# Jaipur LPG Tank Truck Accident

# Investigation Committee Report

# Incident Fact File

**Date & Time of incident:** 20.12.2024, 05:33 hrs **pre-dawn time.**

**Accident spot:** Road junction at Bhankrota, near M/s. KMT Logistics Pvt. Ltd. Office, Ajmer – Jaipur Expressway (NH-48), District Jaipur, Rajasthan

**LORRY NO:** HR38S0741

**TRANSPORTER:** M/s.Panwar Roadlines(VC225907)

**TRANSPORTER NAME:** Mr. Anil Panwar

**TANKER CARRYING CAPACITY:** 18 MT

**TANKER CONTRACT DETAILS:** Adhoc Bulk LPG Road Transportation Contract for U.P.(period 01.10.24 to 31.03.25)




## TANK LORRY DETAILS

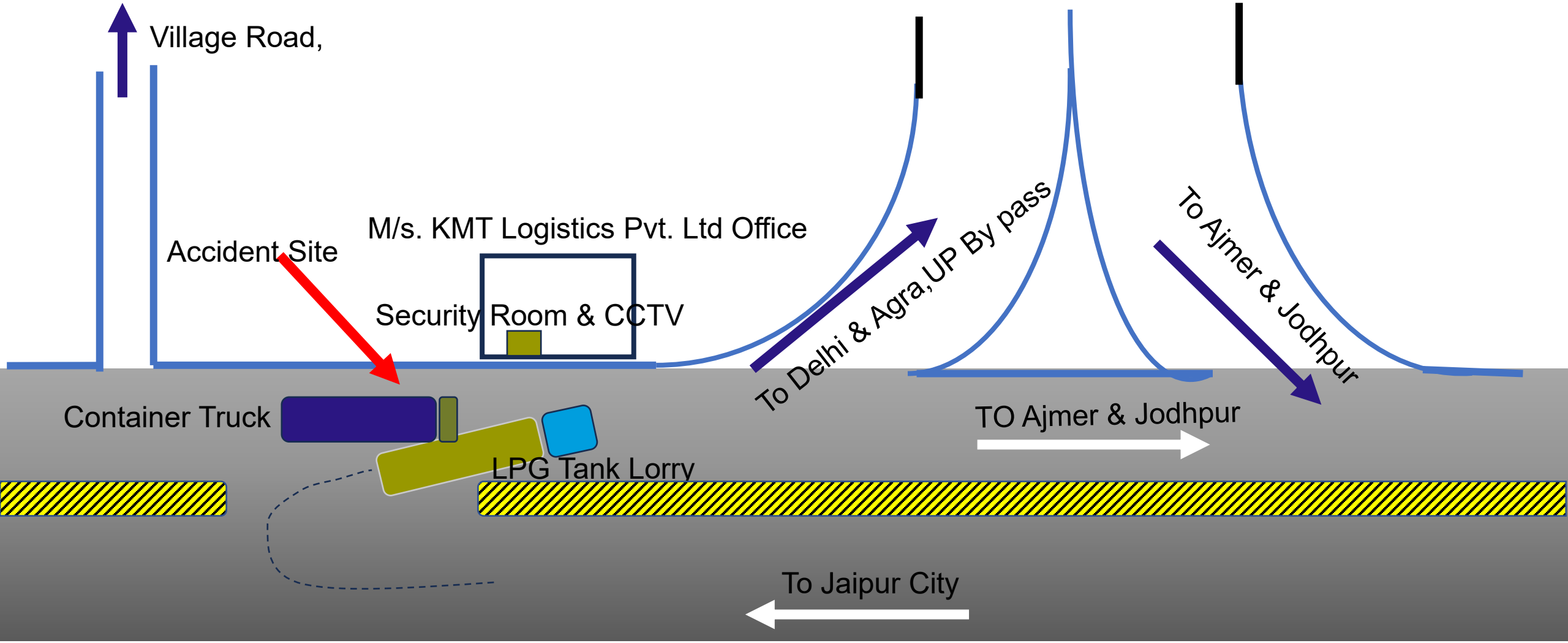
**DRIVER NAME:** Jayvir Singh

**DRIVING LICENSE:** UP8520130014172 valid upto 16.07.2025

**QUANTITY LOADED:** 17.535 MT on 18.12.24 at Mundra

**DESTINATION:** Saleempur LPG Plant, Hathras, U.P.

# Schematic Diagram of Accident Spot




**NH 48** This junction falls on the standard route being followed by all OMC Tankers

# Vehicles involved in Accident



- The **container truck hit** the LPG vessel **sideways** on the bullet.
- Although, there was **no damage to** the **vessel**, but the **pipeline manifold came out**.

