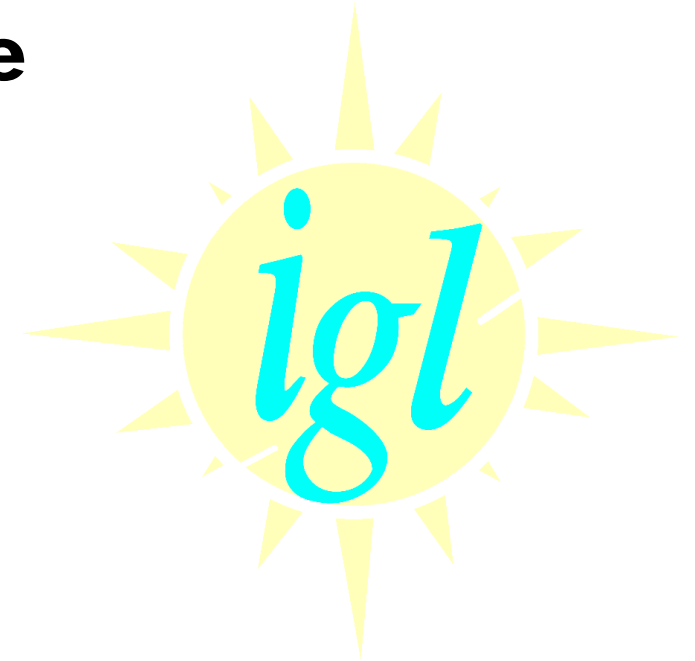




# **INDRAPRASTHA GAS LIMITED**

## **CASE STUDY**

**Third Party Damage to Gas Pipeline and Fire  
/Explosion inside the House  
in GHAZIABAD**





# EXECUTIVE SUMMARY

“On Intervening Night (~ 0100 Hrs) of 24.03.2015 and 25.03.2015, in the ground floor of a two storey building in Ghaziabad, an Explosion /Fire occurred. The explosion and fire caused burn injury to three members of the family”

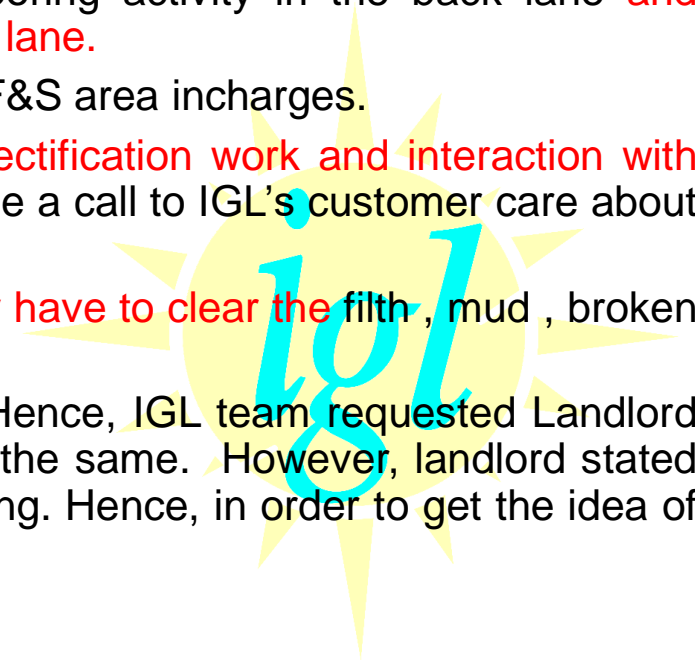
- The Following were the safety issues in the incident:
  - a) The Damage to the 32 mm MDPE pipeline laid in the back lane of the house.
  - b) The Presence of LPG cylinders on both ground and upper floors of the house.





# CHRONOLOGY OF EVENTS

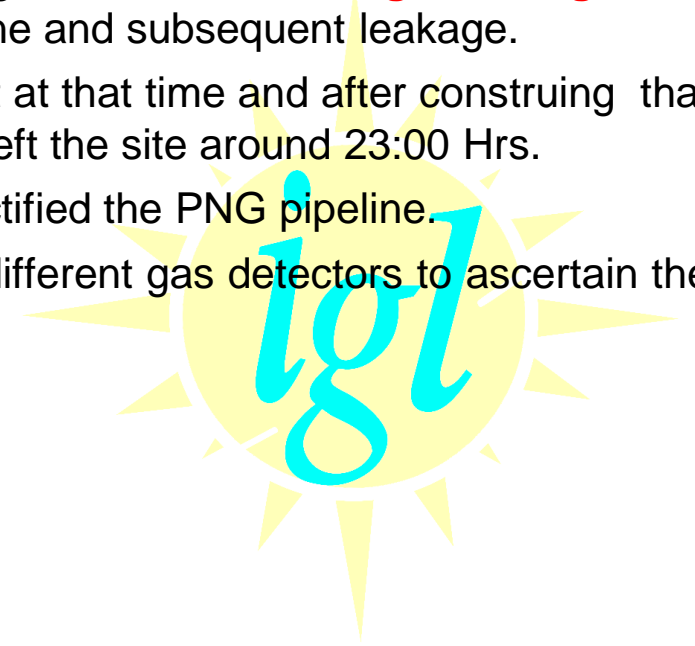
- On Intervening Night (~ 0100 Hrs) of 24.03.2015 and 25.03.2015, an explosion / fire occurred at Ground Floor of House in Ghaziabad.
- On 25.03.2015 at around 1500 Hrs, IGL control Room received complaint of **Gas Leakage from GI riser** installed for House in Ghaziabad.
- On 25.03.2015 at ~1540 Hrs PNG Control Room (Vivek Vihar) Team reached the site:
  - C/R Team observed that back lane (where GI Riser was installed) was filled with filth , mud , broken crockeries and other debris.
  - The team was informed by the landlord of the house about the alleged Explosion /fire in ground floor sublet to a family of house occurred in midnight. [There is a Gap of 14 Hours in lodging the complaint and the actual occurrence of the incident].
  - No gas leakage was observed in the GI riser for which the complaint was lodged.
  - C/R Team as a routine procedure checked the entire surrounding
  - While checking the surrounding, team also observed there was an unauthorised boring activity in the back lane and observed a minor leakage (30 % LEL in gas detector) from the boring point in the back lane.
  - At around 18:30 Hrs PNG Control Room Team informed the situation to the PNG and F&S area incharges.
  - IGL 's executives team reached the site around 21:00 hrs and after observing the rectification work and interaction with onsite team met with Land lord (living on the first floor) of house who in actual had made a call to IGL's customer care about the gas leakage only.
  - Meantime, C/R team started the rectification which was taking quite a long time as they have to clear the filth , mud , broken crockeries and other debris.
  - The IGL team noticed that the allegedly affected house (ground floor) was locked. Hence, IGL team requested Landlord that if he can allow to see the affected house but Landlord expressed his inability for the same. However, landlord stated that the affected house has **similar architecture** as of the first floor of the same building. Hence, in order to get the idea of the structure IGL team visited his first floor.





