Dear Colleagues,

Oil and Gas industry is ready to roll out BS VI grade fuel, which shall help in tackling serious pollutions levels. I am sure that oil and gas industry shall achieve many more such milestones with renewed enthusiasm and zeal to take this industry to the zenith of excellence. Entire OISD team is committed to timely completion of all Pre-commissioning Safety Audits of BS-VI related revamped/additional facilities.

Though the number of accidents in oil and gas industry is showing downward trend, overall safety performance is yet to achieve satisfaction level. I would like to highlight that findings of the recent accidents in industry indicate lapses in internal system and controls – Job Safety Analysis; Work Permit System; Toll Box talks; Maintenance & Inspection; Supervision; competency; Internal audit; Safety meetings and Management Review. Leadership need to introspect and strengthen internal system and controls for achieving highest standard of Safety.

Leaders must cultivate and drive Safety culture through a strong system of reporting unsafe acts and unsafe conditions (UAUC) and taking actions on them. This will help to mitigate risks by identifying hazards, putting suitable safeguards in place and assuring that safeguards are functioning.

Towards knowledge enhancement, we organise number of workshops viz. enhancing capability of Internal Auditors, Process Safety, Mounded Storage Vessels and its CP System etc. for industry. We shall be organising National level OISD Workshop along with Oil Industry Safety Awards shortly. We solicit industry cooperation and whole hearted support in terms of sponsorship and nomination of delegates.

I would urge our esteemed readers to visit our website and go through the section on Case Studies, Safety Alerts, which carry lots of safety information. I would like to reassure that OISD is working relentlessly with the Industry with the ultimate objective of enhancing overall safety of this vital energy sector thereby increasing productivity and energy security.

I would like to express our gratitude to each one of you for the trust you have reposed in this Safety Organisation.

(Arun Mittal)
ED, OISD
Major OISD activities July – Dec' 19

**External Safety Audits (ESA)**

- **IOCL**
  - POL foreshore Installation at Kandla, Gujarat was carried out from 15th to 18th July’19.
  - LPG Bottling Plant at Leh was carried out from 17th to 19th July’19.
  - POL Installation at Khunti, Jharkhand was carried out from 30th July to 01st Aug’19.
  - LPG Bottling Plant at Sarpara, Assam was carried out from 06th to 08th Aug’19.
  - POL Installation at Rajahmundry, Andhra Pradesh was carried out from 20th to 22nd Aug’19.
  - Viramgam-Chaksu Crude Pipeline (1338 km, part of SMPL) from 26th to 31st Aug’19.
  - Barauni-Mugalsarai section of Barauni-Kanpur Product Pipeline (460 km) from 27th to 30th Aug’19.
  - POL Installation at Korukkupet, Tamil Nadu was carried out from 29th to 31st Aug’19.
  - Mundra-Churwa section of Mundra - Panipat Crude Pipeline (73 km) and Mundra crude oil tank farm from 18th to 20th Sept’19.
  - LPG Bottling Plant at Tikrikalan, Delhi was carried out from 23rd to 26th Sept’19.
  - POL Installation at Lalkuan, Uttarakhand was carried out from 21st to 23rd Oct’19.
  - Paradip - Raipur - Ranchi Product Pipeline in two phases: 1st Phase audit conducted for Paradip-Sambalpur-Khunti section (680 km) from 21st to 25th Oct’19. IInd phase conducted for Sambalpur-Saraipalli-Raipur & Saraipalli-Korba section (399 km) from 26th to 29th Nov’19.
  - LPG Bottling Plant at Cochin, Kerala was carried out from 11th to 13th Nov’19.
  - LPG Bottling Plant at Mannargudi, Tamil Nadu was carried out from 18th to 20th Nov’19.
  - POL Installation at Tuticorin, Tamil Nadu was carried out from 19th to 21st Nov’19.
  - POL Installation at Chittorgarh, Rajasthan was carried out from 26th to 28th Nov’19.
  - POL Installation at Indore, Madhya Pradesh was carried out from 03rd to 05th Dec’19.
  - LPG Bottling Plant at Lucknow, Uttar Pradesh was carried out from 09th to 11th Dec’19.
  - POL Installation at Malda, West Bengal was carried out from 11th to 13th Dec’19.
  - LPG Bottling Plant at Farukhabad, Uttar Pradesh was carried out from 12th to 14th Dec’19.
  - LPG Bottling Plant at Thimmapur, Telangana was carried out from 16th to 18th Dec’19.

