STATE COMMISSION ON RAILWAY ACCIDENT INVESTIGATION
Ministry of the Interior and Administration.

REPORT No. PKBWK 05/2022

from the investigation regarding a serious train accident that occurred on 15 June 2021 at 10:05 at Kochanówka Pustków station on track no 1, level crossing category C at km 313.328 of railway line no. 25 Łódź Kaliska – Dębica PKP PLK S.A. infrastructure manager area Zakład Linii Kolejowych [Railway Facility] in Rzeszów

WARSAW, 31 May 2022

https://www.gov.pl/web/mswia/panstwowa-komisja-badania-wypadkow-kolejowych

This Report was drafted pursuant to the provisions of *Commission Implementing Regulation (EU) 2020/572 of 24 April 2020 concerning the reporting structure to be followed for rail accident and incident investigation reports (Official Journal of the European Union No. 132 of 27 April 2020)*

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I. ABSTRACT

Type of event: Serious accident.

Description: A Citroen Nemo passenger car drove in front of an oncoming inspection train number ZNS 339009 (PKP Polskie Linie Kolejowe S.A.), type WM-15A/PRT-00 no. 02 at cat. C level crossing with an automatic crossing system (ssp) between Rzeszów Główny – Kochanówka Pustków. The speed limit for the front of the train at the crossing was set at 20 km/h. At the time of the incident, the train was travelling at a speed below 20 km/h. Ssp equipment at the crossing after technical acceptance on 23.09.2020, not commissioned until the date of the accident.

Event date: 15.06.2021 at 10:05.

Event location: Railway line no. 25 Kochanówka Pustków station, track no. 1, cat. C level crossing at km 313.328, crossing ID 409 007 585, geographical position 53º20'33“N 14º26'20“E.

Consequences of the event: In result of the Citroen Nemo passenger car driving directly in front of an oncoming WM-15A/PRT-00 motor carriage travelling as train ZNS 339009, the train collided with the vehicle, resulting in the driver’s death on the spot. None of the workers who remained on the railway vehicle were injured. The car was completely destroyed, while the motorised cart was damaged.

Causal factor: Entry of a road vehicle at a cat. C level crossing with non-commissioned ssp equipment, directly in front of an oncoming train ZNS 339009.

Contributing factor:
1) The driver of a road vehicle failed to maintain particular care when approaching the level crossing, and not stopping in front of the crossing when the train approached the crossing, as stipulated in article 28 of the Act of 20 June 1997, the Traffic Law (consolidated text: Journal of Laws of 2021, item 450, as amended).
2) The road vehicle’s driver failure to respond to the audible signal “attention” given repeatedly by the train driver when approaching the crossing.
3) The lenses of the traffic signal lights were covered with black film and the signals were not turned in a manner allowing the users of the crossing to see the signalling chambers, which could have caused the passenger car driver to misinterpret that the ssp equipment was operational and the signal was not active because a train was not approaching.

Systemic factors: Lack of legal regulations regarding the obligation to invert the traffic signals in a manner that would make the chambers visible to the users of the crossing, the rules and manner of covering them, as well as the traffic signal masts in front of the crossing in situations where such signal lights were constructed, but not yet commissioned in a way that would make it clear to the level crossing users that the lights are unfunctional.

Recommendations and their addressees:
1) The Infrastructure Managers shall include an obligation in their internal regulations to turn away crossing traffic signals and to cover them in a manner that the signalling chambers are not visible to crossing users when the signals are erected but not yet commissioned.
2) Infrastructure managers shall take steps to introduce mechanisms for effective inspection of the correct execution of diagnostic tests for level crossings. In respect of level crossings where road traffic occurs, the obligation to carry out periodic diagnostic tests shall rest with the infrastructure manager.

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3) It is imperative that dispatchers of special vehicles implement the outstanding recommendations of the PKBWK Reports:
   - Recommendation No. 3 of Report No. PKBWK/05/2018: *"PKP PLK S.A. shall equip modernised auxiliary vehicles undergoing maintenance level P4 and P5 inspections, as well as newly purchased vehicles, with on-board recorders of driving parameters (registering at least the speed, pressure in the main line and brake cylinders, activation of the "attention" signal)*,"
   - Recommendation No. 4 of Report No. PKBWK/03/2020: *"Recommendations No. 1 and No. 3 of the State Commission on Railway Accident Investigation, indicated in Report No. PKBWK/05/2018 of the investigation of category A18 severe accident occurring on 2 November 2017 at 18:49 at the cat. A level crossing with suspended service, located at 37.119 km of the Śniadowo – Łapy route, plain line no. 1 of the railway line no. 36 Ostrołęka – Łapy, referring to the equipment of auxiliary vehicles with reflective elements improving the side visibility of the vehicle as well as an on-board recorder of driving parameters (registering at least the speed, pressure in the main tube and brake cylinders, activation of the "attention" signal) for special vehicles."*
4) The Road Manager is going to introduce the speed limit up to 50 km/h on the road no. 1283R by the accesses to the level crossing due to the occurrence of an increased risk of accidents related to excessive speed (in accordance with the issued recommendation ref. no. PKBWK.4631.5.2.2021 dated 14 July 2021).

In the course of the investigation, the Chairman of the PKBWK recommended that the District Road Authority in Dębica take the following measures to improve rail and road safety with respect to the crossing:

1) Labelling the level crossing at 313.328 km of railway line no. 25 at the access roads of district road no. 1283R Brzeźnica – Krownice to the crossing with P-12 and B-20 signs pursuant to the applicable laws.
2) Introducing a 50 km/h speed limit on road no. 1283R on the accesses to the crossing due to the occurrence of an increased risk of accidents related to excessive speed.
3) Setting up temporary A-7 signs on the accesses to the crossing with "Stop" signs stating the distance from the location of the B-20 sign until the formal introduction of a speed limit.

Photograph 1 – Consequences of the Incident (PKBWK own material)

Photograph 2 – Damage to the motor carriage (PKBWK own material)

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Photograph 3 – Positioning of the motor carriage after the incident (PKP PLK S.A. material)

Photograph 4 – View of the crossing prior to revitalisation (27.07.2019) (source: *Ogólnopolska Baza Kolejowa* [National Railway Database])

II. THE PROCEDURE AND ITS CONTEXT

1. Decision to initiate the Procedure

The Chairman of the State Commission on Railway Accident Investigation (hereinafter referred to as "PKBWK" or "Commission") Tadeusz Ryś issued the decision ref. no. PKBWK.4631.5.2021 of 22 June 2021 on undertaking proceedings to clarify the causes and circumstances of an accident at a railway–road crossing hereinafter referred to as "railway crossing," category C at 313.328 km of railway line no. 25. In consideration of this fact and the provisions of Article 28e section 1 of the Railway Transport Act of 28 March 2003 (consolidated text Journal of Laws of 2020, item 1043, as amended) hereinafter referred to as the "Railway Transport Act," the event was reported on time to the European Union Agency for Railways and registered in the database under reference number PL-10075 on 23 June 2021.

2. Statement of reasons for the decision to initiate the procedure

Based on the analysis of the circumstances and considering that the incident is a severe accident, the Chairman of the PKBWK has decided to initiate proceedings by the Commission's Investigation Team pursuant to Article 28e section 1 of the Railway Transport Act.

