Emergency Response in Transportation Incidents

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21 November 2014
Road Transportation in India

- India continues to be the second fastest growing economy in the WORLD.
- Economic activities are spurred by the support from energy sector which is also growing at an equal pace. CAGR of Petroleum consumption is estimated around 5-7% from current year.
- Every six years or so, the vehicular population more than doubles in the country.
- Road infrastructure development is not commensurate with the rate of rise in road traffic.
- Situation is further aggravated to some extent due to dark spots on roads, fitness of vehicles, quality of driver training and non-adherence to safety rules and regulations.

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Petroleum Transportation in India

- POL Terminal/Depots: 320 Nos, Retail Outlets: 52248 Nos
- LPG Plants: 186 Nos, LPG Distributorship: 13896 Nos
- SKO/LDO Dealers: 6582 Nos.

Petroleum products move both in bulk and packed forms viz. POL & LPG in Bulk while LPG cylinders, Lubricants etc in packed forms.

While conscious efforts are on to increase the inland transportation more through pipelines / railways, the road transportation still constitutes around 55-60% of overall product movement.
Petroleum Transportation in India

- Petroleum Transportation is associated with the added hazard of carrying highly inflammable energy in latent state. Petroleum transportation accidents account for \( \frac{2}{3} \) of hazardous chemical transportation incidents in the country.
- Severity of accident is more with bulk transportation which often manifests in devastating fire if not handled efficiently.
- Nearly 65,000 odd heavy vehicles today are engaged in petroleum transportation covering 6200 million Kms per annum. More than 500 road accidents witnessed during 2013-14 resulted in fires, loss of property, injuries and fatalities.
- Roads passing through populous areas, poor public awareness and post incident handling (HAZCHEM) are the bottlenecks.
Guidelines for Rescue Operation..

- OISD Std – 161 & 165 provide broader guidelines for rescue operation in case of LPG & POL tank lorry accidents respectively.

- National Disaster Management Authority in consultation with the oil companies and regulatory authorities also proposed measures to enhance safety in petroleum transportation and they are at various stages of implementation.
  - Identification and role playing of off-site responders under the supervision of the district and state authorities,
  - Prepare effective off-site emergency plans, highway disaster management plan
  - Rehearse these regularly to make them effective in case of real emergency.
  - Highways and selected routes which carry maximum LPG/POL tankers to be mapped
  - Communication means with emergency numbers for first responders to respond to emergencies

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Mitigating Measures

Response Plan:

- Minimize any adverse effects, damage to property or harm to the environment;
- Facilitate a rapid and effective emergency response
- Provide assistance
- Communicate with all concerned
- Recovery & Salvage
- Improvise

Specific Emergency Response Plan is formulated involving Industry/mutual Aid members, Local administration like Police & Fire Dept, Hospitals and other Government agencies.

Local authorities play a pivotal role in organizing off-site emergency drills.

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Emergency Response Plan

Essentially covers:

- **PLAN ACTIVATION** – Internal Alerting Mechanism / Situation Appraisal / Resource Mobilization

- **RESPONSE TASKS** – External Alert Mechanism / Emergency Action

- **RESOURCES** – Contact List / Communication / Logistic Support / Man & Material / Media

- **PREPAREDNESS** – Hazard / Risk Assessment / Training / Exercises / Updating / Plan Availability & Distribution
Emergency Response Plan

✓ **Drivers’ training** - Product knowledge, safety fittings on vehicle, defensive driving skills and emergency action to be taken in case the need arises.

✓ **Transport Emergency Card (TREM Card)** - Each tank lorry travelling with petroleum products carries a TREM Card contains the following information:

- Cargo description
- Nature of Hazard
- Protective Devices
- Emergency Action
- Handling Spillage
- Combating Fire
- First Aid Treatment
- Emergency Contact Numbers

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Emergency Response Plan

In the event of an incident the crew shall

• Ensure all preventive measures to curb product spillage/leakage
• Inform local police/fire Brigade/nearest OMC location
• Alert passersby and cordon off the area
• Communicate to the concerned oil company & the transporter
• Upon receipt of information the concerned oil company invokes emergency plan and mobilizes resources to the site, contacts local administration / mutual aid members for necessary support

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Resources for Handling Emergency

- Emergency Rescue Vehicle (ERV)
- Trained officials and staff to handle the situation
- Emergency tools and tackles
- Fire Fighting equipment/PPEs
- Product & Fire hoses
- Explosive meters
- Emergency kit available with vehicle
- First Aid Box
### Emergency Rescue Vehicles

