



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

REPORT No. PKBWK 4/2024

on the investigation of a railway incident
which occurred on 8 May 2023 at 07:26 hrs on the Góra Włodowska – Zawiercie route,
track no. 1, km 212.400 of railway line no. 4 Grodzisk Mazowiecki – Zawiercie,
the area of the infrastructure manager PKP PLK S.A. Railway Line Plant
in Częstochowa

Warsaw, 18 March 2024

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

Pursuant to Article 28f (3) of the Act of 28 March 2003 on rail transport, the Commission's investigation determines neither guilt nor liability.

This Report has been prepared under Commission Implementing Regulation (EU) 2020/572 of 24 April 2020 on the reporting structure to be used for railway accidents and incidents investigation reports (OJ L 132 of 27 April 2020)

Report on the investigation of a railway accident which occurred on 8 May 2023 at 07:26 hrs on the Góra
Włodowska – Zawiercie route, track no. 1, km 212.400 of railway line no. 4 Grodzisk Mazowiecki –
Zawiercie

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I. SUMMARY

Type of occurrence: Incident.

Description: On 7 May 2023, at 00:01 hrs, track no. 2 of the Góra Włodowska - Zawiercie route was closed on a 24-hour basis for the purpose of modernisation of line no. 4 under an on-going project titled *Modernisation of Railway Line No. 4 – Central Railway Line Stage II*. On 08.05.2023, at around 07:00 hrs, the trackmaster in charge of the works arrived with workers by car to the site designated by the work organisation manager. The group was tasked with dismantling the rail attachments in closed track no. 2, but commenced work on active track no. 1 instead. While the group was in the process of dismantling the rail attachments, train no. 14001 operated by the carrier PKP INTERCITY S.A. between Warszawa Wschodnia and Bohumin departed the Góra Włodowska station at 07:24 hrs. When at km 211.800 of the Góra Włodowska – Zawiercie route, the train driver noticed persons in high-visibility vests working on active track no. 1 on which his train was going. The train driver had been informed that the works would be carried out on track no. 2. When the train driver noticed the workers on the track on which he was going, he commenced emergency braking and at the same time gave the Rp1 "Attention" warning sound signal. The head of the train stopped at km 212.200, i.e. 200 m ahead of the working group, who were hastily leaving the trackway. The train did not enter the section with rail attachments disengaged from the sleepers.

Date of the occurrence: 8 May 2023, 07:26 hrs.

Place of the occurrence: Railway line no. 4 Grodzisk Mazowiecki – Zawiercie, track no. 1, km 212.400 of the Góra Włodowska - Zawiercie route, geographical location 50°34'21.7"N 19°23'25.6"E

Consequences of the occurrence: Impediments to railway traffic organisation.

Causal factor: Loss of the sense of direction by the trackmaster from the company carrying out the works, leading to the commencement of the dismantling of rail attachments in active track no. 1 instead of closed track no. 2.
(means any action, omission, event or condition, or a combination thereof that if corrected, eliminated, or avoided would have prevented the occurrence, in all likelihood)

Contributing factors: 1) Organisation of work and designation of tasks to three groups ""disengaging" the track by an unauthorised employee, and the assignment by that employee of work to the trackmaster in the second group by instructing the latter by telephone on the kilometre at which the work should commence and the place of arrival, and by sending the so-called "map pin".
2) Before commencing the work, the trackmaster in charge of the second group of workers had not established the number of the plain track on the basis of the hectometre boards placed on catenary poles.

- 3) Absence of the work manager appointed in accordance with *Interim Rules no. 8/2023 on traffic operation (...)* at the location where the rails of the active track were disengaged.
- 4) Non-compliance by a further subcontractor with the provisions of agreement as regards the prohibition of commissioning work to further subcontractors, and admission of the company workers, without any knowledge or approval of the contracting entity and the main contractor, which had contributed to the lack of immediate supervision over them on the part of the investment supervision inspector.
- 5) Performance of railworks by workers without the *Access Card* permitting access to the area managed by PKP Polskie Linie Kolejowe S.A. in accordance with Instruction Id-21.

Systemic factor:

(means any causal or contributing factor of an organisational, managerial, societal or regulatory nature that is likely to affect similar and related occurrences in the future, including, in particular the regulatory framework conditions, the design and application of the safety management system, skills of the staff, procedures and maintenance)

Lack of internal regulations at the infrastructure manager concerning quantitative staffing of contract manager positions, and staffing of supervision positions within investor supervision teams, taking into account the expanse of the area and number of facilities covered by the investment concerned, which has resulted in insufficient supervision and control of the investment process.

Recommendations and their addressees:

- 1) PKP PLK S.A. shall enforce the rules of admission of workers with required authorisations and permits to works and supervision.
- 2) PKP PLK S.A. shall enforce the rules of admission of outsourced company workers with access cards to perform work on the managed infrastructure.
- 3) PKP PLK S.A. shall standardise the work of contract managers and supervision inspectors on line investments in terms of the ability to fulfil tasks arising under the provisions of the Construction Law and internal procedures, and shall take appropriate actions based on the said standardisation.

II. THE INVESTIGATION AND ITS CONTEXT

1. The decision to establish an investigation

The Chairman of the State Commission on Rail Accident Investigation (hereinafter referred to as "PKBWK" or "the Commission") Mr. Tadeusz Ryś issued Decision no. PKBWK.590.7.2023 of 6 June 2023 on establishing an investigation to clarify the circumstances of the railway occurrence that took place on 8 May 2023 at 07:26 hrs on the Góra Włodowska – Zawiercie route, km 212.400 of railway line no. 4 Grodzisk Mazowiecki - Zawiercie. Considering the provisions of Article 28e(4) of the Act of 28 March 2003 on rail transport (consolidated text: Journal of Laws of 2023, item 602, as amended), hereinafter referred to as the "Rail Transport Act", the occurrence was reported within the prescribed deadline to the European Union Railway Agency and registered in its database under number PL-10418.

2. The motivation to the decision to establish an investigation

Based on analysis of the circumstances and considering the nature of the occurrence, the PKBWK Chairman decided to establish an investigation to be conducted by an Investigation Team pursuant to Article 28e(2a) of the Rail Transport Act.

3. The scope and limits of the investigation including a justification thereof, as well as an explanation of any delay that are considered a risk or other impact to the conduct of the investigation or its conclusions

The investigation into the circumstances of the occurrence was conducted under Article 28h(1) of the Rail Transport Act and, in accordance with the provisions of Article 28f(3), does not determine guilt or liability. There were no limits during the investigation that would have a negative impact on its course.

4. An aggregated description of the technical capabilities and the functions in the team of investigators.

The Chairman of the Commission nominated an Investigation Team from among the standing members of the Commission, equipping it with qualifications and competencies regarding the investigation concerned.

5. A description of the communication and consultation process established with persons or entities involved in the occurrence during the investigation and in relation to the information provided

Under Article 28h(2)(5) of the Rail Transport Act, the PKBWK Chairman obliged specific persons from the railway commission to cooperate with the Investigation Team (Letter no. PKBWK.590.7.1.2023 of 6 June 2023).

On 15 June 2023, the Chairman of the railway commission formally submitted the documentarion gathered by the railway commission to the Commission's Investigation Team.

6. A description of the level of cooperation offered by the entities involved

Cooperation with representatives of the entities involved which took place during the investigation into the circumstances of the occurrence did not give rise to any objections on the part of the Investigation Team.

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

Throughout the process aimed at investigating the circumstances of the occurrence, the Investigation Team considered the provisions of national rules, internal rules of the infrastructure manager and the technical documentation of PKP PLK S.A. and the railway carrier. Moreover, the Investigation Team relied on their own knowledge and experience.

