GOVERNMENT OF INDIA

MINISTRY OF CIVIL AVIATION

COMMISSION OF RAILWAY SAFETY

ANNUAL REPORT FOR 2007-2008

BY

CHIEF COMMISSIONER OF RAILWAY SAFETY

LUCKNOW

CHAPTER - I

FUNCTIONS AND ORGANISATION OF THE COMMISSION OF RAILWAY SAFETY

1.1 INTRODUCTION

The Commission of Railway Safety, working under the administrative control of the Ministry of Civil Aviation of the Government of India, deals with matters pertaining to safety of rail travel and train operation and also performs such statutory functions as laid down in the Railways Act (1989), which are inspectorial, investigatory and advisory in nature. The Commission functions according to the rules framed under the Railways Act and various executive instructions issued from time to time. The most important duty of the Commission is to ensure that any new Railway line to be opened for passenger traffic conforms to the standards and specifications prescribed by the Ministry of Railways and also the new line is safe in all respects for carrying of passenger traffic. This is also applicable to other works such as gauge conversion, doubling of lines and electrification of existing lines. The Commission also conducts statutory inquiries into serious train accidents occurring on the Indian Railways and makes recommendations for improving safety on the Railways in India. Delhi Metro, to which the jurisdiction of the Commission of Railway Safety extends, is governed by Delhi Metro Railway (O&M) Act, 2002. The annual Report for the period 2007-08 giving full Account of activities on Delhi Metro under Section 12 and 13 of the said act is placed at Appendix VI.

1.2 ORGANISATIONAL STRUCTURE

1.2.1 The Commission is headed by a Chief Commissioner of Railway Safety (CCRS), at Lucknow, who acts as the Principal Technical Advisor to the Central Government in all matters with which the Commission is concerned. Working under the administrative control of CCRS are nine Commissioners of Railway Safety (CRS), exercising jurisdiction over the Zonal Railways. In addition, some of them have additional jurisdiction over railway establishments other than Zonal Railways viz (i) Metro Railway, Kolkata, (ii) DMRC, Delhi, and (iii) Konkan Railway. There are five Deputy Commissioners of Railway Safety posted in the Headquarters at Lucknow for assisting the CCRS. In addition, there are two field Deputy Commissioners, one each in Mumbai and Kolkata, to assist the Commissioners of Railway Safety in matters concerning the Signaling and Telecommunication discipline.

1.2.2 In Appendix I, at the end of this Report, given is an Organizational Chart of the Commission of Railway Safety. A brief narrative on the history and functions of the organization, which dates back to the 19th century, is contained in Appendix II.

1.3 JURISDICTION

The route kilometrage of the Railway Administrations under the jurisdiction of each circle, as on 31st March, 2008 were as under:-

NAME OF CIRCLE	HEADQUARTERS	ROUTE KM.	PRINCIPAL RAILWAYS
Central Circle	Mumbai	7529.030	Central/W.C. Rly.
Eastern Circle	Kolkata	5877.543	Eastern / East-Central Rly.
Northern Circle	New Delhi	6923.330	Northern Rly.
North Eastern Circle	Lucknow	6490.495	North Eastern/ North Central
Northeast Frontier Circle	Kolkata	3773.090	Northeast Frontier Metro Rly. Kolkata.
Southern Circle	Bangalore	8282.000	Southern/South Western Railway
South Central Circle	Secunderabad	5734.470	South Central
South Eastern Circle	Kolkata	7566.676	South Eastern/ S.E.C. Rly/ East Coast
Western Circle	Mumbai	12,129.299	Western / North-Western

Note: In addition to the Principal Railways, the Commissioners exercise jurisdiction over Konkan Railway Corporation, various Metropolitan Rail Transport Projects, Delhi Metro and Port Trust Railways, if any, located within their circles.

1.4 POSITION OF VACANCIES IN THE COMMISSION

As on 31.3.2008 the actual strength of the Commissioners was 7 against the sanctioned posts of 9. The strength of Deputy Commissioners was 7 and there was one vacancy. The Details are at Appendix-I.

CHAPTER-II

ANALYSIS OF TRENDS OF ACCIDENTS

2.1 TRAIN ACCIDENTS:

The term 'train accidents' discussed in this Report has the following definitions:-

2.1.1 **Consequential train accidents** - are all accidents occurring to trains in the course of working of a Railway and include Collisions, Derailments, Fires in Trains and Running into obstructions or road traffic at Level Crossings.

2.1.2 **Section 113 Accidents** - are those railway accidents, referred to in Section 113 of the Railways Act 1989, which occur in the course of working a Railway and are attended with loss of human life or with grievous hurt (as defined in the Indian Penal Code) or with serious injury to property. They also include any collision between trains of which one is a train carrying passengers, derailment of a train carrying passengers, any accident of a description usually attended with loss of human life, grievous hurt or serious damage to property and accident of any other type which the Central Government may notify in the official Gazette.

2.1.3 **Reportable Accidents** - are the same as those referred to in Section 113 of the Railways Act 1989.

2.1.4 **Serious Train Accidents** - are those accidents requiring a Statutory Inquiry to be conducted by the Commission of Railway Safety in terms of Section 114 of the Railways Act 1989 and include every accident to a train carrying passengers, which is attended with loss of human life, or with grievous hurt (as defined in the Indian Penal Code) to a passenger or passengers in the train or with serious damage to railway property of value exceeding Rs. 25 lakhs. Any other accident which, in the opinion of the Chief Commissioner of Railway Safety or the Commissioner of Railway Safety, requires the holding of an inquiry shall be deemed to be an accident of this category.

2.2 TRENDS IN CONSEQUENTIAL TRAIN ACCIDENTS

2.2.1 The incidence of consequential train accidents (both Goods and passenger trains) and passenger fatalities in passenger train accidents in the past 10 years from 1998-99 to 2007-2008 are shown in Figure 1 and Figure 2 respectively*. The details relating to

the total number of consequential train accidents, with the break-up of goods train accidents and passenger train accidents are shown in Figure 1. There is decrease in no. of passenger train accidents during 2007-08. The total number of consequential train accidents per million train-kilometers and the number of passenger fatalities in passenger train accidents are shown in Table 1 in Para 2.2.2 below. * *All Figures are placed at the end of Chapter-II*

2.2.2 TABLE 1

COMPARATIVE FIGURES OF CONSEQUENTIAL TRAIN ACCIDENTS IN THE PAST TEN YEARS

(Refer Figure 1)

	Item	98-99	99-2000	00-01	01-02	02-03	03-04	04-05	05-06	06-07	07-08
1.	Total No. of Consequential Train Accidents	397	463	473	414	351	325	234	234	195	194
2.	No. of Passenger Train Accidents (out of 1 above)	199	210	261	218	216	214	154	167	144	125
3.	No. of Goods Train Accidents (out of 1 above)	198	253	212	196	135	111	80	67	51	69
4.	Total no. of Consequential Train accidents Per million train-Kilometers	0.58	0.65	0.67	0.55	0.44	0.41	0.30	0.28	0.23	0.22
5.	No. of Passenger Fatalities Including Railway crew In serious Train Accidents	295	374	63	99	186	139	55	177	302	37

Note. - Best figures have been underlined.

2.2.3 It would be seen from Table 1 that the no. of consequential train accidents has decreased from 195 in 2006-2007 to 194 in 2007-2008. The number of goods train accidents has increased from 51 in 2006-07 to 69 in 2007-2008. This increase is 22.08 %. The

Passenger train accidents have decreased by 11.19% during the year under review. (C.f. 2006-2007).

2.2.4 Most of the consequential train accidents result in minor consequences, such as minor damage or derailment to Rolling Stock. However, there are some consequential train accidents which come under the category of Sec. 113 accidents. These Section 113 Accidents include the serious train accidents requiring Statutory Inquiry by the Commission of Railway Safety. The trends of serious consequential train accidents are analyzed in Para 2.3 below.

2.3 TRENDS IN SECTION 113 ACCIDENTS & SERIOUS TRAIN ACCIDENTS

2.3.1 The figures of total number of consequential train accidents, Sec. 113 accidents, serious train accidents including train accidents resulting in fatalities to passengers (including Railway Staff) travelling in trains (as distinct from other fatalities, such as, those occurring among trespassers, Level Crossing Road users etc.) For the last 5 years are compared in Table 2 below:

TABLE 2

Sr. No.	Year	Total No. of Consequential Train Accidents	Sec.113 Accidents	Serious Train Accidents requiring Statutory Inquiry	Serious Train accident resulting in passenger fatalities	Total No. of passenger fatalities
1.	2003-2004	325	253	34	16	139
2.	2004-2005	234	176	19	04	55
3.	2005-2006	234	185	23	07	177
4.	2006-2007	195	173	25	07	302
5.	2007-2008	194	174	25	11	37
Average for 5 years		236.4	192.2	25.2	9	142

Note: (Best figures underlined)

2.3.2 Section 113 accidents have increased by 0.57% in 2007-2008. The number of serious train accidents requiring statutory enquiry has been the same as 25 in 2007-08 and 2006-07. The number of

serious train accidents resulting in passenger fatalities has increased from 07 in 2006- 2007 to 11 in 2007-2008. However in 2007-08 no. of fatalities has decreased to 37 from 302 in 2006-07.

2.4 RAILWAY-WISE TRENDS OF CONSEQUENTIAL AND SECTION 113 ACCIDENTS

2.4.1 The number of consequential and Sec 113 accidents which occurred in each zonal railway in the years 2006-07 and 2007-2008 is shown in Table 3 below:

TABLE 3

Railway	Total No. of Consequential train accidents		Total No. of Section 113 train accidents	
	2006-2007	2007-2008	2006-2007	2007-2008
1. Central	11	5	10	3
2. Eastern	12	3	9	3
3. East Central	7	10	6	10
4. East Coast	11	16	9	13
5. Northern	36	24	32	22
6. North Central	12	13	12	13
7. North Eastern	10	16	10	16
8. Northeast Frontier	8	11	6	8
9. North Western	17	14	14	14
10. Southern	16	12	15	12
11. South Central	10	12	10	12
12. South East Central	8	8	7	8
13. South Eastern	5	15	3	9
14. South Western	12	14	12	14
15. Western	14	12	13	8
16. West Central	5	8	4	8
17. Kolkata Metro	--	-	-	-

18. Konkan Rly. Corp.	1	1	1	1
19. Delhi Metro	-	-	-	-
Total	195	194	173	174

2.5 ANALYSIS OF TYPES OF CONSEQUENTIAL TRAIN ACCIDENTS

Figure 3 depicts a chart showing the break-up of total number of consequential train accidents in the years 2006-2007 & 2007-2008 into various types of accidents. It would be seen that derailments account for a major chunk of the total number of consequential train accidents, being 51.55 % in 2007-2008 against 49.23% in 2006-07. Level crossing accidents are next accounting for 39.69% in 2007-2008 against 40.51% in 2006-2007. Collisions account for 4.12 % in 2007-2008 against 4.10% in 2006-2007. Fire in trains account for 2.58 % accidents in 2007- 2008 against 2.05 % in 2006 - 07. Number of other accidents (Miscellaneous Accidents) account for 2.06 % of the total accidents in 2007- 2008 against 4.10% in 2006- 07.

2.6 CAUSE-WISE ANALYSIS OF VARIOUS TYPES OF TRAIN ACCIDENTS

2.6.1 CAUSE-WISE ANALYSIS OF DERAILMENTS

At figure 4 is shown a cause-wise analysis of the total number of derailments in the years 2007-2008 & 2006-2007. Rolling Stock defects and Failure of Workshop, Carriage & Wagon and Loco Maintenance Staff account for 21.14% derailments in 2007-2008 as compared to 13.54% in the year 2006-2007. Track defects & Failure of Permanent Way Staff account for 25% in 2007-2008 as against 32.29% in 2006-2007. Other causes also account for 48% in 2007-2008 against 55.42% in 2006-07. Errors by Drivers including Motormen caused 4% of derailments in 2007-2008 against 3.12% in 2006-2007. Sabotage accounted for 7% in 2007-2008 against 8.33% in 2006-2007. Signaling Equipment defects and failure of Signaling Maintenance Staff are responsible for 1% in 2007-2008 which was nil in 2006-2007. Cause could not be established are 1% for the year 2007-08.

The term ‘other causes’ includes failure of station staff, commercial staff in charge of loading wagons, natural causes like floods and falling boulders, crossing of track by animals, combination of failure of staff of more than one Department, persons other than Railway staff and those under investigation.

The comparative number of derailments is as follows:-

2006-2007	**96**
2007-2008	**100**

There is a 4 % increase in the number of derailments in 2007-2008 compared to 2006-2007.

2.6.2 CAUSE-WISE ANALYSIS OF COLLISIONS

Figure 5 shows the cause-wise analysis of the collisions during 2006-2007 & 2007-2008. Failures of Drivers, including Motormen, accounted for 75% of the collisions in 2007-2008 against 87.50% in 2006-2007. Failures of station staff accounted Nil in 2007-2008 against 12.50% in 2006-2007. Failure of Other Staff accounted for Nil in 2007-2008. Failure of combination of staff accounted for 12.5% and 12.5 % is under investigation in 2007-2008.

The comparative number of collisions is as follows:-

2006-2007	**8**
2007-2008	**8**

Thus, there were same number of collisions in 2007-2008 and 2006-2007.

2.6.3 ANALYSIS OF ACCIDENTS AT LEVEL CROSSINGS

Shown in Figure 6 is the cause-wise analysis of train accidents at level crossings in the years 2006-2007 & 2007-2008. There were 77 no. of accidents on level crossings during the year 2007-2008 against 79 in 2006-2007. Failure of railway staff accounted for 12.98% of the accidents in 2007-2008 against 6.33% in 2006-2007, while failure of road users was responsible for 87.02% of the accidents in 2007-2008 as against 93.67% in 2006-2007.

The principal cause of accidents at level crossings, thus, continues to be the negligence of road users at level crossings and there has not been significant decrease in such accidents, in spite of various publicity measures adopted by Railway administration.

2.6.4 CAUSE-WISE ANALYSIS OF FIRES IN TRAINS

Figure 7 shows the cause-wise analysis of fire accidents in trains during 2006-2007 & 2007-2008. During 2007-2008, there were 05 fire accidents in trains, 02 being attributed to negligence. Of Railway Staff. And 02 cases were due to Passenger & outsider negligence and 1 case was incidental. In the year 2006-2007 there were 4 cases of fire accidents in the trains, 02 being attributed to negligence of Railway Staff and 02 cases were due to Passenger & outsider negligence.

2.7 INCIDENCE OF HUMAN FAILURE IN TRAIN ACCIDENTS

2.7.1 The incidence of human failure (both Railway and other than Railway Staff) in the consequential train accidents is reflected in Table 4:-

TABLE - 4

S. No.	Item	2006-2007	2007-2008
1.	Total No. of consequential Train Accidents	195	194
2.	No. of Consequential train accidents due to failure of Railway Staff.	85	85
3.	No. of consequential train accidents due to failure of other than Railway Staff.	84	81
4.	No. of consequential train accidents due to human failure (2+3)	169	166
5.	% of consequential train accidents due to failure of Railway Staff (2 divided by 1)	43.60	43.81
6.	% of consequential train accidents due to Human failure (Both Railway and other than Railway Staff) (4 divided by 1)	88.66	85.56

2.7.2 It would be seen from Table 4 that the no. of consequential train accidents has remained stagnant with 195 in 2006-2007 and 194 in 2007-2008. The percentage of consequential train accidents, attributable to failure of Railway Staff, has also remained almost same as 43.81% in 2007-2008 and 43.60% in 2006-2007. The failure of human element comprising both Railway Staff as well as other than Railway Staff such as road users, passengers, miscreants etc., was responsible for 85.56% of consequential train accidents in 2007-2008 against 88.66% in 2006-2007. The failure of human element thus continues to be the largest single cause of accidents.

