

Translation from Bulgarian language

REPUBLIC OF BULGARIA

MINISTRY OF TRANSPORT, INFORMATION TECHNOLOGIES AND COMMUNICATIONS

“Diakon Ignatii” Str. № 9, Sofia 1000
tel.: (+359 2) 940 9771
fax: (+359 2) 988 5094

mail@mt.government.bg
www.mt.government.bg

"AIRCRAFT, MARITIME AND RAILWAY ACCIDENT INVESTIGATION UNIT" DIRECTORATE (AMRAI)

FINAL REPORT

from

technical investigation of railway accident that took place on 19.12.2012 around
11:38 hour at Shumen railway station - fire of electric locomotive № 42081.0 of
passenger train № 90101



May 2013

APPROVE:

TO
MR KRISTIAN KRASTEV
MINISTER OF TRANSPORT,
INFORMATION TECHNOLOGIES AND COMMUNICATIONS

FINAL REPORT

Subject: *technical investigation of railway accident that took place on 19.12.2012 around 11:38 hour at Shumen railway station - fire of electric locomotive № 42081.0 of passenger train № 90101*

DEAR MR KRASTEV,

With your order № ПД-08-44 /25.01.2013 a technical investigation commission was appointed and tasked to investigate and establish the reasons in which the accident occurred and to prepare a final report with safety recommendations of investigation carried out.

The investigation commission held confrontation in locomotive depot Gorna Oryahovitsa with all persons that have relation with the accident. The commission analyzed the report of the Operational group together with the required additional documents to him to clarify the facts and circumstances under which the accident occurred.

1. Established facts and circumstances by the investigation.

On 19.12.2012 passenger train (PT) № 90101 is served by electrical locomotive № 42081.0 (it enters Kaspichan station with I-st cabin as frontal, at the station the train change the direction and II-nd cabin of the locomotive became frontal) with locomotive brigade - locomotive driver with 23 years of service and locomotive assistance driver with 5 years of service from locomotive depot Gorna Oryahovitsa, "BDZ - Passenger services" EOOD and carriage brigade - train-master with 19 years of service and ticket-collector with 17 years of service from Transport service Ruse of "BDZ - Passenger services" EOOD. The train is moving according the Schedule for movement of trains (SMT) from Ruse marshaling yard to Shumen station. While traveling in the Samuil - Kaspichan section due to bad weather conditions (snowdrifts), the travel time of the train is increased by +22'. The train arrives at Kaspichan station at 10:45 with +11' delay. It is followed by 23 ' stay to reverse the movement of the locomotive, coupling, signaling the train and performing test "D" (shortened test of the

automatic train brake) as well as to meet the fast train № 9620, which departs from Kaspichan station at 11:08 with +22' delay.

PT № 90101 arrives in Shumen station at 11:33 hours and it is received at the second receiving-departure track (RDT) under Plan II-24 of the station and the movement ends with a 23' delay. Five minutes after disembarking passengers from the train, while waiting for maneuver of train composition, the assistant locomotive driver felt a burning smell, look around the cabin and then look from the side window of the assistant driver the rear part of the locomotive. He observed smoke coming from the lower rear section of the locomotive. Immediately turns off the Main air breaker (MAB), notify the locomotive driver for the observation and both of them immediately undertake a view of the electric locomotive. When the driver gets in the back cabin a thick and suffocating smoke and flame come out from the intermediate corridor of the driver's side. The thick and suffocating smoke prevents the access to the cabin and the train driver attempted to enter it via the through passage from the second cabin, but it proves impossible. Driver switches-off the battery and activates the fixed fire extinguishing system of the locomotive, after which the locomotive crew begin fire-fighting from both doors of the burning cabin with the available portable fire extinguishers from the front cabin of the locomotive.