The documentation prepared by the Investigation Team and the documentation gathered by the railway commission were used.

Within the investigation, the Investigation Team carried out *inter alia* the following activities:

- an inspection of the occurrence site after the occurrence,
- preparation of photographic documentation,
- an analysis of the documentation submitted by the infrastructure manager, contractors and subcontractors, railway carrier,
- an interview with the contract manager, supervision inspector, representatives of the subcontractor management, and persons directly and indirectly connected with the occurrence,
- an analysis of the data from the driving data recorder of the rail vehicle (ET09-036).

Below is a list of selected legal acts, rules and internal instructions used during the investigation:

European Union rules:

- 1) 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 L 119, 04.05.2016, p. 1, as amended).
- 2) Commission Implementing Regulation (EU) 2020/572 of 24 April 2020 on the reporting structure to be followed for railway accident and incident investigation reports (OJ L 132, 27.04.2020).
- 3) Directive (EU) 2016/798 of the European Parliament and of the Council of 11 May 2016 on railway safety (OJ L 138, 26.05.2016, p. 102, as amended).

National rules:

- 1) Act of 28 March 2003 on rail transport (consolidated text: Journal of Laws of 2023, item 602, as amended).
- 2) Act of 7 July 1994 on the Construction Law (consolidated text: Journal of Laws of 2023, Item 682, as amended).
- 3) Regulation of the Minister of Infrastructure of 18 July 2005 on general conditions for rail traffic operation and signalling (consolidated text: Journal of Laws of 2015, item 360, as amended).
- 4) Regulation of the Minister of Infrastructure of 11 January 2021 on personnel employed on positions related directly to the conduct and safety of rail traffic and to driving of specific types of rail vehicles (Journal of Laws of 2021, item 101, as amended).
- 5) Act of 30 August 2019 on the protection of personal data (Journal of Laws of 2019, item 1781).
- 6) Regulation of the Minister of Transport and Maritime Economy of 10 September 1998 on the technical conditions to be met by railway structures and on their positioning (Journal of Laws No. 151, item 987).

Internal instructions of infrastructure manager PKP PLK S.A.

- 1) Ir-1 Instruction on the conduct of train traffic operations.
- 2) Ir-8 Instruction on the handling of serious accidents, accidents and incidents in rail transport.
- 3) Ir-19 Rules of organisation and granting of track closures.

- 4) Ie-1 Instruction on signalling.
- 5) Id-1 Technical conditions on the maintenance of the surface of railway lines.
- 6) Id-9 Instruction for a trackmaster.
- 7) Id-18 Guidelines for securing the site of works carried out on a closed track during the operation of railway traffic on an active track at a speed of $V \geq 100 \text{ km/h}$.
- 8) Id-21 Rules of entry into the railway area managed by PKP Polskie Linie Kolejowe S.A.
- 9) Id-114 Technical conditions for the performance and acceptance of surface and track-bed works.
- 10) Ik-2 Instruction on inspections concerning railway traffic safety.
- 11) Ibh-105 Work safety rules applicable on the premises of PKP Polskie Linie Kolejowe S.A. during the performance of investment, maintenance and repair works by employees of outsourced entities.

Internal instructions of railway undertaking PKP Intercity S.A.

- 1) Bt-1 Instruction for a traction vehicle driver.

8. A description of the difficulties and specific challenges encountered during the investigation

Members of the Investigation Team did not encounter any difficulties or problems that could have impact on the course, timeliness or conclusions of the investigation.

9. Any interaction with the judicial authorities

Not applicable.

10. Other information relevant in the context of the investigation

1. Tender Specifications for the open tender for the performance of railworks to increase the speed on railway line no. 4 Grodzisk Mazowiecki – Zawiercie as part of the project titled *Modernisation of railway line no. 4 - Central Railway Line, Stage II*.
2. Agreement No. 90/101/0020/22/Z/I for the performance of railworks to increase the speed on railway line no. 4 Grodzisk Mazowiecki – Zawiercie as part of the project titled *Modernisation of railway line no. 4 - Central Railway Line, Stage II* concluded on 18 March 2022 by and between: PKP Polskie Linie Kolejowe S.A. with its registered office in Warsaw and Pomorskie Przedsiębiorstwo Mechaniczno-Torowe Sp. z o.o. Gdańsk.
3. Agreement No. PPMT-P5-0012.00/2022/1192240 of 13 June 2022, including annexes, for the provision of construction services involving the performance of railworks and accompanying works, concluded by and between: Pomorskie Przedsiębiorstwo Mechaniczno-Torowe Sp. z o.o. Gdańsk and Przedsiębiorstwo Remontowo Budowlane "TOR" Sp. z o. o. Mysłowice.
4. Agreement No. 04/08/2022/AO for the provision of construction services involving the performance of railworks and accompanying works, concluded on 16 August 2022 by and between: Przedsiębiorstwo Remontowo Budowlane "TOR" Sp. z o. o. Mysłowice and GRA-BUD Aureliusz Żejmo Sp. k. Zielona Góra.
5. Interim Rules No. 8/2023 of 27 January 2023 on traffic operation applicable to the railworks to increase the speed on railway line no. 4 Grodzisk Mazowiecki – Zawiercie as part of the project titled *Modernisation of railway line no. 4 - Central Railway Line, Stage II* in the area of ISE DG Ząbkowice.

III. DESCRIPTION OF THE OCCURRENCE

1. The occurrence and background information

1.1. The description of the occurrence type

The occurrence concerned involved performance of works on active track no. 1 of the Góra Włodowska – Zawiercie route instead of track no. 2 which was closed for train traffic. Train no. 14001 stopped at km 212.200, ca. 200 m ahead of a work group. The occurrence did not result in injuries or damage to the infrastructure or rolling stock.

1.2. The date, exact time and location of the occurrence

The occurrence took place on 8 May 2023 at 07:26 hrs on the Góra Włodowska - Zawiercie route, track no. 1, km 212.400 of railway line no. 4 Grodzisk Mazowiecki – Zawiercie, the area of infrastructure manager PKP PLK S.A. Railway Line Plant in Częstochowa.

1.3. The description of the occurrence site, including weather and geographical conditions at the moment of the occurrence and if any works were carried out at or in the vicinity of the site

Track no. 1 of the Góra Włodowska – Zawiercie route: contactless, at the place of the occurrence - situated on a straight embankment in a forested area, 5.79 ‰ inclination in the direction of travel. Weather conditions: time of day - morning, moderate cloud cover, no precipitations, temperature +8 °C, good visibility, good audibility, no other weather phenomena. The investment works carried out on that route are related to the modernisation of line no. 4. On the day of the occurrence, preparatory works were in progress involving dismantling the rail attachments.

