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**ABSTRACTS OF
RAILWAY ACCIDENT INQUIRY REPORTS**



ABSTRACT - 2024-25

**COMMISSION OF RAILWAY SAFETY
Ministry of Civil Aviation
Government of India**

FOREWORD

This publication contains the extracts of enquiry reports of railway accidents conducted by Commissioners of Railway Safety and includes the comments of the Railway Board. Though every care has been taken to ensure accuracy in preparing the document, the Commission disclaims liability for any inconvenience, expense or loss/damage caused by the use of the information given in this periodical.

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ABBREVIATIONS

ACP	:	Alarm Chain Pulling
ACTM	:	Alternating Current Traction Manual
ADEN	:	Assistant Divisional Engineer
ARME	:	Accident Relief Medical Equipment
ART	:	Accident Relief Train
BG	:	Broad Gauge
BGML	:	Broad Gauge Modified Loading
BP	:	Brake Pipe
BPC	:	Brake Power Certificate
CAMTECH	:	Centre for Maintenance of Advanced Technologies.
CAO	:	Chief Administrative Officer
CBC	:	Centre Buffer Coupler
CBE	:	Chief Bridge Engineer
CCRS	:	Chief Commissioner of Railway Safety
CE/PCE	:	Chief Engineer/Principal Chief Engineer
CRIS	:	Centre for Railway Information Systems
CRPF	:	Central Reserve Police Force
CRS	:	Commissioner of Railway Safety
CSO	:	Chief Safety Officer
CTE	:	Chief Track Engineer
CUG	:	Closed User Group
DEMU	:	Diesel Electric Multiple Unit
DEN/Sr DEN	:	Divisional Engineer/Senior Divisional Engineer
DFWO	:	Defective Weld Observations
DFWR	:	Defective Weld Removal
DGsP/IGsP	:	Director General of Police/Inspector General of police
DMU	:	Diesel Multiple Unit
DN	:	Down
DRM	:	Divisional Railway Manager
DRT	:	Double rail tester

DSC	:	Divisional Security Commissioner
EMU	:	Electric Multiple Unit
G&SR	:	General & Subsidiary Rules
GC	:	Gauge/Conversion
GM	:	General Manager
GRP	:	Government Railway Police
ICF	:	Integral Coach Factory
IGBT	:	Insulated Gate Bipolar Transistors
IMR	:	Immediate replacement
IOH	:	Intermediate overhaul
IRBM	:	Indian Railway Bridge manual
IRCA	:	Indian Railway Conference Association
IRICEN	:	Indian Railway Institute of Civil Engineers
IRPWM	:	Indian Railways Permanent Way Manual
IRTMTC	:	Indian Railways Track Machines Training Centre
KRCL	:	Konkan Railway Corporation Limited
LEDs	:	Light Emitting Diode
LHB	:	Linke Hofmann Busch
MBG	:	Modified Broad Gauge
MG	:	Metre Gauge
MLR	:	Mid-Life Rehabilitation
NDRF	:	National Disaster Response Force
NG	:	Narrow Gauge
NMI	:	Network Management Interface
OBS	:	On Board Service Supervisor
OEM	:	Original Equipment Manufacturer
OEM	:	Original Equipment Manufacturer
OHE	:	Over head Equipment
P.Way	:	Permanent Way
PA System	:	Public Address System
PCCM	:	Principal Chief Commercial Manager
PCOM	:	Principal Chief Operations Manager
PCSC	:	Principal Chief Security Commissioner

PCSO	:	Principal Chief Safety Officer
POH	:	Periodic Overhaul
PSC	:	Pre-Stressed concrete
RCF	:	Rail Coach Factory
RDSO	:	Research Designs & Standards Organisation
RPC-IV	:	Revised maintenance pattern of coaching train
RPF	:	Railway Protection Force
SAIL	:	Steel Authority of India Limited
SEJs	:	Switch expansion Joint
SM/ASM	:	Station Master/Asst. Station Master
SPARME	:	Self Propelled Accident Relief Medical Equipment
SRT	:	Single Rail Tester
SS	:	Station Superintendent
SSE	:	Senior Section Engineer
TMS	:	Track Management System
TP	:	Telegraph Post
TPWS	:	Train Protection Warning System
TRR	:	Through Rail Renewal
TWR	:	Through Weld Renewal
USFD	:	Ultrasonic Flaw detection
VCB	:	Vacuum Circuit Breakers
VHF	:	Very High Frequency

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ACCIDENT – I

THE ABSTRACT OF STATUTORY INQUIRY REPORT OF COMMISSIONER OF RAILWAY SAFETY ON DERAILMENT OF GOODS TRAIN NO. E-NBOX(E)/CAP ON UP LINE OF KORAI STATION IN BHADRAK-KHURDA ROAD (via CUTTACK) SECTION OF KHURDA ROAD DIVISION EAST COAST RAILWAY ON 21.11.2022.

I. BRIEF DESCRIPTION:

1.1 THE ACCIDENT

- i. The Goods train No UP E-NBOX(E)/CAP (hereinafter referred to as "the train") with a load of 1460T (58 BOXN empties +1Brake van); was hauled by loco No. 28755 WAG-7/ANGL as leading working loco along with one dead loco 32859/WAG-9. On 21.11.22, at about 06:44hrs, when the train was passing the Korai Station, at a speed of about 68 kmph, on through signals, 14 wagons of the train derailed between chainages Km 331/848, and Km 331/897. The wagons mounted over one another blocking both UP and DN lines, and damaging OHE of both the lines. The superstructures of a few wagons rode/fell on the UP and DN platforms.
- ii. The loco and 19 wagons of the train parted, and travelled further by 317 m. Out of these 19 wagons, 18 wagons were on track. The rear bogie of the 19th wagon had derailed; the rear wheel of the bogie had come out. The 20th to 32nd wagons from loco capsized and mounted over one another. The 33rd to 58th wagon and Brake Van were on track.
- iii. The 21st wagon rode over the UP platform, damaging the waiting hall; the 23rd wagon fell near the FOB on UP platform, the 24th wagon damaged the FOB on UP platform; the 32nd wagon rode on the UP platform in front of SM's room; the 22nd wagon fell on the DN platform; the 28th wagon fell on the DN platform damaging the FOB there; and the 27th wagon also fell on the DN platform.

II. CAUSE OF THE ACCIDENT:

Having carefully considered all the evidences, records submitted, observations made during the site inspection, and other circumstantial evidences produced by ECOR so far, I have come to the conclusion that mechanism of the derailment of Goods Train No. UP E-NBOXE/CAP on UP Line of Korai Station (KRIH) in Khurda Road Division of East Coast Railway, at about 06.44hrs of 21.11.2022 was as follows: -

- i) The front-LHS door of 14th wagon bearing no. SE 10070060231 which was vertically hanging down and tied with GI-wire to bogie frame, got free to oscillate when the GI wire broke on run.
- ii) The hanging and oscillating door had hit the end of the UP platform at Korai (no ramp was provided for the platform) and snapped.
- iii) The snapped door had entangled with rear-most wheel of the 19h wagon and derailed it.
- iv) The derailed wheel had come out off the bogie when it hit the concrete. paver blocks of LC 137. The dislodged wheel entangled with front bogie of 20th wagon and caused its derailment with the bogie and front portion of the wagon travelling outside. This led to lateral shifting of 20th wagon, and parting of the train. The following wagons got bunched due to obstruction in movement and led to mounting of empty wagons on top of the other.

The practices followed, with regard to operation of BOXN wagons, which have culminated in the accident, are summarized hereunder: -

- i) A large number of empty BOXN rakes, with invalid BPC, are getting loaded again without undergoing TXR examination required for validating the BPC.
- ii) Zonal Railways have diluted the instructions issued by Railway Board, with regard to validity of BPC, and framed local rules to facilitate loading of the rakes with invalid BPC without subjecting the rake to TXR examination for revalidation of the BPC.
- iii) In case of almost all the BOXN wagons, the mechanism for closing and locking the wagon doors are not functional, and the wagons are running with most of their doors, even for loaded wagons, closed with GI wires.
- iv) There is a considerable gap between the capacity for rake-examination, and arising of rakes with invalid BPC.
- v) The check-list issued by CAMTECH, for wagon examination, is not being followed for issuing premium BPC.
- vi) The doors of BOXN wagons are getting damaged mostly at the loading/unloading points; and if the condition of these wagons is any indication, the system of levying damage-charges to the siding owners, for the damage caused to the wagons, is not serving its purpose.

The cause of the accident is, therefore, attributed to and classified as "Systemic Failure of Indian Railways in ensuring safe operation of freight trains of BOXN wagons".

III. REMARKS AND RECOMMENDATIONS:

3.0 Remarks and recommendations made by Commissioner of Railway Safety and action taken by Railways are given below

3.1

(a) Recommendation:

The instruction issued by Railway Board vide letter no. No.2005/M(N)/951/13 dated 7.4.2006, especially para 7 of the annexure to the letter, should be strictly followed.

(b) Action Taken by Railways:

Joint instructions, for controlling running of freight trains with Invalid BPC, have been issued by Board on 09.06.23 to all Zonal Railways for strict compliance. Para 1 of Instructions mentions that " No loading shall be done after expiry of permissible days (excluding grace period) or kilometer, whichever is earlier, in CC Rakes or after expiry of permissible days (excluding grace period) premium/special premium rake. in as mentioned in the BPC of the respective rake. In case of End to End (ETE) examined rakes, second loading is not permitted without examination."

3.2

(a) Recommendation:

Framing of subsidiary rules in Zonal Railways, to circumvent the instructions issued by Railway Board, should not be allowed. In this context, SR 4.31.03(8) issued by ECOR, and similar ones by other Zonal Railways, should be withdrawn.

(b) Action Taken by Railways:

Instructions regarding GDR check & Door working have been issued by Railway Board vide letter No. 2018/M(N)/951/34 Pt. dated 23.06.2020. SR 4.31.03(8) issued by ECoR is in conformity with Railway board's instructions issued under the above mentioned letter.

3.3

(a) Recommendation:

The widespread running of BOXN rakes with invalid BPC should be stopped. The stipulated distance (250-300 km) that a freight rake, with invalid BPC, can travel from unloading point to the TXR-examination point, should be strictly followed; otherwise a speed restriction should be imposed for operation of such rakes beyond this distance.

(b) Action Taken by Railways:

Joint instructions, for controlling running of freight trains with Invalid BPC, have been issued by Board on 09.06.23 to all Zonal Railways for strict compliance.

3.4

(a) Recommendation:

Maintenance of BOXN wagons should be done as per the wagon-maintenance manual the closing and locking mechanism of the wagon-doors must be functional while issuing BPC for Premium/CC rakes; man hours and spares required for the purpose should be ensured.

(b) Action Taken by Railways:

The instructions for modification of BOXN wagon doors (blocking of two doors in 100% of the fleet and reduction in height of doors in all wagons) have been issued to the Zonal Railways and compliance of the same is being closely monitored. The availability of spares is being regularly monitored.

Checking the closure of doors is one of the items of standard checklist for GDR check.

3.5

(a) Recommendation:

For preventing damages to wagons at loading and unloading points, the rules should be framed in such a way that they work as a deterrent to the offenders.

(b) Action Taken by Railways:

A JPO has been issued vide Board's letter No 2010/TT-IV/9/1 and dated of 18.09.15 which contains instructions to prevent damages to wagons during loading/unloading, including the aspect of joint inspections & levy of penalty. Apart from the above, vide Letter No 2015/M(N)/951/63 dated 16.03.2023, Board has advised all Zonal Railways to conduct regular inspection of all sidings by Divisional officers on quarterly basis and inspection of at least 10 sidings per quarter by HQ officers with the purpose of preventing wagon damages.

3.6

(a) Recommendation:

The coupling of a BOXN wagon should have the anti-climbing feature to prevent their mounting over each other, and toppling on adjacent tracks/platforms in the event of an accident at high speed.

(b) Action Taken by Railways:

The matter was referred to RDSO to examine, vide Board's letters no.2022/M/(Safety)/7/10/11 dtd.25.05.2023 and 2023/M(Safety)/7/6/1 dtd. 07.11.2023

RDSO had informed vide Letter No. MW/CPL/BG/HT dated 27.12.2023 that they have finalized the specification no WD-01-Modern Wagon-2023 in Oct-23 for Modern open wagons. As per Para 3.10 of this specification, use of couplers with anti-climbing features had been mandated. Since the tender for 10,000 nos. of Modern open wagons of the above specification has since been cancelled, RDSO has now started to work on new design of couplers for freight stock having anti climbing features. This exercise is expected to be completed by June-2024.

3.7

(a) Recommendation:

The Railways should examine restricting the speed of operation of BOXN wagons considering the havoc caused by their derailment at high speeds.

(b) Action Taken by Railways:

The permissible speeds of BOXN wagons are prescribed by RDSO as 100 kmph (Empty) and 75Kmph (Loaded). Before the accident, the train was moving steadily at speed of 68 kmph. Over speeding is not ascertained as the cause of accident. In view of the above, It is felt that restriction of speed of BOXN wagons is not required.

3.8

(a) Recommendation:

Though provision of ramp on a high level platform is mandatory as per IRPWM chapter-IV Para 411(d) (iv), and note (b) of Para-6 Chapter-II, Schedule -I of IRSOD, there are as many as 33 high-level platforms (KUR division-26, SBP division-7) in ECoR which have not been provided with ramps at the ends. Railways should ensure provision of ramps on high level platforms.

(b) Action Taken by Railways:

Ramp has now been provided at all the 33 stations (26 of Khurda Road division & 7 of Sambalpur Division) of East Coast Railway.

3.9

(a) Recommendation:

The accident has amply demonstrated the perils of locating a level-crossing in between a high-level platform; such LCs should be immediately closed or relocated suitably.

(b) Action Taken by Railways:

As a short term measure, it has been planned to extend the platform towards JJKR end by 200 meters, keeping the level crossing at the end of the platform, i.e. BHC end, till elimination of the LC. The LC gate shall be eliminated by provision of ROB and providing parallel roads on both sides of the station to connect LC no.136.

Work for Road Over Bridge in lieu of LC No.137 has been sanctioned on a 50:50 cost sharing basis with the State Govt. of Odisha in the year 2020-21 under Umbrella work 2020-21. Railway portion of the work is being executed by Railways & approach portion is being executed by State Govt.

Span arrangement in railway portion has been submitted to State Govt. for joint approval of GAD.

Further, all Zonal Railways have been advised to identify such level Crossing (LC) gates and prepare action plan for removal of these LC gates, vide letter no. 2024/CE-IV/Misc.01 dated 02.02.2024

ACCIDENT – II

THE ABSTRACT OF STATUTORY INQUIRY REPORT OF COMMISSIONER OF RAILWAY SAFETY ON REAR COLLISION OF TRAIN NO. N/NPSB WITH TRAIN NO. BOBRN/BRS LEADING TO DERAILMENT OF GOODS TRAIN NO. N/PSSS IN BILASPUR DIVISION OF SOUTH EAST CENTRAL RAILWAY (SECR) ON 19.04.2023.

I. BRIEF DESCRIPTION:

1.2 THE ACCIDENT

Singhpur (SNGP) - Burhar (BUH) is a three-line section (Down. Up and the bi-directional third line), whereas Singhpur (SNGP) Shahdol (SDL) is a double line section (Up & Down lines). The Goods train BOBRN/BRS (loaded 60 wagons), hauled by two WAG-9 locos in push-pull mode (loco no. 34077 leading, and loco no. 34067 in rear). arrived SNGP at 06:25hrs, and was regulated on the UP main line as the section ahead towards SDL was not clear, After the section was cleared, the Section Controller decided to give precedence to train N/PSSS regulated on the 3rd line. Accordingly, train no. N/PSSS entered the Common Loop of SNGP and was approaching the starter. The train N/NPSB had a load of 58 loaded BOXNHL wagons +1 Brake van; it was hauled by a WAG-9 MU 33888 & 43256. Another ANR loco (dead loco) WAG-9/32723 was attached after the MU locos. The train was following the train BOBRN/BRS and had come up to the IB between BUH and SNGP. The Section Controller decided to bring the train up to the Home Signal of SNGP. Unfortunately, the train passed the Home Signal at danger, and collided with the train BOBRN/BRS, regulated on the Up line. The impact of the collision was so severe that all the four locos (banker of Train BOBRN/BRS, and three locos of train N/NPSB), 11 wagons of the train N/NPSB, and 6 wagons of the train BOBRN/BRS derailed and capsized; 7 wagons of N/PSSS also derailed. The banker loco no. 34067 of the train no. BOBRN/BRS was thrown on the Down line, loco of N/NPSB, 33888 was thrown to the Down loop.

II. CAUSE OF THE ACCIDENT:

Based on factual, material and circumstantial evidence, Commissioner of Railway Safety concluded that the accident was caused due to the act of Signal Passing At Danger (SPAD) caused by the complete disregard to the extant rules, framed to regulate working-hours of Loco-Pilots, to ensure safe train-operation.

III. REMARKS AND RECOMMENDATIONS:

3.0 Remarks and recommendations made by Commissioner of Railway Safety and action taken by Railways are given below

3.1

(a) Recommendation:

The occurrence of as many as 120 cases of Signal Passing at Danger from 01.04.2020 to 30.06.2023 highlights the limitations of preventive measures taken by the Zonal Railways (counselling of LP/ALP, safety drives, etc.). The accident underscores the need for an automatic train-protection system that can prevent collisions.

(b) Action Taken by Railways:

1. Indian Railways has already started deploying indigenously developed Automatic Train Protection (ATP) system i.e. KAVACH.

2. The first field trials on the passenger trains were started in February 2016 based on the experience so gained and Independent Safety Assessment of the system by a 3rd party (Independent Safety Assessor: ISA) three firms were approved in 2018-19, for supply of KAVACH.
3. Subsequently KAVACH was adopted as National ATP system in July 2020.
4. KAVACH has so far been deployed on 1465 Route Kms and 139 Locomotives (Including EMU rakes) over South Central Railway.
5. KAVACH Tenders have been awarded for Delhi-Howrah and Delhi-Mumbai Routes (approximately 3000 Route kms.) and work is in progress.

3.2

(a) Recommendation:

Control Office Application should get an input from Crew Management System about crew-sign-on particulars so that a section controller is aware of crew working for longer hours

(b) Action Taken by Railways:

In the Control Office Application, Train Name, Crew Name, Crew Type, Sign On time, Crew duty hours, Crew HQ, Sign ON Station & CMS user ID of crew due for change & crew about to change is visible to the controller in real time. The window is called "Alert Crew Duty Hours". Screen shots of COA window are enclosed as Annexure-II. Further a JPO framed by Electrical & Operating departments of SECR has been issued on 06.04.2023 (Copy enclosed as Annexure-III) for conveying train ordering through CMS/FOIS to the lobbies. This will enable the Crew Controller at lobbies, TLC at Control to monitor Crew long hours effectively. They in turn will inform Section Controller/Dy. Controller of long hours for better management/planning.

