Accident-I

Sub: Rear Collision of Train no. 12841 (Shalimar-Chennai) Coromandal Express with Goods Train No. N/DDIP and Side Collision with 12864 (Bengaluru Howrah) in Kharagpur Division of South Eastern Railway on 02.06.2023.

I. Cause of the Accident

The rear-collision was due to the lapses in the signaling-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 signaling 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.

II. Remarks and Recommendations

Remarks and recommendations made by Commissioner of Railway Safety and Action Taken by Railways are given below

S,no	Recommendations	Action Taken by Railway
1	A drive should be launched to update the Completion signalling wiring diagrams, other documents (SIP, RCC, SWRD, Panel/VDU diagrams etc.), and lettering of signaling circuits at site.	Drives have already been launched regarding: (i) Status of completion documents vide this office letter No. 2020/Sig/21/Safety Performance dated 14.06.23, and (ii) Status of checking & verification of writing work details of signaling gears at site vide letter No. 2021/Sig/21/Safety Performance dated 28.06.23. This is a continuous process, and Zonal Railways have been advised to monitor the same closely.
2	Standard practices should be followed for carrying out signalling-modification work.	Policy for commissioning of new works and alteration to existing signaling installations, has been issued vide railway Board's letter No. 2020/Sig/21/Safety Performance dtd. 10.06.23 & letter no. 2012/Sig/SF/2(policy) dtd.20.07.23.

3	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.	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.
4	Any alteration to signalling circuits should be carried out with an approved circuit diagram, and in presence of an Officer.	
5	A separate team should be deployed for checking and testing of modified signalling circuits and functions before restoration/ reconnection of the work.	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 duly authorized in writing. In case of major works instructions are already in vogue.
6	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.	The procedure of issue of competency certificate is in vogue. The same is issued by IRISET (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/IRISET dtd.08.08.2023.
7	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	A Committee comprising of officials from Railways and signal design experts from Original Equipment Manufacturers (OEMs) of electronic

	prevented. In case of EI, this should be registered as fault condition, and the system should shut down automatically.	interlocking was given the task to examine the issue. Based on the recommendations of 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 to incorporate the modified point detection circuit in standard typical circuits of EI for uniform adoption over all Zonal Railways.
8	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.	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 by modification of point detection circuit as proposed in item 7 above.
9	Point detection circuits should be carried in a separate cable for each Point/Crossover without any intermediate termination.	Cable without intermediate termination is feasible by provision of Direct Drive which is under trial.
10	The point switch groups should be eliminated in EI installations.	The same is already catered in standard typical circuit of EI.
11	Provision should be made for separate logging of physical relays in the Station data-logger.	Instructions in this regard have been issued vide this office Letter No. 2018/Sig/18/6-Data Logger/1 dtd. 27.06.23.
12	RTU should be provided at end-goomties for logging of digital and analog inputs for ensuring end to end matching of status of gears.	
13	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.	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.
14	As a long-term measure, Signalling functions/gears should be directly connected to EI, through OFC, eliminating intermediate relays.	Provision of Direct Drive is under Trial.

Accident-II

Subject: Rear end collision of Train no. 13174 DN (Kanchenjunga Express) and Goods Train no. GFCJ Container in Katihar Division of N.F Railway on 17.06.2024.

I. Cause of the Accident

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 T/D912 in case of all Signals failure violating the provision of SR 9.12/1

(ii) Non-issuing of the Caution Order as stipulated in SR.9.11/1(h).

(iii) Non-availability of critical safety Equipments (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 presbribed in the form

(v) Inadequate counselling of Loco Pilots and Station Masters about train operation in Automatic Signaling territory creating misinterpretation and misunderstanding of rules.

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

II. Remarks and Recommendations

Remarks and recommendations made by Commissioner of Railway Safety and Action Taken by Railways are given below

S.no	Recommendations	Action Taken by Railways
1	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.	Guidelines for improving Reliability of Signalling 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 has been implemented to improve the reliability.
2	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.	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	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	1. ABS is provided as per traffic operational requirement. 2. Kavach is being implemented progressively.

