



MINISTRY OF TRANSPORTS AND INFRASTRUCTURE
ROMANIAN RAILWAY AUTHORITY - AFER



ROMANIAN RAILWAY INVESTIGATING BODY

INVESTIGATING REPORT

on the railway accident
occurred on the 27th of January 2011 in the flag station Vulcan
in CF Timisoara Regional Branch



Final edition
The 28th of February 2011

NOTICE

With reference to the railway accident occurred on the 27th of January 2011, at 6:43 p.m., on the range of activity of **CF Timisoara Regional Branch**, in the **flag station Vulcan**, consisting of the **derailment by all axles of the locomotive ED-474030-0 which was towing the freight train no. 23815** (belonging to the railway undertaking SNTFM “CFR Marfa” SA) on the avoidance line from the X end of the flag station, Romanian Railway Investigating Body carried out an investigation, according to the provisions of the Government Decision no. 117/2010. Through the investigation, the information on the respective accident was gathered and analyzed, the conditions were established and the causes determined.

Romanian Railway Investigating Body investigation did not aim to establish the guilty or the responsibility in this situation.

Romanian Railway Investigating Body considers necessary to take corrective measures in order to improve the railway safety and to prevent the accidents, so it included in the report a series of safety recommendations.

Bucharest, the 28th of February 2011

Approved by
Dragoş FLOROIU
Director

I agree the compliance with the legal provisions on the investigation performance and drawing up of this Investigation Report, that I submit for approval

Chief Investigator
Sorin CONSTANTINESCU

This approval is part of the Report for the investigation of the accident occurred on the 27th of January 2011, at 6:43 p.m., on the range of activity of CF Timisoara Regional Branch, in the flag station Vulcan, consisting of the derailment of the locomotive ED-474030-0 which was towing the freight train no. 23815.

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I. PREAMBLE

I.1. Introduction

The investigation commission appointed according to the provisions of the Annex III of the *Regulations for the investigation of the accidents and incidents, for the development and improvement of Romanian railway and subway safety*, approved by Government Decision no. 117/2010, hereinafter referred as **Regulations** in the investigation report, started an investigation to prevent accidents with similar causes by establishing the causes, determining the causes and issuing of some safety recommendations.

Romanian Railway Investigating Body investigation did not aim to establish the guilty or the responsibility in this situation, its objective being to improve railway safety and to prevent railway incidents or accidents.

I.2. Investigation process

Romanian Railway Investigating Body was notified by the Regional Inspectorate for Traffic Safety in CF Timisoara Regional Branch through the investigator in the Department to investigate incidents and to solve divergences that provides the service continuity at the level of the territorial structure of the infrastructure manager, about the occurrence of a railway accident in HM Vulcan in SRCF Timisoara consisting of the derailment by all the axles of the locomotive ED-474030-0 towing the train 23815 belonging to the railway undertaking SNTFM “CFR Marfa” SA, on the 27th of January 2011 at 6.43 p.m.

The train 23815 leaving from HM Vulcan, wrongly entered on the closed avoidance line X end, leading to the derailment by all the axles of the towing locomotive ED-474030-0 belonging to the railway undertaking SNTFM “CFR Marfa” SA .

The happenings occurred and found on spot are categorized as railway accident, according to the provisions of the art. 7 point (1) letter b of the *Regulations for the investigation of the accidents and incidents, for the development and improvement of Romanian railway and subway safety*, approved by Government Decision no. 117/2010 hereinafter referred as “**Regulations**” in the investigation report.

Taking into account those above mentioned and according to the art. 19, paragraph (2) from the Law no. 55/2006 on the railway safety, corroborated with the art. 48, paragraph (1) of the **Regulations**, an investigation commission was appointed by Romanian Railway Investigating Body.