3.3

(a) Recommendation:

The unabated cases of SPAD highlight the importance of isolation in signalling. The recent changes in the provisions of GR 5.16, and GR 3.47 which allows non- isolated shunting, and non-isolated simultaneous movements ahead of a train being received on a main line do not bode well for IR, and should be reviewed.

(b) Action Taken by Railways:

This issue has already been reviewed by of Board in response to reference received ant from CCRS office under Letter No. M-dated 15013/01/2017-18-TW dated 04.09.2023. The reply of the reference - has been sent under Boards Letter No 2021/safety (A&R)/19/49 dated 16.10.23.

3.4

(a) Recommendation:

There is an urgent need for robust Crew management in SECR - filling of vacancies, timely crew-reviews, and monitoring of crew working longer hours should be done in earnest.

(b) Action Taken by Railways:

Chapter V of ACTM, para 30504 details the duties of TLC. The duties include:

- To watch the detention to electric locos as well as electrical running staff in yards and sections and take remedial action in coordination with the Traffic Controller;
- To watch train operation in order to avoid excessive waiting duty for running staff and take remedial action, as required in coordination with the Traffic Controller;
- To study cases of running staff performing more than prescribed hours of duty at a stretch and take necessary remedial action to avoid recurrence;

Further to the above, necessary steps have been taken over SECR to strengthen Crew Management. Some of the major steps taken are as follows:

1. Crew review for the year 2022-23 has been sanctioned on 14.06.23. Indent for 3937 staff has been placed on the portal.
2. Stipulated rest to Loco Pilots and Assistant Loco Pilots at Head Quarter and outstations is being monitored.
3. No LP/ALP is booked in Breach of Rest either from HQ or from outstations (Running Rooms).
4. During 2022-23 & 2023-24, 623 & 180 (Total-803) no. of ALPs have been promoted to Loco Pilot Goods. Also, 1309 ALPs were inducted during 2022-23.
5. New Lobbies have been set up at Uslapur & Pendra Stations in BSP-SDL Section to relieve crew before exceeding the stipulated working hours.
6. Regular monitoring of long hours cases is being done at various levels including weekly safety meeting chaired by GM.

3.5

(a) Recommendation:

The long-haul operation in SECR should be reviewed; an operation without a proper JSC and without longer loops in the stations does not seem proper.

(b) Action Taken by Railways:

At present long haul operation is being done as per Board's guidelines issued under letter No.- 2022/TT- 1/27/1 dated 04.08.2023.

Following stations on SECR have long Loop Lines:

- a) Hathbandh station of Raipur Division in Bilaspur-Raipur section.
- b) Koka Station of Nagpur Division in Gondia- Nagpur section.

Long Loops are in the pipeline at the following stations of SECR:

- a) Madarwani Station &
- b) Kirodimalnagar Station of Bilaspur Division.

Long loops are not feasible at many yards due to grade constraints especially over Zonal Railways such as SECR, SER, WCR, ECOR etc. Long hauls are being formed and run successfully on running lines (2nd/3rd/4th lines) on many Zonal Railways such as SECR, SER, WCR, ECOR etc.

It is pertinent to mention that Long Hauls are actually a means to reduce congestion as it facilitates more number of trains on available paths, which not only improves throughput but also reduces congestion. This helps improving speed and reducing long hours cases.

ACCIDENT – III

THE ABSTRACT OF STATUTORY INQUIRY REPORT OF COMMISSIONER OF RAILWAY SAFETY ON ACCIDENT OF REAR COLLISION OF THE TRAIN NO. 12841 (SHALIMAR-CHENNAI) COROMANDAL EXPRESS WITH GOODS TRAIN NO. N/DDIP AND SIDE COLLISION WITH TRAIN NO. 12864 (SMVT BENGALURU – HOWRAH EXPRESS) AT BAHANAGA BAZAR STATION ON 02.06.2023 AT ABOUT 18:56 HOURS IN KHARAGPUR-RANITAL SECTION OF KHARAGPUR DIVISION IN SOUTH EASTERN RAILWAY

I. BRIEF DESCRIPTION:

1.1 THE ACCIDENT

On 02.06.2023, Goods train No. N/DDIP (loaded 59+1 Iron ore), arrived BNBR station at about 18:34 hrs, and was regulated on the common loop line for giving precedence to the Train No. 12841(Shalimar-Chennai Coromandel express). At BNBR, the signals were taken off at about 18:52 hrs for the train to pass-through on the Up main line.

Goods train No. BCN/BQA arrived at the Down loop at about 18:41hrs, and was regulated for giving precedence to Train No. 12864 (SMVT Bengaluru-Howrah express). Through Green Signals were given to the Train 12864 to pass through on Down main line

The run through signals were given for the Train No. 12841 on the UP main line, and the train was approaching the BNBR station at a speed of 128 kmph. However, instead of running through on the main line, the train collided with the Goods train No. N/DDIP standing on the UP-loop line, at about 18:56 hrs. At this time the loco of the Train No. 12864 had just crossed the Down Advance Starter Signal. The last two coaches of the Train No. 12864 were hit on their side by the derailed coaches of the Train No. 12841, the coaches got derailed and capsized.

The impact of the collision was so severe that the loco WAP-7/SRC No. 37334 of Train No. 12841 mounted over loaded wagons of the Goods train No. N/DDIP, and 21 coaches got derailed/capsized, infringing the adjacent Down main line track, the last two coaches of the train were on the track.

II. CAUSE OF THE ACCIDENT:

The rear-collision was due to the lapses in the signalling-circuit-alteration carried out at the North Signal Goomty (of the station) in the past, and during the execution of the signalling work related to replacement of Electric Lifting Barrier for level crossing gate no. 94 at the Station. These lapses resulted in wrong signalling to the Train No. 12841 wherein the UP Home Signal indicated Green aspect for run-through movement on the UP main line of the station, but the crossover connecting the Up main line to the Up loop line (crossover 17A/B) was set to the UP loop line; the wrong signalling resulted in the Train No. 12841 traversing on the UP loop line, and eventual rear-collision with the Goods train (No. N/DDIP) standing there.

III. REMARKS AND RECOMMENDATIONS:

3.0 Remarks and recommendations made by Commissioner of Railway Safety and action taken by Railways are given below

3.1

(a) Recommendation:

A drive should be launched to update the Completion signalling wiring diagrams, other documents (SIP, RCC, SWRD, Panel/VDU diagrams etc.), and lettering of signalling circuits at site.

(b) Action Taken by Railways:

Drives have already been launched regarding:

(i) Status of completion documents vide this office letter No. 2020/Sig/21/Safety Performance dtd. and 14.06.23

(ii) Status of checking & verification of writing work details of signaling gears at site vide Letter No.2021/Sig/21/Safety Performance dtd. 28.06.23

This is a continuous process and Zonal Railways have been advised to monitor the same closely.

3.2

(a) Recommendation:

Standard practices should be followed for carrying out signalling-modification work.

(b) Action Taken by Railways:

Policy for commissioning of new works and - alteration to existing signaling installations, has been issued vide Railway Board's letters No.2020/Sig/21/Safety Performance dtd. 10.06.23 & letter No. 2012/Sig/SF/2(policy) dtd. 20.07.23.

3.3

(a) Recommendation:

Before taking up modification of the existing signalling circuits, functional tests of the existing circuits, under alteration, should be carried out to ensure that actual circuits are in accordance with the completion drawings.

(b) Action Taken by Railways:

These issues have been covered under the new policy circular issued, vide items no. (v) and (iv) of letter no 2012/Sig/SF/2(Policy), dated 20/07/2023 respectively.

3.4

(a) Recommendation:

Any alteration to signalling circuits should be carried out with an approved circuit diagram, and in presence of an Officer.

(b) Action Taken by Railways:

These issues have been covered under the new policy circular issued, vide items no. (v) and (iv) of letter no 2012/Sig/SF/2(Policy), dated 20/07/2023 respectively.

3.5

(a) Recommendation:

A separate team should be deployed for checking and testing of modified signalling circuits and functions before restoration/reconnection of the work

(b) Action Taken by Railways:

In case of minor day-to-day works of maintenance, repair & replacement activities, instructions have been issued vide Railway Board's Letter No. 2023/TT/IV/9/2 dtd. 16.06.23 for final correspondence test with ASM. This aspect has been taken care of in the JPO issued under the signature of AM/Signal & AM/Traffic, Railway Board.

A JPO has also been issued by SER under the signatures of PCSTE & PCOM. This JPO envisages that the preparedness shall be checked by nominated staff and actual execution shall be carried out by officers & staff duty authorized in writing. In case of major works instructions are already in vogue.

3.6

(a) Recommendation:

A competency certificate should be issued after a rigorous practical training for carrying out signalling modification works. Both the Execution, and Checking & Testing of Signalling-modification works should be done by staff in possession of this competency certificate.

(b) Action Taken by Railways:

The procedure of issue of competency certificate is in vogue. The same is issued by IRISSET (Indian Railway Institute of Signal Engg & Telecommunications) in case of SSE/ JE (Signal) and Zonal Training Centers in case of technicians.

Further, instructions have been issued to training institutes/centers for emphasis on practical training to carry out signaling modification works vide Railway Board's letter No 2020/Sig/IRISSET dtd 08.08.2023.

3.7

(a) Recommendation:

In the event of a condition wherein pick up of both 'Normal', and 'Reverse' indication relays is detected for a point, all signal movement over that point should be prevented. In case of EI, this should be registered as fault condition, and the system should shut down automatically.

(b) Action Taken by Railways:

A Committee comprising of officials from Railways and signal design experts from Original Equipment Manufacturers (OEMS) of electronic interlocking was given the task to examine the issue. The recommendations of the committee, the standard point circuit for EI has been revised and instructions have been issued to all Zonal Railways vide letter no. RDSO SIGOEI(CKT)/1/2020 dtd 29.08.24 on to incorporate the modified point detection circuit in standard typical circuits of EI for uniform adoption over all Zonal Railways.

3.8

(a) Recommendation:

If the status of a point indication relay (physical relay) is 'Normal', then the command for operation of the point from Reverse to Normal should not generate, and vice-versa.

(b) Action Taken by Railways:

The recommendation proposed was looked into by the committee. Addressing the same is causing some other undesirable scenarios. As such the same is not agreed to. However, the hazard that was sought to be addressed is being mitigated by incorporating modification of point detection circuit as proposed in item 3.7 above

3.9

(a) Recommendation:

Point detection circuits should be carried in a separate cable for each Point/Crossover without any intermediate termination.

(b) Action Taken by Railways:

Cable without intermediate termination is feasible by provision of Direct Drive which is under trial.

3.10

(a) Recommendation:

The point switch groups should be eliminated in EI installations.

(b) Action Taken by Railways:

The same is already catered in standard typical circuit of EI.

3.11

(a) Recommendation:

Provision should be made for separate logging of physical relays in the Station data-logger.

(b) Action Taken by Railways:

Instructions in this regard have been issued vide this office Letter No 2018/Sig/18/6-Datalogger/1 dtd. 27.06 23.

3.12

(a) Recommendation:

RTU should be provided at end-goomties for logging of digital and analog inputs for ensuring end to end matching of status of gears.

(b) Action Taken by Railways:

Instructions in this regard have been issued vide this office Letter No 2018/Sig/18/6-Datalogger/1 dtd. 27.06 23.

3.13

(a) Recommendation:

The Station Masters should be made aware of possible faulty conditions of EI system that could be detected through indications on the Panel; these should also be listed and incorporated in the SWR.

(b) Action Taken by Railways:

A drive has been launched where in joint counseling was done to sensitize station staff vide Railway Board's letter No. 2021/Sig/21/Safety Performance dtd 10.06.23.

3.14

(a) Recommendation:

As a long-term measure, Signalling functions/gears should be directly connected to EI, through OFC, eliminating intermediate relays.

(b) Action Taken by Railways:

Provision of Direct Drive is under Trial.

ACCIDENT – IV

THE ABSTRACT OF STATUTORY INQUIRY REPORT OF COMMISSIONER OF RAILWAY SAFETY ON INCIDENT OF FIRE IN IRCTC BOOKED SLEEPER CLASS FULL TARIFF RATE NON-AIR-CONDITIONED COACH NO. NER WGSCN 113210 STABLED ON BODINAYAKKANUR SIDE NON-ELECTRIFIED STABLING LINE NO. 2 IN MADURAI YARD IN MADURAI DIVISION OF SOUTHERN RAILWAY AT 05.15 HOURS ON 26.08.2023.

I. BRIEF DESCRIPTION:

1.1 THE ACCIDENT

i. A tour-operator Late Shri Harish Kumar Bhasin, under the name of Bhasin Tours & Travels, Sitapur, Uttar Pradesh, booked a Full Tariff Rate Sleeper coach through IRCTC portal. The itinerary of the tourist coach covered places like Vijayawada, Renigunta, Mysuru, Yesvantpur, Tirunelveli, Nagercoil, Madurai and Chennai (Annexure-III).

ii. The coach NER WGSCN 113210 was attached to train no. 16094 Express ex-Lucknow Jn. (NE Railway) for its first destination Vijayawada.

iii. After finishing its itinerary at several enroute stations, the coach arrived Madurai Jn. at about 03.17 hrs by train No. 16730 as rearmost, on 26.08.2023. It was received on Road 10, at Madurai Jn. On arrival, the shunting staff informed the party in the tourist coach to detrain but were told that the tourists would remain the coach.

iv. The coach was then shunted, detached, and kept at Stabling Line No.2 at Bodinayakkaur side of Madurai yard with passengers on board. It was planned to move this coach to Road 4 later.

V. At about 05.15 hrs, when the coach was stabled on Stabling Line No.2, it caught fire from Madurai end. The passengers tried to exit from the doors on the Bodinayakkanur end but they were locked. One of the locks was broken by a passenger which helped passengers get down from the coach. Some of the tour operator's men managed to alight from door on the Madurai end. After a few minutes, there was an explosion in the coach.

vi. The fire brigade which is stationed nearby Madurai station rushed to the coach which was on fire. It took about an hour to fully douse the fire.

II. CAUSE OF THE ACCIDENT:

Upon careful consideration of the factual, material and circumstantial evidence available with me, I have come to the conclusion that the incident of fire in Sleeper Class Full Tariff Rate non-air-conditioned Coach No. NER WGSCN 113210 on Bodinayakkanur end Non-Electrified Stabling Line No. 2 in Madurai Yard in Madurai Division of Southern Railway at about 05.15 hrs on 26.08.2023 occurred due to illegal use of liquefied petroleum gas for cooking inside the coach, which after developing a leak in the connecting pipe of gas cylinder to burner, got ignited with the already lit flame and got further aggravated due to availability of other inflammable materials like coal, fire woods and another filled gas cylinder carried in the coach.

The cause of the accident was illegal carrying and use of inflammable material by passengers in connivance with railway staff.

III. REMARKS AND RECOMMENDATIONS:

3.0 Remarks and recommendations made by Commissioner of Railway Safety and action taken by Railways are given below

3.1

(a) Recommendation:

Immediate suitable action against the erring officials for their lapses mentioned. Also, long standings officials at the Aishbagh Coaching depot and Lucknow Station (LJN) should be transferred.

(b) Action Taken by Railways:

Suitable action has been taken against the erring officials as per Railway Service (D&A) Rules Furthermore, officials at the Aishbagh Coaching depot and Lucknow Station (LJN) have also been transferred

3.2

(a) Recommendation:

Critical review of Entry/Exit of Aishbagh Coaching depot/yard shall be done and a mechanism of monitoring like CCTV cameras and/or deployment of security personnel for the movement of vehicles inside/out of depot/yard should be ensured.

(b) Action Taken by Railways:

The entry/exit arrangements of Aishbagh Coaching Depot Yard have been reviewed RPF personnel have been deployed round the clock at the entry/exit points, coaching depot, yard and parcel areas to monitor the movement of vehicles and prevent unauthorized entry Maximum zones have installed CCTV cameras at coaching depots, yards and entry/exit points, monitoring of which is ensured jointly by designated security personnel and the Mechanical Department, in areas without CCTV coverage, deployment of security personnel is being ensured

3.3

(a) Recommendation:

All the commercial formalities including assessing the charges, issuing of Blank Paper Tickets, authentication of passenger list, issuing of ID cards, except head count, related to booking of FTR coaches/Rake should be done through online portal and details of itinerary with list of bona fide passengers shall be shared with all the enroute railways.

(b) Action Taken by Railways:

The Commercial Directorate of Railway Board has issued instructions 07.09 2023, CG No. 33 of 2023 dated 09. 01.2024 and no. TC -II/2023/2020/CRS-Fire 25.08.2025

3.4

(a) Recommendation:

30 days' storage capacity for CCTV footage at the Stations shall be provided. Orientation and location of cameras need to be reviewed to ensure fruitful utility of footages. Integrated Security System has not taken off in many Zonal Railways. It must be monitored and ensured on the top priority.

(b) Action Taken by Railways:

At present, CCTV footage at all Railway Stations is retained for 30 days. The location and orientation of the cameras are decided by the Security Directorate in coordination with the Telecom Directorate. Proposals are also underway for installation of additional PTZ cameras to strengthen yard surveillance under the ongoing ISS/VSS projects

3.5**(a) Recommendation:**

A structured and focused working directions are needed for the optimum utilization of available manpower. Working directions to TCs, TTEs and RPF staff should be given, periodically, based on the identified key vulnerable areas, period, location, trains etc.

(b) Action Taken by Railways:

Indian Railways has identified vulnerable areas, trains and locations to ensure the deployment of RPF personnel for enhanced security. RPF staff are regularly briefed during duty mounting and dismounting and structured working directions are issued periodically. Regular coordination is maintained with sister departments to ensure optimum utilization of manpower. Special drives are also conducted to ensure surveillance and security of sensitive locations

3.6**(a) Recommendation:**

Commercial Circular on the subject needs to incorporate the needful changes.

(b) Action Taken by Railways:

In continuation of Commercial Circular, no 19 of 2023 dated 07.09.2023 Commercial Directorate has issued further instructions vide CC No. 33 of 2023 dated 09.01.2024

3.7**(a) Recommendation:**

Records of Primary/Secondary Examination done for the coaches at the pit line shall be maintained as per the proforma provided in the maintenance manuals.