- The **container** was **transporting blankets**.
- As shown in this pic taken after the accident; **the cabin was** completely **crushed**.



# Information flow sequence (1)

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**06:15 hrs**

- Transporter did not inform to us.
- GAIL pipeline patrolling team informed GAIL officials.
- Further GAIL officials informed their Quick Response Team and District Magistrate's control room.

**06:36 hrs**

- GAIL officer posted videos & messages regarding **Chemical tanker** fire near Delhi Public School on Ajmer-Jaipur road in Mutual aid response group (MARG) which is a common OMC officers' emergency crisis management group in Jaipur.

**06:56 hrs**

- Marketing Manager BPCL LPG Rajasthan got phone call from IOCL LPG State Head informing him about some fire incident. Marketing Manager BPCL LPG Rajasthan immediately called BPCL State Head Rajasthan.

**06:58 hrs**

- BPCL State Head Rajasthan contacted Sales officer Jaipur asking him to find out the details about this fire.

**07:05 hrs**

- Sales Officer Jaipur through his own channel started trying to get information about the accident.

# Information flow sequence (4)

| | |
|---|---|
| 08:41 hrs | • State Head called Business Head LPG and informed him about fire |
| 09:07 hrs | • Pipeline In-charge, Jobner Installation reached the site and reported to District Magistrate. He was on the way to the installation. |
| 09:12 hrs | • Pipeline In-charge, Jobner installation informed Plant Manager (PM) / Territory Manager (TM) Jaipur about fire on tanker. PM/TM Jaipur informed him that they are on the way and reaching the site shortly. |
| 09:25 hrs | • Sales Officer Jaipur reached the site, contacted civil defence officials and reported to the District Magistrate. Focus was on cooling the tanker involved in fire by spraying water. Another IOCL tanker tyres were burnt and cooling was in progress. |
| 09:50 hrs | • PM and TM Jaipur arrived at site & rushed to check the burnt tanker. |

# Information flow sequence (5)

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**10:15 hrs**

- IOCL officials reached the site. - Tanker had been completely damaged, leaving no visible VM or license plates on either side. However, on one side VM with "ane" (VM of Indane) written on the right side of the tanker was visible.

**11:45 hrs**

- Sales Officer & Territory Manager continued reporting to SH/HLN/BU Head from the site. However, due to confusion, we could not establish identity of the truck. Meanwhile, all in-transit tankers loaded for Jaipur were contacted and they all reported safe. Then enquiry about all in-transit tankers loaded for UP plants was started.

**11:00 hrs**

- RTO officials arrived at site and with their help the chassis number was checked in the system.

**11:45 hrs**

- Finally, identity of tanker was established through chassis number.

**19:00 hrs**

- BPCL Team assisted District administration in unloading of the other IOCL tanker, shifting of casualties to the hospital, and also stayed back till the compensation for the affected families was credited in DM account

# CRITICAL OBSERVATIONS/ LAPSES

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1. An unsafe and unconventional U-turn provided on a six lane NH 48 for the heavy traffic to proceed toward Delhi/Agra By-pass from Ajmer Jaipur Highway.
2. The time of impact was early morning 05:33 hrs and it was dark. No streetlights available at the turning point of the NH 48 to improve visibility for the traffic.
3. The traffic light was not operational at the time of the accident, and the crossing was un-manned.
4. No speed breakers were available at the U-turn to reduce the speed of the converging traffic at the U-turn.
5. The driver of the container truck coming from Jaipur which hit the LPG truck was driving fast and has a history of traffic violation which is seen in the traffic challan history of the truck. There were 7 traffic violation reported in the Traffic Challan Portal whereas no of traffic violations reported for LPG Tank Lorry driver was only 02 for the No parking and not wearing seat belt.
6. The IEFCV failed to perform as per the design feature to shear off on impact from the shear point and thereby stop the leakage of the LPG.
7. Non availability of Vehicle tracking system in the LPG tank lorry.
8. No co-driver in the LPG Truck.