	reviewed considering the limited number of train movements in the Non-suburban section.	However, instructions have been issued to give priority to Kavach on sections where Automatic Signalling is installed or works are in progress.
4	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.	
5	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 effected. Further, Recording of conversations made by the Station master through Walkie-Talkie shall be ensured by providing VHF receiver cum recorder in Data logger Room.	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 availability of walkie-talkie 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 (Annexure-III) 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.
6	The GR was issued by the Railway Board in the year 1976, since then lot of changes has 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.	The issue of revision of General Rules is under consideration in the Railway Board in consultation with IRITM and Zonal Railways. **GR 1.02 (55) states: 'Subsidiary Rule' means a special instruction which is subservient to the General Rule to which it relates and shall not be at variance with any General Rule;** Thus, the SRs has to be issued by various zonal railways in accordance with their local condition but the same shall not be in variance with any GR.
7	The provisions of the SR related to automatic signaling territory shall be reviewed with regard of the applicability of various operating forms — T/A 912, T/B 912, T/C 912, and T/D 912.	Railway Board, vide letter 2024/TT-IV/12/10 dated 16.08.2024, has issued Unified SR regarding automatic signaling territory & applicability of various Operating Forms (T/A 912, T/B 912, T/C 912, T/D 912).
8	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.	Guidelines have been issued to all Zonal Railways vide Board's letter no. 2023/Safety(Inquiries)/3/7 dated 20.06.2024.
9	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.	Classification of Operating staff into A, B, C, D category has been already advised by Railway Board letter No. 2002/Safety-I/18/2 dated 16.02.2012. Further, categorization of Train Managers will be examined.
10	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	1. Modified LWLRRMD, design of 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.

	coaches should be turned out with crash-worthiness features and existing coaches shall be retrofitted 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 collisions.	2. Provision of these modified design LWLRRMD, LWLRRMDAC, and LSLRD coaches with high crash energy absorbing capability would be done in a phased manner.
11	Railway is in the process of retrofitment Crew Voice & Video Recording System (CVVRS) in locomotives to conversation of Loco Pilot with Train Manager, Station Master, etc. It shall be implemented on priority	CVVRS is being provided on electric locomotives. CRIS is the nodal agency for procurement and commissioning of CVVRS on locomotives. As on date, about 450 electric locomotives are provided with CVVRS. Tender is being floated by CRIS for 14,364 CVVRS to be provided on 2,779 diesel and 11,585 electric locos.
12	All the systems such as Datalogger, VCU of Locomotive, Control office clock, Station master office clock, etc. shall be synchronized with GPS.	Instruction regarding Data logger synchronization with GPS clock already exists. Presently all Data loggers are being commissioned with the 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-III

Subject: 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. Cause of the Accident

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".**

II. Remarks and Recommendations

Remarks and recommendations made by Commissioner of Railway Safety and Action Taken by Railways are given below.

S.no	Recommendations	Action Taken by Railways
1	LPs & ALPs shall be sensitized to follow safety measures while working the trains as per extant instructions in terms of G&SR 4.49.1& SOBs issued from time to time.	Agreed. A letter no. 2024/Elect(TRS)/113/6 dated 13.12.2024 has been issued to Zonal Railways in this regard.
2	Stop boards at terminal stations to be provided at appropriate distance from dead end buffers to leave margin of safety.	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	Passenger lines on terminal platforms should be provided with High Capacity Dead End Energy Absorption Buffer-Stops.	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
4	Policy regarding standard design and installation drawings for dead end buffers and responsibility for installation and maintenance to be issued by the Railways.	

		High-Capacity Dead End Energy Absorption System for Station/Yard for Passenger Coaches & Locomotives in Indian Railways".
5	Thorough site survey of existing CSRs to be done and drawings updated.	Thorough Joint Survey has been conducted by Engineering and S&T officials of Secundrabad 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.
6	Feasibility of increasing CSRs to be Examined in light of extant instructions under IRSEM para 17.2.4 (a) and 17.2.5 (c) (iii).	

Accident-IV

Subject: Derailment of Train no. 12506 (North-East Express) at Raghunathpur Station in Danapur Division of East Central Railway on 11.10.2023.

I. Cause of the Accident

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, Aluminum, 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.