(b) Action Taken by Railways:

Maintenance of coaches is being done as per CAMTECH maintenance manuals/RDSO instructions records are also maintained as per prescribed formats and proformas etc. Further Railway Indian has developed a Coaching Maintenance Management System (CMMS) pertaining to maintenance of coaches. Coaching Depots have been added to the CMMS and various functionalities are regularly being upgraded. The CMM application covers the entire life cycle of the coach starting from the production to the condemnation. The broad functionalities under its ambit are

- Coach Master for generating coach numbers, capturing parameters of coaches as well as components. rolling stock certificate
- Rake maintenance Process covering entire maintenance work being carried out on washing line and pit line
- Sick line (Coach Maintenance) process to cover all planned and unplanned major maintenance tasks.

- The manpower booking process for task-wise nomination of staffThe material booking process for capturing coach-wise fitment of material
- Integration with WISE (workshop information system) for exchange of coach's periodic overhaul-related information

3.8

(a) Recommendation:

A special drive shall be organized by all the Zonal Railways to prevent the carriage of inflammable and dangerous materials inside all the non-vestibuled coaches with special emphasis on tourist coach's/group coaches. Cooking on the platforms and in the stations/yards should be prohibited.

(b) Action Taken by Railways:

Instructions to all Zonal Railways have been issued vide CC No. 33 of 2023 dated 09.01.2024 to conduct regular checks to restrict the carriage of inflammable and dangerous materials.

Further Freight Marketing Circular No. 17 of 2023 dated 14 12 2023 and Circular No 10 of 2024 dated 05.04 2024 have also been issued.

3.9

(a) Recommendation:

Whenever FTR Rakes/Coaches are to be placed on the pit lines for the examination, Railway must ensure the deboarding of all the passengers from the coach. Stipulated inside examination shall be invariably done and recorded in the prescribed format.

(b) Action Taken by Railways:

Noted.

instructions in this regard have already been issued vide Commercial Circular No 19 of 2023 dated 07.09.2023

3.10

(a) Recommendation:

Regular sensitization of Supervisors and staff regarding intricacies of Commercial Circulars, Maintenance Schedules and other important activities connected with FTR Coaches/Rakes should be done.

(b) Action Taken by Railways:

Noted

Commercial Circular No. 19 of 2023 dated 07.09 2023 including covering the related issue has also been issued

ACCIDENT – V

THE ABSTRACT OF STATUTORY INQUIRY REPORT OF COMMISSIONER OF RAILWAY SAFETY ON DERAILMENT OF TRAIN NO. 12506 (ANAND VIHAR TERMINUS-KAMAKHYA NORTH EAST EXPRESS) NEAR RAGHUNATHPUR STATION YARD IN PANDIT DEEN DAYAL UPADHYAY-PATNA SECTION OF DANAPUR DIVISION OF EAST CENTRAL RAILWAY AT ABOUT 21.53 HRS ON 11.10.2023.

I. BRIEF DESCRIPTION:

1.1 THE ACCIDENT

Train No. 12506 DN with 1 Loco and 23 Coaches originated from Anand Vihar Terminus (ANVT) on 11.10.2023 Morning for journey to Kamakhya (KYQ). Train No. 12506 DN (ANVT-KYQ North East Exp.), Engine No. 30521/WAP-7/GZB, Load-23 LHB coaches, Round BPC No.1464338 (Primary maintenance at KYQ/NFR on 09.10.2023) was issued for Train No. 12505 and Secondary BPC No. 1467333 was issued for Train no. 12506 DN at ANVT/NR on 11.10.2023 before commencement of journey from ANVT. The train departed from Buxar at 21.31 hrs. on 11.10.2023 and while passing through DN Line on proper signal at RPR Station in DDU-PNBE Section, the Loco with all coaches got derailed near RPR Station at about 21.53 hrs. on 11.10.2023 blocking movement in both UP & DN Lines.

'Right' and 'Left', 'Rear' and 'Ahead', 'Before' and 'After' referred in this Report are with reference to the direction of movement of the ill-fated train.

Due to this Accident, the Section was completely blocked. UP Main Line was infringed by one Coach (No. NF/205272); two Coaches (Nos. NF/231892 & NF/205272) were fully capsized and one Coach (No. NF/224988) was partially capsized. Two Coaches (Nos. NF/213894 & NF/232232) were found tilted and one Coach (No. NF/171251) found partially tilted. Total eight Coaches with Train Engine got derailed after passing LC Gate No. 59 B/T, remaining fifteen Coaches were found derailed before the LC Gate at DDU end.

II. CAUSE OF THE ACCIDENT:

Having carefully considered the factual, material (including Reports submitted by the Railway) and circumstantial evidence at my disposal | conclude that Accident of Train No. 12506 (ANVT-KYQ Express) on 11.10.2023 in Raghunathpur Station Yard in Pandit Deen Dayal Upadhyay-Patna Section of Danapur Division of East Central Railway was caused primarily due to breakage of rail in approach of LC Gate No. 59/B/T. The failure to timely detect the flaws in rail (containing heterogeneities of complex oxides of Calcium, Aluminium, Magnesium and Silicon), initiation of fatigue crack from these locations of clustered inclusions which acted as stress concentration locations and subsequent propagation of these cracks reaching a critical length, led to overload failure.

III. REMARKS AND RECOMMENDATIONS:

3.0 Remarks and recommendations made by Commissioner of Railway Safety and action taken by Railways are given below

3.1

(a) Recommendation:

Stricter monitoring should be exercised in controlling the various processes involved in manufacture of rails. Railway may consider exploring possibilities of Real Time Monitoring of the health of track.

(b) Action Taken by Railways:

Continuous improvement & up gradation is being done by Railways and rail manufacturing plant of SAIL / Bhilai for ensuring better quality of steel making & Rail rolling. Many important steps have already been taken for enhancing rail qualities which are as under:

Improvement in manufacturing quality in rails at SAIL/Bhilai-

For production of better quality of rails, SAIL/Bhilai has installed the following equipment in Steel Making Shop:

- i. Electromagnetic stirrer-this equipment used to homogenize the liquid rail steel at the time of bloom casting.
- ii. Automatic Mould Level Controller (AMLC)- This equipment used to maintain the metal level of liquid steel in mould for producing better quality of rail blooms.
- iii. Slag Detector cum Slag Arrester- This equipment used to arrest the flow of slag from Ladle to Tundish.

Improvements in Chemical & Metallurgical property of Rails-

- i. IR has switched over from 880 grade rails to cleaner steel of R260 grade rails since April 2021.
- ii. R260 has better mechanical properties also.
- iii. The O₂ and N₂ content in liquid steel is controlled within 20 ppm max and 90 ppm max respectively at par with European Specification.
- iv. H₂ content in Liquid Steel is 1.6 ppm max., which is a world bench mark.
- v. The norm of Aluminum content in liquid rail steel is reduced from 0.015% max. to 0.004% max.
- vi. The norm of Yield Strength has been increased from 460 MPa to 550 MPa.
- vii. Hot surface defect detection system Installed for early detection of defects during manufacturing stage.
- viii. Automatic body flatness measurement equipment installed to measure and control straightness of rails.

For proper monitoring of track health, various modules in Track Management System (TMS) are operational. These include monitoring of USFD testing of rails and welds. USFD operators regularly feed the USFD testing data of rail and weld during daily USFD testing on TMS. These USFD testing data are monitored regularly at all concerned levels for necessary maintenance.

For real time monitoring, following technologies are under trial/testing for Broken Rail Detection System in various zonal railways:

- i. Continuous Broken Rail Detection System (NGRT): Trial in North Eastern Railway is under progress.
- ii. Acoustic Domain Technology 'Rail Acoustic': Trial in North Central Railway is under progress
- iii. Vibration Energy based Broken Rail detection system: Trial in North Central Railway is under progress.

3.2

(a) Recommendation:

Proper mechanism should be available with the Railway for identification of fatigue cracks developed in rails.

(b) Action Taken by Railways:

a) The present system of ultrasonic testing of rails by Single Rail Tester/Double Rail Tester is capable of detecting the transverse fatigue defects (Kidney defects) which are nearly inclined at 20 degrees in the rail head region. However, these machines are not capable to detect the vertical oriented transverse fatigue defects in rail head. Phased array SRT is capable of detecting such defects.

b) The field trial of Phased array SRT had been completed.

c) Zonal Railways / PSUs have been advised for adoption of Phased Array Ultrasonic Single Rail Tester (PAUT SRT) for rails testing

3.3

(a) Recommendation:

The locomotives, and coaches of all running trains should be closely examined and defective rolling stock should not be permitted; more-so in Mail Express Trains with high speed. Records of maintenance of Coaches and Loco may be computerized similar to what has been done for Track Monitoring System (TMS) so that the data can be readily accessed for analysis and scrutiny.

(b) Action Taken by Railways:

Coaches of all running trains are examined regularly as per laid down procedures/manuals/instructions. After ascertaining the laid down parameters these coaches are certified fit for operation in service by duly issuing the Brake power certificate.

With the advent of information technology. IR envisaged digitalization, automation and instrumentation of maintenance practice of rolling stocks to leverage data to empower rolling stock maintainers by providing them with historical information related to maintenance, defect and deficiencies of rolling assets at their fingertips.

Keeping the above benefits of technology, the software application, named as CMM (Coaching Maintenance Management), for the maintenance of coaches was conceived as a pilot project in FY-2009 for implementation in 3 coaching depots viz New Delhi (NDLS), Lucknow (LKO) and Mumbai Central (BCT now MMCT). The initial objective of the project was to computerize the manual record keeping of maintenance and analyze the data through Business Intelligence (BI) tools.

After the success of pilot project, the project's 2nd phase was started and implemented to 89 depots out of the 200+ depots spread over the IR network along with the enhancement in scope of work to capture all gamut of coaching activities. Recently, this application has been expanded to production units to capture the coach assembly (Rolling Stock certificate) records at the origin of the information, which will enable CMM user in end to end tracking the fitment to failure life cycle of each individual component.

It is further supplemented that presently CMM is being used by all the field units & ZR HQS for feeding & fetching requisite information of Passenger Rolling Stocks like rake maintenance,

commissioning Data etc. after phase 3 completion. Moreover, BPCS after rake maintenance are also being issued through CMM portal. The CMM software solution has been made available to all coaching depots of IR and more than 99% of brake power certificates are now issued through CMM.

The full-fledged implementation of ICT is envisaged in phase-4 of CMM. Further other coaching stocks (such as Vande Bharat, Vande Metro, MEMU/EMU, DEMU) will also be included in Phase 4.

The CMM application covers the entire life cycle of the coach starting from the production to the condemnation. The broad functionalities under its ambit are: -

- Coach Master for generating coach numbers, capturing parameters of coaches as well as components, rolling stock certificate.
- Rake maintenance Process covering entire maintenance work being carried out on washing line and pit line.
- Sick line (Coach Maintenance) process to cover all planned and unplanned major maintenance tasks, which are not possible to carry out on the washing line.
- The manpower booking process for task-wise nomination of staff.
- With WISE The material booking process for capturing coach-wise fitment of material. Integration with WISE (Workshop Information System) for exchange of coach's periodic overhaul-related information.

3.4

(a) Recommendation:

Alternate power supply source should be available to RTIS to continue recording the events in the Locomotive even after disruption of supply from the Battery.

(b) Action Taken by Railways:

RDSO modification for power supply modification is under implementation over IR including ECR and being monitored at Rly. Bd's level.

The RTIS system which are being installed in Phase-2 have inbuilt battery with 30 minutes backup. After implementation of this modification power will be available to RTIS directly from battery even after switch off HOBA switch for power supply to locomotive.

3.5

(a) Recommendation:

Railway may consider installing Cab Voice Recorder in the Loco to record the conversation between the crew during/just before any Accident. This may be extended to facilitate contacting the local Divisional Train Control.

(b) Action Taken by Railways:

Crew Voice and Video Recording System (CVVRS) is installed in 479 locomotives and is under implementation by CRIS in all locomotives.

3.6

(a) Recommendation:

Formal training or guidelines are to be issued for Videography and Photography of the Accident Site including with Drone Camera of Locomotive, coaches & track; necessary training should be imparted to the Railway staff.

(b) Action Taken by Railways:

Guidelines for videography and photography at accident site have already been issued vide Board's letter nos.

(i) 2005/Safety (A&R)/26/6 dt. 11.12.2019

(ii) 2016/Safety (A&R)/1/17(pt.) dt. 11.12.2020 and

(iii) 2019/Safety (A&R)/1/10 dt. 16/17.12.2020.

(iv) 2022/Safety(A&R)/1/2 dated 06.05.2022

Further, these guidelines have also been reiterated vide Board's letter no. 2022/Safety(Inquiries)/3/6 dated 15.11.2023.

3.7

(a) Recommendation:

Railway may consider informing the local Civil Authorities including NGOs available nearby, immediately after an accident so that medical relief can be arranged at the earliest.

(b) Action Taken by Railways:

Contact details of local civil authority like DM, SP, Local Thana, are being displayed on board available at all railway stations. Contact details of the NGO like Private Hospital, nursing home are also being displayed on board at all railway stations. These contact numbers are being checked and updated time to time in Disaster Management Plan.

ACCIDENT – VI

THE ABSTRACT OF STATUTORY INQUIRY REPORT OF COMMISSIONER OF RAILWAY SAFETY ON REAR COLLISION OF TRAIN NO. 08504 (VSKP-RGDA PASSENGER) WITH TRAIN NO. 08532 (VSKP-PAS PASSENGER) BETWEEN KPL & ALM AUTO SECTION OF WALTAIR DIVISION OF EAST COAST ON 29-10-2023

I. BRIEF DESCRIPTION:

1.1 THE ACCIDENT

KPL-ALM section has three lines (Dn, Up, and a bi-directional middle line) with Automatic Block Working System.

On 29.10.2023 at about 06.25 hrs there was failure of auto section on all three lines between KPL -ALM section. As a result two consecutive auto signals of each line in the same direction were showing 'Danger' Aspect.

After rectification by S&T staff at about 12:00 hrs, manual reset was applied by SS/KPL & SS/ALM. Passing of first train on each line completed the process of clearing all the failed track sections.

Between 16:33 and 16:50 hrs, 06 track sections failed (two of each line) in the section. After rectification by S&T staff, manual reset was applied by SS/ALM for the middle line at 18:38:40. At 18:43:36, SS/KPL allowed 1st train 08532 into the section to complete process of clearing all failed track sections. However, before clearance of failed track sections in middle line, SS/KPL allowed a 2nd train 08504 into the block section which collided with 1st train 08532.

DN Goods Train No. NLOD BTPN (51 wagons) departed at 18:32:13 hrs from KPL station. Train stopped at auto signals No. DA-841/30A & DA-840/28A showing 'Danger'. It again started at 18:54:39 hrs.

UP Goods Train No. VZP/BOST (47 wagons) departed at 18:37:46 hrs from ALM station. Train stopped at auto signals No. UA-839/17 & UA-840/25 showing 'Danger'.

Train No 08532 (VSKP-PAS Passenger) arrived KPL at 18:40:39 hrs on Rd-2 and departed at 18:41:12 hrs from KPL, passed DN Mid Advanced starter signal No.S-40 showing 'Attention' at 18:43:38 hrs and again passed the auto signal No. MDA-842/34 showing 'Caution' at 18:45:13 hrs. Train stopped at auto signal No. MDA-841/32 showing 'Danger' at 18:48:38 hrs and started at 18:49:02 hrs with a max speed upto 18 Km/h and stopped at auto signal No. MDA-840/32 showing 'Danger' at 18:53:47 hrs. Again started at 18:54:31 hrs and running towards next auto signal No MDA-839/22 with a max speed upto 16 Km/h.

Train No 08504 (VSKP-RGDA Passenger) arrived KPL at 18:50:01 hrs on Rd-2. This train was allowed by SS/KPL into the block section before train no 08532 could pass auto signal No MDA-839/22, passing of which by train no 08532 would have completed the process of clearing failed track sections on middle line as mentioned in above Para. Train No 08504 departed at 18:51:39 hrs from KPL duly negotiating crossovers, passed DN Mid Advanced starter signal No.S-40 showing "Attention at 18:54:00 hrs and then passed the auto signal No. MDA-842/34 showing 'Caution' at 18:55:24 hrs. Train passed at auto signal No. MDA-841/32 showing 'Danger' at 18:56:09 hrs with a speed of 92 Km/h and then passed auto signal No. MDA-840/32 showing 'Danger' at 18:56:47 hrs with a speed of 97 Km/h and collided rear end of Train No 08532 with speed of 82 Km/h at Km 840/20-24.

Impact of the collision was so severe that train No 08532 (VSKP-PAS Passenger) which was running "cautiously" with 16 Km/h towards next Auto Signal No. MDA-839/22 had been hit on

its rear end by Train No.08504 (VSKP-RGDA Passenger) with speed of 82 Kmph resulting in derailment/capsizing of four coaches of Train No 08532 and two locomotives & two coaches of Train No. 08504 and dashed with UP Goods Train No. MD VZP-BOST & DN Goods Train No. NLOD BTPN.

II. CAUSE OF THE ACCIDENT:

Upon careful consideration of the factual, material and circumstantial evidence available with me till now, I have come to the conclusion that cause of Rear collision of Train No. 08504 (VSKP- RGDA Passenger) with Train No. 08532 (VSKP-PAS Passenger) on middle line resulting in derailment of 6 coaches and two locomotives which dashed with UP Goods Train No. MD VZP-BOST & DN Goods Train No. NLOD-BTPN at km 840/20-24 between KPL & ALM Auto Section of Waltair Division of East Coast Railway on date 29.10.2023 at 18:56:58 hrs" was caused due to following factors:

- 1.Overshooting of Auto Signal No. MDA-841/32 & MDA-840/32 at 'Danger' and hitting the preceding train No.08532 at a speed of 82 kmph by LP of train No.08504 on 29.10.2023, violating the G.R No. 9.07 and corresponding SRs issued by ECoR.
- 2.Failure of ALP to timely apply emergency brakes even in face of approaching collision.
- 3.Had Provisions of G.R. 9.12, S.R 9.12.01 of ECOR been followed, as the auto signal failure was lasting for considerable time on 29.10.2023, the accident would not have happened.
- 4.In violating the extant instructions, SS/ALM and SS/KPL were, over walkie-talkies (VHF sets), unnecessarily informing LPs of trains passing through about failed signals. As a result, crew of some trains did not follow relevant provision of GR &SR.
5. Railway administration failed to follow G.R 9.11 and its corresponding SRs in prompt reporting of failures as well as periodical scrutiny by Operating Officers to ensure that the LPs do not take less than minimum running time required for observing the instructions therein.

