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Government of India  
Ministry of Railways  
(Railway Board)

No.98/Safety(A&R)/19/16

New Delhi, dt. <sup>23</sup>08.2010

The General Managers  
All Indian Railways,  
Konkan Railway Corp., Navi Mumbai  
Metro Railway, Kolkata  
Railway Electrification, Allahabad

**Sub: Train Operation during Fog – Precautions.**

**Ref: Board's letters of even number dated 21/23.12.98, 14.01.2000, 08.01.2002 and 07.12.2009.**

Instructions have earlier been issued to Zonal Railways on the above from time to time vide Board's letters under reference. Comprehensive instructions were last issued by Board's letter dated 07.12.2009. Some of the Zonal Railways did not fully comply with these instructions on the ground of distinct conditions existing on their Railway. As crews work beyond the boundary of one Division/Zone it is essential that the instructions for taking precautions during Train Operations during fog are uniformly followed on all Railways affected by fog.

Board has now decided that the precautions and rules/instructions to be observed before the onset of foggy season and during foggy weather by the railways should be as under:-

**(A) Infrastructure Additions/Changes:**

**(i) Provision of Fog Safe Device:-**

A reliable Fog Safe Device, if available, may be provided on all Locomotives running in fog affected areas during fog. Placement of detonators under conditions prescribed in Para E(ii) will be dispensed with, where reliable Fog Safe Device is available and is in working order. Instructions of the working methodology of Fog Safe Device will be separately issued by EDME/Traction, Railway Board.

**(ii) Modification of Automatic Signalling System on NCR:**

As a trial measure, this year change in the signaling system is planned to be done well before the onset of fog.

Signalling arrangement in Automatic territory on NCR initially shall be altered by converting one of the Automatic signals in between the stations to Semi-Automatic signal. This will be completed before onset of fog. Working instructions for train operation under this system will be separately issued on the concerned Zonal Railways.

**(B) Works to be completed before foggy weather to strengthen Rail Infrastructure:-**

- (i) Adequate supply of detonators to be ensured.
- (ii) Lime marking across the track at the Sighting Board (or at Distant Signal in case of Double Distant Signals) must be done.
- (iii) All Signal Sighting Boards, Whistle Boards, W/L Boards, fog signal posts and busy vulnerable level crossing gates which are accident prone should either be painted or provided with yellow/black luminous strips. The work of repainting for their proper visibility should be completed before onset of winter/foggy season.
- (iv) Lifting barriers at busy level crossings, where necessary, to be provided with Yellow/Black luminous indication strips.
- (v) Zonal Railways may decide the need to provide Blinker Lights used on roads (with 9 LEDs) 50/75 metres short of first Stop Signal; or 5 consecutive luminous Boards (self illuminating) 50/75 metres short of first Stop Signal so as to indicate to the LPs the locality of the approaching first Stop Signal.
- (vi) Fog Lamps may be gradually provided on Locomotives running over fog affected areas on need basis.
- (vii) Zonal Railways may consider desirability of the existing fixed Red Light in the SLRs etc. to be modified to an LED Red light with a switch available with the Guard to put the light to 'On' position when train is held up in Automatic territory (on double and multiple line sections) in abnormal situations including fog. This will be in addition to the Flashing Red Tail Lamp.

**(C) The following points are to be kept in mind during operation of trains in foggy weather:-**

**(i) Reduced Movements During Fog:-**

Rationalization of movements in the Coaching yards, approach to terminals, and at/near terminals etc. has to be done to reduce pressure on congested areas; this may be achieved by reduction in loco changes, reduced shunting, etc. and cancellation of trains. 20 % reduction in movements during the fog has to be ensured i.e. by reduced movement of locos from and to shed, shunting in major yards, etc. and mainly by cancellation of trains - Mail/Express and Passenger trains running in and via Delhi area as also upto an equal no. also in other fog affected sections (other than the trains passing via Delhi area) to be proposed to be cancelled. A review be done by all Zonal Railways with mutual consultation to identify which Mail/Express and Passenger trains are to be cancelled and proposals sent to the Coaching Directorate, Railway Board. This will also help in tackling extra requirement of Loco pilots/Assistant Loco pilots and Guards for changing enroute on sections where there is abnormal increase

in duty hours of crews. This will also increase availability of spare rakes to cater to late running of trains.