Through the Decision no. 49 from the 28th of January 2011, of the OIFR director, according to the provisions of the art. 19, paragraph (2) of the *Law no. 55/2006 on railway safety*, corroborated with the art. 48(1) of the **Regulations**, the investigation commission was appointed consisting of:

- Oltenacu Livius-investigator OIFR-mail investigator;
- Rusu Octav – head of Regional Inspectorate SC RRSC Timisoara - member;
- Ciontu Aritin – regional inspector SC RRSC Timisoara - member;
- Duşa Daniel – regional inspector SC RRSC Timisoara – member;
- Gropşian Ionel– regional inspector SC SNTFM – member;
- Maşcovescu Mircea - regional inspector SC SNTFM – member;

The railway accident did not have consequences to involve the closing of the trains traffic.

A. BRIEF PRESENTATION OF THE ACCIDENT

A.1. Brief presentation

On the 27th of January 2011 at 6.43 p.m. on the range of activity of CF Timisoara Regional Branch, on the running section Livezeni-Lupeni in HM Vulcan, the locomotive ED-474030-0 towing the train 23815 derailed by the 6 axles on the avoidance line X end, closed.

The locomotive ED-474030-0 and the traction staff belong to the railway undertaking SNTFM “CFR Marfa” SA.

The train 23815 composed of 35 loaded wagons series FALS, 140 axles, 2800 tones, 550m, automatic braked according to the service book 1400 t, real 1612 t, hand braked according to the service book 392 t, real 681 t, belongs to OTF SNTFM “CFR Marfa” SA.

As consequence of this accident occurrence resulted damages at the locomotive ED-4740300 and train delays in the traffic.

A.2. Direct cause, underlying causes and root causes

A.2.1. Direct cause

Erroneous execution of the output path and sending of the train 23815 on the avoidance line X end closed (with missing rail coupons).

These irregularities are based on an accumulation of human errors in the operation and maintenance of the installation SCB, as follows:

- The inappropriate handling of the switch no. 7 part of the output path;
- The failing to verify the position of the switches in the output path by acting the button “switches control position” on the control panel in the movement office;
- Failure of the bright cells of the switch no. 7 on the control panel;

A.2.2. Underlying causes

- Failure to accurately record of the closing of the avoidance line X end by using caps painted in red on the buttons of the access switches and of the plate with the inscription of the closed line on the control device in the movement office according to the art. 325 letter b of the “Regulation no. 005/2005 to trains running and shunting of the railway vehicles”;
- Failure to announce the SCB organ about the inappropriate operation of the installation SCB in the movement office according to the art. 107 of the “Instruction for handling the installations of electrodynamic centralization type CR-2”;

A.2.3. Root causes

None.

A.3. Severity level

According to the classification of the accidents provided at the art.7 of the Regulations, taking into consideration the activity in which occurred, the happening is categorized as railway accident according to the art. 7 point (1) letter b.

A.4. Safety recommendations

None.

In order to improve railway safety and to prevent similar accidents, the investigation commission considers necessary the appliance of the following measures:

- CF Timisoara Regional Branch through the Traffic Division-Service RAI will perform additionally the refresh training of all the employees handling installations SC with the provisions of the handling instruction (failure situations), depending on the specific of the railway stations.
- The management of CF Timisoara Regional Branch will analyze the possibility to restore the installations SCB, the avoidance lines in the railway stations and BLA on the running section Livezeni-Lupeni removed from operation due to thefts occurred during the last years.

This investigating report will be sent to Romanian Railway Safety Authority, to the manager of the public railway infrastructure the Railway National Company “CFR” SA Bucharest and to the railway undertaking SNTFM “CFR Marfa” SA.

B. INVESTIGATING REPORT

B.1. Description of the accident

To tow the train 23815 on the 27th of January 2011 on the section Lupeni Gr.Teh.-Mintia was ordered the locomotive ED-474030-0 from the CFR Petrosani Shed with locomotive staff belonging to SNTFM “CFR Marfa” SA-CF Simeria Depot.