This accident is classified under the category of "Error in Train Working".

III. REMARKS AND RECOMMENDATIONS:

3.0 Remarks and recommendations made by Commissioner of Railway Safety and action taken by Railways are given below

3.1

(a) Recommendation:

Joint Procedural Order for dealing with fault rectification and train operations on Auto signaling territory, similar to that issued by ECoR AFTER the accident should be issued/ reviewed by PCSTE, PCEE and PCOM of each zone where such territories exist. In addition to information related to gears being disconnected in S&T's disconnection memo, the following shall be incorporated in the memo.

- a) Repercussions of signaling affected on account of the said disconnection
- b) Indicate status of signals to be kept at most restrictive aspect
- c) Position of points to be kept on account of the disconnection, clearly stating if action is already been taken or to be taken by Operating staff.

(b) Action Taken by Railways:

- i. Zonal Railways have been advised to review and issue JPO for dealing with maintenance, rectification of failures and train operation on Automatic Block Signaling territory vide RB's letter no. 2023/Sig/26A/ECOR/1 dated 05.08.2024.
- ii. Guidelines regarding Automatic Block Signaling (ABS) train detection system provided in redundancy has already been issued vide Bd's letter no. 2020/Sig/G/2/RDSO dated 23.04.2024.
- iii. Railway Board has issued Unified Subsidiary Rules and Authority Forms under GR 9.12 vide L No 2024/TT-IV/12/10 dtd 16.08.24
- iv. Guidelines regarding training in connection with Automatic Signaling has been issued vide letter no. 210/Sig/IRISET/Trg/Pt-1 dated 28.06.2024.

Mentioning too many details on standard format of DCN/RCN will make it cumbersome to understand as number of signals including subsidiary signals may vary from few to a large number at times.

SR 5.04.01 (b) of ECoR provides for placing collars by operating staff before acknowledging memo offered by Signaling Staff for working on interlocked gears.

This cannot be agreed to as during disconnection of points, provisions exist in G&SR regarding movement of trains and points are also required to be operated for testing.

3.2

(a) Recommendation:

All ALPs should be trained (at least on Loco Simulators) like LPs to work trains so that they are in a better position to estimate when to operate RS valve. Attribute-wise breakup of marks given during psychological testing should be given and maintained in the service record of the crew. Present cadre structure should be reviewed and possibility of merger with TRD cadre may be considered with some posts reserved for running staff and willing staff of same grade in TRD be allowed to work initially as ALP after psychological tests and training. Role of Crew controllers and Loco Inspectors should also be reviewed and made meaningful.

(b) Action Taken by Railways:

Revised training module for training of LPs & ALPs, issued vide letter dated 19.11.2024, includes Practical training of ALP simulator including application of emergency brake by trainee ALP through RS valve, as recommended by CRS.

Dummy models for RS Valve have also been provided in crew lobbies for practice of ALP before Sign-ON..

Aptitude tests are qualifying in nature with T-42 as the benchmark, and only overall suitability is assessed Attribute wise breakup is not advisable to be recorded in service records as it may adversely impact morale and attributes may vary over time.

As per existing provisions of Para 137 of IREM Vol. I, 50% of ALPS are inducted from Diesel/Elect. Loco Shed staff, and vide Estt. Dte. letter dated 15.05.2002, TRD staff have also been made eligible against this quota. TRD staff are required to qualify the prescribed examination, A1 medical standards and aptitude test. Hence, the present system already enables TRD staff to compete for ALP posts, and merger of ALP and TRD cadres is not considered feasible.

Noted

3.3

(a) Recommendation:

Studies should be carried out on loco simulators with more than 6 hours of simulated runs to study changes/deterioration in crew behaviour with hours of continuous attention/duty. Concept of Window of Circadian Low (WOCL) should be recognized and suitable changes incorporated in crew booking & rest rules to allow sufficient rest before next trip for the crew. Continuous night duty for Running Staff shall be limited to 2 nights after which they must be granted at least one full night in bed before being booked again.

(b) Action Taken by Railways:

Revised training module for training of LPs & ALPS, issued vide letter dated 19.11.2024, includes Practical training of ALP on simulator including application of emergency brake by trainee ALP through RS valve

High Power Committee recommendations for rest and its subsequent acceptance by board is currently being followed

3.4

(a) Recommendation:

Recording of conversation made by Station Masters through walkie-talkie (VHF sets) shall be ensured by providing VHF receiver cum recorder in Datalogger room. Rosters for station staff like SM/SMRS should be made in such a way that they don't have to work on all seven days in a week and also get a weekly rest of at least 40 hours.

(b) Action Taken by Railways:

Zonal Railways have already been advised vide No.2021/Tele/8(1)/6 letter dated 13.09.2021 (enclosed) to make necessary arrangements to install equipment with voice recording facility of conversation taking place on Driver/Guard communication channel within the radio coverage area of station VHF sets. The above instructions have been reiterated vide letter dated 16.04.24.

The working hours of Railway Servants are regulated as per the Railway Servants (Hours of Work and Period of Rest) Rules, 2005. As per Rule 8 of the HOER Rules, 2005 defines the hours of work of a Railway servant based on their classification as per roster (rostered hours of work)

Further, Rule 12 of HOER Rules, 2005 states that the Railway servant whose employment is Intensive or Continuous shall be granted, every week commencing on a Sunday, rest of not less than thirty consecutive hours and those whose employment is Essentially Intermittent, shall be granted rest of not less than twenty-four consecutive hours including a full night.

Moreover, as per Rule No.3 the Railway Servants (Hours of work and Period of Rest) Rules, 2005, the Head of the Railway Administration is the prescribed authority to classify the employment of railway servants as Intensive, Continuous or Essentially Intermittent.

It is pertinent to mention here that the recommendations of High-Power Committee (HPC) constituted in 2013 were considered by Board and some of the recommendations were not accepted keeping in view the operational constraints

3.5

(a) Recommendation:

Trouble shooting by crew should be eliminated/reduced by using on-line monitoring of locomotive health tools like REMMLLOT (used in Diesel Locomotives). All unnecessary instruments and multiple screens should be removed from the cab and a standardized control panel developed irrespective of the type of loco.

Provision of mobile jammers in locomotives should be examined.

With on line monitoring of trains through RTIS/data logger /Speed Recorders/REMMLOT etc, journal by LP should be discontinued.

(b) Action Taken by Railways:

Remote Monitoring System (RMS) are being provided in locomotives, which detects the faults developed in a running locomotive and transmit to the base shed (remote server) on real time on a wireless network along with the location of the loco, similar to REMMLLOT. As on date, 394 electric locomotives have been provided with RMS. Further, an umbrella work costing 260 Crores have been sanctioned for provision of RMS in locos.

Railway Board has advised RDSO and PUS to finalize design standardization of cab layout.

Not agreed as it would block the use of device for which it is meant for during exigencies.

Not agreed as Filling up of journal by the ALP brings focus for look-out of the critical aspects to be observed and recorded which become critical in various investigations.

3.6

(a) Recommendation:

To use non-signalling based anti-collision features of Kavach, it must invariably be fitted on each and every locomotive/cab across Indian Railways even in non-Kavach territory. Minimum number of tags required in a block section may be worked out in consultation with Centre of Excellence (CoE), Secunderabad.

(b) Action Taken by Railways:

Kavach has so far been deployed on 1548 RKM on SCR and NCR. Kavach works are going on in Delhi-Mumbai & Delhi - Howrah corridors (Approx. 3000 RKM). Further tenders for track side works for approx. 15000 RKM have been invited. Bid for equipping 10000 Locomotives has been finalized. Kavach is being provided progressively.

3.7

(a) Recommendation:

Changes in GR and SR should be vetted by the safety wing of Railway Board /concerned Zone for elimination of ambiguity/clash with others rules and also risk analysis of the changes proposed. The concerned competent authorities may be suitably counselled.

(b) Action Taken by Railways:

MoBD at Railway Board and PCOM at Zonal Railways are the designated officers for issuing of SRs. Whenever inter departmental issues are involved the changes are processed after due consultation with departments like engineering, electrical and S&T.

Instructions have been issued to safety wing of all Zonal Railways in this regard vide Letter No. 2023/Safety (Inquiries)/3/7 dated 20.06.2024.

3.8

(a) Recommendation:

At least last two coaches of every passenger carrying train should have crash-worthy features. Layout of SLR coaches should be modified to shift luggage portion to the two ends of the coach so that the collapsible portion is in luggage area only. TMR (guard) portion should be shifted with provision of rear view camera and a speedometer to allow better monitoring of train speed. Only TMR should maintain journal, that too recording unusual occurrences, taking inputs from the ALP. Speedometer shall be provided in Guard's brake van/TMR compartment in SLRs.

(b) Action Taken by Railways:

1. Modified design of LWLRRMD, LWLRRMDAC and LSLRD coaches with high crash energy absorbing capability has been developed. Prototype Modified LSLRD Coach is under manufacturing at RCF/KXH, and would be taken up for crash test at RDSO/Lucknow.

Provision of these modified design LWLRRMD, LWLRRMDAC and LSLRD coaches with high crash energy absorbing capability would be done in a phased manner.

2. In the existing design of SLR Coaches, it is not desirable to have luggage portion at both the ends of SLR coaches because at least one end with vestibule is required for movement of onboard staff (such as Railway Escorting staff, Power car staff, OBHS etc.)

3.9

(a) Recommendation:

CV Voice Recording System records only images where speed and location super imposed on it. Alarm generated is available to the crew working in the train but no record is kept. Speed and location information should be available in computer readable format as well. There is no exception report based on data to allow identification of unusual events like over speeding etc. Above information should be transmitted to central control for better real time monitoring.

(b) Action Taken by Railways:

Noted. Provision of super imposition of speed and location data over the CVVRS recording has been done in the latest specification. The same is transmitted to central server. Events associated with driver behavior are also captured.

3.10

(a) Recommendation:

Auto signalling should not be introduced in existing absolute block sections without proper cost benefit analysis and Kavach. In auto signal territory if more than one auto signal fails, auto block working shall be suspended and absolute block working shall be enforced till the rectification of failure. To reduce pressure on the crew, all sections should be so re-designed so that number of inputs received by the LP does not exceed one input every 3 minutes for the fastest train in the section.

(b) Action Taken by Railways:

Auto signaling is a tool to enhance line capacity and it is often resorted to before multi-tracking which is highly capital intensive and time consuming in sanction & execution. ABS Signaling is functional on IR for last more than 20 years.

KAVACH. has been prioritized and being implemented in ABS sections also on priority in terms of RB's Letter No 2023/S&T/Dev/Kavach Corres. dated 09.08.24.

As Board's per Letter No 2023/F(X)/11/10/2 dtd 22.06.2023 remunerativeness test would not be required in S&T projects viz. ABS, KAVACH etc.

To deal with train operation during failures in ABS territory Railway Board has issued Unified Subsidiary Rules and Authority Forms under GR 9.12 vide Lets No 2024/TT-IV/12/10 dtd 16.08.24.

Recommendation for one input not exceeding every three minutes cannot be accepted as signals have to be pre-warned. Moreover, for increasing line capacity and safety, works like ABS, IBS, Interlocking of LC Gates etc are under execution necessitating more signal.

3.11

(a) Recommendation:

The specification for critical S&T equipment should be modified to ensure.

- All critical Signalling equipment should use floating earth instead of common earth in the circuits to provide better protection against Earthing related issues.
- Fuses and other protection devices must be tested against various adverse conditions during RDSO Approval and during various inspections.
- Protection provided against surge/induced voltage fed from track-side equipment should be re-examined to ensure equipment connected to these devices is properly protected.

(b) Action Taken by Railways:

1. Floating earth have advantages of reduced noise and interference as it minimizes ground loops and electromagnetic interference (EMI), which can be crucial in high-sensitivity electronic applications, such as signal processing in railway environments, However, Floating grounds may pose safety risks as they can lead to unexpected voltage potentials if not properly managed. It could also lead to complexity in fault conditions. On the other hand, Potential Earth (Grounded system) provide a direct path to earth which helps in safely dissipating fault currents and lightning surges, reducing the risk of electrical shock and equipment damage. It is generally simpler to implement and maintain across a wide range of equipment.
2. Fuses and other protection devices that are controlled by RDSO specification undergo type testing according to relevant standards during the initial approval process.
3. Improvements in surge & lightning continuous are a protection process. Presently, RDSO in collaboration with IISc Bangalore, has initiated a project on lightning and surge protection. As part of this project, a draft comprehensive scheme for lightning and surge protection has been developed and issued.

3.12

(a) Recommendation:

Inspector (Team Commander)/NDRF said that NDRF was not given any training to deal with Railway accidents. NDRF must be given training to deal with issues specific to railway

accidents including how to enter various capsized rolling stock, precautions related to working under live OHE, adjacent to running lines, on railway bridges etc.

(b) Action Taken by Railways:

Indian Railways regularly conducts mock exercises jointly with NDRF so that NDRF can learn about the coach design, how to deal with railway accidents and how to operate rescue and relief equipment of each other. Mock exercises were conducted jointly with NDRF in all the three divisions of East Coast Railway in the year 2022-23. In Waltair division mock exercises were conducted in association with 10th NDRF Battalion on 18.11.2022 and 29.11.2023 in which Civil defense, State authorities also participated.

Indian Railways prepares a calendar every year in consultation with NDRF for conducting joint mock exercises with NDRF in all Zonal Railways. The calendar for the year 2023-24 and 2024-25 are enclosed.

Recently, a workshop on mapping railway accidents, rescue operations and restoration was held on 21st march 2024 in railway board in association with NDRF. A demonstration of rescue and relief equipment available in ART/ARME was also given to team NDRF in Delhi on 10 may 2024.

Further, Indian railway institute of disaster management (IRIDM), Bengaluru organized first of its kind “specialized training for under water rescue and retrieval from railway coaches “ involving NDRF, SDRF & other agencies in addition to railway staff from 10 to 14th of April 2023. One training programme has also been conducted at IRIDM, Bengaluru in association with NIDM, and NDRF academy, Nagpur on incidence response and preparation of disaster management plan from 28.08.2023 to 01.09.2023.

ACCIDENT – VII

THE ABSTRACT OF STATUTORY INQUIRY REPORT OF COMMISSIONER OF RAILWAY SAFETY ON INCIDENT OF ENTANGLEMENT OF PANTOGRAPH OF LOCOMOTIVE No. WAP-37336/GZB OF TRAIN NO. 12801 (PURI-NEW DELHI PURUSHOTTAM EXPRESS) NEAR PARSABAD STATION IN GOMOH-GAYA SECTION OF DHANBAD DIVISION OF EAST CENTRAL RAILWAY AT ABOUT 12:05 HRS. ON 11.11.2023.

I. BRIEF DESCRIPTION:

1.1 THE ACCIDENT

As per Technical Note of Sr DOM/DHN/ECR, Train No. 12801 UP with Loco No. 37336/WAP-7/GZB manned by LP Shri Bijay Lugun/GMO, ALP Shri Rajesh Kumar-8/GMO & Train Manager Sri J.K. Singh/DDU with Load 22=44(LHB), BPC No. 1519749, dtd 10.11.2023 issued by SSE/C&W/PURI/ECOR, brake power-100%, passed Station Dasarrah at 11.58 hrs and after passing LC Gate No 27/Special/T (between DSME-PSB) abnormal vibrations in the OHE wires were seen by Loco Pilot & Assistant Loco Pilot, Loco Pilot applied the Emergency Brake and also applied the switch to lower the Pantograph. Signals were set for the Train to pass through UP Main Line the Parsabad Station. Due to application of Emergency Brake, Train stopped after passing UP Main Line Starter Signal of PSB (Km of Loco between 367/23-25) at about 12.01 hrs as reported by Loco Pilot & Train Manager to the On-Duty Station Master of Parsabad at 12.05 hrs.

1.2 The Pantograph of Train No. 12801 was entangled with OHE and broken at Parsabad Station between Km366/11 to 366/25

- i. OHE wire snapped and parted along with breakage of other OHE components between 366/11-366/25
- ii. One of the Carbon strip (facing to direction of train) of leading Pantograph pan was completely missing, the part of this missing carbon strip was found at the breakdown site. Only a small part of 2nd carbon strip was broken from one side.
- iii. Pantograph of Loco damaged and fallen between Km366/23-366/25.
- iv 01 no. Regulating equipment grounded at Km366/11
- v 01 no. post insulator found broken at Km366/15.
- vi. At Loc.366/15 catenary wire 06 Strands broken. Isolator Jumper (at HWH end) completely damaged, ST pipe bend, Contact wire parted from cut-in-insulator\
- vii. Contact wire damaged between 366/11-13 to 366/17-19.
- viii. Dropper damaged at 366/11-13-15-17-19-21-23-25.
- ix. Cross over wires grounded at Km366/23-366/20
- x. Fresh broken mark found in 9 ton cutting insulator from ending cone and hanging from cantilever of OHE Mast 366/13. Fresh scratch mark found on OHE contact wires from Km366/11-366/23 on UP Main line.
- xi. 366/23 G-Jumper damaged, RT bend, Steady arm swivel clip open.
- xii. CLA damaged at Km366/25
- xiii. 05 span in-span dropper found damaged at Km366/11-366/13 and 366/19-366/21

xiv 65cm mark of fresh scratch mark on Contact wire found from support at location 366/16 for 8.80m (HWH end).

xv. 15cm and 11cm mark of fresh scratch mark on Contact wire from support at location 366/13 for 2.16m (HWH end).

xvi. RT pipe broken & out from RA hook, Steady arm broken at location Km366/17

xvii. OHE mast foundation casting work was in progress at 366/16-366/16

xvii At location Km366/23. UP Main Line & UP Loop Tum-out damaged. TCA broken & damaged. G Jumper damaged

xix. A fresh scratch mark, dent mark and hole found on third Coach from Engine No. ECOR 20135/C from train engine.

xx. One contract labour working on OHE foundation casting at 386/118-366/16 was seriously injured and died subsequently.

xxi. Sanjay Kumar Manjhi (train passenger) of second class coach to 201351/C was seriously injured and died during treatment at Govy. Hospital at Koderma

II. CAUSE OF THE ACCIDENT:

Upon careful consideration of the factual, materials and circumstantial evidence available with me, I have come to the conclusion that "the Incident of entanglement of Pantograph of Locomotive WAP-7/37336 of Train No. 12801 while approaching Parsabad Station at Km 366/11-13 in Gomoh-Koderma Section of Dhanbad Division of East Central Railway at about 12.05 hrs. on 11.11.2023" was caused due to sudden snapping of out-of-run contact wire near OHE Mast No. 366/13.