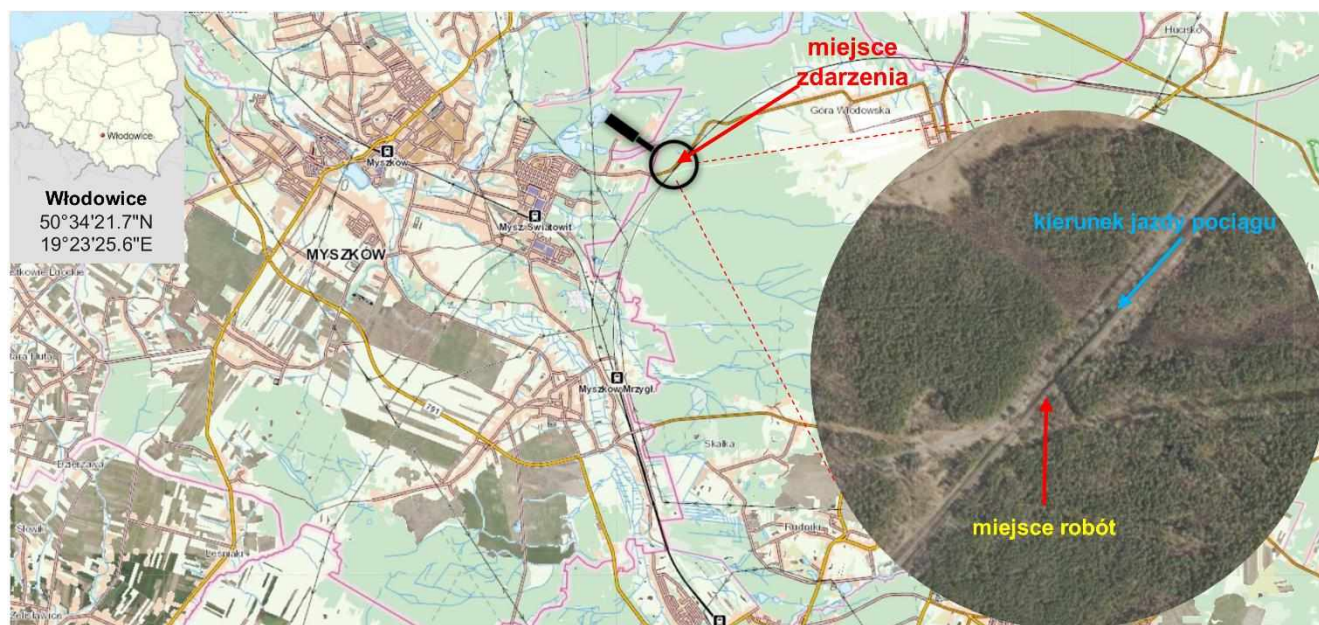


Figure 1 - A general view of the occurrence site (source: Geoportal)

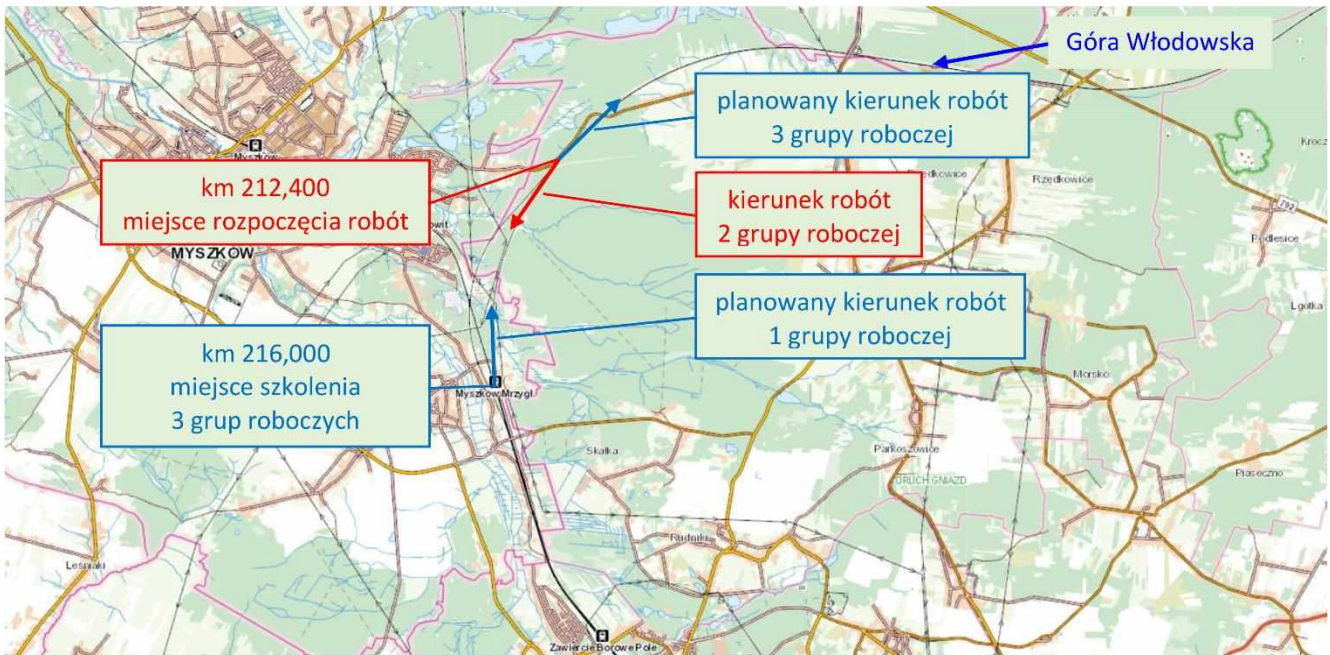


Figure 2 – Planned organisation, start and end location of works as of 8 May 2023 (source: Geoportal)

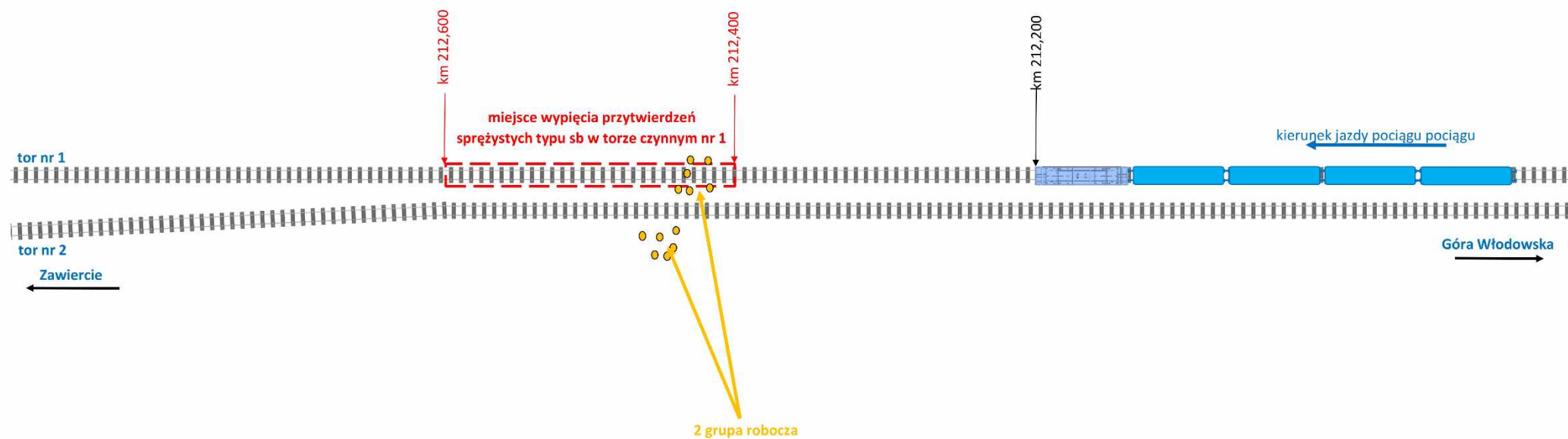


Figure3 - A sketch of the place of the incident

1.4. Deaths, injuries and material damage

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

Nobody sustained any injuries as a result of the accident.

b) cargo, luggage and other property

None.

c) rolling stock, infrastructure and the environment

Train no. 14001 was not derailed. There was no damage to the infrastructure or losses in the natural environment.