# Cont...CHRONOLOGY OF EVENTS

- Landlord also informed that on the intervening night of 23rd and 24th March 2015 he heard a loud bang from the ground floor (which he has given on rent to a family) and as he rushed to ground floor where he found that family members had suffered burn injuries. He immediately called UP Fire Service, Police and ambulance services and arrange to get the injured personnel admitted to nearby Pushpanjali Hospital.
- On enquiring as to why he called so late to the PNG Control Room if he had come to know about the gas leakage, he said as he was not sure about the reasons behind the incident so initially he called Electricians in the day time around 11:00 hrs to check if at all this incident has occurred due to any electrical fault.
- On concluding that the incident has no relation with electrical fault **he presumed that it is a case of gas explosion accordingly he informed the PNG control room** (albeit a very late) by correlating that there was **illegal boring work carried out some 04 months back**, which might have resulted in damage of MDPE line and subsequent leakage.
- At Around 23:00 Hrs, IGL team after looking at all the circumstantial evidences present at that time and after construing that so called explosion incident has no correlation with the PNG leakage in the back lane, left the site around 23:00 Hrs.
- In the meantime, C/R Team after removing the debris (which took substantial time ) rectified the PNG pipeline.
- After rectification, team observed “ZERO LEL” in the gas detectors. [Team used two different gas detectors to ascertain the same]
- During the line rectification work , no customer was affected as the line was in loop.
- On 26.03.2015 at 02:30 am, site restoration work was completed by PNG C/R.