2.7.3 The term 'Failure of Railway Staff' refers to failure of various categories of staff in charge of both train operation and maintenance. The break-up of such staff responsible for the consequential train accidents in 2007-2008 is shown in Table 5 below:-

TABLE 5

No.	Type of Staff	Consequential train accidents Attributable to Railway staff	
		Nos.	Percentage of total no. of Consequential train accidents
1.	Permanent Way Maintenance Staff	30	15.46
2.	Driving Crew (including Motormen)	11	5.68
3.	Workshop, Carriage and Wagon And Loco Maintenance Staff.	14	7.22
4.	Station Staff	6	3.09
5.	Signaling Maintenance Staff	-	-
6.	Other Staff (Commercial Staff in charge of loading, Guards and others)	6	3.09
7.	Combination of failures of Staff	16	8.24
8.	Electrical maintenance staff	2	1.03
	Total	85	43.81

2.7.4 The figures in Table 5 above reveal that the Permanent Way Maintenance staff was responsible for the largest number of consequential train accidents due to failure of Railway Staff, at 30 (15.46% of total consequential train accidents). Combination of Staff accounted for 16 accidents i.e. 8.24% of consequential accidents. Driving Crew caused 11(5.68%) accidents. Workshop, Carriage and Wagon and Loco Maintenance Staff were responsible for 14 (7.22%) accidents, station staff were responsible for 6 (3.09%) accidents while Signalling Staff caused nil accidents. Other Staff accounted for 6 (3.03 %) accidents and Electrical maintenance staff was responsible for 2 (1.03%) accidents.

2.8 LOSS OF RAILWAY ASSETS IN ACCIDENTS:

The total estimated cost of damage to railway assets resulting from all consequential train accidents was Rs. 36.52 crores in the year 2007-2008 as compared to Rs.42.69 crores in the year 2006-2007.

CHAPTER – III

INVESTIGATION INTO ACCIDENTS

3.1 PREAMBLE

Among the statutory duties carried out by the Commissioners of Railway Safety, one of the main duties is the statutory investigation into railway accidents. The rules for the guidance of officers of the Commission of Railway Safety in holding Inquiries into railway accidents are contained in 'Statutory Investigation into Railway Accidents Rules 1998' notified by the Ministry of Civil Aviation. Extracts of the rules and procedures for holding statutory investigations are contained in Appendix III.

3.2 STATUTORY INQUIRIES HELD IN 2007-2008

3.2.1 During the year, 25 serious accidents required inquiry by the Commission in terms of Section 114 of the Railways Act 1989 which are detailed in Appendix IV. Out of these 25 accidents, 4 were collisions between trains, 9 were derailments, 8 involved collision of trains with road vehicles at Level Crossings and 2 were unusual occurrences , 2 were due to fire in the train.

3.2.2 Of the 25 accidents, the following accidents attracted considerable attention of the media :-

a) Para 8 of Appendix IV :- Derailment of 2659 dn (Nagercoil – Howrah) Gurudev Super fast Express between Duvvada and Gopalpatnam stations of Waltair Division of East Coast Railway on 11.06.2007. As a result of the accident 3 passengers was killed, 7 passengers were grievously injured and 19 sustained simple injuries**.**

b) Para 9 of Appendix IV. –Derailment of DN FCA Bhim – 242 on Bridge No. 108 (Boila) between Dihakho and Mupa stations of Lumding Division of Northeast Frontier Railway on 25.06.2007. As a result of the accident 7 persons was killed, 4 persons were grievously injured and 3 sustained simple injuries**.**

C) Para 11of Appendix IV. Head-on-Collision of Goods train no. N/KTT up and DN VSPS/Concor at Salpura station of Kota Division of West Central Railway on 28.07.2007. As a result of the accident 3 Railway crew were grievously injured and 1 sustained simple injuries.

d) Para 22 of Appendix IV - Collision of 4629 Up Firozpur Sutlej Express with a Mini Bus at Manned Level Crossing Gate No. 40-C Class between Jagraon and Ajitwal stations of Firozpur Division of Northern Railway on 14.12.2007. As a result of the accident 16 Bus passengers were killed, 8 Bus Passengers were grievously injured and 6 sustained simple injuries.

3.2.4 Brief details of the 25 accidents inquired into by the Commission during 2007-2008 along with important recommendations made, are at Appendix - IV.

CHAPTER - IV

INSPECTION AND OTHER FIELD DUTIES

4.1 INSPECTION OF NEW LINES:

During the year 2007-2008, the Commissioners of Railway Safety carried out inspections of new lines and other works, prior to authorizing them for public carriage of passengers, as detailed below:

a)	New Lines	69.453 km
b)	Diversions	14.374 km.
c)	Doublings	406.554 km.
d)	Conversion of Gauge	1269.995 km.
e)	Initiation of electric traction	334.415 km.

A list of these works appears at Appendix V.

4.2 NEW MINOR WORKS:

4.2.1 Structural works affecting the safety of trains on running lines, such as, provision of additional bridges, rebuilding or re-girdering of existing bridges, re-modeling of station yards, re-signaling works etc. can only be carried out after duly obtaining the sanction of the Commissioner of Railway Safety. Such works, after being sanctioned by the Commission, are executed by the Railway Administration and opened to traffic under safety certificates signed by the concerned railway officers, unless the Commissioner of Railway Safety decides to inspect them before being commissioned.

4.2.2 During the year, 3315 such works were sanctioned by the Commission of Railway Safety.

4.3 WORKS INVOLVING INFRINGEMENTS OF STANDARD DIMENSIONS:

Certain minimum and maximum dimensions for location of structures near railway lines and maximum and minimum dimensions in respect of rolling stock have been prescribed and are laid down in a publication called “Schedule of Dimensions”. The Railways can not deviate from these dimensions without obtaining the sanction of the Railway Board or Commissioners of Railway Safety. During the year under review, 22 cases

for condonation of infringements to the Schedule of Dimensions were recommended by the Commission for sanction of the Railway Board. 28 cases which were within the powers of the Commissioners of Railway Safety were sanctioned by the Commissioners themselves.

4.4 MOVEMENT OF OVER-DIMENSIONED CONSIGNMENTS:

The railways have sometimes to transport various types of heavy machinery the dimensions of which are in excess of the prescribed maximum moving dimensions. Movements of some of these consignments require the sanction of the Commissioner of Railway Safety. During the year, transport of 25 over-dimensioned consignments was authorized for movement by the Commissioners of Railway Safety after due scrutiny, subject to observance of such conditions and speed restrictions as were considered necessary.

4.5 NEW TYPES OF LOCOMOTIVES AND ROLLING STOCK:

According to Section 27 of Railways Act, 1989, new rolling stock, such as, locomotives, coaches and wagons can only be used after prior sanction by the Railway Board. During the year, 23 new types of locomotives and other rolling stock were recommended by the Commission, in various sections, for sanction by the Railway Board. According to extant rules, the Commissioners of Railway Safety can authorize movement of new rolling stock on sections of the railway provided the previous sanction of the Railway Board has been obtained for their movement anywhere in the Railway system. During the year, 167 such cases were sanctioned by the Commissioners under their powers.

4.6 PERIODIC INSPECTIONS:

During the year, the Commissioners carried out periodical inspections of 18,718.465 kms. Of Govt. railways either on their own or in the company of the Zonal Railway General Managers. Significant defects and deficiencies noticed during inspections were discussed with the Railway Officers during such periodic inspections and inspection reports were issued.

2007-08

CHAPTER V

REMARKS ON SOME IMPORTANT ISSUES

5.0 PREAMBLE.

Several important issues pertaining to railway safety and train operation have been raised by the Commission from time to time. In the Annual Report of 2006-2007 seven issues were detailed. These issues were:-

(i) Running of Shatabadi Express train on New – Delhi-Palwal-Agra Cant. Section at a maximum speed of 150 kmph. ((Item initially raised in the Annual Report of the year 2005-06)

(ii) Foundation details and completion drawings of bridges (item initially raised in the Annual Report of the year 2002-03 and 2004-05)

(iii) Provision of twin pipe brake system for high speed (100 KMPH) freight stock. (Item initially raised in the Annual Report of 2003-04)

(iv) Determination of final maximum permissible speed by RDSO for new designs of rolling stock. (item initially raised in the Annual report 1999-2000 as well as on 2001-02)

(v) Discrepancies in technical parameters in various books of references, manuals etc.

(vi) 'B' Class status at 2 line station on double line section.

(vii) Inspection of PSC Girder Bridges

5.1 OLD ITEMS:

These items were commented upon by the Railways and these comments were also reflected in the Annual Report accordingly. However, the following 3 issues are being reiterated in this Annual Report in view of their importance on Railway Safety.

5.1.1 RUNNING OF SHATABDI EXPRESS TRAIN ON NEW DELHI-PALWAL-AGRA CANTT. SECTION AT A MAXIMUM SPEED OF 150 KMPH. (2005-2006)

Views of the Commission

The Commission in its various communications to the Ministry of Railways has not favored running of trains at speeds higher than already permitted on Indian Railways prior to the raising of speed of above Shatabadi train to 150 kmph by the Railway Board, on the following fundamental considerations:-

(a) Inadequate measures presently available on the Railways to prevent trespassing on track, cattle run-over menace and non-provision of Hangers(frills) at level crossings.

(b) Non-availability of Train Protection and Warning System to prevent signal overshooting by drivers.

Further, the present working system of observing trains to detect hanging parts etc. and exchange of signals was also required to be suitably addressed.

However, Railway Board, despite the reservations of the Commission, have gone ahead and sanctioned the running of the above train vide their letter No.2005/CEDO/SR/7 dated 12/13.01.2006, (Annexure 2.1) imposing several stipulations some of the important ones of which are given below:-

(i) Fencing of the track at vulnerable locations which are prone to cattle crossing/trespassing.
(ii) Observance of all conditions stipulated in RDSO Speed Certificate No.SD.POL.12.10 dt. 17/18/06/2004 except condition No.2.1.7 (pertaining to provision of fencing along the track).
(iii) USFD machines with data logger being received with 5 SPURT cars to be used on New Delhi-Agra Cantt. Section and print-out of the machines to be utilized for interpretation of USFD results to avoid errors of manual reading.
(iv) Recording with OMS shall be carried out with 150 kmph high speed train only at a laid down frequency. Revision of frequency of OMS recording is not considered necessary at this stage.
(v) Oscillograph car run may be done at maximum permissible speed to study the oscillation behavior of coaches under particular track conditions as is being done at present.
(vi) Railway may provide suitable instrumentation to observe various parameters for one or two selected bridges. Zonal Railways (NR & NCR) may undertake the study in consultation with RDSO.
(vii) A-Class working of station only for this train as suggested by RDSO in the speed certificate, was not agreed to.

(viii) Traffic Deptt. Shall ensure complete arrival of train at the station till such time Continuous Track Circuiting work is completed in the section.

(ix) Suitable speed restriction shall be imposed on facing points not provided with Thick web Switches and Clamp Lock Point Machines.

(x) 25 W VHF sets shall be provided in the locomotive and guard's van for communication between driver, guard and the adjacent Station Masters till such time Mobile Train Radio Communication work is commissioned in the section.

It would be seen that these conditions are very general in nature and not binding on the Railways or the officials who are supposed to take action. The Train Protection Warning System (TPWS) for prevention of overshooting of signals at danger by the train driver is also yet to be commissioned.

The Commission feels that without addressing the basic issues raised by it, the increase in speed of trains with so many general restrictions (listed above) is not the right policy for safe train operation at higher speeds.

1ST Stage Comments of the Ministry of Railways:

Suggestions made by CCRS/CRS were given due consideration and only after examining all technical and safety requirements, running of the solitary Shatabadi Express at maximum speed of 150 kmph has been permitted on New Delhi-Palwal-Agra Cantt. Section, subject to observance of stipulations laid down in the referred letter of the Railway Board.

Railways did an extensive study to identify the locations where the incidents of trespassing of track/cattle run over is likely, and running of this train has been permitted only after providing fencing on all such vulnerable locations. Having plugged the vulnerable locations, there is no need for through fencing. Moreover, trains are already running on the system at 130 kmph and raising the speed of only one train to 150 kmph would not materially affect the safety on this account.

Availability of train protection and waning system, again for running only one train at 150 kmph is not considered essential in the wake of existing other safety measures. However, provision of train protection and warning system in this section would be operational by June 2007 as a regular measure.

Further, the said train has been successfully running for almost a year without any adverse report, which should remove apprehension, if any, regarding the safety of this train. The stipulations made by the Railway to run this train have become part of regular drill by all the concerned departments and are strictly followed to ensure safety.

Further Comments of the Commission:-

The issue of running of high speed trains needs to be looked in a holistic manner and requires a thorough review of infrastructural and operational features involved. This should not be treated as mere increase of speed of only one train from 130 kmph to 150 kmph.

The Railway Board had taken a decision about 10 years ago not to go beyond a speed of 140 kmph for passenger carrying trains, keeping in view the various constraints such as likelihood of fencing not remaining in place, need for replacing the level crossings with ROBs/RUBs, the speed differential between Mail/Express trains and freight trains and impact of cattle run over on safety etc. The Board's view at that time was that dedicated high speed corridors for a speed of 250/300 kmph would have to be developed. There has not been much progress in eliminating the factors considered at that time except that the speed of some of the freight trains have been raised which has also been offset by reducing the speed of those freight trains which are carrying CC+6t or CC+10t load.

The general view of the Railway Board that availability of Train Protection and Warning System is not considered essential in the wake of existing other safety measures, does not seem to be very appropriate. In the opinion of the Commission it is essential to provide technical aid to the driver of the train against passing signal at danger inadvertently particularly in a high speed environment.

After all Drivers are a human being and are likely commit an error of judgment, which may seriously Jeopardize the safety of the passengers of the train. Again providing fencing at sporadic locations and that too at boundary of railway land, far away from the track, cannot be considered an effective means of preventing trespassing. In any case, the cattle can always enter from the end of fencing through the gap beside the track.

The Railway Board's contention on successfully running of solitary Shatabadi Express at maximum speed of 150 kmph. Is, therefore, not acceptable to the Commission of Railway Safety. In future the Indian Railways will be tempted to run more such trains without taking adequate safety measures required for running of high speed trains.

It is, therefore, imperative that Ministry of Railways give the required attention to this very important safety matter and should frame necessary guidelines for running the passenger carrying trains at a speed higher than 140 kmph.

Railways are requested to develop safety standards and criteria for running trains in different higher speed bounds/range of

a) 100-120 kmph.
b) 120-150 kmph.
c) 150 and above kmph.

To enable issue of future substantial policy guidelines on the subject.

2nd Stage Comments of Ministry of Railways

The said train has been successfully running for almost two years without any adverse report, which should remove apprehension, if any, regarding the safety of this train.

Suggestions made by CCRS/CRS were given due consideration and only after examining all technical and safety requirements, running of the solitary Shatabadi Express at maximum speed of 150 kmph has been permitted on New Delhi-Palwal-Agra Cantt. Section, subject to observance of stipulations laid down in the referred letter of the Railway Board. While sanctioning the running of Shatabadi train at 150 Kmph, stipulation for fencing of track at vulnerable locations which are prone to cattle crossing/trespassing was provided. Having plugged the vulnerable locations, there is no need for through fencing.

It is observed time and again that the fringes are damaged by road users or their vehicle in their effort to sneak through. Lowered boom (boom in closed position) is an indication to the road traffic that gate is closed for passage of train. Lowered boom even with fringes cannot act as insurmountable wall for human beings using the road. As per social condition prevalent in India, provision of fringes on the booms of lifting barriers serves no additional purpose to prevent road users from crossing the gate, when the gate is closed to road traffic. Road users trying to pass beneath the boom damage or interfere with fringes, if these are provided. At times, the fringes get entangled with the vehicles (Cycle, Cycle rickshaw, Two-wheelers, Car, Herd, etc.) leading to mishaps. Therefore, it is felt that the provision of fringes is not a solution to prevent trespassing at level crossings.

Train Protection Warning System (TPWS) is being implemented for the first time on IR, adaptability to IR conditions is taking some more time than anticipated and the system is targeted to be operational in the year 2008. Presently the system has been provided in one loco. The trials are still under progress.

