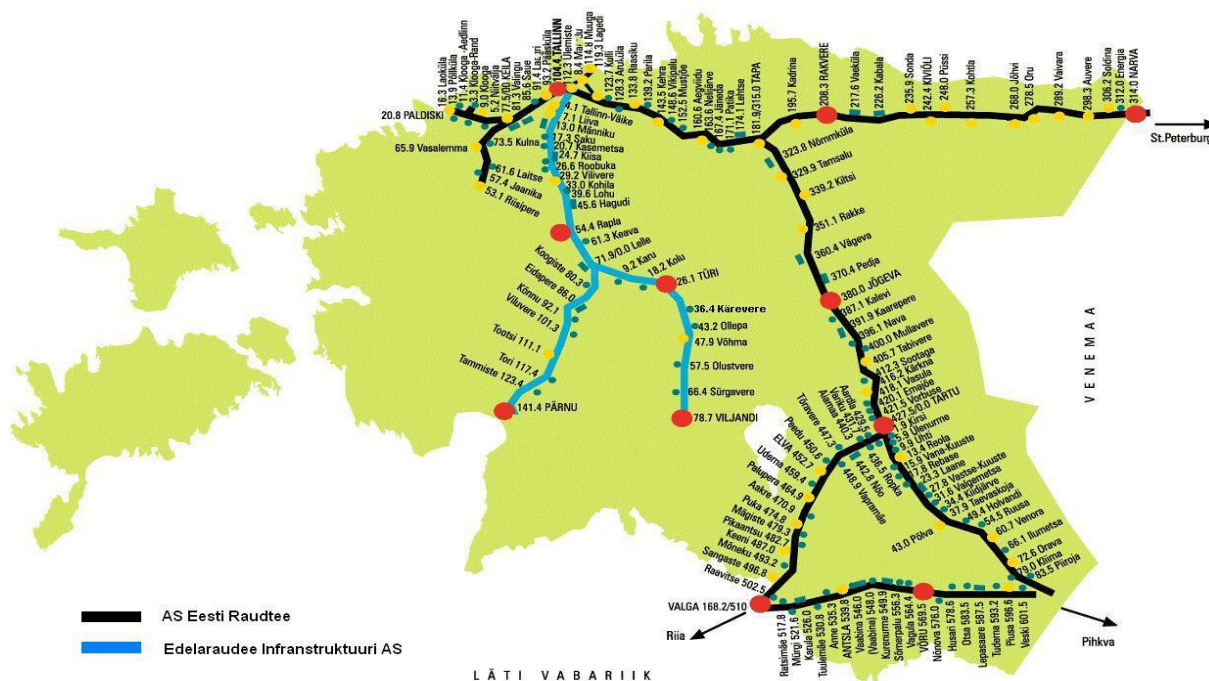




**ESTONIAN SAFETY
INVESTIGATION
BUREAU**

Report of the railway accidents
investigated in 2013

Tallinn 2014



Public railways in the Republic of Estonia



Preface to the report

Safety investigations into railway accidents have been taking place in Estonia since 31 March 2004. The multi-modal Estonian Safety Investigation Bureau was formed on 01 January 2012. Every year a report is compiled of railway accidents and incidents investigated in the previous year. This annual report is the tenth of its kind.

In 2013 there were no significant organisational or substantive changes in the organisation of safety investigation. The safety investigations of railway accidents are conducted pursuant to the Estonian Railways Act which is in accordance with the provisions of the Railway Safety Directive 2004/49/EC. The Railways Act did not conform to the Directive word-for-word but the requirements of the Directive had already been nationally established.

The objective of the safety investigation, to increase railway safety, derives from its role provided by legislation, the starting point of which is primarily to conduct safety investigations of specific cases but also contact and cooperation with various partners for the same purpose.

In order to achieve this objective, a number of organisational measures are available. This is supported by the Safety Investigation Bureau being part of the organisational structure of the Ministry of Economic Affairs and Communications. The Safety Investigation Bureau is independent in conducting the safety investigations of cases but it will work in cooperation with other institutions when required.

In 2013, a safety investigation was conducted of an accident resulting in a death of one person which took place on the Raasiku level crossing. It can be noted that the number of deaths in the cases investigated in the last five years remains between 1 – 3. It also can be noted that the number of cases that require a safety investigation to be launched has not increased.

The recommendations made in the safety investigation reports are subject to proceedings by all addressees who the recommendations have been aimed at. Pursuant to the previous year's safety report all bodies, businesses and institutions that are subject to mandatory proceedings, present a report about the status of the proceedings to the Safety Investigation Bureau by the 1st April. Often the proceedings have not been completed by then even if the recommendation had been accepted. The implementation of the measures can take longer and due to this the proceedings of the recommendations continue.



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1. Introduction to the Investigation Body

1.1 Legal basis

Safety investigations of railway accidents and incidents have been conducted in Estonia since 31 March 2004 when, pursuant to the European Parliament and Council Railway Safety Directive 2004/49/EC the Railways Act came into force by which a Unit for Investigation was established by the Estonian Ministry of Economic Affairs and Communications. The amendments made on 2 March 2007 provided total communication between the European Railway Agency (ERA) and the Unit for Investigation. From then on the railway undertakings and other bodies and institutions had an obligation to report to the Unit for Investigation on the proceedings for recommendations made in the investigation reports and the Unit for Investigation had an obligation for total information exchange with ERA regarding the investigations.