The cause of the accident is attributed to and classified as - "Failure of Equipment (OHE)".

III. REMARKS AND RECOMMENDATIONS:

3.0 Remarks and recommendations made by Commissioner of Railway Safety and action taken by Railways are given below

3.1

(a) Recommendation:

As part of regular maintenance, a Flaw Detection Mechanism (as is being done for Rails by Ultrasonic Flaw Detectors) may be adopted for periodic checking of the OHE wire.

(b) Action Taken by Railways:

i. CCR rod of 19.6 mm dia is manufactured by hot rolling of cast bar of higher size (3800 sqmm). This eliminates the possibility of casting defects such as pin hole/blow holes due to size reduction. Further, to check any residual defects, the rod is passed through eddy current test continuously during final stage of manufacturing of CCR Rod. If any defects are found during eddy current testing stage checking, the CCR rod is rejected.

ii. In addition, the CCR Rod at Contact wire manufacturer premise is checked at input Stage using USFD for detection of any blow hole/pin hole.

iii. Adopting USFD technique for checking of contact wire is not feasible as long duration power block shall be required for effective flaw detection. Further, detection of all defects of this type may still not be technically possible being close to the termination.

iv. In this regard, RDSO has been advised to examine for further options.

3.2

(a) Recommendation:

Dedicated Field Level and Officer Level supervision is required during execution of technical works associated with modification of the existing system of working of the Railway.

Installation/maintenance of OHE wires may be closely monitored to avoid any improper bending at end cone of insulators which might lead to damage of wire/development of stress concentration in the long run.

(b) Action Taken by Railways:

There has been a practice in Railways to depute Railway official for supervision / inspection during execution of technical works associated with modification of the existing system (TRD). Monitoring of OHE works is being undertaken at the time of execution.

Accordingly, advisory has been issued to Railways vide letter dtd. 28.03.2024

3.3

(a) Recommendation:

Voice-Logger equipment should be installed in the Locomotive Cab to capture the conversation or the Locomotive Crew before, during & after any Accident/Incident and networked to Central Control/Data Logger System from where it can be retrieved.

(b) Action Taken by Railways:

CRIS has been entrusted for provisioning of Crew Voice & Video Recording system (CVVRS) device on locomotives for recording the voice of loco crew along with video of cab, including the cameras on the roof for be recording of pantograph related events.

3.4

(a) Recommendation:

A camera may be installed to capture the Pantograph behaviour with respect to OHE which may be networked to the Central Control Equipment.

(b) Action Taken by Railways:

CRIS has been entrusted for provisioning of Crew Voice & Video Recording system (CVVRS) device on locomotives for recording the voice of loco crew along with video of cab, including the cameras on the roof for be recording of pantograph related events.

3.5

(a) Recommendation:

Railway may examine the reduction in Pantograph lowering time. Auto Drop Device (ADD) was by-passed in the instant Locomotive with High Rise Pantograph. This should be kept in working condition to automatically lower the Pantograph in case of any abnormality in its

behaviour to prevent its damage and subsequent consequences. Even for other type of Locomotives also, this system should be adopted.

(b) Action Taken by Railways:

i. Currently approx. 3000 HRPT on Locos are with ADD & ORD features. However, there have been many failures due to malfunctioning of ADD & its associated components which has affected the reliability of locos, because of which many sheds have isolated these features. Subsequently based on discussion with Zonal Railways, these features were deleted in revised specification dated 27.09.2022.

ii. With regard to requirement of in system ADD the pantographs, the reference standard relevant clause no. 8.1 of EN:50367:2020 is as under and the requirement of ADD system is mandated for speed more than 160 Km/h.

a) Traction units designed for a speed higher than 160 km/h shall be equipped with an automatic dropping device in accordance with EN 50206-1:2010, 4.8.

b) Traction units configured as trains that require more than one pantograph raised in operation and of maximum design speed higher than 120 km/h shall be equipped with automatic dropping devices in accordance with EN 50206-1:2010, 4.8

3.6

(a) Recommendation:

Railway should ensure that their officials reach the site of Accident/Incident at the earliest by quickest means available.

(b) Action Taken by Railways:

Railways Official reach the accident/incident site as soon as possible by the first available means of transport with the medical teams, ambulance services, accident relief medical equipment van including first aid boxes, to give prompt relief to passengers injured in railway accidents.

In this regard, a fresh advisory has been issued to Railways vide letter dtd. 28.03.2024.

ACCIDENT – VIII

THE ABSTRACT OF STATUTORY INQUIRY REPORT OF COMMISSIONER OF RAILWAY SAFETY ON FIRE ACCIDENT IN TRAIN NO. DN 02570 NDLS-DBG HUMSAFAR CLONE EXPRESS AT SARAI BHOPAT STATION OF PRAYAGRAJ DIVISION ON NORTH CENTRAL RAILWAY AT 17:25 HRS. ON 15.11.2023

I. BRIEF DESCRIPTION:

1.1 THE ACCIDENT

The train no. 02570 NDLS-DBG Humsafar Clone express after departure from NDLS at 12:20 hrs. had no scheduled stoppage up to Kanpur. However, after passing Jaswant Nagar station, a glitch developed in MR pressure and was halted at foot of the automatic signal SAG-502 at 17.11 hrs. After resetting, the train was started at 17.23 hrs. and it passed Home Signal S-20/C-20 of Sarai Bhopat station at 17:25 hrs. Here, the Train Manager noticed smoke coming out of the S1 Coach, which was adjacent to rear most coach NER 226188, LSLRD.

Incident of fire occurred in Sleeper Class Coach No. S-1 ECR /LWSCN 125092, Coach No. S-2 ECR/LWSCN 184279 and Guard coach/NER LSLRD 226188, of Train No. DN 02570 New Delhi Darbhanga Humsafar Clone Special at Sarai Bhopat station in PRYJ Division of North Central Railway at about 17:25 hrs. on 15.11.2023. While the train was approaching Sarai Bhopat station, it caught fire in its S1 coach which was next to Guard coach. The passengers tried to exit from the emergency windows and doors.

The Division had arranged for still photography of the site of accident. Joint observations of the accident site and the coach were recorded. CCTV footage of LC gates between JGR to SB stations, where the train had passed was submitted to the Commission.

II. CAUSE OF THE ACCIDENT:

Upon careful consideration of the facts, material & circumstantial evidences, observation made during the site inspection, various tests conducted by RDSO and Forensic lab Agra report, I have come to the conclusion that Fire accident in Sleeper Class Coach No. S1 ECR/LWSCN 125092 of Train no. DN 02570 New Delhi - Darbhanga Humsafar Clone Special between Sarai Bhopat - Etawah section in Prayagraj Division of North Central Railway at about 17.25 hrs on 15.11.2023 started from seat number 23 and then spread to entire coach and engulfed the adjoining coaches. The fire initially started due to high resistance fault in some external electrical equipment connected to mobile charging socket & spread in coming in contact with nonpetroleum inflammable material.

Accordingly, the cause of the accident is attributed/classified as - Failure of externally connected Electrical Equipment in mobile charging socket at seat no 23 of S-1 Coach of DN 02570 New Delhi - Darbhanga Humsafar Clone Special.

III. REMARKS AND RECOMMENDATIONS:

3.0 Remarks and recommendations made by Commissioner of Railway Safety and action taken by Railways are given below

3.1

(a) Recommendation:

As per Railway Board's letter no. 2018/Transf. Cell/Traffic/Policy dated 08.06.2018 the senior most ticket checking staff shall act Train Captain. However, the senior most TTE booked on

the train was neither aware of the extant instructions on the subject nor was imparted any training to act as Train Captain. In order to ensure close coordination among all on board staff including the outsourced one specially during emergency situations to provide immediate relief to the passengers, the instruction contained in above mentioned letter must be implemented and all senior ticket checking staff must be made aware of the duties & responsibilities of Train Captain. Further a system should be developed preferably through some app, through which mobile no of all the on board staff including the outsourced ones are shared among all escorting staff before the start of the journey.

(b) Action Taken by Railways:

As per Railway Board's letter no. 2018/Transf. Cell/Traffic/Policy dated 08.06.2018 the senior most ticket checking staff are generally acting as Train Captain. System of sharing mobile number of outsourced onboard staff with escorting staff before starting the journey is in place.

3.2

(a) Recommendation:

Fire extinguishers were used by Train Manager as well as ALP to douse the fire but to no avail as by the time they were used fire had spread considerably and it was not possible to approach the affected areas. Fire balls of adequate capacity must be provided to train staff i.e. Train Manager and power car escorting staff which can be used from a distance in case fire has engulfed a large area.

(b) Action Taken by Railways:

Adequate nos. of fire balls as per Railway Board's guidelines has already been kept in each power car of NCR.

3.3

(a) Recommendation:

LHB coaches have become due for Mid Life Rehabilitation (MLR). However, guidelines regarding time schedule and work content are required to be issued by Railways.

(b) Action Taken by Railways:

Guidelines For Mid Life Rehabilitation (MLR) of LHB Coaches have been issued vide letter no. 2023/M(C)/141/2 dated 28.11.24.

3.4

(a) Recommendation:

There is rotary switch to switch on/off the supply to mobile charging circuit. However, like AC coaches there are neither any instructions to switch off the power supply from 23:00 hrs to 06:00 hrs in Sleeper Coaches nor any staff deputed to do so. Staff should be deputed and instructions issued to switch off the power supply in mobile charging circuit from 23:00 hrs to 06:00 hrs.

(b) Action Taken by Railways:

ACCIS and ACCEAs are deputed for AC coaches and they switch off the mobile charging points from 23.00 hrs. to 05.00 hrs., however similar arrangement may not be possible in non-AC coaches as deputing staff in non-AC coaches is not possible due to high cost involved in it. Necessary guidelines are being issued to Zonal Railways from time to time to ensure proper

working of mobile charging points and rotary switches provided in the coaches. Zonal Railways are undertaking drives on regular basis.

3.5

(a) Recommendation:

There is no protection by way of providing fuse in mobile charging circuit, light circuit and fan circuit in AC and non AC LHB coaches which were manufactured prior to year 2012. All such coaches must be retrofitted with fuses of adequate capacity.

(b) Action Taken by Railways:

RCF vide letter no. RCF/ED/HSQ/RB/2010 dated 28.01.2023 has issued Coach Alteration Instruction (CAI) for alteration in electrical system of non AC coaches manufactured in RCF during 2011-2012 for provision of glass fuse in mobile charging circuit, light and fan circuit. Provision of glass fuses in mobile charging sockets have been completed in 73 coaches up to 12.11.2025.

Board vide letter no. 2022/Elect(G)/181/12 Pt.1 dated 05.01.2024 has advised to Zonal Railways to complete the modification work.

Bulk RSP for coach alteration in electrical system of 300 such LHB coaches has been sanctioned in 2024-25 (WB item No. 702/2024-25). As on 12.02.2025, 14 coaches have been modified as per CAI issued by RCF.

As far as NCR is concerned, such type of coach holding in NCR is Nil.

3.6

(a) Recommendation:

Study of Passenger ingress/egress shall be done for all the major stations and provision of baggage scanner shall be made accordingly.

(b) Action Taken by Railways:

Baggage scanners have been installed across major railway stations over Indian Railway to check luggage at major stations, especially during peak hours. The system involves random checks by dog squads and CCTV Surveillance.

Presently eight luggage scanners (2 at PRYJ, 01 at PCOI, 01 at CNB, 01 at ALIN, 01 at VGLJ, 01 at AGC and 01 MTJ) are working over NCR Baggage scanners for GWL is under procurement.

3.7

(a) Recommendation:

It is noted that PRYJ Division is in the process of procuring Hand held explosive detectors for the preparation of Kumbh Mela. During the Festive rush, these hand held explosive detectors can be used for detection of explosives/fire crackers. Handheld explosive detectors shall be procured by all divisions to ensure the proper scanning of passengers baggage for explosives/firecrackers at station entrance, platforms and within the coaches also.

(b) Action Taken by Railways:

In view of Kumbh 2025, PRYJ Division has planned to procure 10 number of Explosive Vapors detector out of which 01 has been purchased.

Additionally, dog squads are extensively utilized for conducting random checks at stations and on board trains.

All zones are also conducting intensive drives to prevent the illegal transportation of explosives, particularly during the festive season.

3.8

(a) Recommendation:

Passengers must be made aware of the perils of carrying inflammable materials by way of frequent announcements at the station and also during journey. Short videos showing the consequences of carrying inflammable materials can be played at the screens installed at the stations for greater passenger awareness on the issue. Print and electronic media can also be used for creating awareness among public. List of prohibited items shall be displayed at the entry of all stations to deter the public for carrying the prohibited items.

(b) Action Taken by Railways:

Indian Railways has Implemented strict measures to prevent passengers from carrying inflammable items. Regular announcements are made through Public Address (PA) systems, loudspeakers and Railway Display Network (RDN). Awareness campaigns are conducted using posters, pamphlets, banners and short videos at stations and trains. List of prohibited items are displayed at entry gates.

RPF is carrying out surprise inspections, and continuous drives and taking legal action against the violators under Section 164 of the Railway Act.

Safety is further enhanced through CCTV surveillance, dog squads and special fire safety campaigns. These measures are taken to ensure the passenger safety and minimizing fire risks.

3.9

(a) Recommendation:

Gorakhpur workshop (GKPS) is not carrying out IR measurement of 110V AC electric cables (Performa 10.1) used in mobile charging circuit as stipulated in the manual of CAMTECH/E/14-15/Non AC LHB/1.0 for carrying out various maintenance schedule.

This need to be implemented.

(b) Action Taken by Railways:

Board vide letter no. 2000/Elect(G)/113/4 dated 10.01.2024 has advised to carry out IR measurement as per guidelines. Same has been confirmed by NER vide letter no. L/2/M/Pt-25 dated 10.01.2024.

In addition, Zonal Railways are carrying out IR measurement of 110V AC electric cables during IOH/POH as prescribed in CAMTECH manual for pre-testing and final testing. Gorakhpur workshop is being advised again for its implementation.

3.10

(a) Recommendation:

Operation of flasher light either due to fault or by Loco pilot in case of emergency shall be recorded with time stamping either through VCD/VCU.

(b) Action Taken by Railways:

Following actions have been taken:

Conventional Locomotive:

Modification Sheet NO. RDSO/2024/EL/MS/0498 (Rev.0) Dated 02.04.2024 has been issued by RDSO for "Recording of Flasher light operation either due to fault or manually by Loco Pilot in case of emergency with time stamping in Conventional Electric Locomotives equipped with Microprocessor based control and fault diagnostic system (Ver-3)"

3-Phase Locomotive: Modification Sheet No. RDSO/2024/EL/MS/500 (Rev. '0') dated 13.09.2024 has been Issued by RDSO for "Recording of Flasher Light operation either due to fault or manually by Loco Pilot in case of emergency with time stamping in VCU of 3-phase electric locomotives. A meeting has been conducted by CLW with all Vendors' of 3-Phase locomotive for Standardization of AFL logic in three phase electric" and Implement the modified AFL logic software modification.

As on date, all vendors have cut in the software for enabling this feature in their software.

3.11**(a) Recommendation:**

It is seen that the Railway makes necessary arrangements, such as additional security and trains on huge scale, for events like the Kumbh Mela which lasts around 30 days. On the similar lines during the festival time, Railways should mobilize adequate resources for providing additional trains, security personnel as the festive rush lasts generally for 5-10 days. The historical data of passengers like passenger numbers travelled including the origin and destination studies during festive seasons like Holi, Diwali, Chhath Pooja etc. may be used to anticipate the quantum of additional arrangements.

(b) Action Taken by Railways:

Railway zones undertake extensive safety and security measures during festivals like Holi, Diwali, and Chhath Puja to handle the increased passenger rush effectively. To ensure security, additional staffs are deployed at critical locations, Including stations, platforms, concourse areas, and in trains.

To ensure the safety of passengers, close coordination is established with Government Railway Police (GRP), local police and other railway departments, which plays a vital role. Public announcements via PA systems are used to raise awareness about safety guidelines and the dangers of carrying inflammable Items.

Advanced technology aids these efforts, with enhanced CCTV surveillance. These systems focus on high-risk areas such as entry and exit points, enabling quick responses to any security threats.

Indian Railways, subject to Operational feasibility, traffic justification etc., operates Special trains to cater to extra rush of passengers during festive seasons, vacations, or for destinations of tourist value to facilitate tourism and pilgrimage. To cater to the needs of passengers and facilitate their journey during Kumbh Mela, Indian Railways (IR) provided over 200 rakes for operation of train services and operated more than 17,000 train services. Further, operation of Special trains is an ongoing process on Indian Railways subject to operational feasibility, resource availability, etc.

3.12

(a) Recommendation:

Provision of USB/C type sockets of suitable technical specification in new Coaches in place of traditional electrical sockets shall be explored for charging mobile, portable electronic devices such as smartphones, tablets, and cameras for preventing accidents related to overheating or short circuits.

(b) Action Taken by Railways:

Board vide letter no. 2009/Elect(G)/109/14 Pt (E-3325965) dated 05.09.2024 has advised Production Units to provide USB type-C and type-A charging ports along with 3 pin sockets in all LHB coaches.

It is also to be submitted that to tackle the issue of charging of basic mobile phones with fixed lead adaptors and laptops not having inbuilt type C ports, it was proposed to provide 3 pin socket charges also, as some of the passengers especially the senior citizens carry basic mobile phone with them for ease of operation.

Less number of 3 pin charging sockets will also reduce the fire safety issue.

At present, material is under procurement by all PUs for provision in new coaches. For retrofitment in existing LHB coaches, material being supplied by RCF and 10 coaches are being provided by DLI division/NR for trial purpose. As on date, 05 (Five) coaches have been provided with USB mobile charging sockets as per above guidelines.

3.13

(a) Recommendation:

In existing Coaches, Standard electrical installation protective devices such as MCBs & Fuses are not suitable for detecting arcs because it causes a limited current to flow through them. Therefore, Arc fault detection technologies may be studied and their adoption should be considered based on a merit-based evaluation.

(b) Action Taken by Railways:

Vide Letter no. 2000/Elect(G)/113/4/Safety dated 08.10.2024, Railway Board has advised RDSO and RCF to carry out the study on Arc fault detection technology and to submit the report.

3.14

(a) Recommendation:

All Coaching Depots must diligently identify any flashed mobile charging sockets in the coach during the maintenance schedule D2 (Duration: 30 + 3 days). It shall be imperative to replace all flashed sockets, regardless of their operational status.