Board has sanctioned the running of the above train vide their letter No.2005/CEDO/SR/7 dated 12/13.01.2006 with stipulations to be followed and

comments on the adherence of some of the important stipulations are as under :-

Regarding the USFD testing as stipulated in Para 5.1(iii) above, 5 nos. data loggers have already been procured and hand over to the zonal railway to be fitted in their existing USFD machines for assessing its effectiveness in USFD testing. The beneficiary zonal railways are Central, Northern, Southern, South Eastern and Western Railways.

The tender for SPURT car was finalized in December, 2003 and the commissioning period was up to 13 ½ months. In spite of several extensions given to the agency M/s. SCANMASTER could not commission the system as per tender specifications. Now two firms have shown interest in free trial on IR for benchmarking their technology. When these cars successfully complete their trial, IR will go for outsourcing for the activity of USFD testing of rail by rail borne vehicle.

Regarding the suitable instrumentations for monitoring various parameters of bridges as stipulated in Para 5.1(vi) above, NCR is doing instrumentation of Arch Bridge No.1387/1(UP) on Palwal-Agra and 1st round has been completed, report is expected soon. In NR, Vibration Signature Analysis, of super structure of three bridges – (Br.No.13 (4x14.7m) & Br. No.17 (14x17.3m) between NDLS-TKD and Br. No.1515/2(1x12.3m) between TKD-Palwal has been successfully done by KRCL in September, 2006. KRCL has stated in its report that there is consistency in stiffness of girders which indicates healthy trend of girders.

Further, for operations at 150 kmph, only LHB-FIAT coaches are used. These coaches have a speed potential of 160 kmph. Adequate maintenance infrastructure and time is provided for maintenance of these coaches.

Apart from above, the issues being pertaining to various directorates i.e. Signaling, Mechanical/Electrical and Engineering, it is, therefore, proposed that a multi-disciplinary committee at Executive Director's level preferably at RDSO will be nominated to develop the safety standards and criteria for running trains in different higher speeds.

Latest Comments of the Commission:-

Commission feels that blueprint for running high speed services May be prepared along with a safety plan. The infrastructure for high speed services must confirm to highest safety norms. It may be a little fortuitous that a serious accident not happened, scientifically, it does not look appropriate as large number of cases of tress passing is taking place. It is due to slow speed of trains that no disaster is taking place at those locations.

Latest Comments of Ministry of Railways:-

Further to earlier comments of Ministry of Railways, it may be appreciated that the requirement from signaling point of view for running of high speed (up to 140 & 160 kmph) has been stipulated in SEM Para 7.131 (revised). For operation at speeds 150 kmph, only LHB-FIAT coaches are used. These coaches have a speed potential of 160 kmph. Adequate maintenance infrastructure and time is provided for maintenance of these coaches. IR has a fleet of 20 WAP-5 locomotives equipped with 3 phase propulsion equipment, which are fit for speeds up to 160 Kmph and are being deployed to haul Shatabadi and other high speed trains on a regular basis. Necessary inputs for OHE for running trains at 150 Kmph have already been identified and advised to Zonal Railways vide Board's letter no.2001/RE/170/1 dt. 13.03.07 (copy enclosed) for implementation.

Train operations at higher speeds of 150 Kmph and above will necessitate superior maintenance infrastructure and use of track side monitoring equipments to give advance warning regarding hot axle, hanging parts, wheel flats, brake binding and fire in coaches. The running of high speed trains would not only involved consideration of safety point of view but would also require paradigm shift in the maintenance and operation culture and infrastructure.

Ministry of Railways has already formed a steering committee with Executive Director /Planning as convenor and EDs of different departments for pre feasibility study of high speed corridors. Safety plan to run trains even speeds higher than 160 Kmph will be defined and RDSO will be advised to develop specific technology suitable to that defined speed. A multi-disciplinary committee at Executive Director's level preferably at RDSO will be nominated to develop the safety standards and criteria for running trains in different speed slabs.

Commission's view:

The issue of designing high speed passenger carrying trains entails provision of infrastructure better than one currently being available. Commission is aware that only part fencing has been provided with almost no impacts on cattle run- over cases in the section where solitary high speed train is running. Railway should therefore consider the above aspect de novo. Commission would like to associate with proposed policy formulation committee of RDSO for high speed trains.

5.1.2 FOUNDATION DETAILS AND COMPLETION DRAWINGS OF BRIDGES

(Item initially raised in the Annual Report for the year 2002-03 and 2004-05)

Views of the Commission

Various aspects of railway bridges were highlighted in the Annual Report of the Commission for the year 2000-01, which covered rehabilitation, underwater inspection, rebuilding of MG bridges strengthened for retention after conversion and rechecking of waterway of bridges in case of doubling and gauge conversion projects. Railway Board in its comments had stated that there are about 1.2 lakh bridges on Indian Railway system out of which 44% are more than 100 years old and 74% are more than 60% years. Railway Board though highlighted that the life of a bridge is determined on age-cum-physical condition and that action is taken to rehabilitate/rebuild the bridge when it shows signs of distress. It was also brought out in the Railway Board's comments that Rs.1, 530 crores out of SRSF have been earmarked for the rehabilitation/rebuilding of distressed bridges, cast iron pile bridges and early steel bridges in the first instance over the next 5 to 6 years. The provisions of IRS bridges Substructure and Foundation Code were also mentioned in regard to allowable stresses etc., required for checking the substructure for introduction of new types of locomotives, rolling stocks, train composition and gauge conversion, etc. In regard to the need for rebuilding of MG bridges retained during gauge conversion, the Railway Board advised that a committee comprising of four Executive Directors of Railway Board was constituted to review all the gauge converted sections or sanctioned gauge conversion projects with respect to their fitness of running of BOXN traffic, heavier WDG-3&4 locomotives and in some cases even for heavier break down cranes.

The Commission's views were that old bridges which were overstressed or distressed or for which the completion drawing were missing should be rebuilt, as in such cases, it is not possible to certify adequacy of these structures under Clauses- 5.16.2.2 and 5.16.2.3 of IRS Substructure and Foundation Code. It was also suggested that effective means of underwater examination to find out the soundness of the substructure of bridges is brought in force without any more delay.

It is a fact that foundation details and completion drawings of a vast majority of railway bridges are not available with Zonal Railways. The foundation and substructure of large number of
Bridges remain underwater sound the year and their integrity is suspect as no satisfactory means are available for their inspection. Heavier locomotives and wagons are being introduced in the system and 100 kmph freight trains are already running. The Zonal Railways are certifying the safety of bridges without any rationale or calculations, while approaching the Commissioners of Railway Safety for sanction of running of this rolling stock. They are not doing enough to retrieve the Completion details of the bridges either through physical verification or by making sincere search for the completion drawings. After the unfortunate accident of 6602 Mangalore-Chennai Central Mail on Bridge No.924 in Southern Railway near Kadalundi on 22nd June 2001, where 52 passengers lost their lives and more than 300 were injured, the Railway Board realized the importance of underwater inspection of bridges and mapping of unknown foundation. Railway

Board then sanctioned 4 pilot projects in association with foreign specialist firms as follows:-

1.	Southern Railway	Pilot Project for underwater inspection In association with M/s Wilbur Smith & Associate, USA.
2.	North Central Railway	Pilot Project for underwater inspection in Association with M/s Ramboll, Denmark.
3.	Central Railway	Pilot Project for underwater inspection in Association with M/s Collins Engineers, USA.
4.	Northern Railway	Mapping of unknown foundation and Integrity testing in association with M/s Olson Engineers, USA.

The Railway Board advised that on successful completion of the pilot projects, the procedures will be adopted all over the Indian Railways and the techniques of NDT developed abroad on mapping of unknown foundations and integrity testing of foundations will be utilized. Railway Board also advised that

(i) The Zonal Railways have started getting underwater inspections of critical bridges done through local expertise available.

(ii) Zonal Railways have been directed to have complete database of availability of completion drawings and foundation drawings of bridges and to make all out effort to locate old completion drawings from records/archives.

(iii) Zonal Railways will collect details from existing structures, wherever possible.

On the apprehension of the Commission that how could a Bridge Certificate be given by the Zonal Railways for introduction of heavier axle loads and higher speeds in a section without the help of completion drawings of bridges, the Railway Board replied that the detailed procedure for sanction of running of new rolling stock has been issued by RDSO. However, it is not understood by the Commission as to how can a procedure prescribed by RDSO for running rolling stock over a bridge, be helpful when the foundation details are not available because without knowing the structural details and the dimensions of various components of the bridge, the stress calculations, etc., cannot be made. **The outcome of the Committee of four Executive Directors set up by Railway Board is also not known.**

Though alarmed by the tragedy that occurred due to the collapse of Kadalundi Bridge on 22nd June 2001, Ministry of Railways sanctioned certain pilot projects more than 2 years ago, the progress made in the endeavor appears to be quite slow. Over the last few years, Ministry of Railways has permitted overloading of wagons over and above the carrying capacity for which the wagons were initially designed and cleared for running, without following the laid down procedure and without a speed certificate from RDSO, making the old bridges which were designed for much light loadings, all the more vulnerable. The Commission, therefore, reiterates its earlier suggestion that Ministry of Railways should take urgent action for rebuilding of those over-100 years old bridges, whose foundation details and condition of substructure below water level is not known and whose visual inspection is not feasible, nor is it being carried out.

1st Stage Comments of the Ministry of Railways

1. Railway Board is already seized of the matter. Detailed remarks on subject were furnished in response to CCRS views in Annual report 2003-04. It is fact that completion drawings are not available with Zonal railways for some of old bridges constructed more than 100 years back. Efforts are being made by Zonal Railways to locate completion drawings of bridges and reconstruct missing drawings. Procedure for sanction of running of newer rolling stock on bridges has been finalized within RDSO. The certification of bridges for which drawings are not available are being made by zonal railways as per Para 5.16.2.4 of Code Practice for the design of sub-structure and foundation of bridges. The extracts of relevant Para is an under:-

> "wherever it is not possible to carry out theoretical checks, running of locomotives and rolling stock with heavier tractive force/braking force / braking force may be permitted subject to physical condition being certified and bridges being kept under close observation, as considered necessary by the Chief Engineer. In such case, the increase of tractive and/or braking forces shall not be
>
> more than 20% over bridges above the level of tractive and braking forces running over the bridges for the past one year or so".

2. A Committee consisting of four Executive Directors of Railway Board was constituted to review all the gauge conversion carried out or sanctioned with regard to their standards of construction, the immediate traffic requirements, the likely perspective traffic requirements & give recommendations on the following:-

(i) Up gradation required in completed gauge conversions and their priority. Where the up gradation would be required necessarily by a particular date, the same should also be mentioned.

(ii) Identify the sanctioned gauge conversions where requirement of traffic would need up gradation of the standards provided for in the sanctioned estimate.

The Committee, after detailed deliberations, inter alia, recommended on 23.01.2002 that;

(i) It should be possible to run trains with WDG2 locomotives on all the gauge converted sections. In case of weak bridges, the drivers will be instructed to operate at maximum of 5^{th} notch while passing on the vulnerable bridges. In case any train comes to stop with the loco on the bridge, the driver will try to start the train without exceeding the 5^{th} notch position he will ask for a relief loco. This instruction will be issued to the driver trough the shed notice book. In case of lower standard of rails on two sections of South Central Railway, the same should be replaced at the first opportunity under track renewal program.

3. Developing drawings for underground structures & assessing their integrity otherwise is a stupendous task. For the time being the procedure prescribed by RDSO is being followed based on Performance of already running rolling stock and physical condition of bridges. Realizing the importance of Underwater Inspection of bridges and mapping of unknown foundations, following four pilot projects have already been completed over various Zonal Railways.

(a) Pilot Project in the area of Acoustic Emission Testing of Railway Bridges over Northern Railway by M/s TISEC INC Canada.
(b) Pilot Project in the area of Fatigue Testing & Residual life analysis of steel bridge structure over Western Railway by M/s TTCI.
(c) Pilot Project in the area of Underwater Inspection & Non-Destruction Testing of Bridges over Central Railway by M/s Ramboll, Denmark.
(d) Pilot Project in the area of Fatigue Testing & Residual life analysis of steel bridges structure over North Western Railway by M/s Sharma & Associates Inc. USA.

Besides, following three sanctioned Pilot Projects are also scheduled to be completed by 31.03.2006.

(a) Pilot Project in the area of Acoustic Emission Testing of Railway Bridges over Western Railway by M/s Dungan, USA.
(b) Pilot Project in the area of Strain Gauging & Cost Rating over Western Railway by Bridge Diagnostics, USA.

(c) Pilot Project in the area of mapping of Unknown foundation & Integrity Testing over Northern Railway by M/s Olson Engineers, USA.

In these completed pilot project officers, supervisors and staff from other Zonal Railways also were associated for taking up such works in their Railway.

4. As far as underwater inspection is concerned some work has already been done with the help of local expertise. Underwater inspection of nearly 300 Bridges has already been done on various Zonal Railways. A pilot project in the field of underwater inspection has already been completed on Central Railway with foreign specialized agencies which included training of engineers and supervisors of Indian Railway. Meanwhile, the best available local expertise is being used for underwater inspection and guidelines for underwater inspection have already been issued by RDSO.

5. Regarding enhancement of the carrying capacity of wagons, it is to be stated that BOXN wagon was introduced on Indian Railways in 1982. Due procedure was followed at the time of introduction of BOXN wagons. Since then track and rolling stock technology and maintenance practices have improved considerably. A detailed analysis of rail stresses shows that there are many grey areas in calculations. Value of track modulus is very old and is of CST – 9 tracks. It is seen that although old bridges were designed to old standards, yet they continue to be in good physical condition and giving good service. This is because of various factors such as availability of reserve strength due to higher factors of safety used good initial quality and of improved technology and maintenance practices etc. In past also Railway had been increasing the loading capacity of wagons from time to time. The permissible carrying capacity of BOXN was enhanced by 2 T in July 1997 and in addition 2T loading tolerance was provided for loose commodities in BOXN. A slight increase in carrying capacity was considered not tantamounting to operation of a new wagon, therefore, procedure as specified for running of a new rolling stock was not adopted and Railway Board took a conscious decision to enhance carrying capacity of BOXN wagons to CC+8+2. However, as a matter of abundant precaution this was taken up a Pilot Project on selected iron ore routes only.

During the pilot project, the bridges would be first thoroughly inspected before showing higher axle load wagons and thereafter, kept under observation and selected bridges instrumented for a thorough evaluation of stresses and deflections. Those bridges as requiring strengthening are taken up for strengthening /rebuilding.

To sort out the various issues raised by CCRS vide his letter no. M.14011/1/2005-RS dated 16.05.05, a meeting was held in Railway Board on 07.10.2005 between CCRS and Board Member (ME, MM & MT). In the meeting Board apprised CCRS about the status of CC+8+2 T on Indian Railway. It was

explained that more emphasis is being given on physical condition of the bridges. All the bridges on CC+8+2 T routes have been physically inspected and vulnerable bridges are kept under observations. Action being taken to provide instrumentation on selected bridges which will give insight knowledge regarding stress dispersion in bridges. The project is being monitored by a multi-disciplinary core group comprising of PHODs of Zonal Railways under GM. During the meeting, it was agreed that RDSO would issue Provisional Speed Certificate, based on which Railway will process for Railway Board's approval through CRS/CCRS. Provisional Speed Certificates has been issued by RDSO's letter No. MN/SPD/BG/BOXN/PROV dated 28.10.2005 and South Eastern Railway's proposal for post-facto approval for running of these wagons has been received in Railway Board's office through CCRS and is under process. Approval is being communicated separately. Meanwhile RDSO has completed oscillation trial of BOXN wagons with CC+8+2 T and wagon performance is found to be satisfactory up to a speed of 70 kmph. Accordingly, vide RDSO's letter no. MVV/Overloading dated 19.01.06. RDSO has issued a Final Speed Certificate for BOXN for speed up to 70 kmph.

