

BRIHANMUMBAIMAHANAGARPALIKA
MUMBAI FIRE BRIGADE

**FIRE INVESTIGATION REPORT OF NO.2 MESSAGE
FIRE CALL AT
M/S. HILL VIEW INDUSTRIAL ESTATE, AMRUT NAGAR,
OPP. L.B.S. MARG, GHATKOPAR (WEST), MUMBAI - 400086.**



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No. FB/

Date :

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1.	PLACE :	M/S. HILL VIEW INDUSTRIAL ESTATE, AMRUT NAGAR, OPP. L.B.S. MARG, GHATKOPAR (WEST) MUMBAI 400086
2.	DATE & TIME OF OCCURANCE	On 29/08/2007 at about 17:17 hrs
3.	NAME OF THE PARTY (OCCUPIER)	As per the list attached with Fire report by Station Officer E.B. Matale
4.	NAME OF THE OWNER	As per the list attached with Fire report by Station Officer E.B. Matale
5.	BUSINESSES OF THE OCCUPIER	As per the list attached with Fire report by Station Officer E.B. Matale
6.	LICENSE	This is a Industrial Estate building and out total of 100 galas more than 21 galas affected, but till date nobody has produced necessary documents / trade licenses / power permissions / requirement letters of CFO's department.
7.	INSURANCE:	As per the list attached with Fire report by Station Officer E.B. Matale
8.	APPROACH & ACCESS IN TO THE PREMISES	The premises abuts on 6 mts. vide Amrut Nagar Road and off. LBS Marg easily accessible for fire appliances.
9.	CALL RECEIVED BY FIRE BRIGADE CONTROL ROOM THROUGH	Mobile No. 9323938381 / Telephone No. 25008448
10.	WATER FACILITY	Water was taken from fire appliances, tankers and jumbo tankers.
11.	OBSERVATION	This is a ground and four upper floored bricks walled partly flat roofed and partly A.C. sheet roofed RCC structure admeasuring about 20,000 sq. feet having loft and mezzanine floors in various galas, used as Industrial

Estate building. Said building having three staircases, escape galleries and common corridor. There is about six meters open space all around the building, but it was noticed at some places parking as well as unwanted material dumped.

First arriving officer noticed that flames were shooting out from the 3rd floor galas and thick smoke was emitting from 3rd floor through common passages, escape galleries and staircases, so immediately transmitted No. 1 message asking for 4 Motor Pumps, Ambulances, Water Tankers and TTL. Also he noticed, people were trapped and stranded in the escape balcony of 4th floor as well as he learnt that some people were trapped in the Gala No. 307 & 308 on 3rd floor, so seeing the seriousness of the fire he transmitted No. 2 message and pressed two water jets on 3rd floor on fire and with the help of Angus ladder as well as using staircase rescued 35 men and 8 women.

As soon as I arrived (ADFO S.K. Rane), situation was once again appraised by me and again it was noticed that some people were still stranded on 4th floor in the escape gallery and as escape gallery was under lock and key as well as staircase was smoke logged, & same time Dy. CFO Gaitonde arrived so as per his instructions myself, ASO Verlekar and Firemen went on 3rd floor and broke open the lock and rescued 8 men and 7 women through staircase. Total 58 persons were rescued by various ways. As due to heavy combustible material fire was spreading very fast, so under the guidance of Dy. CFO Gaitonde and after arrival of Dy. CFO A.V. Sawant, 3 water jets were pressed from corridor, 2 from South side and 1 from North side. On arrival of the CFO Shri. K.A. Kadam, after appraising the situation CFO asked for 12 motor pumps and DCP – T and as per his orders 2 more water jets pressed on fire. While enquiry it was learnt that some explosion was took placed in Gala No. 307 on 3rd floor and fire broke out. While fire fighting it was noticed and learnt that at initial stage fire was confined to three galas viz. Electronic parts mfg. Co., ready made garment factory & printing press (gala no. 306,307,308) fire had also spread in gala no. 313 perfume manufacturing co. large stock of packing material, paper, office record, furniture, office cabin, stock of readymade garment, clothes, sewing machine, various machinery used for readymade garments & printing press, electric wiring, electric installation etc were gutted in the fire .

