrađe, run over the shunting worker |
| Addressed to the NSA. Providers of shunting services should elaborate a process of shunting for particular series rolling stocks and should introduce that to all shunting personal. | |
| STATUS : Implemented (HŽI) | |

| No of the recommendation: SR 1/17 | |
|--|--|
| Date of occurrence | Title of the investigation |
| 28 December 2015 | Line L 203, collision on a LC Male Sredice |
| Addressed to the NSA. Taking into account the impact of objects within the Infrastructural area on the outcome of the Accident, the Infrastructure Manager should in the SMS to establish a risk assessment procedure from which to see whether objects within the infrastructural belt can influence the result of an adverse event, based on which it could draw up a proposal of measures for dealing with such facilities. | |
| STATUS : Implemented (HŽI) | |

| No of the recommendation: SR 2/17 | |
|---|--|
| Date of occurrence | Title of the investigation |
| 28 of December 2015 | Line L 203, collision on a LC Male Sredice |
| Addressed to the NSA. Taking into account the frequency of incidents and accidents in which participated train driver when the traffic was regulated with written orders by Traffic managers, Railway undertakings should in their education process of train drivers devote more attention to acceptance of written orders and understanding the contents of the orders. | |
| STATUS : Not implemented (HŽ PP) | |

| No of the recommendation: SR 3/17 | |
|--|---|
| Date of occurrence | Title of the investigation |
| 12 May 2016 | Vinkovci Station, a passenger train crossed an unprotected level crossing |
| Addressed to the NSA. The Infrastructure Manager should pay more attention to the teaching and training of executive workers in prescribed procedures when emergencies involving safety is malfunctioning which directly affect traffic safety | |
| STATUS : Implemented (HŽI) | |

| No of the recommendation: SR 4/17 | |
|--|--|
| Date of occurrence | Title of the investigation |
| 14 June 2016 | Accident caused by rollingstock in motion, Sljeme Tunnel |
| Addressed to the NSA Slovakia. Taking into account the accident and the fact that in some previous cases come to the movement of some roller coils on pallets, the owner of the wagon should make an analysis of the way in which packaging and securing of roller coils is in conformity with the UIC Loading Guidelines, and according the analysis make measures to prevent future accidents. | |
| STATUS : Non information | |

| No of the recommendation: SR 5 /17 | |
|--|---|
| Date of occurrence | Title of the investigation |
| 17 October 2016 | Collision on a LC near town of Ivanec, line L 201 |
| Addressed to the NSA. Given a number of factors influencing the Accident, the Company whose train driver was involved in the Accident should define in its SMS procedures that would give the Company accurate insight into the skill of the machine personnel depending on the series of vehicles and track sections. | |
| STATUS : Not implemented (PRUŽNE GRAĐEVINE) | |

| No of the recommendation: SR 6 /17 | |
|--|---|
| Date of occurrence | Title of the investigation |
| 17 October 2016 | Collision on a LC near town of Ivanec, line L 201 |
| Addressed to the NSA. Given a number of incidents, accidents and serious accident on the level crossings in which participated train drivers, companies that own towed vehicles running on infrastructure under the authority of the company HŽ Infrastruktura Ltd should in their education process of train driver, pay more attention to the prescribed procedures of train drivers when approaching level crossings. | |
| STATUS : Implemented (HŽI) | |

| No of the recommendation: SR 7 /17 | |
|---|--|
| Date of occurrence | Title of the investigation |
| 05 September 2016 | Collision of two special railway vehicles on the station Zagreb Ranžirni |
| Addressed to the NSA. The Infrastructure manager should developed a procedure that should regulate traffic from ant on the "Z" truck. | |
| STATUS : Implemented (HŽI) | |