- **HPCL**
  - LPG Bottling Plant at Nasik, Maharashtra was carried out from 08th to 10th July’19.
  - LPG Bottling Plant at Mahul, Maharashtra was carried out from 15th to 17th July’19.
  - POL Installation at Mazagaon, Maharashtra was carried out from 11th to 13th Sept’19.
  - LPG Bottling Plant at Aurangabad, Maharashtra was carried out from 16th to 18th Sept’19.
  - LPG Bottling Plant at Bhatinda, Punjab was carried out from 18th to 20th Sept’19.
  - POL Installation at Paradeep, Odisha was carried out from 23rd to 25th Sept’19.
  - POL Installation at Vashi, Maharashtra was carried out from 24th to 27th Sept’19.
  - LPG Bottling Plant at Hazarwadi, Maharashtra was carried out from 14th to 16th Oct’19.
  - POL Installation at Jabalpur, Madhya Pradesh was carried out from 22nd to 24th Oct’19.
  - POL Installation at Trivunam, Kerala was carried out during 04th to 06th Nov’19.
  - LPG Bottling Plant at Paharpur, West Bengal was carried out from 11th to 13th Dec’19.
  - POL Installation at Coimbatore, Tamil Nadu was carried out from 16th to 18th Dec’19.

- **BPCL**
  - POL Installation at Kakinada, Andhra Pradesh was carried out from 16th to 18th July’19.
  - LPG Bottling Plant at Vijayawada, Andhra Pradesh was carried out from 23rd to 25th July’19.
  - POL Installation at Aonla, Uttar Pradesh was carried out from 19th to 21st Aug’19.
  - POL Installation at Panipat, Haryana was carried out from 11th to 13th Sept’19.
  - LPG Bottling Plant at Jalgaon, Maharashtra was carried out from 12th to 14th Sept’19.
  - POL Installation at Banthra, Uttar Pradesh was carried out from 17th to 19th Sept’19.
  - LPG Bottling Plant at Patna, Bihar was carried out from 19th to 21st Sept’19.
  - LPG Bottling Plant at Salempur, Uttar Pradesh was carried out from 16th to 18th Oct’19.
- LPG Bottling Plant at Hisar, Haryana was carried out from 29th to 31st Oct’19.
- LPG Bottling Plant at Kochi, Kerala was carried out from 07th to 09th Nov’19.
- LPG Bottling Plant at Piyala, Punjab was carried out from 13th to 16th Nov’19.
- LPG Bottling Plant at Wai, Maharashtra was carried out from 25th to 27th Nov’19.
- POL Installation at Koyali, Gujarat was carried out from 05th to 07th Nov’19.
- Mumbai-Manmad section (252 km) of Mumbai-Manmad-Bijwasan Product Pipeline from 18th to 21st Nov’19.
- POL Installation at Desur, Karnataka was carried out from 19th to 21st Nov’19.

**GAIL**
- Auraiya-Jagdishpur, Thulendi-Phulpur, Sachindi-Kanpur Natural Gas Pipelines (474 km) from 15th to 19th July’19.
- Gandhar-Dabka-Dhuvaran, GPC-NTPC & GPC to GNFC Natural Gas Pipelines (214 km) from 22nd to 24th July’19.

**ONGC – Onshore / Offshore Installations / rigs:**
- 2 Drilling rigs and 3 GGS of, Mehsana Asset was carried out from 15th to 19th July’19.
- Tatipaka mini Oil Refinery in the East Godavari district of Andhra Pradesh from 22nd July to 24th July’19.
- 1 Drilling rig and 4 GGS of, Ahmedabad Asset was carried out from 19th to 23rd Aug’19.
- Gas Processing Plant at Uran, Navi Mumbai from 20th to 23rd Aug’19.
- G1 & GS15 & S1 & VA Onshore Terminal of EOAs Kakinada was carried out from 28th to 30th Aug’19.
- 3 Drilling rigs and 3 GGS of, Rajahmundry Asset was carried out from 16th to 20th Sep’19.
- 2 Drilling rigs of Mumbai Offshore was carried out from 23rd to 27th Sept’19.
- 2 Drilling rigs and 2 GCS of, Silchar Asset was carried out from 14th to 18th Oct’19.
- 2 Drilling rigs of Mumbai Offshore was carried out from 21st to 25th Oct’19.
- 2 Drilling rigs and 1 GGS of, Cambay Asset was carried out from 4th to 8th Nov’19.
- 2 Drilling rigs of Mumbai Offshore was carried out from 18th to 22nd Nov’19.
- 2 Drilling rigs of Mumbai Offshore was carried out from 15th to 20th Dec’19.