II. Remarks and Recommendations

Remarks and recommendations made by Commissioner of Railway Safety and Action Taken by Railways are given below

S.no	Recommendations	Action Taken by Railways
1	Stricker monitoring should be excercised in controlling the various processes involved in manufacture of rails. Railway may consider exploring possibilities of Real Time Monitoring of the health of track.	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 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 O_2 and N_2 content in liquid steel is controlled within 20 ppm max and 90 ppm max respectively, at par with European specifications. iv. H_2 content in liquid steel is 1.6 ppm max, which is a world bench mark. v. The norm of aluminium 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 and control rail straigthtness of rails. For proper monitoring of track health, various modules in the 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 trail/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.
2	Proper mechanism should be available with the Railway for identification of fatigue cracks developed in rails.	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	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.	Coaches of all running trains are examined regularly as per laid down procedures, manuals, and instructions. After ascerrtaining 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 the digitalization, automation, and instrumentation of maintenance practices of rolling stock to leverage data and empower rolling stock maintainers by providing them with historical information related to maintenance, defects, and

		deficiencies of rolling assets at their fingertips. Keeping the above benefits of technology, the software application named CMM (Coaching Maintenance Management) for the maintenance of coaches was conceived as a pilot project in FY 2009 for the 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 components. 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. • 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.
4	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.	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
5	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.	Crew Voice and Video Recording System (CVVRS) is installed in 479 locomotives and is under implementation by CRIS in all locomotives.
6	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.	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.
7	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.	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-V

Subject: Accident of Train no. 12876 (ANVT-PURI Neelanchal Express) at Suisa station yard under Ranchi Division of South Eastern Railway on 01.06.2024.

I. Cause of the Accident

Occurred due to failure of equipment i.e. metallic carbon strip of working pantograph of the train

II. Remarks and Recommendations

Remarks and recommendations made by Commissioner of Railway Safety and Action Taken by Railways are given below

S.no	Recommendations	Action Taken by Railways
1	Automatic Dropping Device (ADD) should be provided in pantographs to detect damage to metallic carbon strips	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 amended specification now incorporates ADD feature in High Reach Pantograph. All future procurements will be done with latest amended specification
2	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.	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	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.	Occurrence and filling up of vacancies is a continuous process on Indian Railways considering its size, spatial distribution and critically of operation. Adequate

		and suitable manpower is provided to cater to the regular operations, changes in technology, mechanisations and innovate 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.
4	Telephone number of ambulances and hospitals displayed at stations should be called and verified by station masters, at least once in a month.	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 number are being checked and updated from time to time in Disaster Management Plan.

Accident –VI

Subject : Fire accident in Train no. DN02570 NDLS-DBG Humsafar clone Express at Sarai Bhopat Station of Prayagraj Division in North-Central Railway on 15.11.2023.

I .Cause of the Accident

Fire accident in Sleeper Class Coach No. 51 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 non-petroleum inflammable material Accordingly, the cause of the accident is attributed/classified as Failure of Electrical externally connected Equipment in mobile charging socket at seat no. 23 of S-1 Coach of DN 02570 New Delhi - Darbhanga Humsafar Clone Special.

II. Remarks and Recommendations

Remarks and recommendations made by Commissioner of Railway Safety and Action Taken by Railways are given below:

S.No	Recommendations	Action Taken by Railways
Para 9.1	As per Railway Board's letter no. 2018/Transf. Cell/Traffic/Policy dated 08.05 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	As per Railway Board's letter no 2018/Trans. 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.

	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.	
Para9.2	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	Adequate nos, of fire balls as per Railway Board's guidelines has already been kept in each power car of NCR.

	fire has engulfed a large area.	
Para 9.3	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.	Guidelines For Mid Life Rehabilitation (MLR) of LHB Coaches have been issued vide letter no. 2023/M(C)/141/2 dated 28.11.24.
Para 9.4	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 2300 hrs. to 0600 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 2300 hrs to 0600 hrs.	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 also undertaking drives on regular basis.
Para 9.5	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	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

	must be retrofitted with fuses of adequate capacity.	been completed in 73 coaches up to 12.11.2025. Board vide letter no. 2022/Elect(G)/101/12 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.
Para 9.6	Study of Passenger ingress/egress shall be done for all the major stations and provision of baggage scanner shall be made accordingly.	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 ALJN, 01 at VGLJ, 01 at AGC and 01 MTJ) are working over NCR Baggage scanners for GWI is under procurement.
Para 9.7	It is noted that PRYJ Division is in the process of procuring Hand held	In view of Kumbh 2025, PRYJ Division has planned to procure 10

	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 passenger's baggage for explosives/fire crackers at station entrance. Platforms and within the coaches also.	number of Explosive Vapors detector out of which 01 has been purchased. Additionally, dog squads and extensively utilized for conducting random checks at stations and onboard trains. All zones are also conducting intensive drives to prevent the illegal transportation of explosive, particularly during the festive season.
Para 9.8	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 the public. A list of prohibited items shall be displayed at the entry of all stations to deter the public	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.