The train-master also noticed that smoke was coming out from the rear cabin of the locomotive. Locomotive driver of train № 20152 served with EMB № 32069.7/32070.5 also noticed the smoke. At 11:38 the second person on duty traffic manager after departure of train № 20152 noticed smoke and later flames, took the available fire extinguishers from the station's control room and tried to help to control the fire. At 11:40 h the train-master, seeing that the available fire extinguishers cannot put out the fire, made a distress call to 112. Despite the undertaken steps fire was growing rapidly with great intensity and hampers the further fire-fighting with fire extinguishers. Locomotive and carriage brigades made an attempt to separate the locomotive from the train composition, but fail due to tight screw coupling and inability to move the locomotive in back direction in order to be disconnected.

Traffic manager first person notified the train dispatcher and take measures for cutting-off the voltage of the contact wire by the established procedure. Until the arrival of the firefighting vehicle at 11:47 hour all fire extinguishers have been used. Nevertheless the fire was growing and as the result the high temperature ignited the rubber flagons of passenger carriage № 315220479403 next to the locomotive. The strong flame burned also the contact wire of the contact network. At 11:55 hours arrived the fire truck from Fire Safety and Protection of Population (FSPP) - Shumen and after the confirmation by the station master that the voltage of the contact network is switched-off at 11:56 hours started extinguishing work. At 12:50 hours the fire was extinguished and permission was given by FSPP - Shumen and investigating police officer from the Ministry of Interior to start emergency repair work. At 14:08 hours diesel locomotive № 07066.4 arrives with a local freight train (LFT) № 20731 with it PO № 90101 was moved from second to fifth track. From 16:00 to 19:00 o'clock an emergency window was authorized to restore the contact network of the second track. At the 19:06 train traffic was restored on the second track.

2. Officials involved in the case.

2.1 Locomotive brigade:

2.1.1. „locomotive driver" of electric locomotive № 42081.0 from locomotive depot Gorna Oryahovitsa, "BDZ - Passenger services " EOOD - 23 years of service;

2.1.2. „assistant locomotive driver" of electric locomotive № 42081.0 from locomotive depot Gorna Oryahovitsa, "BDZ - Passenger services " EOOD - 5 years of service.

2.2 Carriage brigade:

2.2.1. „train-master" from Transport service Ruse of "BDZ - Passenger services" EOOD - 19 years of service;

2.2.2. „ticket-collector" from Transport service Ruse of "BDZ - Passenger services" EOOD - 17 years of service.

2.3 Station employees:

2.3.1. „traffic manager" of Shumen railway station, first person - employee of CTMSA - Gorna Oryahovitsa to SE "NCRI"- 31 years of service;

2.3.2. „traffic manager" of Shumen railway station, second person - employee of CTMSA - Gorna Oryahovitsa to SE "NCRI"- 37 years of service;

2.3.3. „energy dispatcher " RED - Gorna Oryahovitsa to SE" NRIC "- 3 years and 6 months of service;

2.3.4. „electrical systems technician" of CN - Shumen sub region to SE "NCRI"- 27 years of service.

3. Physical condition of the officials involved in the accident.

All officials involved in the accident were provided with the necessary rest period before starting work as required by the Labor Code and Ordinance № 50 of 28.12.2001 on working time of the management and executive personnel, engaged with passengers and freight railway transportation of the Minister of Transport (promulgated, SG. iss. 4 of 2002, amended. SG. iss. 46 of 2004, amended. and suppl. SG. iss. 99 of 2006).

All officials involved in the accident passed pre-travel (pre-shift) instruction and they have declared that they are fit for work and didn't consumed alcohol or drugs.

All officials involved in the accident have a valid certificates of psychological check which are not expired.