**OIL INDIA LTD**
- Naharkatiya-Guwahati Crude Pipeline (415 km) from 5th to 9th Aug’19.
- Gas Processing Plant at Duliajan, Assam from 21st to 24th Oct’19.

**Central Tank Farm at Duliajan, Assam from 21st to 24th Oct’19.**
- Central Tank Farm at Moran, Assam from 21st to 24th Oct’19.
- Central Tank Farm at Tengakhat, Assam from 21st to 24th Oct’19.
- GCS-04, CGS-Madhuban & OCS-Baghand was carried out from 27th to 29th Nov’19.

**Vedanta Limited (Formerly Cairn India)**
- Salaya-Bhogat Crude Pipeline / Fuel gas pipeline of Vedanta (132 km) & SPM at Bhogat from 23rd to 25th Sept’19.

**HOEC Limited**
- GPP at Dirok Field in Assam was carried out from 25th to 26th Nov’19.
- Nayara Energy
  - Nayara Energy Refinery at Vadinar, Gujarat from 23rd to 27th Sept’19

**Petronet**
- LNG Terminal at Kochi from 21st to 24th Dec’19.

**Surprise Safety Audits (SSA)**

**IOCL**
- POL Installation at Aonla, Uttar Pradesh was carried out on 22nd Aug’19.
- POL Installation at Banthra, Uttar Pradesh was carried out on 20th Sept’19.
- LPG Bottling Plant at Guwahati, Assam was carried out on 09th Aug’19.

**BPCL**
- LPG Bottling Plant at Sinnar, Maharashtra was carried out on 11th July’19.
- LPG Bottling Plant at Bhatinda, Punjab was carried out on 17th Sept’19.
- LPG Bottling Plant at Tanjore, Tamil Nadu was carried out on 21st Nov’19.

**Pre-commissioning Safety Audits (PCSA)**

**IOCL**
- LPG Treatment units at Mathura Refinery on 1st July’19.
- Patna-Siwan-Motihari-Raxaul Product Pipeline from 1st to 3rd July’19.
- New MSV at LPG Bottling Plant at Varanasi, Uttar Pradesh on 03rd July’19.
- Naphtha Splitter at AOD, Digboi from 4th to 5th July’19.
- SRU, ARU and Associated facilities at Haldia Refinery from 5th to 6th July’19.
- New TLF gantry at POL Installation at Banthra, Uttar Pradesh was carried out on 09th Aug’19.
- LPG pipeline section from HMRB premises (In Haldia Refinery) to PHDPL pump station under PHDPL Project on 19th Aug’19.
- Prime G revamp project at Haldia Refinery from 19th to 20th Aug’19.
- MLP-02 under KSPL Augmentation at Viramgam on 25th Aug’19.
- DHDS Tanks at Mathura Refinery on 3rd Sept’19.
- New tank wagon siding at POL Installation at Doimukh, Arunachal Pradesh was carried out from 03rd to 04th Sept’19.
- New LPG Bottling Plant at Banka, Bihar was carried out from 05th to 06th Sept’19.
- Prime G revamp project at Panipat Refinery on 22nd Oct’19.
- ARU plant at Gujrat Refinery from 18th to 19th Nov’19.
- New MSV LPG Bottling Plant at Rajkot, Gujarat was carried out on 21st Nov’19.
- DHDH, N2 plant, compressed air system, cooling tower and Associated facilities at Haldia Refinery from 25th to 26th Nov’19.
- New HGU unit at Panipat Refinery on 4th Dec’19.
- 3 nos of Crude tanks and PPU unit, QC Lab etc. at Paradip Refinery from 18th to 19th Dec’19.
- Revamped Diesel Hydro-Desulphurisation (DHDS) and Prime-G units at Mathura Refinery on 26th Dec’19.
- Newly constructed 9000 KL tank, OWS and two booster pumps at Kot from 26th to 27th Dec’19.
- New gasoline tank and MDEA unloading facility at Bongaigaon Refinery on 27th Dec’19.

**BPCL**
- Gasoline Hydro-treatment Unit at Mumbai Refinery from 18th to 19th July’19.
- Newly constructed phase-II facilities for “Skin Effect Heat Traced Pipeline with associated facilities at Jetty & Kochi Refinery” from 29th to 30th July’19.
- New LPG Bottling Plant at Baitalpur, Uttar Pradesh was carried out from 28th to 29th Aug’19.
- New MSV at LPG Bottling Plant at Patna, Bihar was carried out on 18th Sept’19.
- Additional tankage at POL Installation at Jobner, Rajasthan was carried out on 01st Oct’19.
- New MSV at LPG Bottling Plant at Khurda, Odisha was carried on 21st Oct’19.
- Additional tankage and facilities at POL Installation at Muzaffarpur, Bihar was carried out on 25th Nov’19.
- Acrylic acid Plant at Kochi Refinery from 25th to 26th Nov’19.
- New MSV at LPG Bottling Plant at Sholapur, Maharashtra was carried out on 28th Nov’19.
- Additional tankage and facilities at POL Installation at Irrugur, Tamil Nadu was carried out on 27th Dec’19.
- New LPG Import Terminal at Haldia, West Bengal was carried out on 28th to 29th Dec’19.