Further Comments of the Commission

The efforts being made by the Railways to find suitable diagnostic techniques, available world over for monitoring the health of various components of old bridges is appreciated. However, the need for hurriedness with which the high loading, over & above the designed carrying capacity of wagons, has been introduced, without ensuring the implementation of the conditions prescribed by the Ministry of Railways for bridges in the field is not understood. Also, the bypassing the Commission in the first instance while taking such a decision is a serious matter. Ministry of Railways is advised to exercise caution and avoid such violation of time tested rules & procedures. As this over loading will shorten the residual life (in terms of years) of track, structure and wagons, the clear guidelines, for their earlier renewal should be finalized if this pilot project is continued definitely.

2nd Stage Comments of Ministry of Railways

Commission has appreciated the efforts made by Ministry of Railways. Instrumentation of the bridges is already in progress and effect of higher axle load on fatigue life on bridges is being studied besides other parameters.

Latest view of commission:

The decision to permit running of higher loading of wagons on various section of Indian Railways will result in increased stresses on infrastructure which need monitoring for ensuring safety. The WILD which had been installed at various locations on Indian Railways are not giving proper readings and the system of monitoring to detach wagons showing higher impact

load is yet to be set up; there has been no consistency in results relating to stresses at various locations in the bridges for which instrumentation

were carried out, it would not be desirable to permit running of higher load wagons as a regular measure without setting the monitoring system in order. The signs of distress may appear after lapse of certain period. It is imperative that these systems are brought in place. The need of these measures cannot be over emphasized.

Latest Comment of Ministry of Railways:

1.0 Instrumentation of certain representative bridges has been undertaken by Indian Railways as a part of pilot project of running of CC+8+2/ CC+6+2t. Recording of instrumentation data and analysis is required to be done for three years. In the first year, instrumentation reading are required to be taken every quarter, while in second and third year, instrumentation readings are required to be taken once a year. Instrumentation has been entrusted to specialized agencies such as Structural Engineering Research Centre (SERC), Chennai, Indian Institute of Science (IISC), Bangalore and Central Road Research Institute (CRRI), New Delhi etc.

2.0 Instrumentation is in various stages of progress in 59 bridges. These sample representative bridges have been selected for covering various types of bridge loadings, span type etc. Bridge instrumentation is broadly covering stresses at critical location, deflections at critical locations, dynamic augment, longitudinal loads coming on sub-structure, fatigue analysis etc. In regard to instrumentation, Indian Railways vision is “to determine the status of structures from bridge instrumentations of other similar bridges besides monitoring effects of Higher Axle Loads (HAL) & longitudinal loads on bridge components and also to confirm the theoretical values with practical results and thus take a long term view on the subject.”

3.0 Results of instrumentation obtained so far indicates that there is no apparent adverse effect of running CC+8+2/CC+6+2t and that stresses in members are by and large within permissible limits. However, picture would be clearer when more results are available. Certain inconsistencies in results of instrumentations, bridges on CC+8+2/CC+6+2t routes are being kept under physical observations and quarterly reports are being sent by the railways to Railway Board. It is also seen from these reports that there is no apparent adverse effect of running of CC+8+2/CC+6+2t load.

4.0 Total nine systems of Wheel Impact Load detector ordered on M/s Apna Technologies, Chennai by COFMOW and all the systems are already

commissioned. Tender for procurement of further seven systems has been opened by COFMOW on 25.08.08. In future WILD to be incorporated in Online Monitoring of Rolling Stock (OMRS) system. A JPO on action to be taken in case of alarms of WILD has already been issued vide letter no. 2002/M (N)/960/1 Pt. dated 29.07.2008 by Board (copy enclosed). This letter establishes the system of monitoring to detach wagons showing higher impact load.

Commission's View:

It is true that considerable work has been done in recording the stresses at critical locations, deflections, longitudinal loads, etc., on sub structure, however since no definite conclusion could be drawn from the studies due to large scatter in the data, it is considered that more data should be recorded on these bridges so as to arrive at definite conclusion.

Similarly no definite co-relation being available between the critical alarm and the condition of the rolling stock from WILD systems recently installed, more comprehensive studies are necessary for monitoring the health of rolling stock particularly on routes where higher axle load trains are running. The percentage of critical and maintenance alarms based on available data from WILD studies being in the range of .02 and .1% respectively of total wheel population, a system of reducing their number by improving maintenance and monitoring methods should be evolved. In summery, Commission recommend installation of better monitoring systems than the one currently available.

5.1.3 DETERMINATION OF FINAL MAXIMUM PERMISSIBLE SPEED BY RDSO FOR NEW DESIGNS OF ROLLING STOCK.
(Issue initially raised in Annual Report of 1999-2000).

Views of the Commission:

Oscillation trials are the most important tests carried out on new rolling stock before the same is introduced on the Indian Railways. The present criteria in assessing the riding stability of rolling stock have not been revised for a long time though there have been many new developments in the field of track and rolling stock. In the meeting of CCRS/CRS with Board held on 08.11.2001, CRB had decided that the present criteria should be reviewed by a committee of two Additional Members and DG/RDSO and the report of the committee will be sent to CCRS. Railway Board is advised to expedite the review.

1st stage Comments of Ministry of Railways

RDSO has advised that the subject of revising criteria for assessing the riding stability of stock is under review to be in line with UIC 518. In this connection, 3 level of track maintenance quality have been identified. Trials have been planned for an experimental run with WDM 2 Loco, BOXNHS wagons and oscillograph car on Lucknow – Sultanpur section at 100 km/h. Results of these trails are expected to be giving the desired details for finalizing the issue.

Further Views of the Commission

The Commission is dismayed to note that it has been taking inordinately long time in deciding the revised criteria. The trials may be expedited and the criteria for determination of final maximum permissible speed for new design of Rolling Stock may be finalized at the earliest.

The Commission is of the view that the Railway Board has finalized the 3rd report of standing criteria committee where in the system of testing and assessment of speed potential for various type of rolling stock on Indian Railways is similar to that have been stipulated in the second report of standing criteria committee. Only a reference is made in the report that Indian Railways contemplating to proceed in the direction of UIC type statistical analysis based system for such clearances. The UIC-518 recommends testing on at least 25 Sections of 250 (+10%) of tangent or large radius curves. There should be no overlap between sections, which may or may not be juxtaposed sections. Total length of tangent section is about 10 kms. Tests are carried out at 10% higher than planned service speed.

The Commission feels that its implementation will go a long way in rationalizing the methodology for assessing the speed potential of the rolling stock. It is recommended that the adoption of the methodology may be expedited in the interest of standardization of safety norms. In addition, there is need for expeditious development of measuring wheel technology so as to know the extent of forces at rail wheel interaction level both vertical and lateral for proper designing of rolling stock.

Latest Comment of Ministry of Railways:

Several trials have been conducted in this regard and some trials are yet to be conducted. The revised criteria require a lot of ground work for track engineers and costly inputs. It is a cumbersome exercise and work is under progress. Till such time this exercise is completed, existing criteria which are quite satisfactory may continue.

Commission's View:

Though admittedly, it is cumbersome exercise, however the criteria as adopted by UIC appears more rational considering the overall performance of a rolling stock and not only bases on peak value consideration, it would be worth while to evaluate various types of rolling stock based on the above criteria as well in addition to the criteria as laid down in 3rd criteria committee until we develop adequate testing facilities.

5.2: NEW ITEMS:

5.2.1: Vestibuling of Coaches in EMUs:

Views of commission:-

On Indian Railways though vestibules system for inter-connecting the coaches have been provided for long distance passenger trains, however, for sub-urban EMU coaches such facilities are not available. Raised viaducts/elevated surface exist for a considerable length for some of sub-urban traffic services on Indian Railways, however, for such locations as well, vestibule system connecting ECU coaches has yet to be provided. In case of man made threats like arson and stampede etc, there is need for the passengers getting down at such elevated viaducts; the Commission feels that necessary policy guidelines must be evolved for easy detraining of passengers in case of emergency at such locations.

Comments of Ministry of Railways:

It is not technically feasible to provide vestibuling in the existing EMU stock due to following reasons:-

(i) Different class of accommodation viz., ladies, handicap, first class compartments are separated by partition frames.
(ii) EMUs are running in super dense crush loading condition, provision of vestibuling will further increase the pay load which is not feasible in the present condition.
(iii) In BG/AC EMU coaches every motor coach is a driving coach. EMU stock works in a consist of 1MC+2TC; hence vestibuling cannot be extended beyond 2nd trailer coach. Therefore, extension of vestibuling in entire rake is not feasible.

Commission's View:

Though, it has been stated that vestibuling in the existing EMU stock is technically not feasible due to various cited reasons, however on metros coaches with similar features are available. Since this is an important aspect for evacuating passengers in case of any disaster, railway should consider adopting suitable technologies in this regard during future designing and procurement.

5.2.2: Fire on Trains:

Views of commission:-

In recent years, there have been a number of incidents of fire in trains. The Commission, in course of enquiries in the past, has made a number of recommendations to obviate the dangers of fire and prevent loss of life. These recommendations deal mainly with strengthening of rolling stock's fire retarding capacity and enhancement of fire-fighting capabilities of Railway both field staff and on-Board staff.

The Commission request railway administration to urgently consider following up of some important recommendations as listed below:-

(i) The fire load of various components of coaches and other types passenger carrying stock in line with international (UIC) standards to be calculated and overall fire resistance to be estimated. This would result in better standards of safety.

(ii) On board fire fighting mechanism to integrate following components:

(a) Sprinkler/mist creating arrangements using Water available in coach tanks to douse flames.

(b) Better door locking mechanism during normal and emergency condition.

(c) Strengthening of emergency fire fighting equipments on ART along with skill up gradation of break down staff and rescue operations.

(d) Sensitization of on board staff towards fire hazards and other preventive steps like special courses at ZRTIs may be organized.

These measures should form framework of a holistic policy in this important safety aspect.

Comments from Ministry of Railways:

Indian Railway have always endeavored to enhance fire worthiness of coaches by using more and more fire retardant furnishing materials such as comperg board for coach flooring, fabrics upholstery for seats and berths, curtains, laminated sheets for wall and partition paneling, roof ceiling, PVC flooring, Cushion's material for seats and berths, Rexene for seats and berths, FRP window, UIC Vestibule etc. While the efforts to incorporate fire retardancy in coach furnishing materials began in mid 1990's, specification of such furnishing materials have been periodically upgraded/revised so as to incorporate the following fire retardancy parameters in Line with UIC/other international norms:

(i) Loss of visibility due to smoke.
(ii) Toxicity Index.
(iii) Resistance to spread of flame.
(iv) Limiting oxygen Index.

RDSO has already made specification for fire retardant material for electrical equipments including cables, conduits and laid down protection scheme and code of practice for avoiding fire in coaches & EMUs/MEMUs etc. RDSO will further undertake exercise regarding use of electrical material with low smoke, halogen free characteristic and also use of fire survival cable in critical circuits of Rolling Stock.

Action is also underway at Research Design & Standards, Organization (RDSO) Lucknow for conducting trials of comprehensive fire and smoke detection system in one Rajdhani Rake before considering universal application. This system will eliminate incidence of fire and ensure early detection of fire in coaches. Tender for this pilot project has been floated. Comprehensive fire/smoke detection and extinguishing system being developed by RDSO will also take care of the electrical panels, switch board cabinets, electrical appliances, and cables etc. which are considered a fire potential area. RDSO will also evolve a similar scheme for power cars used in Shatabadi / Rajdhani trains and EMUs/MEMUs with regard to use of fire retardant material and fire detection/extinguishing system.

Suitable fire/smoke detection and suppression systems using water mist technology are also under study at RDSO and use of such systems in Indian Railway environment shall be explored.

Guidelines issued by RDSO for prevention of fire on electric rolling stock which includes use of fire retardant material and precautions to be taken during maintenance are being followed. Also a fire surveillance/detection, alarm and automatic fire fighting system for Electric locos, based on RDSO specification, and are under development with CLW/RDSO.

Commission's View:

The efforts made by the Railway Administration to enhance fire worthiness of coaches are appreciated, however there has been no mention relating to working out the fire load for various components so as to estimate and compare fire resistance of Indian Railway coaches vis- a- Vis, the coaches' world over especially in European countries. Commission would desire that railways should work in this direction as well.

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APPENDIX-I

(Refer Para 1.2.2)

Circle Offices and their jurisdiction & Incumbency of Officers in the Commission

1. **Jurisdictions of Circle Offices (as on 31.03.2008)**

	Name of Circle	Headquarters	Route Kilometrage
(i)	Central Circle	. . . Mumbai	7529.030
(ii)	Eastern Circle	. . . Kolkata	5877.543
(iii)	Northern Circle	. . . New Delhi	6923.330
(iv)	North Eastern Circle	. . . Lucknow	6490.495
(v)	Northeast Frontier Circle	. . . Kolkata	3773.090
(vi)	Southern Circle	. . . Bangalore	8282.000
(vii)	South Central Circle	. . . Secunderabad	5734.470
(viii)	South Eastern Circle	. . . Kolkata	7566.676
(ix)	Western Circle	. . . Mumbai	12129.299

Note: Northeast Frontier Circle's jurisdiction includes 16.450 km.of Metro Railway/Kolkata. Central Circle's jurisdiction includes 740.28 Kms. of Konkan Railway and Northern Circle's Jurisdiction includes 64.83 Kms. of Delhi Metro.

2. Incumbency of Officers in the Commission (1.4.2007 to 31.3.2008)

2.1 Headquarters Office, Lucknow

(i) Chief Commissioner	Full Period	Shri Pranab Kumar Sen
(ii) Deputy Commissioner (General)	Full Period	Shri Veer Narayan

Deputy Commissioners in Technical Wing/Lucknow

(i)Operating	Full Period	Shri. Sanjay Tripathi
(ii)Electric Traction	Full Period	Shri Ashutosh Pant

(iii)Signal & Telecom	Full Period	Shri P.R.Izardar
(iv)Mechanical		Vacant

2.3 **Commissioners in charge of Circle Offices**

(i) Central Circle, Mumbai	Full Period	Shri Sudhir Kumar
(ii) Eastern Circle, Kolkata	01.04.2007 to 15.06.2007	Shri K.J.S.Naidu
	16.06.2007 to 31.03.2008	Vacant
(iii) Northern Circle, New Delhi	Full Period	Shri Bhupender Singh
(iv) North Eastern Circle, Lucknow	Full Period	Shri R.K. Kardam
(v) Northeast Frontier Circle, Kolkata	01.04.2007 to 31.03.2008	Vacant
(vi) Southern Circle, Bangalore	01.04,2007 to 16.06.2007	Vacant
	17.06.2007 to 31.03.2008	Shri K.J.S. Naidu
(vii) South-Central Circle,Secunderabad	Full Period	Shri R.P. Agarwal
(viii) South Eastern Circle, Kolkata	Full Period	Shri Balbir Singh
(ix) Western Circle, Mumbai	Full Period	Shri Prashant Kumar

2.4 **Dy. Commissioners (Signalling & Telecommunications) attached to Circle Offices**

(i) Eastern Circle, Kolkata	01.04.2007 to 30.09.2007	Shri P. K. Biswas
	01.10.2007 to 09.01.2008	Vacant
	10.01.2008 to 31.03.2008	Shri A.K. De
(ii) Western Circle, Mumbai	01.04.2007 to 30.06.2007	Shri A.N. Toke
	01.07.2007 to 14.01.2008	Vacant
	15.01.2008 to 31.03.2008	Shri R.K. Gupta

APPENDIX - II
(Refer Para 1.2.2)

COMMISSION OF RAILWAY SAFETY

HISTORY AND FUNCTIONS

1. Brief History

1.1 To exercise effective control over the construction and operation of the first railways in India, which were entrusted to private companies, Consulting Engineers were appointed under the Government of India. Later when the Government undertook the construction of railways, the Consulting Engineers were designated as Government Inspectors. In 1883, their position was statutorily recognized. Later, the Railway Inspectorate was placed under the Railway Board which was established in 1905.

1.2 Under the Indian Railway Board Act, 1905 and Notification No.801 dated 24th March, 1905 of the Department of Commerce and Industry, the Railway Board was vested with powers and functions of the Central Government under various sections of the Railway Act and was authorized to make General Rules for the operation of Railways. The Railway Board is thus the Safety Controlling Authority for the working and operation of Government and Company managed railways.