# Condition of the Junction



Raj tragedy could've been averted had planned cloverleaves come up

Vehicles Must Have Violated Signal: Official

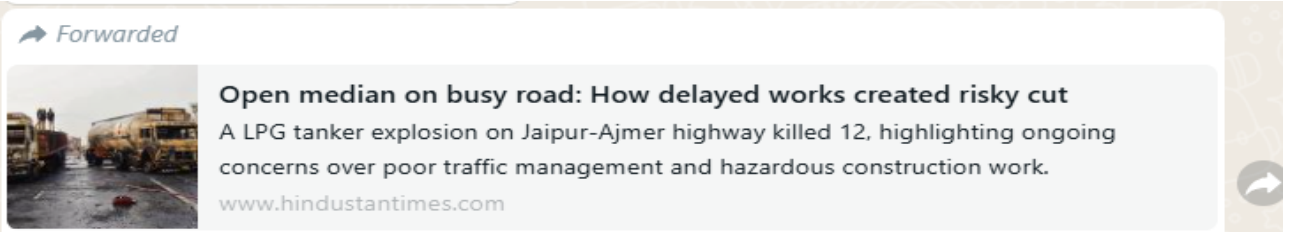
Arpit.Basu@timesofindia.com

**Jaipur:** The fatal highway accident involving an LPG tanker and a truck near Bhankrota spotlighted Friday the absence of crucial cloverleaves to facilitate smooth entry and exit between NH48 and Jaipur's Ring Road. These remain unfinished four years after the southern arm of Ring Road Transport Corridor was inaugurated in Nov 2020, forcing vehicles to take dangerous U-turns at Bhankrota and Mahapura, which have become accident hotspots.

NHAI officials acknowledge the tragedy could have been averted if they were in place. "We designed specific U-turns in 2019 to avoid accidents, but they haven't been implemented even temporarily in anticipation of the cloverleafs being built," an official said.

Without the cloverleafs, motorists heading to Jaipur Ring Road from Ajmer must take a U-turn near Bhankrota,

PRE-DAWN INFERNO ON JAIPUR-AJMER NH




- **Unsafe Junction** is **existing since** seemingly **long time (4-5 years)** due to ongoing road work. This led to **dangerous turning on a busy six-lane National Highway**.
- **Recommendations of NHAI** for operating this temporary junction (**High Mast Tower, Traffic Signal, Speed breakers, positioning of traffic police**) were **not followed in toto**.
- The **Jaipur collector** has **constituted a six members SIT** to investigate the incident.

# Driver Credentials

**Trained driver- driving bulk tank lories since 2020**

**May'23 to Present (1.5 years) with M/s Panwar Road Lines–** drove both **BPCL** & **IOCL** LPG lories

**2020-2023-** driving **HPCL** LPG lories.


OM SAI MOTOR DRIVING TRAINING SCHOOL

Certificate No. D 14308

Valid upto : 12/05/2026

(Gazette Notification No-865/30-4-2012-99/98)

CERTIFICATE

This Certificate is issued to JAY VIR SINGH

S/O TEJ SINGH R/o CHANDPUR KALAN

NAUJHEEL, MATHURA Mob. No. 7037278695

Bearing Licence No. UP85 20130014172 has successfully completed

basic course - 3 days Training For

SAFE TRANSPORTATION OF HAZARDOUS GOODS

Conducted from 11/05/2023 To 13/05/2023

Offline Training ✓ Applicant Copy ✓ Online Training

This Certificate shouldn't be considered at RTO/Insurance if issued before date 10 MAY 2023

Address:- A-041- Sector-69, Transport Nagar, Noida-201301 Distt. G. B. Nagar (U.P.) Toll Free Number : 18001033911 E-mail : info@omsaidrivingschool.in | omdts2014@gmail.com Website : www.omsaidrivingschool.in