3. The scope and limitations of the procedure including their justification, and an explanation of any delays considered a risk or otherwise affecting the conduct of the proceedings or the conclusions of the proceedings

The investigation to determine the causes of the incident was conducted under Article 28h section 1 of the Railway Transport Act, which, in accordance with the provisions of Article 28f section 3 does not determine fault or liability.

There were no constraints during the course of the proceedings that would adversely affect the procedure.

4. Aggregated description of the technical capacity of the functions in the team of persons conducting the procedure

The Chairman of the Commission appointed an Investigation Team consisting of the standing members of the Commission with appropriate qualifications and competences for the procedure.

5. Description of the communication and consultation process conducted with persons or entities involved in the incident, during the investigation and in relation to the information provided

Pursuant to Article 28h section 2 item 5 of the Railway Transport Act, the Chairman of the PKBWK obliged specific members of the railway commission to cooperate with the Investigation Team (letter no. PKBWK. 4631.5.1.2021 dated 22.06.2021).
In accordance with the contents of the letter ref. no. PKBWK 4631.5.1.2021 dated 25.08.2021, the documented handover of the documentation collected by the railway commission was carried out in PKP PLK S.A. Zakład Linii Kolejowych [Railway Facility] in Rzeszów on 22.06.2021.

6. Description of the level of cooperation proposed by the units involved in the procedure

During the investigation of the circumstances and causes of the incident, the cooperation with the representatives of the entities involved in the incident was satisfactory.

7. A description of the methods and techniques used in the investigation and the methods of analysis applied to establish the facts and make the findings referred to in the report

Throughout the process to clarify the causes and circumstances of the incident, the Investigation Team took into account the provisions of national and international legislation, the internal rules of the infrastructure manager and technical documentation. In addition, the Team applied its own knowledge and experience.
Use was made of documentation produced by the Investigation Team and documentation collected by the railway commission.
As part of the investigation of the incident, the Investigation Team carried out the following activities, among others:

- visual examination of the scene and the consequences of the accident on the day of the accident, including examination of the railroad crossing, the access roads and the railway line,
- drawing up photographic and film documentation on the day of the accident and at later dates,
- local inspections at the accident site carried out in conditions similar to the conditions existing on the day of the accident,
- conducting an experiment to check the stopping distance of a railway vehicle involved in an incident at the level crossing,
- checking visibility conditions (including signs and signals) from a road vehicle when approaching a crossing, in environmental conditions similar to those on the day of the accident,
- analysing the documentation provided by the railway manager and the road manager.

In addition, the following items were analysed, among others:

- documentation of the journey,
- infrastructure manager's and railway undertaking's internal regulations relevant to the incident under investigation,
- the safety management system (SMS) of the infrastructure manager,
- the maintenance system documentation (MSU) for the railway vehicle WM-15A.

Presented below is a selection of the legislation, regulations and internal instructions used in the course of the procedure:

European Union regulations:

1) Directive (EU) 2016/798 of the European Parliament and of the Council of 11 May 2016 On railway safety (OJ L 253, 11.10.2002, p. 102).
2) Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation (OJ EU L119 of 04.05.2016. p.1. as amended)) and the related Act of 10 May 2018 on Personal Data Processing (Journal of Laws, item 1000).
3) Commission Regulation (EU) No 1158/2010 of 9 December 2010 on a common safety method for assessing conformity with the requirements for obtaining railway safety certificates.
4) Commission Regulation (EU) No 1169/2010 of 10 December 2010 on a common safety method for assessing conformity with the requirements for obtaining a railway safety authorisation.

5) Commission Implementing Regulation (EU) 2020/572 of 24 April 2020 concerning the reporting structure to be followed for rail accident and incident investigation reports (Official Journal of the European Union No. 132 of 27 April 2020)

National legislation:

1) Railway Transport Act of 28 March 2003 (i.e., Journal of Laws of 2020 item 1043 as amended and i.e., Journal of Laws of 2021, item 1984 as amended).
2) Regulation of the Minister of Infrastructure of 11 January 2021 on workers employed in positions related to the operation and safety of railway traffic and to the operation of certain types of railway vehicles (Journal of Laws of 2021, item 101).
3) Regulation of the Minister of Infrastructure of 18 July 2005 on general conditions for railway traffic and signalling (i.e., Journal of Laws of 2015, item 360, as amended).
4) Act of 7 July 1994 Construction Law (i.e., Journal of Laws of 2020, item 1333, as amended).
5) Regulation of the Minister of Infrastructure and Development of 20 October 2015 on technical conditions to be met by junctions of rail lines and railway sidings with roads and their location (Journal of Laws of 2015 item 1744 as amended).
6) The Act of 20 June 1997 Traffic Code (i.e., of 2021, item 450, as amended).
7) The Regulation of the Ministers of Infrastructure and Internal Affairs and Administration on Road Signs and Signals (i.e., Journal of Laws of 2019 item 2310, as amended).
8) Regulation of the Minister of Transport and Maritime Economy of 2 March 1999 on the technical conditions to be met by public roads and their location (i.e., Journal of Laws of 2016, item 124, as amended).
9) The Act of 21 March 1985 on Public Roads (i.e., Journal of Laws of 2021, item 1376, as amended).

Internal instructions of PKP PLK S.A. infrastructure manager

1) Ir-8 Instructions for handling severe accidents, accidents and incidents in rail transport.
2) Id-1 (D-1) Technical conditions for the maintenance of the railway superstructure.
3) Ik-2 Railway safety inspection manual.
4) Id-7 (D-10) Railway line supervision instruction.
5) Ir-1 Driver's rule book.
6) Ie-1 Signalling instructions.
7) Ie-6 (WOT-E12) Guidelines for the technical acceptance and commissioning the signalling equipment.

8. Description of the difficulties and specific challenges encountered during the procedure

The members of the Investigation Team did not encounter difficulties or problems that could affect the procedure, its timeliness or conclusions.

9. All interactions with the judicial authorities

In connection with the preparatory proceeding conducted by the District Prosecutor's Office in Dębica, the Prosecutor of this Prosecutor's Office requested information on the results of the ongoing investigation from PKBWK by letter dated 27 July 2021.

Pursuant to the principles stated in the agreement between the State Commission on Railway Accident Investigation and the General Prosecutor (of 27.06.2014, still in force) the Commission's Investigation Team

cooperated with the District Prosecutor's Office in Dębica and the District Police Station in Brzeźnica on an ongoing basis in the course of the proceedings.
Police officers from the Brzeźnica District Police Station took part in an experiment organised by the Commission's Investigation Team.
Cooperation with the judicial authorities has been carried out in an exemplary.

10. Other information relevant to the procedure

In connection with the investigation, the Investigation Team interviewed the driver and other personnel of the Infrastructure Manager who were present during the incident on train ZNS 339009.