The locomotive runs on the section Petrosani-Livezeni-Lupeni Gr.Teh. isolated as train 27522 with departure from the railway station Petrosani at 3.35 p.m. and arrival in the railway station Lupeni Gr.Teh. at 4.33 p.m.

The train 23815 composed of 35 loaded wagons series FALS, 140 axles, 2800 tones, 550m, automatic braked according to the service book 1400 t, real 1612 t, hand-braked according to the service book 392t, real 681 t, after the performance of the braking test leaves from the railway station Lupeni Gr.Teh. at 6.22 p.m. The train is received in HM Vulcan at the direct line II with the light signal of calling the input light signal Y at 6.35 p.m.

As consequence of the inappropriate operation of the running and shunting signals, fact recorded by the IDM on duty in the RRLISC on the position 174 at 4.40 p.m., he delivers the traffic order series ATM no. 210686 where he mentions the running conditions for the departure of the train 23815 from the direct line II with the output light signal YII on stop position.

After giving over the running order to the locomotive driver of the train 23815, the IDM performs output path from the line II towards the railway station Iscroni without handling the switch no. 7 in the path on the direct position (+) and without checking the position of the switches in the path by acting the button “switches position control” on the control panel.

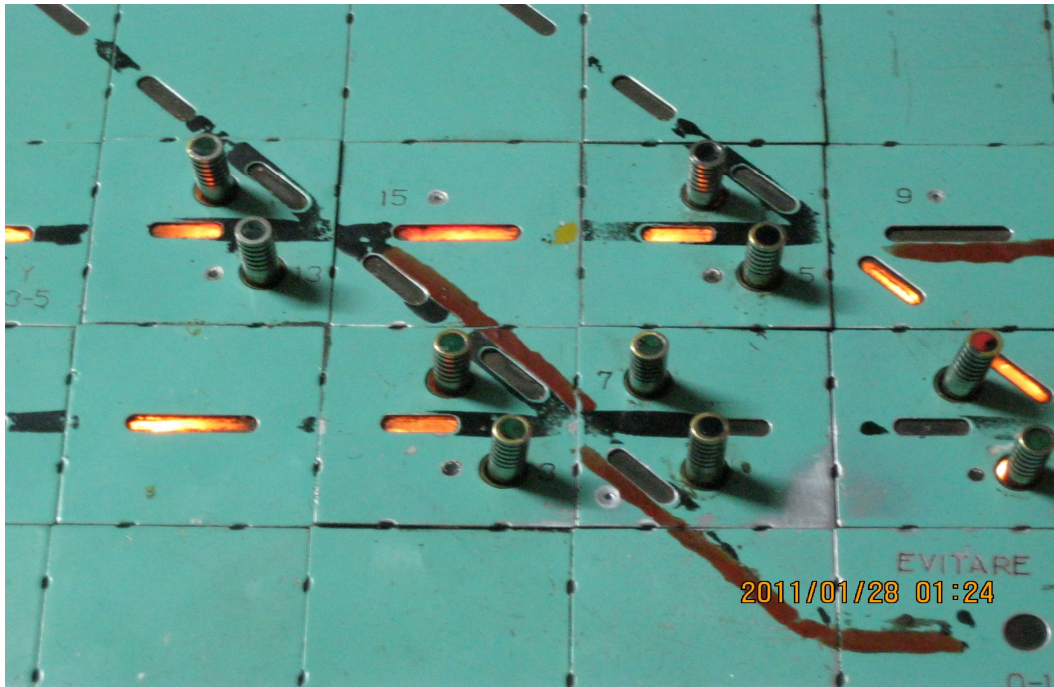


Fig.1 Position of the switch no. 7 on the control panel

At 6.38 p.m. the train 23815 leaves with a speed from 0-16 Km/h and getting to TJD 3/7 finds the switch 7 on the position on deviation (-) entering the avoidance line X end closed.



Fig.2 Switch no. 7 in TDJ 3/7

The locomotive staff noticing the erroneous path takes actions to quick braking simultaneously with the disconnection of the disjuncter and put down the locomotive pantograph.