Before starting work the locomotive brigade did not pass a test for the use of alcohol according to the requirements of Art. 24, para. 4 and Art. 28, para. 2 and para. 3 of Ordinance № 54 from 02.06.2003 of the Minister of Transport and Communications (promulgated, SG, iss. 55 from 17.06.2003) for medical and psychological requirements to the personnel which perform railway transport of passengers and goods and associated activities to conduct pre-travel (pre-shift) medical examinations. In the process of investigation in locomotive depot Gorna Oryahovitsa it was found that it is widespread practice locomotive brigades to be allowed to work only with a statement signed by them that they are alert, rested and had not used alcohol or other drugs, without being carried check the amount

of the alcohol in the breath with the necessary equipment. Evident from the performed controls by "Safety" Department of "BDZ - Passenger services" EOOD and the given prescriptions № 02-05/23.11.2012, № 02-04/26.10.2012, № 18-04827.11.2012 by which were found breaches of the requirements of Art. 24, para. 4 and Art. 28, para. 2 and para. 3 of Ordinance № 54 of 02.06.2003 for the medical and psychological personnel requirements for the absence of intact and passed the corresponded metrological inspection apparatus for the control of the amount of alcohol in exhaled air in locomotive depot Gorna Oryahovitsa and adjacent operating points Ruse and Levski, as well as in the locomotive depot Varna, without meeting the requirements to this moment.

4. Qualification and appointment documents.

All officials involved in the accident, have the necessary certificates and professional qualifications for the corresponding position and possess certificate of its occupation.

5. Actions of the officials before and during the accident.

All officials immediately before and during the accident acted in accordance with the approved regulations and internal rules governing the safety performance of passengers transport by rail.

Locomotive and carriage brigades have taken all measures to locate and suppress the fire with the available portable fire-fighting equipment of locomotives, carriages and the station. They timely informed FSPP by calling 112 for the occurred fire.

Under the developed situation of heavy smoke of toxic substances that affect human health, as well as under the circumstances contributed to the growth of fire the locomotive and carriage brigades acted correctly in the situation thus created.

6. Circumstances preceding the accident in respect of railways, auxiliary equipment, contact network, rolling stock and others.

Meteorological weather data: in daylight, air temperature: - 8° C, heavy snow with strong north-northwest wind with speed of 10,7 m/s and poor visibility.

Railway track: in order and not related to the admitted railway accident.

Station and inter-station auxiliary equipment and its condition before the accident: Stations is equipped with Semi-automatic blocking (SAB) two-way section have been in order and is not relevant to the occurred railway accident.

Contact network: in order and not related to the admitted railway accident.

Electric locomotive № 42081.0 serving PT № 90101 has been technically correct, with technically correct running gear, brake system, light and sound signaling equipment in accordance with the technical standards and requirements, as evidenced by entries in the respective registries, copies of which are presented in Appendix 3. It has been equipped with 4 (four) pieces of functioning dry powder extinguishers YATRUS 12, located in pairs on stands in the two cabins.

Coaches - 2 pcs, B₄ type, number of axes - 8, tonnage of the train - 78 tons.

Train forming station: Ruse marshaling yard.

Communication equipment and mobile connections have been technically fit.
The train stopped at the level with profile of the 2nd track - 0 ‰.

7. Compliance with the procedures and working technologies in the system of State Enterprise "National Railway Infrastructure Company" (SE "NRIC") before and during the accident.

Working procedures and technologies in "Control of the trains movement and station activity" (CTMSA) - Gorna Oryahovitsa, which is part of the structure of the State enterprise "NRIC" before and during the accident, as evidenced by the report of the operational group and its attachments, by the additionally required materials and conducted by the investigative commission confrontations with persons involved in the accident have been met.

8. Compliance with the procedures and technology for servicing of rolling stock in the carrier system before and during the accident.

Passenger train (PT) № 90101 has been secured with the necessary brake mass and equipped with the necessary train documents. The locomotive and carriage brigades have been equipped with service mobile phones.

The electrical locomotive № 42081.0 is produced in 1970. Initially it has been listed in the park of Locomotive depot Ruse.

At the time of the accident the locomotive runs from the last planned repairs are shown in the following table:

Type of repair	Date of discharge from repair	Run from the repair
Capital repair (CR)	26.04.1991	2 624 868 km.
Middle repair (MR)	03.11.2000	974 471 km.
Lifting repair (LR)	28.09.2004	584 338 km.
Large periodic repair (LPR)	21.03.2008	381 408 km.
Small periodic repair (SPR)	17.10.2012	26 148 km.
Exploitation inspection (EI)	18.12.2012	280 km.