During fire fighting it was noticed that the severity of fire was on west side especially in Gala No. 307 & 308. After prolong efforts fire was brought under

		<p>control and extinguished by firemen with the help of 8 lines of 12 Motor Pumps using B.A. Sets as well as 1 line of Civil Defence and cutting off electric supply. During fire fighting operation 4 staff members were injured, they were removed to Rajavadi Municipal Hospital. Also it was learnt that overall 17 men and 2 women injured due to the fire, were removed to Rajavadi Municipal Hospital and Adarsh Nursing Home. In fire fighting operation 5 male, 1 female and 2 unidentified male bodies were found, which were removed to Rajavadi Municipal Hospital. At initial stage, on reaching scene of incidence while enquiry everybody had stated that they heard explosion sound from Gala No. 307 and subsequently fire broke out.</p> <p>Also during fire fighting operation it was learned that some people are trapped in the Gala NO.307 & 308 where due to high intensity and severity of the fire at initial stage nobody able to reach.</p> <p>Overall eight dead bodies recovered from Gala No.307 & 308 and they died before arrival of the fire brigade as at initial stage due to severe momentary explosion took and followed by fire. So the eight persons died due to explosion and nineteen were injured. The injured rescued them self from escape galleries before arrived of the fire brigade and other more than fifty seven workers those who are trapped on above third floor were removed by fire brigade.</p>
12.	DESCRIPTION OF DAMAGES TO	<p>i) Contents: As per the list attached with Fire report by Station Officer E.B. Matale.</p> <p>ii) Premises: As per the list attached with Fire report by Station Officer E.B. Matale.</p>
13.	EXTINGUISHING MEDIA	<p>Involved building was ground and 4 upper floored Industrial Estate building and explosion took place and subsequently fire started on 3rd floor in Gala No. 307 and spread in adjoining other Galas. Electronic parts mfg. Co., ready made garment factory & printing press (gala no. 306,307,308). Fire had also spread in gala no. 313 perfume manufacturing co. where large stock of packing material, paper, office record, furniture, office cabin, stock of readymade garment, clothes, sewing machine, various machinery used for readymade garments & printing press, electric wiring, electric installation etc. severely damaged in fire. The said fire was extinguished by firemen with the help of 8 lines of 12 Motor Pumps using B.A. Sets as well as 1 line of Civil Defence & cutting off electric supply and as this is a specially A class fire i.e. large of stock of 'A' class combustibile material involved in fire in various Galas i.e. multiple fuel / combustibile material in multiple</p>

		<p>quantity stored in various galas, for which water is the only universal extinguishing media in large quantity available and which is the only effective extinguishing agent which was used on fire. Also while investigation it was learnt that some quantity of white petrol was in GalaNo.307 , as this a 'B' class material but that was already burnt-out in the explosion. Other two galas were keeping aromatic chemicals stored in small sealed drums, which are not flammable and away from Gala No.307 so though we have enough quantity of foam / foam tender available on fire site, as for such type of fire for effective fire fighting water is the best media. So which was used on the fire. For effective fire fighting and rescue operation at initial stage B.A. Sets were used.</p>
14.	DETECTION OF UNAUTHORISED TRADE/ACTIVITY/ STORAGE/STRUCTURE, IF ANY	<p>Since the premises is Industrial Estate building Trade License u/s. 394 of M.M.C. Act, Power Permit permission u/s. 390 of M.M.C. Act, Loft / Mezzanine Floor permissions from Asst. Engineer Building & Factories, Fire safety requirement letters from CFO's Department are required to run the various trades in various Galas of the Industrial Estate building. All the affected as well as unaffected Galas were informed to submit the necessary permissions and documents but still, till date nobody had submitted the same.</p>
15.	STATEMENT OF WITNESSES	<p>1) Witness I – Shri Kishor Hari Junjare, age 35 yrs, residing at Dalvi Chawl, Ganesh Maidan, Sainath Nagar, Ghatkopar (West), working as Supervisor cum Worker in Gala No. 307 i.e. M/s. Modi Apparels who sustained major burn injuries to head, face, hands and other part of the body and admitted in Adarsh Nursing Home, stated that he is working from more than two years and at about 16:00 hrs. their regular distributor brought about 60 litres of white petrol into two plastic cans of 30 litres each, as per regular routine demand. From that one plastic can kept near electric steam iron table and another on wooden loft by him at about 17:00 hrs. when he was working on loft. Explosion took place and he fall down with injuries. He noticed white smoke but was unable to explain regarding the explosion as well as direction of the explosion. He was removed by their colleagues and sent to hospital. But further he stated that white petrol is used in their premises for cleaning cloths and no any LPG cylinder, boiler, furnace or any type of cylinder used in the premises for any activity. He had no doubt on any worker and management regarding sabotage / arson / incendiarism to create explosion or fire.</p> <p>2) Witness II – Shri Bhausahab Tukaram Patil, age 22</p>