1.3 Section 181(3) of the Government of India Act of 1935 provided that functions for securing the safety, both of the traveling public and of persons operating the railways, including the holding of inquiries into the causes of accidents, should be performed by an authority independent of the Federal Railway Authority. Due to the outbreak of the war, the constitution of the Federal Railway Authority did not materialize and the Inspectorate continued to function under the Railway Board.

1.4 To avoid direct subordination of the Railway Inspectorate to the Railway Board, the Pacific* Locomotive Committee, headed by Lt. Col. A.H.L. Mount, then Chief Inspecting Officer of the British Railways, suggested in Para 210 of their report, submitted in 1939, as under:-

"We understand that, under the Govt. of India Act, 1935, it is contemplated that the Inspectorate will be separated from the control of the Railway Board. This is very desirable in so far as it will eradicate the present anomaly of the Board being the Inspecting as well as the executive Authority. We were informed that the Board fully appreciates the position, and would welcome the change, although it appears that, in practice, Government Inspectors have generally retained their freedom of judgment....."

* Engines with 4-6-2 configuration of wheels are called "Pacific Locos".

1.5 The principle of separation of the Railway Inspectorate from the Railway Board was endorsed in 1940 by the Central Legislature who recommended that "Senior Government Inspectors of Railways should be placed under the Administrative control of some authority of the Govt. of India other than the Railway Board." Accordingly, the Railway Inspectorate was placed under the administrative control of the Department of "Posts and Air" in May 1941 and continuously thereafter under whichever Ministry that held the portfolio of Civil Aviation.

1.6 The erstwhile Railway Inspectorate was re-designated as the Commission of Railway Safety on 1.11.1961.

1.7 The responsibility for safety in the working and operation of Railway rests solely with the Railway Board and the Zonal Railway authorities. The main task of the Commission of Railway Safety is to direct, advise and caution the Railway executives with a view to ensure that all reasonable precautions are taken in regard to soundness of rail construction and safety of train operation. The Railway Board refers to the Commission matters relating to modification or enhancement of standards in respect of operation of trains, track, locomotive, rolling

stock and revision of rules embodied in the General Rules, Rules for the opening of New Lines, Manuals, IRCA Regulations, Schedules of Dimensions and other publications. Suggestions made by the Commission of Railway Safety are duly considered by the Railway Board before necessary revisions are notified.

2. **Duties**:-

2.1 The duties of a Commissioner of Railway Safety as spelt out in Chapter III of the Railways Act 1989 are as under:-

- to inspect new railways with a view to determine whether they are fit to be opened for the public carriage of passengers, and to report thereon to the Central Government as required by or under this Act;

- to make such periodical or other inspections of any railway or of any rolling stock used thereon as the Central Government may direct;

- to make inquiry under this Act into the cause of any accident on a Railway;

- To perform such other duties as are imposed on him by this Act or any other enactment for the time being in force relating to Railways.

2.2 The term “such other duties” mentioned in Para 2.2 has been detailed in Sections 22 to 24 of the Act and covers the following:-

- sanctioning the opening of new railway lines after inspection on behalf of the Central Government;

- sanctioning the execution of all works, including new works, affecting the safety of running lines;

- when, after inspecting a line already in use or a rolling stock already authorized, the Commissioner is of the opinion that their continued use will be attended with danger to the travelling public, he may report his opinion to the Central government, who may then order

the closure of the line or the discontinuance of the use of rolling stock; and

- to inspect such a closed line and sanction its re-opening for carriage of passengers and also report to the Central Govt. on the fitness for use of discontinued rolling stock.

2.3 Functional duties, including field inspections, of an Inspector of Railway, since designated Commissioner of Railway Safety, are amplified, among other technical publications, in the;

- General Rules for all open lines of railways in India administered by the Government;
- Rules for the opening of a Railway or Section of a Railway for the public carriage of passengers;
- Indian Railways Code of practice for the Engineering department;
- Indian Railway Way, Works and Signal Engineering Manuals;
- Schedules of Dimensions;
- Conference Rules of the Indian Railway Conference Association;
- Statutory Investigation into Railway Accidents Rules, 1998
- Railway (Notices of and Inquiries into accidents) Rules, 1998

2.4 After its separation from the Railway Board in May, 1941, a post of Chief Government Inspector of Railways, later designated as Chief Commissioner of Railway Safety, was created to enable the Central Government to exercise “effective technical control”.

2.4.1 The Chief Commissioner of Railway Safety directs the activities of the Organization and is responsible for advising the Central Government in all matters relating to Railway

Safety, recruitment of officers, postings and promotions, budget and expenditure etc. The Chief Commissioner deals principally with: -

- Matters appurtenant to Field Inspections and statutory inquiries into accidents;
- Inspection Reports of Commissioners of Railway Safety;
- Reports of statutory inquiries held into accidents by the Commissioners. After careful study he forwards his considered opinion to the Controlling Ministry and the Railway Board with such recommendations as he considers necessary;
- Railway Board's suggestions pertaining to corrections or amendments to General Rules, Rules for Opening of a Railway, Schedule of Dimensions, the P. Way, Works and Signal Engineering Manuals, Procedures for inquiries into accidents, Codes of Practice for Engineering Works and other publications; and
- Preparation of the Annual Report on the working of the Commission of Railway Safety and its placement in each House of Parliament.
- All the Technical publications indicated in Para 2.4 above including others issued by Railway Board from time to time.

2.4.2 Field duties of the Chief Commissioner of Railway Safety consist of inspections of sections of Railways, visits to the Railway Headquarters and Divisional Offices, Railway installations and Circle Offices. If considered necessary by him, he may himself hold inquiries into important accidents.

* * * * *

APPENDIX- III
(Refer Para 4.1)

STATUTORY INQUIRIES INTO RAILWAY ACCIDENTS-RULES, SCOPE AND PROCEDURE

1. RULES

1.1 Rules for Inquiry into Railway accidents:-

Rules for the guidance of the Officers of the Commission of Railway Safety for holding inquiries into Railway accidents are contained in the "Statutory Investigation into Railway Accidents Rules, 1998" notified by the Ministry of Civil Aviation in the Gazette vide G.S.R.No. 257 dated 26.12.98 and G.S.R. No. 63, dated-02.01.99.

1.2 When should a Statutory Inquiry be held?

A statutory inquiry by the Commissioner is obligatory in every accident to a passenger-carrying train which is attended with loss of human life, or with grievous hurt as defined in the Indian Penal Code, to a passenger or passengers in the train or with serious damage to railway property of the value exceeding Rs. 25 lakhs. The Commissioners may also inquire into any other accident which in the opinion of the Chief Commissioner or the Commissioner of Railway Safety requires the holding of an inquiry. Where the Chief Commissioner of Railway Safety considers the holding of an Inquiry into an accident necessary, he may either hold the inquiry himself or direct the Commissioner of Railway Safety to do so.

The Inquiry shall be obligatory only in those cases where the passengers killed or grievously hurt were travelling in the train. If a person travelling on the foot-board or roof of a passenger train is killed or grievously hurt or if a person is run over at a level crossing or elsewhere on the railway track, an inquiry is not obligatory. Workmen's trains or ballast trains carrying workmen shall also be treated as passenger trains and in the event of a workman getting

killed or grievously hurt as a result of an accident to the train, an inquiry shall be obligatory.

1.3 Procedure when Commissioner is unable to hold an inquiry:-

When a Commissioner is unable to hold an inquiry, he is to inform the Chief Commissioner of Railway Safety of the reasons as to why an inquiry can not be held by him. The Chief Commissioner may himself hold the Inquiry or may direct another Commissioner to inquire into the accident or else the inquiry can be entrusted to the Railway itself, who will then appoint a Committee of Railway Officers to inquire into the accident. The Committee's inquiry report is submitted to the Commissioner of Railway Safety who scrutinises it and in case he agrees with the findings, forwards it to the Chief Commissioner of Railway Safety along with his views on the findings and recommendations made. If, on the other hand, the Commissioner of Railway Safety considers that an inquiry should be held by him, he proceeds to do so.

1.4 When shall the Commissioner stop or discontinue his inquiry?

Whenever the Central Government appoints a Commission of inquiry under the Commission of Inquiries Act, the Commissioner shall discontinue his inquiry.

2. SCOPE: -

The Commissioner holds inquiries into accidents with a view to ascertaining the causes and fixes the responsibility thereof on the individuals concerned. Investigations are also carried out into the question whether prompt and adequate steps were taken by the railway administration for relief measures such as provision of first aid, medical treatment and refreshments to passengers, evacuation of injured passengers and other facilities like arrangements for transshipment, completion of their journey to destination, running of duplicate trains etc. As a result of his inquiry, the Commissioner may also make recommendations which are designed to prevent the recurrence of similar accidents, and which may suggest laying down new rules or modifying existing rules of working, and improved standards of signalling, installation and maintenance of track, bridges, etc. He also comments on matters

observed by him during the course of his inquiry which may not have any direct bearing on the cause of the accident under investigation but which may in some cases affect the safe working of the railway and lead to accidents.

3. Procedure for conducting a Statutory Inquiry

As soon as the Commissioner of Railway Safety receives intimation about the occurrence of a serious accident, he proceeds to the site, conduct inspection of the accident site and records all particulars relevant to the accident; He then fixes a date for the inquiry, which is given publicity in the media. Officers of the local Magistracy and police are separately advised of the dates of the inquiry. The public is invited to give evidence in the inquiry in person or to write to the Commissioner.

APPENDIX-IV

BRIEF DETAILS OF SERIOUS RAILWAY ACCIDENTS INQUIRED INTO BY THE COMMISSION OF RAILWAY SAFETY- 2007-2008

1. DASHING OF APSRTC BUS NO. AP 23-U 4185 WITH TRAIN NO. 7040 NANDED-SECUNDERABAD EXPRESS AT 'C' CLASS ENGINEERING MANNED LEVEL CROSSING GATE NO. 234- A BETWEEN MASAIPET AND MANOHARABAD STATIONS HYDERABAD DIVISION OF SOUTH CENTRAL RAILWAY ON 20.04.2007.

A) CAUSE – NON CLOSURE OF LC GATE BY THE ON-DUTY GATEMAN.

B) CASUALTIES : KILLED – 1 (Bus Driver), GRIEVOUS INJURY - 1 (Bus Conductor), SIMPLY INJURY - NIL

C) COST – 17,720/-.

D) CATEGORY - FAILURE OF RAILWAY STAFF.

RECOMMENDATION

1. Based on Railway Board's letter No. 2001/CE-I/LX/AC/)1 (data) dt, 25.09.02, in the criteria about the normal position of gate either open or closed to road traffic, in addition to TVUs, the criteria about road vehicle units should also be specified.

2. UNUSUAL OCCURRENCE – DASHING OF TIPPER LORRY NO. AP-26U-7694 WITH TRAIN NO. 3351 DHN/TATA-ALLEPEY EXPRESS BETWEEN ATTIPATTU PUDUNAGAR-ENNORE STATIONS OF CHENNAI DIVISION OF SOUTHERN RAILWAY ON 27.04.2007.

A) CAUSE – NEGLIGENCE OF DRIVER AND CLEANER OF TIPPER LORRY. THE CONSTRUCTION ORGANISATION FAILED TO TAKE NECESSARY PRESAUTIONS WHILE PLYING OF CONTRACTOR'S VEHICLES NEAR TO EXISTING RAILWAY TRACK.

B) CASUALTIES :- KILLED 1 (PASSENGER), GRIEVOUS INJURY : 2 (PASSENGERS), SIMPLE INJURY :- 8 (PASSENGERS).

C) COST: - 13,573/-.

D) CATEGORY - FAILURE OF OTHER THAN RAILWAY STAFF.

RECOMMENDATION-

1. The instruction issued vide Joint Circular No. 1/2007/safety duly signed by PCE,CSO,CAO/CN/MAS relating to measures to be ensured during execution of work at site should be reiterated and strictly adhered to.

3. COLLISION OF 5028 DN GORAKHPUR-HATIA, MAURYA EXPRESS TRAIN WITH A TRACTOR TROLLEY NO. UP-52 J 1662 AT UNMANNED LEVEL CROSSING NO. 109-C BETWEEN BHATPAR RANI AND BANKATA RAILWAY STATIONS OF VARANASI DIVISION OF NORTH EASTERN RAILWAY ON 02.05.2007.

A) CAUSE: - DUE TO NEGLIGENT DRIVING BY ROAD TRACTOR TROLLY DRIVER.

B) CASUALTIES:- KILLED 4 (1 PASSENGER, 3 ROAD USERS), GRIEVOUS INJURY : 9 (PASSENGERS), SIMPLE INJURY :- 2 (PASSENGERS).

C) COST: - 18,125/-.

D) CATEGORY - FAILURE OF OTHER THAN RAILWAY STAFF.

RECOMMENTATION :-

1. In view of increasing trend of accidents at unmanned level crossings, regular safety drives should be launched by the Railway Administration for the inspection and counseling of road users on unmanned level crossings. Drivers of tractor-trolleys, trucks etc. Should also be checked for their knowledge regarding provisions of Section 131 of Motor Vehicles Act 1988 and counseled.

4. COLLISION OF 9039 DN BANDRA-MUZAFFARPUR, AVADH EXPRESS TRAIN WITH A TRACTOR-THRASHER NO. UP 43 B 7497 AT UNMANNED LEVEL CROSSING NO. 267-C BETWEEN MAIJAPUR AND GONDA KACHERY STATIONS OF LUCKNOW DIVISION OF NORTH EASTERN RAILWAY ON 02.05.2007.

A) CAUSE: - DUE TO NEGLIGENT DRIVING BY ROAD TRACTOR THRASHER DRIVER.

B) CASUALTIES:- KILLED - 1 (ROAD USER), GRIEVOUS INJURY : 1 (PASSENGER), SIMPLE INJURY :- 3 (PASSENGERS).

C) COST: - 34,889/-.

D) CATEGORY - FAILURE OF OTHER THAN RAILWAY STAFF.

RECOMMENDATIONS

1. In view of the increasing trend of accidents at unmanned level crossings, regular safety drives should be launched by the inspection and counseling of road users on unmanned level crossings. Drivers if tractor-trolleys, tractor-thrashers, trucks etc. should also be checked for their knowledge regarding provisions of Section 131 of Motor Vehicles Act 1988 and counseled.

2. Railway Administration must ensure that the various types of level crossing indicators, speed breakers, as required to be provided at unmanned level crossing gates are provided as per the laid down norms and standards.

3. Railway Administration must ensure that the RPF escort party, as per rule, is available on the trains as per the schedule.

4. Railway Administration shall not run trains beyond the sanctioned load of the train without the sanction of the competent authority. As in this particular case train No.9039 Dn was running over N.E. Railway system with 24 coaches without the sanction of the competent authority.

5. DERAILMENT OF BRAKE VAN NO. SE BVC 69984 OF UP NBQ RMC ON BRIDGE NO. 150 (KALJANI) BETWEEN NEW BANESWAR AND NEW ALIPURDUAR STATIONS OF ALIPURDUAR DIVISION OF NORTHEAST FRONTIER RAILWAY ON 05.05.2007.

A) CAUSE :- DUE TO MG TROLLEYS ON WR BFR 929/75512 BEING NOT SECURED AND LASHED PROPERLY AGAINST LATERAL MOVEMENT DURING RUN OF THE TRAIN, WHICH ROLLED OUT, HIT THE GIRDER MEMBERS AND FELL DOWN FROM THE BFR CAUSING OBSTRUCTION TO THE BRAKE VAN AND DERAILMENT OF THE SAME

B) CASUALTIES: - KILLED - 1 (GUARD OF GOODS TRAIN), GRIEVOUS INJURY: NIL, SIMPLE INJURY: - NIL

C) COST: - 7, 95,553/-.

D) CATEGORY - FAILURE OF RAILWAY STAFF.

RECOMMENDATIONS

1. Reliability of Breathalyzer equipments being used needs to be ensured.

2. MG Coaches/wagons shall continued to be worked as captive stock with no facility for their POH, in the MG sections on the Railway till conversion of the sections into Broad Gauge requiring their movement to Workshops on BG routes for the purpose. Railway should forthwith take action to regularize such movement/operation.