1.5. The description of other consequences, including the impact of the occurrence in the regular operations of the actors involved

As a result of the occurrence, track no. 1 of the Góra Włodowska - Zawiercie route was closed from 08:15 hrs to 09:01 hrs on 8 May 2023; the break in the train traffic on line no. 4 of the Góra Włodowska - Zawiercie route from 08:15 hrs to 09:01 hrs on 8 May 2023; track no. 2 of the Góra Włodowska - Zawiercie route had been closed in accordance with *Interim Rules no. 8/2023 Phase II* since 00:01 hrs on 7 May 2023. Two trains, no. 4506 and no. 42102, were detoured.

Three freight trains were delayed by 178 minutes, and 14 passenger trains were delayed by 424 minutes. There was no need to provide substitute transport.

1.6. The identification of the persons, their functions, and entities involved, including possible interfaces to contractors and/or other relevant parties

- train driver of train no. 14001 – an employee of carrier PKP INTERCITY S.A., Central Company Plant, Carriage and Operations Section, Warszawa Olszynka Grochowska,
- trackmaster from company Romix – carrying out works by order of company "GRA-BUD Aureliusz Żejmo",
- Work Organisation Manager from company "GRA-BUD Aureliusz Żejmo" – a further subcontractor of company TOR Mysłowice,
- Works Manager from company TOR Mysłowice – a subcontractor of company PPMT Sp. z o. o.,
- Site Manager from company PPMT Sp. z o. o. – the main contractor,
- Contract Manager from CRI Central Region – PKP PLK S.A.,
- Supervision Inspector from CRI Central Region – PKP PLK S.A.

1.7. The description and identifiers of train(s) and their composition including the rolling stock involved and their registration numbers

Passenger train IC no. 14001, operated between Warszawa Wschodnia and Bohumin, was led by locomotive EP09-036 and composed of four passenger wagons.

Locomotive EP09-036 of PKP Intercity S.A.: rail vehicle identification number PL-PKP IC 91 51 1150 037-6; type 104Eb; manufactured in 1994; serial number: 036; manufactured by PAFWAG-Wrocław; rail vehicle type operation approval certificate no. T/2011/0223; technical railworthiness certificate no. BIT1i-19/2021 dated 24 May 2021, issued in Gliwice, valid until 23 May 2025 for the mileage of 500,000 km counted from 484 km.

Train data:

- | | |
|--|-------|
| – length of the train..... | 121 m |
| – total mass of the train..... | 293 t |
| – required braked mass percentage..... | 153 % |
| – actual braked mass percentage..... | 195 % |

- required braked mass..... 449 t
- actual braked mass..... 574 t

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

Track

Rail type.....	–	60E1, year 2004, contactless track
Sleepers.....	–	pre-tensioned prestressed concrete type
Attachment type.....	–	SB type
Ballast type.....	–	crushed stone
Maximum permitted train speed en route...	–	200 km/h; from 7 May 2023, on the day of the occurrence, the speed was reduced to 120 km/h due to the works in progress on track no. 2

Track condition: good.

1.9. Other information relevant for the purpose of the description of the occurrence and background information

None identified.

2. The factual description of the events

2.1. The proximate chain of events leading up to the occurrence, including actions taken by persons involved, the functioning of rolling stock and technical installations, the functioning of the operating system.

On 7 May 2023 at 00:01, track no. 2 of the Góra Włodowska - Zawiercie route was closed in accordance with Interim Rules no. 8/2023 with Annex 1, Phase II, for the purpose of modernisation of line no. 4. Prior to the start of the works, on 7 May 2023, the main contractor's OHS inspector conducted training for the Works Manager of the subcontractor, i.e. company TOR Mysłowice, and the Work Organisation Manager of the further subcontractor, company GRA-BUD. Next, both managers and a group of workers went by car to the works site, access to which was situated on the side of closed track no. 2, where they were familiarised with the terrain conditions. With the workers trained, work was commenced to disengage springs attaching the rails to the sleepers. The work that day started at km 220.450 and ended at km 216.000 at around 17:00 hrs. Next day, i.e. 8 May 2023, all workers arrived at the location where the work was finished the day before. The work organisation manager instructed and divided his workers into three groups, assigning a supervision officer to each of them without consulting it with the works manager. One of the three groups and the work organisation manager remained on site and was tasked with continuing the work from km 216.000 progressing in the descending chainage. The other two groups were to go to their designated work start sites. To this end, the work organisation manager informed the work leaders early in the morning, i.e. at 06:21 hrs, about the work location on the route between km 212.400 and 214.200 without specifying the track number, only sending a "map pin" with the work site to their telephones.

Approaching the work site from the side of track no. 1, group 2 (see Fig. 2) was the first to arrive and immediately, at 07:00 hrs, commenced dismantling (disengaging) the rail attachments in active track no. 1, instead of closed track no. 2. The work progressed in the direction of the line's ascending chainage. That group had managed to disengage ca. 200 m of track no. 1 when the third group arrived on site. Noticing that the second group was disengaging track no. 1, the supervisor of the third group notified the work organisation manager immediately by telephone, and the latter ordered the trackmaster in the second group by mobile phone to start re-engaging the rails in the track. Meanwhile, at 07:24 hrs, train no. 14001 departed the Góra

Włodowska station to the Zawiercie station on track no. 1. The train driver had been informed in a written "O" order that train speed limit on track no. 1 of that route had been reduced to 120 km/h due to works carried out on track no. 2. Approaching km 211.800, the train driver noticed persons in high-visibility vests working on active track no. 1 on which he was going. He immediately gave the Rp1 "Attention" warning signal and executed emergency braking until full stop. The head of the train stopped at km 212.200 at 07:26 hrs clear of the section with the rail attachments disengaged, ca. 200m ahead of the working group, who were hastily leaving the trackway. The station master who dispatched train no. 14001 from the Góra Włodowska station did not know that there was a group working on active track no. 1 of the Góra Włodowska – Zawiercie route.



Photograph 1 – source: a photo taken by the driver of train no. 14001.



Photograph 2- source: a photograph taken by the driver of train no. 14001.

2.2. The chain of events from the occurrence until the end of the actions of the rescue services, including measures taken to protect and safeguard the site of the occurrence, the efforts of the rescue and emergency services.

On 8 May 2023, the train driver notified the occurrence to the station master at the Góra Włodowska station. After train no. 14001 stopped, the works contractor continued to re-engage Sb-type springs. After the contractor engaged all springs, the track was checked and direct measurement was taken. The track parameters ensuring safe operation of train traffic had been restored. After train no. 14001 remained stationary for 88 minutes, the infrastructure manager cleared it to continue travel at the speed of $V=20$ km/h at the place of the occurrence. After the train arrived at the Zawiercie station at 09:01 hrs, the track was opened and train traffic on track no. 1 of the Góra Włodowska – Zawiercie route was resumed. The permitted speed for the first train was $V=50$ km/h, and further trains travelled at the scheduled speed.

IV. ANALYSIS OF THE OCCURRENCE

1. Roles and duties

1.1. Railway undertaking(s) or infrastructure manager(s)

Infrastructure Manager – PKP PLK S.A.

The tasks of the infrastructure manager, hereinafter referred to as "the manager", include operation of rail infrastructure involving *inter alia*:

- operation of rail traffic;
- maintenance of the rail infrastructure through carrying out works aimed to maintain the condition and ability of the existing rail infrastructure to operate rail traffic safely, including supervision of the functioning of rail traffic control devices and track-side train safety control devices;
- participation in the development of the rail infrastructure;
- renovation of the rail infrastructure.