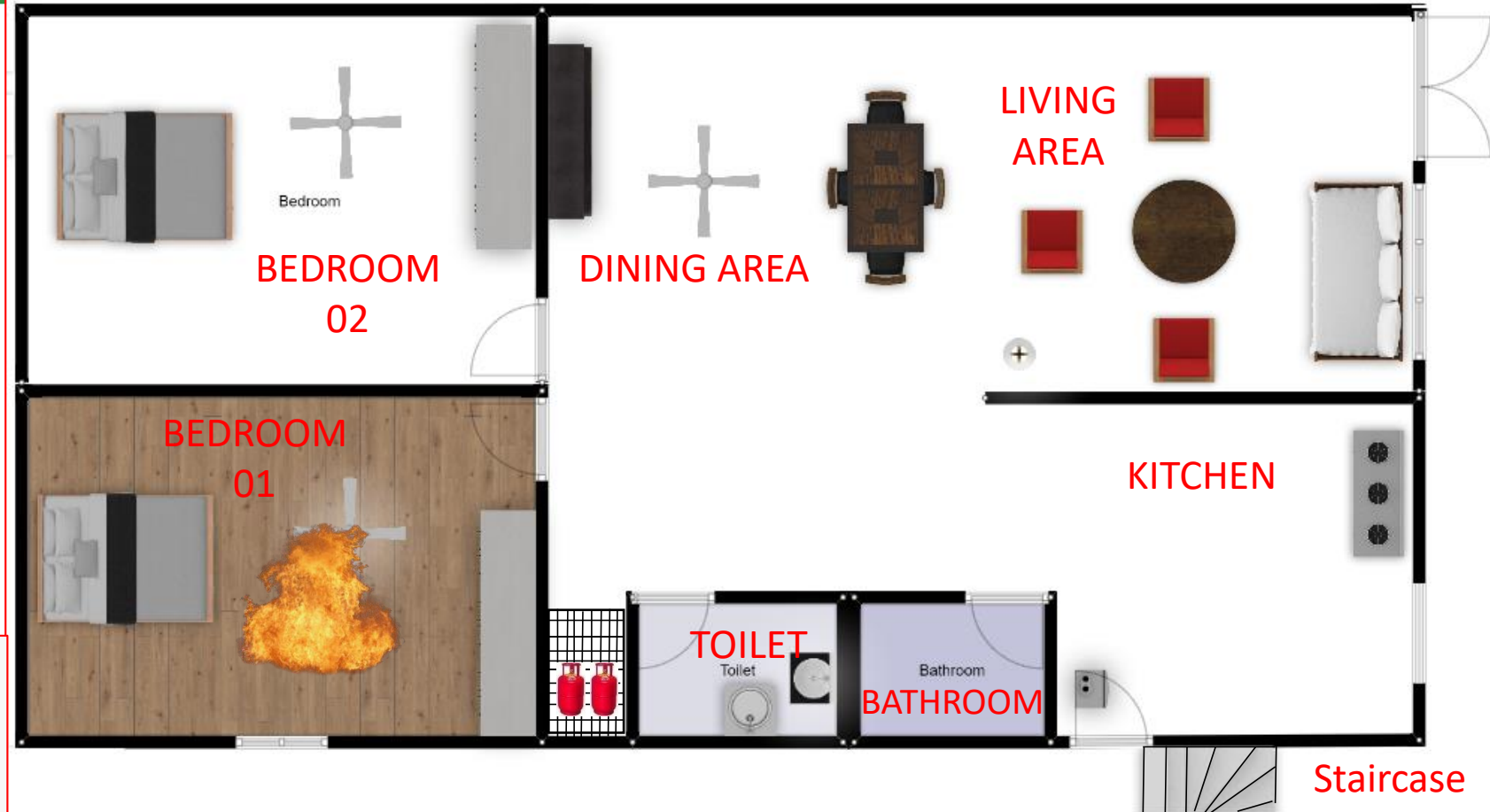






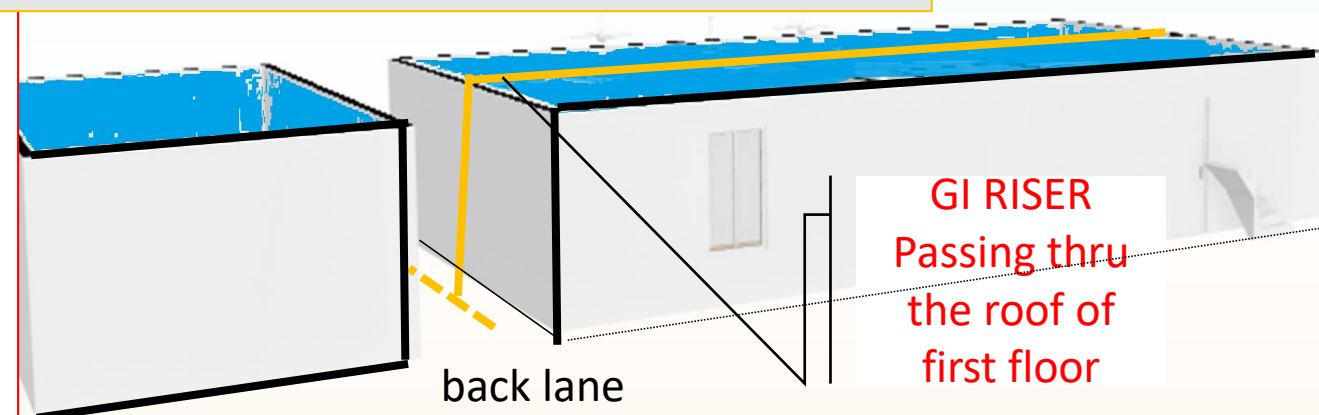
## FLOOR PLAN

32 mm dia MDPE  
pipeline  
Laid underground in  
the back lane  
Pressure ~ 4 bar(g)