	from carrying the prohibited items.	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.
Para 9.9	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 needs to be Implemented.	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.
Para 9.10	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.	Following actions have been taken: **Conventional Locomotive**: Modification Sheet No. RDS0/2024/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 Locomotives equipped with Microprocessor based control and fault diagnostic system (Ver- 3)”

		3-Phase Locomotive: Modification Sheet No. RDS0/2024/EL/MS/500 (Rev. “O”) 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.
Para 9.11	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	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 established coordination Government Railway Police (GRP), local police and other railway departments, which plays a vital role. Public announcements via PA systems

	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.	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.
Para 9.12	Provision of USB/C type sockets of suitable technical specification in new	Board vide letter no. 2009/Elect(G)/109/14 Pt (E-3325965) dated 05.09.2024 has advised

	Coaches in place of traditional electrical socket shall be explored for Charging mobile, portable electronic devices such as smartphones, tablets, and cameras for preventing accidents related to overheating or short circuits.	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 retro-fitment 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.
Para 9.13	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	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.

	adoption should be considered based on a merit-based evaluation.	
Para 9.14	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.	This is being done during regular maintenance at coaching depots.

Accident-VII

Subject : Rear collision of Train No. 08504 (VSKP-RGDA Passenger) with Train No. 08532 (VSKP-PAS Passenger) between Kantakapalli and Alamanda stations of Waltair Division of East Coast Railway on 29.10.2023.

I .Cause of the Accident

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 S.Rs issued by ECoR.

2. Failure of ALP to timely apply emergency brakes even in face of approaching collision.

3. Had Provisions of GR. 9.12, SR 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 S.Rs 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".

II. Remarks and Recommendations

Remarks and recommendations made by Commissioner of Railway Safety and Action Taken by Railways are given below:

S.No	Recommendations	Action Taken by Railways
Para 9.1	Joint Procedural Order for dealing with fault rectification and train operations on Auto signaling territory, similar to that issued by ECoR AFTER the accident (Annexure XXVIII) should be issued/reviewed by PCSTE, PCEE and PCOM of each zone where such territories exist.	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) detection system provided in redundancy has already been Issued vide Bd's letter no. 2020/5g/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 Automatic Signaling has been issued vide letter no. 210/Sig/IRISET/Trg/Pt-1 dated 28.06.2024.
	In addition to information related to gears being	Mentioning too many details on standard format of DCN/RCN will make it cumbersome to understand as

	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	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.
Para 9.2	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.	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, as recommended by CRS. Dummy models for RS Valve have also been provided in crew lobbies for practice of ALP before Sign-ON.

	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.	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. 1, 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.
Para 9.3	Studies should be carried out on loco simulators with more than 6 hours of simulated runs to study	Revised training module for training of LPs & ALPs, issued vide letter dated 19.11.2024, includes Practical training of ALP on simulator

	changes/deterioration in crew behavior with hours of continuous attention/duty (Para7.5.15) Concept of window of Circadian Low (WOCL) should be recognized and suitable changes incorporated in crew booking & rest rules to a sufficient rest before next trip for the crew (Para 7.5.15). 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.	including application of emergency brake by trainee ALP through RS valve. High Power Committee recommendations for rest and it subsequent acceptance by boards currently being followed.
Para 9.4	Recording of conversation made by Station Masters through walkie-talkie (VHF sets) shall be ensured by providing VHF receiver cum recorder in Datalogger room. (Para 7.3.9). Rosters for station staff the SM/SMRs should be made in such a way that they	Zonal Railways have already been advised vide letter No.2021/Tele/8(1)/6 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

	don't have to work on all seven days in a week and also get a weekly rest of at least 40.	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 HDER 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 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.

Para 9.5	Trouble shooting by crew should be eliminated/ reduced by using on-line monitoring of locomotive health tools REMMLOT (used in Diesel Locomotives). (Para 7.5.15).	Remote Monitoring System (RMS) are being provided in locomotives, which detects the faults developed aa 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 REMMLOT. 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.
	All unnecessary instruments and multiple screens should be removed from the cab and a standardized control panel developed irrespective of the type of loco.	Railway Board has advised RDSO and PUs to finalize design for standardization of cab layout.
	Provision of mobile jammers in locomotives should be examined.	Not agreed as it would block the use of device for which it is meant for during exigencies.
	With on-line monitoring of trains through RTIS/Data logger/speed recorders/REMMLOT etc,	Not agreed as Filing up of journal by the ALP brings focus for lock-out of the critical aspects to be observed and

	journal by LP should be discontinued.	recorded which become critical in various investigations
Para 9.6	To use non-signaling 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.	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 .
Para 9.7	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 counseled.	MoBD at Railway Board and PCOM at Zonal Railways are the designated officers for issuing of S.RS. 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.
Para 9.8	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	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,