Implementing the aforementioned tasks, PKP Polskie Linie Kolejowe S.A. Centrum Realizacji Inwestycji w Warszawie (hereinafter referred to as CRI), announced an open tender procedure for execution of railworks to increase the speed on railway line no. 4 Grodzisk Mazowiecki – Zawiercie at km 1.091 – 224.915 together with accompanying works as part of the project titled *Modernisation of railway line no. 4 - Central Railway Line, Stage II*, and appointed a project manager and supervision inspector for the task. As a result of the public procurement procedure, the contract was awarded to Pomorskie Przedsiębiorstwo Mechaniczno – Torowe sp. z o. o. Gdańsk (hereinafter referred to as PPMT), which the contracting entity signed an agreement on 18 March 2022.

In order to ensure safe operation of rail traffic during the said investment, the manager, in addition to the existing internal rules, developed detailed rules of operating rail traffic and contained them in Interim Rules no. 8/2023 on traffic operation applicable to the railworks to increase the speed on railway line no. 4 Grodzisk Mazowiecki – Zawiercie as part of the project titled *Modernisation of railway line no. 4 - Central Railway Line, Stage II* in the area of ISE DG Ząbkowice, including Annex 1. As of 21 February 2023, a consolidated text of the rules was compiled in line with a Recommendation made in PKBWK Report no. 06/2022: "prepare a consolidated text of the Interim Rules on traffic operation during works executed in the area of PKP PLK S.A. Railway Line Plant in Opole no. 12/2018".

Railway carrier PKP INTERCITY S.A.

The rail vehicle designated to carry out a transport task by the railway undertaking held a rail vehicle type operation approval certificate and a technical railworthiness certificate. The designated train crew that operated the train held all ratings and qualifications requirement by law. The train was driven on the basis of a schedule. The responsibilities of railway carriers concerning safe operation of a rail vehicle are laid down in the infrastructure manager's Instruction Ir-1 on operation of railway traffic, Instruction Ie-1(E-1) – Instruction on signalling, and the internal instruction of the railway carrier Bt-1 – Instruction for a traction vehicle driver. Based on an analysis of the material gathered in the case, the Investigation Team did not find any irregularities in the conduct of the train crew during operation of the train or after the occurrence. The train driver was observing the travel route, and after noticing workers on track no. 1, he immediately commenced emergency braking, giving the Rp1 "Attention" warning signal, and stopped the train, which prevented an occurrence with more serious consequences.

1.2. The entities in charge of maintenance, the maintenance workshops, or any other maintenance suppliers

Railway carrier PKP INTERCITY S.A., which provides the rolling stock, is responsible for its serviceability, technical condition and compliance with the vehicle maintenance process. The locomotive on the head of the

train had a rail vehicle type certificate and a valid technical railworthiness certificate. The carrier submitted documentation concerning the latest technical inspections of its rail vehicles. The Investigation Team did not find any irregularities as regards rolling stock maintenance and operation. The technical condition of the rail vehicle had no impact on the occurrence concerned.

Pomorskie Przedsiębiorstwo Mechaniczno - Torowe sp. z o. o. Gdańsk

The contractor was tasked to produce design documentation, obtain necessary administrative decisions, execute construction works based on the said documentation, prepare as-built documentation, carry out certification for the task titled execution of railworks to increase the speed on railway line no. 4 Grodzisk Mazowiecki – Zawiercie as part of the project titled *Modernisation of railway line no. 4 – Central Railway Line, Stage II*, and to conduct training for the Contracting Entity's personnel covering the scope laid down in the Functional-Utility Programme in accordance with the Tender Specifications and the Contractor's bid. The Contracting Entity allowed subcontracting a part of the construction works as well as deliveries and or services representing a part of the contract defined in the agreement concluded between the Contracting Entity and the Contractor. As part of that task, PPMT was allowed by the Contracting Entity to conclude additional agreements with 15 subcontractors, including Przedsiębiorstwo Remontowo Budowlane "TOR" sp. z o. o. Mysłowice (hereinafter referred to as TOR).

Przedsiębiorstwo Remontowo Budowlane „TOR” sp. z o. o. Mysłowice

The subcontractor was tasked to provide construction services including railworks and accompanying works. The agreement concluded between PPMT and TOR contained a clause that permitted further subcontracting. With the knowledge and permission of the Contracting Entity and the Contractor, TOR commissioned a part of the task to a further subcontractor, i.e. company GRA-BUD Aureliusz Żejmo Spółka komandytowa Zielona Góra (hereinafter referred to as GRA-BUD).

GRA-BUD Aureliusz Żejmo Spółka komandytowa Zielona Góra

GRA-BUD, as a further subcontractor, was tasked to provide construction services including railworks and accompanying works. The agreement for those works concluded with TOR prohibited any further subcontracting.

1.3.Manufacturers of rolling stock or other suppliers of rail products

Based on the investigation material gathered, the Investigation Team did not identify any factors related to manufacturers of rolling stock and suppliers of rail products that could have impact on the occurrence.

1.4.National safety authorities or the European Union Agency for Railways

The President of the Rail Transport Office (Polish: *Urząd Transportu Kolejowego*, UTK) supervises the safety of rail traffic. Based on the investigation material gathered in the case, the Investigation team did not identify any factors on the side of the national safety authority that would have impact on the occurrence.

1.5.Notified bodies, designated bodies or risk assessment bodies

Based on the investigation materials gathered, the Investigation Team did not identify any factors related to notified bodies and risk assessment bodies that could have impact on the occurrence.

1.6. Certification bodies of entities in charge of maintenance mentioned under Point 1.2

Based on the investigation material gathered in the case, the Investigation team did not identify any factors on the side of the certification body of the railway undertaking that would have impact on the occurrence.

1.7. Any other person or entity relevant to the occurrence, documented or not in one of the relevant safety management systems or referred to in a register or relevant legal framework

Not applicable.