During the capital repair in April 1991 in Railway Factory "Georgi Dimitrov" - Sofia also a partial modernization in the control system of the locomotive has been done.

In reviewing the technical documentation was found that, in accordance with PLS 100/09 "Prescription for inter-repairs runs and cycles of planned checks and repairs of electric locomotives and ELT of "BDZ" EAD the inter-repair cycle of the electric locomotive is increased for LR with 58.67% of the LPR, i.e. from 357,000 km. / to 600 000 km. of LR with 33,33 %. All other checks and repairs of electric locomotives are conducted in accordance with the approved inter-repair cycle.

In checking the "Technical Passport of train № 42081.0" (LS 005-1) and "Journal of necessary repairs to the traction rolling stock" (Form LP - 9) are not detected and recorded any violations of the acting regulations for factory and depot

repairs and maintenance of electric locomotives, of the organization, procedures and technologies of repair work related to the occurrence of fire.

9. Condition of the railway infrastructure and rolling stock before, during and after the accident.

It is found that railway infrastructure before and during the accident has been in working condition.

Before the accident electric locomotive № 42081.0 and carriages in the composition of PT № 90101 have been in order.

As a result of the accident many damages in electrical locomotive and coaches were found, as detailed in section 10 "Consequences of the accident".

10. Consequences of the accident.

10.1. Lives lost - none;

10.2. Injured with traumas - none;

10.3. Caused damages to the railway rolling stock:

10.3.1. coaches:

Passenger coach № 51522047940-3 - home station Gorna Oryahovitsa;

- burned 2 pcs. vertical and 1pcs horizontal rubber flagons;

- damaged doors - 2 pcs.;

- broken 2 pcs. of windows of frontal doors.

The damages caused to passenger car amounted to 1255.17 BGN.

10.3.2. Electric locomotive:

Electric locomotive № 42081.0 - owned by "BDZ - Passenger services" EOOD

- At the time of the fire the logbook of the locomotive and the speedometer tape were burned, for which reports are attached;

- completely burned is the first cabin of the locomotive and located in it control devices and hardware cabinets;

- partially burned flooring of the cabin (technical plywood) and the caused by the fire damages are mostly in the area under the control panel;

- wiring of operation and power control circuits and for power of auxiliary aggregates in locomotive cabin are with fully burned insulation. The lacerations of the conductors are mechanical due to the dislodging of burning equipment. Operation and power cables protected by the flooring and placed in special cable channels are with almost intact insulation;

- the wall of the intermediate passage to the engine room from the control cabin side and the mounted on it hardware cabinets are completely burned;

- the door of the control cabin to the intermediate corridor is burned in its upper part;

- the aluminum housing of the located behind the wall of the intermediate corridor calorifier for heating the cabin is burned at its bottom part;

- the aluminum housing of the located near the place of the train driver calorifier for heating the windshield of the cabin is completely burnt and its motor and fan are

missing. Its main power cable is with almost intact insulation. An inspection has been carried out for damaged insulation of calorifier heaters and it proves they are intact;

- damages have been caused of the wall of the intermediate corridor from the side of engine section;

- the caused damages on the pneumatic panel are significantly smaller than in the control cabin;

- damages have been caused to the aggregates located in the beginning of the passable and impassable corridor in the machine room, the damages are evenly distributed on both sides of the corridors;

- there are damages to the lining of the locomotive basket in the beginning of passable and impassable corridor;

- the personal luggage of locomotive brigade is entirely burned;

- stationary fire extinguishing system of the locomotive is activated, but has not fully implemented its function, because it has no effect in the driver's cabin and the intermediate corridor. It is found a mechanical disruption of a pipe from the same. The disrupted pipe is part of the installation to the second cabin which is not directly related to the weak effect of the activated system.