The interviews show the following, among others:

- an inspection tour of lines no. 71 and No. 25 of the Management of the Railway Line Company in Rzeszów together with heads of technical departments was carried out on the day of the incident, i.e., 15.06.2021,
- during the inspection tour on line no. 71 and line no. 25 on the section from Rzeszów to Rzochów station the journeys were carried out according to individual timetables and ran normally without interference,
- the front of the train is signalled by Pc-1 and the rear of the train is signalled by Pc-5,
- the execution of investment works and their progress were checked during the journey,
- the driver observed the route while driving,
- while approaching Kochanówka Pustków station, the driver gave the "attention" signal several times and reduced the speed below 20 km/h due to the applicable speed restriction for the train head V≤20 km/h at the level crossing at 313.328 km,
- a speed limit of V≤20 km/h was imposed on this crossing due to the construction of the traffic safety equipment at the level crossing and its failure to be put into service after modernisation,
- the restriction in force was correctly signalled on the track side,
- on the crossing from the side of the road there was a sign "traffic lights out of order" (violating the provisions of the said Ordinance, the Ordinance does not provide for such information), a B-20 sign, traffic lights were covered with foil (in black),
- as the front of the train approached the crossing, the driver and other personnel noticed a passenger car approaching the crossing from the right at high speed,
- the car did not slow down before the crossing; after noticing the vehicle, one of the workers shouted that the road vehicle would hit the railway vehicle,
- just before entering the crossing, the driver looked to his right and left giving the signal "attention," while the vehicle entered the crossing at the same time; the vehicles came into contact, after which the driver applied the emergency brake,
- the car was hit by the left bumper of the motorised cart,
- after the collision with the car and stopping the train approx. 20 m after the crossing, the train personnel went to the car in order to provide first aid to the injured person and call the emergency services,
- lorry drivers who were carrying out work near the crossing also came to help,
- the victim gave no signs of life and it was not possible to get inside the car,
- the windscreen of the car was smashed, the victim was lying on the broken driver's seat,
- the train driver informed the traffic officer of the Kochanówka Pustków station about the incident at the crossing,
- another employee called the emergency number 112 calling the emergency services and the dispatcher,
- The Fire Brigade, Police and Ambulance Service arrived at the scene several minutes after the call.

III. DESCRIPTION OF THE EVENT

1. Event and background information

1.1. Description of the event type

Severe accident at the level crossing.
On 15.06.2021 at 10:05 am in the station Kochanówka Pustków, in the course of the district road Brzeźnica – Krownice Nr 1283R, at the cat. C level crossing with a non-commissioned automatic crossing system (ssp), the driver of a Citroen Nemo passenger car disregarded the B20 "stop" sign and the P-14 stop line and entered the crossing from the right-hand side looking from the direction of the oncoming train ZNS 339009 between Rzeszów Główny – Kochanówka Pustków. This train, as an inspection train, was driven by railway vehicle WM 15A/PRT-00 no. 02. Due to the vehicle's entry on the level crossing, the train collided with the Citroen Nemo, which became caught up under the left bumper of the railway vehicle and was pushed by the train for a distance of 17 metres, to the location where the front of the train stopped. The front of the train stopped at 313.345 km. The severe accident has resulted in the death of the road vehicle's driver.

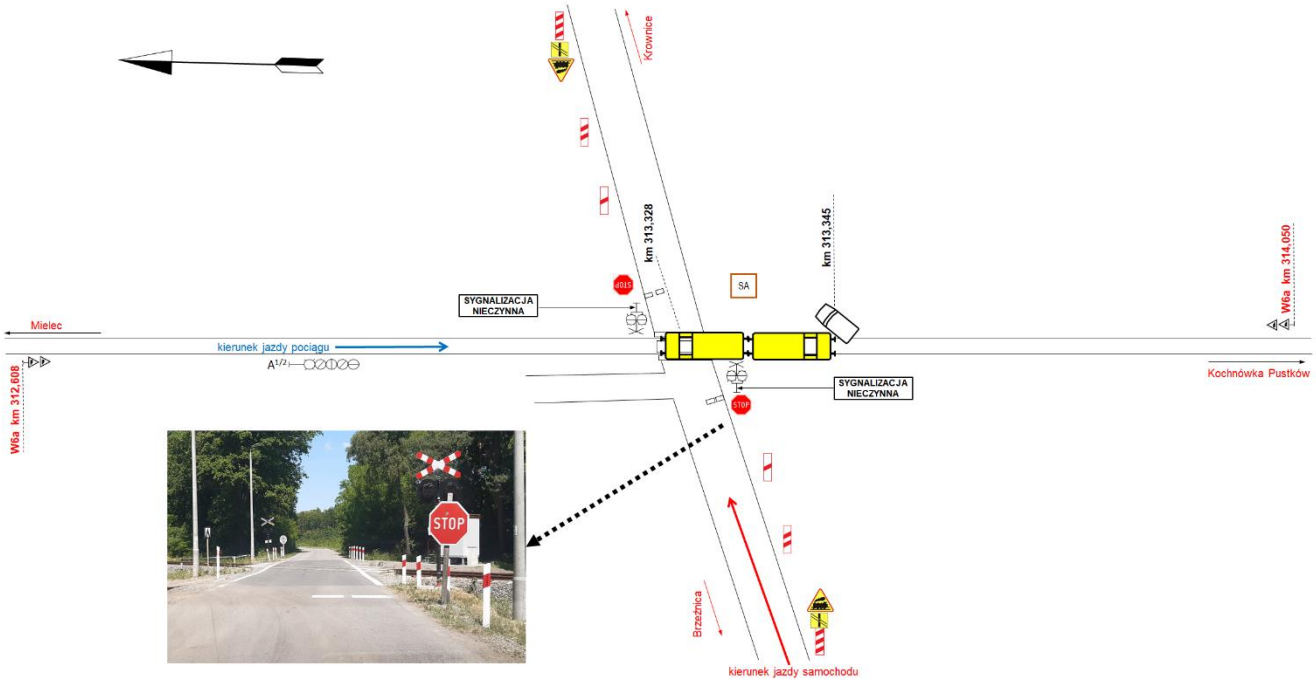
1.2. Date, exact time and place of event

The incident occurred on 15.06.2021 at 10:05 a.m. on category C level crossing at the station Kochanówka Pustków, track no. 1, 313.328 km of railway line no. 25 Łódź Kaliska – Dębica.

1.3. Description of the site of the incident, including meteorological and geographical conditions at the time of the incident and any works carried out at or near the site

Photograph 5 – General overview of the scene (source: Google Earth)

The category C level crossing where the severe accident occurred is located on the class L district road no. 1283R Brzeźnica – Kronowice, made of a bituminous surface with a dirt shoulder. The geographical coordinates of the crossing are 50º07'14.3“N 21º29'58.6”E.
The speed limit for road vehicles on the access road and the crossing is 90 km/h. The district road crosses the railway track at an angle of 60º. The railway line crosses the road in an undeveloped area. No work was being carried out on the crossing at the time of the incident.



Drawing 1 – Sketch of the accident (developed by PKBWK)

1.4. Deaths, injuries and damage to property

a) passengers, employees or contractors, level crossing users, trespassers, other persons on the platform, other persons not on the platform

The severe accident resulted in the death of the driver of the passenger vehicle at the scene. The driver and the personnel remaining on the train were not injured.

b) cargo, luggage and other property

The road vehicle was destroyed dur to the severe accident. There was no damage to other property.

c) rolling stock, infrastructure and environment

As a result of the incident, the WM-15A/PRT-00 No 02 motive power unit was damaged on the side of cabin A (according to PKP PLK S.A.):

- damaged rail scraper (deflected),
- damaged brake coupling no end cock (broken),
- damaged handle on the end cock,
- damaged brake coupler hanger,
- damaged sound signals, high and low frequency siren and installation,
- deflected T/O rocker arm with the shifting mechanism,
- damaged 521 air reservoir, bent bottom plate – to be replaced,

- WEBASTO fuel tank mounting deflected,
- left bumper to be repaired, right bumper to be checked at the repair station.

Photograph 6 – Damage of the railway vehicle after the accident (by PKBWK)

No infrastructural damage occurred.