years, residing at Shiv Shakti Park, Room No. C-305, N.M. Joshi Marg, working as Telephone Operator from 3 months in Gala No. 307 of M/s. Modi Apparels, had face and back injuries who was admitted in Adarsh Nursing Home stated that at about 16:00 hrs two cans of white petrol was brought in the Gala which was received by Kishore Junjare and took inside. Further he stated that few minutes before he noticed petrol vapours smell in the premises and he heard loud sound with explosion and noticed damage of the premises including loft, but he also unable to explain direction of the explosion as well as cause of the incident. Further he stated that white petrol is used in their premises but no any LPG cylinder, boiler, furnace or any type of cylinder used in the premises for any activity. He had no doubt on any worker and management regarding sabotage / arson / incendiarism to create explosion or fire.

3) **Witness III** – Miss Alka Soni, age 26, residing at c/o. Mr. H. Rungtha, Yogendra Bhavan, J.B.Nagar, Andheri, working in Gala No. 314 through M/s. Nippon Data System from last one month as a software engineer. She heard loud sound / explosion outside her premises i.e. in front Gala, so as the front side common corridor was damaged and she noticed fire, so she rescued herself from rear side through escape gallery. As she had injuries on face and other part of the body she was removed to Adarsh Nursing Home and admitted by her colleagues.

4) **Witness IV** – Mrs. Vinaya Vilas Acharekar, age 35, residing at Naidu Colony, Pant Nagar, working as a Clerk in Gala No. 314 had head injury and admitted in Adarsh Nursing Home stated that she also heard loud noise and explosion as she noticed front side common corridor was blocked by damaged wall and fire. She rescued herself from rear side escape gallery and after that she was removed to Adarsh Nursing Home by her colleagues and admitted. She was also unable to explain regarding the explosion.

5) **Witness V** – Mr. Madhu Assar, age 60, owner of Gala No. 309 M/s. Mohini Agencies, residing at 505, Prabhu Apartment, Ghatkoar (East) stated that he was in the Gala No. 309, he heard blast and adjoining Galas were damaged and corridor was blocked so he rescued himself from backside of the escape gallery. Further he stated that he is doing business of Aromatic Chemicals, but he is not using any kind of solvents for his business.

Further also he stated that the cylinder which investigated by forensic lab is not from his gala also such type of cylinders not used in readymade garments.

6) **Witness VI** – Mr. Dilip Shah, age 62, owner of Gala No. 314, i.e. M/s. Mecard Systems and Services Pvt. Ltd. Business of Marketing of Electronic Instruments and he residing at Chandra Villa, Dinshaw Master Road, Parsi Colony, Dadar. He stated that his Gala is in front of 307 and he heard large explosion / blast. His Galas wall was broken and one human body came into his Gala with blast. Immediately he ran from rear side of escape route and switched off the main supply of the Industrial Estate Building.

7) **Witness VII** – Mr. Masuluddin Hasani, age 23 years, residing at Sainath Nagar, Shivaji Market, Ghatkopar (West), working in Gala No. 307 as a Taylor from last 2 ½ years had severe injuries on head, neck and hand who was unconscious when removed to Rajavadi Hospital where he was admitted. He stated that he also heard explosion / blast in the Gala and everything had collapsed, but he also was unable to explain regarding the explosion and fire. But he stated that white petrol they are using for cleaning the cloth and very same day it was brought. Further he stated that white petrol is used in their premises but no any LPG cylinder, boiler, furnace or any type of cylinder used in the premises for any activity. He had no doubt on any worker and management regarding sabotage / arson / incendiarism to create explosion or fire.

8) **Witness VIII** – Mr. Pradeep Kumar Kanojia, age 25 years, residing at Shell Colony, Saibaba Nagar, Chembur and working from last 1 ½ year and doing job of cloth pressing in Gala No. 307. He was injured due to explosion and was in unconscious state. He was removed to hospital with injuries to head, leg etc. He stated that at about 16:00 hrs white petrol was brought in the premises as per regular routine procedure. But he was also unable to explain regarding the explosion. Further he stated that white petrol is used in their premises but no any LPG cylinder, boiler, furnace or any type of cylinder used in the premises for any activity. He had no doubt on any worker and management regarding sabotage / arson / incendiarism to create explosion or fire.