3 Certification of fitness should not be based merely on checking brake power and under gear of the rolling stock. Due consideration needs to be given to the size and nature of the consignment and arrangement necessary to secure the same. Necessary detailed instructions and guidelines in this regard should be issued.

4. Considering the dimensions and nature of the consignment with its proneness to roll outward during run of the train, all precautions and checks that are normally required to be taken in case of movement of over dimensioned consignment should be taken for such mode of transporting the MG Trolleys. A proper check-list for the purpose so as to ensure safety should also be drawn and issued.

Alternatively, MG Trolleys should preferably be transported in suitable BOX wagons with sides and open top.

6. UNUSUAL OCCURRENCE OF INJURIES TO TRAVELING PASSENGERS OF 214 DN (PURI-CUTTACK) PASSENGER DUE TO AN UNKNOWN DUMPER NEGOTIATING TOO CLOSE TO THE PASSING TRTAIN BETWEEN MOTARI AND KHURDA ROAD STATIONS OF KHURDA DIVISION OF EAST COAST RAILWAY ON 11.05.2007.

A) CAUSE: - DUE TO AN UNKNOWN DUMPER NEGOTIATING CROSSING WITH SOME OTHER DUMPER/TRUCK/TRACTOR WITH TROLLEY ON THE FORMATION CONSTRUCTED FOR DOUBLING OF THE SECTION ADJACENT TO THE EXISTING TRACK WHICH CAME TOO CLOSE TO THE PASSING TRAIN SO AS TO HIT THE PASSENGERS WHO WERE RESTING THEIR ARMS ON THE WINDOWS WITH THEIR ELBOWS SLIGHTLY PROTRUDING OUT IN THREE COASHES OF THE TRAIN.

B) CASUALTIES:- KILLED - NIL, GRIEVOUS INJURY : 3 (PASSENGERS), SIMPLE INJURY :- 8 (PASSENGERS).

C) COST: - NIL

D) CATEGORY - UNUSUAL INCIDENT/ OCCURRENCE.

RECOMMENDATIONS:

1. Construction Work sites should be adequately protected by barricading and posting guard at key points displaying suitable instructions prohibiting trespass and action against those violating so as to discourage and prohibit trespass.

2. Requirement of safety of operation and problems related thereto at sites close to open line should be identified through periodical joint inspections by Field Officials of Construction Organization and Open Line at appropriate level and action taken so as not jeopardize safety in any case. Joint inspection Reports of Field Officials should be reviewed at higher (Administrative) levels. Matters (if any) pertaining to safety of operation requiring intervention of civil Authorities should be taken up with them so as to ensure safety of operation of open line.

3. Open Line Organization being directly responsible for safety of operation should not only be watchful of any condition/activities close to the open line which may jeopardize safety but also be proactive to take action/measures so as to ensure safety of operation on open line.

7. UNUSUAL OCCURRENCE OF EMISSION OF SMOKE FROM THE BRAKE BLOCKS OF COACH No. GS 028444 SE OF 8104 DOWN TATA NAGAR-AMRITSAR JALLIANWALA BAGH EXPRESS AND TRAIN PASSENGERS FALLING OFF THE BRIDGE NO. 1136 BETWEEN KATGHAR (E) AND DALPATPUR STATIONS OF MORADABAD DIVISION OF NORTHERN RAILWAY ON 16.05.2007.

A) CAUSE: - AS HEAVY SMOKE, SPARKS, FLAMES GOT GENERATED IN THE BRAKE BLOCK AREAS DUE TO THE COMBUSTION OF THE MATERIALS OF COMPOSITE BRAKE BLOCKS. ON SEEING THE SMOKE, SPARKS AND FLAMES THE TRAIN PASSENGERS PANICKED AND RAISED ALARM OF FIRE IN THE TRAIN AND WHEN THIS COACH STOPPED NEAR THE BRIDGE NO. 1136 THE TRAIN PASSENGERS JUMPED OFF NOT KNOWING THAT THERE WAS BRIDGE BENEATH AND FELL OFF THE BRIDGE ONTO THE DRY BED OF THE RIVER/STREAM. THERE WAS NO FIRE INSIDE THE COACH.

B) CASUALTIES: - KILLED - NIL, GRIEVOUS INJURY: 8 (PASSENGERS), SIMPLE INJURY: - 7 (PASSENGERS).

C) COST: - NIL

D) CATEGORY - FAILURE OF RAILWAY STAFF, FAILURE OF PERSONS OTHER THAN RAILWAY STAFF, AND FAILURE OF EQUIPMENT.
RECOMMENDATIONS

1. The composition of the materials used in the composite brakes blocks conforming to RDSO specifications No. 9809 (Rev 2) must be specified by the supplier and approved by RDSO while approving the Quality Assurance Plan of the supplier.

2. There was no stretcher available in the SLR of the train. In this unusual incident stretcher was most required to enable handling of the injured train passengers when they lay helplessly injured with fractured limbs under the bridge.

Train should not be started by the Guard of the train from the starting station when no stretcher is provided in the SLR.

3. Protection of train should invariably be done by the crew of the train and the emergency phones must be set up in the block section during the occurrences of unusual incidents.

8 DERAILMENT OF 2659 DN (NAGERCOIL – HOWRAH) GURUDEV SUPERFAST EXPRESS BETWEEN DUVVADA (DVD) AND GOPALPATNAM (GPT) STATIONS OF WALTAIR DIVISION OF EAST COAST RAILWAY ON 11.06.2007.

A) CAUSE: - DUE TO FRACTURE/BREAKAGE OF RIGHT RAIL WITH CONSIDERABLE LOSS OF METAL IN THE FLANGE OF RAIL AT LOCATIONS UNDER THE METAL LINER AT SPEEPER SEATS DUE TO CORROSION AND A SUMBER OF PSC SLEEPERS BEING BROKEN AT RAIL SEATS WITH MCI. INSERTS MISSING AND ERC CLIPS DEFICIENT WITH POOR STATE OF MAINTENANCE...

B) CASUALTIES:- KILLED - 3 (PASSENGERS), GRIEVOUS INJURY : 7 (PASSENGERS), SIMPLE INJURY :- 19 (PASSENGERS).

C) COST: - 2, 02, 00,000/-

D) CATEGORY - FAILURE OF EQUIPMENT – PERMANENT WAY

RECOMMENDATIONS

1. Severe corrosion of rails in the section and condition of the sleepers could be seen by naked eye. However, no alarm was raised by the Sr. Section Engineer/USFD who scanned the rails on 22.5.2007, which is a matter of concern.

2. Poor condition of maintenance track and inaction on the part of those responsible for maintenance that was fully aware of the condition of the rails, sleepers and fittings in the section reflects poorly on their competency as well as quality of training being received by them which is a matter of concern.

3. Poor quality of maintenance on important Chennai-Howrah route with maximum permissible speed of 105 kmph is a matter of concern.

9. DERAILMENT OF DN FCA BHIM – 242 ON BRIDGE NO. 108 (BOILA) BETWEEN DIHAKHO AND MUPA STATIONS OF LUMDING DIVISION OF NORTHEAST FRONTIER RAILWAY ON 25.06.2007.

A) CAUSE: - DUE TO TRANSFER OF EXTRAORDINARY FORCES ON TO ROLLER ROCKER BEARINGS OF THE LAST (3^{RD}) UNDER SLUNG GIRDER OVER TRESTLE OF PIER P 4 WHICH COULD ARISE DUE TO DERAILMENT OF A WAGON CAUSING THE LEFT/UPSTREAM SIDE ROLLER ROCKER BEARING TO BE KNOCKED OFF FROM TRESTLE TOP LEADING TO FALLING DOWN OF THE 4^{TH} (3^{RD} UNDER SLUNG) AND 5^{TH} SPANS AND CAPSIZING OF LOADS (MULTIUNIT LOCO UNIT) ON IT.

B) CASUALTIES:- KILLED - 7 (6 RAILWAY CREW, & 1 OUTSIDER) GRIEVOUS INJURY : 4 (2 RAILWAY CREW, & 2 OUTSIDERS), SIMPLE INJURY :- 3 (2 RAILWAY CREW & 1 OUTSIDER).

C) COST: - 1, 12, 39.893/-.

D) CATEGORY - FAILURE OF RAILWAY STAFF.

RECOMMENDATIONS

1. Construction activities related to Gauge Conversion/Doubling prove to be Railway affecting. It is important that this fact is acknowledged and appreciated by those responsible for execution of such Projects in the vicinity of the Open Line as well as those responsible for maintenance and safety of train operation.

Ways and means to address the problem in a suitable and satisfactory manner from the stage of planning at the highest level and execution at the grass root level may be devised to guard against creation of conditions having potential to jeopardize safety.

2. Against the Preliminary Report remarks of Railway furnished by Chief Safety Officer, NF Railway which are stated to have the approval of General Manager, NF Railway -

(1) Are premature and made in a hurry without waiting for the Final Report, uncalled for and unwarranted.

(2) Changes suggested tantamount to dictating the Commission and considered as an attempt for unauthorized interference on functioning of the Commission.

It is desirable that railway is counseled suitably and restrained from making such uncalled for and unwarranted remarks.

3. Senior Officers including Chief Safety Officer of the Railway visited and inspected the accident site on 25/26.6.2007. However, no prima-facie cause of the accident was indicated in the First information Report issued on 26.6.2007.

It is desirable that First Information Report invariably indicate prima facie cause of accident.

4. Safety Organization of the Railway responsible for overseeing safety on its system needs to be dispassionate in matters related to safety and necessarily need to rise above departmental bias. Railway's premature, uncalled for and unwanted remarks against the findings in the Preliminary Report reflect it otherwise.

5. Although the accident took place at 0948 hours of 25.6.2007, copy of AXXR bearing No. T/2/7/A/ (DKE-MPP)/2007-2008 dated 26.6.2007 endorsed to the Commission was received on 28.6.2007 reflecting simply that train engine (MU) along with 6 (six) wagon fell down from the bridge No. 108 blocking main line. As a result 7 persons killed and 7 persons injured without indicating prima facie cause.

Over and above communication on telephone, it is important that no delay is caused in sending the derails of the accident through FAX.

6. Perusal of the 2 (two) Reports of Joint Observation taken on 27.6.2007and 1.7.2007 reflect important clues and evidence missing in the Joint Observation taken on 27.6.2007. The above reflects that the efforts of Railway in recording and preservation of important clues and evidence have been far from satisfactory.

7. Breathalyzer and Blood Test are important in accident inquiries. Railway should invariably conduct breathalyzer and collect blood samples of Crew (Loco Pilot, Asstt Loco Pilot and Guard) after the accident for alcoholic test and submit reports thereof.

8. Bridges and tunnels in Lumding – Badarpur Hill Section are more than 100 Years old. There are adverse comments from various quarters regarding their health, upkeep and operation of multi unit locos. Although works for conversion of the section into BG are in progress, however, MG Operation in the section is likely to continue for a considerable period looking at the pace of the progress and other problems in the area. It is therefore desirable that health and condition of bridges and tunnels in the section be got examined and assessed through an independent and competent agency in th4 section in the interest of safety.

9. Considering the trend of accidents on NFR, quality of Train Checking and Passing needs to be strengthened and improved to ensure safety.

10. COLLISSION OF 2716 DOWN AMRITSAR-NANDED EXPRESS WITH A ROAD VEHICLE THREE WHEELER AT THE MANNED LEVEL CROSSING GATE NO. 93 C-CLASS BETWEEN DHOLA MAZRA AND DHIRPUR STATIONS OF DELHI DIVISION OF NORTHERN RAILWAY ON 16.07,2007.

A) CAUSE :- THE GATEMAN ON DUTY OPENED THE LEVEL CROSSING GATE WITHOUT THE PERMISSION OF THE ASM/DHIRPUR, HE DID NOT PROTECT THE RAILWAY TRACK WHILE OPENING THE LEVEL CROSSING GATE AND ALSO WHEN THE THREE WHEELER TEMPO WAS STANDING INSIDE THE GATE. THIS COLLISION ALSO TOOK PLACE BECAUSE THE DRIVER OF THE THREE WHEELER ENTERED THE LEVEL CROSSING GATE WHEN THE TRAIN WAS APPROACHING THE LEVEL CROSSING GATE AND AFTER ENTERING DID NOT MAKE ANY EFFORT TO MOVE HIS THREE WHEELER OUT SIDE THE LEVEL CROSSING GATE NEITHER HE PERSUADED THE GATEMEN TO OPEN THE GATE SO AS TO ENABLE HIM TO DRIVE HIS THREE WHEELER ROAD VEHICLE OUT SIDE THE LEVEL CROSSING GATE.

B) CASUALTIES:- KILLED - 1 (PASSENGER) GRIEVOUS INJURY : 4 (PASSENGERS), SIMPLE INJURY :- NIL

C) COST: - NIL

D) CATEGORY - FAILURE OF RAILWAY STAFF AND FAILURE OF PERSON OTHER THAN RAILWAY STAFF.

RECOMMENDATIONS

1. Railway should undertake a drive to check all the manned non interlocked Engineering level crossing gates to see whether the gateman during the day are planting red flags on the vertical posts or banner flags across the railway track on both sides in case of single line and on all the tracks in case of double or multiple lines before opening the level crossing gates. During night time checks should be carried out to see that gate lamps are put on the vertical posts displaying red light before the level crossing gates are opened.

2. In the gate working instructions failure of lifting barrier should be elaborated to include failure of locking arrangements and action to be taken to ensure locking of the level crossing gates.

3. Gateman on duty should not permit any road vehicle particularly three wheeler or four wheeler road vehicles to stand inside the level crossing gates before the level crossing gate is closed any locked. These provisions should be included in the gate working instructions.

4. Format regarding the opening and closing the Level Crossing gates should be approved by the Railway Administration and printed register with this format should be given to the gatemen on duty for recording the opening and closing of the level crossing gates. The register should contain pages for recording the failures of level crossing gates. Details of failures and rectification of these failures should be recorded on the similar pattern as is done in signal failure register kept with SM/ASMs.

11. HEAD-ON-COLLISSION OF GOODS TRAIN NO. N/KTT UP AND DN VSPS/CONCOR AT SALPURA STATION OF KOTA DIVISION OF WEST CENTRAL RAILWAY ON 28.07.2007.

A) CAUSE: - DUE TO LOCO PILOT PASSING DN OUTER AND HOME SIGNALS AT DANGER.

B) CASUALTIES:- KILLED - NIL GRIEVOUS INJURY : 3 (RAILWAY CREW), SIMPLE INJURY :- 1 (RAILWAY CREW).

C) COST: - 2, 18, 20,000/-..

D) CATEGORY - FAILURE OF RAILWAY STAFF.

RECOMMENDATIONS

1. To train the Guards for efficient working in unusual circumstances, more mock drills may be conducted.

2, more discipline should be observed in ordering of trains and calling of train crew.

12 COLLISSION OF 288 DN KATWA-BARDDHAMAN (NG) PASSENGER TRAIN WITH A TRUCK AT UNMANNED LEVEL CROSSING NO. 5-D BETWEEN KAMNARA HALT AND BARDDHAMAN STATIONS OF HOWRAH DIVISION OF EASTERN RAILWAY ON 05.08.2007.

A) CAUSE: - DUE TO NEGLIGENT DRIVING BY ROAD TRUCK DRIVER.

B) CASUALTIES:- KILLED - 1 (PASSENGER) GRIEVOUS INJURY : 5 (PASSENGERS), SIMPLE INJURY :- 13 (1 RAILWAY CREW &12 PASSENGERS).

C) COST: - 1, 05,000/-.

D) CATEGORY - FAILURE OF PERSON OTHER THAN RAILWAY STAFF.

RECOMMENDATIONS

1. In view of increasing trend of accidents at unmanned level crossings, regular safety drives should be launched by the Railway Administration for the inspection and counseling of road users on unmanned level crossings. Drivers of tractor-trolleys, trucks etc. should also be checked for their knowledge regarding provisions of Section 131 of Motor Vehicles Act 1988 and counseled.