- (ii) PME/Refresher Training and other Safety/Promotional Courses of Loco pilots/Assistant Loco pilots and Guards in ZRTIs/STCs, etc. who become due between 15<sup>th</sup> December and 31<sup>st</sup> January should be completed by 15<sup>th</sup> December.
- (iii) Fog affected Railways should review the crew changing locations. In view of increased hours on road the Railways may create infrastructure at new/additional crew changing locations. Simultaneously the loco/crew/rake links be reviewed during the period of fog. All crews (Loco Pilots, Assistant Loco Pilots and Guards) on stationary duty should be utilized for train working especially during fog.

**(D) Visibility Test Object (VTO):-**

- (i) The check of adequacy of visibility through the VTO is to guide the SM/ASM so as that he can decide when detonators are to be placed to warn the Loco Pilot of the location of an approach Stop Signal. Where detonators are not required to be placed under conditions prescribed below under para (E) (i), the VTO has no relevance.

The 'VTO' may be re-defined in SWRs. The 'VTO' may be a HS Lamp of a type that corresponds to the specific type of signal lamp on the signals provided at the station i.e. a K.oil lit HS lamp for K.oil lit signals, or an electrically lit with battery type HS lamp for LED or colour light signals respectively.

- (ii) VTO for SEMAPHORE Signalling and for two aspect CLS:-

The VTO may be the light (or arm by day) of a Starter Signal (where exists) or the back light of the Home Signal etc. as defined in GR 3.61/(2)(b). In such cases, the VTO is normally located 300-350 meters at a place from where it is to be seen by the SM. During foggy or tempestuous weather, when such a VTO is not seen by the SM, it shall determine that fog has set in.

Note: The Visibility Test Object to be defined in the SWR of stations, which qualify for placement of detonators, should be on each end of a station (for junction stations there may be more than two VTOs).

- (iii) Prescribed VTO for Multiple Aspect Colour Light Signalling:-

- (a) Stations with MACLS shall have a prescribed VTO located at a distance of 180 metres from a nominated location where the SM shall stand. There shall be no prescribed VTO for stations provided with Double Distant Signals.
- (b) When a prescribed VTO is not visible from 180 metres or more during dense fog, the SM shall not use his discretion as per GR 3.61(2)(a) but

will arrange to place the detonators to warn the Loco Pilot, unless specified otherwise in these Instructions.

Note:- There should be one Visibility Test Post in MACLS territory (at stations which qualify for placement of detonators) located at a distance of 180 meter from the place where at the SM shall normally stand to see the prescribed VTO.

- (iv) When the VTO (or the prescribed VTO) provided under conditions laid down is not visible to the Station Master, he shall take action as under:-
- (a) Ensure that signals are lit during night as well as during day in Semaphore Signalling sections when visibility is impaired due to fog, and VTO is also lit.
  - (b) Observe the VTO before granting Line Clear to a train.
  - (c) In case prescribed VTO is not visible take action as under:-
    - depute fog signalman with detonators to place detonators in situations prescribed under para (E) (ii) at 270 – 280 metres from the first stop signal to inform in advance the location of this signal to the Loco Pilot of the approaching train.
    - Engineering Department will make all efforts to provide fog signalman.
    - No shunting should be carried out on non-isolated lines after granting Line Clear to an approaching train.
  - (d) Provisions given as per GR 5.18 to be followed strictly and no train to be advanced beyond the Starter, or beyond Intermediate Starter Signal where these exists, upto the Advance Starter at stations which do not have track circuiting in this zone.

**(E) Necessity of Placement of Detonators:-**

**(i) Where Not Necessary to Place Detonators:-**

It is not necessary to place detonators to indicate 'location of a Stop signal' to the Loco Pilot in following circumstances:-

- (a) In sections where a reliable Fog Safe Device has been provided on Locomotives;
- (b) Where adequate pre-warning is provided; i.e. at stations where double distant signals are provided;

- (c) Where maximum speed allowed in the station section is upto 15 kmph even at stations where pre-warning signal is not available, but a Warning Board exists;
- (d) Where speed of the section is less than 50 KMPH (but more than 15 kmph) and the first signal of a Station is not a stop signal;
- (e) In Automatic Signalling territory;
- (f) On Gate Signal;
- (g) On Departure Signal;
- (h) At the site(s) of Temporary Speed Restriction imposed due to maintenance of Track/OHE/Signal.