**ONGC**
- New ERTO unit at Uran GPP from 29th to 30th Nov’19.
- New LPG Mounded Bullets at Uran GPP from 3rd to 4th Dec’19.

**NRL**
- Sulphur Recovery Unit (SRU) and Tail Gas Treatment Unit (TGTU) at Numaligarh Refinery on 12th Sept’19.
- MS Revamp project at Numaligarh Refinery from 18th to 19th Dec’19.

**HMEL**
- Capacity expansion of hydrogen generation unit (HGU) at Guru Govind Singh Refinery, Bhatinda from 12th to 13th Sept’19.

**CPCL**
- DHDT Revamp project at Manali Refinery on 1st Nov’19.
OPaL
- Newly constructed Hazira-Dahej - Naphtha Pipeline from 21st to 23rd Oct’19.

Consents to operate accorded to:
- ONGC for Jack Up Rig: Discovery-1 on 12th July’19.
- ONGC for Jack Up Rig: Aban-III on 22nd July’19.
- ONGC for MA Field decommissioning plan (Block KG-DWN-98/3) on 5th Nov’19.
- RIL for Drillship: West Polaris on 18th Nov’19.
- ONGC for Jack Up Rig: C E Thornton on 6th Dec’19.
- ONGC for Panna processing facilities & associated unmanned platforms of B&S Asset on 11th Dec’19
- ONGC for Fixed Offshore unmanned platform EB in MH Asset in Mumbai on 24th Dec’19.
- ONGC for Existing R12A Manned Platform in M&H Asset on 24th Dec’19.

Oil Spill Response:
- Joint inspection of Oil Spill Response (OSR) facilities of ONGC Mumbai Offshore was carried out on 8th Nov’19

Meetings
- A meeting was held on 23rd Aug’19 with ONGC corporate HSE regarding liquidation of long pending observations and other issues at ONGC Corporate Office, New Delhi
- A meet was organized by OISD at OIDB Bhawan, Noida on “Disaster Management Plan” with the stakeholders of Exploration & Production industry on 6th Sep’19.
- A meeting was organised at IPSHEM, ONGC, Goa for conducting a workshop on Fire and Safety in E & P industry in the month of February 2020
- A meeting was held on 11th Dec’19 with ONGC corporate HSE regarding liquidation of long pending observations and other issues at OISD conference hall in Noida

Knowledge sharing by OISD Officials
- Additional Director (PL) delivered a presentation on “Role of OISD in Petroleum Management” in CIDM 2.0 (Annual Conference on Chemical & Industrial Disaster Management, 2019 – Industrial Safety and Emergency Preparedness) held from 8th to 10th July’19 at Delhi.
- Joint Director (P&E) delivered a presentation on “Recent process Incident: overview, analysis and lesson learnt” in Regional Technical Steering Committee meeting of Centre for Chemical Process Safety (CCPS), India held on 7th Aug’19 at Reliance Corporate IT Park, Mumbai.
- Additional Director (Pipelines) extended faculty assistance on “Safety Codes & Safety Standards” for training programme on Operation & Maintenance of cross country pipelines to foreign delegates under Indian technical and economic cooperation held at IOCL’s NRPL Panipat on 5th Oct’19.
- Meeting with DGMS on upstream safety issues was held at OISD on 10th Oct’19. The meeting was attended by DG-DGMS and his team with ED, OISD, Director (E & P) and other officers from OISD.
- Joint Director (P&E) delivered a presentation on “Statistics and Analysis of in transit accidents, mitigation and way forward” which was organized by BPCL in consultation with PNGRB at BPCL Learning Centre, Sewree, Mumbai on 8th to 9th Nov’19.
- Joint Director (Pipelines) gave presentation on “Audit experience on Underground Piping inspection scenario across industry” at 37th Activity Committee Meeting of CHT on Oil & Gas Pipelines/ SBM on 15th Nov’19 organized by IOCL, ERPL, Kolkata.
- OISD made a presentation on Oil Spill Preparedness and Response at the 35th Conference On Disaster Risk Reduction and Industrial Safety held at Gangtok, Sikkim on 4th Dec’19.