2. Rolling stock and technical installations

Powered rail vehicle

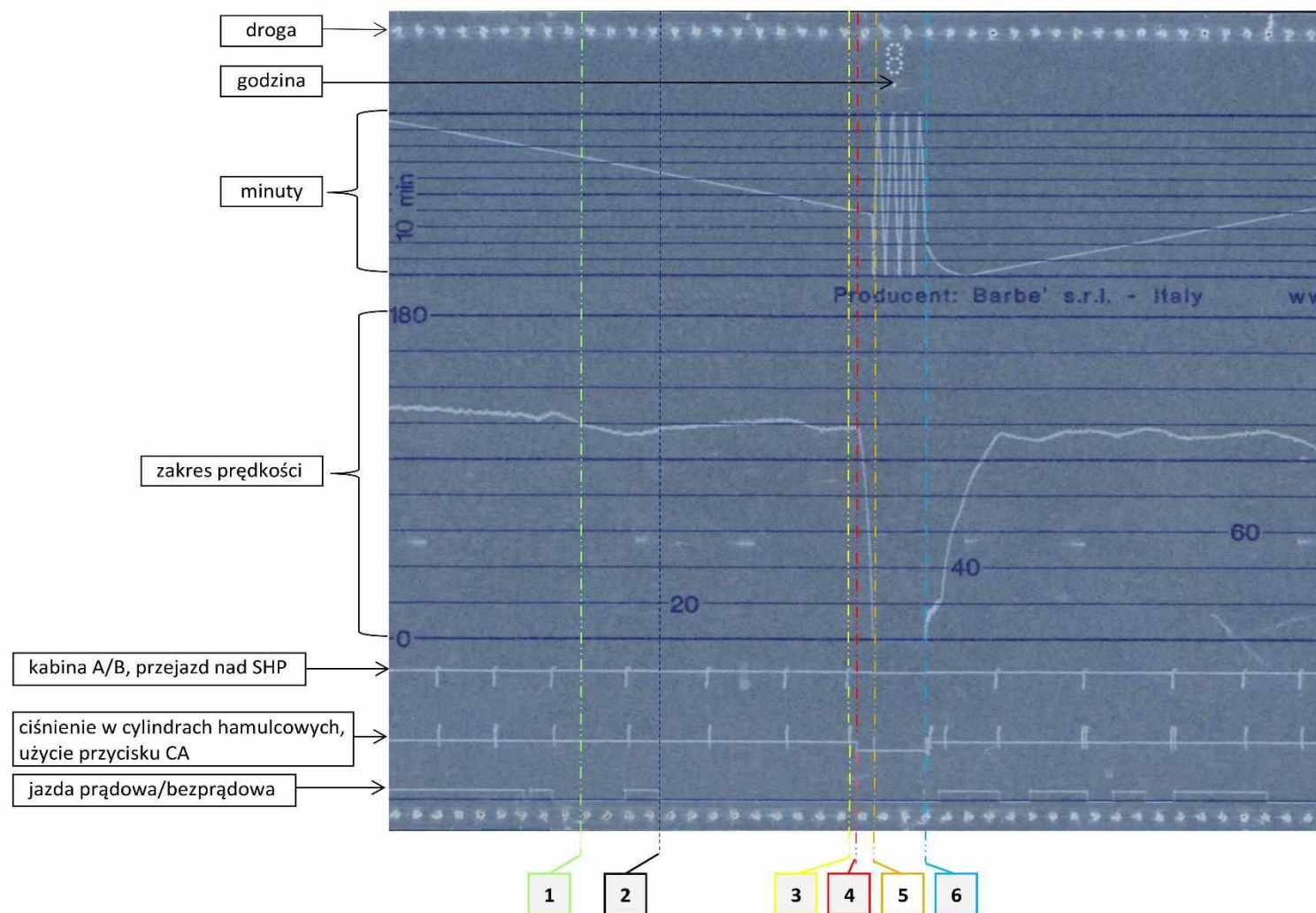
The EP09-036 electric locomotive is fitted by the manufacturer with an electromechanical system of recording driving parameters HASLER Bern RT9 with the measurement range of 180 km/h. The locomotive is equipped with a foreground image video recorder, but the carrier did not secure the recording from the locomotive, explaining that fact by a malfunction of the video recorder and inability to retrieve the said material.

The Investigation Team analysed the driving parameters recorded on the tape of the speedometer to investigate the train's driving characteristics immediately prior to and after the occurrence.

The chart below shows the following driving parameters of train no. 14001:

- distance,
- time,
- speed,
- active cabin A or B,
- use of the vigilance device button (active vigilance button/automatic train stop),
- pressure in the brake cylinders,
- electric/non-electric drive.

Figure 4 - A chart of the locomotive's driving parameters



A description of the driving characteristics of train IC no. 14001 operated between Warszawa Wschodnia and Bohumin on the section between Włoszczowa Północ and the place of the occurrence (legend for Figure 4).
Departure from the Włoszczowa Północ station at 06:57 hrs, control from Cabin A., electric drive, travel with the speed in the range between 120 km/h and 130 km/h on the distance of 49.5 km until 07:23 hrs;

- 1 - 07:23 hrs, from km 204.900 on - travel at the speed of 120 km/h (an *ad hoc* speed limit imposed for the duration of railworks between km 205.401 and km 222.689),
- 2 - 07:23:30 hrs, non-electric drive, maintaining the speed below 120 km/h,
- 3 - 07:26 hrs, travel over an automatic train stop magnet, non-electric drive at the speed of 120 km/h, use of the vigilance button,
- 4 - 07:26 hrs, at the speed of 119 km/h the system recorded a pressure drop in the train's brake cylinders, non-electric drive, speed down to 0 km/h on the distance of 400 m,
- 5 - 07:26 hrs, the head of the train stops at km 212.200, use of the vigilance button,
- 6 - 08:48 hrs, the train is restarted and continues its travel in the direction of the Zawiercie station.

3. Human factors

3.1. Human and individual characteristics

Before commencing the work, the trackmaster supervising the second group of workers had not established the number of the plain track on the basis of the hectometre boards placed on catenary poles, which led to disengaging the springs in active track no. 1, instead of track no. 2. The Investigation Team found that fact as a factor contributing to the occurrence.

3.2. Job factors

The Investigation Team does not raise any reservations concerning job factors.

3.3. Organisational factors and assignments

In conflict with the provisions of applicable agreements, on the day of the occurrence and earlier at other locations, workers from companies that had not been notified to the investor or main contractors were admitted to work.

Furthermore, Instruction Id-21 requires that workers from outsourced companies who are on the premises of the PKP PLK S.A. infrastructure should hold *Access Cards* complete with a list of authorised workers. The Investigation Team established that on the day of the occurrence, the group that mistook the tracks did not have the aforementioned document. Such *Access Card* was issued by PKP PLK S.A. CRI on 11 May 2023 for the period starting on 11 May 2023 and ending on 30 November 2023.

In order to ensure safe operation of train traffic and execution of the scheduled works, *Interim Rules no. 8/2023 on traffic operation applicable to the railworks to increase the speed on railway line no. 4 Grodzisk Mazowiecki – Zawiercie as part of the project titled Modernisation of railway line no. 4 - Central Railway Line, Stage II in the area of ISE DG Żabkowice* were developed.

The Rules named a TOR employee holding the required authorisations as the works manager. As a result of commissioning a part of the works to a further subcontractor, i.e. company GRA-BUD, supervision of the workers was exercised by a GRA-BUD employee who held the position of the work organisation manager but did not hold construction authorisations. The Interim Rules did not provide for such a change in the execution and supervision of the works. The TOR works manager was convinced that the GRA-BUD supervision employee held works manager authorisations and that he had taken over his responsibilities in that capacity. On 7 May 2023, after the scheduled closure of the route, the works manager discussed the rules

of work and indicated the location. On that day, the works on track no. 2 of the Góra Włodowska – Zawiercie route ended at km 216.00. For the following day, the works manager established a daily work plan for a section of 3.5 km, beginning where the work ended previously. On 8 May 2023, the work organisation manager from GRA-BUD autonomously divided the team into three working groups. He appointed group leaders and established the scope of work to be 2 km for each working group at various locations along the plain track section concerned. The Investigation Team found that organisation of work as a factor contributing to the occurrence.