<table>
<thead>
<tr>
<th>Region \ OMC</th>
<th>IOCL</th>
<th>BPCL</th>
<th>HPCL</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>North</td>
<td>Ajmer/Shahjahanpur</td>
<td>Piyala/Jaipur</td>
<td>Bahadurgarh/Bhatinda</td>
<td>6</td>
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<tr>
<td>East</td>
<td>Durgapur/Patna</td>
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<td></td>
<td>2</td>
</tr>
<tr>
<td>South</td>
<td>Bangalore/Cochin</td>
<td>Coimbatore</td>
<td>Mangalore/Vizag</td>
<td>5</td>
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<tr>
<td>West</td>
<td>Surat</td>
<td>Uran/Jalgaon</td>
<td>Alibaug/Indore</td>
<td>5</td>
</tr>
<tr>
<td>TOTAL</td>
<td>7</td>
<td>5</td>
<td>6</td>
<td>18 Nos</td>
</tr>
</tbody>
</table>

While the above ERVs have been positioned to deal with LPG related exigencies, similar arrangement are also in place for POL products.

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Implementation of Industry LPG Transport Discipline Guideline (ILTDG) which encompasses:

- Vehicle Tracking System
- Mandatory compliance of statutory norms with penalty
- Sound Antilock Braking System (ABS)
- Introduction of Internal Excess Flow Check Valve (IEFCV)
- Restriction on night driving

Oil Companies are positioning new ERVs at strategic locations in states like Maharashtra, Kerala, Chhattisgarh, Orissa & Assam etc.

It is also proposed to set up quick emergency response centre at major locations along the route of transportation.

Enhancement of safety awareness in general public as well as mutual aid members and government agencies a priority area.

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THANK YOU
OIL WELL
CRUDE OIL
REFINERY
FINISHED PRODUCTS
INTERMEDIATE STORAGE POINTS
TERMINALS/DEPOTS
AIRFIELDS/S/STNS
LPG STORAGE/BOTTLING PLANTS
BULK CUSTOMERS
INTERMEDIARIES
RETAIL DEALERS
RETAIL DISTRIBUTORS
RETAIL CUSTOMERS

MODES OF INTERNAL TPT: COASTAL TANKER, PIPELINE, T/W, T/L, PKD/L
Poor awareness in handling road accident

- Unaware of the nature of product that spilled after a road accident involving LPG packed lorry & a truck carrying inflammable chemical on NH-2 (GT Road) near Banaras, use of a gas cutter to release trapped cleaner in the cabin of LPG box lorry resulted in fire. Both trucks gutted completely while the cleaner succumbed to burn injury.
BLEVE on Firozabad bypass

- In order to clear the road quickly before the police senior officer’s visit to Firozabad, local police tried to lift toppled LPG T/L without required precaution or assistance from OMC. Liquid connection inside valve box broke off. Entire product got released resulting in a BLEVE. Fortunately, no life was lost.
# Consequences of Road Incidents

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Injuries and fatalities</td>
<td>PCVO Crew, incident responders, general public; direct and indirect (e.g., stress, secondary crashes)</td>
</tr>
<tr>
<td>Property damage</td>
<td>Damage to vehicles (carriers and others), transportation infrastructure, utilities, neighborhoods, businesses, public facilities</td>
</tr>
<tr>
<td>Environmental damage</td>
<td>Air, ground and/or water contamination with immediate or extended impacts on human health, flora, and/or fauna</td>
</tr>
<tr>
<td>Product loss</td>
<td>Loss of the material/product being transported</td>
</tr>
<tr>
<td>Evacuation/disruption</td>
<td>Costs to people displaced from homes, schools, businesses; interference with normal community activities; loss of business and earnings; potential for regional economic impacts</td>
</tr>
<tr>
<td>Transportation system impacts</td>
<td>Costs for lost time, missed schedules, wasted resources, increased operating costs for transportation system users</td>
</tr>
<tr>
<td>Cleanup</td>
<td>Costs of decontamination; removal of absorbed material, damaged equipment, and other debris; disposal</td>
</tr>
<tr>
<td>Intangibles</td>
<td>Loss of credibility with investors, customers, partners, regulators, employees, media, and others</td>
</tr>
</tbody>
</table>

21 November
एल. पी. जी. ब्रक्क टैंक नॉरी चालू के लिए मार्गचित्र एवं आवश्यक निर्देश