**(ii) Where it is necessary to Place Detonators:-**

The Detonators should be placed at 270 meters short of the First Stop Signal at stations detailed as under:-

- (a) At 'A' class stations where Warner exists – Detonators to be placed short of Home signal and not the Warner;
- (b) At 'B' class station equipped with Lower Quadrant Signals - Detonators to be placed short of Outer signal.
- (c) In Multiple Aspect Signalling, where single Distant Signal is provided - Detonators to be placed short of Home signal.

*Note:-The Fog Signal Posts will be provided only at stations where there may be a requirement for placing detonators. Such post may, therefore, be shifted suitably based on the above mentioned position(s).*

**(F) Modifications/Amendments to General Rules:-**

Action is being initiated by Board to amend **GR 9.02(3)** as under-

GR 9.02(3) provides that if on account of curvature of the line, fog etc. the line ahead cannot be seen clearly, the Loco Pilot shall proceed at a very slow speed, not exceeding 8 Kmph. *The maximum permissible speed in such conditions is being modified to 10 kmph.*

**(G) Amendment to SRs:-**

**Provisions of Subsidiary Rules of Zonal Railways to be amended as under:-**

- (i) The Subsidiary Rules of all zonal railways presently provide that the Fog Signal Post be erected at 270 metres from the outermost signal or inner distant signal at stations provided with double distant signal. This may be modified as under:-

*The fog Signal Post be erected at 270 metres from the first stop signal. No Fog signal posts are to be provided at stations with Double Distant Signals and at stations which do not qualify for placement of detonators.*

- (ii) The Subsidiary Rules of all zonal railways presently provide that the Fog Signalman not to be on duty for more than 3 hours at a stretch.

*This provision be deleted.*

- (iii) The Subsidiary Rules of all zonal railways presently provide that the Fog Signalmen shall see that approach signal taken 'OFF' are put back to 'ON' after passage of the train, otherwise inform the Cabin Man/SM.

*This provision be deleted.*

- (iv) The Subsidiary Rules of zonal railways presently provide that working of IBSs shall be suspended.

*This provision be deleted.*

- (v) The Subsidiary Rules of zonal railways presently provide that after passing automatic signal at 'on', the Loco Pilot of a following train shall ensure that minimum distance of 150 metres or two clear OHE masts is maintained between his train and the preceding train, if any, or any obstruction on the line ahead. However, in the case of EMU trains the minimum distance of 75 metres or one OHE mast shall be maintained between EMU train and a preceding train if any or any obstruction on line ahead.

This may be modified as under in terms of Board's letter No. 98/Safety(A&R)/19/16 dated 02.02.2010:-

*After passing automatic signal at 'on', the Loco Pilot of a following train shall ensure that minimum distance of 150 metres or two clear OHE masts is maintained between his train (in clear weather) and the preceding train, if any, or any obstruction on the line ahead. However, in the case of EMU trains the minimum distance of 75 metres or one OHE mast shall be maintained between EMU train and a preceding train if any or any obstruction on line ahead. However, during dense fog, after passing an Automatic Stop Signal at 'On' (Red), the Loco pilot/Motorman of the train hauled by any locomotive including EMU train shall, while moving at a speed not exceeding 10 kmph {(8 kmph will become 10 kmph due to change in GR 9.02 (3))}, should ensure that he maintains a reasonable distance at which he is able to observe the flashing tail lamp*

of the train ahead or the obstruction, as the case may be. Zonal Railways may like to communicate to all their Loco pilots who work in Automatic sections affected by fog that they may control the speed of the train/EMU, MEMU, DEMU etc. so as to be able to stop adequately short of the train or obstruction.

(vi) **Following provisions contained in Western Railway's SR or similar provisions in SRs of other Railways be deleted:-**

- (a) SM to advise Station in rear of fog.
- (b) Station in rear to issue caution order to Loco Pilot.
- (c) LP to stop dead at first stop signal and proceed at 8 kmph.