After the accident pursuant to § 18 and Annex № 3 of the "Regulations for depot repair and maintenance of electric locomotives of BDZ" - sign. № LS 0103 is prepared an Ascertainment Protocol № 2-A/42 series of 08.01.2013 on the assessment of material damage amounting to 35,000 BGN in residual balance value of the locomotive of 901 000.63 BGN. to 30.11.2012.

10.4. Caused damages to the railway infrastructure:

10.4.1. railway track and facilities: none.

10.4.2. axillary and signaling equipment, radio communications, power supply: none.

10.4.3. contact network: a torn (burnt) wire of the contact network on the second railway track in Shumen station due to the high temperature of the fire. The damages caused to the contact network (CN) amounted to 2274.28 BGN. The cost to repair the damage on CN in Shumen station amounted to 5009.13 BGN.

10.4.4. other damages: none.

10.5. Damage and spillage of cargo, luggage and parcels: none.

10.6. Interruption of the train traffic: Due to fire of electric locomotive № 42081.0 on 19.12.2012 is interrupted the movement by electric traction from 11:56 to 12:55 hours throughout Shumen station. At 12:55 hours was restored the movement by electric traction on first track, and at 14:30 hours was restored the movement by electric traction from third to eighth tracks. On the second track the train traffic is suspended from 11:56 to 19:15 hours. From 11:56 hours is switched off the voltage of contact network on the current road № 1 to the adjacent stages of Khan Krum and Matnitsa and it was restored at 19:15 hours.

10.7. Caused delay of trains:

- Train № 2611, carrier "BDZ - PS" EOOD - stay in a Station Han Krum +34' meeting by train № 2612;

- Train № 2612, carrier "BDZ - PS" EOOD - stay in a Station Matnitsa +2' due to lack of voltage in CN in Station Shumen;

- Train № 20153, carrier "BDZ - PS" EOOD - stay in a Station Han Krum +55' due to lack of free track in Station Shumen;

- Train № 20165, carrier "BDZ - PS" EOOD - departed Station Shumen +110', due to the absence of voltage in CN and performed maneuvers;

- Train № 30161, carrier "BDZ - PS" EOOD - stay in the station Smyadovo +28' and +25' at the entrance traffic lights of Station Shumen due to lack a voltage in the CN and free arrival track at the station;

- Train № 30162, carrier "BDZ - PS" EOOD - departed Station Shumen +68', after composition of train № 30161 and lack a voltage in the CN at the station;

- Train № 90106, carrier "BDZ - PS" EOOD - departs from station Shumen +386', due to the absence of voltage in the CN in the Station. Waiting for electric locomotive from train № 2613;

- Train № 20167, carrier "BDZ - PS" EOOD - departs from station Shumen +50', due to the absence of voltage in the CN in the Station;

- Train № 90611, carrier "BDZ - PS" EOOD - stay in the station Hitrino +60' due to meeting of trains № 9622 and № 90106;

Losses incurred by the "BDZ - PS" EOOD as a consequence of delayed trains amounted to 1490.80 BGN.

10.8. Movement of recovery means:

10.8.1. Recovery train: none.

10.8.2. Other recovery means: at 11:47 is assigned emergency trolley SM-055 from sub region Shumen which arrived at the accident scene at 12:10 hours.

11. Analysis of the reasons leading to the railway accident.

From inspections made and the materials presented it is clear that:

- the fire occurs around 11:38 five minutes after disembarking the passengers while waiting for maneuver of the train composition;

- first cabin of the electric locomotive is completely scorched with deformed structure and without glasses. Inside the cabin are heavily burnt the control panel, all wires, cables and contactors;

- At the top left of the control panel are found deepest char and typical signs of thermal effects (large deformations and traces of white patches);