1.5. Description of other effects, including the impact of the event on the regular activities of the entities involved

As a result of the incident, track no. 1 of railway line no. 25 on route Mielec – Kochanówka Pustków was closed for train traffic (traffic stopped) between 10:05 and 13:45 on 15.06.2021. There were no delays to other trains and there was no need to introduce substitute communication.

1.6. Identification of persons, their functions and entities involved, including possible links with contractors or other relevant parties

The following persons were directly involved in the incident:

- train driver and the manager of ZNS 339009 train – employees of PKP Polskie Linie Kolejowe S.A. Zakład Linii Kolejowych [Railway Facility] in Rzeszów,
- the Infrastructure Manager's personnel on board the train inspecting the railway line,
- the driver of the road vehicle.

Anonymity was ensured for the persons.

1.7. Description and identifiers of trains and their composition including associated rolling stock and registration numbers

Train mo. 339009 consisted of railway vehicle type WM 15A/PRT-00 no. 02, EVN numbers 99 51 9 470 001-0 and 99 51 9 570 0019, technical certificate of railway vehicle no. 11.145-93/02812020 valid until 29.12.2026 for the mileage of 120000 km calculated from 110268.6 km, the counter after the accident –

56269 km, the mileage at the time of the incident was 2,656,266 km. Vehicle inspection performed on 18.06.2021. Technical speed of the railway vehicle 80 km/h.
The vehicle, running as a train on the railway line, was not equipped with a trip data recorder (including speed, pressure in the main line and brake cylinders and attention signal) despite having performed a maintenance level P5 inspection on 30.12.2020.

Signalling the front of the train with PC-1, the end of the train with PC-5 – correct.

Train data no. 339008/9 – from brake test card for train no. 339008 as starting its route at the Rzeszów Główny station, executed on 15.06.2021 at 07:00:

- total weight of the train ..... 53 t
- effective brake weight percentage..... 90.5 %
- required brake weight percentage..... 48 %
- actual brake mass..... 42 t
- required brake-weight..... 25.4 t

1.8. Description of the relevant parts of the infrastructure and signalling – track type, switch, interlocking, signal, train protection systems

Track:

Rails type.....	–	49E1
Sleepers.....	–	prestressed concrete type B PS-83 49
Attachment type.....	–	SB resilient
Railroad ballast type.....	–	gravel
The maximum permissible train speed on the route..	–	120 km/h
Track slope in the crossing area in the direction of travel of the train	–	1.76 ‰.

Level crossing:

- c category level crossing being the crossing of railway line no. 25 Łódź Kaliska – Dębica with the district road no. 1283R Brzeźnica – Krownice,
- an individual trave; identification number (yellow sticker): 025 313 328,
- the axis of the crossing at 313.328 km, railway line No. 25,
- the angle of intersection of the road with the railway track – 60°,
- the surface of the crossing is made of prefabricated reinforced concrete type crossing slabs type "*Mirosław Ujski*,"
- access road surface - bituminous,
- the level of the access road:
  - right side (direction of road vehicle entrance at the crossing) - 0% over a length of 20 m,
  - left side 0% over a length of 20 m,
- traffic product at the crossing – 1548.0; last measurements were taken on 24 and 25 May 2016,
- total length of passage - 9.5 m,
- width of the road crown at the crossing – 9.0 m,
- roadway width at the crossing – 9.0 m,
- roadway width in the access road left side – 5.5 m,
- width of roadway on access road right side – 5.5 m,
- maximum speed of road vehicles through the crossing – 50 km/h (in the terrain the actual speed limit is 90 km/h – the lack of B-33 sign).

Due to the fact that on the day of the incident the ssp equipment had not yet been commissioned, the speed limit between 313.324 km and 313.333 km for both directions for the level crossing was set at 20 km/h in accordance with Appendix II to the train schedule (List of Permanent Warnings – LPW) due to the reconstruction of the railway traffic control (rtc) equipment at the crossing.

1) Labelling on the level crossing on the day of the incident:
   • from the side of the road the level crossing is labelled with G-3 signs – St. Andrew's Crosses, with B-20 "stop," A-10, G-1a, G-1b, G-1c signs positioned on the right-hand side of the road on both sides of the track; horizontal signs – P-14 line. Signs "signalling out of order" have been placed on the traffic signals on both sides of the road at the accesses to the crossing – in violation of the provisions of the Regulation of the Minister of Infrastructure and Development of 20 October 2015 on the technical conditions to be met by crossings of railway lines and railway sidings with roads and their location,
   • Track side set indicators W6b
   - from the direction of the oncoming train, placed 720 metres before the level crossing, i.e. at km 312.608
   - from the opposite direction at km 314.050, i.e. 722 metres in front of the level crossing.

Photograph 7 – "signalling out of order" sign placed on the traffic signal

Photograph 8 – Sign B-20 obscuring the "signalling out of order" sign

2) Visibility conditions of level crossings and train fronts from the road.
The required minimum visibility of the level crossing from the access road is 120 metres (undeveloped area). The actual visibility of the level crossing from the road is:
- left side – 100 m,
- right side – 200 m (measurements made on 22.06.2021 by the railway commission).
The visibility conditions of the level crossings from the road do not meet the requirements of the *Regulation of the Minister of Infrastructure and Development of 20 October 2015 on technical conditions to be met by*

junctions of rail lines and railway sidings with roads and their location (Journal of Laws of 2015 item 1744 as amended).

On the day of the incident, the metrics of the level crossing included data on the visibility conditions of the head of the train from the road from measurements taken on 04.06.2016. (Table 1).

Table 1 - Visibility conditions for the head of the train from the road included in the metrics for level crossing (item 6.1 of the metrics)

distance measured from the extreme rail												distance between axes of tracks "d"	speed V in the passing area	required visibility conditions		
5 m track side				10 m track side				20 m track side								
Right		left		right		left		right		left						
to the right	to the left	to the right	to the left	to the right	to the left	to the right	to the left	to the right	to the left	to the right	to the left			from 5 and 10 m	from 20 m	from 4 m
150	**220**	**300**	**200**	-	-	-	-	-	-	-	-	-	**40**	**220**	-	-

Orange colour indicates distances of train head visibility from the road vehicle direction, included in the metric of the level crossing.

Table 2 – Train head visibility conditions from the road included in the Sheet for visibility measurement and level crossing technical condition check from 22.06.2021 (measurements made by the infrastructure manager)

distance measured from the extreme rail												distance between axes of tracks "d"	speed V in the passing area	required visibility conditions		
5 m track side				10 m track side				20 m track side								
Right		left		right		left		right		left						
to the right	to the left	to the right	to the left	to the right	to the left	to the right	to the left	to the right	to the left	to the right	to the left			from 5 and 10 m	from 20 m	from 4 m
280	**900**	**900**	**310**	-	-	-	-	-	-	-	-	-	**120**	**660**	-	-

According to the LPW, a speed limit of 20 km/h for both directions of travel was in force at the crossing from 313.324 km to 313.333 km due to the construction of the rtc equipment at the crossing.

1.9. All other information relevant to the description of the event and background information

On the day of the incident, the automatic ssp crossing system was not commissioned, but the crossing was marked with "traffic lights out of order" signs on the traffic signal masts. This way of labelling the crossing is not in line with the applicable laws.