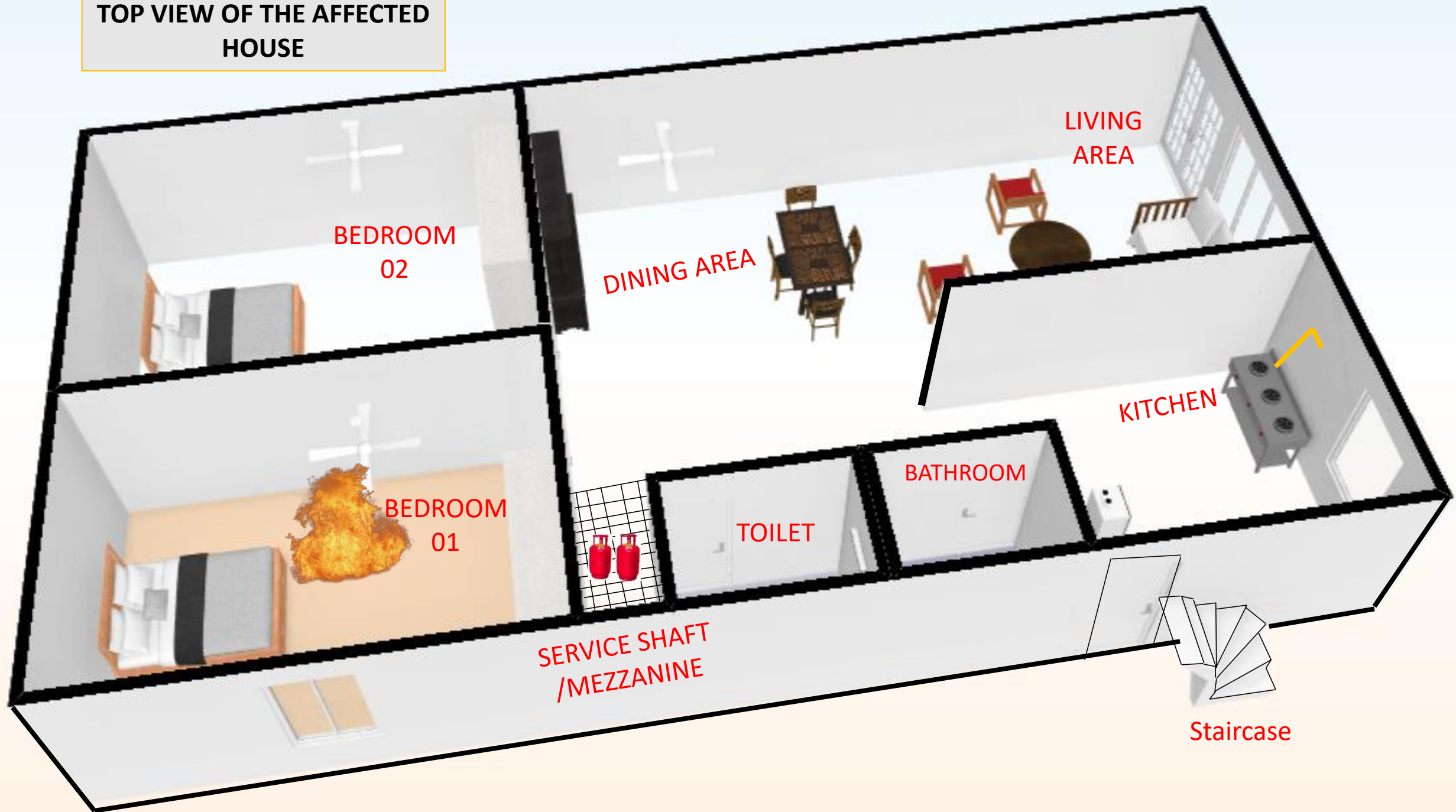


**BLOCK DIAGRAM OF THE ROW HOUSE WITH  
DEPICTION OF MDPE LINE IN BACK LANE**

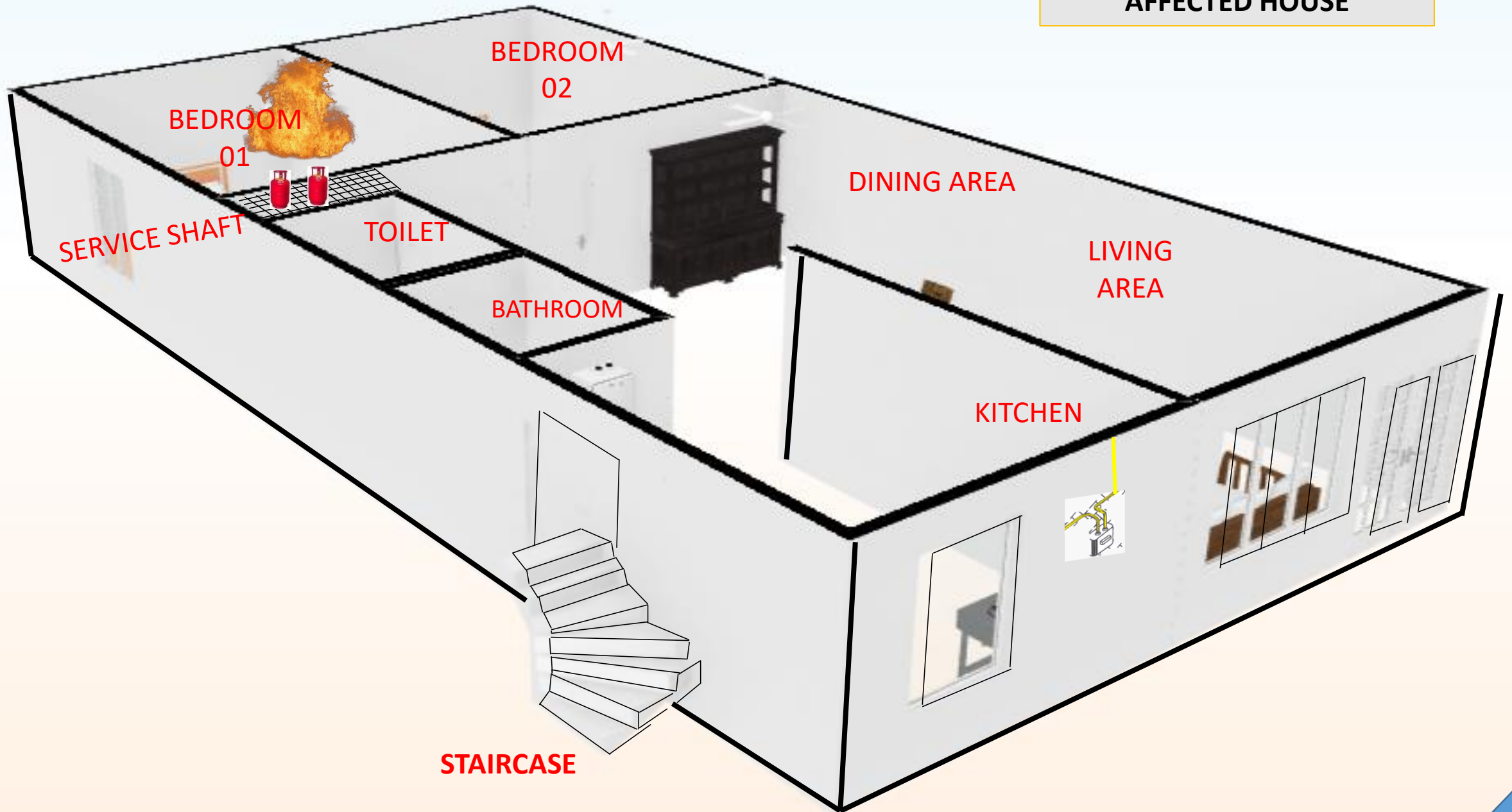
## SIDE ELEVATION OF THE ROW HOUSES



# TOP VIEW OF THE AFFECTED HOUSE

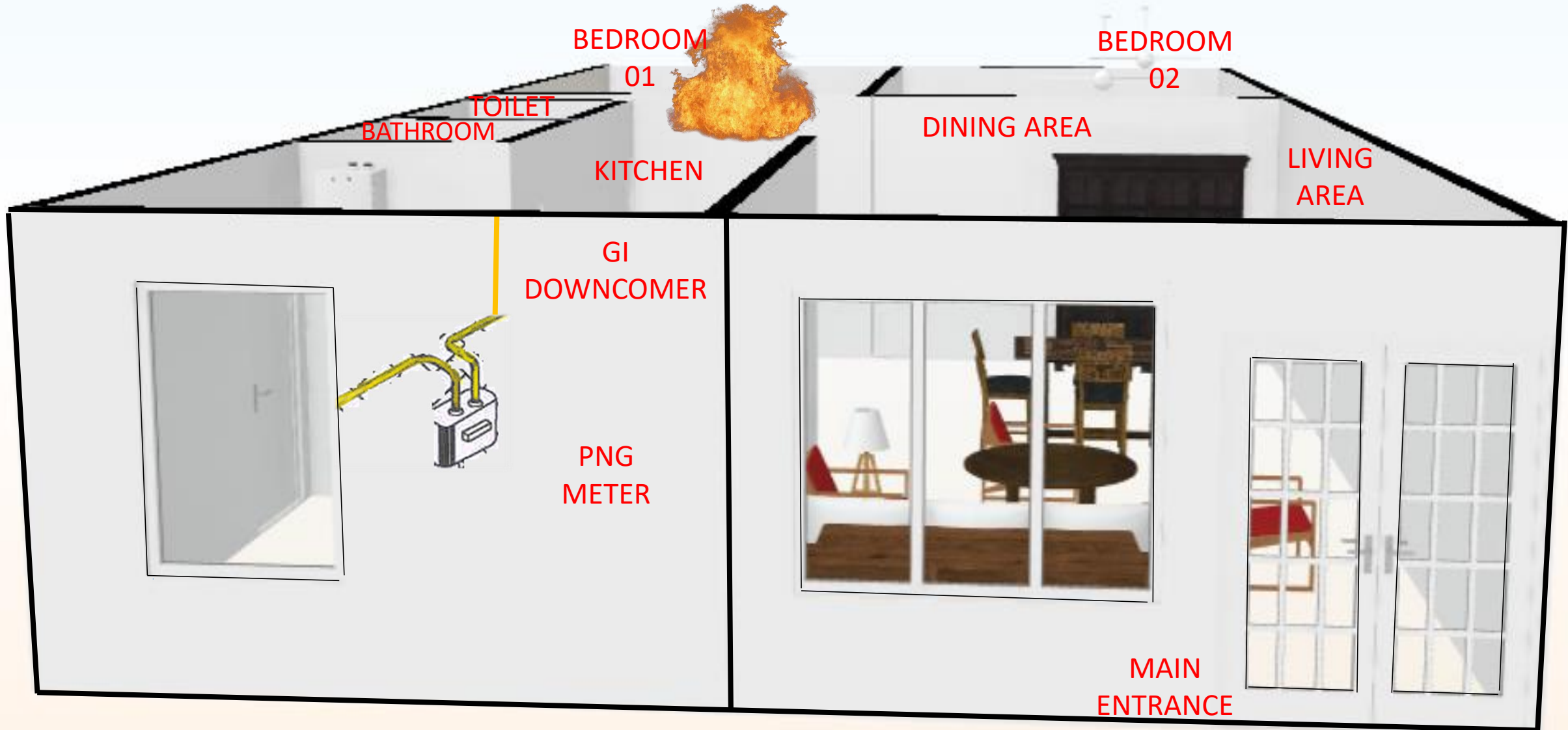


**SIDE ELEVATION OF THE  
AFFECTED HOUSE**





# FRONT VIEW OF THE AFFECTED HOUSE





# Police Complaint (FIR), Media Publication and Complaint to PNGRB on 05.04.2015

## Explosion at Gzb home, family blames PNG line

**BREAK ACCIDENT** Indraprastha Gas Limited admits to leakage in line but denies it would have caused fire, orders investigation

Peeyush Khandelwal  
peeyush.khandelwal@rediffmail.com

**GHAZIABAD:** A Ghaziabad family on Saturday accused Indraprastha Gas Limited (IGL) of negligence after an explosion at their house that they said was caused by a leakage in the PNG line that runs through their backyard. Three people were injured in the fire and subsequent explosion in their house on March 23 night.

An IGL official said the agency had detected a gas leak at the lane behind the house but denied any route through which the gas could have entered the house and led to the fire.

"The leakage was caused as the line got damaged due to underground boring activities in the back lane," the official said. A 39-year-old woman, her sister and nephew suffered severe burn injuries in the fire that took place inside their house at Surya Nagar.

The incident took place after midnight when Hema Raghuvanshi was using a mosquito swatter racket. Her sister Seema and nephew Vishal were in the same room.

"As she operated the racket, which emits a spark when an insect gets killed, there was a huge ball of fire and a loud explosion. The ball of fire was huge enough to break open the door, window panes and reach the second room," said Neeraj Raghuvanshi, Hema's husband.



**THE LEAKAGE WAS CAUSED AS THE LINE WAS DAMAGED DUE TO UNDERGROUND BORING ACTIVITIES IN THE BACK LANE.**

IGL OFFICIAL

All three injured were rushed to a hospital in Vaishali where Seema and Vishal were treated for severe injuries on their body and limbs. Hema was referred to a super specialty hospital in Delhi due to her severe injuries.

"A day after the incident, we got suspicious when a young