In order to improve the organisation of safety investigations, a single, multi-modal Safety Investigations Bureau (SIB) was formed on the 1st January 2012 based on the amendments to the Aviation Act, Maritime Safety Act and Railways Act. The Safety Investigations Bureau is a structural unit of the Ministry of Economic Affairs and Communications whose task is to conduct safety investigations of the marine, aviation and railway accidents. According to Subsection 42 (1) of the Railways Act the Safety Investigations Bureau is independent in conducting safety investigations and any subsequent decisions and is guided only by law and other legislation and any international treaties that are binding in Estonia. There is no supervisory control of the Safety Investigations Bureau's activities. The requirement for independence for the investigative body provided by Article 21 of the European Parliament and Council Directive 2004/49/EC on Railway Safety is reflected in Estonia by Subsection 42 (1) of the Railways Act. Further provisions to specify and enhance the independence of the Safety Investigations Bureau were prepared in 2013.

The framework of the investigations of railway accidents is provided by Subsection 41 Notifying the Technical Surveillance Authority, Subsection 42 Investigations of railway accidents and railway incidents and Subsection 43 Investigation Reports of the Railways Act. In addition, the following directives which are in accordance with the Railways Act and have the provision delegating authority together form the legal framework for the safety investigations of railway accidents: The Division of Railway Accidents and Railway Incidents, Safety Indicators and Procedures for Notification;



Procedures for providing written notification of railway traffic accidents, format of a written notification, a report and a summary of railway incidents and rolling stock running down a person; Procedures for Safety Investigations and the Statute of the Safety Investigation Bureau that has been approved by the Ministry of Economic Affairs and Communications directive. In 2013 amendments were prepared in order to specify the legal framework.

Pursuant to Subsection 41 of the Railways Act the railway infrastructure manager notifies the Safety Investigations Bureau immediately of a railway accident or rolling stock running down a person by using public means of communication and subsequently, in writing within three working days.

The railway infrastructure manager prepares a written summary of any railway incidents and rolling stock running down persons of the previous month and forwards this to The Safety Investigations Bureau by the fifth day of the following month.

Any events (collisions) involving rolling stock which are not incidents are presented in a written report by the railway infrastructure manager within five working days. The format of the summaries and reports has been established in the annexes of the relevant directive.

Subsection 42 of the Railways Act provides the Safety Investigation Bureau right to form committees and involve experts to clarify circumstances which require special knowledge. The same subsection provides the rights of the person conducting the safety investigation and the obligations of undertakings and private persons to cooperate with the investigative body.

Depending on the complexity of the case and the workload the investigation can be conducted by an investigator-in-charge assigned by SIB or a safety investigation committee. Either the investigator-in-charge or the head of the Safety Investigation Bureau will be appointed as the chairman of the committee.

Subsection 43 of the Railways Act provides the requirements for safety investigation reports. It provides the requirement for the Safety Investigation Bureau to compile a written investigation report within 12 months of the event. The safety investigation report is forwarded to all relevant persons, government departments and the European Railway Agency. The legislation provides very briefly the list of requirements for the safety investigation report which is detailed in the annex of the Safety Investigation Procedures directive. Subsection 43 of the Act also provides the obligation of the Technical Surveillance Authority, businesses or organisations to submit the report on measures which have been implemented or planned based on the recommendations by the 1st April of the following year. Based on the format of the report compiled of the measures implemented or planned as a result of the recommendations made by the Safety Investigation Bureau, a detailed overview of the proceedings is provided by the annex of the Safety Investigation Procedures. The Safety Investigation Bureau has the right to forward copies of the report

submitted by those subject to the proceedings of the recommendations to other authorities.

The Ministry of Economic Affairs and Communications Directive Safety Investigation Procedures covers all areas of transport investigated by the multi-modal SIB. The directive specifies the procedures for the safety investigation, raising an alert, preparation and signing of the safety investigation report, closing and, if necessary, re-opening the safety investigation, processing of the recommendations made during the safety investigation and registration of the cases being investigated. The annexes of the directive provide, in accordance with the Railway Safety Directive, the format of the safety investigation report and in accordance with the ERA regulation Safety Recommendations based on Article 25 of the Directive 2004/49/EC the format for the proceedings of the recommendations.

1.2 Role and aim

The objective of the Safety Investigation Bureau is to investigate aviation accidents, aviation incidents and serious aviation incidents, marine accidents, railway accidents and railway incidents. They have to determine the causes in each case and make recommendations for increasing traffic safety. The Safety Investigation Bureau has to participate in drafting of legislation related to the SIB areas of activity and if necessary, make recommendations for amending legislation, SIB also has to participate in formulation of policies, strategies and development plans. The Safety Investigation Bureau has to participate in preparation and implementation of projects, including international projects and to participate in their preparation.