9) **Witness IX** – Mr. Mukesh Verma, age 35 years, residing at Shastri Nagar, Vikhroli Parksite, working as

a supervisor (group master) from last 10 months in Gala No. 307. He also stated that white petrol was brought by regular person, which was kept by Mr. Kishor Junjare at about 16:00 hrs and kept near Electric Steam Iron on loft. At the time of explosion he was in the Gala No. 307 on south side. He also heard explosion / blast and everything was scattered and white smoke all around, but he also unable to explain regarding explosion as well as direction of the explosion due to panic. Further he stated that white petrol is used in their premises but no any LPG cylinder, boiler, furnace or any type of cylinder used in the premises for any activity. He had no doubt on any worker and management regarding sabotage / arson / incendiarism to create explosion or fire.

10) **Witness X** – Mr. Ismail Haque, Age 38 years, residing at Vikhroli Park Site, Depu Pada, working as a Taylor from last 2 years in Gala No. 307, stated that white petrol is used in their premises and no any LPG cylinder, boiler, furnace or any type of cylinder used in the premises for any activity. He also heard large blast with white fumes and everything was scattered. He also unable to explain regarding explosion as well as direction of the explosion. He had no doubt on any worker and management regarding sabotage / arson / incendiarism to create explosion or fire.

11) **Witness XI** – Mr. Tribhuvan Jaiswal, Age 22 years, residing at Kannamwar Nagar, Vikhroli, working as a Taylor from last 2 ½ years in Gala No. 307. He also stated that white petrol is used in their premises and no any LPG cylinder, boiler, furnace or any type of cylinder used in the premises for any activity. He also heard large blast with white fumes and everything was scattered. He also unable to explain regarding explosion as well as direction of the explosion. He had no doubt on any worker and management regarding sabotage / arson / incendiarism to create explosion or fire.

12) **Witness XII** – Mr. Irshad Sayed, Age 26 years, residing at Nityanand Nagar, Ramboli Chawl, Ghatkopar (West), working in packing department from last 15 months in Gala No. 307 had minor injuries and removed to Rajavadi Hospital. He stated that he had not noticed any smell of petrol but further he stated that white petrol is used in their premises and no any LPG cylinder, boiler, furnace or any type of cylinder used in the premises for any activity. He also heard large blast with white fumes and everything was scattered. He also

unable to explain regarding explosion as well as direction of the explosion. He had no doubt on any worker and management regarding sabotage / arson / incendiarism to create explosion or fire.

13) **Witness XIII** – Mr. J.N. Patel , Age 55, working as a Manager of the Industrial Estate stated that he was in the office on ground floor, heard loud blast and explosion on 3rd floor and after that fire on 3rd floor at about 17:00 hrs. due to panic people were running from the building. Some people rush towards terrace, so immediately he informed Fire Brigade / Police. He stated that he learnt that explosion took place in Gala No. 307 and people were trapped inside but due to severity of fire and smoke no one was able to enter in the building till Fire Brigade arrived. Further he stated that Gala No. 307 belongs to M/s. Modi Apparels and he is not using any LPG, Furnace, Boiler or any type of cylinder in the premises. Also there was no any Electric or Gas Welding was in process / permitted.

14) **Witness XIV** – Mr. Prakash Chhabriya, Age 25, residing at Poonam Darshan, Andheri (East) working in Gala No. 319 and looking after export of M/s. Modi Apparels. At the time of incident he was not in the premises. He stated that he knows internal layout of the Gala and only 22 Electric Sewing Machines, Cutting Table, Electric Steam Iron was in the premises. Also there is one wooden cabin and part loft which is used for storage purpose. No any LPG cylinders, Furnace, Boiler and any type of cylinder or Explosive type of processes carried out in the premises, but white petrol is used like other readymade garment industries for cleaning purpose. But he stated that there is some dispute between workers and owner on the issue of payment and about 4 to 5 workers creating nuisance for the same. Also further he stated that owner of the Gala as well and one worker from nuisance creator died and some are injured in this incident. Said industry is profit making industry. As he was not present during incident he was not more aware about the accident.