“When your values are clear to you, making decisions becomes easier.”

—Roy E. Disney
WHAT IS DRONE
Drone is layman terminology for Unmanned Aircraft (UA). The aircraft and its associated control systems are known as Unmanned Aircraft System (UAS). Remotely Piloted Aircraft System (RPAS) is a type of UAS.

HOW DRONE WORKS
Drones are made of light composite material to reduce the weight and increase manoeuvrability. Drones are controlled by remote Ground Control System.

CATEGORIES OF DRONE
The RPA are categorised by their maximum take-off weight (including payload) as given below:
- Nano: less than or equal to 250 gms.
- Micro: Greater than 250 gms. and less than or equal to 2 kg
- Small: Greater than 2 kg and less than or equal to 25 kg
- Medium: Greater than 25 kg and less than or equal to 150 kg
- Large: Greater than 150 kg

UTILITY OF A DRONE
With the advent of new technology, the drones have become sophisticated, easily available, affordable and dangerous, leading to debate on their benefits. We list below some of the benefits of drone technology:
- Can be deployed with ease and operated with minimal experience. Low cost has increased their availability to common man.
- Can take high quality aerial photographs and video required to create 3-D maps and interactive 3-D modules
- Drones are equipped with GPS and can be programmed to access difficult terrains
- Excellent for security and surveillance. Netra UAVs developed by Defence and Research Development Organisation have been used by Delhi Police to survey the city. Data collected by surveillance drones can provide vital information for crowd management in large public gatherings
- Provide valuable information during and after natural disasters to help rescuers in recovery efforts
- Used to keep an eye on swimmers and can be used to drop life buoys to swimmers who are in trouble
- Drones with thermal vision cameras have been used by search and rescue teams to locate hikers and mountaineers in remote areas or to find missing persons at night or in a burning building
- Delivery of essential medical products like medicines and blood
- Use of drones in agriculture has helped farmers to provide data on soil fertility, identification of pest and disease, optimal use of pesticides, controlled irrigation, estimate damage to crop, estimate crop yield and monitoring of livestock
- Some drones come with “Follow Me” technology and make adventure filming easy and professional. A new trend in crowd entertainment is a synchronized concert by drone having lights for e.g. 1,218 drones at winter Olympic Opening Ceremony 2018 etc.
- For inventory management of material such stones, wood logs and other building material
- For road and railway construction and maintenance
- For identification of area under mining
- For conservation and environment of forest, erosion monitoring, reduction of glacier, species identification and counting, bird nest survey, migration tracking, habitat management and anti-poaching activities
- River and flood assessment by river mapping and modeling, water flow simulation, erosion monitoring, flood defense planning and aerial assessment of flood damage
- Insurance companies are using drone to help assess damage of building and settle claims
The drone industry is growing rapidly as drones have become more capable and new uses are identified on daily basis.

USE OF DRONE IN INSPECTIONS IN OIL & GAS INDUSTRY

The use of drones enables easy and safe inspections of tall and complex structures like Refinery flare/ CDU column. They eliminate the need for workers to physically access hostile environment as in case of Pipeline ROU inspections. For indoor inspections, such as those performed inside boilers or pressure vessels, inspectors must build scaffolding so they can climb up the sides of the boiler, visually reviewing every square inch as they go.

An inspection procedure and software is developed to collect high quality, repeatable image data sets that allow clients to carry out confined space inspections without having to leave their office. Current confined space inspection techniques require people to climb inside dangerous and potentially hazardous tanks. This process is fraught with danger, is time consuming and can deliver low quality data sets. Drone based inspections take place without entering the tank/ vessel, reducing risk to people and plant, alongwith improved quality and repeatability of the data.

Drones can also be equipped with special sensors to perform different types of inspections. Basically, any kind of sensor that can fit on a UAV can be used for an inspection e.g. in HVAC inspections, some inspectors are using a thermal camera on their drone to identify where heat is escaping out of a building.

Some of the advantage of using drone for inspection are:

- Enhanced safety through increase in frequency of inspection — cost of inspection using drone is relatively low and hence frequency of inspections can be increased thus potential problem can be identified and corrective action taken more efficiently before the same converts into something big and repair becomes costly and time consuming.
- Better quality inspection data storage and recovery - data gathered by a drone represents a meticulous record of the condition of an asset over time. By archiving visual data, inspectors prepare a digital footprint of the asset’s life history that can be accessed at any time.
- Reduced risk - Inspector is not required to enter a potentially dangerous environment/ situation.
- Cost savings - as a result of no need to build scaffolding or other temporary, one-time use infrastructure to support a manual inspection and by eliminating the need to position the inspector in hazardous environment and thus reducing the insurance cost.
- Savings — downtime. For assets like tanks/ pressure vessels, which need to be decommissioned before an inspection can be performed, time spent in downtime is money.