- In first cabin were found fusions in the form of frozen droplets and pearls on electrical wires, typical for an electrical short circuit in the electrical installation of the control panel of the electric locomotive, where are located: switch control 370, automatic fuses - 301 / control circuits / 601 and 602 / headlight and fog over-buffer lights / 181 / cabins heating / 179 / heaters at the feet of assistant driver / 170 / contact 220V / , 534 , / horns / contact 192-220 V AC, contact 651 - 48 V DC, 451 switch - for train heating, buttons 400 and 402 - power switch off and on of the main air circuit breaker (MAB), switches for the control of pantographs - 431 and 433, buttons for switching the fans 431 and 437, switches for the lights in the cabin and the engine compartment, switches for headlight and fog over-buffer lights 608, 609 and 610,

switches for lighting the equipment in the cabin 612, buttons for switching on and off of the calorifiers for heating and blowing the windows - 757 and 756, measuring instruments, operation controller;

- cigarette butts are found in unburned second cabin of the electric locomotive;
- It is found that a previous fire accident in the engine compartment of the electric locomotive took place (in Dabovo Station on 26.06.2012, in which stationary firefighting system has been activated and 2 pieces of fire extinguishers used to fight the fire;
- in electric locomotives series № 42000 constructively is not provided the installation of fire alarm systems.

The electrical short circuits are random events and are the result of defects in the insulation of electrical cables and wires. A characteristic feature of the electrical short circuit is the melting of the conductors by occurring electrical arc which temperature can reach 1500° to 4000° C and in which characteristic "frozen drops, pearls" of molten metal are formed. The currents of incurred electrical short circuit in the initial moment has been comparable to the nominal operating electrical currents in operating circuits, thus not triggering any of the electrical protection. Subsequently the excessive heat and melting of the insulation of the operating wires resulted in permanent electrical short circuit, which led to the emergence of electric arc and ignition of combustible materials in the cabin of the electric locomotive. The taken from the upper left part of the control panel and from the floor of the burned cabin in the electric locomotive piece of copper solid wire, multicore cable is with completely burned insulation at one end of which is visible a melt typical for melting as a result of an electrical short circuit and a piece of copper solid wire, multicore cable with completely burned insulation, one end of which is connected by means of nuts and washers to the stud and at the other is visible a melt typical of melting as a result of a short circuit. After performance of triple judicial firefighting expertise from "Center for Research and Expertise" to the Directorate General "FSPP" in Ministry of Interior and X-ray structural analysis it has been unambiguously established that the short circuit on the two pieces of wire is "**primary**". From the seized evidence for the preparation of firefighting expertise are obtained data for the rapid development of the fire, which suggests the presence of an ignition source with high power.

Burning has spread from the center of the fire - the control switch 370 along the combustible insulation on electrical wires and other combustible materials - wood, plastic, etc., in all directions in the form of a sphere. Vertically upward under the influence of convection flows and vertically downward by the action of the melting material and horizontally in all directions under the influence primary of the thermal conductivity and radiant flow of heat. Subsequently after covering the volume of the cabin and raising the temperature inside it and after breaking its windows, under the influence of the wind blowing in the direction from electric locomotive toward passenger carriages, the fire spread to the first passenger carriage, destroying part of the paint and rubber seals (flacons) of carriage № 515220479403. Under the influence of the high temperature above the burning cabin the contact network of 2nd track also has burnt which indicates achieving a temperature of over 1085° C.

Circumstances that contribute to the emergence and spread of the fire are:

- The presence of combustible materials in the cabin of the electric locomotive - insulation of electric wires and cables, wooden items, upholstered parts of chairs, deposits of dust, personal luggage of locomotive crew and others;
- bad atmospheric conditions - low temperature, existence of a strong wind blowing from the locomotive towards the wagons;
- absence of locomotive brigade member in the rear cabin of the electric locomotive at the time of the fire starting;
- absence of fire alarming installation.