Going down from the locomotive they notice its derailment by all the axles due to the missing of the last two rail coupons from the two wires of the path and with the front driving station in the prism of ballast of the fix stopper. They report the derailment to the IDM through the RER station at 6.43 p.m.



Fig.3 Position of the locom.ED 474030-0 after the derailment



Fig.4 the 2 missing rail coupons on the avoidance line

B2. Circumstances of the accident

B.2.1. Involved parties

The direct line II from the HM Vulcan from where the train 23815 left and the avoidance line X end are managed by CNCF “CFR” SA, namely CF Timisoara Regional Branch.

The railway infrastructure and superstructure are managed by CNCF “CFR” SA and maintained by the employees of the Section L 9 Simeria, respectively of the Section CT4 Deva in CF Timisoara Regional Branch.

The towing locomotive ED-474030-0 of the train 23815 belongs to the railway undertaking SNTFM “CFR Marfa” SA .

The investigation commission questioned the employees involved in the occurrence of the railway accident namely: the movement inspector on duty in HM Vulcan, the locomotive staff who served the locomotive ED-474030-0, the electro-mechanic SCB responsible with the maintenance of the installations SCB in HM Vulcan, the head of district L8 Iscroni and took statements from the employees involved indirectly namely: the movement inspector who took over the duty in HM Vulcan in the shift from the 27th/28th of January 2011, the head of district 5 SCB Petrosani, the head of district L8 Iscroni, the head of section L9 Simeria and the head of the railway station Iscroni/Vulcan.

B.2.2. Forming and equipments of the train

The composition of the train 23815: 35 loaded wagons series FALS, 140 axles, 2800 tones, 550m, automatic braked according to the service book 1400 t, real 1612 t, hand-braked according to the service book 392t, real 681 t, towed with the locomotive ED-474030-0 belonging to OTF SNTFM “CFR Marfa” SA.

B.2.3. Railway equipments

The direct line II is line with superstructure 49, wooden sleepers, in alignment and slope of 2.2 mm/m.

The avoidance line X end **closed** on the 1st of February 2007 due to missing of the clamping materials, to the thefts of the previous years (2 rail coupons on the two wires of about 23 m) and to the inappropriate sleepers.

The switch no. 7 is part of the TJD 3/7 and is type 49, R:190m, tg. 1:9, it is covering switch for the put on free of the input signal in the trains steer to the lines 4, 5, 6 and 7 from the HM Vulcan.

The installation of electro-mechanic centralization in the HM Vulcan is type CED CR2.

The running of the trains on the distances Isroni-Vulcan-Lupeni Gr.Teh. is made based on the free way with installations CED, **with BLA out of operation.**

B.2.4. Means of communication

The communication between the driver on the locomotive ED-474030-0 and the IDM in HM Vulcan was provided through the installations radio-transceiver in the equipment.

B.2.5. Triggering the railway emergency plan

It was not the case to direct to the place of the accident the intervention means, restore of the locomotive on the line being performed with own means.

B.3. Consequences of the accident

- the train no. 23815 entered, after passing by the YII output light signal defect on stop and attacking the switch no. 7 on the position in deviation (-) on the avoidance line X end closed, the towing locomotive ED-474030-0 derailing by the 6 axles and stopping in the prism of ballast of the fix stopper.

The derailment of the locomotive occurred by the missing of two rail coupons of about 23 m on the two wires of the avoidance line, stolen in previous years.

- 2 passenger trains delayed with 89 min.
- the locomotive ED-474030-0 had slight damages.
- the lines and the associated installations were not affected.

B.3.1. Deaths and injuries

None.