While a drone with a camera has the potential to be an asset to an inspector, not all drones are sufficiently equipped in terms of accuracy, stability and ease of use. Skill of the drone operator is also an issue. Hence drone selection and operator skill are major criterion to be decided before going ahead with use of drone for inspection in hazardous areas.

LEGAL OBLIGATIONS - APPROVALS/ CLEARANCES/ INSURANCE

The government is keen to have a database of drone users given the security implications of using this equipment. Once this database is collected, tracking drone equipment will be key to safe operations even in green zones or areas where they will be allowed.

In future people buying drones in India will have to get the registration process completed at the time of buying the same — akin to buying a mobile phone sim card today and getting that activated after verification of credentials is done.

India’s drone rules require that drones, except Nano ones being flown up to a height of 15 mtrs. in enclosed premises and Remotely Piloted Aircraft (RPA) owned by security and intelligence agencies, need to have a unique identification number.

People found flying an unregistered drone will face action under various sections of the Indian Penal Code as well as the Aircraft Act that stipulates imprisonment and/ or fine for varying periods of time and amounts, respectively.

The Directorate General of Civil Aviation (DGCA) issued rules in August 2018 to regulate the use of drones in Indian airspace which require obtaining a unique identification number (UIN), unmanned aircraft operator permit (UAOP) and other operational requirements including identification of civil drones and drone operators. This rule also states that people found using non-registered drones can be punished as per IPC section 287 that is for “negligent conduct with respect to machinery” and provides for jail up to six months and/ or fine up to Rs. 1,000. The DGCA rules provide for punishing users under IPC sections 336, 337, 338 or any other relevant section.

Ministry of Home Affairs has circulated Standard Operating Procedure (SOP) for handling threats from Sub-Conventional Aerial Platform for implementation by all concerned.

Digital Sky Platform is an online IT platform for handling Unique Identification Number (UIN), Unmanned Aircraft Operator Permit (UAOP) applications and permission to use drones in India. The link of the Digital Sky Platform is available in the DGCA website – https://digitalsky.dgca.gov.in.

OPERATING RESTRICTIONS

“No permission – No take-off” (NPNT) is a programme through which permission can be obtained for operating drone from Digital Sky Platform. Instructions for making application on Digital Sky Platform are available in DGCA website (https://digitalsky.dgca.gov.in). Please note that foreigners are not allowed to operate drones in India. They need to lease RPAs to an Indian entity who shall obtain UIN and UAOP from DGCA.
All operators other than exempted category mentioned below are required to obtain UAOP from DGCA:

- RPA operated by National Technical Research Organisation (NTRO), Aviation Research Centre (ARC) and Central Intelligence Agencies. However, the agency shall intimate local police office and concerned ATS Units prior to conduct of actual operations.

- Nano category in uncontrolled airspace/ enclosed premises upto 15 mtrs. AGL.

- Micro category in uncontrolled airspace/ enclosed premises upto 60 mtrs. AGL. However, the user shall inform local police office 24 hours prior to conduct of actual operations.

All operators of RPA (except Nano) will notify Director of Air Safety, DGCA of any incident through the Digital Sky Platform.

Nano drone (less than 250 gms) should not be operated beyond 15 mtrs. AGL and in controlled airspace. In case the drone has to be operated in controlled airspace the operator has to apply for UIN, UAOP and the drone shall be NPNT compliant.

All operators/ individuals (except Nano) shall maintain record of each drone flight and repair and maintenance carried out on the drone.

Drone can be operated up to height of 120 mtrs. AGL and in visual line of sight. However, following is to be ensured:

- GPS for vertical and horizontal position.
- Geo-fencing capability
- SSR transponder
- Anti-collision strobe lights
- Return Home or Autonomous Light Termination System
- Detect and avoid capability
- Fire Resistant Identification Plate inscribed with UIN
- RFID and GSM SIM Card / NPNT compliant for real time tracking.
- Flight Controller with flight data logging capacity
- Visual line of sight for flying a drone is generally 450 mtrs (unaided) in Visual Metrological Conditions with the ground visibility of 5 kms.

Drone should not be flown at least 25 km from the International borders or 5 km from the perimeter of airports at Mumbai, Delhi, Chennai, Kolkata, Bengaluru and Hyderabad and 3 km from any other airport. There are “No Drone Zones” and flying drone in this zone is prohibited unless authorised by DGCA on case to case basis. An RPA cannot be operated from a mobile platform such as a moving vehicle, ship or aircraft.