(vii) **Following provisions contained in North Eastern Railway's SR or similar provisions in SRs of other Railways be modified as under:-**

Fog signal post to be erected at 270 metres outside the First Stop signal as against 275 metres provided for in SR.

(viii) **Following provision contained in North Central and West Central Railway's SR or similar provisions in SRs of other Railways shall be deleted:-**

'B' Class Station (SEMAPHORE) Signal to be treated as 'A' class for the purpose of granting line clear.

**(H) Precautions by Loco Pilot:-**

The Loco Pilot shall take action in regard to speed of the train during fog as under:-

- (i) During fog when the Loco Pilot in his judgment feels that visibility is restricted due to fog, he shall run at a speed at which he control the train so as to be prepared to stop short any obstruction; this speed shall in any case not be more than 60 kmph.
- (ii) Loco Pilot to whistle frequently to warn the gateman (where provided) and road users of an approaching train at level crossings.
- (iii) In Absolute Block System the speed should not exceed 60 kmph as detailed at item (i) above.
- (iv) In Automatic Block Territory the speed will be subject to the judgement of the Loco Pilot as mentioned in item (i) above and shall not exceed as under:-
  - (a) After passing Automatic stop signal at 'Green', the speed not to exceed 60 Kmph.

- (b) After passing an Automatic stop signal at 'Double Yellow', the speed not to exceed 30 Kmph.
- (c) After passing an Automatic stop signal at 'Yellow', the Loco Pilot to run at a further restricted speed so as to be prepared to stop at the next stop signal.

**Note (i)** As provided under GR 4.16 (1) (b) a red tail lamp of approved design displaying a flashing red light, during **day or night**, to indicate last vehicle check device in foggy weather should be provided and lit on the last vehicle.

**Note (ii)** First Stop Signal location kilometre chart of every station be provided to each Loco Pilot either as an easy to carry Card or in the Working Time Table.

Zonal Railways are advised to incorporate these instructions in their Subsidiary Rules to relevant GRs and comply the same accordingly.

Further, Zonal Railways should ensure that the staff be advised and counseled regarding provisions in the G&SRs and these Instructions of the Board before the onset of fog. Each and every crew is to be imparted necessary training for upto two days about the systems of working of trains during fog. This process be completed by 1<sup>st</sup> December every year positively.

This issues with the approval of the Board (ML, MM and MT/CRB).

DA: As above

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Adviser/Safety  
Railway Board

No.98/Safety(A&R)/19/16

New Delhi, dt. 23.08.2010

Copy forwarded for information and necessary action to :-

1. The Chief Commissioner of Railway Safety/Lucknow
2. The Chief Operations Managers, All Indian Railways
3. The Chief Safety Officers, All Indian Railways
4. The Director General, RDSO, Lucknow.
5. The Principal, Railway Staff College, Vadodara.
6. The Director, Indian Railways Institute of Transport Management, Manak Nagar, Lucknow.
7. The Principal, Indian Railways Institute of Civil Engineering, Pune.
8. The Principal, Indian Railways Institute of Mechanical and Electrical Engineering, Jamalpur.
9. The Principal, Indian Railways Institute of Signal, Engineering and Telecom, Secunderabad.

10. The Principals, Zonal Railway Training Institutes, Central Railway, **Bhusawal**, Eastern Railway, **Bhuli**, Northern Railway, **Chandausi**, North Eastern Railway, **Muzaffarpur**, Northeast Frontier Railway, **Alipurduar**, North Western Railway, **Udaipur**, Southern Railway, **Tiruchirapalli**, South Central Railway, **Maula Ali**, South Eastern Railway, **Sini**.
11. The General Secretary, NFIR, 3 Chelmsford Road, New Delhi.
12. The General Secretary, AIRF, 4 State Entry Road, New Delhi
13. The General Secretary, FROA, Room No.256-A, Rail Bhavan, New Delhi.
14. The General Secretary, IRPOF, Room No.268, Rail Bhavan, New Delhi.
15. The Indian Railways Conference Association, DRM's Building, Accounts Building, Chelmsford Road, New Delhi.

DA: As above

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Copy to :

(i) AM/CE, AM/L, AM/Mech., AM/Signal and AM/Traffic.

(ii) ED/chg.

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