ACCIDENTS COMPLETED IN 2017 SUMMARY

Split Predgrađe station, run over the shunting worker

| | |
|------------------|---|
| Grade: | Serious accident; |
| Date and time: | 30 June 2015, 07:55 (06:55 GMT); |
| Occurrence type: | accident caused by rolling stock in motion; |
| Description: | On 30 June 2015 at 07:55 hours, on the station Split Predgrađe, on the fourth track during driving of a shunting composition composed of a driving locomotive, series 2044-028, and one rolling stock series MDDIm (rolling stock for transportation of cars) there was a serious accident in which the shunting worker was killed. |
| Type of train: | Shunting garniture; |
| Location: | line No M 604, Split Predgrađe station ; |
| Parties: | HŽ Infrastruktura Ltd (IM) and HŽ PP Ltd (RU); |
| Consequences: | IM worker was killed; |
| Direct cause: | a drop the shunting worker from the rolling stock in front of the front bogie. |
| Recommendations: | AIN/06 SR 11/2016: Providers of shunting services should elaborate a process of shunting for particular series rolling stocks and should introduce that to all shunting personal. |

Collision on a LC Male Sredice in Bjelovar

| | |
|------------------|---|
| Grade: | Serious accident; |
| Date and time: | 28 December February 2015, 13:20 (12:20 GMT); |
| Occurrence type: | collision on Level crossing Male Sredice in Bjelovar; |
| Description: | On 28 December 2015 at 13:20 hours, at the Level Crossing Male Sredice in town of Bjelovar, there was a collision of a passenger train No. 2310 and a passenger car. The Accident causes disturbances in the regular railway traffic. In the Accident the Car driver and one passenger were killed, four passengers were seriously injured, and one passenger was injured. In the train no one was injured. |
| Type of train: | passenger train; |
| Location: | line No L203 Križevci -Kloštar; |
| Parties: | Taxi Ltd, HŽ Infrastruktura Ltd (IM) and HŽ PP Ltd (RU); |
| Consequences: | human sacrifice, material damage on the train and infrastructure; |
| Direct cause: | The Train didn't stop in front of the Level Crossing; |

Recommendations: **AIN/06 SR 1/2017:** Taking into account the impact of objects within the Infrastructural area on the outcome of the Accident, the Infrastructure Manager should in the SMS to establish a risk assessment procedure from which to see whether objects within the infrastructural belt can influence the result of an adverse event, based on which it could draw up a proposal of measures for dealing with such facilities.

AIN/06 SR 2/2017: Taking into account the frequency of incidents and accidents in which participated train driver when the traffic was regulated with written orders by Traffic managers, Railway undertakings should in their education process of train drivers devote more attention to acceptance of written orders and understanding the contents of the orders.

Brake of a wheel on a locomotive, line M201

Grade: Incident;

Date and time: 20 January 2016, 22:45 (21:45 GMT);

Occurrence type: technical cause;

Description: On 20 January 2016 at 22:45 h, in the Station Rijeka – Brajdica on locomotive serial number 1141-012, on a front wheel was discovered a crack.

Type of train: freight trains;

Location: Line M201;

Parties: HŽ Infrastruktura ltd (IM) and HŽ Cargo ltd (RU),

Consequences: material damage on vehicles;

Direct cause: thermal changes are caused by braking of the locomotive.;

Recommendations: no safety recommendation.

Derailment of shunting locomotive on the Station Zagreb Zapadni

Grade: Accident;

Date and time: 08 May 2016, 22:45 (21:45 GMT);

Occurrence type: derailment of an shunting trains;

Description: On 08 May 2016 during a drive of a shunting composition on the 9th gauge of the line M101 in the Station Zagreb Zapadni, the shunting locomotive of series 2132-305 derailed.