In case of violation of rules and regulations for drones, the UIN/ UAOP shall be suspended/ cancelled. Violation of compliance to any of the requirements and forgery of documents shall attract penal action as per applicable IPCs.

Flight plan for the drone can be filed online through Digital Sky Platform and procedure is available in Digital Sky Manual.

CONCERNS

Sub-conventional Aerial Platforms are small flying objects and are difficult to deal with since they create low sound and cannot be tracked by conventional radar system, are easily available in the market and can carry destructive payloads such as explosives, hazardous chemicals etc. Their detection is by visual sight and can be detected only very near to their potential targets and hence leaves very less reaction time for the security agencies to react.

The most probable scenarios associated with drone flown deliberately into an installation are:

- Use of drone’s mass to cause damage to the structure
- Use of drone with an explosive device
- Delivery of chemical, radiological or biological agent
- Espionage and surveillance of operation

Based on intelligence provided by State/ receipt of credible threat/ visual identification of threat, additional measures to facilitate early detection would be:

- Increased surveillance and patrolling
- Airspace closure
- Armed response

Privacy is the major concern since the drone can collect data and images without the knowledge of the person.

The above article is based on the information provided on DGCA website and MHA SOP. For further elaboration/ clarification original policy documents as approved by DGCA/ MHA may be referred to. For FAQ on drones please refer to https://digitalsky.dgca.gov.in/faq.

“Leadership is practiced not so much in words as in attitude and in actions.”

— Harold S. Geneen
SAFETY ALERT

Fire incident in TLD at LPG Plant – A case study

By Sh. M Vamshi Krishna and Sh. Ranjan Mehrotra

INTRODUCTION
Title: Fire Incident in LPG Bottling Plant.
Location: Tank Lorry Decantation Gantry.
Result/ outcome: LPG leak, explosion, fire and injuries to 5 persons

THE INCIDENT
- A major fire incident occurred in Tank Truck at Tank Lorry Decantation (TLD) Gantry. Duration of fire was approx. 100 minutes. Five persons reportedly received burn injuries and were admitted to the hospital.

INCIDENT OBSERVATIONS
- On the day of incident, at around 10:00 hrs, 2nd batch of LPG tank trucks were allowed inside the Plant for the unloading operations. The loaded LPG tank trucks are routed through Weigh Bridge for gross weighment and are positioned behind each bay awaiting their turn.
- Tanker no. A was positioned behind the TLD bay no: 02. The LPG tank truck driver after fixing the liquid & vapour male fittings started the truck and placed the TT in the TLD bay no: 02 for actual un-loading process. Similarly, loaded LPG TT’s were awaiting their turn by positioning behind the respective TLD bays.
- At 10:23 hrs, the said driver of the tank truck no: A (which is placed inside the TLD bay no: 02) reverses the tank truck. The unloading arms (liquid & vapour) are stretched to the maximum and rips the 2” threaded ball valve on the LPG liquid pipeline of the tank truck. Immediately liquid LPG from the tank truck starts to leak.
- Liquid LPG leak from the fully loaded tank truck enveloped whole of the TLD and adjacent area creating a thick white fog and the LPG vapours were seen travelling towards Motor Control Centre (MCC), Diesel Generator room, weigh bridge room, Fire Pump House and main gate.
- Sprinkler in TLD was operated and dispersal of LPG using water monitors was undertaken.
- Somewhere around 10:50 hrs the hazardous atmosphere got the ignition spark which led to Unconfined Vapour Cloud Explosion (UVCE). The fire traced itself back towards the LPG source tank truck TT no: A and started to burn with high intensity.
- Plant personnel continued firefighting by the way of monitor operation on the affected tank truck and continued cooling of the other two tank trucks which were standing next to the affected truck. The fire from the subject TT- A travelled to the tyres of other two TT’s and the tyres of all the three trucks burst. Cabins of all the three trucks have been burnt completely.
- Fire was extinguished at 12:05 hrs and cooling of the other two tankers were continued till 14:00 hrs and after ensuring the pressure in the other TT’s has come down to safe level “all clear” was declared.
- Operator deployed at TLD had gone to LPG Pump House to line-up the compressors since he did not have a Walkie-Talkie with which he could communicate with the LPG Pump House Operator.
- Critical operation like LPG Tanker decantation is not covered by a static CCTV camera. The reverse movement of the Tanker no. A and subsequent LPG leakage was captured by PTZ (pan–tilt–zoom) CCTV camera since it was focused on Bay No. 2 for that instant. A minute before or minute latter the actual moment of the incident would have not been captured by the CCTV camera.