man in the house opposite ours was injured in a fire and later died. We called up the IGL authorities, who arrived and detected a gas leak. Later, they plugged the leakage. The leakage at the back lane probably spurred the two incidents," said Lalit Goel, Raghuvanshi's landlord.

The family filed a police complaint on Saturday alleging negligence on the part of IGL. IGL has ordered a detailed inquiry into the incident to find the exact reason behind the fire and the alleged gas leak.

Hema was discharged from the Delhi hospital on Friday and has been advised complete bed rest following a skin grafting surgery.

4/5/2015

[https://mail.gov.in/web\\_content/shell.html?lang=en&3.0.0.10\\_14062917](https://mail.gov.in/web_content/shell.html?lang=en&3.0.0.10_14062917)

Subject: Meter to detect PNG leakage  
To: contact@pngrb.gov.in <contact@pngrb.gov.in>

Date: 04/05/15 12:39 PM

Dear sir,

On 24th March 2015 there was a huge blast in my house no. [REDACTED] to PNG leakage in the service line pipe laid underground.

I informed your control room as well as to fire brigade and a 30% leakage is detected by your staff which was occurred due to 5/6 submersible pumps boring by [REDACTED] boring. Though the leakage is closed but who will pay you the revenue lost in leakage and damage to my property and Bills of hospital for the treatment of three 30% burn treatment of my family members. It is due to the negligence of your staff.

Further, being both are senior citizens of above 70 we along with my family members are so much scared from this incident, we can't sleep properly at night.

I earnestly request arrange to fit a PNG leakage detector in my house so that we can live without any leakage horror. Moreover still many boring wells are working in the service lane behind my house.

REQUEST. Please forward my mail to the concern Dept/Officer

Se 04/05/15  
6/4/15

दि. 04-05-2015

Count copy

N.C.R.B. (एन सी आर बी)  
ए.ए.ए. (एन एन ए) - एन सी आर बी

### FIRST INFORMATION REPORT

(Under Section 154 Cr.P.C.)  
प्रमाण नुस्खे रिपोर्ट  
(अनुसार 154 एन सी आर बी के तहत)

1. District (जिला): गांधीबाद  
FIR No. (ए.ए.ए. नं.): 0084  
2. S.No. (स.नं.): Acts (अतिशय)  
1. घाट नं 1860  
2. घाट नं 1860  
3. घाट नं 1860

P.S. (थान): बिक रोड  
Date (दिनांक): 05/04/2015

Year (वर्ष): 2015

Sections (अनुच्छेद):  
285  
330  
427

3. (a) Occurrence of offence (अपराध की घटना):