2. Railway Administration must ensure that the various types of level crossing indications, speed breakers, as required to be provided at unmanned level crossing gates are provided as per the laid down norms and standards.

3. There should be a standardized procedure/system for inspection and recording the same. Railway must ensure proper upkeep of the records of inspection of unmanned level crossings.

4. Railway administration must ensure that ex-gratia payment is promptly and expeditiously made to the injured.

13 DERAILMENT OF 2308 DN JODHPUR-HOWRAH EXPRESS BETWEEN GOVINDPURI AND KANPUR CENTRAL STATION OF ALLAHABAD DIVISION OF NORTH CENTRAL RAILWAY ON 07.08.2007.

A) CAUSE: - OVERSPEEDING AND SUDDEN APPLICATION OF BRAKE.

B) CASUALTIES:- KILLED - NIL GRIEVOUS INJURY :11 (PASSENGERS), SIMPLE INJURY :- 20 (PASSENGERS).

C) COST: - Rs.43, 00,000/-.

D) CATEGORY - FAILURE OF RAILWAY STAFF.

RECOMMENDATIONS

1. Intensive checks and monitoring of all the loco pilots, assistant loco pilots and guard of the trains on North Central Railway should be undertaken for their alertness. For this regular drives should be launched by North Central Railway Administration.

2. Railway Administration shall not run trains beyond the sanctioned load of the train without the sanction of the competent authority. As in this particular case train

No. 2038 Dn was running over North Central Railway system with 24 coaches without the sanction of the competent authority.

3. Railway Administration should take necessary action in organizing suitable training/refresher course for the Loco Inspectors who were supposed to counsel the loco pilots.

14. FIRE IN 9038 UP GORAKHPUR-BANDRA TERMINUS AVADH EXPRESS BETWEEN LAKODRA AND PALEJ STATIONS OF VADODARA DIVISION OF WESTERN RAILWAY ON 24.09.2007.

A) CAUSE: - DUE TO ARC SHORTING BY SHAVING BLADE AT THE TERMINAL OF LIGHT FL-2 IN SOUTH WEST TOILET OF COACH NO. 043390.

B) CASUALTIES: - KILLED - NIL. GRIEVOUS INJURY: NIL, SIMPLE INJURY: - NIL

C) COST: - 26.49.700/-.

D) CATEGORY - HUMAN FAILURE.

RECOMMENDATIONS

1. The procedure of disconnecting coach's battery circuit, while extending external feed from another coach, should be strictly implemented.

2. Railway should include fire retardant properties in specifications for PVC pipes for electrical cables in coaches.

15. UNUSUAL OCCURRENCE IN THE BOILER OF STEAM LOCOMOTIVE NO. 15005 WL OF PALACE ON WHEELS TRAIN WHILE IT WAS ON THE RUN BETWEEN DELHI SAFDARJUNG AND BRAR SQUARE STATIONS OF DELHI DIVISION OF NORTHERN RAILWAY ON 03.10.2007.

A) CAUSE: - THE SMOKE/FLUE TUBES WHICH WERE UNSERVICEABLE AND CORRODED COLLAPSED DURING THE RUN OF THE TRAIN PALACE ON WHEELS WHEN IT WAS HAULED BY STEAM LOCOMOTIVE AND AS RESULT STEAM AND HOT WATER ENTERED THROUGH THE COLLPSED TUBES INTO THE FIRE BOX AND MIXED WITH THE BURNING COAL AND HOT ASH AND FLEW OUT OF THE FIRE BOX AND BURNT ALL THE CREW MEMBERS AND RAILWAY OFFICIALS WHO WERE ON THE STEAM LOCOMOTIVE OF

BURSTING OF TUBES OF THE BOILER OF STEAM LOCOMOTIVE. NO POH OF THE BOILER OF THE STEAM LOCOMOTIVE AND NEITHER ANY HYDRAULIC TESTING OF THE FLUE TUBES OF THE STEM LOCOMOTIVE WAS UNDER TAKEN AFTER THE STEAM LOCOMOTIVE WAS RECEIVED FROM THE NATIONAL RAIL MUSEUM AND PUT INTO SERVICE TO HAUL PASSENGER TRAIN. THOUGH UNDERTAKING OF POH AND HYDRAULIC TESTING OF FLUES AT 50% ABOVE WORKING PRESSURE WAS MANDATORY.

B) CASUALTIES: - KILLED - 2 (RAILWAY CREW) GRIEVOUS INJURY: 3 (RAILWAY CREW), SIMPLE INJURY: - NIL.

C) COST: - NIL.

D) CATEGORY - FAILURE OF EQUIPMENT AND FAILURE OF RAILWAY STAFF.

RECOMMENDATIONS

1. Railway should undertake POH of all the steam locomotives which have not undergone any POH after being put out of service on closure of the steam shed and again have been put into service to work heritage, tourist trains and also when used for other purposes such as renting of steam locomotives to Film Industry and for exhibition purposes that is when ever the steam locomotive is required to be lighted up.

2. Complete spares required for the maintenance and repairs of the steam locomotives should be available before any steam locomotive is put into service.

3. Regular system of training of staff in the operation and maintenance of steam locomotives should be set up on Northern Railway.

4. Shri Raghubir Singh who was loco pilot of the ill fated steam locomotive displayed exemplary devotion to duty by stopping the train despite being brunt badly receiving 60% 3rd degree burns and who later died the next day in the ICU and thus saved another disastrous accident of the train as the train virtually had no loco pilot and was running at a speed of 42 kmph. In recognition of his duties he is required to be awarded, posthumously.

5. Shri Harish Chand who worked as Fireman I, Shri Mukesh Meena who worked as Fireman II and Shri Om Prakash who was fitter on duty on the steam locomotive WL 15005 were not devoted to duty and when the accident took place they jumped out of the locomotive to save their lives leaving the train running in a dangerous condition, Suitable action is required to be taken against them.

16 DERAILMENT OF 4309 UP UJJAIN – DEHRADUM UJJAINI EXPRESS BETWEEN KUMBHARAJ AND VIJAIPUR STATIONS OF BHOPAL DIVISION OF WEST CENTRAL RAILWAY ON 24.10.2007.

A) CAUSE: - DUE TO DISCONTINUITY IN THE LEFT RAIL ON ACCOUNT OF MULTIPLE RAIL FRACTURE DURING THE PASSAGE OF THE TRAIN.

B) CASUALTIES: - KILLED - NIL, GRIEVOUS INJURY: NIL, SIMPLE INJURY: - NIL
C) COST: - 34, 60,000/-..

D) CATEGORY - FAILURE OF RAILWAY EQUIPMENT

RECOMMENDATION

NIL

17. COLLISION OF 2176 DN GWALIOR-HOWRAJ CHAMBAL EXPRESS AT REAR END OF 2133 DN PUNE DARBHANGA GYAN GANGA EXPRESS BETWEEN NAINI AND ALLAHABAD STATIONS OF ALLAHABAD DIVISION OF NORTH CENTRAL RAILWAY ON 08.11.2007.

A) CAUSE: - THE COLLISSION TOOK PLACE DUE TO NON-OBSERVNCE OF SIGNAL ASPECT OF AUTOMOTIC SIGNAL NO. 207 BY THE DRIVER OF 2176 DN GWALIOR-HOWRAH CHAMBAL EXPRESS TRAIN.

B) CASUALTIES:- KILLED - NIL , GRIEVOUS INJURY : 2 (PASSENGERS), SIMPLE INJURY :- 1 (PASSENGER).

C) COST: - Rs.31, 30,000/-.

D) CATEGORY - FAILURE OF RAILWAY STAFF.

RECOMMENDATIONS

1. Intensive checks and monitoring of all the loco pilots, assistant loco pilot and guard of the trains on North Central Railway should be undertaken for their alertness. For this regular drives should be launched by North Central Railway Administration.

2. Railway Administration should take necessary action in organizing suitable training/refresher courses for the Loco Inspectors who were supposed to counsel the loco pilots.

18. DASHING OF THREE WHEELER WITH 340 DN. JODHPUR-BHATINDA PASSENGER AT UNMANNED LEVEL CROSSING BETWEEN RAI KA BAGH PALACE JN. AND BANAR STATIONS OF JODHPUR DIVISION OF NORTH WESTERN RAILWAY ON 20.11.2007.

A) CAUSE: - DUE TO NEGLIGENT DRIVING BY UNKNOWN DRIVER OF AUTORICKSHAW.

B) CASUALTIES:- KILLED - NIL , GRIEVOUS INJURY : 6 (PASSENGERS), SIMPLE INJURY :- 3 (PASSENGERS).

C) COST: - NIL.

D) CATEGORY - FAILURE OF PERSON OTHER THAN RAILWAY STAFF.

RECOMMENDATIONS

1. Unmanned level crossings, having such local conditions that road vehicles can bypass speed breakers, should be identified and on these LCs, suitable obstructions be provided to eliminate possibility of bypassing of speed breakers by road vehicles.

2. Education campaign should be conducted in the area for counseling road users in proper method of passing through unmanned level crossings.

3. Loco Pilots should be counseled by Loco Inspectors to give only verified information to stations and Control.

4. Railway should review the position of availability of brake van safety equipment and take action to ensure availability of prescribed brake van equipment.

19. REAR END COLLISION BETWEEN 0112 UP KONKAN-KANYA EXPRESS AND RAIL MAINTENANCE VEHICLE BETWEEN BHOKE AND UKSHI STATIONS OF RATNAGIRI REGION OF KONKAN RAILWAY ON 27.11.2007.

A) CAUSE: - DUE TO RASH DRIVING OF THE RMV OPERATOR AND THE NON-AVAILBILITY OF TAIL LAMPS ON THE REAR SLR OF 0112 UP TRAIN.

B) CASUALTIES:- KILLED - NIL , GRIEVOUS INJURY : 3 (2 RAILWAY CREW, 1 PASSENGER), SIMPLE INJURY :- 3 (RAILWAY CREW).

C) COST: - Rs.1, 50,000/-.

D) CATEGORY - FAILURE OF RAILWAY STAFF.

RECOMMENDATIONS

1. It is proposed that a Committee of HODs of various departments of KR may consider various conditions to be followed by RMV staff, SMs,Guard, etc. for RMV following a train and include the same in Para 4.65.

Till comprehensive instructions are issued, the RMV 'Following the Train System' may be held in abeyance.

2. The Railway Board may assist KRC in provision of ACD, on all locomotives/brake vans plying on KRCL.

20 DERAILMENT OF 4055 DOWN BRAHMAPUTRA MAIL BETWEEN RANGAPANI AND NIJBARI STATIONS OF KATIHAR DIVISION OF NORTHEAST FRONTIER RAILWAY ON 09.12.2007.

A) CAUSE: - DUE TO DEFECT IN COACH NO. NR GS 16330 POSITIONED 3RD FROM LOCO AND BAD ENGINEMANSHIP INVOLVING OVER- SPEED.

B) CASUALTIES:- KILLED - 1 (RLY CREW), GRIEVOUS INJURY: 8 (PASSENGERS), SIMPLE INJURY :- 3 9(PASSENGERS).

C) COST: - Rs. 1, 18, 67,049/-.

D) CATEGORY - FAILURE OF RAILWAY STAFF.

RECOMMENDATIONS

1. Accident brought to the focus weakness of Loco Pilot who exceeded the maximum permissible speed of the section and met with the accident after taking over the Loco at New Jalpaiguri and covering a distance of barely 13 km being not skilled enough to handle the new Loco (WDP 4) having features different from other Diesel Locos in operation on the Railway. It is important that adequate training and knowledge is imparted before Loco Pilot is allowed to handle new type of Locos. It being ensured that Loco inspector accompanies Loco Pilot on footplate of new Locos and assures himself of Loco Pilot having acquired the skill to handle the new Loco independently.

2. Coach (NR WGACCW 97051 14th from T/E) over for POH, Coach No. NR GS 16330 (3rd from T/E) and NR WCB 2174 (Pantry Car) with considerable corrosion allowed to be run in the formation of 4055 Dn which met with the accident is a matter

of concern. Observance of strict discipline and qualitative improvement in Train Checking and Passing are must to improve/ensure safety.

3. Identification of defects and preservation of clues is important to arrive at the cause of the accident. Railway should ensure joint recording of defects/clues which come to the notice without any reservation whatsoever and display transparency in the matter.

4. Analysis of events recorded by data-loggers help in arriving at the conclusion in accident inquiries. It is important that data-loggers are maintained and kept in good fettle.

5. Senior Officers including Chief Safety Officer of the Railway visited and inspected the accident site on 10.12.2007. However, no prima-facie cause of the accident was indicated in the First Information Report, issued on 10.12.2007. First Information Report should invariably indicate prima facie cause of accident.

6. Perusal of the 3 (three) Reports of Joint Observation dated 10.12.2007; 18.12.2007 & 19.12.2007 reflect important clues and evidence missing in the Joint Observation taken on 10.12.2007. The above reflects of efforts of Railway in recording and preservation of important clues and evidence being far from satisfactory.

7. Breathalyzer and Blood Test are important in accident inquiries. The time that passes between drinking alcohol and collecting the blood or breath sample affects test results as the body continues to break down alcohol after drinking. Railway should ensure that the crew is subjected to breathalyzer test and blood samples collected for examination of Blood Alcohol Concentration (BAC) in the Forensic Laboratory at the earliest after the accident.

8. Trains need to be adequately manned as per norms and scale prescribed and Railway should ensure the same so as to cater, organize and render immediate 1st aid and relief to the injured without any loss of precious time in case of accident.

9. It is important that the officials of Safety Organization of N.F. Railway discharge their role and functions properly and efficiently.

10. Periodical testing of rails and weld joints shall be ensured by the Railways as per the frequency and procedure prescribed in the Manual for Ultrasonic Testing of Rails and Welds Revised – 2006 falling which preventive measures shall be taken so as not to jeopardize safety of operation in any case.

11. Claim for compensation should be settled expeditiously in favor of the next of kin of the Pantry Car Staff who lost his life for no fault of his in the mishap.

21. DERAILMENT OF 2958 UP NEW DELHI-AHMEDABAD SWARAN JAYANTI RAJDHANI EXPRESS BETWEEN SIROHI ROAD AND BANAS STATIONS OF AJMER DIVISION OF NORTH WESTERN RAILWAY ON 13.12.2007.

A) CAUSE: - DUE TO RAIL FRACTURE..

B) CASUALTIES: - KILLED - NIL, GRIEVOUS INJURY: NIL, SIMPLE INJURY: - NIL.

C) COST: - Rs. 12, 50,000/-.

D) CATEGORY - FAILURE OF EQUIPMENT – RAIL FAILURE.

RECOMMENDATIONS

1. Railway should ensure that staff working on a line is made aware of using emergency sockets whenever communication is transferred from overhead alignment to underground cable.

2. Railway should ensure satisfactory maintenance of fish plated joints and periodical opening and inspection of fish plated joints in stretches where incidences of rail failures at rail ends occur.

3. Railway should ensure that only prescribed reference is used for location marking by all concerned.

4. Railway should prescribe common standards for emergency sockets and PCPs and arrange to modify existing sockets and PCPs as per these standards through out Indian Railways. Till it is achieved, two PCPs, one suitable for each type of emergency sockets, should be provided in the brake van equipment.

5. Railway should ensure that speedometer clocks are synchronized with Indian Standard Time during trip inspections of locomotives.

22. COLLISION OF 4629 UP FIROZPUR SUTLEJ EXPRESS WITH A MINI BUS AT MANNED LEVEL CROSSING GATE NO. 40 C-CLASS BETWEEN JAGRAON AND AJITWAL STATIONS OF FIROZPUR DIVISION OF NORTHERN RAILWAY ON 14.12.2007.

A) CAUSE: - THE GATEMAN ONDUTY OPENED THE LEVEL CROSSING GATE WITHOUT TAKING PERMISSION FROM ASM AJITWAL ON DUTY WITH WHOM THE LEVEL CROSSING GATE IS CONNECTED WITH THE MAGNETO PHONE AND ALSO DID NOT PROVIDE A LIGHTED HAND SIGNAL LAMP ON THE VERTICAL POST DISPLAYING RED SIGNAL

SINCE THERE WAS HEAVY FOG SO AS TO PROTECT THE RAILWAY TRACK BEFORE OPENING THE LEVEL CROSSING GATE.