B.3.2. Material damages

The amount of the material damages, according to the estimates prepared by the manager of the public railway infrastructure and by the repairing agent, is the following:

- **at the line:** Act 291/2011 – no damage;
- **at the installations:** Act 147/2011 – no damage;
- **at the locomotive:** estimate H/171/2011 - **1 624.43 lei**
- **train delays:** estimate **388/2011 - 209.54 lei**
- **at the wagons:** – none;
- **at the environment** – none;
- **other damages** – none
- **TOTAL DAMAGES: 1 833.97 lei**

B.3.3. Consequences of the accident in railway traffic

As consequence of the railway accident occurrence on the 27th of January 2011 were recorded train delays as follows:

- the passenger train 2709 with 42 minutes;
- the passenger train 2712 with 47 minutes;

The trains traffic on the running section Livezeni-Lupeni was not closed.

B.4. External circumstances

On the 27th of January 2011, between 6.00 p.m. - 7.30 p.m. the visibility was good, clear sky and air temperature of about – 8°C.

In HM Vulcan, at the time of the accident occurrence the situation of the lines occupancy was the following:

- **line 1 closed**
- line II occupied with the train 23815
- **line 3 closed**
- line 4 free
- **line 5 closed**
- line 6 occupied with 14 wagons
- line 7 occupied with 12 wagons
- **line 12 closed**
- **the avoidance lines X end and Y end closed**
- the YII output light signal defect on stop

B.5. Investigation course

B.5.1. Summary of the involved staff statements

From the **statement and the questioning of the movement inspector** who was on duty on the 27th of January 2011 in HM Vulcan, one could retain:

- Taking over the movement duty on the 27th of January 2011 at 7.00 am he found several damages in operation of the installation CR2 that he recorded in RRLISC at the position 161;
- He checked on the train the occupied section signaled on the lumino-scheme according to the regulations in the “installation handling instruction”;
- In order to perform the output path for the train 2733 he handles the switch 1/9 with the lever due to its failure from the control device in the movement office;
- He announces the damage to the organ SCB and the operator RC;
- The organ SCB comes to HM Vulcan at 1.10 p.m.;
- He does not announce the organ SCB of the failure of the indicator cells at the switch no. 7 and of the damages recorded at the position 161 in RRLISC;
- At 4.40 p.m. he records at the position 174 in RRLISC that “all the running and shunting signals cannot be put on free” without checking if the damage was real;
- The train 23815 is received at the line II with the calling signal because the input signal X could not be put on free;
- Before sending the train 23815 he handles the switch 7 on the position (-) in order to introduce the towing locomotive for the train 79818 at the line 4;
- To send the train 23815 from the line II the path to be performed was with the switch 1/9 on the position (+) and the switch 7 on the position (+).
- He forgets the handling of the switch 7 on the position (+) hurrying up to send the train 23815 in order not to delay the train 2712;

- He does not check on the lumino-scheme the path for the train 23815 by pushing the button “switches position control” on the control device;
- He notices on the lumino-scheme the erroneous entry of the train 23815 on the avoidance line X end thing confirmed also by the locomotive driver through the station of RER;
- He goes on spot and finds the derailment of the locomotive ED-4740300 by all the axles;
- He announces the accidents to the superior organs;

From the **statement and the questioning of the locomotive driver** who drove the towing locomotive ED-474030-0 of the train 23815, one could retain:

- He took over the locomotive ED-474030-0 on the 27th of January 2011 in Petrosani Shade being ordered to tow the train 23815 from the railway station Lupeni Gr.Teh.
- He ran on the distance Petrosani-Lupeni Gr.Teh. as isolated locomotive;
- In the railway station Lupeni Gr.Teh. he was introduced on the train 23815, he performed the brake test with the technical inspector and around 6.00 p.m. he isolated the installation INDUSI having 2 consecutive emergency brakings in stationing;
- He prepares “Approval note” of the emergency brakes and records the insulation of the installation INDUSI in the logbook of the locomotive;
- He enters the HM Vulcan with the calling signal and he stops at the direct line II;
- He receives “running order” from the IDM in HM Vulcan for the leaving of the train 23815 with the output light signal defect on stop;
- After putting the train into move and running of a distance of about 400 m, he noticed near the switches at exit the path performed on the avoidance line and he takes actions to quick stop the train simultaneously with the disconnection of the disjuncteur and put down of the pantograph;
- Going down from the locomotive he notices its derailment by all the axles by missing of a rail coupon on both wires;
- He announces the findings through the RER station to the IDM in HM Vulcan;