(b) Action Taken by Railways:

This is being done during regular maintenance at coaching depots.

ACCIDENT – IX

THE ABSTRACT OF STATUTORY INQUIRY REPORT OF COMMISSIONER OF RAILWAY SAFETY ON DERAILMENT OF TRAIN NO. 12759 (CHARMINAR EXPRESS) AFTER DASHING WITH DEAD END TERMINAL PLATFORM NO. 5 AT HYDERABAD STATION OF SECUNDERABAD DIVISION OF SOUTH-CENTRAL RAILWAY ON 10.01.2024.

I. BRIEF DESCRIPTION:

1.1 The Accident

Train No. 12759 Tambaram-Hyderabad Charminar Express left Tambaram station at 17.30 hrs on 09.01.2024. The Train reached Secunderabad at 07.51 hrs and left at 08.11 hrs on 10.01.2024 after scheduled stoppage and proceeded towards Hyderabad station. The Train failed to stop at designated location on Platform No. 5 of Hyderabad Station and dashed against the dead end. As a result, 3 coaches viz., S2, S3 & S6 derailed. 5th from Engine, Coach No. S6 (ECOR 201373 LWSCN) trailing trolley all wheels derailed. 8th from Engine, Coach No. S3 (SCR 191698 LWSCN) both trollies all wheels derailed. 9th from Engine, Coach No. S2 (SCR 203862 LWSCN) leading trolley all wheels derailed.

II. CAUSE OF THE ACCIDENT:

Upon careful consideration of the factual, material and circumstantial evidence available with me up till now, I have come to the conclusion that the "Dashing of Train No. 12759 Tambaram-Hyderabad Charminar Express with dead end of Terminal Platform No.5 at Hyderabad Station on Hyderabad-Secunderabad BG electrified double line section of Secunderabad Division of South Central Railway on 10.01.2024 at about 08.42 hrs" was caused due to the following factors:

1. Delayed application of A-9 brakes by LP and non application of emergency brake by ALP violating the instructions issued vide SOB 09/2022 dt. 5.3.22 and S.R No. 4.49.1 of South Central Railway.
2. Shifting of stop board to the dead end leaving very little/no margin of error for LPs, which acted as trigger to this accident.

This accident which resulted in grievous injury to one passenger and simple injury to five passengers is classified under the category "Error in Train Working".

III. REMARKS AND RECOMMENDATIONS:

3.0 Remarks and recommendations made by Commissioner of Railway Safety and action taken by Railways are given below

3.1

(a) Recommendation:

LPs & ALPs shall be sensitized to follow while working the trains as per extant instructions in terms of G&SR 4.49.1& SOBs issued from time to time.

(b) Action Taken by Railways:

Agreed. A letter no. 2024/Elect(TRS)/113/6 dated 13.12.2024 has been issued to Zonal Railways in this regards.

3.2

(a) Recommendation:

Stop boards at terminal stations to be provided appropriate distance from dead end buffers to leave margin of safety.

(b) Action Taken by Railways:

In G&SR and SEM, there is no specific mention of the distance at which stop boards are to be provided from the dead end buffer stop at terminal station.

3.3

(a) Recommendation:

Passenger lines on terminal platforms should be provided with High Capacity Dead End Energy Absorption Buffer-Stops.

(b) Action Taken by Railways:

A Joint Procedure Order (JPO) for installation and maintenance of dead ends was formulated and approved by Board (MRS, MTr., ME, MT & FC).

This was circulated vide letter no. 2009/M(C)/141(G) Vol. II/Part to all Zonal Railways for maintenance of dead ends where upgraded buffers to new specification will be fitted.

Further, RDSO has formulated "Schedule of Technical Requirements for supply, installation and commissioning of High-Capacity Dead End Energy Absorption System for Station/Yard for Passenger Coaches & Locomotives in Indian Railways".

3.4

(a) Recommendation:

Policy regarding standard design and installation drawings for dead end buffers and responsibility for installation and maintenance to be issued by the Railways.

(b) Action Taken by Railways:

A Joint Procedure Order (JPO) for installation and maintenance of dead ends was formulated and approved by Board (MRS, MTr., ME, MT & FC).

This was circulated vide letter no. 2009/M(C)/141(G) Vol. II/Part to all Zonal Railways for maintenance of dead ends where upgraded buffers to new specification will be fitted.

Further, RDSO has formulated "Schedule of Technical Requirements for supply, installation and commissioning of High-Capacity Dead End Energy Absorption System for Station/Yard for Passenger Coaches & Locomotives in Indian Railways".

3.5

(a) Recommendation:

Thorough site survey of existing CSR's to be done and drawings updated.

(b) Action Taken by Railways:

Thorough Joint Survey has been conducted by Engineering and S&T officials of Secunderabad Division and both SWR & SWRD were updated on 13.02.24 & 20.03.24 respectively.

Instructions have been issued to zonal railways vide board's letter No.2024/CE-II/CRS/12759/SCR dated 02.07.2024 for compliance to be undertaken in coordination with Signaling and Traffic Departments.

3.6

(a) Recommendation:

Feasibility of increasing CSR's to be examined in light of extant instructions under IRSEM para 17.2.4 (a) and 17.2.5 (c)(iii)

(b) Action Taken by Railways:

Thorough Joint Survey has been conducted by Engineering and S&T officials of Secunderabad Division and both SWR & SWRD were updated on 13.02.24 & 20.03.24 respectively.

Instructions have been issued to zonal railways vide board's letter No.2024/CE-II/CRS/12759/SCR dated 02.07.2024 for compliance to be undertaken in coordination with Signaling and Traffic Departments.

ACCIDENT – X

THE ABSTRACT OF STATUTORY INQUIRY REPORT OF COMMISSIONER OF RAILWAY SAFETY ON ACCIDENT OF TRAIN NO. 12876 (ANVT-PURI NEELANCHAL EXPRESS) AT Km 330/15 IN SUISA STATION YARD UNDER RANCHI DIVISION OF SOUTH EASTERN RAILWAY ON 01.06.2024.

I. BRIEF DESCRIPTION:

1.1 The Accident

(i) On 01.06.2024, line clear was granted by Suisa station to Torang (TRAN) station for Train no-12876 (Neelanchal Express), hauled by Loco No. 30813 WAP7/CNB at 07:13 Hrs. and it departed from Torang station at 07:15 Hrs.

(ii) 'Line clear' was also taken by Suisa station from Tiruldihi (TUL) at 07:15 Hrs. and signals were taken off to pass through the train over main line of SSIA station as this was a non-stopping train at SSIA station.

(iii) Train stopped at about 07:26 Hrs, after passing DN advance starter of Suisa (SSIA) station at KM 328/10 (Engine KM), due to OHE broken & hanging on main Line No-2 of SSIA Yard.

(iv) Maximum permissible speed in the section is 110 KMPH and at the time of accident, train was travelling at the 105 KMPH.

(v) At 7.40 Hrs., Train Manager of Train no. 12876 reported about OHE breakdown and injury to two passengers in coach no S-5 (5th from locomotive, having total train composition of 23 coaches). As per Train Manager's statement the injured passengers were travelling with wait listed tickets.

(vi) Injured passengers were shifted to the nearest hospital by RPF staff at 8:15 Hrs. and reached hospital at 9:00 Hrs. where they were provided further medical support.

(vii) Pantograph of train no. 12876 entangled at first turn out faced at Km. 330/12-13 at SSIA station yard, resulting snapping of OHE and breakage of Section Insulator of cross over and eventually hit the passengers travelling in coach no. S-5 of Train no. 12876.

(viii) Further examination revealed hitting marks on OHE components in a length about 7 km prior to entanglement of pantograph at Km 330/15, starting from km 337/15.

(ix) For early rectification of the failure, total 4 tower cars and SPARME/ Hatia were moved to site. The damaged pantograph of the ill-fated train (Train no. 12876) was secured and it departed from site at 09:56 Hrs. Finally, fitness of OHE in SSIA- TRAN section was given at 13.00 Hrs., for normal traffic, except for line no. 3.

(x) Accident has been classified by Railway as Equipment Failure L-1 and same has been recorded with SIMS ID 20240607001.

II. CAUSE OF THE ACCIDENT:

Having carefully considered all the evidences, records submitted, observations made during the site inspection, and other circumstantial evidences produced by South Eastern Railway, I have come to the conclusion that the accident of Train No. 12876 ANVT PURI Neelanchal Express at Suisa Station (SSIA) in Ranchi Division of South Eastern Railway, at about 07:26hrs on 01.06.2024, occurred due to failure of equipment i.e. metallic carbon strip of working pantograph of the train.

III. REMARKS AND RECOMMENDATIONS:

3.0 Remarks and recommendations made by Commissioner of Railway Safety and action taken by Railways are given below

3.1

(a) Recommendation:

Automatic Dropping Device (ADD) should be provided in pantographs to detect damage to metallic carbon strips.

(b) Action Taken by Railways:

1. Amendment No. 2 has been issued to RDSO Technical Specification for High Reach Pantograph for A.C. Electric Locomotives Specification No. RDSO/2007/EL/SPEC/0054 Rev. '3' on 17.01.2025

2. The now amended specification incorporates ADD feature in High Reach Pantograph. All future procurements will be done with latest amended specification.

3.2

(a) Recommendation:

Considering the frequent premature replacement of metallic carbon strips; specifications, quality check at the time of procurement and service life of the metallic carbon strips need to be reviewed.

(b) Action Taken by Railways:

RDSO is now holding performance review meetings for ADD in particular for high reach pantograph along with Zonal Railways concerned.

Issues from Zonal Railways are being discussed to take corrective measures for Improvement in the quality.

3.3

(a) Recommendation:

Vacancies in the cadre of supervisors should be filled up so that trip inspection of locomotives is carried out at the prescribed level of officials.

(b) Action Taken by Railways:

Occurrence and filling up of vacancies is a continuous process on Indian Railways considering its size, spatial distribution and criticality of operation. Adequate and suitable in manpower is provided to cater to the regular operations, changes technology, mechanizations and innovative practices. The vacancies are filled up primarily by placement of indents by Railways with Recruitment agencies as per operational and technological requirements.

During ten years i.e. from 2014-2015 to 2023-2024, 4282 candidates for the post of SSE (Graduate Engineers) and 25430 candidates for the post of junior Engineers/DMS/CMA have been empaneled by 21 RRBs.

7951 vacancies for the post of JE/DMS/CMA has been notified under CEN No. 03/2024 in July 2024 and Computer Based Test-1 has already been completed on 18.12.2024.

3.4

(a) Recommendation:

Telephone numbers of ambulances and hospitals displayed at stations should be called and verified by station masters, at least once in a month.

(b) Action Taken by Railways:

Contact details of local civil authority like DM, SP, Local Thana, are being displayed on board available at all railway stations. Contact details of the NGO like Private Hospital, Nursing home are also being displayed on board at all Railway stations. These contact numbers are being checked and updated from time to time in Disaster Management Plan.

ACCIDENT – XI

THE ABSTRACT OF STATUTORY INQUIRY REPORT OF COMMISSIONER OF RAILWAY SAFETY ON ACCIDENT OF REAR END COLLISION BETWEEN TRAIN NO. DN 13174 KANCHANJUNGA EXPRESS AND DN GFCJ CONTAINER BETWEEN SECTION RANGAPANI (RNI) - CHATTERHAT (CAT) BG ELECTRIFIED DOUBLE LINE SECTION OF KATIHAR DIVISION OF NORTHEAST FRONTIER RAILWAY AT 08:50 HRS. ON 17.06.2024.

I.BRIEF DESCRIPTION

1.1 THE ACCIDENT

RNI-CAT section is double lines (DN & UP) with Automatic Block Working System under Katihar division of NF Railway in West Bengal state. Katihar Division is having Automatic Block Signaling system for a total of 65.28 km comprising of 8 stations & 7 Block sections. DN Automatic Block Section RNI-CAT includes 9 automatic signals between the advance starter of RNI (S2 signal) and the home signal of the CAT station. There was failure of Automatic Block Signaling system in the RNI-CAT section since 5:52 Hrs. and trains were being given authority T/369(3b) for starter & advance starter & T/A 912 for Automatic signals. On 17.06.2024, Train no. DN 13174 Kanchanjunga Express from Sabroom going to Sealdah Jn, departed from RNI at 08:33 Hrs. on Paper Authority T/369(3b) & T/A 912-2 The train was in the RNI-CAT section, proceeding as per the G&SR 9.02/1 and given authority and was stopping at the signals. It just stopped at Signal No. AS650. Meanwhile, the train no. DN GFCJ container departed RNI station at 08:44 Hrs. on Paper Authority T/369(3b) & T/A 912. At about 08:50 Hrs., train no. DN GFCJ was traveling at a speed of 78 Kmph on DN line between RNI-CAT section. On seeing the Train No. DN 13174 on the same line, the Loco Pilot of DN GFCJ applied emergency brake but resulted into rear end collision with Train no. DN 13174 Kanchanjunga Express at km 10/30 at a speed of approximately 40 kmph. The above rear end collision resulted in the derailment of 05 coaches of Train No. 13174/DN in which 01 GS Coaches No. 122481/GS/ER & 01 GSLRD Coach No. 044006/ER/GSLRD were collapsed, 01 VPH Coach No. 132826/ER/VPH was mounted on Engine No. No. 43616 WAG-9HC of DN GFCJ Train, 01 GS Coach No. 072441/GS/ER & 01 VPUHX No. 154841/ER/VPUHX were found badly affected. As a result, both Up & DN lines were blocked and train movement in both UP and DN lines hampered/stopped from 09:01 Hrs. in the section.

II.CAUSE OF THE ACCIDENT

Having carefully considered all evidence, records submitted, observations made during the site inspection, and other circumstantial evidence produced by Northeast Frontier Railway so far, I have come to the conclusion that Rear end collision between Train No DN 13174 Kanchanjunga Express and DN GFCJ Container between section 19 Rangapani (RNI) Chatterhat (CAT) BG Electrified Double Line section of Katihar Division of N.F Railway at 08:50 Hrs. on 17.06.2024 occurred due to lapses at multiple levels in managing the train operations under Automatic Signal failures. This includes an error in: -

- i. Issue of T/A 912 instead of T/D912 in case of all Signals failure violating the provision of SR9.12/1
- ii. Non-issuing of the Caution Order as stipulated in SR9.11/1(h).
- iii. Non-availability of critical safety Equipment's (Walkie-Talkie) with the loco pilot and train manager of DN GFCJ

iv. The station master failed to take the signature of the Train Manager on Authority Operating Form T/A 912 as prescribed in the form.

v. Inadequate counseling of Loco Pilots and Station Masters about train operation in 9. Automatic signaling territory creating misinterpretation and misunderstanding of Rules.

This accident is classified under the category of "Error in Train Working".

III. REMARKS AND RECOMMENDATIONS

3.0 Remarks and recommendations made by Commissioner of Railway Safety and action taken by Railways are given below

3.1

(a) Recommendation:

The large number of signaling failures in automatic signaling territory is a cause of concern and should be taken up with RDSO and OEMs to improve the reliability of the system.

(b) Action Taken by Railways:

Guidelines for improving Reliability of Signaling system have been issued vide RB's letter no. 2012/Sig/PRIME/1 dated 31.07.2024 ,Further specifically for the section ,Zonal Railways have drawn an action plan and same have been implemented to improve the reliability.

3.2

(a) Recommendation:

For the existing Automatic signaling section, a Joint Procedural Order for dealing with signaling failure in automatic signaling territory likely to last for some time or cause serious delay as mentioned in GR 9.12, should be issued by PCSTE, PCOM & PCEE of NFR

(b) Action Taken by Railways:

Zonal Railways have been advised regarding JPO on ABS territory vide RB's letter no. 2023/Sig/26A/ECOR/1 dated 05.08.2024.

Railway Board has issued Unified Subsidiary Rules and Authority Forms under GR 9.12 vide Letter No. 2024/TT-IV/12/10 dated 16.08.2024.

3.3

(a) Recommendation:

Introduction of new Auto signaling sections should consummate with the provision of Automatic Train Protection. Further, the necessity of Auto Signaling in the Non-Suburban section shall be reviewed considering the limited number of train movements in the Non-suburban section.

(b) Action Taken by Railways:

1. ABS is provided as per traffic operational requirement.

2. Kavach is being implemented progressively.

However, instructions have been issued to give priority to Kavach on sections where Automatic Signaling is installed or works are in progress

3.4

(a) Recommendation:

The occurrence of as many as 208 cases of Signal Passing at Danger from 1.4.2019 to 31.03.2024, out of which 12 cases resulted in collision, highlights the limitations of preventive measures taken by the Zonal Railways (counselling of Loco Pilot/Assistant Loco Pilot, safety drives, etc.). This underscores the need for the implementation of the Automatic Train-protection system (KAVACH) on top priority. Use of non-signaling-based systems such as Artificial Intelligence based detection of the RED aspect of the signal and providing an early warning to the Loco Pilot/GPS-based anti-collision systems shall be explored for provision in locomotive cabs across Indian Railways in non-ATP territory.

(b) Action Taken by Railways:

1. ABS is provided as per traffic operational requirement.
2. Kavach is being implemented progressively.

However instructions have been issued to give priority to Kavach on sections where Automatic Signaling is installed or works are in progress.

3.5

(a) Recommendation:

Availability of walkie-talkie sets, being the safety critical equipment, to all Loco Pilots & Train Managers of all the trains shall be ensured all the time. For this purpose, if required, necessary changes in the procurement policy shall be affected. Further, recording of conversations made by the Station master through Walkie-Talkie shall be ensured by providing VHF receiver cum recorder in Datalogger Room.

(b) Action Taken by Railways:

Instruction have already been issued for treating VHF walkie-talkie sets as a lobby equipment vide Board's letter No.2010/Tele/11(3)/1-Part(1) (3467095) dated 24.06.2024.

Following this, the issues pertaining to walkie-talkie availability of instruments to Loco Pilots & Train Managers have been addressed to a large extent. Further, the competent authority has granted exemption from PPP-MII policy for procurement of quality VHF walkie-talkie sets.

As regards recording of conversations made by the Station master through walkie-talkie, it may be mentioned that Zonal Railways have already been advised vide letter No.2021/Tele/8(1)/6 dated 13.09.2021 to make necessary arrangements to install equipment with voice recording facility of conversation taking place on Driver/Guard communication channel within the radio coverage area of station VHF sets, which is presently under implementation on Zonal Railways. The same have also been reiterated vide RB letter dated 16.04.24

3.6

(a) Recommendation:

The GR was issued by the Railway Board in the year 1976, since then lot of changes have taken place in the GR. There is a need to revise and re-issue the GR. Further, the corresponding SR is varying across the Zonal Railways. There is a need to bring uniformity in the SR of Zonal Railways by the Railway Board to the maximum extent possible.