The objective of the safety investigation of railway accidents and incidents has been provided by Subsection 42 (3) of the Railways Act and Subsection 1 of the Ministry of Economic Affairs and Communications Directive Safety Investigation Procedures, according to which the objective of the safety investigation is to determine the causes of the case being investigated in order to prevent the occurrence of such events in the future and not to accuse somebody or indicate liability.

1.3 Organisation

In Estonia the safety investigations of marine, aviation and railway accidents are conducted by the Safety Investigation Bureau which is a structural unit of the Ministry of Economic Affairs and Communications. The Safety Investigation Bureau is independent in conducting safety investigations and making any decisions associated with these and is only guided by the law and other legislation and

international treaties that Estonia is bound to. The Ministry ensures the administration and other general issues relating to the work of the Safety Investigation Bureau, its activities are in accordance to and in cooperation with other structural units of the Ministry. The Safety Investigation Bureau reports to the Secretary General and the Minister in its administration and other general issues.

The Safety Investigation Bureau has the right to

- 1 Access the documents and information necessary for fulfilling the tasks set to the Safety Investigation Bureau from the Ministry leadership, other departments, government authorities within the jurisdiction of the Ministry and legal persons governed by private law.
- 2 Pursuant to regulations and agreements, engage employees of other departments in resolving issues within the Safety Investigation Bureau remit.
- 3 Work in cooperation with other government- and local authorities and legal persons governed by private law and make recommendations to form committees and working groups within its areas of activity.
- 4 Within a limit of its competence, communicate information to other authorities and persons.
- 5 Make proposals for contracts required for fulfilling its tasks.
- 6 Receive additional training in order to improve the professional level of the Safety Investigation Bureau employees.
- 7 Receive necessary office equipment, resources and literature and technical and information support.

In the course of fulfilling its main objective the Safety Investigation Bureau

- 1) Works in cooperation with other authorities, businesses, national and international organisations, private persons and associations.
- 2) In concordance with the Ministry, represents the state in the international organisations related to its areas of activity.
- 3) Takes part in fulfilling any duties of the Republic of Estonia pursuant to the international agreements relating to the SIB areas of activity.
- 4) Prepares the draft budget for SIB and the report on the execution of the previous year's budget.
- 5) Develops and implements its development plan and work schedules.
- 6) Monitors, analyses and assesses the situation in its areas of activity and informs those involved of its conclusions.
- 7) In order to clarify the circumstances of a case under investigation performs tests and expert analysis on machinery, engines, equipment, its details and assemblies and other devices to assess their compliance with requirements.
- 8) Makes recommendations and takes decisions within its jurisdiction provided by law.
- 9) Ensures the confidentiality of information containing business and technical details and personal data.



- 10) Implements measures for witness protection.
- 11) Performs the duties assigned by legislation as a chief or authorised processor of the database of cases investigated.
- 12) Preserves the items, equipment, assemblies and details in its possession that are relevant to ascertaining the causes of the event.

The following rights have been established to define the jurisdiction of the official appointed by the Safety Investigation Bureau to conduct the safety investigation of a railway accident or incident:

- 1 Immediate access to the scene of the railway accident, railway incident, railway collision or rolling stock running down a person; to the rolling stock, railway infrastructure and traffic control and signalling devices involved in the accident.
- 2 Restrict unauthorised access to the scene of the accident and prohibit handling, removing or destroying items from the scene of the accident.
- 3 Ensure the immediate inventory of all evidence and controlled removal of the wreck, rolling stock, infrastructure equipment or components for investigation or analysis.
- 4 Immediate access to the on-board and other recording equipment and their recordings and to subject them to their control.
- 5 Immediately receive into their disposal the autopsy reports of the casualties and the results of the analysis of any samples taken from the deceased.
- 6 Question witnesses and persons who might have important information regarding the safety investigation and demand confirmation or provision of information necessary for the safety investigation.
- 7 Access to all relevant information and documents independently or in cooperation with the authority conducting the preliminary criminal investigation.
- 8 Immediate access to the testimony of persons associated with the incident and to the analysis results of any samples taken from these persons.

In 2013, the employees of the Safety Investigation Bureau were authorised to office by the Minister, their functions were specified in the job descriptions approved by the Secretary General on the recommendation of the head of the SIB.

The head of the Safety Investigation Bureau was appointed by the Government of the Republic. There were altogether three officials in the Safety Investigation Bureau to investigate incidents in the three different areas of transport. Besides the head, the Secretary General appointed a chief specialist to investigate the marine accidents and a chief specialist to investigate railway accidents. The task of the head of the SIB is to conduct safety investigations of aviation accidents. In the reporting year, preparations were made for several organisational changes in the following year.

The decision whether to launch an investigation or not is made by the Safety Investigation Bureau. The safety investigation is completed by the safety investigation report which is signed by the members of the committee or the investigator-in-charge and the head of the Safety Investigation Bureau. The report is published on the Safety Investigation Bureau website 12 months after the event at the latest. If it is not possible to publish the investigation report within this time frame, an interim report is published.

1.4 Organisational flow

In addition to others, the Ministry of Economic Affairs and Communications also performs the duties of the ministry of transport. The Safety Investigation Bureau is a specific structural unit of the Ministry which is set apart by its special legal status.