The Investigation Team found, among other things, the following irregularities at the analysed level crossing:

- horizontal P-14 signs have been placed instead of P-12 on both sides of the crossing, violating item 4.2.3 of Appendix No. 2 of the Regulation of the Minister of Infrastructure on detailed technical conditions for road signs and signals and road traffic safety devices and their placement conditions on the roads of 3 July

2003 (Journal of Laws No. 220, item 2181, i.e. of 9 September 2019 https://sip.legalis.pl/document-view.seam?documentId=mfrxilrtg4ytimzsheydmJournal of Laws of 2019, item 2311).

- B-20 signs on both sides of the level crossing are not installed in accordance with item 1.5.3. (Figure 1.5.7) of Appendix 1 of the aforementioned Regulation, in such a way as to obscure the visibility of the "traffic lights out of order" signs placed on traffic signals,
- the lenses of the traffic signal lights were covered with black film and the signals were not turned in a manner allowing the users of the crossing to see the signalling chambers, which could have caused the passenger car driver to misinterpret that the ssp equipment was operational and the signal was not active because a train was not approaching,
- on the approaches to the crossing, the B-20 signs were not preceded by A7 "Stop" signs, in violation of item 3.2.21 of Appendix 1 to the Regulation,
- the permissible speed of road vehicles on the approaches to the crossing was 90 km/h (according to the Crossing Metrics, a speed of 50 km/h should apply, as there is no B-33 sign in the area).

In addition, the Investigation Team made the following discoveries:

- the infrastructure manager PKP PLK S.A.'s failure to implement the recommendations of PKBWK included in the following Reports: Report 05/2018, recommendation no. 3, Report 03/2020 recommendation no. 4 (concerns the on-board recorder of the driving parameters of special vehicles),
- the failure to carry out a diagnostic test of the crossing in 2019 and 2020 prevented irregularities at the crossing from being revealed in a timely manner,
- failure to carry out measurements of visibility triangles (the last measurement according to the Metrics was carried out on 04.08.2016) and traffic volumes before 5 years had elapsed since the last measurement carried out on 24 and 25 May 2016.

2. A factual description of the events

2.1. The chain of discrete events leading up to the event, including: actions taken by the persons involved; operation of rolling stock and technical installations; operation of the operating system

On 15.06.2021 at 07:15 hrs the service train ZNS 339008/09 departed the Rzeszów Główny station towards the final station of the train journey, i.e. Kochanówka Pustków station. The train was operated by railway vehicle WM-15A/PRT-00 no. 02. The travel aimed to inspect lines no. 71 and no. 25, where works were being carried out to revitalise the railway lines. The train arrived at Mielec station at 09:39 and then continued towards Kochanówka Pustków station without stopping. Approaching the crossing at km 313.328, after passing indicator W6b, the driver gave the "attention" signal multiple times and started to reduce speed due to the fixed speed limit of 20 km/h at the crossing. When the train was approximately 20 metres from the centre line of the crossing, the driver gave the "attention" signal again. Later, just before entering the crossing, the driver looked to his right and left giving the signal "attention," while the vehicle entered the crossing at the same time; the vehicles came into contact, after which the driver applied the emergency brake. The vehicle entered the crossing from the right side of the moving train. The train was travelling at a speed of 17 km/h when the emergency brake was applied. This is based on the hearings and the experimental travels and braking tests of the railway vehicle carried out by the Investigation Team. The driver of the passenger car did not comply with the indications of the B-20 "stop" sign, i.e. he did not stop and entered the crossing directly in front of the oncoming train no. 339009. At 10:05 a.m., the train collided with the left front section of a Citroen Nemo passenger car. As a result of the collision, the left bumper of the railway vehicle crashed into the inside of the car, suspending it, and in this state the car was pushed by the train to the point where the front of the train stopped for a distance of 17 metres. The front of the train stopped at 313.345 km.

The severe accident has resulted in the death of the road vehicle's driver. The employees who remained on the train were not injured.

2.2. The sequence of events from the occurrence of the incident until the end of the emergency services' operations, including: measures taken to protect and secure the scene of the incident; the efforts of the rescue and emergency services

After stopping the train, the driver reported the incident to the traffic officer at the Kochanówka Pustków station. One of the infrastructure manager's employees who was travelling on the train called the emergency number and summoned the emergency services to the scene of the severe accident. At this time, other employees attempted to provide assistance to the driver of the passenger car. He was trapped in the wreckage of the car, gave no signs of life and could not be extracted because of the deformation of the vehicle due to the collision with the train. A few minutes after the incident, the Fire Brigade, medical emergency team and police arrived at the scene. The operational activities of the Fire Brigade, Police, Ambulance Service were conducted from 10:12 am to 1:35 pm. After the rescue, train no. 339009 arrived at 13:40 at Kochanówka Pustków station.

Due to the incident, track 1 was closed between 10:05 and 13:45.

IV. ANALYSIS OF THE INCIDENT

1. Roles and responsibilities

1.1. Railway undertakings or infrastructure managers

PKP PLK S.A. infrastructure manager Zakład Linii Kolejowych [Railway Facility] in Rzeszów

The infrastructure manager is responsible, inter alia, for the proper maintenance of the railway line including level crossings. The duties of the infrastructure manager are set out, inter alia, in Article 62 of the Act of 07 July 1994 – Construction Law. This provision requires managers to carry out annual and five-year inspections of buildings (including crossings). The infrastructure manager's internal instruction Id-1 imposes an obligation to carry out a diagnostic survey of the building at least once a year.
As a result of the proceedings, the Commission's Investigation Team considers that PKP PLK S.A. Zakład Linii Kolejowych [Railway Facility] in Rzeszów failed to carry out a diagnostic test of the road at the crossing in 2019 and 2020 before the severe accident occurred. Only Protocols were drawn up in the aforementioned years, which did not specify the technical performance of the facility, including only the following note: "the track and crossings have been handed over for revitalisation." However, with regard to the non-commissioned part of the crossing automation – diagnostic tests in the above years were carried out and no recommendations were made afterwards.
In the opinion of the Investigation Team, the transfer of the railway line for revitalisation did not exempt the company PKP PLK S.A. from carrying out the obligatory crossing inspections resulting from Article 62 of the Construction Law Act with regard to the construction industry. Meticulous implementation of diagnostic tests in 2019 and 2020 could help to detect the anomalies identified on the day of the severe accident, i.e. incorrect visibility of the crossing from the road or incorrect marking of the crossing with a P-14 line instead of P-12.
The Investigation Team identified the following circumstances as contributing factors to the incident on the part of the infrastructure manager:

1. improperly placed B-20 "stop" sign obscuring the plate indicating that the signalling system is out of order – at the side of the the passenger car,
2. The lenses of the traffic signal lights were covered with black film and the signals were not turned in a manner allowing the users of the crossing to see the signalling chambers, which could have caused the passenger car driver to misinterpret that the ssp equipment was operational and the signal was not active because a train was not approaching.

In addition, the Investigation Team made the following discoveries:

1. the failure to carry out a diagnostic test of the crossing in 2019 and 2020 prevented irregularities at the crossing from being revealed in a timely manner,
2. failure to carry out measurements of visibility triangles (the last measurement according to the Metrics was carried out on 04.08.2016) and traffic volumes before 5 years had elapsed since the last measurement carried out on 24 and 25 May 2016.