From the **statement and the questioning of the locomotive driver assistant** who served the towing locomotive ED-474030-0 of the train 23815, one could retain:

- He took over the locomotive ED-474030-0 on the 27th of January 2011 in Petrosani Shade being ordered to tow the train 23815 from the railway station Lupeni Gr.Teh.
- He ran on the distance Petrosani-Lupeni Gr.Teh. as isolated locomotive;
- He insulated the installation INDUSI as consequence of its entry into action while stationing in the railway station Lupeni Gr.teh.
- In HM Vulcan were received at the line II with calling signal;
- They stopped in HM Vulcan and they received “running order” from the IDM to the train 23815 leave with output light signal defect on stop;
- After the train left, near the switches at exit they noticed the path performed on the avoidance line and they took actions to quick stop the train simultaneously with the disconnection of the disjuncteur and put down of the pantograph;
- He went down from the locomotive and he found its derailment by all the axles by missing of a rail coupon on both wires;
- The missing of the rail coupons was not signaled on the train;
- The driver announced the findings to the IDM through the RER station;

From the **questioning of the SCB electro-mechanic in the district 5 SCB Petrosani** who was on duty on the 27th of January 2011, one could retain:

- He receives order from the head of district to repair the failure occurred at the electro-mechanism of switch EM 1/9 in HM Vulcan;
- He hears about the damages listed in RRLISC and he discuss them with the IDM on duty;
- At 1.15 p.m. was not marked in RRLISC at the position 161 the blown bulb at the position of the switch no. 7 on the control panel and this record was made subsequently by the IDM on duty;
- After repair of the damage at EM 1/9 he checks the control device and it did not show any damage, all the buttons were plumbed with the plumbs of the organ SCB, inclusively the key of the relays box door. At 2.35 p.m. he went to the district office;
- He does not know about the damage recorded at 4.40 p.m. by the IDM in RRLISC “all the running and shunting signals X and Y end do not work” and this kind of damages did not exist in HM Vulcan;
- On the 31st of January 2011 together with the head of district he checks all the inner and outer installation CED in the HM Vulcan which was normally working, performing the appropriate records in RRLISC;

From the **statement of the movement inspector** who took over the movement duty on the 27th/28th of January 2011 in HM Vulcan, one could retain:

- Before taking over the duty, at the inner inspection of the installation CT he finds that the bulbs from the cell of the switch 7 on the lumino-scheme were not normally lightning;
- At the intervention of the organ CT the bulbs from the cell of the switch 7 were normally lightning;
- During his shift the running and shunting signal worked appropriately;

From the **statement of the head of the district 5 SCB Petrosani** one could retain:

- The damage occurred on the 27th of January 2011 in HM Vulcan by the failure of the running and shunting signals did not previously appear according to the damages report from the district 5 SCB Petrosani and from the Section CT4 Deva;
- At the tests performed at the arrival in HM Vulcan on the 27th of January 2011 at 7.30 p.m., all the running and shunting signal were normally working, the plumbs at the buttons BSC-X and BSC-Y were found broken on the control device and not recorded by the IDM in RRLISC, the record being made by him and all the switches had control;
- At the tests performed after the occurrence of the accident on the 28th of January 2011 at 3.00 a.m. with the IDM the installation CED was working appropriately and the bulbs on the control panel were complete and worked appropriately;

From the **statement of the head of the district L8 Iscroni** one could retain:

- On the 1st of February 2007 he closed the avoidance line X end in HM Vulcan due to thefts in its composition, recording this in RRLISC;
- The switch 7 in TJD 3/7 could not be strapped because it is a covering switch for the trains entry on the lines 4, 6, 7 X end in HM Vulcan;
- On the 12th of August 2008 he recorded again in RRLISC the closed lines in HM Vulcan;