1. Day (दिनांक): गुरुवार  
Time Period (समय अवधि): 12:45 बजे

Date From (दिनांक से): 24/03/2015  
Time From (समय से): 12:45 बजे

Date To (दिनांक तक): 24/03/2015  
Time To (समय तक): 12:45 बजे

(b) Information received at P.S. (थान) क्या सूचना प्राप्त हुई: Date (दिनांक): 05/04/2015 Time (समय): 10:30 बजे

(c) General Diary Reference (सामान्य दिनांक नोट): Entry No. (प्रविष्टि नं.): 009 Time (समय): 10:30 बजे

4. Type of information (सूचना का प्रकार): अज्ञात

5. Place of Occurrence (घटनास्थल):

1. (a) Direction and distance from P.S. (थान) से दूरी और दिशा: पश्चिम 01 किमी. Beat No. (बीट नं.):  
(b) Address (पता): ए-90, काजुड, मनीर, मुहम्मद, जलान रोड, बिक रोड

(c) In case, outside the limit of this Police Station, then (यदि थाना सीमा के बाहर हो तो):  
Name of P.S. (थान का नाम): बिक रोड District (जिला): गांधीबाद (अनुच्छेद)

6. Complainant / Informant (शिकायतकर्ता/सूचनाकर्ता):

(a) Name (नाम): नीरज सुखानी  
(b) Father's Name (पिता का नाम):  
(c) Date/Year of Birth (जन्म तिथि / वर्ष):  
(d) Nationality (राष्ट्रियता): भारत

(e) UID No. (यूआईडी नं.):  
(f) Passport No. (पासपोर्ट नं.):  
(g) Occupation (व्यवसाय):  
(h) Address (पता):

Place of Issue (जारी करने का स्थान):

(g) Occupation (व्यवसाय):

(h) Address (पता):

S.No. (क्र.सं.): Address Type (पता का प्रकार): Address (पता):

1. अज्ञात पता ए-90, काजुड, मनीर, मुहम्मद, जलान रोड, बिक रोड, गांधीबाद, उत्तर प्रदेश, भारत  
2. ए-90, काजुड, मनीर, मुहम्मद, जलान रोड, बिक रोड, गांधीबाद, उत्तर प्रदेश, भारत



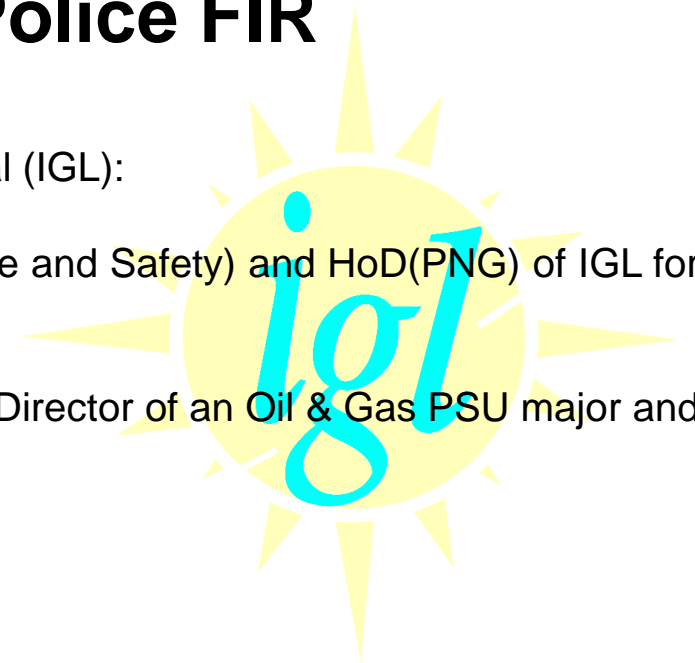
# Complaint by the Customer:

- 1) The incident of explosion took place after midnight when the wife of complainant was using a mosquito swatter racket. As she operated the racket to kill the insects (mosquito) there was huge fire ball with a loud explosion. During this event the 39 year old wife of the complainant, her nephew and sister suffered severe burn injuries in the fire that took place.
- 2) The family filed a police complaint on 04.04.2015 alleging negligence on the part of IGL blaming that fire took place due to gas leakage from IGL pipeline laid in the back lane of their house which was damaged due to boring activity resulting into :
  - **Heavy Leakage** which travelled horizontally and passed into sewer line (01 meter away)
  - The said leaked gas **got accumulated** inside the house which got ignited when the tenant (wife of complainant) used a mosquito swatter racket.

## Action After Media Publication and Police FIR

Subsequent to the reporting of incident in press, two committees were formed by Director Commercial (IGL):

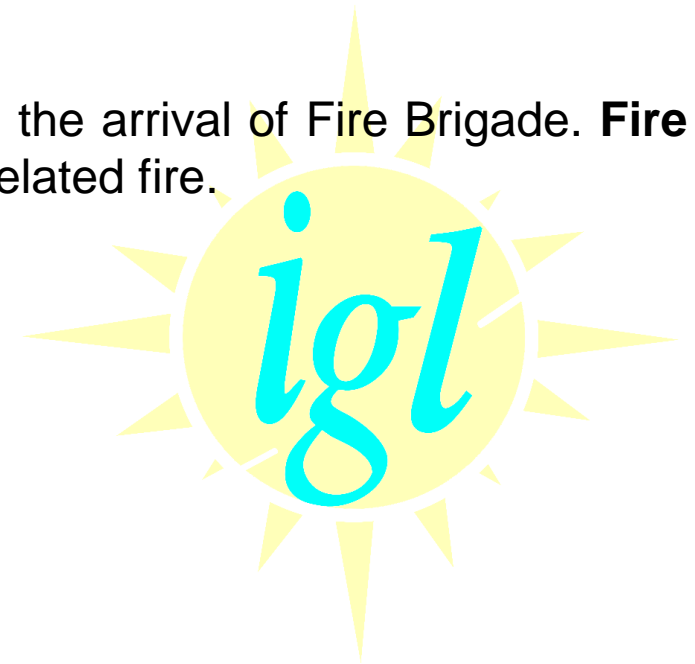
- i) An internal enquiry committee was set up vide officer order dated 07.04.2015 deputing HoD (Fire and Safety) and HoD(PNG) of IGL for detailed investigation.
- ii) An Independent External Committee comprising of two members comprising of Retd. Executive Director of an Oil & Gas PSU major and and Divisional Fire Officer (retd.) Delhi Fire Services.