(b) Action Taken by Railways:

The issue of revision of General Rules is under consideration in the railway board in consultation with IRITM and zonal railways.

GR1.02(55) states 'Subsidiary Rule 'means a special instruction which is subservient to the General Rule to which it relates and shall not be variance with any General Rule;

Thus , the SRs has to be issued by various zonal railways in the accordance with there local condition but the same shall not be in variance with any GR.

3.7**(a) Recommendation:**

The provisions of SR related to automatic signaling territory shall be reviewed in regard of the applicability of various operating forms (T/A 912, T/B 912, T/C 912, T/D 912).

(b) Action Taken by Railways:

Railway Board, vide letter 2024/TT-IV/12/10 dated 16.08.2024 has regarding issued Unified SR regarding automatic signaling territory & applicability of various Operating Forms (T/A 912, T/B 912, T/C 912, T/D 912).

3.8**(a) Recommendation:**

Any changes in GR and SR should be vetted by the safety wing of the Railway Board /concerned Zone for the elimination of any ambiguity/clash with other rules.

(b) Action Taken by Railways:

Guidelines have been issued to all Zonal Railways vide Board's letter no. 2023/Safety(Inquiries)/3/7 dated 20.06.2024

3.9**(a) Recommendation:**

Classification of Operating staff into A, B, C, & D category as advised by Railway Board vide Letter No. 2002/Safety-I/18-2 dated 16-02-2012 shall be implemented in true spirit.

(b) Action Taken by Railways:

Classification of Operating staff into A, B, C, D category has been already advised by Railway Board letter No.2002/Safety-I/18/2 dt 16.02.12.

Further, categorization of Train Managers will be examined.

3.10**(a) Recommendation:**

Crash worthiness feature of the passenger coaches shall be reviewed in reference to standard EN-15227. On priority, at least the last two coaches of every passenger-carrying train should have crash-worthiness feature as per standard EN-15227. All new coaches should be turned out with crash-worthiness features and existing coaches shall be retro-fitted during major schedules of coaches. It is noted that around 500 ICF coaches of different types have been manufactured with crash-worthiness features. These coaches shall be converted into SLR

coaches and attached at either end of the rake to minimize loss of human life and Railway property in case of collision.

(b) Action Taken by Railways:

1.Modified LWLRRMD, design of LWLRRMDAC and LSLRD coaches with high crash energy capability absorbing has been developed. Prototype Modified LSLRD Coach is under manufacturing at RCF/KXH, and would be taken up for crash test at RDSO, Lucknow.

2.Provision of these modified design LWLRRMD, LWLRRMDAC and LSLRD coaches with high crash energy absorbing capability would be done in a phased manner.

3.11

(a) Recommendation:

Railway is in the process of retro-fitment of Crew Voice & Video Recording System (CVVRS) in Locomotives to record the conversation of Loco Pilot with Train Manager Station Master etc. It shall be implemented on priority.

(b) Action Taken by Railways:

CVVRS is being provided on electric locomotives. CRIS is the nodal agency for procurement and commissioning of CVVRS and on locomotives. As on date about 450 electric locomotives are provided with CVVRS. Tender is being floated by CRIS for 14364 CVVRS to be provided on 2779 diesel and 11585 electric locos.

3.12

(a) Recommendation:

All the systems such as Datalogger, VCU of Locomotive, Control office clock, Station master office clock, etc. shall be synchronized with GPS.

(b) Action Taken by Railways:

Instruction regarding Data logger synchronization with GPS clock already exists. Presently all Data logger are being commissioned with same.

Action has been taken by RDSO to Synchronize the VCU clock to GPS standard time by incorporation in Version 6 of Specification for propulsion system, which is developed by RDSO.

ACCIDENT – XII

THE ABSTRACT OF STATUTORY INQUIRY REPORT OF COMMISSIONER OF RAILWAY SAFETY ON REAR COLLISION BETWEEN TRAIN NO. 12578 MYSURU-DARBHANGA BAGMATI EXPRESS AND STABLED RAKE OF EMPTY BCN WAGONS AT KAVARAIPETTAI STATION (DOWN LOOP LINE) AT KM 39/31-32 IN CHENNAI CENTRAL-GUDUR DOUBLE LINE ELECTRIFIED SECTION IN CHENNAI DIVISION OF SOUTHERN RAILWAY WHICH OCCURRED ON 11.10.2024 AT ABOUT 20.31 HRS."

I.BRIEF DESCRIPTION

1.1 THE ACCIDENT

The train 12578 Mysuru-Darbhanga Express passed through PON, a non-halt station, at 20.27 hrs on 11.10.2024 and was running 12 minutes late. The Loco Pilot of the train 12578 Express, with CAB1 leading, while approaching KVP station, observed that Home Signal and Starter Signal were indicating 'Proceed' aspect. As he was passing through the home signal and the points & crossing, at a speed of about 90 kmph, he suddenly experienced heavy jerks and oscillations. He immediately applied brakes but noticed the loco veering to loop line and moving with jumpy motion towards the stabled rake of BCN wagons on Road 2; the train finally hit the goods rake at a speed of 33 kmph and came to a stop.

ii. While forcibly negotiating the turnout towards the down loop line side, huge sparks were generated due to friction between wheels of the loco & power car (coach next the loco) and rails which resulted in the power car catching fire. As a result of the collision, the loco and eleven coaches of the Express Train derailed, three other coaches capsized, power car fell on the Up line; one wagon and brake van in the rake of empty BCN rake also derailed with the brake van completely damaged

iii. The collision resulted in damage to the Down main line for a length of 314.8 m, down loop line for about 427.30 m. and to the Up main line for 66 m. The Up-loop line was not affected. Besides damage to permanent way, there was damage to loco, the coaches, the OHE and the signaling installations.

iv. The previous train to pass through KVP station was train no. 42425 EMU train at about 20.26 hrs. No rough running or any kind of abnormality was noticed over point no. 518 by the crew of this and other earlier trains.

v. Point of impact was noticed between sleeper number 6-7(RH side) of the Point no. 518. However, multiple impact and drop marks were noticed after the JOH.

vi. The time of rear-end collision was around 20.31 hrs.

II.CAUSE OF THE ACCIDENT

Upon careful consideration of the factual, materials and circumstantial evidence available with me till now, I have come to the conclusion that the "rear Collision between Train No. 12578 Mysuru-Darbhanga Bagmati Express and stabled rake of Empty BCN wagons at Kavaraipettai station (Down Loop line) at Km 39/31-32 in Chennai Central-Gudur double line electrified section in Chennai Division of Southern Railway which occurred on 11.10.2024 at about 20:31 hrs" was caused due to removal of the fittings and connection of LH Switch of Point number 51B and butting of LH tongue rail to stock rail after the removal of the fittings and the connections, even when the RH tongue rail was already butted against the stock rail. This happened not due to automatic/sudden failure of any equipment/assets but due to the forceful alteration in the designed position of LH tongue rails, by the miscreant(s).

Therefore, the accident is classified under the category "Sabotage".

III. REMARKS AND RECOMMENDATIONS

3.0 Remarks and recommendations made by Commissioner of Railway Safety and action taken by Railways are given below

3.1

Short Term/Immediate measures:

(a) Recommendation:

Loco pilot of train No. 12578 had showed outstanding alertness and promptness in applying emergency brakes this reduced the speed of train and the consequent impact of the collision. His commendable action may be suitably recognized by the Railway

(b) Action Taken by Railways:

Vide SR's letter No. E.221/V/51 dated 28.02.2025 it is informed that Sh. G. Subramani Loco Pilot (Mail)/MAS has been recommended for the Ati Vishisht Rail Seva Puraskar (AVSP) Award.

3.2

(a) Recommendation:

Railway should identify the vulnerable areas prone to sabotage and ensure the patrolling based on level of threat.

(b) Action Taken by Railways:

All Zonal Railways have areas to identified vulnerable areas to sabotage and have intensified patrolling in coordination with GRP /local police. Security measures include CCTV surveillance, Intelligence gathering and awareness campaigns. Special forces have been deployed in sensitive sections and all divisions have been directed to ensure patrolling based on threat levels.

Vide Railway Board's letter No. 2023/Sec.(Int.)/51/7/3/1. dated 15.12.2023 instructions have been issued to all Zonal Railways regarding track patrolling in sabotage-prone areas.

In this regard, regular meetings of Standing Committee are being organized divisions regarding patrolling of tracks in sabotage prone areas under the chairmanship of ADRM

3.3

(a) Recommendation:

Railway should adopt fixing of anti-pilferage measures for the fittings and connections, as done in the rolling stocks or in some other way.

(b) Action Taken by Railways:

To prevent theft of point machine fittings and tongue rails of turnouts, anti-theft measures have been implemented. Tamper-resistant fasteners, developed both by the industry and Railway workshops, are under trial with focus on field applicability.

Trials for 3-4 designs are ongoing. Based on the results and field experience, a suitable design will be standardized for uniform adoption across Indian Railways.

3.4

(a) Recommendation:

Action stipulated under GR 3.38(2) shall be followed.

(b) Action Taken by Railways:

A letter has been sent to the GMs of all Zonal Railways to ensure compliance with the following directive under GR 3.38(2):

"When a running line is blocked by a stabled load, wagon, vehicle, or a train that is to cross or give precedence to another train, or immediately after the arrival of a train at the station, etc., the points in the rear on double-line sections and at either end on single-line sections should be immediately set against the blocked line, except when shunting or any other movement is required to be carried out immediately in that direction on that line.

3.5

(a) Recommendation:

Blacksmith and other artisan staff must get issued tools for each day's work and again return it back to their store/toolbox. In any case carrying tools to their house must not be allowed.

(b) Action Taken by Railways:

Keeping tools at a central depot may delay emergency response and impact train operations. On the other hand, technicians are headquartered at wayside stations, many of which are in remote locations, making daily issuance and deposit of tools impractical. Therefore, alternative measures will be explored to ensure both security and operational efficiency.

3.6

(a) Recommendation:

The possibility of sabotage from an insider is a grave matter. Intelligence wing from railways should develop method of gathering inputs on this aspect.

(b) Action Taken by Railways:

The Special Intelligence Branch (SIB) of the Railway Protection Force (RPF), in coordination with central and state intelligence agencies, has strengthened security to prevent sabotage, especially from insiders. SIB units across Zonal Railways have been instructed intensify intelligence gathering on railway employees, contractual workers, and other associated personnel.

The D-4 Register within the Railway Security Management System (RSMS), which tracks individuals involved in undesirable activities, is being actively updated by all Zonal Railways.

Proactive measures Like scenario-based training, mock drills, and deployment of special teams are in place to detect threats and protect railway infrastructure effectively.

3.7

(a) Recommendation:

Anti-sabotage fittings for connecting the turnouts must be developed urgently. The split pin arrangement must not be a sole measure to keep the fittings in place.

(b) Action Taken by Railways:

Southern Railway, East Central Railway and Northern Railway -have been nominated to take up trials with modified fasteners for point machine rodding's of Thick Web Switches on a division at 10 stations. These modified fasteners (for P- brackets, detection rod, lock rod, clamp lock bracket) can be opened only by special tools.

Trial is under progress.

3.8

(a) Recommendation:

Type, Size and shape of the critical safety fittings, should be designed Railway Specific so that these fittings couldn't be opened with the tools readily available in market.

Railway Specific tools also should be designed for this purpose.

(b) Action Taken by Railways:

Southern Railway, East Central Railway and Northern Railway -have been nominated to take up trials with modified fasteners for point machine rodding's of Thick Web Switches on a division at 10 stations. These modified fasteners (for P- brackets, detection rod, lock rod, clamp lock bracket) can be opened only by special tools.

3.9

(a) Recommendation:

Mechanical features in the open switch or adjacent stock rail should be developed to ensure the holding of tongue rail in opened position firmly, on similar lines as available for close switch where both stock and tongue rail are held firmly in close position in existing arrangement or otherwise

(b) Action Taken by Railways:

Southern Railway, East Central Railway and Northern Railway have further been nominated by Railway Board vide letter no. 2008/Sig/SGF/9/ Thick Web Pt. (e-file 3267407)dated 28.10.2024 to take up trials for "Lost Motion Stretcher Bar' of Voestalpine make along with "Spring setting Device (SSD)" on a division at 10 stations, on single tender basis. Trial is under progress.

Trials are being conducted with mechanical fixtures available in industry working in Railway field. After successful performance, same may be adopted on Indian Railway.

3.10

(a) Recommendation:

Detection of the open switch may at first sight appear to be less critical than the closed switch, but there have been accidents such as at Kingham (1966) and Grayrigg (2007) both in Britain, where the open switch rail gap was insufficient. The continual battering by the wheels on the back side of the switch in open condition, caused the open switch rail and fittings to be fatigued, causing fractures leading to derailment. The condition of the stretcher bars was implicated in both accidents. Presently, in Indian railways detection proves that the closed tongue rail is adjacent to the associated stock rail within tolerance of 3mm and the open tongue rail has moved to a position that provides the required flange-way along the length of the switch rail. But the detection of the position of the open switch is relied merely upon the

integrity of the connections-detection slide and detection rod to the switch rail. Alternative options that might detect open switch movement such as the provision of independent open switch rail detection or positive, simultaneous detection of both switch rails using electro-mechanical arrangements shall be looked into

(b) Action Taken by Railways:

Trials are being conducted with mechanical fixtures available in industry working in Railway field. After successful performance, same may be adopted on Indian Railway.

3.11

(a) Recommendation:

Functional requirement of wide notches in Detection and Lock slides of IRS Point machines shall be reviewed and idle movement shall be restricted to the extent possible so that Detection Rods and Detection Slides in Open position shall be more sensitive to any sort of disturbances in their connections.

(b) Action Taken by Railways:

Trials are being conducted with mechanical fixtures available in industry working in Railway field. After successful performance, same may be adopted on Indian Railway.

3.12

(a) Recommendation:

The railways must have a proper risk assessment procedure in place, as part of its safety management system, to identify and manage appropriately the risks associated with its systems it must be acknowledged that human behavior plays a central role in the safe and efficient operation of the railways. Therefore, it is essential that the railways take a systematic approach to manage human factor within the safety management system.

(b) Action Taken by Railways:

Indian Railways has safety protocols in place, which addresses human factors such ergonomics, communication patterns organizational culture and staff competencies. Indian Railways also implements continuous training and behavioral assessments for its workforce to ensure that human errors are minimized However, as Indian Railways adopts more automation and digital systems, the interface between technology and the human operator becomes increasingly important As such the Zonal Railways, vide letter dated 16.09.2025 have been advised to strengthen their risk assessment procedure as envisaged in the recommendation.

3.13

(a) Recommendation:

Engagement and exposure of contractual staff for the maintenance and operation of critical safety features and systems and allowing them to develop skills in these areas must be reviewed as a priority and it must be brought to minimal in short term and null in long term.

(b) Action Taken by Railways:

Presently, maintenance of S & T gears is carried out as per provision of IRSEM as per policy contractual staffs for maintenance are used for non-critical activities along with or under supervision of Railway Staff.

3.14

(a) Recommendation:

A technology driven surveillance system with remote monitoring and alarm generation capabilities shall be developed for identified critical assets like yards, important bridges etc.

(b) Action Taken by Railways:

The implementation of the CCTV Surveillance System at station is an ongoing process on Indian Railways. So far, CCTV surveillance system has been provided at 1,343 stations. Moreover, Telecom Directorate has also issued instructions to ensure comprehensive CCTV coverage of yards under the VSS projects being executed over Indian Railways, vide letter dated 05.05.2025

ACCIDENT – XIII

THE ABSTRACT OF STATUTORY INQUIRY REPORT OF COMMISSIONER OF RAILWAY SAFETY ON THE ACCIDENT OF LONG HAUL TRAIN NO. N/PCMC AND N/TSWS ON UP LINE IN KHONGSARA (KGS) - BHANWARTONK (BHTK) BG ELECTRIFIED SECTION OF BILASPUR DIVISION OF SOUTH EAST CENTRAL RAILWAY ON 26.11.2024.

I. BRIEF DESCRIPTION:

1.1 The Accident

- i) The long-haul goods train comprising of Train No. N/PCMC [Loco No.23641/23553] & N/TSWS [Loco No.41332] was formed at KLTR station on 26.11.2024. Banker Locomotives No.33191 and 33227 BIA were attached at TGQ station in rear of this train.
- ii) Train no. N/PCMC was loaded with coal from MFSJ siding of Mahanadi Coalfields Limited at Sardega in CKP division of South Eastern Railway. The 2nd part of the Super long haul was loaded with coal from PMBG siding of Phil Minerals Beneficiation and Energy in Bilaspur division of South East Central Railway.
- iii) Train was signaled for through movement at BHTK station by taking OFF UP Home Signal S1 (HG) at 10:48:36 Hrs. UP Starter S-3 (DG) at 10:49:34 Hrs. and UP Advanced Starter S-5 (DG) at 10:49:33 Hrs.
- iv) While moving in UP direction from KGS to BHTK station, derailment of this long-haul train occurred at about 11:11 Hrs. on 26.11.2024, on the approach of BHTK station. Speed at the time of derailment was about 37 KMPH.
- v) Dragging of the derailed train continued for about 350 m, till the point no. 15B at the approach of BHTK station where the front multi locomotives of the train parted and stopped on UP line with trailing trolley of locomotive no. 23553 in the derailed condition.
- vi) The rear locomotive of 1st part of long haul (N/PCMC) bearing no. 23553 along with adjacent 20 loaded wagons and brake van of the train derailed during the accident.
- vii) The derailed and capsized wagons scattered near the point no. 15B on the approach of BHTK station, causing obstruction on both the UP and DN lines.

II. CAUSE OF THE ACCIDENT:

Having carefully considered all the evidences, records submitted, observations made during the site inspection, and other circumstantial evidences produced by South East Central Railway. I have come to the conclusion that the accident of long-haul train no. N/PCMC and N/TSWS on UP line in Khongsara (KGS) Bhanwartonk (BHTK) BG Electrified Section of Bilaspur (BSP) Division of South East Central Railway on 26.11.2024 occurred due to error in train working' i.e. combined effect of errors in framing the Subsidiary Rules & Operating manual by SECR and violation of guidelines for long haul operations issued by Railway Board vide No. 2022/TT-1/27/1 dated 04.08.2023 & Policy Circular No. 6. 2023 issued by Railway Board vide 2022/CEDO/SR/PC-6/0 No. dated 01.05.2023.