Type of train: shunting trains;

| | |
|------------------|--|
| Location: | Line M101; Zagreb Zapadni station |
| Parties: | HŽ Infrastruktura ltd (IM) and HŽ Cargo ltd (RU), |
| Consequences: | material damage on vehicles and infrastructure; |
| Direct cause: | the derailment of the shunting locomotives with the first shaft in the direction of the; |
| Recommendations: | no safety recommendation. |

Vinkovci Station, a passenger train crossed an unprotected level crossing

| | |
|-------------------------|---|
| Grade: | Incident; |
| Date and time: | 12 May 2016, 21:06 (20:06 GMT); |
| Occurrence type: | other; |
| <i>Description:</i> | On 12 May 2016 at 21:06 hours, at Vinkovci Railway Station, on the Level Crossing "Slavija", a failure occurred. Passenger train number 2611 entered the Vinkovci Station passing the level crossing "Slavija" and during that the half-barriers of the Level Crossing were in up position. The Level Crossing was not protected. |
| Type of train: | passenger train; |
| Location: | Line L208, LC Slavija; |
| Parties: | HŽ Infrastruktura ltd (IM) HŽ Putnički prijevoz ltd (RU); |
| Consequences: | no damages; |
| Direct cause: | failure of the cable splitter switchgear contact K2/K12 and switchoffgear contact K4/14; |
| <i>Recommendations:</i> | AIN/06 SR 3/2017: The Infrastructure Manager, during regular education program of executive workers, should pay more attention to the training of the personal in prescribed procedures when an incident involving malfunctioning of a signaling and safety occurs. |
| Recommendations: | no safety recommendation. |

Derailment of a special railway vehicle near station of Rogitin

| | |
|------------------|--|
| Grade: | Accident; |
| Date and time: | 08 June 2016, 08:47 (07:47 GMT); |
| Occurrence type: | derailment of a special railway vehicle; |

| | |
|------------------|---|
| Description: | On 08 June 2016, at 08:47 on the M304 line, the special vehicle mark 98 78 9 103 272-2 derailed just before the level crossing Rogotin. |
| Type of train: | special vehicle; |
| Location: | Line M304; |
| Parties: | HŽ Infrastruktura Ltd (IM and RU), |
| Consequences: | material damage on vehicles and infrastructure, in this accident the worker was seriously injured, but his life was not endangered; |
| Direct cause: | the fracture of an axle of the special vehicle due to fatigue of the axle; |
| Recommendations: | no safety recommendation. |

Accident, caused by rollingstock in motion, Sljeme Tunnel

| | |
|------------------|---|
| Grade: | Accident; |
| Date and time: | 16 July 2016, 05:35 (04:35 GMT); |
| Occurrence type: | derailment of freight train; |
| Description: | On 16 June 2016 at 05:35 hours, on the line M202, in the Sljeme Tunnel, a load dropped of the eight wagon of the freight Train No 60300. The event caused derailment of ninth and twelfth wagon of the train. |
| Type of train: | freight train; |
| Location: | Line M202; |
| Parties: | HŽ Infrastruktura Ltd (IM) and HŽ Cargo Ltd (RU); |
| Consequences: | material damage on vehicles and infrastructure; |
| Direct cause: | Is moving of the Roller of steel and braking of securing tapes; |
| Recommendations: | AIN/06 SR 4/2017 : Taking into account the accident and the fact that in some previous cases come to the movement of some roller coils on pallets, the owner of the wagon should make an analysis of the way in which packaging and securing of roller coils is in conformity with the UIC Loading Guidelines, and according the analysis make measures to prevent future accidents. |

Collision of two special railway vehicles on the station Zagreb Ranžirni

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| Grade: | Accident; |
| Date and time: | 05 September June 2016, 08:28 (07:28 GMT); |
| Occurrence type: | collision of two special railway vechiles; |

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| Description: | On 05 September 2016 at 08:28 hours, on the line M402 in the Ranžirni kolodvor station, on the "Z" truck of the station, there was head on collision of two railway maintenance vehicles. In the accident nobody was injured. |
| Type of train: | shunting locomotives; |
| Location: | Line M402, Zagreb Ranžirni station, truck "Z"; |
| Parties: | HŽ Infrastruktura Ltd (IM/RU) and Pružne građevine (RU); |
| Consequences: | material damage on vehicles; |
| Direct cause: | inability of rail vehicle to stop slippery truck conditions; |
| Recommendations: | AIN/06 SR 7/2017 : The Infrastructure manager should developed a procedure that should regulate traffic from ant on the "Z" truck. |