1.2. Entities in charge of maintenance, maintenance workshops or any other providers of maintenance services

As the owner and operator of the WM-15A motor trolley, the infrastructure manager is responsible for its efficiency, technical condition and compliance with the maintenance process. The vehicle had a Railway Vehicle Type Certificate and a current Certificate of Technical Fitness. The documentation of the last technical inspections of the railway vehicles carried out was presented. Based on the collected material, the Investigation Team did not find a link between the entities responsible for the maintenance, maintenance workshops and other maintenance providers and the factors influencing the incident. The technical condition of the railway vehicle had no influence on the incident.

1.3. Rolling stock manufacturers or other suppliers of railway products

Based on the collected material, the Investigation Team did not find a link between the rolling stock manufacturers, the service providers and the factors influencing the incident.

1.4. The national safety authorities or the European Union Agency for Railways

The President of the Office of Rail Transport (ORT) supervises railway traffic safety. Based on the collected material, the Investigation Team did not find a link between the security authority and the factors influencing the incident.

1.5. Notified bodies, designated bodies or risk assessment bodies

Based on the collected investigative material, the Investigation Team did not find a link between the notified bodies and the factors influencing the incident.

1.6. Certification bodies of entities in charge of maintenance listed in item 1.2

Based on the collected material, the Investigation Team did not find a link between the certification bodies and the factors influencing the incident.

1.7. Any other person or entity involved in the incident, as may be documented in one of the relevant safety management systems, or as referred to in the register or relevant legal framework

Pursuant to §81 of the Regulation of the Minister of Infrastructure and Development of 20 October 2015 *on technical conditions to be met by junctions of rail lines and railway sidings with roads and their location* (i.e., Journal of Laws of 2015, item 1744, as amended), the duties of proper marking and maintenance of the access road to the crossing belong to the administrator of the district road no. 1283R, i.e. the Management Board of Dębicki district.

2. Rolling stock and technical installations

Powered railway vehicle
The motor trolley WM-15A/PRT-00 no. 02 is not equipped with a system for recording driving parameters, nor does it have a foreground recorder.

Automatic Level Crossing System
The level crossing at 313.328 km of the railway line no. 25 Łódź Kaliska – Dębica has been classified as cat. C. Traffic protection devices have been designed and installed at the crossing in the form of the SZP-1 crossing protection system with two SD-K2 traffic signals (the S1 signal device is retrofitted with a sound signal in the form of the EHL-D bell) for a maximum train speed of 120 km/h and a minimum warning time of 30 s.
During the occurrence of the severe accident, the aforementioned signalling had not been received or activated, and therefore the ssp equipment status recorder was not activated. The traffic signal chambers were covered with black foil and the signals were visible to users of the crossing in their standard position.

3. Human factors

3.1. Human and individual characteristics

The investigation did not reveal the influence of the individual characteristics of the driver on the incident. The examination of the train driver conducted by the police did not reveal the presence of alcohol as well as psychoactive compounds in his blood.
The report on the examination of the opening of the driver's body did not show any alcohol nor psychoactive compounds in his body.
The Investigation Team did not identify the influence of health status, fatigue, stress of the participants in the incident.

3.2. Factors related to the job position

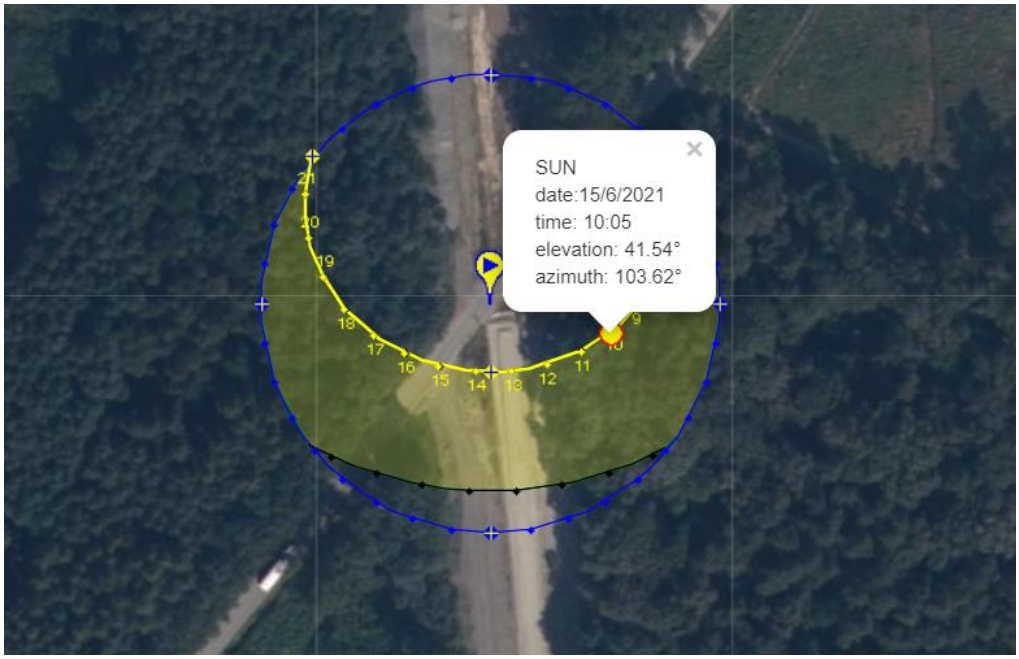
Motor trolley WM-15A/PRT-00 n.o 02 with identification number 99 51 9 470 001-0 owned by PKP Polskie Linie Kolejowe S.A. Operation Section in Rzeszów was duly authorised to operate on PKP PLK S.A. railway lines.
The railway vehicle was technically sound and had a current certificate of technical fitness and a type-approval certificate for the railway vehicle.
The Investigation Team raises no objections to the factors associated with the workstation of the driver of the traction vehicle.

3.3. Organisational factors and tasks

The material collected by the Investigation Team shows that the employer provided the statutorily required rest time to the train driver involved in the incident. He had all the authorisations and certificate required by regulations and instructions in relation to the activities performed on the job. The employer has equipped him with the necessary instructions and regulations to ensure safe work performance. The driver's working time was in accordance with the applicable standards. The driver of train number ZNS 339009 had 12 hours of rest before starting work. The Investigation Team raises no objections to factors related to organisational tasks.

3.4. Environmental factors

The incident took place in the morning with good air clarity, the sun was not obscured by clouds. The position of the sun had no effect on the glare of the car driver. The incident occurred in an undeveloped but wooded area.
The Investigation Team concluded that weather conditions had no influence on the incident.