From the **statement of the head of the section L9 Simeria** one could retain:

- The avoidance line X end in HM Vulcan is closed due to thefts from the previous years;
- The head of district L8 Iscroni recorded again in RRLISC the closed lines in HM Vulcan of the years 2007 and 2008;

- The switch 7 in TJD 3/7 cannot be strapped because it is a covering switch;
- On the range of the district L8 Iscroni there are several lines and railway devices stolen in the railway stations Livezeni, Iscroni, Vulcan and Lupeni being a lack of materials to replace them;

From the **statement of the head of the station coordinator from the railway station Iscroni/Vulcan** one could retain:

- On the 27th of January 2011 around 4.30 p.m. he was announced by phone by the IDM in HM Vulcan about the damage occurred in HM Vulcan consisting of the impossibility to put on free of all the input and output signals;
- On the 27th of January 2011 around 7.10 p.m. he was announced by phone by the IDM in HM Vulcan about the sending of the train 23815 from the direct line II on the basis of free way on the avoidance line X end by forgetting to handle the switch no. 7 on direct leading to the derailment of the towing locomotive by all the axles.

B.5.2. Safety management system

In carrying out their duties and responsibilities, CNCF “CFR” SA and SNTFM “CFR Marfa” SA established their own safety management system, being prepared specific regulations on the duties and responsibilities in charge of their own staff.

B.5.3. Norms and regulations. Sources and references for the investigation

In the investigation of the railway accident one took into account:

- photos taken immediately after the railway accident by the members of the investigation commission;
- operation tests of the installations in the movement office;
- analysis of the records of the speedometers installation with flash memory of the locomotive ED-474030-0;
- questioning of the staff involved in the occurrence of the accident;
- Regulation for trains running and shunting of the railway vehicles No 005/2005;
- Regulation for signaling No. 004/2006;
- Instructions for the activity of locomotive staff in railway transport no. 201/2007;
- Instructions for handling the installation type CR2.

B.5.4. Work of the technical installations, of the infrastructure and of the rolling stock

B.5.4.1. Data found on the installations

The installation of electrodynamic centralization in HM Vulcan is type CED CR2 .

The running of the trains on the distances Iscroni-Vulcan-Lupeni Gr.Teh. is performed based on free way with installations CED, **with BLA out of operation** from the 8th of May 2008 according to the tg no. 40/2008 of the Traffic Division in CF Timisoara Regional Branch.

B.5.4.2. Data found on the line

The direct line II in HM Vulcan is line with superstructure 49, wooden sleepers, in alignment and slope of 2.2 mm/m.

The avoidance line X end **closed** from the 1st of February 2007 due to lack of clamping materials, to thefts during the previous years (2 rail coupons on the two wires of about 23 m) and to the inappropriate sleepers.

The switch no. 7 is part of the TJD 3/7 and is type 49, R:190m, tg.1:9, it is a covering switch to put on free the input signal during the trains steer to the lines 4, 5, 6 and 7 in HM Vulcan.

B.5.4.3. Data found on the work of the rolling stock and of its technical installations

- The locomotive ED-474030-0 belonging to the railway undertaking SNTFM “CFR Marfa” SA had the equipment for the point control of the speed and hitchhiking type INDUSI put out of operation by the locomotive driver as consequence of its entry into action while stationing in the head of the train 23815 in the railway station Lupeni Gr.Teh on the 27th of January at 6.00 p.m.;
- The safety and vigilance equipments type DSV in operation;
- The braking regime exchanger of the locomotive was on the position “G”;
- 35 wagons series FALS loaded with coal, appropriately linked with the semi-couplings coupled on the entire length of the train, the regime exchangers on the position “G” with the automatic brake active at all the wagons excepting the wagons 815366560200, 815366538511, 815366660603, 815366530533 which had the automatic brake isolated.