The Safety Investigation Bureau is an integrated whole. It does not consist of substructures. The Safety Investigation Bureau's area of activity relates to conducting safety investigations in three areas of transport. Each area has an official engaged in its activities who is independent in his work but does work in cooperation with others in general issues. Operationally an official can cover for the other to a certain extent if required.

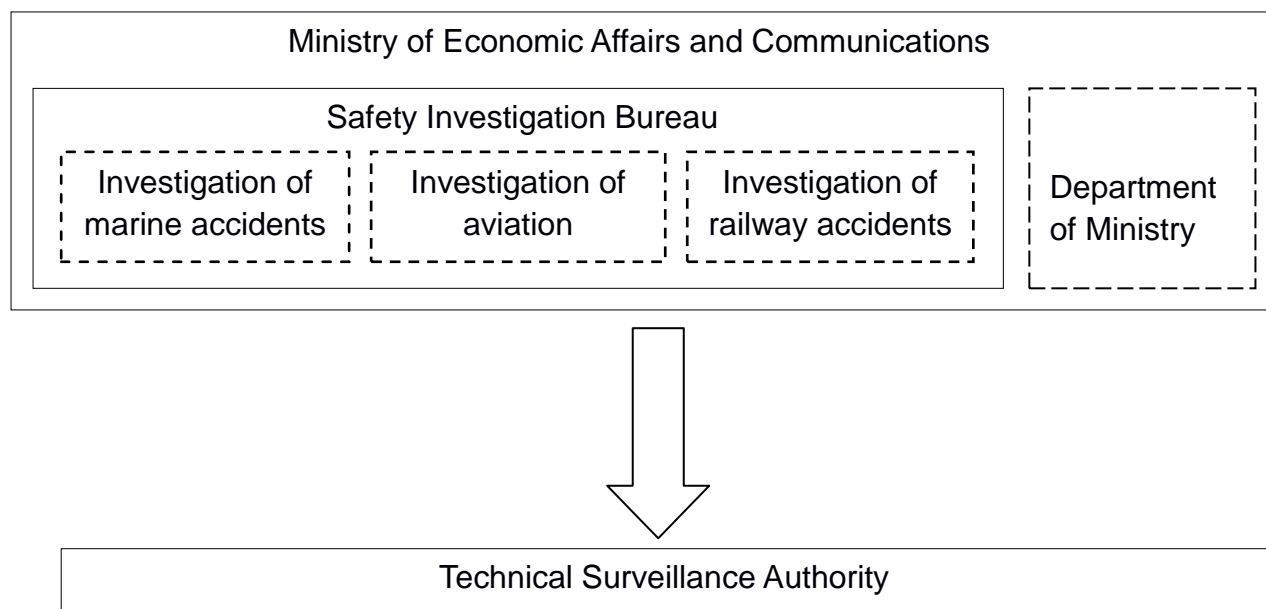


Figure 1 The Safety Investigation Bureau in the organisational structure of the Ministry



Safety investigations of aviation and railway accidents are conducted only by the Safety Investigation Bureau. The safety investigations of marine accidents are divided between the SIB and the Estonian Maritime Administration. The investigations of accidents by law enforcement and others authorities are not related to the safety investigations conducted by the Safety Investigation Bureau.

The Technical Surveillance Authority which performs the function of the railway safety authority (NSA) in Estonia is an independent division of the Ministry of Economic Affairs and Communications with a separate budget and management.

Railway infrastructure managers and rail operators are independent manufacturing enterprises acting as legal persons. Three of them are state owned public limited companies the shares of which are deposited with the Ministry of Economic Affairs and Communications. These are a railway infrastructure manager Eesti Raudtee AS (Estonian Railways Ltd) and two rail operators EVR Cargo AS and in 2013, Elektriraudtee AS.

The state does not participate in the ownership of the rest of the infrastructure- and freight companies. The relationship between the Safety Investigation Bureau and railway undertakings has been regulated by legal acts and directives.

2. Investigation processes

2.1 Cases to be investigated

The Railways Act provides the instances when the Safety Investigation Bureau is obliged to conduct a safety investigation. A safety investigation has to be conducted on all cases that lead to a necessity to make amendments to railway safety regulations or changes in ensuring railway safety. In addition, investigation is required on all railway accidents that result in a death of a person, physical harm to five or more people, extensive fire, significant interruption to railway traffic or where the Safety Investigation Bureau assesses the damages to the rolling stock, railway infrastructure or environment to the extent of at least two million euros. Investigative duties do not include cases where a person is injured or killed as a result of being run down by rolling stock.

The Safety Investigation Bureau has the right to conduct investigations of cases where the circumstances or similar circumstances could have caused an accident with aforementioned consequences, including failure in the subsystem of the Trans-European conventional or high-speed rail system or interoperability constituent.

When making the decision the Safety Investigation Bureau takes into account the severity of the case, including from the pan-European perspective and other important circumstances. The Safety Investigation Bureau consults the Technical Surveillance Authority and infrastructure managers in order to determine the severity of a case.

During the reporting year, preparations were made for changes and specifications in the legal requirements necessary for launching a safety investigation.