15) **Witness XV** - Mr. Shashidharan A.K., Age 52, owner of Gala No. 216 stated that at about 17:00 hrs. blast took place and due to panic everybody rushed towards exits, so many people trapped on terrace, escape galleries but due to heavy smoke and fire no one was able to rescue them till Fire Brigade arrived. Further he stated that he knows internal layout of the Gala and only 22 Electric Sewing Machines, Cutting

		<p>Table, Electric Steam Iron were in the premises. Also there is one wooden cabin and part loft which is used for storage purpose. No any LPG cylinders, Furnace, Boiler and any type of cylinder or Explosive type of processes carried out in the premises, but white petrol is used like other readymade garment industries for cleaning purpose.</p> <p>16) Witness XVI – Shri Hiren Mehta, Age 38 yrs, Resident of 301, Doshi wadi, opp. Sarvodaya Hospital, Ghatkopar (W), son of Owner of Gala no. 308 who was in the gala stated that he heard big explosion from 307 & after that collapse of the walls and everything scattered. Immediately he and his workers ran from backside escape gallery as front side there was no any way due to collapse & smoky atmosphere. Also further he stated that no any cylinders or explosive type material in his gala, which can create explosion / blast and fire. Also he state that after explosion fire spread very rapidly from gala no. 307 & due to that they unable to rescue his father from his cabin.</p> <p>17) Witness XVII - Shri. E.B. Matala (Station Officer), Vikhroli Fire Station, First arriving officer noticed that flames were shooting out from the 3rd floor galas and thick smoke was emitting from 3rd floor through common passages, escape galleries and staircases, so immediately transmitted No. 1 message asking for 4 Motor Pumps, Ambulances, Water Tankers and TTL. Also he noticed, people were trapped and stranded in the escape balcony of 4th floor as well as he learnt that some people were trapped in the Gala No. 307 & 308 on 3rd floor, so observing the seriousness of the fire he transmitted No. 2 message and pressed two water jets on 3rd floor on fire and with the help of Angus ladder as well as using staircase rescued 35 men and 8 women and on arrival of myself he reported to me and further under guidance of Dy. CFO Gaitonde we rescued 8 men and 7 women and further fire fighting work was carried out by pressing 3 water jets from common corridor and further fire fighting was carried out under supervision and guidance of Dy. CFO A.V. Sawant and CFO K.A. Kadam and fire was extinguished by firemen with the help of 8 Engine Lines of 12 Motor Pumps and 1 Engine Line of Civil Defence. B.A. Sets were used for rescue operation.</p>
16.	CONTRIBUTORY FACTORS FOR FIRE SPREAD	i) Explosion and subsequently fire and Heavy fire load i.e. large stock of Combustible material Such as Readymade Garments, Finished - Semi Finished Cloths, Large quantity of White Petrol, Wooden Loft, Printing

Material, Printing Ink, Aromatic Chemicals as well as Chemicals and Perfumeries, Wooden furniture, various office records, computers and accessories, panel board, electric wiring and installations, plywood partitions and cabins etc. involved in the fire.

ii) Wooden partition cabins, loft were constructed which were of combustible nature. Common passage/corridor, staircase etc were obstructed with storage of combustible material. Escape galleries were under lock and key with collapsible steel type shutters.

iii) It was learnt more than 60 ltrs. of white petrol brought at about 16.00 hrs. which is highly flammable having flash point – 45 °F and vapour density 3 to 4 i.e. heavier than air and highly volatile, not only that its vapour air mixture is highly explosive which was stored in large quantity at different places. i.e. on ground as well as on loft.

iv) Delay in summoning Fire Brigade. As it was learnt that fire/explosion took place at about 17.00 hrs. & due to panic situation of the members and employees of the industrial estate, they informed fire brigade at about 17.17 hrs. & fire appliances reached at incident at about 17.22 hrs.

v) People/workers were trapped on terrace as well as escape gallery so at initial stage while starting fire fighting work rescue operation was also carried out by first arriving officer & at the same time fire fighting work also started. No any fire fighting arrangement was available in the industrial estate bldg. & for such a high intensity spreading fire after explosion, available portable fire extinguishers were not sufficient to tackle the fire.

vi) No attempt was made to put out fire at initial stage as explosion was followed by severe fire. The severity of fire was high & due to panic situation amongst the occupants nobody came forward to extinguish the fire till fire brigade arrived.

vii) Security personnel, inmates, workers, etc. were in panic due to explosion & not aware about fire fighting arrangements & use of fire extinguishers nor did they have fire fighting knowledge.