Photograph 9 – Sun position at the time of the accident (source: https://www.sunearthtools.com)

3.5. Any other factors relevant to the procedure

The Traffic Code, which is the basic regulation for the users of public roads, i.e. the provisions of the Act of 20 June 1997 – Traffic Code (i.e. Journal of Laws of 2021, item 450 as amended).
Specific provisions concerning level crossings and relating to drivers of road vehicles are contained in Article 28 of this Act and state that:
"1. The driver of a vehicle, when approaching or passing through a railroad crossing is obliged to exercise particular caution. Before driving over the track, he must ensure that no rail vehicles are approaching and take the necessary precautions, especially if air clarity is reduced by fog or other reasons.
2. The driver shall be required to drive the vehicle at such a speed as to stop it in a safe place when a rail vehicle is approaching or when a safety device or signal prohibits entry on the crossing."
Entry of a road vehicle at a level crossing cat. C, directly in front of oncoming train ZNS 339009, was considered by the Investigation Team as the causal factor of the incident.
According to information obtained during interviews with the personnel on the train, immediately before entering the crossing the road vehicle was travelling at a significant speed, car did not stop before the crossing in relation to the B-20 "Stop" sign. The driver gave the "Attention" signal multiple times before entering the crossing – the final signal was given approximately 10 metres before the crossing, but the driver did not react to these warnings.
The heavy road vehicle was technically sound. The technical condition of the car made it possible to stop the vehicle before the crossing at a safe distance before the train passed. The lenses of the traffic signal lights were covered with black film and the signals were not turned in a manner allowing the users of the crossing to see the signalling chambers, which could have caused the passenger car driver to misinterpret that the ssp equipment was operational and the signal was not active because a train was not approaching.
The Investigation Team considered the following conditons as factors contributing to the occurrence of the severe accident:

1) The road vehicle driver's failure to maintain particular care when approaching the level crossing, not stopping in front of the crossing when the train approached the crossing, as stipulated in article 28 of the Act of 20 June 1997, the Traffic Law (consolidated text: Journal of Laws of 2021, item 450, as amended) and an excessive speed of the vehicle when approaching the level crossing.
2) The road vehicle's driver failure to respond to the audible signal given repeatedly by the train driver when approaching the crossing.

Based on the interviews, experimental runs and braking tests carried out by the Commission's Investigation Team, the train was travelling at a speed not exceeding 20 km/h when the emergency brake was applied.

Photograph 10 – A frame from the PKBWK video recorder during the experiment – view from a distance of 20 m to the axis of the crossing (source: PKBWK)

4. Feedback and control mechanisms, including risk and safety management and monitoring processes

Conditions of the relevant regulatory framework:

4.1. The processes, methods, content and results of risk assessment and monitoring activities carried out by any of the parties involved: railway undertakings, infrastructure managers, entities in charge of maintenance, maintenance workshops, other maintenance providers, manufacturers and other entities and the independent assessment reports referred to in Article 6 of Implementing Regulation (EU) no. 402/2013

Within the framework of the proceedings in question, the Commission's Investigation Team conducted an analysis of the "Hazard Register," which is one of the most important elements of the Safety Management System of the infrastructure manager, PKP Polskie Linie Kolejowe S.A.

Section 5 covers risks associated with level crossings and pedestrian crossings as part of the railway infrastructure. These are risks caused by various irregularities in the formal and legal requirements, diagnostics, operation of equipment and maintenance of the crossing or crossing. The chapter also includes hazards caused by users of level or level crossings and other causes.

The following risks are associated with the event under investigation:

item 5.3. 2 of the register: "inadequate performance of diagnostic tests,"

item 5.7 of the register: "deficiencies in the maintenance of level crossings,"

item 5.9 of the register: "failure of users of level crossings and pedestrian crossings to comply with the provisions of the traffic code,"

sub-item 5.9.4: "failure to comply with information arising from vertical road signs,"

The Investigation Team concludes that the driver of the road vehicle, while approaching the crossing, did not follow the B-20 and G-3 signt and entered the crossing directly in front of the oncoming train ZNS 339009.

4.2. The safety management system of the railway undertakings and infrastructure managers involved, taking into account the essential elements set out in Article 9(3) of Directive (EU) 2016/798 and all EU implementing acts

Infrastructure Manager PKP Polskie Linie Kolejowe S.A.

Safety Management System (SMS) in the company PKP Polskie Linie Kolejowe S.A., was introduced by the Resolution no. 30/2011 of 24 January 2011 on adopting an order introducing Safety Management System in PKP Polskie Linie Kolejowe S.A. A summary of selected SMS elements binding in PKP PLK S.A. is presented in the table below.

Table 3 – List of selected SMS elements used by PKP PLK S.A. related to the event.

No.	Symbol/ Procedure no.	Name of document / procedure
Main process		
1.	SMS-PG-01	Provision of railway infrastructure and managing railway traffic
Auxiliary processes procedures		
2.	SMS-PW-01	Maintaining the railway line in a technically and organisationally sound manner
3.	SMS/ MMS-PW-03	Handling railway incidents
4.	SMS-PW-04	Remedying the consequences of railway accidents
5.		Hazard register

6.		PKP Polskie Linie Kolejowe S.A. Railway Traffic Safety Improvement Programme 2021

The Investigation Team found that the infrastructure manager's personnel became acquainted with the SMS safety system. Employees are trained periodically and have access to up-to-date versions of the various procedures. As a result of the analysis of the SMS documentation in force at the infrastructure manager PKP PLK S.A., the Investigation Team does not raise any objections to the manner in which the safety management system operates, the hazard register is kept and the safety improvement programme for 2021 is implemented.

4.3. The managementsystem of the entity/entities in charge of maintenance and maintenance workshops, taking into account the functions laid down in Article 14(3) of and Annex III to Directive (EU) 2016/798 and any subsequent implementing acts

Not applicable.

4.4. Results of supervision by national safety authorities in accordance with Article 17 of Directive (EU) 2016/798

The President of the Railway Transport Office did not carry out any inspection in relation to the crossing under consideration.

4.5. Authorisations, certificates and assessment reports issued by the Agency, national safety authorities or other conformity assessment bodies

Infrastructure Manager PKP Polskie Linie Kolejowe S.A. holds:

Security authorisation:

- EU number PL2120210000,
- date of issue 26.02.2021,
- expiry date 01.03.2026,
- type of infrastructure; normal rail (99.2%), broad gauge (0.8%).

The volume of infrastructure managed as reported in the 2019 Annual Report:

- total line length 18,680 km,
- total length of track 35,951 km,
- 38,663 turnouts,
- 14,013 level crossings, including 12,156 on lines in service

4.6. Other systemic factors

The Investigation Team has concluded that a systemic factor determined the occurrence of the accident, namely the lack of legal regulations regarding the obligation to invert the traffic signals in a manner that would make the chambers visible to the users of the crossing, the rules and manner of covering them, as well as the traffic signal masts in front of the crossing in situations where such signal lights were constructed, but not yet commissioned in a way that would make it clear to the level crossing users that the lights are inoperational.

The lenses of the traffic signal lights were covered with black film and the signals were not turned in a manner allowing the users of the crossing to see the signalling chambers, which could have caused the passenger car driver to misinterpret that the ssp equipment was operational and the signal was not active because a train was not approaching. The team recognises this a systemic factor.

5. Previous incidents of a similar nature

The Investigation Team analysed incidents occurring at level crossings of a similar nature as part of their investigation. Out of these, the following proceedings conducted by the PKBWK Investigation Teams in previous years deserve special mention:

1) On 02.11.2017 at 18:49, the side of the work train Rob 2 consisting of motor car DS10-02-221 correctly signalled by the signal of the head of the train Pc-1, passing through the level crossing cat. A with suspended service at km 37.119 of line 36 was struck at high speed (about 90 km/h) by a VW Golf passenger car, which was travelling with four people (one man and three women). The work train was moving in the odd direction of railway line no. 36 (increasing kilometreage) towards Łapy station, while the passenger car was moving along national road no. 63 towards Łomża. The front of the road vehicle was completely damaged as a result of hitting the right front section of the motor trolley. As a result of the severe accident, three persons who were in the passenger car i.e. the driver and two passengers died on the spot, one of the female passengers of the car was taken to hospital in a serious condition. During the incident, the motor car derailed with one axle as a result of a heavy impact by a passenger car on the front right-hand side of the railway vehicle. In addition, a shock absorber, a front guard and a broken actuator base were damaged on the rail vehicle. Level crossing A with suspended service was signalled from the side of the road: A-30, T-10, G-3, G-1a, G-1b, G-1c, G-1d, G-1e, G-1f, G-3. The driver of the motorised cart was tested for alcohol in the breath – result 0.0 ‰. Railway line 36 was closed at the time of the severe accident due to works being carried out on the line to upgrade it. As a result, only work vehicles were travelling on the line under the "Regulations for Temporary Traffic Management during the Works" dated 19.01.2017.