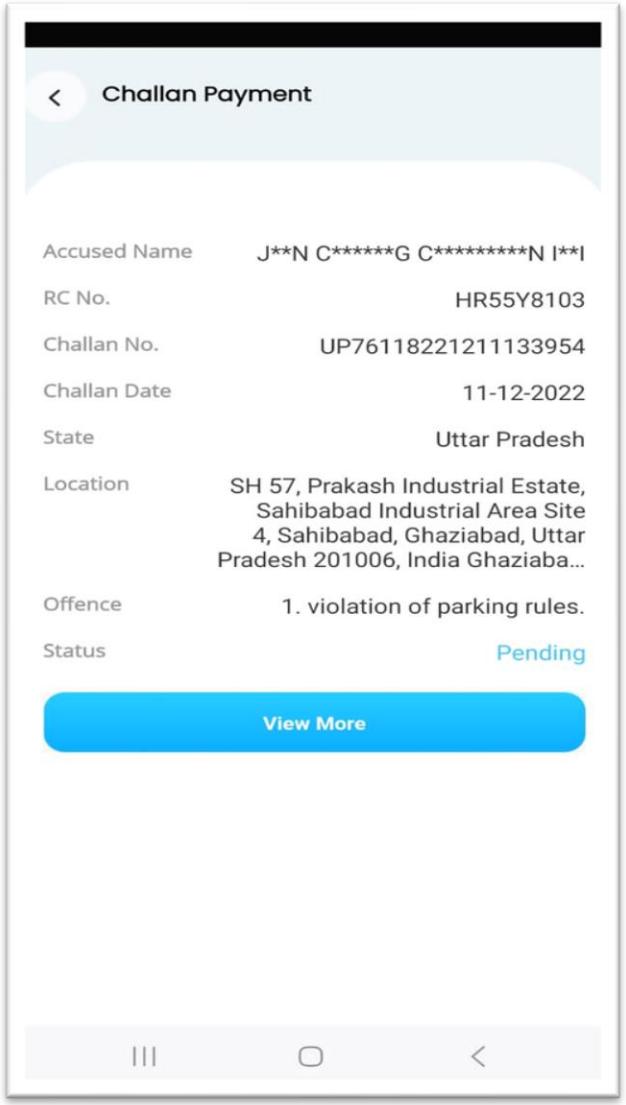
प्रबन्धक ओम साई मोटर ड्राईविंग ट्रेनिंग स्कूल (सरकार द्वारा मान्यता प्राप्त) नोएडा (गौतम बुद्ध नगर)

Authorised Signatory

**Has received "Safe Transportation of Hazardous Goods Training" from** M/s OM Sai Motor Driving Training School on **11-13th May'23.**

**Training school & certification has been physically verified.**

# Comparative study of Traffic Challans

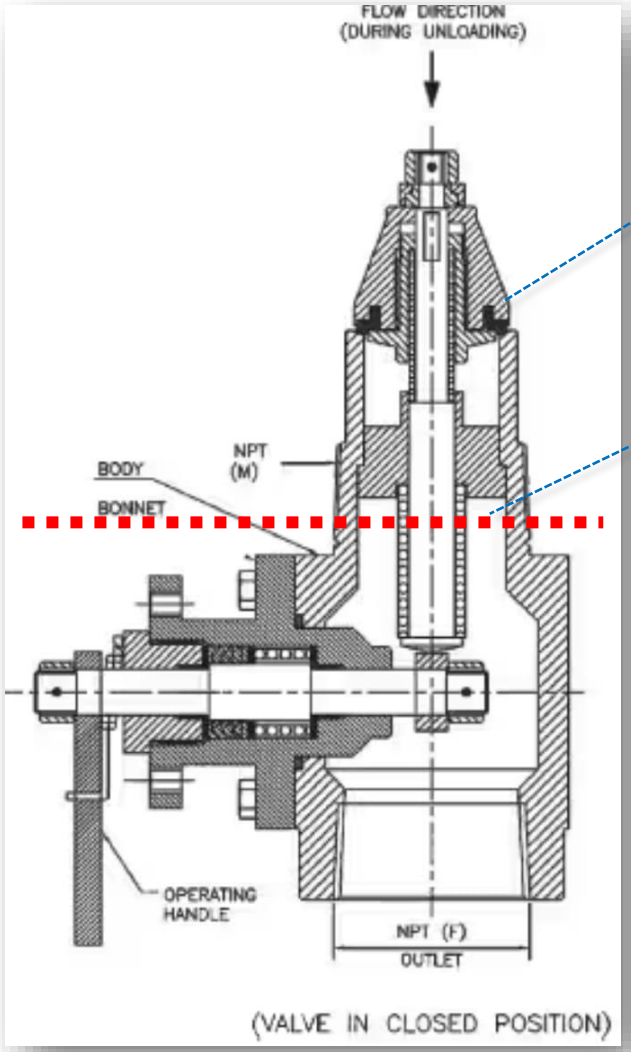



## Comparison based on type and no of violations

| Container Truck | | LPG Tank Lorry | |
|---|---|---|---|
| Driving Vehicle in Contravention of Section 3 or Section 4 | 1 No | No wearing Safety belt | 1 No |
| Third Number plate not in prescribed manner | 2 No | Not Having HSRP Number Plate | 1 No |
| Without reflective tape & Disobedience of any direction or obstruction of any function by driver | 3 No | | |
| Wrong Parking | 1 No | | |