Pursuant to the requirements of Article 19 of Railway Safety Directive 2004/49/EC, investigative bodies of the member state are required to investigate serious railway accidents. In the year in question, the definition of a serious accident has not yet been defined by the Estonian legislation but there is an obligation to investigate cases with the characteristics of a serious accident.

Pursuant to Article 19 of the Directive they can also investigate accidents and incidents which, in different circumstances, might have caused serious accidents, including technical failure in the subsystem of the Trans-European conventional or high-speed rail system or interoperability constituent.

The Railways Act and the Ministry of Economic Affairs and Communications Directive Classification of Railway Accidents and Railway Incidents, Safety Indicators and Procedures for Notification have provided the characteristics of railway accidents and

other incidents and conditions which are pursuant to the requirements of Article 19 of the Railway Safety Directive.

In accordance with Article 21 of the Railway Safety Directive Estonian legislation provides the right of the member states to trust the investigative bodies to investigate other cases in addition to serious accidents.

2.2 Institutions involved in investigations

The Railways Act provides a condition regarding institutions involved in the investigation which requires that institutions involved in the investigation provide assistance to the Safety Investigation Bureau within the limits of their competence. Involvement of institutions in safety investigations is allowed to an extent that does not hinder its independence. The Safety Investigation Bureau has the right to involve experts and set up committees to determine circumstances requiring specialist knowledge. Experts or committees involved in the safety investigation take part in the safety investigation under the guidance and supervision of the official conducting the safety investigation.

The evolved practice of safety investigations has shown that all institutions, enterprises and persons have only been involved in investigations in order to obtain additional information and expert assessments from them or through them. The institutions involved in the investigation were approached by the investigator-in-charge personally. The institutions and experts have explained the information available to them within the limits of their competence. Integration of the information with the rest of the investigation material has been the task of the investigator-in-charge.

Cooperation with the safety authority (Technical Surveillance Authority) has been dependent on the specific characteristics of the accident or incident under investigation. Information available to the safety authority has been used in safety investigations. Information has also been collected from the railway infrastructure manager and the railway operator whose rolling stock was involved in the accident.

If the accident has been subject to police investigation, the safety investigation has worked in cooperation with the police and the prosecutor's office in order to obtain additional information. Detailed information about the rescue work and activities of the emergency services at the scene of the accident has been provided by the alarm centre. Assessment of the injuries of those who were hospitalised has been based on the information from the medical institutions. In the case of changeable weather conditions these have been clarified by using the information from the meteorological service. The safety investigation has turned to other enterprises and institutions for

cooperation if a connection between these and the case under investigation has become evident.

None of the institutions have participated in the analysis of the data, developing conclusions or recommendations or influenced these processes. Neither has the investigator-in-charge or a member of the investigation committee been part of a police criminal investigation, internal investigation of an infrastructure manager or the supervision or misdemeanour proceedings of the Technical Surveillance Authority.

Regular involvement of a particular institution in safety investigations regardless of the characteristics of the case is not restricted. More often assistance is requested from the safety authority, larger railway infrastructure managers and railway undertakings in obtaining additional information since their infrastructure or rolling stock have inevitably been involved in the accidents more often. In the case of accidents involving fatalities the police have always begun criminal proceedings and therefore cooperation of the handler of the proceedings has been necessary. In order to obtain an overview of the activities of the emergency services in dealing with the consequences of the accidents, relevant cooperation has taken place.

The investigator-in-charge assesses each case individually and decides the help of which institutions is required and which to cooperate with.

2.3 Investigation process and approach of the Investigation Body

The Safety Investigation Bureau has published means of communication which is a telephone number that can be called around the clock to notify of an event. The railway infrastructure manager or owner has the immediate notification obligation at the earliest opportunity. Once the information has been clarified, a written notification is made to the Safety Investigation Bureau in an agreed format within three working days.

Upon receiving verbal notification the Safety Investigation Bureau will start the case proceedings. The verbal notification can be received by one of the officials of the Safety Investigation Bureau, often it would be the official conducting the safety investigations of railway accidents (investigator-in-charge). Once the initial notification reaches the investigator-in-charge he will analyse and clarify the circumstances of the case. If necessary he will turn once again to the source and will eventually make a conclusion whether he needs to attend the scene or not. Based on the verbal information the investigator-in-charge forwards his observations and opinions and makes his recommendations regarding the incident in writing to the head of the Safety Investigation Bureau. In the case of a more serious accident the

investigator-in-charge notifies the head of the Safety Investigation Bureau immediately by telephone.

During the initial proceedings the investigator-in-charge will gather additional information about the incident from the parties concerned and if necessary, the safety authority. Pursuant to the Railway Safety Directive 2004/49/EC and the Railways Act, the Safety Investigation Bureau must make a decision whether or not to launch an investigation not later than one week after receiving notification of an accident or incident. During this time a decision is made as to whether the case will be investigated by an investigator-in-charge or an investigation committee. Usually the decision regarding the safety investigation is reached before a week is over. The Safety Investigation Bureau shall notify the European Railway Agency within a week of the decision to launch an investigation by the investigator-in-charge entering the relevant information to the agency database ERAIL.