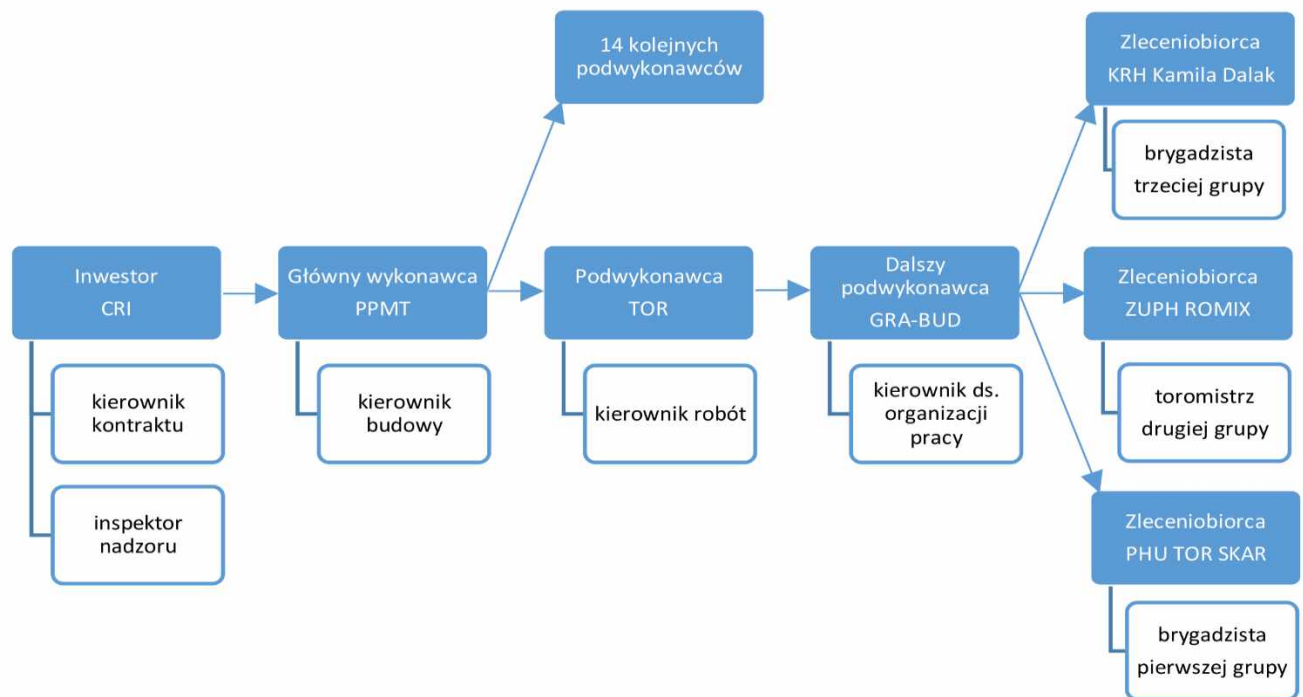


Figure 5– Chain of relations: investor, contractor and further subcontractors

GRA-BUD, as a further subcontractor, was tasked to provide construction services including railworks and accompanying works. The agreement for those works concluded with TOR prohibited any further subcontracting. Despite that provision, GRA-BUD subcontracted a part of the works to *inter alia* KRH Kamila Dalak, PHU TOR-SKAR and ZUPH ROMIX without the knowledge or approval of the investor and main contractor. The Investigation Team found, as a contributing factor, non-compliance by a further subcontractor with the provisions of agreement as regards the prohibition of commissioning work to further subcontractors, and admission of the company workers, without any knowledge or approval of the contracting entity and the main contractor, which had contributed to the lack of immediate supervision over them on the part of the investment supervision inspector.

3.4. Environmental factors

At the place of the occurrence, track no. 1 of the Góra Włodowska – Zawiercie route is situated on a straight embankment in a forested area. The approach to the work site was indicated to the working group km tasked with commencing the works at km 212.400 by means of a "map pin". The access by car ran along railway line no. 4 of the Góra Włodowska – Zawiercie route interchangeably from the side of track no. 1 and track no. 2, which contributed to the loss of the sense of direction on the part of the trackmaster who supervised the working group. After arriving at the indicated location, the trackmaster ordered the group to work on active track no. 1 without making sufficiently sure about the track number, which could be done with the use of hectometre boards placed on catenary poles.

3.5. Any other factors relevant for the purpose of the investigation

None identified.

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

The relevant regulatory framework conditions:

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

The infrastructure manager PKP PLK S.A. keeps the so-called *Hazard Record* As part of its Safety Management System (SMS). The record is updated by the infrastructure manager on an on-going basis and contains the following elements: threat name, threat number, threat source, outcomes, risk control measures, threat source manager, and risk acceptance rules.

As part of the investigation, the Commission's Investigation Team analysed the contents of the *Hazard Record*, which is one of the most critical elements of the Safety Management System in place at the infrastructure manager PKP Polskie Linie Kolejowe S.A.

Chapter 8 describes threats relating to errors made by contractors as well as irregularities and errors in organisation of works and inappropriate supervision of works.

The following threats contained in Chapter 8 are related to the occurrence under investigation: "*Construction, inspections, repairs, renovation, modernisation and dismantling*:"

8.6. *Inappropriate organisation of the working conditions on site by the contractor*

8.6.2. *Non-compliance of the contractor with the provisions of the Interim Rules on operation of traffic during works, and with internal rules of the rail infrastructure manager*

8.6.8. *Lack of appropriate supervision of the contractor's work teams*

The Investigation Team does not raise any comments concerning the *Hazard Record*.

4.2. The safety management system of the involved railway undertaking(s) and infrastructure manager(s) including the basic elements stated in Article 9(3) of Directive (EU) 2016/798 and any EU legal implementing acts

The rules of designing, constructing, maintaining and dismantling of structures are laid down in the Act of 7 July 1994 on the Construction Law (consolidated text: Journal of Laws of 2023, item 682, as amended).

In accordance with the provisions of the aforementioned Act, the responsibilities of a supervision inspector include:

- 1) *representing the investor at the construction site through controlling the compliance of its execution with the design or building permit, regulations and principles of technical knowledge;*
- 2) *checking the quality of construction works performed and verifying that products used in the execution of the works are in compliance with Article 10;*
- 3) *verifying and accepting coverable or vanishing construction works, participating in tests and technical acceptance procedures of installations, technical devices and chimney flues, as well as preparing and participating in acceptance of completed structures and their handover to the user;*
- 4) *acknowledging actually completed works and rectification of defects, and - at the investor's request - verifying the accounts of the construction site.*

Furthermore, as regards the responsibilities of the supervision inspector, the internal procedure of the infrastructure manager PKP PLK S.A. titled *Cooperation with contractors for investment works SMS-PW-11* provides:

- 1) *Managing and supervising the implementation of agreements;*

- 2) *Exercising investor supervision as prescribed under the construction law;*
- 3) *Providing substantive support to contract teams in terms of implementation of investment projects;*
- 4) *Cooperating in development of interim rules on traffic operation during execution of investment works;*
- 5) *Organising acceptance procedures for investment works, settlements, technical acceptance and handover of fixed assets to operation;*
- 6) *Cooperating in preparation of assumptions for the structure of timetables (annual and for the duration of works);*
- 7) *Supervising the production of as-built documentation and notifying the competent authority, as prescribed in the provisions of the Construction Law, of completion of construction works, as well as obtaining decisions authorising operation of completed facilities (where required);*
- 8) *Handing over construction site documentation and documents to the user of the facility;*
- 9) *Settling final accounts for investment projects.*

The aforementioned procedure contains the following scope of responsibilities of the contract manager:

- 1) *Responsibility for the implementation of the assigned contract and acting in the capacity of a representative of the contracting entity under and within the remit of powers of attorney granted;*
- 2) *Supervising the actions of the project engineer as regards fulfilment of their responsibilities in accordance with the contract;*
- 3) *Making a description of the subject of the contract as regards additional works or similar orders not included the contract;*
- 4) *Submitting documents, opinions and statements in accordance with the obligation imposed on the investor under law;*
- 5) *Conducting random checks of the quality of works and materials used;*
- 6) *Supervising the production of the as-built documentation, and notifying the competent authority of the completion of works in order to obtain the use permit (where required);*
- 7) *Controlling the compliance of the execution of the works with the design, building permit and other rules and principles of technical knowledge;*
- 8) *Participating in development of interim rules on traffic operation during execution of the works;*
- 9) *Applying for the appointment of a commission to formally take over fixed assets whose ownership is transferred under the contract onto the contracting entity;*
- 10) *Representing the contracting entity in works acceptance commissions.*

The project manager and supervision inspector were appointed for the purpose of implementing the project of railworks aimed to increase the speed on railway line no. 4 Grodzisk Mazowiecki – Zawiercie at km 1.091 – km 224.915, including accompanying works, as part of the project titled *Modernisation of railway line no. 4 - Central Railway Line, Stage II*.