17.	CIRCUMSTANCIAL EVIDENCES	<p>As the task of investigation was assigned to me, myself A.D.F.O. S.K. Rane visited the premises next day after fire i.e. on 30/09/2007 as well as two more times and inspected the premises thoroughly.</p> <p>The necessary inquiry was made with injured persons from the gala no. 307, adjoining galas owners, industrial estate manager, chairman, secretary and it was learnt that at about 17.00 hrs. explosion / blast took place in gala no.307 followed by severe fire which spread within few seconds on third floor.</p> <ol style="list-style-type: none"> 1) Large stock of combustible material such as cloths, finished /semi finished cloths, stored in gala, adjoining galas also stored with printing material, printing ink, aromatic chemicals, perfumes, etc. which spreads fire after explosion. 2) More than 60 ltrs. of highly flammable, highly volatile having 3 to 4 vapour density i.e. heavier than air white petrol was stored in the gala no.307 which vapour air mixture is highly explosive. 3) Wooden lofts in about 2/3rd area in gala no.307 & 308 and wooden partition cabins in above galas lead to the severity of fire & affected fire fighting work. 4) Escape galleries were under lock & key from all sides. Also from three staircases two staircases were not found effective at the time of fire as they were smoke logged. All these circumstances also affects on rescue operation as well as on fire fighting operations. 5) As per the statements of the witnesses & injured persons it was learnt that explosion took place in gala no.307 where no any LPG cylinders, furnace, boiler and any kind of cylinder or any explosive creating machinery is used but more than 60 ltrs. of white petrol was brought in the gala at about 16.00 hrs. i.e. one hour before the explosion. Also adjoining galas one is closed & another printing press, aromatic chemicals galas & engineering workshop where severity is less than gala no.307. 6) During inspection it was noticed that severity of fire was more in gala no.307 specially at centre of the gala where columns & beams were not only damaged but slightly tilted from ceiling level on outer side, as well as walls of the said gala were
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		<p>totally damaged from all sides.</p> <p>7) During inspection also it was observed that spalling of surface plaster of walls and ceiling, damaged to the beams & columns, severity of the collapse of the walls was more in the center of the gala no 307.</p>
18.	SUPPOSED CAUSE OF FIRE	<p>After examining the circumstantial evidences and statements of eye witnesses, process of elimination is applied to determine the suppose cause of fire.</p> <p>i) <u>Incendiarism, sabotage and doubtful</u> : In going through the statement of witnesses and observation the supposed cause of fire due to incendiarism, sabotage and doubtful are ruled out as all the employees of the gala no.307 (i.e. M/s. Modi Apparels) stated that there is no major dispute between owner & workers. The said industry is in profit & in the incident owner of the gala died. In the incident also workers had died & injured. Only one witness doubt about sabotage but nobody supported him as well as he also not much confident about his statement.</p> <p>ii) <u>Arson</u>: The incident took place at about 17.00 hrs. when all the workers & owner were present in the gala & production was in process. Sudden blast heard by workers followed by white smoke & fire and part of the structure collapsed & injuries to the inmates. No eye-witnesses have given any statement regarding the foul play in the incident. However, nobody has come forward and stated during my inspection that occurrence of fire is due to arson, hence suppose cause of fire due to arson is ruled out.</p> <p>iii) <u>Careless smoking (LTD)</u>: All the witnesses noticed first explosion & after that fire. Also all the processes were in operation in the gala so careless smoking supposed cause of fire is ruled out.</p> <p>iv) <u>Chemical reaction auto- ignition and spontaneous combustion</u>: The premises is used as readymade garment manufacturing & operations are in process. By witnesses it was learnt that only more than 60 ltrs. of white petrol was stored in the premises which is highly flammable, highly volatile & which vapour air mixture is highly explosive. No any other type of chemical used or stored in the gala. Hence suppose cause of fire due to chemical reaction auto- ignition and spontaneous combustion are ruled out.</p>