III. REMARKS AND RECOMMENDATIONS:

3.0 Remarks and recommendations made by Commissioner of Railway Safety and action taken by Railways are given below

3.1

(a) Recommendation:

BP hose pipe of the banking engine should always be connected with last vehicle of the train and provision in Para 6.21 (b) of Operating Manual and SR 3.84.03.(a) issued by South East Central Railway should be modified accordingly.

(b) Action Taken by Railways:

As per instruction of Railway Board vide letter no 2024/Elect(TRS)/113/1(BP pipe) Dtd-18.12.2024, BP hose pipe of the banking engine is now being connected with the last vehicle of the train in SECR. Necessary amendment in this regard has already been made and issued by SECR vide addendum & corrigendum no. 60 of G&SR and addendum & corrigendum no. 24 of Operating Manual/SECR on 03.02.2025.

3.2

(a) Recommendation:

In WAG-9 Locomotive the system of notches for speed control is not available. Hence, it is advised to modify the subsidiary rule 3.84.03-(a) of SECR which reads as under- ".....On electrified section extra electric engine may be attached to a train either for double heading or for banking. The leading Loco Pilot who is in charge of the train, shall in such cases notch up until the train moves, the rear Loco Pilot assisting as required As far as possible the leading Loco Pilot should be 4 notches ahead of the second Loco Pilot so as to ensure that field tap notch is not entered simultaneously and thus to reduce surges.....

(b) Action Taken by Railways:

As per instruction of Railway Board vide letter no-2024/Elect (TRS)/113/1(BP Pipe) Dtd-18.12.2024, necessary amendment in this regard has already been done and issued vide Addendum & Corrigendum no. 60 of G&SR on 03.02.2025.

3.3

(a) Recommendation:

In the instant case, it has emerged that instances of walkie-talkie failure in long-haul train operations, especially in cutting, are not new and have been occurring regularly. Therefore, it appears that long-haul train operations were being conducted in violation of Para 6.7 of Guidelines issued by Railway Board vide No. 2022/TT-1/27/1 dated 04.08.2023. Operation of long haul trains in the Railway should be allowed only after the joint certification by concerned PHODs regarding compliance of guidelines issued by Railway Board and with the approval of General Manager.

(b) Action Taken by Railways:

Working Walkie Talkies are issued to all crews, including for long haul trains. In case of any intermittent disruption of communication over walkie-talkie due to typical terrain or due to any other reason communication is established through proper whistle code.

As per para 6.7 of guidelines issued vide Railway Board's letter No. 2022/TT1/27/1, Dated 04.08.2023, if the walkie-talkie communication fails during run the long-haul movement will be terminated at the next station. Long haul trains shall not be operated during Communication failure.

As per para 2.7 of guidelines issued vide Railway Board's letter No. 2022/TT1/27/1, Dated 04.08.2023, pre-tested walkie-talkie sets of adequate power will be supplied to the LP and TM for reliable communication during run and to the train examining staff during the course of formation. In case of failure walkie-talkie, communication should be established through proper whistle code.

Furthermore, for improving communication over this particular section and other sections of SECR following measures have been taken:

a) Adequate no. of digital walkie-talkie sets has been procured and deployed in this section with the improved and enhanced VHF network coverage.

b) For improving the coverage in tunnels in Khodri-Bhanwartonk Khongsara section of SECR, contract has been awarded on 04/06/2025.

c) In addition to above, purchase orders for procurement of additional 2600 sets digital VHF sets have been issued and application has been submitted to WPC for issue of letter of intent. With the supply of these sets, sufficient no of digital VHF sets will be available for driver guard communication with improved coverage.

In addition to above other technical solution to the mitigate the occasional communication failure over walkie-talkies in the section like replacement of 5-watt Walkies-Talkies with 10-Watt Walkie-Talkies are being explored.

3.4

(a) Recommendation:

Enabling provisions for running of long-haul trains should be incorporated in General Rules and Operating Manual issued by Railway Board, duly considering the result of operational trials conducted by RDSO.

(b) Action Taken by Railways:

Noted

3.5

(a) Recommendation:

The proliferation of DPWCS installations and pairings should be expedited for long-haul train operations by Railways.

(b) Action Taken by Railways:

Instructions have been issued for provision of DPWCS on all freight locomotives, vide Railway Board's letter dated 24.04.2024.

In SECR, a total of 673 locomotives are under holding for DPWCS, out of these 189 locomotives have been equipped and paired. The work for the remaining 484 locomotives is also under progress and targeted for early completion.

3.6

(a) Recommendation:

Neither the approval of PCE has been taken nor the stipulations in IRPWM have been fulfilled for laying the LWR on a curve of 5.67 degree, at the location of accident. A detailed survey

should be carried out by Railway to identify the LWRs laid in violation of provisions in IRPWM and suitable speed restrictions should be imposed at such locations, till rectification.

(b) Action Taken by Railways:

As per the current provisions of IRPWM 2024, Para No. 326(2)(a) and Annex-3/19, the continuation of Long Welded Rail (LWR) on sharp curves and steep gradients in Zone III is permitted up to 6 degrees of curvature and a gradient of 1 in 65.

As per the records available in the Track Management System (TMS), the date of laying of the concerned LWR is 01.04.2009 and degree of curve is 5.67. This LWR was laid primarily to enhance the safety & running performance of trains. Its provision has resulted in improved train operations and a significant reduction in maintenance issues, such as fishplate fractures and hogging of rail ends.

The laid LWR is complying the provisions of the IRPWM 2024. Additionally, wide-gauge Pre-Stressed Concrete (PSC) sleepers along with ERC-MK-V have also been provided at the location.

Further, as per directions issued to Raipur, Bilaspur, and Nagpur Divisions vide SECR's letter No. SECR/HQ/Engg/TC-8/Track Maintenance/03 dated 18.06.2025, surveys have been conducted to identify LWRs laid in violation of IRPWM provisions and necessary action has been taken by Zonal Railway.

ACCIDENT – XIV

THE ABSTRACT OF STATUTORY INQUIRY REPORT OF COMMISSIONER OF RAILWAY SAFETY ON UNUSUAL OCCURRENCE OF DRAGGING OF ONE LADY PASSENGER BY TRAIN NO. 7407, TRAIN SET 15, INDERLOK UP PLATFORM AT 13:04 HRS ON 14.12.2023, LINE-1, RESULTING IN HER DEATH IN DELHI METRO RAIL CORPORATION.

I. BRIEF DESCRIPTION:

1.1 THE ACCIDENT

The train no. 7407, Train Set 15, 8 coach formation, manufactured by ROTEM arrived at Inderlok Metro station at 13:03:33 hours. The above rake was coming from Rithala Metro Station and going to New Bus Adda Metro Station (NBAA) in the UP direction.

One lady passenger was travelling with her son, wearing the jacket over a saree and carrying a water bottle and a small bag on her left shoulder and a luggage bag on her right shoulder.

After deboarding/boarding at the Inderlok UP platform, the Train Operator initiated the closing of train doors at 13:03:48 hrs. The train door closed at 13:03:58 hrs. due to train door obstruction detection at left-hand side door no. 3 of 6th coach. The train departed from the platform at 13:04:01 hours with entangled lady passenger's belongings. The lady passenger dragged with the train for around 66.85m at the Up platform and separated from the train at the end of the platform, after striking with the track access gate, she fell near the foot of the staircase of the track access gate.

As per CCTV footage (time difference with TIMS) train no. 7407 cleared the platform at 13:04:25. Some passengers got down on the track to help the lady passenger and brought to the platform at 13:05:47. At 13:06:11, the track was cleared by all passengers.

The injured lady was taken to the Deep Chand Bandhu Hospital for treatment, later on, she was referred to Safdarjung Hospital for further treatment. On 16.12.2023 at 16:20hrs, the lady passenger succumbed to injuries at Safdarjung Hospital.

I regret to report that as a result of the incident, one lady passenger was killed

It was an incident which started at the UP platform of Inderlok Station and ended on the track near the track access gate of Inderlok Station. The weather was fair and visibility normal at the time of the incident.

II. CAUSE OF THE ACCIDENT:

The incidence of Unusual occurrence of dragging of one lady passenger by Train no. 7407, Train set #15, Inderlok UP platform at 13:04 hrs on 14.12.2023, Line-1, resulting in her death in Delhi Metro Rail Corporation, has taken place due to unforeseen event of entanglement of water bottle of deceased passenger, one end of bottle strap made of nylon, tied with passenger hand remained outside the coach door and another end with the bottle remained inside coach door. The entanglement occurred while hurriedly deboarding the train by the passenger at the time of door closing and possibly ignoring the door closing alarm and then dragging of passenger occurred due to system lapses/inadequacy both in standard operating procedures and available technology to deal such unforeseen events.

III. REMARKS AND RECOMMENDATIONS:

3.0 Remarks and recommendations made by Commissioner of Railway Safety and action taken by Railways are given below

3.1

(a) Recommendation:

A drive for passenger awareness highlighting safety precautions during boarding/deboarding the train shall be launched through various means such as playing the short video clips at stations and inside trains, signages at stations and inside trains and use of electronic and print media etc.

(b) Action Taken by Railways:

An awareness drive to educate passengers regarding safe travel through metro has been launched to make them aware about safe boarding and de-boarding on Delhi metro trains. A special safety video for creating safety awareness among passengers is being displayed through digital screens at stations and inside trains.

The official social media channels of DMRC are being utilized to raise awareness about this issue. The first post on the issue was done on 20th December 2023. More such awareness posts both in Hindi and English have been planned and are being posted on the social media platforms/print media from time to time.

Various Public Information Websites and News Websites are being utilized to raise awareness and explained precautions to be taken by the passengers for a safe journey.

In order to reinforce safety precautions during the boarding and de-boarding processes, in addition to present signage, special signages have been prepared and placed at stations, including 358 at CISF frisking point, 1018 at stairs to platform, 9216 at Platform Screen Doors, and 2080 at Platform Areas. Beside the available signage, an additional 1426 large size signage have been placed on Platform Areas.

Following additional announcement has been added: -

a. At Stations: -

Press the emergency panel provided at platform, in case some object or person stuck in train doors or any other emergency.

किसी वस्तु या व्यक्ति के ट्रेन दरवाजों में फंसे होने या अन्य आपात स्थिति में प्लैटफार्म पर उपलब्ध आपातकालीन पैनल दबाएँ।

b. In Trains:

i. For all Rolling stocks except RS-3:

Press the emergency alarm button, in case some object or person stuck in train doors or any other emergency.

किसी वस्तु या व्यक्ति के ट्रेन दरवाजों में फंसे होने या अन्य आपात स्थिति में आपातकालीन अलार्म बटन दबाएँ।

In the safety week observation, March-2024 interaction with passengers was carried out at 10 interchange station wherein about 5000 passengers were briefed about various safety facilities provided inside trains & at the station.

3.2

(a) Recommendation:

A safety drive shall be launched immediately for counselling of train operators to correctly perform platform duty as laid down in the SOP of train operator (SOP no 5.6 & 5.9). SOP of train operator should clearly mention that before start of the train, the train operator through available means should ensure that there is no infringement at the train doors. Further train operators should be intimated the minimum dwell time to be observed during peak and non-peak hours.

(b) Action Taken by Railways:

With the focus on SOP compliance, correct performance and risk mitigation, counseling drive was carried out to counsel Train Operators to sensitize them for their duties with respect to platform duty & door closure.

Appropriate instructions have been issued regarding action by Train Operator during door closure at interchange & non-interchange stations with curved or straight platform. All TOs have been counseled to apply EB in case PEA operated in the train while departing from a platform. SOP for train operators has been revised with suitable instruction mentioning that before start of the train, the train operator through available means should ensure that there is no infringement at the train doors. The information regarding minimum dwell time during peak and non-peak hours has been advised through the time table.

3.3

(a) Recommendation:

Adequate number of CFA/Security Guards shall be provided at busy/crowded stations to ensure proper boarding and dispersal of crowd built up near escalators/stairs. CFA/Security Guard shall be given proper training and competency issued by DMRC. Duty roster of CFA/Security staff shall be maintained in such a way that CFA/Security Staff is available at all time during revenue hours Irrespective of breaks/lunch etc. Further communication a system shall be established between train operator & CFA/security guard so that train operator stops the train on getting message from CFA/security guard about any untoward Incidence.

(b) Action Taken by Railways:

1. Training Module of CFA has been implemented. This will help them to take prompt action in case of any emergency.
2. On Job familiarization training is being provided to the CFAs. The training program includes facilitating proper boarding/de-boarding of commuters from metro trains and to disperse crowd build up near escalators/stairs at crowded platforms of the stations.
3. CFAs are awarded competency after the familiarization program.
4. Now the Duty roster of CFAs at Metro stations is prepared in such manner that at critical points such as Platforms, Escalators etc., CFAs must be available all the times (as per the requirement of concerned station) irrespective of break/lunch etc.
5. Do's and Don'ts for CFAs have been defined in system familiarization training of CFAs.
6. Additional CFAS are deployed at platforms of busy/crowded locations of metro stations.

7. A visual alarm system has been Installed to alert Train Operator through CFA/Guard at platform. In this arrangement, a flashing light has been installed at 63 locations on Line-1 & 3/4 which will be visible to Train Operator while standing at PF NSP.

3.4

(a) Recommendation:

The monitors & camera provided at platform level shall be earmarked as Safety Critical equipment and any defect in these equipment's shall be promptly attended. There shall be periodical joint inspection by team of Civil, Electrical, Signaling, Telecom, Operation and Safety for all the safety critical items. Further Additional CCTV monitors (Digital type) in redundant configuration shall be provided to cover all the eight coaches.

(b) Action Taken by Railways:

Necessary instruction have been issued for identification of CCTV monitors and cameras platform as safety critical items and any defect in these equipment's shall be promptly attended by concerned department. AM/Mgr level joint inspection of the entire network shall be done annually. Status of TO monitor installation is as follows:

49 inch display monitors have been installed in redundant configuration at 34 stations having curved and interchange platform on line 1 & Line3&4.

24 station with straight platform of line 1 and 3/4 where no CCTV monitor is available, CCTV monitor of 49 inch is being installed. Total 13 stations have been completed and 11 stations are remaining where work is in progress and will be completed by January' 25

3.5

(a) Recommendation:

There is darkness on the platform near 4th, 5th and 6th coach. Few corrugated GI sheets provided on the PEB roof shall be replaced with transparent polycarbonate sheets to allow sunlight during day time. It will also aid proper view by CCTV monitor.

(b) Action Taken by Railways:

Corrugated GI sheets of roof of the stair case have been replaced with transparent corrugated polycarbonate sheets as per recommendation to allow sun light during day time.

3.6

(a) Recommendation:

Volume of Audio alarm for door opening/closing should be increased to medium level i.e. 72db to 76db. And Signage's/Stickers inside trains

(b) Action Taken by Railways:

The current progress according to recommendations is as follows: -

1. Drive to increase Audio level of the door opening/closing announcements/chimes has been completed in all the trains of all the stocks (348 Trains) including RMGL and Airport Line.
2. Display of signage/stickers inside the trains: PAB/PECU/PEAH and Door Leaf signage/stickers pasting have been completed in all the trains of all the stocks (348 Trains) including RMGL, and Airport Line.

3.7

(a) Recommendation:

Various modifications in the Rolling Stock of 2002 vintage design, to enhance the safety features, are being carried out by DMRC. These are required to be expedited and completed at the earliest.

(b) Action Taken by Railways:

The modifications in 75 trains of 2002 Vintage Design (referred as RS-1 trains) are under execution and modifications works in 20 trains have been completed and target date of completing them in all 75 trains in 'phased manner' is Dec-2027.

3.8

(a) Recommendation:

Retro fitment existing door with feature anti-drag shall be explored and completed at the earliest If found technically feasible.

(b) Action Taken by Railways:

Work of providing Anti-drag system has been awarded to M/s Mitech on 11.10.2024, for 05 Trains of RS-1 (3 trains of line-1 & of 2 trains of line-3); target date of completions Jan-2026.

3.9

(a) Recommendation:

Presently 800mm diameter rear view mirror has been provided on the platform to aid train operator for viewing train door status. Since the train length have Increased to 8 car, higher diameter preferably 1200mm, with rigid foundation to avoid wavering during wind, shall be provided.

(b) Action Taken by Railways:

Earlier, 800 mm diameter rear view mirror (1 no. at UP Line & 1 no. at DN Line) were replaced with 1000 mm diameter rear view mirror. Now, as per recommendation, 1200mm diameter mirrors have been fixed in place of 1000mm diameter rear view mirror at Interchange stations and on the stations with Curved Platform. The rear-view mirrors have been fixed from the Pre-engineered Building (PEB) structure instead of Platform foundation, to make it more rigid.

At all 64 identified locations, work has been completed.

3.10

(a) Recommendation:

Presently only one ESP has been provided on each platform. Since the platform length is more to accommodate 8 car train, feasibility to provide additional ESP preferably three ESP on each platform shall be explored.

(b) Action Taken by Railways:

Policy for provision of ESP has been reviewed and it is decided to provide one ESP at each platform for lines for 3/4 cars and two ESPs at each platform for 6/8 car lines for all new lines under construction (L-10) and for all future works. Feasibility of providing ESPs as per above guidelines on existing line, being explored.

3.11

(a) Recommendation:

If a passenger Emergency Alarm (PEA) is operated in the platform zone while the train is departing, the Train Operator must stop the train using Emergency Brakes (EB) and restart after ensuring that there is no danger to the passengers. Accordingly Rule 32 sub rule 12 of MRGR 2020 shall be modified. Feasibility of implementing this feature through technology as done on line no.7 & line no. 8 should be explored.

(b) Action Taken by Railways:

Appropriate instructions have been issued to Train Operators to apply EB in case PEA operated in the train while departing from a platform. They have been counselled and their assurance taken for the compliance. This feature is available in UTO trains. Presently this feature is implemented manually. Feasibility to provide is under exploration.

Proposal for modification in rule 32 sub rule 12 of MRGR 2020 has been submitted to the Ministry of Housing & Urban Affairs.

3.12

(a) Recommendation:

DMRC is not having their own medical facilities for treatment of staff and passengers. However, DMRC is having tie up with several Govt. and Pvt. Hospital for treatment of their own staff. This facility should also be extended for passengers Injured during travel. Further HR department handling the medical facilities in DMRC should be sensitized to take care of passengers.

(b) Action Taken by Railways:

Medical facility to the injured person may be provided in DMRC empaneled hospital subject to willingness & consent of the family member of injured person. Further, HR officials dealing with medical related facilities shall facilitate in coordination with the Operations Dept.