**The Container truck driver was seemingly a habitual offender with seven challans against his name; yet he was allowed to drive heavy vehicles on the road.**

# IEFCV – An Integral Part of T/L Safety




An Internal Excess Flow Check Valve (**IEFCV**) is a **safety device** that is designed to **automatically close** when the flow of a **liquid or vapor exceeds the design flow rate**

There is a Shear Section between the IEFCV and the Isolation Valve,

- The drawing of the LPG Bullet fitted on the tank lorry is approved by PESO. **Tank truck involved in the accident was complying the requirement.**
- The IEFCV have to be tested and certified by PESO competent person once a year. **M/s. IMC had certified the IEFCV on 24 Jan 2024.**

# What Went Wrong?



This photo was taken by GAIL F/F Team just after extinguishing fire. **Now The IEFCV Assembly is not traceable**

- **Instead of Shearing** off from the designated section, the **entire pipeline manifold along with the IEFCV fell off** from the tank lorry.
- This resulted in an **uncontrolled escape of entire LPG** from the lorry on the road.
- **Unknown Source of Ignition** led to **Unconfined Vapour Cloud Explosion** and Fire

# The probable reasons for fall of IEFCV



Picture of one of the **bungs of the accident Bulk LPG lorry**

- **Improper fixing of IEFCV** on the tank lorry.
- **Damaged threads due to the load of IEFCV**, bend, valve etc. of (around 30 kg) and vibrations during transportation.
- 10 Kg weight was increased when the IEFCV was made mandatory through SMPV rules. Further, **cantilever force due to the pipeline manifold and isolation valve is acting on the threaded portion** of the tank lorry. This could have damaged the threads.
- **May be the impact was in angular rather than horizontal direction**; this may also have resulted in detaching of IEFCV assembly rather than shearing off.

# The probable reasons for fall of IEFCV



Picture of accident spot. You can see **the turning radius**

- **Turning radius covers the complete road of the opposite direction.**
- **The driver while taking the turn is completely blind to the situation of the incoming vehicle from the opposite direction.**
- No highway lights and no speed brakers.
- **No warning of a U-turn and traffic light only blinking**.

# Follow On Actions

- First information had to be received from Driver/ transporter. However, although driver informed the transporter, later did not report it to BPCL. This delayed the information flow. Show cause has been issued to the transporter all the 18 trucks are blocked in the system.
- All Adhoc Tank Lorries (246 Nos) blocked in the system and now VTS is fitted in these TTs. From 20.12.24 till 05.01.25 - Addition of Vehicles in VTS – 451 nos. / Transition from old system– 3329 nos.
- Conducted awareness sessions with our staff, TT crew and Transporters about defensive driving and safety fittings of TTs with emphasis on sharing of learnings from incidents.
- Conducted industry meeting and shared peer learning- action plan drawn.
- The investigation team went to the training school & physically verified the facilities & certification.
- One separate team visited the IEFCV Manufacturer (M/s. Chandra Engg. & Mechanical Pvt Ltd., Mumbai) to understand the design, Manufacturing process and QC Testing of the device.
- The investigation team has visited the vessel manufacturer (M/s. SSV, Faridabad) who also fix the IEFCV on the tank as well as the agency who certify it annually.
- The entire design, fixing and testing philosophy of the device shall be reviewed by a committee comprising of members from OISD / PESO / OMCs; necessary changes would be made in the Statute/ Rules, if required.

# The inspection of site where the degassing of the accidented LPG Tank lorry was done in Jan 2024 as per the certificate.

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- The Investigation team visited the site where the degassing of the accidented LPG Tank lorry was done in Jan 2024. The name of the vendor is M/s LPG SOLUTIONS DEGASSING PLANT, 15/16 km stone, Bahadurgarh-Mattan-Beri Rd, Mattan, District Jhajjar Haryana 124507.