		<p>v) <u>Naked light /flame</u> : There is a pantry but only electric coffee /tea machine is used. No any naked light, gas is used nor any edible oil lamps were lighted to worship the idol, also processes of the gala i.e. mfg. of readymade garment was in operation. And all the workers were present. All the witnesses heard blast/ explosion thereafter white fumes and fires hence fire due to naked light /flame came in contact with combustibles is ruled out.</p> <p>vi) <u>Flying embers:</u> This is a day time all the mfg. processes are in operation and witnesses & injured heard first explosion followed by fire hence the suppose cause due to flying embers also ruled out.</p> <p>vii) <u>Electricity:</u> As per witnesses sudden blast / explosion took place followed by white fumes & fire which spread due to large stock of combustible material. The fire took place in day time while processes were in operation. Hence cause of defective electricity is also ruled out.</p> <p>viii) <u>Accumulated vapour air mixture of the white petrol / gasoline came in contact with Electric Spark (leaked /spilled from plastic carboy) :</u> As per the witnesses & injured persons statements it was learnt that explosion took place followed by white fumes & severe fire. So after ruling out other suppose causes of fire and explosion the suppose cause of explosion and fire leads towards, Accumulated vapour air mixture of the leaked /spilled white petrol from plastic carboy came in contact with electric spark.</p>
19.	WHITE PETROL VAPOUR AIR MIXTURE & IT'S PROPERTIES	<p>As per Health Protection Agency 'Incident Management Literature' white petrol/ petrol is highly flammable & having low flash point. Its vapour air mixture is highly explosive. This is a mixture of C4 to C12 hydro carbon, it's common synonyms is gasoline. At room temperature this is in liquid form but this is highly volatile & highly flammable.</p> <p><u>Specific Density :-</u></p> <ul style="list-style-type: none"> * Liquid 0.7 at 16 degree C (water =1) * Vapour – 3-4 at 20 degree C (air =1) * Vapour are heavier than air at room temperature * Flammability :- Highly flammable * Lower explosive limit – 1.3 %

		<ul style="list-style-type: none"> * Upper explosive limit - 7.1 % * Water solubility – Practically insoluble in water * Reactivity – Low flashpoint. Vapour/air mixtures are explosive * Reaction or degradation products – Data not available * Odour – Characteristic odour. <p>As per chemical dictionary,</p> <ul style="list-style-type: none"> * White gasoline is a mixture of volatile hydrocarbon suitable for use in a spark ignited internal combustion engine especially in motor boats. * There are various types if gasoline such as antiknock gasoline, casing head gasoline, cracked gasoline, high-octane gasoline, lead free gasoline, natural gasoline, polymer gasoline, pyrolysis gasoline, reformed gasoline, straight-run gasoline, white gasoline. * From that white gasoline is un cracked and strongly inhibited against oxidation to avoid gum formation and usually not colored to distinguish it from other grades. * This is a highly flammable, dangerous fire and very high explosion risk when vapour air mixture forms. <p>As per material safety data sheet and gasoline safety by fire department Bellingham – Washington,</p> <ul style="list-style-type: none"> * flash point of white petrol is – 45 degree F. * vapour density 3 to 4 and heavier than air having low flash point, high vapour density so highly flammable. * Gasoline / White petrol produces ignitable vapours i.e. 3 to 4 times heavier than air and can travel for great distances along the ground. * Gas vapours tend to accumulate in low and enclosed places and these vapours can be then ignited by a nearby open flame or spark. * Gasoline is dangerous because it is highly volatile. * Fumes capable of ignition up to 12 feet away from a pooled source. * It can float on water and may spread long distances and if ignited flash back can occur. * Gasoline may ignite from nearby spark, flame or even static electricity and become a fire ball with a temperature of 1500 degree F. * Low flammable limit is 1.3 and high flammable limit is 7.6 by volume in air. * Vapour air mixture is highly explosive.
20.	POLICE PANCHNAMA REPORT	Police statements (panchnama) report is enclosed herewith but in which no any supposed cause or suspected cause is mentioned in the report such as arson Incendiarism, sabotage or doubtful.