2) On 03.07.2019 at 08:50, there was a severe accident at the category B level crossing, located on the route Wargowo – Złotniki at 13.916 km of the railway line No. 354 Poznań PoD – Piła Główna. Working train no. Rob.2 between Oborniki Wielkopolskie – Złotniki, consisting of motor trolley WM15A 311, owned by infrastructure manager PKP PLK S.A. run over a passenger car Ford Fusion, which was driving on the closed track no. 2 of the route Wargowo – Złotniki at the level crossing. The automatic crossing system (ssp) equipment located at this crossing for train movements on track 2 was out of service due to the disconnection of sensors on this track for upgrade works. There was no employee directing traffic at the crossing. There were no signs in front of the crossing on the side of the road informing road users that the traffic safety devices at the level crossing were not working. The passenger car was travelling on the district road No. 2061P Wargowo – Golęczewo (ul. Dworcowa) and entered the above-mentioned road-rail crossing from the right side looking in the direction of the train. Crossing track 2, a passenger car was struck by the bumpers of the motor trolley. The left bumper hit the car at the level of the driver's window and was pushed inside the car, while the right bumper hit the rear of the car. The car, which was hitched to the bumper and turned onto the left-hand side of the motorised trolley, was then pushed by the motorised trolley until it came to a stop after travelling approximately 26 m. As a result of the incident the driver of the car died after being taken to hospital. The passenger car was completely destroyed and the front wall steps were damaged in the motor car.

V. CONCLUSIONS

1. Summary of analysis and conclusions on the causes of the incident

Investigations into the causes of the incident revealed that the technical condition of the railway infrastructure and rolling stock had no influence on the occurrence of the incident.
Factors related to the job position as well as the organisational tasks performed by those involved in the incident as well as the environmental factors did not contribute to the occurrence of the incident. Entry of a road vehicle at a cat. C level crossing with non-commissioned ssp equipment, directly in front of an oncoming train ZNS 339009 was the causal factor of the event. The driver of the road vehicle disobeyed the traffic signs G1-a, G1-b, G1-c and the sign B-20 "stop" and, travelling at a considerable speed, did not stop the car at a safe distance from the crossing when a train was approaching.

The team further identified the following contributing factors to the incident:

1) The driver of a road vehicle failed to maintain particular care when approaching the level crossing, and not stopping in front of the crossing when the train approached the crossing, as stipulated in article 28 of the Act of 20 June 1997, the Traffic Law.
2) The road vehicle's driver failure to respond to the audible signal "attention" given repeatedly by the train driver when approaching the crossing.
3) The lenses of the traffic signal lights were covered with black film and the signals were not turned in a manner allowing the users of the crossing to see the signalling chambers, which could have caused the passenger car driver to misinterpret that the ssp equipment was operational and the signal was not active because a train was not approaching.

The Investigation Team found that the incident was also influenced by a systemic factor, namely the lack of regulation regarding the obligation to turn perpendicular to the railway line and cover the chambers of traffic signals before a crossing when they have been built but not put into operation.

2. Measures taken since the incident

In the course of the investigation, the Chairman of the PKBWK recommended that the District Road Authority in Dębica take the following measures to improve rail and road safety with respect to the crossing:

1) Labelling the level crossing at 313.328 km of railway line no. 25 at the access roads of district road no. 1283R Brzeźnica – Krownice to the crossing with P-12 and B-20 signs pursuant to the applicable laws.
2) Introducing a 50 km/h speed limit on road no. 1283R on the accesses to the crossing due to the occurrence of an increased risk of accidents related to excessive speed.
3) Setting up temporary A-7 signs on the accesses to the crossing with "Stop" signs stating the distance from the location of the B-20 sign until the formal introduction of a speed limit.

The Road Manager by the date on which the resolution on the adoption of the Report was passed had implemented points 1 and 3, but had not implemented point 2. The administrator of the road, Zarząd Dróg Powiatowych w Dębicy, after reviewing the draft Report, informed PKBWK that by 15 July 2022. "a speed limit of 50 km/h will be introduced on the district road No. 128R Brzeźnica Krownice within the railway crossing with the railway line No. 25 Łódź Kaliska - Dębica".

Photo 11 - Road markings in the direction of travel of a car involved in an incident at a level crossing (photo. PKBWK of 09.05.2022)

End of built-up area (50 km/h), start of road in undeveloped area towards the railway/road crossing in question (90 km/h).

3. Additional remarks

No additional remarks.

VI. SAFETY RECOMMENDATIONS

1) The Infrastructure Managers shall include an obligation in their internal regulations to turn away crossing traffic signals and to cover them in a manner that the signalling chambers are not visible to crossing users when the signals are erected but not yet commissioned.
2) Infrastructure managers shall take steps to introduce mechanisms for effective inspection of the correct execution of diagnostic tests for level crossings.
   In respect of level crossings where road traffic occurs, the obligation to carry out periodic diagnostic tests shall rest with the infrastructure manager.
3) It is imperative that dispatchers of special vehicles implement the outstanding recommendations of the PKBWK Reports:
   - Recommendation No. 3 of Report No. PKBWK/05/2018: *"PKP PLK S.A. shall equip modernised auxiliary vehicles undergoing maintenance level P4 and P5 inspections, as well as newly purchased vehicles, with on-board recorders of driving parameters (registering at least the speed, pressure in the main line and brake cylinders, activation of the "attention" signal)*,"
   - Recommendation No. 4 of Report No. PKBWK/03/2020: *"Recommendations No. 1 and No. 3 of the State Commission on Railway Accident Investigation, indicated in Report No. PKBWK/05/2018 of the investigation of category A18 severe accident occurring on 2 November 2017 at 18:49 at the cat. A level crossing with suspended service, located at 37.119 km of the Śniadowo – Łapy route, plain line no. 1 of the railway line no. 36 Ostrołęka – Łapy, referring to the equipment of auxiliary vehicles with reflective elements improving the side visibility of the vehicle as well as an on-board recorder of driving parameters (registering at least the speed, pressure in the main tube and brake cylinders, activation of the "attention" signal) for special vehicles."*
4) The Road Manager is going to introduce the speed limit up to 50 km/h on the road no. 1283R by the accesses to the level crossing due to the occurrence of an increased risk of accidents related to excessive speed (in accordance with the issued recommendation ref. no. PKBWK.4631.5.2.2021 dated 14 July 2021).

STATE COMMISSION ON RAILWAY ACCIDENT INVESTIGATION
CHAIRMAN

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Tadeusz Ryś

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List of entities appearing in the contents of Report No. PKBWK 05/2022

No.	Symbol (abbreviation)	Explanations
1	*2*	*3*
1.	EUAR	European Union Agency for Railways
2.	PKBWK	State Commission on Railway Accident Investigation
3.	ORT	Office of Rail Transportation
4.	Managing Authority	PKP PLK S.A. Zakład Linii Kolejowych