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Sub: Rear collision of Train no. 08504 (VSP-RGDA Passenger) with Train no. 08532 (VSK-PAS Passenger) between Kantakapalli and Alamananda of Waltair Division of East Coast Railway on 23.10.2023.

Ref: Safety Dte. note no. 2023/Safety(Inquiry)/3/7 dated 10.10.2024 and 26.11.2024.

In connection with above subject, reply of Signal Dte regarding final remarks and recommendations of CRS are given below:

Para no.	CRS Remarks and recommendations	Signal Dte's comments
9.1	<p>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.</p> <p>In addition to information related to gears being disconnected in S&T's disconnection memo, the following shall be incorporated in the memo.</p> <p>a) Repercussions of signaling affected on account of the</p>	<p>(i) Zonal Railways have been advised to review and issue JPO for dealing with maintenance, rectification of failures and train operation on Automatic block Signalling territory vide RB's letter no. 2023/Sig/26A/ECOR/1 dated 05.08.2024. JPOs have been issued by ECoR, ECR, NER, NFR, NR, NWR, SCR, SECR and SR; JPOs of remaining zones are in process.</p> <p>(ii) Guidelines regarding Automatic Block Signalling (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.</p> <p>(iii) Guidelines regarding training in connection with Automatic Signalling has been issued vide letter no. 210/Sig/IRISET/Trg/Pt-1 dated 28.06.2024.</p> <p>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.</p> <p>SR 5.04.01 (b) of ECoR provides for placing collars by operating staff before</p>

	<p>said disconnection.</p> <p>b) Indicate status of signals to be kept at most restrictive aspect</p> <p>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.</p>	<p>acknowledging memo offered by Signalling Staff for working on interlocked gears.</p> <p>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. (SN-20)</p>
9.4	<p>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 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. (Para 7.5.15)</p>	<p>Pertains to Telecom Dte.</p>
9.6	<p>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.</p>	<p>Kavach has so far been deployed on 1548 RKM on SCR and NCR. Kavach works are going on Delhi-Mumbai & Delhi – Howrah corridors (Approx 3000 RKM). Further tenders for track side works for approx 15000Rkm have been invited. Bid for equipping 10000 Locomotives has been finalized.</p> <p>Kavach is being provided progressively.</p>
9.10	<p>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</p>	<p>(i) ABS signalling is functional on IR for last more than 20 years.</p> <p>(ii) Kavach has been prioritised and being implemented in ABS sections also on priority in terms of RB's letter no. 2023/S&T/Dev/Kavach Corres. dtd. 09.08.24</p> <p>(iii) As per Board's letter no. 2023/F(X)/II/10/2 dated 22.06.2023 renumeration test would not be required in the S&T projects viz ABS,</p>

	<p>should be so re-designed so that number of inputs received the LP does not exceed one input every 3 minutes for the fastest train in the section.</p>	<p>Kavach etc.</p> <p>(iv) To deal with train operation during failures in Automatic Signalling Territory unified subsidiary rules and authority form under GR 9.12 have been issued vide RB's letter no. 2024/TT-IV/12/10 dated 16.08.2024.</p> <p>(v) Recommendation for one input not exceeding every 3 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 signals.</p>
9.11	<p>The specification for critical S&T equipment should be modified to ensure</p> <ul style="list-style-type: none"> • 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 trackside equipment should be re-examined to ensure equipment connected to these devices is properly protected. 	<p>(i) 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.</p> <p>(ii) Fuses and other protection devices that are controlled by RDSO specification undergo type testing according to relevant standards during the initial approval process.</p> <p>(iii) Improvements in surge & lightning protection is a continuous process. Presently, RDSO in collaboration with IISc Bangalore, has initiated a project on lightning and surge protection. As</p>

		part of this project, a aft comprehensive scheme for lightning and surge protection has been developed and issued.
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