The Safety Investigation Bureau has a unified multi-modal approach to the organisation of safety investigations of marine accidents, aviation accidents and railway accidents which has been provided by the Ministry Directive Safety Investigation Procedures. Usually the investigator-in-charge of a specific case leads the safety investigation and is responsible for the successful execution of the safety investigation. The investigator-in-charge has to conduct the proceedings at the scene of the accident in a shortest possible time so that the railway infrastructure manager can restore the infrastructure and open it to the railway transport services as quickly as possible. The investigator-in-charge coordinates the activities necessary for the investigation, collection, storage and analysis of data and evidence and the contracting of experts.

Upon receiving notification of the investigation the railway undertaking will retain all evidence and details of items, technical circuits, documents, recordings of the data recording equipment and other information which might be important in determining the causes of the incident. If requested by the investigator-in-charge, these must be presented to him. Information about the safety investigation can generally only be issued by the investigator-in-charge, or, in special circumstances with prior agreement, a member of the investigation committee or the Director of the Safety Investigation Bureau. In order to clarify the circumstances of the case to be investigated, the investigator-in-charge works in cooperation with state and local government authorities, businesses and other persons in order to use information and materials at their disposal during the course of the investigation. If circumstances indicating persistent high risk become evident, the organiser of the safety investigation makes a danger alert.

The safety investigation is conducted as publicly as possible to ensure the hearing of all persons concerned. The organiser of the safety investigation gives the businesses concerned, the safety investigation authority of another member state, victims and their families, owners of any damaged property, manufacturers, rescue authority and the representatives of the employees and the passengers an opportunity to present



their opinions on the proceedings of the safety investigation and the safety investigation report and inform them of the safety investigation and its developments. Disclosure is done to the extent which does not jeopardize the basic requirement which is to establish the causes of the case and to develop recommendations to increase safety. Information, the disclosure of which has been limited by legislation will not be subject to disclosure.

The investigator-in-charge is responsible for ensuring that the investigation report and, if the safety investigation lasts more than a year, an interim report, comply with the nationally and internationally agreed format, are completed and published on time.

When forming the safety investigation committee, specialists of safety investigation or a narrower field of expertise will be appointed as members of the committee by the head of the Safety Investigation Bureau. It is not allowed to appoint any of the following as members of the committee: representative or employee of the manufacturer, operator or insurer connected to the accident, representative of the casualties or the victims or any other person who has conflicting interests with the safety investigation; also a person who is involved in the proceedings to establish blame or responsibility for the accident. The Safety Investigation Bureau will appoint the investigator-in-charge or the head of the Safety Investigation Bureau as the chairman of the committee. The Safety Investigation Bureau will also appoint the members of the committee and assign their duties. The meetings of the committee will be called by the chairman. All meetings are recorded in minutes which record the progress of the safety investigation, questions or versions which have arisen, decisions taken, instructions given by the chairman and differences of opinion between the members of the committee. The minutes are signed by all members of the committee who took part in the meeting. A representative designated by a foreign safety authority has the right to participate in the work of the committee.

3. Safety Investigations

3.1 Overview of completed investigations

During the year in question there was a safety investigation of one accident conducted by the Safety Investigation Bureau which was launched and completed in the same year. Pursuant to the Railways Act there is an obligation to investigate all accidents of the first degree, one of the most significant characteristics of which are the accidents that have resulted in at least one death, except cases where the death has been a result of a person being run down by rolling stock.

Summary of the safety investigations completed in 2013

Table 1

Type of case investigated	Number of cases	Casualties		Estimated losses (EUR)	Trend compared to last year
		Deaths	Seriously injured		
Level crossing accident	1	1	-	1645	increased

Since there were no safety investigations of accidents in the previous year, 2012, the only investigated case can be considered as an increase in the number of cases. During the past several years there have only been isolated accidents per year, including a serious accident on 23 December 2010. Due to such few fluctuating indicators the trend assessment is fairly random. At the same time we can note the decrease in the number of investigated cases involving deaths compared to 2004 when safety investigations started in Estonia.

3.2 Safety investigations completed and commenced in 2013

During the reporting year there were no completions of safety investigations commenced in 2012.

During the year in question, safety investigation of one level crossing accident which involved a death was conducted. The safety investigation of the accident was commenced pursuant to Article 21 of the Railway Safety Directive 2004/49/EC which provides that the member states can entrust the investigative body to investigate railway accidents and – incidents which are not covered in Article 19 of the Safety Directive.

Nationally this case is an accident in the first degree pursuant to subsection 40 (2) of the Railways Act and the obligation to investigate is provided by subsection 42 (4) of the Act.

Safety investigations completed in 2013

Table 2

Date of occurrence	Title of the investigation (Occurrence type, location)	Legal basis	Completed (date)
23.08.2013	Collision of a car and a passenger train, level crossing accident on the Raasiku station level crossing on km 134,582	i	10.12.2013

Basis for investigation: i = pursuant to the safety directive

The following table shows that there were no safety investigations launched which would have continued the following year.