In the opinion of the Investigation Team, it is impossible for a single person holding the position of the contract manager and supervision inspector to fulfil the scope of responsibilities arising from the aforementioned regulations in the case of line investments (located more than 200 km apart from each other). Lack of internal rules at the infrastructure manager as regards quantitative staffing of investor supervision teams for the positions of the contract manager and supervision inspectors, taking into account the expanse of the area and number of facilities covered by the investment concerned was found by the Investigation Team as a systemic factor in the occurrence.

4.3. The management system of the entity/entities in charge of maintenance and maintenance workshops including the functions stated in the Article 14(3) and Annex III of Directive (EU) 2016/798 and any subsequent implementing acts

Not applicable.

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

Not applicable.

4.5. The authorisations, certificates and assessment reports granted by the Agency, the National Safety Authorities or other conformity assessment bodies

Not applicable.

5. Previous occurrences of a similar character

- A Category C-51 incident that occurred on 24 January 2020 at 03:57 hrs at the Wronki station, track no. 1, km 52.216 of railway line no. 351 Poznań Główny - Szczecin Główny, in the area of infrastructure manager PKP Polskie Linie Kolejowe S.A.; the unit subordinated to the infrastructure manager with jurisdiction over the place of the occurrence: Railway Line Plant in Poznań.
Causes of the incident:
direct cause: Inappropriate preparation for works in the form of a wrong track closure scope, which resulted in accepting a train at the station on a train with unpowered catenary.
root cause: Wrong definition by the Investment Implementation Centre of the track closure scope outside the works site in Document IRRT/5b-739-41/01/20.
indirect causes:
Issue of a wrong notification on ordering closure of plain track no. 1 from clearance point Rz 45 (instead the station track), following a change in the station boundaries.
Insufficient ascertainment by the station master concerning the possibility for the train to enter the Wronki station from active plain track no. 2 to station track no. 2 with the use of station track no. 1.
Inappropriate track closure request by the trackmaster, inconsistent with the notification and situation on the ground.
Wrong interpretation of the notification by the station master, following a change of technical conditions and organisation of traffic at the Wronki station and on the Wronki - Między route, despite their evidential acknowledgement.
No information about switched off power in catenary on track no. 101 and turnouts 51 and 54.
- A Category C-51 incident that occurred on 15 July 2021 at 11:50 on the Mysłowice MWA - Mysłowice Brzezinka MB route, track no. 1, km 15.550 of line no. 138 Oświęcim - Katowice, in the area of infrastructure manager PKP Polskie Linie Kolejowe S.A.; the organisational unit subordinated to the infrastructure manager with jurisdiction over the place of the occurrence: IZ Sosnowiec, ISE Jaworzno Szczakowa.
Causes of the incident:
direct cause: Inappropriate execution of works by an outsourced company during works RT 26/2021, Phase IV.
root cause: Non-compliance of workers of the outsourced company with the procedures and regulations.
indirect causes: Lack of immediate supervision by the works managers at an engineered facility.

V. CONCLUSIONS

1. A summary of the analysis and conclusions with regard to the causes of the occurrence

The Investigation Team found the following causal factor for the occurrence: loss of the sense of direction by the trackmaster from the company carrying out the works, leading to the commencement of the dismantling of rail mountings in active track no. 1 instead of closed track no. 2

The investigation Team found the following to be factors contributing to the occurrence:

- 1) Organisation of work and designation of tasks to three groups ""disengaging"" the track by an unauthorised employee, and the assignment by that employee of work to the trackmaster in the second group by instructing the latter by telephone on the kilometre at which the work should commence and the place of arrival, and by sending the so-called "map pin".
- 2) Before commencing the work, the trackmaster in charge of the second group of workers had not established the number of the plain track on the basis of the hectometre boards placed on catenary poles.
- 3) Absence of the work manager appointed in accordance with *Interim Rules no. 8/2023 on traffic operation (...)* at the location where the rails of the active track were disengaged.
- 4) Non-compliance by a further subcontractor with the provisions of agreement as regards the prohibition of commissioning work to further subcontractors, and admission of the company workers, without any knowledge or approval of the contracting entity and the main contractor, which had contributed to the lack of immediate supervision over them on the part of the investment supervision inspector.
- 5) Performance of railworks by workers without the *Access Card* permitting access to the area managed by PKP Polskie Linie Kolejowe S.A. in accordance with Instruction Id-21.

Based on an analysis of the material gathered it transpires that the scope of works envisaged under the project covered more than 220 km of the line at several locations at the same time. The scope of the works and number of contractors and subcontractors was a hindrance to exercising control of the process of the investment by the investor supervision on the part of CRI. The hindered supervision resulted from the lack of regulations concerning the the number of employees responsible for supervision. The Investigation Team found the lack of legal regulations concerning the quantitative staffing of the supervision teams to be the systemic factor.

2. Measures taken since the occurrence

- 1) The railway commission investigating the circumstances of the occurrence motioned for removal from duties for the trackmaster supervising the work of the second group that was disengaging spring rail attachments from the sleepers on active track no. 1 of the Góra Włodowska - Zawiercie route.
- 2) At the request of the main contractor PPMT Gdańsk, the following persons were suspended: the works manager from TOR and Works Organisation Manager from GRA-BUD.
- 3) CRI, as the investor, imposed financial penalties on the main contractor, i.e. PPMT, under the provisions of the agreement and Ibh-105, for the failure to secure the works site and failure to ensure the required supervision.

3. Additional comments

The Investigation Team did not identify any other irregularities.

VI. SAFETY RECOMMENDATIONS

1. PKP PLK S.A. shall enforce the rules of admission of workers with required authorisations and permits to works and supervision.
2. PKP PLK S.A. shall enforce the rules of admission of outsourced company workers with access cards to perform work on the managed infrastructure.
3. PKP PLK S.A. shall standardise the work of contract managers and supervision inspectors on line investments in terms of the ability to fulfil tasks arising under the provisions of the Construction Law and internal procedures, and shall take appropriate actions based on the said standardisation.

STATE COMMISSION ON RAILWAY ACCIDENT INVESTIGATION
CHAIRMAN

.....
Tadeusz Ryś

List of entities and acronyms that appear in Report No. PKBWK 4/2024

#	Symbol (acronym)	Explanation
<i>1</i>	<i>2</i>	<i>3</i>
1.	EUAR	European Union Agency for Railways
2.	PKBWK	State Commission on Railway Accident Investigation (Polish: <i>Państwowa Komisja Badania Wypadków Kolejowych</i>)
3.	UTK	Office of Rail Transport (Polish: <i>Urząd Transportu Kolejowego</i>)
4.	PKP PLK S.A.	Infrastructure manager
5.	IZ	PKP PLK S.A. Railway Line Plant (Polish: <i>Zakład Linii Kolejowych</i>)
6.	CRI	PKP PLK S.A. Investment Implementation Centre (Polish: <i>Centrum Realizacji Inwestycji</i>) - investor
7.	PKP IC	PKP INTERCITY S.A. - railway carrier
8.	PPMT Sp. z o. o.	Pomorskie Przedsiębiorstwo Mechaniczno – Torowe Sp. z o. o. Gdańsk – main contractor for the works
9.	TOR Mysłowice	Przedsiębiorstwo Remontowo Budowlane TOR Sp. z o. o. Mysłowice - subcontractor
10.	GRA-BUD	GRA-BUD Aureliusz Żejmo Sp.k. Zielona Góra – further subcontractor