12. Cause of the accident.

As a result of inspections conducted by the Commission in locomotive depot Gorna Oryahovitsa after the fire occurred, the collected protocols for scheduled maintenance and inspections protocols for performed measurements and other technical documentation of the case, the report of the operative group, additionally taken written and oral explanations from locomotive and carriage brigades and the staff involved in the accident, the required by the Commission triple judicial firefighting expertise prepared by the "Center for Research and expertise" to the Directorate General "FSPP" of MI and the analysis made - the Commission considers that:

Direct technical cause of the occurred accident - ignition of the electric locomotive № 42081.0 on second track in the railway station Shumen is: **the occurring primary electrical short circuit in the operative wires connected to the control switch 370 mounted on the middle column of the Control Panel in the 1st cabin of the electric locomotive.**

Insulation of cables is affected by the aging, moisture and loss of insulating characteristics, repeated bending, vibration, loose connections or excessive heat of the insulation due to malfunction of some contacts of the control switch 370. The control switch 370 is the most loaded part of the control circuits of the locomotive. As a result of aging the pressure between its contacts is reduced, which is a precondition for emerging of electric arc. Electrical short circuit occurred at creation of conditions for electrical contact of electrical wires connected to the control switch 370 with different polarity through very low resistance, which is not provided for the working conditions of the operating circuits of the locomotive.

13. Recommendations and proposals for measures to prevent other incidents of a similar nature.

1. Executive Director of "Railway Administration" Executive Agency to order:

1.1. holding of an extraordinary briefing of locomotive brigades on fire and emergency safety procedures and modus operandi of locomotive brigades in case of fire in the tractive stock.

Term: 28.06.2013

1.2. Portable fire extinguishers shall be unified by type and location plans for all series of electric locomotives in operation.

Term: 28.06.2013

1.3. To perform a one-off inspection of all electrical locomotives in "Holding BDZ" EAD under the requirements of art. 623, art. 624, art. 625 and art. 626 of „Rules for depot repair and maintenance of electric locomotives in BDZ" (LS 0103) from 1979 and art. 743 and art. 748 of „Rules for factory repair of electric locomotives series 41000, 42000, 43000" from 1991.

Term: 30.08.2013

1.4. To perform a one-off inspection of the functionality of the fire alarm and firefighting systems of all electric locomotives in "Holding BDZ" EAD.

Term: 28.06.2013

1.5. To organize and carry out inspections on compliance with the requirements of Art. 24, para 0.4 and Art. 28, para. 2 and para. 3 of Ordinance № 54 of 02.06.2003 for medical and psychological requirements to the personnel which perform railway transport of passengers and goods and associated activities and for implementation of pre-travel (pre-shift) medical examinations.

Term: 28.06.2013

2. Pursuant to Art. 427, para. 1, Item 7 of Ordinance № 13 of 30.12.2005 for providing healthy and safe working conditions in the railway transport, Executive Director of "Holding BDZ" EAD to take measures to comply with and implementation the requirements of the Ordinance.

Term: 31.07.2013

3. Executive Director of "Holding BDZ" EAD to order a study of additional placement of advanced aerosol extinguishing means, providing timely and reliable extinguishing a fire occurred during movement in the cabin and engine compartment of the traction rolling stock.

Term: 30.09.2013

By 30.10.2013 the Executive Directors of the EA "Railway Administration" and "Holding BDZ" EAD to notify in writing the AMRAI Directorate in MTITC about the measures taken to prevent accidents and incidents of a similar nature.

Appendix: 1. Photographs - 6 pcs.

2. CD with photos from the of the accident scene.

3. Copies of the "Journal for the exploitation check" and "Register of arrived and departed trains and those of which an examination, hearing and test of the automatic brake have been carried out"

Chairman:

..... (Boicho Skrobanski)
State inspector in AMRAI Directorate in MTITC

Members:

1. (Vencislav Petrov)
Chief inspector in RRI - Gorna Oryahovitsa of EA RA

2. (Petio Vasilev)
Senior inspector in RRI - Gorna Oryahovitsa of EA RA

3. (Velko Danailov)
Independent expert

I, the undersigned Ognyan Petkov Kirilov, certify that this is a true and accurate translation done by me from Bulgarian into English language of the attached document "FINAL REPORT". The translation comprises 13 (thirteen) pages.

Translator:

Ognyan Petkov Kirilov, 5403183362