Safety investigations commenced in 2013

Table 3

Date of occurrence	Title of the investigation (Occurrence type, location)	Legal basis
-	-	i

Basis for investigation: i = pursuant to the safety directive

3.3 Summary of the safety investigations completed in 2013

Raasiku 23.08.2013

On Friday, 23 August 2012 at 14:30 there was a collision between an Edelaraudtee AS passenger train and a car resulting in a death of the driver of the car in a rural area on the second track of an automatically adjusted (active) three-track level crossing (km 134,582) which is situated on the territory of Raasiku station managed by Eesti Raudtee AS.

The passenger train was made up of five carriages and was driving on the Tallinn – Tartu route which passes through Raasiku station. The train was driven by a two-man locomotive crew and in the carriages 150 passengers were served by two train attendants. The train was equipped with a B-class ALSN-type alarm – control – driving system. The train approached the level crossing at a permitted speed of 104 km/h. The locomotive crew observed all rules and signals when driving the train. The locomotive driver performed an emergency stop and as a result the train stopped with its tail end 529 m from the edge of the carriageway. The railcar of the diesel train and the railway infrastructure suffered damages as a result of the accident.



Photo 1 Nissan Micra and the train on the right hand-side about 0.5 km away after the accident.

The car that collided with the train was a Nissan Micra with just the driver in it. Despite the prohibiting flashing red traffic lights and an additional audible warning signal the car drove on to the level crossing at an estimated speed of 50 km/h and

took an impact on the driver's, i.e. left side as a result of which the car was thrown diagonally from the railway over 30m from the collision spot. The car became unfit for use. In addition to the traffic lights the level crossing was also equipped with other traffic control devices.

As a result of the railway accident the train traffic on the 2. main track where the accident happened was stopped for 2 hours and 33 minutes and on the oncoming 1. main track for 1 hour and 43 minutes. As a result of the accident 11 passenger trains were late for a combined time of 11 hours and 35 minute and 8 freight trains were late for a combined time of 12 hours and 10 minutes.

The safety investigation report made 2 recommendations for increasing railway traffic safety.

3.4 Comments of investigations

The investigation report of the accident on the Raasiku level crossing that took place this year was completed within 4 months of the accident taking place. There were no safety investigations launched which were subsequently suspended.

The accident that an investigation report was prepared in 2013, took place on a three-track railway level crossing, two of which were main tracks passing through the station. The previous railway accident involving a death took place between stations. When looking at the number of deaths in the past five years, it can be observed that it has remained between zero and three. There were no serious injuries in the accidents investigated in the same period.

Total number of deaths and injuries

Table 4

Year	Deaths	Injured in road vehicle / of them seriously	Injured in rolling stock / of them seriously
2009	2	-	-
2010	3	1/-	2/-
2011	1	-	1/-
2012	-	-	-
2013	1	-	-
Total	7	1/-	3/-

When looking at the breakdown of the deaths over the past five years, it can be noted that there have been no deaths of passengers in passenger trains among the accidents investigated. Only in the case investigated in 2011, the casualty was railway personnel – a locomotive driver. All remaining cases investigated have taken place on level crossings. The casualties have been third parties in road vehicles which have collided with a train.

Among the injured there have been passengers, personnel as well as third parties during the past five years. Out of the four with minor injuries, two were train personnel, one passenger and one third person. In 2010 as well as 2011, the personnel who sustained minor injuries were members of the locomotive crew. All four injured are divided over two years out of the five. In cases investigated in 2009, 2012 and 2013 there were no injuries. There were also no serious injuries sustained in the cases investigated.

The breakdown of injuries and deaths over the past five years is presented in the following table:

Breakdown of the injured and deaths

Table 5

Breakdown by type of persons		Year, number				
		2009	2010	2011	2012	2013
Deaths	Passengers	-	-	-	-	-
	Staff	-	-	1	-	-
	Third parties	2	3	-	-	1
	Total	2	3	1	-	1
Injured	Passengers	-	1	-	-	-
	Staff	-	1	1	-	-
	Third parties	-	1	-	-	-
	Total	-	3	1	-	-

3.5 Accidents and incidents investigated during the past five years (2009 – 2013)

During the past five years the safety investigation has been conducted on 9 cases. Of these, only the collision between two trains in 2010 was considered a serious accident according to the Safety Directive. Of all investigated cases, 6 have been level crossing accidents that had taken place in various years and the characteristics



of which had not enabled them to be classified as serious. Also one derailment and one incident have been investigated. Investigations of eight cases have been launched pursuant to Article 21 of the Safety Directive according to which the Estonian legislator has provided the right or obligation to conduct a safety investigation of an event.

Breakdown of investigated cases by years

Table 6

Title of the case		Year, number of investigations					
		2009	2010	2011	2012	2013	Total
Art 19.1,2	Train collision	-	-	1	-	-	1
Art 21.6	Train collision	-	-	-	-	-	-
	Train collision with an obstacle	-	-	-	-	-	-
	Train derailment	1	-	-	-	-	1
	Level crossing accident	2	3	-	-	1	6
	Accident to person caused by RS in motion	-	-	-	-	-	-
	Fire in rolling stock	-	-	-	-	-	-
	Accident involving dangerous goods	-	-	-	-	-	-
Incident		1	-	-	-	-	1
Total		4	3	1	-	1	9

4. Recommendations

4.1 Short review and presentation of recommendations

Throughout the years, the railway accident investigation reports have contained recommendations to various fields for improvement of railway safety. The recommendations cover various areas that affect railway safety. In 2013 two recommendations were made to the railway infrastructure manager, the conditional classification of these along with earlier ones is shown in the following table.