THE LOCO PILOT OF THE TRAIN ALSO DID NOT REDUCE THE SPEED OF THE TRAIN DESPITE THERE BEING HEAVY FOG AND THE VISIBILITY BEING VERY POOR. HE OR HIS ASISTANT LOCO PILOT ALSO DID NOT BLOW THE HORN CONTINUOUSLY FROM THE W/L BOARD TILL THE LEVEL CROSSING GATE. THE LOCO PILOT AND THE ASSISTANT LOCO PILOT FAILED TO SEE THE W/L BOARD DUE TO DENSE FOG AND HIGH SPEED OF THE TRAIN.

B) CASUALTIES:- KILLED - 16 (BUS PASSENGERS), GRIEVOUS INJURY: 8 (BUS PASSENGERS), SIMPLE INJURY :- 6(BUS PASSENGERS).

C) COST: -Rs. 20,000/-.

D) CATEGORY - FAILURE OF RAILWAY STAFF.

RECOMMENDATIONS

1. Till such time the Manned (Engineering) Level Crossing gates which are having normal position as closed to road traffic where the TVUs is more than 25,000 are protected by gate signals the gate working instructions should be changed to provide that the ASM shall exchange the private number with the gateman in confirmation of closure of level crossing gate before line clear is given for train or the train is dispatched into the block section. The private numbers shall not be exchanged too early so as to cause detention to road traffic by more than 15 minutes at these level crossing gates.

Railway administration to under take up gradation and interlocking of the Level Crossing gates with signals expeditiously and keep the normal position as open to road traffic.

2. Drive should be under taken by the Railway Administration to ensure that the gateman plant red banner flag across the track during the day and hand signal lamps displaying red light during the night before opening the Level crossing gate. Surprise checks should also be made.

3. During heavy fog the Loco Pilot must work the trains at reduced speeds depending upon the braking distance of the train and the extent of visibility. A booklet/chart giving these details can be prepared by the Railway Administration and can be given to the Loco Pilot and Assistant Loco Pilot or incorporated in the working Time Table.

4. In the gate working instructions, instructions should be specified regarding handing over and taking over charge of Level Crossing gate.

5. Printed registers should be supplied by Railway Administration for recording various particulars regarding opening and closing of Level Crossing gates.

23. DERAILMENT OF TL-17 DOWN CSTM-TITWALA EMU LOCAL TRAIN BETWEEN KURLA AND VIDYAVIHAR STATIONS OF MUMBAI DIVISION ON CENTRAL RAILWAY ON 23.12.2007.

A) CAUSE: - DUE TO MALFUNCTIONING OF POINT MACHINE.

B) CASUALTIES:- KILLED - 1 (PASSENGER), GRIEVOUS INJURY: 2 (PASSENGERS), SIMPLE INJURY :- 3 (PASSENGERS).

C) COST: - Rs. 79, 67,500/-.

D) CATEGORY - FAILURE OF EQUIPMENT.

RECOMMENDATIONS

1. Construction Organization should observe adequate precautions as per Board's letter No. 2003/10/RCIL/1/PT.IX dated 04.05.2007, while working near the running lines so as not to damage the cables/OFC along the track.

2. CE/C should ensure adequate barricading while working near running lines.

3. S&T Deptt. Should ensure that data loggers are available at all PI stations in working order.

24. COLLISION OF 5211 UP DARBHANGA-AMRITSAR JANNAYAK EXPRESS AT REAR END OF UP MDPB GOODS TRAIN AT BODARWAR STATION YARD OF VARANASI DIVISION OF NORTH EASTERN RAILWAY ON 29.01.2008.

A) CAUSE: - THE COLLISION TOOK PLACE DUE TO DISREGARD OF SIGNAL BY THE DRIVER OF 5211 UP DARBHANGA-AMRITSAR, JANNAYAK EXPRESS

B) CASUALTIES:- KILLED - 1 (PASSENGER), GRIEVOUS INJURY: 4 (1 RAILWAY CREW & 3 PASSENGERS), SIMPLE INJURY :- 7 (PASSENGERS).

C) COST:-Rs. 60, 75,633 /-.

D) CATEGORY - FAILURE OF RAILWAY STAFF.

RECOMMENDATIONS

1. Action should be taken to improve general safety awareness and consciousness among the train operation staff. For this regular drives should be launched by North Eastern Railway Administration.

2. Intensive checks and monitoring of all the loco pilots, assistant loco pilots and guard of the trains on North Eastern Railway should be undertaken for their alertness. For this regular drives should be launched by North Eastern Railway Administration.

3. Railway must ensure proper upkeep of their machineries including the DG sets wherever provided.

4. Railway administration must ensure that ex-gratia payments are promptly and expeditiously made to the injured passengers.

25. DERAILMENT OF TRAIN No. 727 MADURAI-KOLLAM UP PASSENGER BETWEEN VALLIYUR AND ARALVAYMOLI STATIONS OF TRIVANDRUM DIVISION OF SOUTHERN RAILWAY ON 20.03.2008

A) CAUSE: - FAILURE OF 90 R ALUMINO THERMIC SKV WELD ON TRANSITION CURVE OF 2^0 CURVE WHEN THE TRAIN WAS EXITING FROM CURVE. .

B) CASUALTIES: - KILLED - NIL, GRIEVOUS INJURY: 7 (PASSENGERS), SIMPLE INJURY: - 18 (PASSENGERS).

C) COST: - Rs.3, 33, 75,000/-.

D) CATEGORY - FAILURE OF EQUIPMENT (WELD FAILURE).

RECOMMENDATIONS

1. Both the MRV's viz. Quilon & Madurai have taken more time than the normal to start MRV's Railways to look into this and take remedial action.

2. Heavy Corrosion noticed in the underside of Coaches, Railway need to take urgent action to prevent corrosion, besides taking action to measure extant of loss of section due corrosion of various components and take action as required if loss of section is beyond permissible limits.

3. The work of provision of joggled fishplates for all Alumino Thermic Welds is in progress, this work has to be hastened up and completed at the earliest. TRR shall be sanctioned and executed early.

4. From the Report of WRI/Tiruchy it could be seen that improper welding in coaches caused the two abnormal failures mentioned above in the coaches. Hence Railways shall take immediate and adequate actions to eliminate such situation by improving quality of welds in Coach Manufacturing units, shops which takes up POH and Maintenance Depots.

5. Also Railway to consider Mid Life Rehabilitation of Mandatory Schedule and arrange to same by arranging resources for the same.

6. It was recommended to Railways, after getting the information about the Rail Stresses, to review the speed permitted for locos on the section to bring the stresses well within the permissible limit. Railways have advised that they have reduced the speed, further Commission has advised to review the speed for WDP2, WDG3A, WDM3D and such other loco/Rolling stock, as the stresses were higher even at 60 Kmph. The same exercise shall be carried out through out the Railways under advice to Commission.

APPENDIX - V

LIST OF NEW RAILWAY LINES ETC. AUTHORISED FOR PASSENGER TRAFFIC 2007-08

A. NEW LINES

S.No.	Date of Authorization	Section Opened	Railway	Km
1.	20.07.2007	Tirumailai - Velachery	Southern	16.603
2.	08.11.2007	Kakapora - Budgam	Northern	24.623
3.	14.11.2007	Adraj Moti - Gandhinagar	Western	10.390
4.	18.02.2008	Diva - Kalyan	Central	10.750
5.	19.02.2008	Bansapahar - Ohan	West Central	5.230
6.	27.02.2008	Ujjain – Ujjain “C” Cabin	Western	1.857
			TOTAL	**69.453**

B- DOUBLING

S.No.	Date of Authorization	Section Opened	Railway	Km
1.	16.04.2007	Sonpur - Dighawara	East Central	23.271
2.	31.05.2007	Allahabad - Subedarganj	North Central	2.555
3.	15.06.2007	Bale - Pakni	Central	11.500
4.	06.07.07	Borivali - Vasai	Western	15.920
5.	20.07.2007	Dasuya - Mukerian	Northern	15.872
6.	07.08.2007	Hapur - Simbhaoli	Northern	20.402
7.	19.08.2007	Uslapur -Bilaspur	South East Central	8.360
8.	19.09.2007	Jasra - Madraha	North Central	5.270
9.	26.09.2007	Anupganj - Utratia	Northern	14.405
10.	27.09.2007	Bale - Solapur	Central	6.270
11.	29.09.2007	Yesvantpur - Golhalli	South Western	9.220
12.	26.10.2007	Semapur - Karhagola	East Central	11.100
13.	26.10.2007	Katareah - Naugachia	East Central	11.790
14.	26.10.2007	Maheshkhunt - Gauchari	East Central	4.100
15.	06.11.2007	Jammu Tawi - Vijaypur	Northern	20.980
16.	04.12.2007	Kengeri - Bidadi	South Western	17.342
17.	13.12.2007	Guntur - Mangalagiri	South Central	20.280
18.	14.12.2007	Daudpur- Chainwa	North Eastern	15.860
19.	14.12.2007	Kataydandi - Mijiari	North Central	12.600
20.	09.01.2008	Titlagarh - Kesinga	East Coast	12.957
21.	09.01.2008	Norla road – Lanjigarh Road	East Coast	11.314
22.	10.01.2008	Khurda Road - Delang	East Coast	15.140
23.	18.01.2008	Baktal - Phanda	Western	20.520
24.	31.01.2008	Simbhaoli - Garhmukteshwar	Northern	9.666
25	09.02.2008	Pun Pun - Taregna	East Central	16.112
26	17.02.2008	Samar Gopalpur - Julana	Northern	21.600
27	01.03.2008	Lohgara - Madraha	North Central	6.013
28	01.03.2008	Majihari - Lohgara	North Central	18.625
29	07.03.2008	Dasuya – Tanda Urmur	Northern	13.060
30	13.03.2008	Uren - Kajra	Eastern	4.070
			TOTAL	**406.554**

C – GAUGE CONVERSION

S.No.	Date of Authorization	Section Opened	Railway	Km
1.	12.04.2007	Sakleshpur – Subrahmanya Road	South Western	54.600
2.	16.05.2007	Pudukkottai – Karaikkudi Jn.	Southern	36.278
3.	29.05.2007	Manamadurai Jn. - Rameswaram	Southern	113.058
4.	11.06.2007	Ajmer – DET DET - Chanderia	North Western	179.761
5.	20.06.2007	Nimach - Ratlam	Western	132.954
6.	26.07.2007	Osmanabad - Latur	Central	79.164
7.	27.07.2007	Farukhabad Jn. - Kasganj	North Eastern	107.840
8.	03.08.2007	Samakhailli - Gandhidham	Western	52.980
9.	19.09.2007	Darbhanga - Jaynagar	East Central	69.798
10.	03.10.2007	Alipurduar Jn. - Bamanhat	Northeast Frontier	72.737
11.	04.10.2007	Delhi Sarai Rohilla – Delhi Cantt.	Northern	11.000
12.	15.10.2007	Katihar - Mukuria	Northeast Frontier	34.610
13.	22.10.2007	Narahan - Samastipur	East Central	23.510
14.	14.11.2007	Kalol – Adraj Moti	Western	10.100
15.	15.11.2007	Vriddhachalam - Attur	Southern	84.090
16.	15.11.2007	Attur – Salem Market	Southern	50.130
17.	21.11.2007	Purna – Hingoli	South Central	80.330
18.	10.12.2007	Khodiyar – Sabarmati – Shahibahg Cabin	Western	10.538
19.	20.12.2007	Tenkasi Junction – Sengottai	Southern	8.240
20.	11.01.2008	Patrasayer - Rainagar	South Eastern	40.347
21.	09.02.2008	Rusera Ghat - Narthan	East Central	6.010
22.	12.02.2008	Kariganuru - Bayaluvoddigeri	South Western	11.920
			TOTAL	**1269.995**

D - DIVERSION

S.No.	Date of Authorization	Section Opened	Railway	Km
1.	18.05.2007	Shambu - Rajpura	Northern	2.534
2.	26.05.2007	Rajpura -Shambu	Northern	2.534
3.	31.05.2007	Komali - Jutur	South Central	2.876
4.	30.07.2007	Panchgram - Katakhal	Northeast Frontier	3.135
5.	22.08.2007	Hastavaramu - Nandalur	South Central	2.556
6.	17.10.2007	Sitafalmandi A Cabin	South Central	0.739
			TOTAL	**14.374**

E - ELECTRIFICATION

S.No.	Date of Authorization	Section Opened	Railway	Km
1.	31.05.2007	Allahabad - Subedarjanj	North Central	2.603
2.	20.07.2007	Tirumailai - Velachery	Southern	16.603
3.	19.08.2007	Uslapur - Bilaspur	South East Central	8.360
4.	22.08.2007	NTPC Block Cabin Budharj Angul	East Coast	15.000
5.	21.11.2007	Krishnanagar - Lalgola	Eastern	126.615
6.	07.12.2007	Tirupati- Pakala - Katpadi	South Central	103.000
7.	13.12.2007	Guntur - Mangalogiri	South Central	20.280
8.	10.01.2007	Khurda Roar - Delang	East Coast	15.140
9.	09.02.2008	Pun Pun - Taregha	East Central	16.112
10.	18.02.2008	Diva - Kalyan	Central	10.750
			TOTAL	**334.415**

APPENDIX - VI

ACTIVITIES IN REGARD TO DELHI METRO RAIL CORPORATION

1.0 INTRODUCTION

1.1 The Delhi Metro Railway (Operation & Maintenance) Act 2002 vide its Section 7, provides that the Central Government may appoint one or more Commissioner of Metro Railway Safety. The duties and functions of the Commissioner of Metro Railway Safety are given in various sections of this Act, which mainly pertain to the opening of the new Metro Railway, use of new type of rolling stock, sanction of new minor works on already opened Metro railway and investigation of accidents etc. These are very similar to the provisions in Railway Act, 1989 for Commissioner of Railway Safety.

1.2 Section 12 of the Delhi Metro (O&M) Act also provide for preparation of Annual Report by the Commissioner for each financial year giving a full account of his activities during the previous financial year and forwarding the same to Central Government who shall cause the Annual Report of the Commissioner to be laid, after its receipts, before each House of Parliament under Section 13 of the Act.

1.3 Ministry of Civil Aviation vide letter No. A.11013/01/2002-RS dated 03.06.2008 has authorized Shri R.K.Kardam, Commissioner of Railway Safety(CRS),Northern Circle to act as Commissioner of Metro Railway Safety (CMRS) for Delhi Metro. As CMRS is also CRS under Ministry of Civil Aviation as such the report of CMRS is included in the annual report of Commission of Railway Safety.

2.0 HISTORY

2.1 A Technical Economic Study was carried out by M/s RITES in the year 1990, at the instance of Delhi Govt, and in pursuance of the Cabinet decision, a Detailed Project Report (DPR) was prepared by them during the year 1995. In their feasibility report of 1990 M/s RITES had recommended Integrated Multi Model Mass Rapid Transport System (IMMRTS) for Delhi comprising of three components viz Rail Corridors (Surface/Elevated), Metro Corridors (Underground) and dedicated bus way, for a total network of 184.5 kms. The network was later proposed to be extended to connect Vasant Kunj an additional length of 14 kms, increasing the length of total network to 198.5 kms. The study recommended implementation of network in 16 sections, in a sequence based on traffic density. The recommended first phase project of 67.5 km comprised of 02 Metro Corridors, 02 Rail Corridors and a Bus Way.

2.2 At the DPR stage in 1995, M/s RITES made certain changes in the first phase network including the change of Bus Way to Metro Corridor. The first phase network was further modified on the advice of Ministry of Urban Affairs & Employment and Govt. of National capital Territory of Delhi, and it was reduced to a length of 55.3 kms due to various constraints. The Govt of India gave its approval for taking up the Phase –I of Delhi MRTS project in Sept. 1996 as under: