

GOVERNMENT OF INDIA
MINISTRY OF CIVIL AVIATION
(COMMISSION OF RAILWAY SAFETY)

Office of the Commissioner of Railway Safety,
Eastern Circle, 14, Strand Road (12th Floor),
Kolkata - 700001.

No.

Dated:

To
The Chief Commissioner of Railway Safety,
Ashok Marg,
Lucknow - 226 001.

Sir,

Sub: Preliminary narrative report on "Incident of fire in 02 AC 3 Tier coaches of 13009 Up Howrah Dehradun Express at 2.35 hrs on 22.11.2011 between Nimiaghat and Parasnath stations on Grand Chord (GC) section of Dhanbad Division of East Central Railway."

INTRODUCTION

1.1 Preamble

In accordance with Rule 3 of the "Statutory Investigation into Railway Accidents Rules, 1998" published by the Ministry of Civil Aviation, I hereby submit a brief Preliminary narrative Report of my Statutory Inquiry in respect of the Incident of fire in 02 AC 3 Tier coaches of 13009 Up Howrah Dehradun Express at 2.35 hrs on 22.11.2011 between Nimiaghat and Parasnath stations on Grand Chord (GC) section of Dhanbad Division of East Central Railway.

1.2 Inspection and Inquiry -

- 1.2.1 At 4.50 hrs on 22.11.2011, I received a call on my mobile phone from CSO/ECRly stating that there was a report of fire in AC coach of 13009 Up Howrah Dehradun Express over Dhanbad division. There was no information about any injury/casualty. He along with other HODs of ECRly would be proceeding to the site of incident. DRM and divisional officers already left for the site. I requested him to let me have details as soon as are available.
- 1.2.2 CSO/ECRly spoke to me again at 7.05 hrs and mentioned that he was on way to the site alongwith AGM and PHOD/HODs. DRM and BOs had already reached the site. As he could gather, one casualty is apprehended. He stated that he would furnish detail picture on arrival at the site.
- 1.2.3 As I learnt that DRM had already reached the site, I tried to contact him on his mobile phone at about 7.15 hrs but the call did not materialize and I sent him following message on his mobile phone. " I wish to know injury/casualty details. Urgent – CRS EC"
- 1.2.4 DRM spoke to me at 07.17 hrs and narrated the details of the incident. He stated that fire got initiated in B1 AC 3 Tier coach. This coach alongwith adjoining AC3 Tier

coach (B2) had been separated from the train. Most of the passengers could detrain. However, one girl of about 5 years could have been left entrapped inside as her mother was weeping and crying outside for help. B2 coach had also been affected but all of its passengers could get down before spread of fire. Medical assistance and Fire Brigades had arrived. Fire had been extinguished and once the coaches get cooled, he would go inside the coaches to find if there was any more casualty. Assistance to all the passengers was being extended. I expressed my intention to visit the site and conduct inquiry into the incident.

- 1.2.5 At 7.23 hrs, I spoke to CCRS and apprised him of the incident. I also informed him of my intention to inspect the affected coaches and to conduct inquiry commencing from 23.11.2011.
- 1.2.6 I smsed following messages to CSO/ECR and DRM/DHN at 7.29 hrs and 7.31 hrs respectively. “ I intend to conduct inquiry into the accident. Please ensure preservation of clues/evidence – CRS/EC”.
- 1.2.7 At 7.52 hrs, CSO/ER was spoken and asked to instruct Sr DME (C&W) HWH and Sr DEE(G) HWH to jointly inspect the affected coaches and submit a joint report to me. This was due to the fact that the ill fated train is based for primary maintenance with Howrah division.
- 1.2.8 At 10.21 hrs, CSO/ECR spoke to me and furnished casualty details of 07 passengers of B1 coach. He was advised my inspection and inquiry programme: site/ coach inspection – Forenoon of 23.11.2011, 1st day inquiry to be held at GMO on 23.11.11 from 12.00 hrs and 2nd day inquiry on 24.11.2011 at Dhanbad starting at 10.00 hrs. I requested him to arrange for Press Notification in regard to conduct of my statutory inquiry as per above programme. He was also advised to arrange for required witnesses and make other necessary arrangements to facilitate site inspection and inquiry.
- 1.2.9 Advice was also made to arrange written information to local DM and SP about the programme of my statutory enquiry.
- 1.2.10 GM/ECRly vide my letter no. 379/H dated 22.11.2011 was also informed of my programme for inspection and inquiry. HODs and other officers required to be present during the inspection/inquiry were also listed.
- 1.2.11 As advised, Railway arranged to publish Press Notification in leading Newspapers of Dhanbad, Ranchi and Patna, both in Hindi and English about holding of my statutory inquiry on 23.11.2011 from 12.00 hrs to 18.00 hrs at officers’ Rest House, GMO and on 24.11.2011 from 10.00 hrs to 18.00 hrs at Conference Hall, DRM/DHN’s office inviting members of public having knowledge relating to the accident or matters connected therewith to tender evidence at the inquiry or to write to my office address at 14 Strand Road, 12th floor, Kolkata – 700 001. Similar Notification was published in leading News papers of Kolkata in Bangla also.
- 1.2.12 I reached Gomoh early in the morning by 12321 Up Howrah Mumbai Mail. GM/ECRly had also arrived from Delhi and we together with DRM/DHN, CSO/ECRly and other HODs/officers proceeded for the site of incident.
- 1.2.13 After inspection of the site of accident, we returned back to Gomoh by about 12.00 hrs and inquiry proceeding began. The inspection of the coaches which were

available at Gomoh were programmed in the afternoon alongwith forensic team from FSL, Ranchi who were expected by about 13.00 hrs.

1.2.14 During inquiry on 23.11.2011, following senior officers of ECRLy and ERly were present. BOs were called as and when required.

- i) Sri K.Mukhopadhyaya, CSO/ECRLy.
- ii) Sri Arvind Kumar, CCM/ ECRLy
- iii) Sri Naimul Haque, CESE/ECRLy
- iv) Sri Hmid Akhatar, CRSE (Coaching)/ECRLy
- v) Sri A.K.Sharma, CESE/ERly
- vi) Sri D.Bhattacharya, SRM/HWH, ERly.
- vii) Sri Rajesh Mohan, ADRM/DHN

Sri Sudhir Kumar, DRM/DHN was present for some part and was occupied mostly with GM/ECRLy.

1.2.15 During my inquiry on 23.11.2011, requirements of various documents/evidences were explained to CSO, HODs, DRM and Branch officers. They were impressed upon to compile the same and hand over to me by next day i.e. 24.11.2011. 05 railway staff who had given their statement were interrogated. Sri Kundan Kumar, BDO/Giridih attended from Civil administration side and Sri Ajit kumar Singh, SI (Police) Nimiaghat Thana from police side. No member of public or any passenger attended the inquiry. The inquiry continued till about 19.00 hrs and thereafter we proceeded for Dhanbad where next day inquiry was scheduled.

1.2.16 On 23.11.2011 AN, we had a break from the inquiry proceeding to inspect the two burnt coaches. Forensic team from FSL/Ranchi had also arrived. During my inspection, CEE/ECRLy, CSO/ECRLy, CRSE (Coaching)/ ECRLy, CESE/ERly, SRM/HWH ADRM/DHN, Sr DME(C&W)/HWH, Sr DEE(G), Howrah and other concerned Branch Officers of Dhanbad division were present. Minute inspection of various locations of the coach was done. Whereas upper portion of the inside of both the coaches were completely burnt, the undergearing portions including underslung members were by and large unaffected. RMPUs in both the coaches were found less affected compared to inside of the coach.

1.2.17 On 24.11.2011, the inquiry proceeding began at 10.00 hrs in the Conference Hall of DRM, Dhanbad's office. During the inquiry I was assisted by following senior railway officers:

- i) Sri K.Mukhopadhyay, CSO/ECRLy
- ii) Sri Sudhir Kumar, DRM/DHN
- iii) Sri Chetram, CMPE/ECRLy (Acting CME)
- iv) Sri Hamid Akhatar, CRSE (Chg)/ECRLy
- v) Sri P.K.Raghav, CCM (Catering)/ECRLy
- vi) Sri A.K.Sharma, CESE/ERly
- vii) Sri D.Bhattacharya, SRM/HWH, ERly
- viii) Sri Rajesh Mohan, ADRM/DHN.

Besides, Branch officers of Dhanbad and Howrah were called as and when required. 13 railway officials who had submitted their statement were interrogated. Sri Sahabuddin Purkit of village PurbaRadhanagar, P.O. Ghole. PS- Khanakul, Dist. Hooghly along with eight persons appeared during the enquiry and informed missing of his nephew Naziul Mallik who was travelling in B1 coach on berth no 11 against pnr no. 6303732250. They were heard patiently and DRM/DHN assured them needful action in this regard.

Sri Arjun Singh of 34 – Kalikrishna Tagore Street, Kolkata– 700 007 also presented himself alongwith 2-3 companions and stated that his wife Smt. Kusum Singh who was travelling on berth no. 36 in B1 coach against pnr no. 630 3170478 could not come out as per adjoining passengers and got entrapped and burnt. He requested for dead body of his wife. DRM explained him the situation and assured him to communicate with him in 2-3 days time.

1.2.18 While I was at Dhanbad for my inquiry, I requested CCRS on 24.11.2011 to depute Sri Mohit Sonakia Dy CRS (ET) and Sri Utam Prakash Dy CRS (Mech), Lucknow to inspect the burnt coaches at Gomoh and submit their joint report. This was in view to get an independent expert observations and opinion in regard to fire in the coaches. They inspected the coaches at Gomoh on 26.11.2011 and submitted their Joint report on 28.11.2011.

1.2.19 On 30.11.2011, I went to coaching depot, Tikiapara of Eastern Railway to understand various features of a Self Generating AC 3 Tier Coach. During my inspection, CRSE/ERly, CETE/ERly (deputizing for CESE/ERly who was out of station). SRM/HWH, Sr DME (C&W)/HWH and Sr DEE(G) Howrah were present. Trial was also conducted on some of the coach furnishing materials in regard to their fire retardant characteristics. Log Book (Electrical) of coach ERWGACCN 07113 (B1) from the month of Oct 2011 was perused and found no booking of any abnormality in regard to functioning of AC Units. The logging was recorded up to 16.10.2011. Beyond this date, the logging was done in the new log book which got burnt in the fire. The coach was done last monthly schedule from Electrical/ACC side on 13.11.2011. Its schedule form was also checked.

Sri Bholu Mazumder ACCA & Sri Alok Kanti Chatterjee ACCI were interrogated again to verify whether their answers were consistent with ones given on 23.11.2011 during their 1st interrogation.

1.2.20 In the background of my visit to Coaching Depot, Tikiapara and the Joint Report of Dy CRS (ET) and Dy CRS (Mech), I wished to again make a detailed inspection of the burnt coaches for which I also invited Sri Mohit Sonakia Dy CRS (ET) to join. I reached GMO on 2.12.2011 morning and Sri Sonakia also arrived from Lucknow same morning. We inspected the ERWGACCN 07113 (B1) coach for 02 days on 2.12.11 and 3.12.2011 at Electric loco shed, GMO in great detail.

During our inspection CSO/ECRly, DRM/DHN, ADRM/DHN, Sr DME (C&W)/DHN, SrDEE(G)/DHN, Sr.DSO/DHN and other divisional officers were present. SSE (Elect)/AC/Tikiapara, Howrah with his maintenance staff was also present.

Both the RMPUs of the coach were lifted and removed for item by item detail inspection. Coach was lifted and both the bogies were rolled out to facilitate unhindered inspection of bogies and under slung items. Control panels, various electrical fittings and wirings were minutely examined for any fault; short circuiting / arcing etc. The suspect location in the coach as per the statement of various eyewitnesses: area where berth no 17 to 24 was located was further examined meticulously. The burnt residues from the location were taken out and sieved for presence of any foreign suspect articles. Some samples were also collected.

1.2.21 Preservation of clues.

i) Senior supervisors of Dhanbad division prepared a Joint Note detailing their observations. Sketch of the site was drawn under their joint signature. Statement of the guard and the train engine crew after the accident was recorded.

- ii) Railway took photographs of the burnt coaches. Still photographs were shown to me and print outs given.
- iii) Memory chip of Speed Recorder of the train engine was preserved and a copy of print out of the Speed Recorder was given.
- iv) Burnt coaches were available at Gomoh station in closed and locked condition for my inspection as well as inspection by Forensic team of FSL/Ranchi.
- v) Statement of some of the passengers who were travelling in the ill fated coach and were eyewitness to the incident of fire was made available to me.

1.3 **Description of “The Accident”**

1.3.1 13009 Up Howrah Dehradun Express comprising of 19 coaches worked by Electric Loco no. 22827 WAP4 of Electric Loco shed, Mughalsarai, East Central Railway under the charge of Sri B. B. Singh, Loco pilot (Sr. Goods) and Sri Sultan Ansari, Sr. Assistant Loco Pilot, both headquartered at Gomoh and Guard, Sri I.A.Khan HQ/Gaya left Netaji Subhas Chandra Bose Gomo Jn at 2.20 hrs on 22.11.2011 after its schedule stoppage and while the train was running through, burning smell from inside of the AC 3 Tier coach (B1) was experienced by AC coach attendant (ACCA) and AC coach Incharge (ACCI) who were sitting on coach attendant’s seat in the doorway passage of Delhi end of the coach. When they went inside the coach, they found cabin 3 of the coach was filled with smoke. Some passengers had also got up by then and there was hue and cry about the fire in the coach. ACCA and ACCI stated that they pulled the Alarm chain and when the train stopped got down to remove the battery fuses. After removing the battery fuses, when they tried to enter inside the coach to help the passengers evacuate, they could not enter inside due to spread of smoke and fire. Most of the passengers escaped through the adjoining AC 3 Tier coach (B2). Delhi end vestibule door of the AC 3 Tier B1 coach was closed due to its rolling shutter being down. When the train stopped, passengers and all had broken the window glasses of the coach B1 and on getting the air supply, the fire became more intense and spread very fast. The guard and the assistant loco pilot tried to separate the burning coach 1st by decoupling the Howrah end screw coupling of the B1 coach but did not succeed due to intense heat and flame. Then they opened out the Howrah end coupling of the adjoining 3 Tier coach B2 and moved by a distance of about 100 meter. Thereafter, they decoupled the Delhi end screw coupling of the burning coach B1 and moved by another 100 meter leaving behind the burning coaches. 02 separated AC 3 Tier coaches were badly burnt and fire could be controlled only with the help of 02 Fire Brigades.

1.4 The nature of weather

1.4.1 The weather at the time of accident was fair. There was no rain or storm. It was a normal night before the onset of winter season.

1.5 Casualties

I report with deep sense of sorrow that 07 passengers of the B1 coach had been reported to have died in the fire. Another 02 passengers suffered simple injury and two more had trivial injury. It has been further informed that 04 more passengers were missing and their whereabouts were being probed by the railways.

1.6 Passenger occupancy:-
No of passengers in the ill fated B1 and B2 AC 3 Tier coaches were 46 and 55 respectively against capacity of 64 passengers in each coach. It was informed that there were approximately 1050 passengers travelling in the 3009 Up Howrah Dehradun Express on that fateful night.

1.7 Exgratia payment:-

Exgratia payment of Rs. 25000 to each of the passengers of B1 & B 2 coach was declared by railway and a total of 76 passengers were already paid. Exgratia of Rs. 5 lakh was also decided by railways to be paid to the family of the deceased. So far 03 cases were paid.

II INTIMATION AND RELIEF MEASURES

2.1 Intimation

- i) The 1st intimation about the incident was received by Dhanbad Divisional Control office at 2.55 hrs on 22.11.2011 from Sri R.K.Paul/ PWI Parasnath who was travelling on foot plate of the train engine of 13009 Up.
- ii) Md. I.A.Khan, Guard of 13009 Up informed Dhanbad Divisional control at 2.58 hrs on his mobile phone that coach no. B1, ER 07113 8th from Train Engine had caught fire.
- iii) DRM/Dhanbad and Branch Officers of the division were informed by the control office between 2.55 hrs and 3.05 hrs.
- iv) Headquarter Control at Hajipur was informed by Dhanbad divisional control at 3.05 hrs.
- v) GM/AGM, PHODs/HODs of ECRLy were immediately informed by divisional officers on mobile phones.

2.2 Movement of officers:-

- i) DRM, ADRM, Sr. DOM, Sr DCM, Sr DSO, Sr DSTE, Sr DEE (TRD), Sr DME (P), DOM and AOM, Dhanbad reached the control office by 3.10 hrs. DRM with Sr. DCM, Sr DEE (TRD) and Sr DSTE, left for site by road at 3.20 hrs. Sr DEE (OP) left ex GMO by road at 3.30 hrs. Sr DME (P) left DHN at 3.20 hrs by road along with 06 Fire Extinguishers. CMS/DHN alongwith 06 doctors left for site ex Dhanbad by ARMV at 3.55 hrs. Sr DSO, DME (C&W), ASC (RPF), Dhanbad also left for site ex Dhanbad by ARMV.
- ii) AGM/ECRLy along with CSO, CCM, CEE and other HODs left Patna Jn by Light Goods Spl at 6.00hrs. GM/ECRLy was at New Delhi. He reached GMO in the morning of 23.12.2011 and inspected the site and the burnt coaches.

2.3 Medical attention and relief/restoration

2.3.1 ARMV/Dhanbad was ordered and moved as per following particulars:-

Time ordered : 3.10 hrs
Departure time ex Dhanbad : 3.55 hrs
Arival time at site : 5.30 hrs

2.3.2 Ambulance from Rly Hospital, Dhanbad left for site at 3.10 hrs.

2.3.3 Fire Brigades, both from Dhanbad and Giridih were requisitioned for the site as per following details:-

Ordering time for both – 3.10 hrs.

Fire Brigade / Dhanbad departed at 3.45 hrs and reached the site at 5.10 hrs. Fire Brigade/Giridih left at 3.20 hrs for site and arrived the site at 5.30 hrs. SP/Dhanbad and SP/Giridih were also requested at 3.15 hrs for quick movement of Fire brigades.

2.3.4 SM/Nimiaghat and SM/ Parasnath called for local doctors and Ambulance at 3.20 hrs.

2.3.5 SM (Incharge)/Parasnath alongwith PWI left for site by road at 3.15 hrs with 12 staff and 12 no of Fire Extinguishers. They arrived site at 3.40 hrs and used all the FEs.

2.3.6 SM/Nimiaghat with local doctors and 6 Fire Extinguishers left for site at 3.20 hrs. They reached the site at 3.50 hrs.

2.3.7 DRM/Dhanbad along with Branch Officers arrived at the site at 4.45 hrs and took over the relief and rescue work. Fire in both the AC 3 Tier coaches (which were separated from the train) were extinguished with the help of Fire Brigades of Dhanbad and Giridih which had arrived the site at 5.10 and 5.30 hrs respectively. The affected coaches were then taken to Gomoh where bodies of the victims were taken out by GRP for postmortem at Patliputra Medical College Hospital, Dhanbad.

2.3.8 The rear portion of the train was pulled back to Gomoh alongwith passengers arriving Gomoh at 5.45 hrs. Refreshments were served to the passengers. Some passengers who wanted to go to Dhanbad by road were given assistance. 17 passengers wanted to return back to Howrah. They were accommodated in 13010 Dn with requisite travel authority. The front portion of the train was taken to Parasnath at 7.15 hrs. Finally both the portions were combined at Parasnath at 9.15 hrs and the train left at 10.05 hrs. At Parasnath also, passengers were served with refreshment/breakfast. At Gaya, two AC coaches were attached and passengers of B1 and B2 coaches were accommodated for their onward journey. During journey of the train from Gaya to Mughalsarai, all help was extended to the passengers. It was heartening to learn that CCM/ECR himself travelled in the train up to MGS and had overseen the arrangements. At Mughalsarai, DRM and his team of officers attended.

2.3.9 **Helpline :-**

Railway had opened Helpline at Gaya, Mughalsarai, Parasnath, Gomoh, Dhanbad and Howrah stations.

2.3.10 **Restoration:-**

Dn line was opened for traffic at 7.30 hrs after completion of work by Fire brigades. The Up line was given fit after restoration of the OHE at 10.00 hrs and after Tower Wagon moved to Gomoh, 12321 Up was the 1st train to be dispatched on Up line ex GMO at 10.42 hrs. It passed the site of incident at 10.55 hrs.

2.3.11 I consider the medical arrangements made/ relief and restoration work done were prompt and satisfactory. There was no avoidable delay on the whole.

2.4 Effects of the accident on train services:-

Trains cancelled : 13305 Up Exp & 53521 passenger train
Train diverted : 12825 Up
Train rescheduled : Nil
Trains delayed : 25 no

III. THE TRAIN

3.1 Composition and marshalling order of the train.

3.1.1 Locomotive.

3.1.1.1 The train was being worked by Electric Locomotive no 22827 WAP4, based at Electric Loco shed, Mughalsarai, East Central Railway. Schedule particulars of the locomotive were as under:

Manufactured by : CLW, chittaranjan
Date of commissioning : 23.01.2010
Last AOH : 15.05.2011
Last Inspection (IA) : 20.11.2011
Next Inspection due : 29.12.2011

The loco was not overdue any schedule.

3.1.1.2 Technical parameters of the locomotive:-

i) Type : Broad Gauge, Electric Loco
ii) Power out put : 5350 hp
iii) Axle load : 18.8t
iv) Max permissible Speed : 140 kmph
v) Type of bogies : Trimount, Co – Co.
vi) Total length : 18794 mm
vii) Total weight : 112.8 tonnes

3.1.1.3 The loco was equipped with requisite safety fittings like Head lights, Flasher lights, Marker Lights, wipers, Horns, Speed recorder cum indicator, cattle Guard with rail guards etc. Sr. DEE(OP) DHN had confirmed them to be in working order. Loco was not fitted with VCD.

3.1.1.4 Speed Recorder cum Indicator:-

Make - TELPRO, Auto meter Alliance Ltd.

3.1.2 COACHES

3.1.2.1 The trailing load of the train 13009 Up was comprising of 19 ICF bogie coaches.

3.1.2.2 The rake of the train is based for Primary maintenance at Coaching Depot, Tikiapara, Howrah of Eastern Railway. Out of 19 coaches of the train, 18 coaches were of Eastern Railway and based at Carriage and Wagon workshop, Liluah for POH and IOH. One coach was of SEC Railway.

Sl. No	Coach no. (From Train Engine)	Type	Mfg.	Year of Built	POH Shop	POH Dt	R/Date	Schedule		IOH dt.
								A	B	
1	ER/WGSCN	96239	RCF	1996	LLHM	30.4.11	12/12	X	1.11.11	
2	ER/D/SLR	99762	BEML	1999	LLHM	12.10.11	5/13	13.11.11	X	
3	ER/GS	07419	RCF	2007	LLHM	10.02.11	9/12	X	x	19.11.11
4	ER/WGSCN	07233	RCF	2007	LLHM	06.08.11	3/13	X	9.11.11	
5	ER/WGSCN	90278	BEML	1990	LLHM	18.10.11	5/13	17.11.11	X	
6	ER/WGSCN	93274	RCF	1993	LLHM	21.09.11	4/13	24.10.11	X	
7	ER/WGSCN	00345	ICF	2000	LLHM	26.02.11	10/12	28.10.11	X	
8	ER/WGACCN	07113	RCF	2007	LLHM	06.04.11	11/12	9.11.11	X	
9	ER/WGACCN	04124	RCF	2004	LLHM	28.02.11	10/12	28.10.11	X	
10	ER/WGACCV	02056	ICF	2002	LLHM	16.03.11	10/11	X	X	7.1.11 ILS - 28.10.11
11	ER/WGSCN	01211	RCF	2001	LLHM	20.08.10	3/12	1.11.11	X	2.7.11
12	ER/WGSCN	96245	RCF	1996	LLHM	26.07.11	3/13	28.10.11	28.10.11	
13	ER/WGSCN	91312	RCF	1991	LLHM	26.09.11	5/13	24.10.11	X	
14	ER/WGSCN	93225	RCF	1993	LLHM	24.09.11	4/13	24.10.11	X	
15	ER/GS	99451	ICF	1999	PL	22.12.10	1/13	3.11.11	X	3.11.11
16	ER/GS	00479	ICF	2000	LLHM	10.03.11	10/12	13.11.11	X	
17	SECR/WGSCN	918271	NAV	1991	PWP	23.03.11	10/12	26.10.11	X	
18	ER/WGSCN	90253	NAV	1990	LLHM	02.11.11	6/13	X	X	
19	ER/H/SLR	09712	RCF	2009	LLHM	18.08.11	3/13	x	17.11.11	

3.1.2.3 Technical parameters of the coaches:

- i) All coaches were fitted with Air Brake System having Bogie Mounted Brake Cylinders.
- ii) Fire retardant materials as per Indian Railway's laid down specification were used in making the interior furnishings of the coaches.
- iii) 02 no Roof Mounted Package Units (RMPU), one at each end of the coach were installed in AC coach to provide air conditioning. While coach no ER WGACCN 07113 (B1) was having Fedders Lloyed Make of RMPU, that in coach no ER WGACCN 04124 (B2) was of Sidwal Refrigeration make.
- iv) The AC coach was provided with 1100AH 56 cells VRLA battery.

3.1.2.4 Safety fittings in the coaches.

Sr DME (C&W) HWH confirmed availability of requisite safety fittings in coaches. Alarm chain pulling (ACP) system was available in the coaches and was functional as per checking done during the primary maintenance done at Howrah. Coaches were provided with Emergency Exit windows. AC coaches and SLRs of the trains were provided with prescribed Fire Extinguishers. However, emergency LED lights were not provided in the coaches.

3.2 The length of the train was 423.64 meters and the weight was approximately 772 tonnes. These were excluding the locomotive.

3.3 Brake power of the train.

3.3.1 The train was provided with Air Brake System and all its brake cylinders were fully functional with 100% brake power.

3.3.2 The Brake power certificate (BPC) was issued at Howrah station of Eastern Railway vide no.031173 dated 21.11.2011.

Total no of Brake cylinder	: 76 no
No of operative Brake cylinder	: 76 no
Percentage of Brake Power	: 100%
Brake pipe pressure	: 5 Kg/Cm ² in Train Engine : 4.9 Kg/Cm ² in Brake Van
Feed pipe pressure	: 6.0 Kg/Cm ² in Train Engine 5.9 Kg/Cm ² in Brake Van

3.4 Damage and Disposition

3.4.1 Damage to locomotive.

The loco was unaffected. There was no damage to the locomotive. The same loco continued for onward journey of the train.

3.4.2 Damage to coaches

02 AC 3 Tier coaches were involved in the fire. Their major damage particulars were as detailed below:-

- i) Inside furnishings alongwith electrical wirings and fittings completely burnt.
- ii) All the window /door glasses broken
- iii) All toilets and linen rooms completely burnt.
- iv) Power panel and both the control panels alongwith all the fittings completely burnt.
- v) Terminals of various motors of RMPUs charred and their insulation damaged due to excessive heat.
- vi) Various non metallic parts of RMPUs burnt/melted.
- vii) Coach body shell got warped at various locations and inside structural members/berth frames were damaged.
- viii) Coach body paint burnt.

The under slung fittings of each of coaches viz battery, inverter, ERRUs etc were unaffected. Both the bogies of each coach with alternators / V belts etc were also unaffected.

3.4.3 Damage to P. Way

There was no damage to P way.

3.4.4 Damage to OHE.

OHE for about 2 coach length above the burnt coaches was damaged.

3.4.5 Damage to any other railway asset viz S&T Gears, Electrical cable etc.

There was no damage to any other railway assets.

3.4.6 Damage to passenger luggage.

As the fire was in dead of night and spread very fast, most of the passengers who could come out of B1 coach failed to pick up their luggages and they got burnt. However, passengers of B2 coach which was affected due to spread of fire from B1 coach could pick up their luggage.

3.5 Approximate cost of damages:

a)	Coaches	– Rs.64,29,262
b)	OHE	– Rs.11,415
c)	Locomotive	– Nil
d)	P.Way	– NIL
e)	S&T	– NIL
d)	Any other	– NIL
	Total	- Rs.64, 40, 677.

IV. LOCAL CONDITIONS.

4.1 The section and the site:-

4.1.1 The accident took place between Nimiaghat (km 310.51) and Parasnath stations (km 318.10) in Grand chord section of DHN division of ECRly. The train stopped between km 312.250 and km 313.75 after the incident.

4.1.2 It is a double line electrified section in the deep cutting zone having drains of width 1.51m by the side of Up line and 1.25 m by the side of Dn line. The near edge of the drain was at a distance of 3.0m from the centre line of the track. The centre line distance between the two tracks was 6.58m.

4.1.3 There were villages on both side of the track near the site of accident. The name of the village by Up side was 'Kendudih' and that by Dn side was 'Pratappur' Bamboo tree groves were found on both side in the vicinity. There was a kutchra road on Dn side.

4.1.4 Before the site where the train had stopped after the incident and Nimiaghat station, there was one LC no. 12/C/T at km 311/25-27 having gate lodge by the side of Up track.

4.1.5 Track structure in the section was as under:-

Rail	: 60 kg (90 UTS)
Sleeper	: 60 kg PSC; Sleeper density – 1660 no /km
Ballast cushion	: 300 mm
Track	: Straight
Gradient	: Rise 1 in 200

4.1.6 The section is provided with Multiple Aspect Colour Light signaling (MACL)

4.2 Headquarters of Officers/ Inspectors/Control.

The train operation and maintenance of the fixed assets in the section are under the following:

Traffic : Sr. DOM/DHN, TI (M) HQ II
Engineering : Sr DEN/2/DHN, AEN/GMO, SE/PW/PNME, JE/I/PWAY/PNME
S&T : Sr DSTE/DHN, ASTE/2/DHN, SSE/Signal (IC)/DHN, SSE/Signal/DHN
Control office : Dhanbad

4.3 **System of working**

Trains in the section are worked on Absolute Block System

4.4 **Speed of the train**

The max permissible sectional speed is 130 kmph. However, maximum cum booked speed of the train 13009 Up in the section was 110 kmph. There was no permanent or temporary Speed restriction in the vicinity of the site of accident. As per Speed Recorder Chart of the loco, the train was running at a speed of 100 kmph at the time of the incident.

4.5 Kilometrage of stations /location referred to in this report is reckoned from Howrah station of Eastern Railway.

V. SALIENT FEATURES

5.1 The fire had initiated from B1 coach (ER WGACCN 07113) 8th from Train Engine and spread into the adjoining coach B2 (ER WGACCN 04124) 9th from the train engine. The B2 coach could not be saved owing to coupling between the B1 and B2 coaches could not be opened out for separating them due to heat and flame from B1 coach.

5.2 The fire in the B1 coach got originated from inside of the coach as both the bogies of the coach alongwith underslung electrical equipments were found unaffected as per observations made during the inspection of the coach after the incident. Since it was an AC coach, it had glass window panels which were all intact before the incident and there was no scope for any burning items to fly inside the coach. However, glass window panels of the coach were broken after the fire when the train had stopped due to Alarm Chain pull.

5.3 The train had last stopped at GMO and during its run from GMO till the incident of fire, none of the train passing staff enroute viz Gatemen/ Station Master noted any abnormality of fire etc in the train. The Gate man of LC no. 12/C/T which is just before the site of accident during the interrogation had stated that his Gate Lodge was by the side of Up line and he was standing at his Gate Lodge with hand lamp. The train 13009 Up passed his gate without any problem. There was no smoke or fire seen by him in the train. He came to know about the fire in the train from SM/Nimiaghat when the train had stopped.

5.4 The train crew viz Loco Pilot/ Asstt. Loco Pilot and Guard also did not know about the fire in the train till the train stopped after ACP. After ACP, when the guard was moving towards the front of the train checking the coaches, he found many passengers were off the train and fire in the B1 coach. Assistant Loco Pilot was moving towards the rear checking the coaches for ACP. He also encountered fire in the B1 coach.

5.5 The ACCA of the B1 coach and ACCI in their statement stated that they were sitting on the attendant's seat in the door way passage at Delhi end of the coach when they felt some burning smell. They immediately went inside the coach and found that 3rd coupe (berth no. 17-24) of the coach was filled with smoke. The night lamp was glowing and the passengers were asleep. They rushed to pull the alarm Chain for stopping the train.

- 5.6 One passenger, Ms Naomi Josephine Cappelli, (aged 21 yrs), an Australian national who was travelling on Berth no 23 (side lower) of the B1 coach in her statement had reported that she woke up due to loss of breath because of smoke and turned over to see a fire beside her bed. The fire was in a straight line as if some one had dumped a line of patrol on the ground.
- 5.7 Another passenger, Ms. Sophie Moore (aged 21 yrs) also an Australian national who was travelling on berth no. 21 (inside middle) of the B1 coach in her statement reported that she woke up due to yelling of a man across her and saw her friend Browyn Smithies jump out of her bed. She also jumped down when she saw the smoke and fire. Fire was at the bottom of the bunk stairs and it appeared to be in a line as if it had been deliberately lit.
- 5.8 One passenger, Sri Vijay kumar Barnawal who was travelling on berth no. 28, 29 in B1 coach in his statement stated that he was to get down at Parasnath station and as such after departure from Gomoh he started arranging his luggage. After the train passed Nimiaghat station, he asked his wife to be ready to go towards the gate. Then he started picking up his luggage from under the berth and noticed fire in the curtain of the corridor of nearby cabin by the side of berth no. 23/24. The fire was from bottom towards top. He immediately asked his wife to move towards the gate and he also ran crying 'fire,fire'. Immediately after he saw the fire, black smoke filled the entire coach within seconds. They somehow could go out and got down through B2 coach when the train stopped. When he got down he saw fire had almost engulfed the entire B1 coach. During evacuating from the coach, he got burnt injury on the left of his neck and on his left hand. It is important to note that he was one of the eyewitnesses present at site who was in fully alert condition, not in sleep or half sleep as other passengers would have been.
- 5.9 Another passenger, Sri Birendra Kumar Kuswaha (aged 62 years) who was travelling on berth no 17 in B1 coach stated that he was waken up at about 2.00 hrs by the Australian passenger on the adjacent berth telling fire had broken out. He immediately got up and saw curtain had caught fire and smoke was spreading in the coach. He along with his companion Archit Virmani rushed towards the gate leaving behind the luggage and got down when the train stopped. I also spoke to him on his mobile phone no 09359259764. He narrated the above incident to me also. He stressed that the coach got filled up with smoke very fast and suffocation could be the main reason for disablement of the passengers who could not come out of the coach.
- 5.10 One passenger, Sri Archit Virmani (aged 23 years) who was travelling on berth no. 18 in B1 coach informed me through email that he was awoken from sleep by somebody. He saw that the fire was on curtains adjacent to berth no. 20-22. There was fire on the floor on his way to the door.
- 5.11 Smt Shabnam Ara, TTI who was travelling in the train in her statement stated that she got up in the B1 coach at Gomoh and was sitting on berth no 7. After few minutes, she was feeling very suffocating. Passengers began to rush towards the gate shouting fire, fire. She removed curtain from her berth and saw flame arising from the floor of the coach near berth no. 23 and smoke engulfing the coach. She ran outside, opened one of the doors and got down when the train stopped.
- 5.12 I inspected the burnt coaches in detail for 03 days on 23.11.11, 2.12.11 & 3.12.11. Dy CRS (ET) Lucknow assisted me during inspection of the coaches on two days. Dy CRS(ET) and Dy CRS (Mech) had also jointly inspected the coaches themselves for my appraisal. Since the fire had originated from B1 coach and spread into the B2

coach, conditions of various equipments of B1 coach were noted in great deal of detail as under:

5.12.1 Superstructure

The upper portion of the body shell was badly burnt. The outside paint above the turn under was mostly intact but on the upper portion and about 25-30cm below the window sill was completely burnt. Coach body was divided into 08 parts as per the window location and observations recorded as under:-

(L is towards the corridor and R towards the cabin)

1 L - No deformation on the sidewall. Body paint completely burnt in zig-zag manner.

2L - No deformation on the side wall. Body paint above the window opening completely burnt and below the window sill burnt up to a depth of 15cm to 30cm.

3L - Side wall above the window slightly warped, below no deformation. Paint above the window completely burnt and below burnt to a depth of 15cm to 50cm in zig-zag manner.

4L, 5L, 6L – Similar observations as for 2L

7L - Side wall between windows 6L & 7L and 7L & 8L had slight warpage. Body paint above the window completely burnt and below burnt to depth of 15 cm to 30 cm

8 L - Similar observations as for 2 L.

1 R - No deformation on side wall. Body paint completely burnt above window, below burnt to a depth of about 25 cm

2R - Side wall above the window bulged out, below no deformation. Body paint completely burnt above the window and below to a depth of 25cm – 40 cm in a zig-zag manner.

3R - Side wall above the window badly warped, below bulged out. Body paint above window completely burnt, below burnt to a depth of 25cm to 40cm. Roof sharply caved in at two locations.

4R - Side wall above window minor warpage. Body paint above window completely burnt, below burnt to a depth of 25cm – 40 cm in a zig-zag manner.

5R to 8 R - No deformation on the side wall. Paint above the window completely burnt, below burnt to a depth of 25 cm to 60 cm.

Body structure in the toilet area at both ends of the coach was normal without any sign of warpage. Both end walls were also not deformed. However, body paint was burnt.

The inside of the coach furnishings viz flooring, side wall paneling, roof, berths, curtains etc were completely burnt. The window glasses were broken by the passengers/railway staff after the train stopped on chain pulling. Vestibules alongwith vestibule doors were broken. The Delhi end vestibule opening of the coach was closed by the rolling shutter which was found heated.

5.12.2 Undergearings and Underframe

Both the bogies of the coach were unaffected by fire. All the bogie equipments were found normal, brake gear fittings and brake blocks were in normal self. No hanging or loose parts were observed in the bogies. The oil in the side bearers was in the same condition as replenished. All the axle boxes were normal and did not show any sign of overheating / oozing of grease. In fact, the coach was moved to Gomoh in the same condition without any attention.

The under frame wiring was found intact except the conduit having been melted near the floor level of the coach. All other equipments viz. Alternators, ERRUs, Inverters, Battery Charger, Batteries etc were not affected by fire at all. The HRC fuse (2no) of Battery were found removed. It was checked for continuity and found to be ok. The Battery Box covers were opened and battery terminals, the connector cables, battery containers etc were found to be unaffected by fire. The ERRU covers were removed and ERRUs were found unaffected.

There was no sign or symptom of fire in the under gearing or under slung equipments of the coach.

5.12.3 RMPU, DLI end

The condenser fan blades made of plastic were found melted. The paint inside main air duct (supply to the coach) was intact. The heater elements did not show any deformation/abnormality. The thermostat, HP and LP cutout switches (located in the return air duct) were burnt. The terminal block of blower motor had burnt. The condenser fins as well as return air filter did not show any soot deposition. The thermal insulation, cladding on the refrigerant pipelines and cable conduits had burnt. The cable insulation was overheated but not completely burnt. RMPU was lifted out. No sign of any major damage to its equipments was noticed.

5.12.4 RMPU, HWH end

The condenser fan blades made of plastic were melted. The paint inside main air duct (supply to the coach) was intact but for slight peeling near the outlet. The heater elements did not show any deformation/abnormality. The thermostat, HP and LP cutout switches (located in the return air duct) were burnt. The terminal block of blower motor was charred. The LH return air filter was bent inside towards the blower. The thermal insulation cladding on the refrigerant pipelines and cable conduits had burnt. The cable insulation was overheated but not completely burnt. Soot deposition was observed onto the condenser fins. The paint had burnt inside the return air duct. The RMPU was lifted out and no sign of any major damage to its equipments was observed.

5.12.5 Other observations:-

- i) Inside the coach, the main air duct was completely burnt and no trace was visible of its existence. The air supply conduits from main air duct to side vents, provided near the switches for lights and fans, were also completely burnt leaving only the wire braiding of the flexible conduit.
- ii) The power panel was located at HWH end of the coach and was completely burnt. The MCB's for Lights, Fans and Charging Points were located in this panel. The MCBs were completely burnt and their mounting plate had fallen, as a result no indication regarding their position could be available from the knob positions. Also, contacts of burnt MCBs were free without any pressure and so their position was not possible to be adjudged looking at the assembly. The position of rotating switches RSW-1 and RSW-2 were both at normal position, judging from the position of their knob locking pins both the alternators and inverter units were in service.
- iii) Inverter Control Unit was also located at HWH end and it was completely burnt, no indication of MCBs was available as was the position in the power panel. The control unit was also burnt and so data log would not be available.
- iv) The RMPU control units are located at both end of the coach, one for each RMPU. In the HWH end RMPU control unit, the position of RSW-2 and RSW-3 could be judged seeing the knob locking pins as "ON" and "Auto" respectively indicating that the RMPU unit was working and was in automatic

mode. The MCBs and Contactors were burnt and fallen down with their fixing assembly. In the DLI end RMPU control unit, the position of RSW-2 and RSW-3 could be judged seeing the position of knob locking pins as "OFF" and "Vent" respectively indicating that the RMPU unit was off. The MCBs and Contactors were burnt and fallen down with their fixing assembly.

- v) The layout of cables for fans and lights inside the coach provided +ve wires and -ve wires to run separated along the length of the coach, one on LH side and other on RH side. The wiring was of stranded copper and was intact for most part of the coach. The insulation had melted and burnt over most of the conductor except over few locations over side berth. The wiring was inspected for any sign of globule formation, but only some non metallic globules were found. The wiring of the coach in cabin 3 (berth 17-24) was inspected in detail. Terminal boxes at both ends were opened and inspected. The wiring did not show any joint outside the terminal boxes. The terminal boxes used Wago Push-in type connectors and all the wires were firmly secured in the connectors on the LH side terminal box. No sign of rubbing/arcing was observed at the locations where cables passed through holes in the junction box. The RH terminal box had all but one wire firmly secured inside the terminal connector. The solitary wire was inspected for any sign of arcing or overheating but apart from the insulation getting burnt as for all the wires in the coach, no such sign was observed. Also, no sign of rubbing/arcing was observed at the locations where cables passed through holes in the junction box. It was also noted that the insulation on the wire was affected by fire but was still on the wire. From this, it can be deduced that fire did not propagate from insulation material otherwise it would have resulted in complete burning of the insulation.

5.13 Fire Extinguishers

As per details made available by Sr. DME (C&W) HWH, 02 no of Dry Chemical Powder Type Fire Extinguishers (5kg capacity) were provided in each AC coach of the 13009 Up train leaving Howrah on 21.12.2011 as per following description.