B.6. Analysis and conclusions

Directing the train 23815 on the avoidance line X end closed of the HM Vulcan by the omission of the IDM to handle the switch no. 7 in the path on the position direct (+) leading to the derailment of the towing locomotive ED-474030-0 by all the axles **was due to a human error**.

At the tests performed to the installation CED after the accident by the specialized bodies, this worked properly according to the minute from the 28th of January 2011.

Even that the IDM at the check of the installations SC at taking over the duty on the 27th of January 2011 at 6.55 a.m. records at the position 161 in RRLISC “the indication bulb switch 7 burned” the repair of this damage does not appear in RRLISC even if the SCB body repaired other damages occurred and recorded in RRLISC.

At the check of the installations SC taking over the duty by the IDM who took over the movement service on the 27th/28th of January 2011 he does not record at the position 175 at 6.45 p.m. the damage “the indication bulb switch 7 burned” neither the head of district CT at the position 176 in RRLISC on the 27th of January 2011 at 7.30 p.m. which leads to the conclusion that the record at the position 161 was made subsequently by the IDM responsible for the occurrence of the accident.

Since 1998 on the range of activity of the district L8 Isroni were signaled several thefts of metallic material in the composition of the railway (rails, specific railway parts, clamping material) mostly on the closed lines or occupied with wagons.

In HM Vulcan were thefts from the lines: 1, the avoidance line X and Y end access LFI after the switch 6, the line TCH after the switch 23, from the railway devices 6, 23, 4.

The movement inspector who omitted to handle the switch no. 7 in the path, during the period 2009-2010 had a number of 4 misbehaviors in his activity.

B.7. Conclusions

B.7.1. Direct cause

Erroneous execution of the output path and sending of the train 23815 on the avoidance line X end closed (with missing rail coupons).

These irregularities are based on an accumulation of human errors in the operation and maintenance of the installation SCB, as follows:

- The inappropriate handling of the switch no. 7 part of the output path;
- The failing to verify the position of the switches in the output path by acting the button “switches control position” on the control panel in the movement office;

Failure of the bright cells of the switch no. 7 on the control panel;

B.7.2. Underlying causes

- Failure to accurately record of the closing of the avoidance line X end by using caps painted in red on the buttons of the access switches and of the plate with the inscription of the closed line on the control device in the movement office according to the art. 325 letter b of the “Regulation no. 005/2005 to trains running and shunting of the railway vehicles”;

Failure to announce the SCB organ about the inappropriate operation of the installation SCB in the movement office according to the art. 107 of the “Instruction for handling the installations of electrodynamic centralization type CR-2”;

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B.7.3. Root causes

None.

C. SAFETY RECOMMENDATIONS

None.

In order to improve railway safety and to prevent similar accidents, the investigation commission considers necessary the appliance of the following measures:

- CF Timisoara Regional Branch through the Traffic Division-Service RAI will perform additionally the refresh training of all the employees handling installations SC with the provisions of the handling instruction (failure situations), depending on the specific of the railway stations.

- The management of CF Timisoara Regional Branch will analyze the possibility to restore the installations SCB, the avoidance lines in the railway stations and BLA on the running section Livezeni-Lupeni removed from operation due to thefts occurred during the last years.

This investigating report will be sent to Romanian Railway Safety Authority, to the manager of the public railway infrastructure the Railway National Company “CFR” SA Bucharest and to the railway undertaking SNTFM “CFR Marfa” SA.

Members of the investigation commission:

- Oltenacu Livius-investigator OIFR-mail investigator;
- Rusu Octav – head of Regional Inspectorate SC RRSC Timisoara - member;
- Ciontu Aritin – regional inspector SC RRSC Timisoara - member;
- Duşa Daniel – regional inspector SC RRSC Timisoara – member;
- Gropşian Ionel– regional inspector SC SNTFM – member;
- Maşcovescu Mircea - regional inspector SC SNTFM – member;