# FINDINGS OF THE INHOUSE JOINT INSPECTION TEAM

1. Committee Perused the records and observed that No Complaint of **“No Gas Supply (due to tripping of regulator as a result of low pressure)”** was recorded in the vicinity of the affected area. This indicates that the leakage was minor one. Besides there was no sound heard by any of the resident(s). Team found that maintenance of pipeline has been carried out as per the specified guidelines by control Room of the area.
2. **No complaint of gas leakage** has been reported by Patrolling Guards.
3. Team also perused the fire report of UP fire Services which states that fire brigade team received the call on 24.03.2015 at 0107 Hrs and fire brigade team reached the site at 0120 Hrs, where, they have recorded that cause of the fire is unknown.
4. Fire Brigade report states that the fire was doused by the local residents before the arrival of Fire Brigade. **Fire Brigade did not even inform IGL C/R** which they ought to have done in PNG related fire.

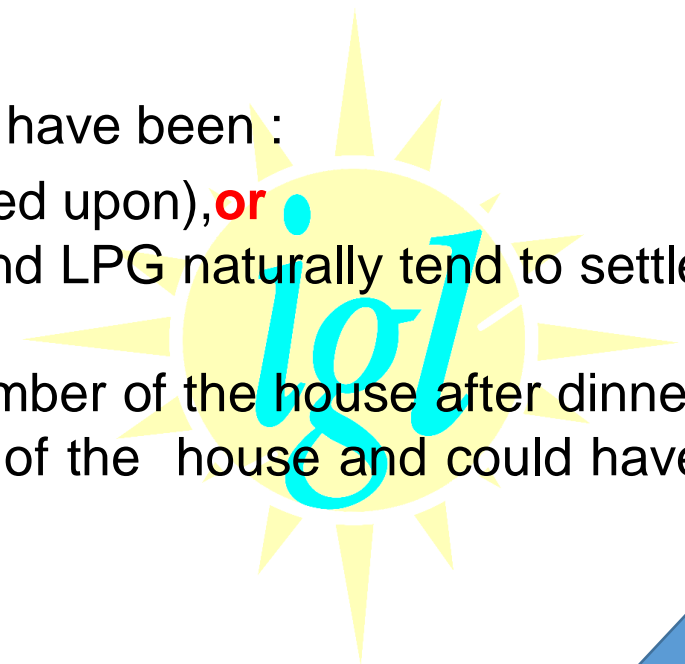






## CONCLUSION BY THE INHOUSE COMMITTEE

- Committee concluded that the cause of the leakage is not the poor laying standards of pipeline or maintenance failure of the pipeline.
- The damage to the IGL pipeline in the back lane of the house, causing minor leakage of gas was due to unauthorized digging work.
- No negligence is proved on record by any employee of IGL as the response of the IGL team was prompt.
- Had there been heavy gas leakage, it should have produced humming sound as the pressure we are providing in service line is 04 Kg /cm<sup>2</sup>. Had leakage been the cause of fire in the house, the fire should have continued till rectification of leakage and would have resulted in fire in other houses as well.
- Committee was of the view that alleged explosion in the house could have been :
  - a) Because of short circuit (as at first instance the electrician was called upon), **or**
  - b) Due to leakage in LPG cylinders kept on the open service shaft and LPG naturally tend to settle down, **or**,
  - c) Knob of the PNG Gas stove could have been left open by any member of the house after dinner and the PNG might have accumulated and travelled to the ceiling of the house and could have ignited the fire.

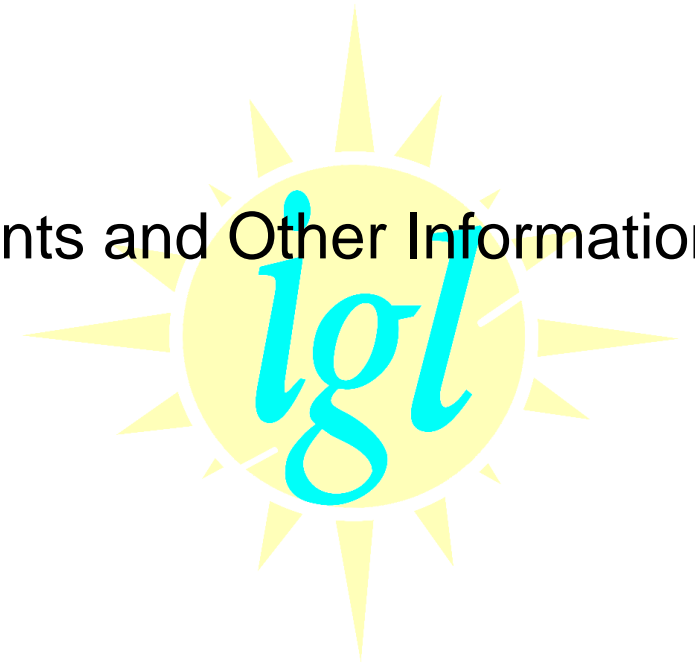




# INVESTIGATION BY THIRD PARTY / EXTERNAL INVESTIGATION AGENCY

## METHODOLOGY ADOPTED:

- Interaction with Internal Investigation team.
- Collection of Information about Persons engaged / affected.
- Site Visit to collect the evidences, observations.
- Interaction with Affected family (Persons)
- Interview of the site witnesses – IGL team.
- Checking of Relevant Reports, Records and Documents.
- Analyzing the Observations, Findings, Statements, Documents and Other Information and Arriving at cause.