21.	FORENSIC LAB REPORT	<p>Forensic lab report as per letter no MT/19115/07 dated 17/09/2007, given opinion regarding only metallic container i.e. Subject – Testing of Exhibit in C.R. No. 250/07 – Opinion regarding (F.S.L.M.L. Case No. M-282/07). Letter content is – “This is to inform you that, the top portion of the metallic container was totally damaged, melted and thrown away. The bottom of the container was intact with pieces of glass lining. The middle portion of the container showed small metallic chain. So it indicates than metallic container may have been exploded due to development of excess temperature and pressure in it during working.”</p> <p>During investigation as per witnesses statements it was learnt that there was no any type of cylinder, LP Gas cylinder, Furnace, Boiler etc. kept in the Gala No. 307. Also observing the damage to the premises of the various galas it was clearly noticed that severity of the explosion and fire in Gala No. 307 where columns and beams, spilling of walls and ceiling damaged is more. Also it was clearly noticed by photographs that columns were tilted in outer direction at ceiling level of Gala No. 307. While enquiry also it was learnt that the cylinder which was inspected by forensic lab was removed by firemen those who were present for standby duty in the first shift from Gala No. 314 where all the fire damaged material of various galas was stored. It also not given surety about the cylinder was from which gala. Also it was learnt from witnesses that such type of cylinder is not used in readymade garment shop, hence suppose cause of fire due to explosion of unidentified cylinder is ruled out.</p>
21.	PHOTOGRAPHS OF INCIDENT	<p>Photographs at a time of incident as well as after the incident shows severity of the fire in the gala no.307,in the centre of the gala where walls had fallen, columns & beams were damaged & tilted from upward side as well as spilling of plaster of ceiling, beams & columns noticed more severe in gala no.307. This indicates severity of the fire & as well as explosion / blast took place at initial stage in gala no.307.</p>
22.	CONCLUSION	<p>After going through the statement of witnesses, observation, inspection and compiling the circumstantial evidences as well as police statements (panchnama) report & forensic lab report, photograph of the incident it seems that explosion & fire took place in gala no.307 also majority of the dead bodies found in gala no.307, where severity of the fire is more & damage to the premises & content is also more. As no any LPG cylinder, boiler, furnace or any type of</p>

		<p>cylinder, such type of things were kept in the premises but as per the witnesses more than 60 ltrs. of white petrol brought & kept one hour before the explosion. After referring gasoline / white petrol properties it clearly indicate that white petrol / gasoline vapour air mixture are highly explosive. Hence, after eliminating other suppose causes the supposed cause of the fire leads towards the leakage / spillage of white petrol / gasoline and formation of vapour air mixture which is heavier than air accumulates in the said gala. And spark generated from electric origin such as Electric sewing machines, Electric steam irons, etc came in contact with the accumulated vapour air mixture creates blasts/explosions & subsequently fire. Hence, supposed cause of fire investigated as “Accumulation of vapour air mixture (which is heavier than air) formed due to leakage / spillage of petrol /gasoline in the said gala came in contact with Electric Spark generated from electric origin / electric operated machinery.”</p> <p>In the process of fire investigation for suppose cause of fire examined fire incident from all directions with all suppose causes and suppose causes were tested with the situation, circumstances, circumstantial evidences, recorded statements of the witnesses, chemical properties, photographs and observations and came to the conclusion for above suppose cause of fire which indicates that fire took place in Gala No. 307. Only forensic lab report direct towards unknown cylinder explosion but no one from witnesses supported regarding same cylinder from Gala No. 307 where explosion and fire at initial stage took place. Then also this suppose cause of fire kept open for any change in future if any government agency or statements of more witnesses other than above came forward with suitable proof for suppose cause of fire.</p>
23.	SUPPOSE CAUSE OF FIRE	“Accumulated vapour air mixture of the leaked / spilled petrol /gasoline came in contact with Electric Spark..”
24.	RECOMMENDATION	<p>Since the building is used entirely for industrial estate bldg. Asst. Commissioner (N-ward) requested to visit the premises along with Senior Inspector of License and Asst. Engineer Bldg. & Factory and recheck the bldg. & all galas from structural stability, various trade license, power permit permissions & loft/Mezzanine floor permission is concerned.</p> <p>From fire safety point of view all galas shall be provided with sufficient no. of extinguishers with consultation of CFO’s dept. & from fire safety point of view after inspection of structural stability of the</p>

structure if possible suggested to installed the down comer system having 20,000 ltrs. Capacity overhead water tank at the terrace level with a booster pump of 450 ltrs./min. capacity. Fire service inlets shall be provided at ground level connected with the down comer, so as to connect the mobile pump of fire service to the wet riser.

However, in the meantime party shall be asked to comply following requirements from fire safety point of view,

- 1) Existing fire fighting extinguisher shall be kept well maintained & security staff as well as employees shall be trained for the same.
- 2) All entrance, exit, open space, courtyard shall be kept free from obstructions and easily accessible escape galleries shall be kept open and existing collapsible grills shall be removed from fire safety point view & same shall be kept unobstructed all the time.
- 3) Employee may please be advised to switch off the main while closing the premises.
- 4) Sr. Inspector of licenses requested to re inspect all the galas from trade licenses as well as storage point of view and take appropriate actions.
- 5) Asst. Engg (Bldg & Fact) requested to re inspect all the galas from addition / alteration and loft / mezzanine floors point of view and take appropriate actions.