- The Team visited at the address given above and **found that the degassing station was visible from the gate, but the premises was locked from inside.** No person was available to interact with the investigation team. We could not find the contact details of M/s. LPG SOLUTIONS DEGASSING PLANT.

- The team has verified the site in the PESO site also. Same address is given. The investigation team therefore could not verify the testing apparatus or credentials of the IEFCV of the accidented LPG truck.

# CAUSE ANALYSIS

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1. **The Root cause**: The unsafe U-turn gap in median on the six lane NH 48 provided for the heavy traffic to use for proceeding towards Jaipur bypass to go towards UP.
2. **The underlying cause**: The situation of no visibility at the time of accident being 0533 hrs with no sunlight and no highway lights at the U-turn of the median of NH 48. Added by no speed breakers to reduce the speed of converging traffic, busy crossing un-manned by traffic Police and non-operational traffic light signal at the junction made the situation more dangerous.
3. **The Basic cause**: At the time of the impact, the IEFCV failed to share off and instead come out from the vessel of the LPG truck along with the pipeline and valves causing the uncontrolled leakage of LPG liquid on the highway. This may be because of **Galling effect** in the thread joint due to use of PTFE tape in the thread joints, which is explained above.

# CONCLUSION

- The unconventional U-turn with no visibility and no highway lighting or speed breaker caused the unfortunate accident.
- The accident converted into a major disaster because of the design failure of the IEFCV not breaking and coming out along with the piping of the LPG tanker causing uncontrolled leakage of 17 MT of liquid LPG on NH 48 resulting in a major LPG vapour cloud explosion and fire.

# RECOMMENDATIONS

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1. The unloading locations who are issuing Route card to Bulk Tanker should write to PWD and NHAI about Dark spots on the route of the Bulk tankers, and to provide safe treatment of gaps in median on highways including traffic signal if required or all time manning of high-risk crossings by traffic police/ traffic calming measures like speed breakers etc., high intensity LED illumination on critical locations to improve visibility during night and improvements to reduce crash risk as per NAHI standards/ norms.
2. To constitute an expert committee to find out the reasons for the design failure of the Chandra make IEFCV of the LPG tank lruck. The committee shall review the entire design, fixing, testing and certification philosophy of the IEFVC device and ensure comprehensive collision protection for valves and critical tanker components as per international standards. The study may also investigate the effects of Galling in thread joints due to usage of PTFE tape as sealant.
3. The Journey management of LPG trucks routes shall include the advance driver assistance system (ADAS) to inform the driver when approaching any major accident-prone area on the route through the VTS communication.
4. Enforce compliance with Rule 73(2) of the Petroleum Rules, 2002 to ensure an attendant traveling with the driver to improve safety and prevent crashes.
5. LPG Plant both loading and unloading locations to conduct awareness sessions with staff, Truck crew and transporters about defensive driving and safety fittings of Bulk Trucks.
6. LPG Plants both loading and unloading locations to enforce mandatory specialized driver training certification for hazardous goods transport as per rule 9 of CMVR.
7. Enforce the use of TREM cards to improve emergency preparedness, reduce risk and timely inform the concerned rescue authorities during the incident.

# Malegaon LPG Tank Truck Accident Snaps


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LP.GAS

# Photograghs of Accident site

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# Malegaon Bulk TT accident Snapshot

**Date & Time of incident: 08.09.2025, 22:30 hrs**

**Accident spot:** Rahud Ghat near Chandawad, Malegaon, Mumbai-Agra National Highway, Maharashtraon

TT Registered no. MH46B B 1782. Loaded from Uran terminal with LPG (17220 KG) for Jalgaon LPG Plant.

**As per primary information:** The accident happened at a location where already an accident had occurred 2-days back. One big crane was present at the site to clear the road. The traffic movement was not smooth. The driver of LPG Bulk truck No. MH 46 BB 1762 while moving towards Jalgaon through Rahud Ghat probably did not notice the crane at first but when found it in front, he took a sudden turn to avoid collision. Instead, the TT driver lost control and hit another truck at the left side of crane and got sandwiched btbeen the parked truck and the Crane. The LPG Tank truck driver got trapped and lost his life on the spot. Due to impact one of the liquid valve got bend and LPG leakage started from the threaded joint point of IEFCV of the vessel.

# Accident TT Valve situation

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# THANK YOU