Recommendations for improvement of safety

Table 7

Field of activity of recommendation	Year, number of recommendations				
	2009	2010	2011	2012	2013
Maintenance and care of railway infrastructure	-	-	-	-	-
Care, maintenance and managing of rolling stock	1	-	1	-	-
Organisation of supervision	5	1	4	-	-
Road traffic management, road traffic control devices	-	3	-	-	1
Winter maintenance of roads	-	-	-	-	-
Dissemination of information concerning traffic, training	-	1	-	-	-
Amendments to legal acts and regulating instructions	5	1	4	-	-
Operation of traffic lights, railway traffic control	4	-	-	-	1
Organisation of operation of railway communication devices	-	-	1	-	-
Use of information recording equipment	-	-	2	-	-

Professional qualifications of railwaymen	1	-	3	-	-
Other arrangements	7	8	3	-	-
Total	23	14	18	-	2

Pursuant to Estonian law, all authorities, enterprises and institutions have to submit annual reports by 1 April of the proceedings of the recommendations made in the previous year report. The annual report reflects the proceedings of the recommendations as of 1 April. Often the continuing proceedings mean that the recommendation has been accepted but has not yet been completely implemented by the time of the report.

The following table reflects implementations of recommendations during the past five years:

Implementation of recommendations

Table 8

Recommendations issued		Recommendation implementation status							
		Implemented		In progress		Not to be implemented		Implementation suspended	
Year	No	No	%	No	%	No	%	No	%
2009	23	6	26,09	17	73,91	-	-	-	-
2010	14	5	36,00	9	64,00	-	-	-	-
2011	18	8	44,44	8	44,44	2	11,12	-	-
2012	-	-	-	-	-	-	-	-	-
2013	2	-	-	2	100	-	-	-	-
Total	57	19	33,33	36	63,16	2	3,51	-	-

4.2 Recommendations 2013

During the year, two recommendations were made to Eesti Raudtee AS which manages the railway infrastructure instead of AS EVR Infra since Eesti Raudtee AS Group ceased its activities. As a result of the Group ceasing its activities, the recent subsidiary AS EVR Cargo as one of the transport operators is, among others, related to other transport operators on an equal contractual basis to Eesti Raudtee AS.

There were no recommendations made to one of the parties in the case observed, AS Edelaraudtee, or to the safety authority.

The following recommendations were made to Eesti Raudtee AS who owns the level crossing where the accident took place:



1. Consider replacing the traffic lights on the Raasiku level crossing with LED traffic lights a matter of priority.
2. Find a way to equip the Raasiku level crossing with barriers as part of the modernisation process.



Annexes

Annex 1

Proceeding of recommendations – Raasiku, 23.08.2013

Date and time	23.08.2013, at 14:30		
Location	Eesti Raudtee AS infrastructure, Raasiku station, II main track, rural area, km 134,582.		
Type of occurrence	Level crossing accident		
Train type and number	Fast train No 0012		
Road vehicle	car Nissan Micra		
		On the train	In the road vehicle
Number of persons (on board the train and vehicle)	Crew	4	1
	Passengers	150	-
Fatally injured	Crew	-	1
	Passengers	-	-
Seriously injured	Crew	-	-
	Passengers	-	-
Slightly injured	Crew	-	-
	Passengers	-	-
Damages to rolling stock	The snow-guard and the right-hand corner of the frame of the carriage were squashed, superficial colour damage, broken compressed air hose.		
Damages to track equipment	One joont sleeve and cables broken.		

Other damages	The chassis and the outer parts of the car completely deformed, the car is unfit for use.	
Summary: Ignoring the prohibiting traffic lights, a passenger car Nissan Micra drove onto the level crossing into the way of a five-carriage passenger train.		
Final report issued	10.12.2013	
Recommendation No 01	The traffic lights used on the Raasiku level crossing are incandescent lamps, the irradiance of which is smaller than that of LED lamps and due to this they are harder to see. The legislator has given the company until 2018 to replace the traffic lights.	
	Consider replacing the traffic lights on the Raasiku level crossing with LED traffic lights a matter of priority.	
Date	Status	Explanation
13.03.2014	Proceedings continue	Raasiku level crossing will be equipped with a new automatic signalling lights in Quarter 3 of 2014.
Recommendation No 02	According to the rules, Raasiku level crossing does not require barriers. There is a planned speed increase in train transport and it will be appropriate for an infrastructure with two main tracks to install a barrier as well as replacing the traffic lights as part of the reconstruction of the level crossing.	
	Find a way to equip the Raasiku level crossing with barriers as part of the modernisation process.	
Date	Status	Explanation
13.03.2014	Proceedings continue	Raasiku level crossing will be equipped with barriers in Quarter 3 of 2014.