Collision on a LC Kuljevčica

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| Grade: | Accident; |
| Date and time: | 17 October 2016, 08:17 (07:17 GMT); |
| Occurrence type: | collision on Level crossing Kuljevčica in Ivanec; |
| <i>Description:</i> | On 17 October 2016 at 08:17 hours, on the level crossing Kuljevčica on the line L201 Varaždin – Golubovec, near town of Ivanec, there was a collision between railway special vehicle and car. In the accident car driver was serious injuries and that caused interruption of traffic. |
| Type of train: | special railway vechile; |
| Location: | line L201 Varaždin - Golubovec; |
| Parties: | Pružne građevine (RU) and car driver; |
| Consequences: | car driver was seriously injured, material damage on the train and infrastructure; |
| Direct cause: | Road vehicle came out at the LC just before the railway special vehicle come on the LC.The Train didn't stop in front of the Level Crossing; |
| Recommendations: | <p>AIN/06 SR 5/2017: Given a number of factors influencing the Accident, the Company whose train driver was involved in the Accident should define in its SMS procedures that would give the Company accurate insight into the skill of the machine personnel depending on the series of vehicles and track sections.</p> <p>AIN/06 SR 6/2017: Given a number of incidents, accidents and serius accident on the level crossings in which participated train drivers, companies that own towed vehicles running on infrastructure under the authority of the company HŽ Infrastruktura Ltd should in their education</p> |

process of train driver, pay more attention to the prescribed procedures of train drivers when approaching level crossings.

Derailment of shunting locomotive on the Station Sesvete

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| Grade: | Accident; |
| Date and time: | 21 November 2016, 00:45 (23:45 GMT); |
| Occurrence type: | derailment of an shunting locomotive; |
| Description: | On 21 November 2016 at 00:55 hours, during a drive of a shunting composition on the industrial gauge "Sava" of the line M102, the shunting locomotive of series 2041-108 derailed. |
| Type of train: | shunting trains; |
| Location: | Line M102; Sesvete station |
| Parties: | Gradatin ltd (IM), Cezar ltd (IM) and HŽ Cargo ltd (RU), |
| Consequences: | no material damage on vehicles and infrastructure; |
| Direct cause: | the derailment of the shunting locomotives with the first shaft in the direction of the; |

Following the analysis of the data collected during the investigation, the Accident Investigation Chief Investigator concluded that all involved parties took appropriate measures to prevent future accidents, so the further investigation of this case is not necessary because the measures taken are fulfilled for the purposes of security investigations, which is to prevent repetition accidents and increased system security.

Line R202, cargo train hit worker

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| Grade: | Accident; |
| Date and time: | 06 Februar 2016, 11:08 (10:08 GMT). |
| Occurrence type: | accident caused by rolling stock in motion; |
| <i>Description:</i> | On 06 Februar 2016 at 11:08 hours, during regular inspection of the railway line R202 between stations Virovitica and Špišić Bukovica a cargo train hit the Infrastructure manager worker who was conducting an inspection of infrastructure. In this accident the worker was seriously injured, but his life was not endangered. |
| Type of train: | cargo train; |
| Location: | open line R202 between stations Virovitica and Špišić Bukovica ; |
| Parties: | HŽ Infrastrukura ltd (IM) and HŽ Cargo(RU); |
| Consequences: | IM worker was seriously injured; |

Direct cause: insane behavior of truck controllers;

Following the analysis of the data collected during the investigation, the Accident Investigation Chief Investigator concluded that all involved parties took appropriate measures to prevent future accidents, so the further investigation of this case is not necessary because the measures taken are fulfilled for the purposes of security investigations, which is to prevent repetition accidents and increased system security.