	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. (Para 7.5.12). Only TMR should maintain journal, that too recording unusual occurrences, taking inputs from the ALP. (Para 7.5.15). Speedometer shall be provided in Guard's brake van/TMR compartment in SLRs.	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.)
Para 9.9	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 over speeding etc. Above information should be transmitted to central	Noted. Provision of super imposition of speed and location data over the CVVRS recording has been done in the latest specification. The same transmitted to central server. Events associated with driver behavior are also captured.

	control for better real time monitoring.	
Para 9.10	Auto signaling 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.	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 per Board's Letter No 2023/F(X)/II/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 Letter 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,

<table>
<tr><td></td><td></td><td>IBS, Interlocking of LC Gates etc are under execution necessitating more signal.</td></tr>
<tr><td>Para 9.11</td><td>The specification for critical S&T equipment should be modified to ensure
All critical Signaling 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.</td><td>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.
Fuses and other protection devices that are controlled by RDSO specification undergo type testing according to relevant standards during the initial approval process.
Improvements in surge & lightning protection are a continuous process. Presently, RDSO in collaboration with IISc Bangalore, has initiated a project on lightning and surge protection. As part of this</td></tr>
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		project, a draft comprehensive scheme for lightning and surge protection has been developed and Issued.
Para 9.12	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.	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 10th May, 2024.

		Further, Indian Railways 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 10th to 14th April, 2023. One training program me 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 –VIII

Subject: Rear Collision between Train No. 12578 Mysuru-Dharbhanga Bagmati Express and stabled rake of Empty BCN wagons at Kavaraipettai Station at Km 39/31-32 in Chennai Division of Southern Railway on 11.10.2024.

I. Cause of the Accident

The Rear Collision between Train No. 12578 Mysuru Dharbhanga 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"

II. Remarks and Recommendations

Remarks and recommendations made by Commissioner of Railway Safety and Action Taken by Railways are given below:

S.No	Recommendations	Action Taken by Railways
Para 9.1 (i)	<u>Short Term/Immediate measures</u> : 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	Vide S.Rs letter No. E.221/V/5) dated 28.02.20 it is informed that Shri G. Subramani, Loco Pilot (Mail)/ MAS has been recommended for the Ati Vishisht Rail Seva Puraskar (AVSP) Award.

	action may be suitably recognized by the Railway.	
Para 9.1 (ii)	Railway should identify the vulnerable area to sabotage and ensure the patrolling based on level of threat.	All Zonal Railways have 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 in divisions regarding patrolling of tracks in sabotage prone areas under the chairmanship of ADRM.
Para 9.1 (iii)	Railway should adopt fixing of anti-pilferage measures for the fittings and connections, as done in the Rolling Stocks or in some other way.	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.
Para 9.1 (iv)	Action stipulated under GR 3. 38 (2) shall be followed.	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."
Para 9.1 (v)	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.	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.
Para 9.1 (vi)	The possibility of sabotage from an insider is a grave matter. Intelligence wing from Railways should develop method of gathering inputs on this aspect.	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.
Para 9.2 (i)	Anti-sabotage fittings for connecting the turnouts must be developed urgently. The split pin arrangement must not be a sole	Southern Railway, East Central Railway and Northern Railway have been nominated to take up trials with modified fasteners for

	measure to keep the fittings in place.	point machine roddings 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.
Para 9.2 (ii)	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.	
Para 9.2 (iii)	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.	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 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.
Para 9.2 (iv)	**<u>Long term Measures:-</u>** 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	Trials are being conducted with mechanical fixtures available in industry working in Railway field. After successful

	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 3 mm 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 side 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.	performance, same may be adopted on Indian Railway.
Para 9.2 (v)	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.	
Para 9.2 (vi)	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.	Indian Railways has safety protocols in place, which addresses human factors 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.
Para 9.2(vii)	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	Presently, maintenance of S &T gears is carried out as per provision of IRSEM. As per policy contractual staff for maintenance are used for non-

	be reviewed as a priority and it must be brought to minimal in short term and null in long term.	critical activities along with or under supervision of Railway Staff.
Para 9.2 (viii)	A technology driven surveillance system with remote monitoring and generation capabilities shall be developed for identified critical assets like yards, important bridges etc.	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.