ERWGACCN FE No – 413, Recharging date 10.6.11, Next due 9.6.12
07113 (B1) FE No– 414, Recharging date 10.6.11, Next due 9.6.12

ERWGACCN FE No – 415, Recharging date 10.6.11, Next due 9.6.12
04124 (B2) FE No – 416, Recharging date 10.6.11, Next due 9.6.12

During the inspection, 2 no of Fire Extinguishers were found in B1 coach near Delhi end doorway passage but they were found non utilized.

- 5.13.1 Sri Alope Kanti Chatterjee Tech I/TKPR who was working as ACC I in the train on that fateful night was given fire fighting training on 7.8.2010 at Tikiapara Divisional Training School.

Sri Bhola Mazumdar, Helper/TKPR, the ACCA of the B1 coach was given fire fighting training at Tikiapara Divisional Training School on 14.8.2010.

However during interrogation, both stated that they had never operated the Fire Extinguishers themselves.

- 5.14 Use of Fire retardant materials in manufacture of the coach was reported as per following details for coach no ER WGACCN 07113 (B1)

- i) Elastomeric/ E beam cables having fire retardant property used for wiring in the coach.

- ii) Wood based impregnated compressed laminates (compreg) to RDSO's STR no C-9407 Type II Rev 2
- iii) Fire retardant curtain fabric
- iv) Decorative thermosetting synthetic resin bonded laminated sheets (LP sheets) to RDSO's STR no CK-514 Rev – nil
- v) Flexible Vinyl Flooring (PVC Flooring) to RDSO's STR no CK 604.
- vi) Vinyl coated upholstery fabric (Rexine) to RDSO's STR no. C – 9503
- vii) PU foam to RDSO's STR no C – 8914
- viii) UIC Vestible.
- ix) Powder coated Aluminum ducting

Following fire retardant materials were used in the coach furnishings during two POH done on 27.7.2009 and 7.4.11 at Liluah workshop of Eastern Railway.

- i) NFTC (1.5 mm thick) to RDSO's specification CK 511
- ii) LP Sheet (1.5 mm thick) to RDSO's specification CK 514
- iii) LP Sheet (3 mm thick) to RDSO's specification CK 514
- iv) Vinyl coated Upholstery fabric to RDSO's specification CG– 16, NAC – SC-06
- v) Flexible Flooring sheet to RDSO's specification – CG 12, AC – F001
- vi) Fire retardant curtain cloth

5.15 Safety provision in the Electric circuit

Following safety provisions were available in the coach as per Technical report of CEE/ECRly.

Earth fault in AC circuit:

The earth fault in 3 phase AC circuit was protected by an earth fault relay provided in the inverter itself.

Earth fault in DC circuit

The +ve and –ve wires of DC were floating in the coach, therefore the first earth fault in any of the +ve or –ve wire was harmless.

Short circuit / overload in AC circuit:

Any short circuit in AC circuit was protected by over load relays with back up protection of Miniature circuit breakers (MCBs)

Short circuit/overload in DC circuit:

Any short circuit in D.C. circuit was protected by MCBs. In addition, the layout of the cables of D.C. circuit was such that +ve wires and –ve wires were running along the length of the coach on two different sides of the roof and therefore were segregated from each other.

Defect in heater circuit:

The heater which is provided adjacent to the evaporator unit on the top of entrance of the coach was protected by a vane relay which ensures that heater can be switched on only when the blower was working. If the blower stops working due to any reason, the heater gets automatically switched off. The heater was also protected by 2 OHP's (overheat protections) in series. 2 OHP's in series ensured that heater was protected even if one OHP becomes defective. The OHP trips the heater in case of overheating.

5.16 Trip Performance of AC Units of the B1 coach

The Log book of the coach was perused for last 02 months (Since Oct 2011) and found no booking of any abnormality in regard to functioning of AC unit of the coach. The ACCI and ACCA of the coach during their interrogation stated that there was no electrical / AC problem in the coach during journey of the train ex Howrah on 21.11.2011. History of the coach also revealed that there was no major defect in electrical/AC Units of the coach after POH in April 2011 necessitating its detachment for sick line attention.

5.17 Examination of the burnt coach by Forensic Science Laboratory (FSL) personnel.

Both the burnt coaches were examined by personnel from FSL/Ranchi and samples collected for laboratory tests. Samples were collected by me also and given to CFSL/Kolkata for testing. Results of both the Laboratories are awaited.

VI. PROVISIONAL FINDINGS

6. Having carefully considered all the factual, material and circumstantial evidence at my disposal so far, I am constrained to defer my conclusion in regard to cause of fire in the AC 3 Tier coach of 13009 Up Howrah – Dehradun Express on 22.11.2011 between Nimiaghat and Parasnath stations of ECRLy till the availability of FSL's reports and analysis thereon.

VII. IMMEDIATE RECOMMENDATION

I make following recommendations for immediate implementation:-

- 7.1 Escorting train staff must respond to incident of smoke/fire in a coaching train promptly and effectively. A proper training module and periodical drill in this regard are considered essential.
- 7.2 Railway should launch an immediate drive to review implementation status of extant guidelines on fire prevention in a coaching train. Such exercises must periodically be redone.
- 7.3 Surprise checks should also be done of luggage /materials carried by passengers in view to identify articles which may intentionally or accidentally cause fire.
- 7.4 The spread of fire was reportedly through curtains and it was rapid. It caused emission of huge smoke also. Quality of curtains in regard to their fire retardant characteristics should be urgently evaluated.
- 7.5 Sluggish evacuation of passengers on learning about the fire/smoke inside the coach was one of the bottlenecks. Feasibility of swing Glass doors which are presently opening inside and cause hindrances in moving out to be opened outward may be looked into and necessary action taken.

(R. P. Yadav)
Commissioner of Railway Safety
Eastern Circle, Kolkata

To
The Commissioner of Railway Safety
Eastern Circle, Kolkata.

Sub: Request for sanction of 10 days leave encashment.
Ref: LTC proposal submitted for the block (2010- 2011)

Sir,

I may kindly be sanctioned 10 days encashment of leave.

Yours faithfully,

(P. K. DEY)
PS to Commissioner of Railway safety
Eastern Circle, Kolkata