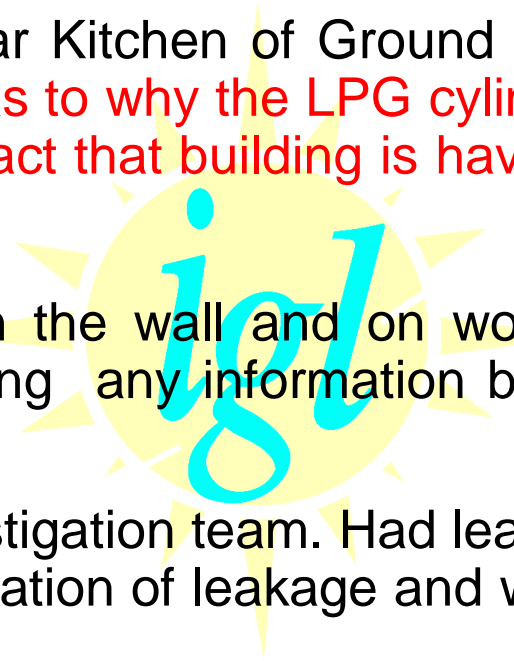




# INVESTIGATION BY THIRD PARTY / EXTERNAL INVESTIGATION AGENCY

## FINDINGS:

- External Committee observed that as part of their policy IGL had issued the clear guidelines through advisory letters submitted to RWA of this particular society and local Police authorities for not allowing any digging work in vicinity of gas pipeline without prior permission from IGL- **it remains a question as to why the illegal boring was allowed by the RWA and why RWA did not inform IGL about the illegal boring work .**
- External Committee observed that IGL has installed warning markers having details of emergency numbers as per the regulatory requirements- and there was a plate marker installed in the close proximity of affected portion of pipeline as well- **why it took so long i.e., ~14 hours to lodge the complaint in IGL customer care.**
- External Committee team spotted the LPG cylinders inside the house (near Kitchen of Ground Floor and in sanitary /service shaft of ground floor and first floor) – **It is not clear as to why the LPG cylinders existing inside the affected house and all floors of the building despite the fact that building is having a running PNG Connection. The LPG cylinder should have been surrendered.**
- External Committee team also observed some blackish greasy spots on the wall and on wooden almirah of the affected house which are unexplainable in absence of sharing any information by the occupants.
- External Committee team also corroborated with findings of the internal investigation team. Had leakage been the cause of fire in the house the fire should have continued till rectification of leakage and would have resulted in fire in other houses as well.

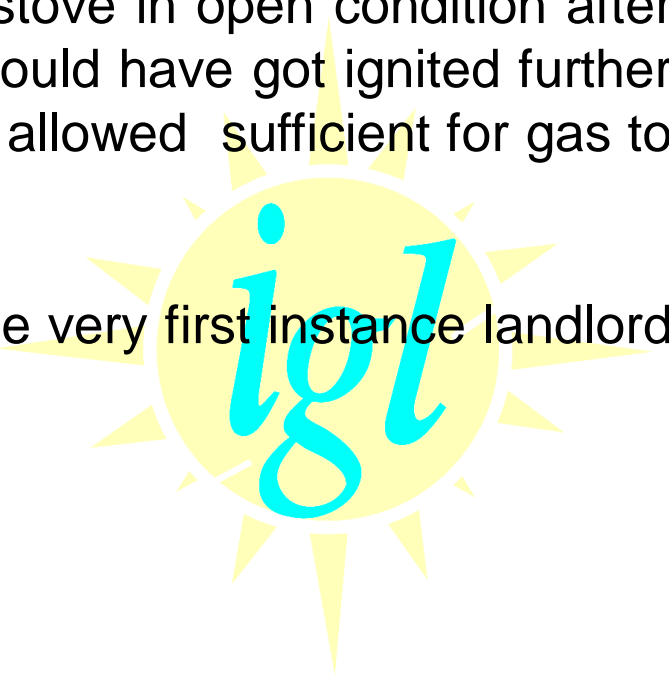




# CONCLUSION BY THE EXTERNAL INVESTIGATION COMMITTEE

External Agency was of the opinion that :

- Based on the pattern and the location of the injured persons, the fire/explosion radiated from the bedroom, having close proximity to storage of LPG cylinders kept on the open service shaft of First Floor. Thus it can be inferred leaking LPG being heavier than air would have settled on the ceiling of the ground floor.
- House wife or other member could have left the knob of the PNG gas stove in open condition after dinner which might got accumulated upto the ceiling of the house and could have got ignited further (as the so called fire /explosion has occurred late in the midnight which allowed sufficient for gas to get accumulated out of negligence of house member.
- The fire could have occurred due to short circuit in the house since at the very first instance landlord called electricians on 24.03.2015 instead of IGL control room team.







## CONCLUSION

- Looking at all the plausible reasons /possibilities External Agency concluded that said incident of fire and so called explosion has no correlation with the PNG supplied by IGL.

### WHAT WENT IN FAVOUR OF IGL:

- Quick response by IGL control room team on receipt complaint of gas leakage.
- Timely Advisory Letters issued by IGL control Room to RWA of the particular society and Local Police Station to act against the unauthorized digging work near gas pipeline.
- Training of RWA staff at the start of PNG commissioning by PNG Control Room.
- Regular Customer Awareness Programmes through MTVs and FM radios.
- Proper Odourant injection in PNG system.





## CONCLUDING REMARKS

- These two different cases of 3<sup>rd</sup> Party damage to gas pipeline and incident of fire inside the house. were utilized by **some parties having vested interest with some ulterior motive**. There was a gap of some 10 days between the incident and **intentional lodging of FIR against Chairman IGL to extract some undue advantage of the situation**.
- **Mental Trauma of FIR** against employees and **subsequent Harassment faced by employees**. Some executive(s) left the organization due to such agony. **Loss of experienced staff suffered by IGL**.
- After numerous hearing in High Court and after submission of various SOPs, records to judge IGL was able to convince the judge that there was no laps on part of IGL.
- **There was strong support of IGL top management by arranging timely legal support.**
- In case of the third party damage to our pipeline more often than not **CGD personnel remains on the receiving end as they face tough task to prove their innocence in absence of any immunity** provided in the regulations.





## RECOMMENDATIONS

With the presence of widespread of network of gas pipelines, in every nook and corner and considering the rampant third party excavation activities, there is every possibility of damage to pipeline and untoward scene being created due to migration hazard of leaking Natural Gas. Hence in view of this :

- 1. There is strong need of common Dial Before Dig number at pan INDIA level.**
- Existing regulations **may include provision of natural gas detection system** for all type residential occupancies **to supplement the use of odorant.**





**THANK YOU**