ROOT CAUSE/ REASONS OF FAILURE
- Following are the deviations in SOP:
  a. Non-provisioning of the wheel chokes in front & back of the wheels of the TT for preventing accidental movement of the TT before commencing the unloading operation.
  b. Keys of LPG TT are not being handed over to TLD operator by the TT driver.
  c. The connection/ disconnection of unloading arm is done by tank truck driver and not by company employee.
  d. TLD operation is not checked by officer.
- Integrity check of the fitting of male coupler to TT valve, TLD unloading arm connections and LPG leak test to ensure nil LPG leak before commencing the unloading operations is not being done.
- Breakaway coupling of the TLD unloading arm did not get activated in reverse motion of the tank truck.
- Failure of IEFCV (Internal Excess Flaw Check Value) operation of the TT due to the bending of internal shaft and housing of IEFCV.
- Failure of shearing of IEFCV at the provided weak spot on the outer valve of the IEFCV.

**MAJOR RECOMMENDATIONS:**
- To ensure adherence to SOP’s for unloading operations by TLD operators & drivers.
- To provide Walkie-Talkies to all the personnel involved in critical Plant operations.
- To ensure effective supervision by officers in all areas of Plant operation.
- All the critical areas to be provided with static cameras ensuring dedicated surveillance.
- To ensure Breakaway coupling mechanism works in both forward and reverse directions of the movement of the bulk TT inside TLD.

Provided for information purpose only. This information should be evaluated to determine if it is applicable in your operations, to avoid reoccurrence of such incidents.
SAFETY ALERT

Gas Leakage and Fire in Natural Gas Pipeline– A case study

By Shri Leela Prasad Konduri and Shri Kailash Kushwaha

INTRODUCTION:
Title : Gas Leakage and Fire in Natural Gas Pipeline.
Location : In a Natural Gas Pipeline from Gas Gathering Station to Manifold Header.
Result / Outcome : Leak from Natural Gas Pipeline, Flash Fire and one casualty.

THE INCIDENT:
Gas leakage was observed in a farm land by local villager and he informed pipeline control room about the same. Control room officer, sent the vehicle with driver and contractual staff (non-technical) to the site to check the leakage status. The driver and contractual staff reached the site along with land owner.

After reaching the site there was a sudden flash fire. All three persons got engulfed in the fire, which resulted in burn injuries to all of them. Later, land owner succumbed to death during treatment.

INCIDENT OBSERVATIONS:
- Pipeline was commissioned and operated for 3 years for gas injection. Due to non-requirement, pipeline was purged and kept isolated for 7 years. Again on requirement, pipeline was hydrotested and taken into service for gas injection.
- During re-commissioning (6th day), on information of gas leakage, driver and contractual staff visited the site along with land owner. The moment vehicle entered the affected zone, engine speed got increased with loud mechanical noise. Even after removing the ignition key, vehicle did not stop. All three people stepped out of the vehicle and tried to find the reason for loud mechanical noise.
- Within 2-3 minutes a flash fire took place. All three people and vehicle got engulfed in fire. Two people (driver and contractual staff) were discharged from hospital after few days of treatment, however, land owner could not survive after a long treatment at reputed hospital.

LAPSES/ROUTE CAUSE FOR THE FAILURE:
- No documents available to verify the preservation of the pipeline after initial decommissioning.
- Though carrying out hydro test of the pipeline was claimed by operator, no hydro test report was prepared before gas injection in the pipeline.
- Pipeline operating parameters were not configured in SCADA.
- Procedure for attending gas leakage outside the premises was not followed. Also control room was not equipped with details of pipeline network in their jurisdiction.
- No plan was in place for inspection and maintenance for small length pipeline i.e. coating survey, external corrosion direct assessment (ECDA), internal corrosion direct assessment (ICDA), hydrotest, line patrolling etc in line with OISD-GDN-233.
- SOP does not cover the precautions to be taken while attending the oil/gas leakage viz. carrying gas detector, parking of vehicle at safe distance from the leakage site etc. Emergency Response Procedure (ERP) does not cover the oil/gas leakage scenario outside the premises.

LEARNINGS/RECOMMENDATIONS:
- Inspection & maintenance practices recommended in OISD-GDN-233 shall be implemented in all non piggable oil and gas pipelines.
- History sheet of each pipeline section should be maintained with all details of maintenance carried out.
- Hydro test of the pipelines shall be carried out as per defined procedures followed in industry and records shall be maintained.
- Pipeline parameters shall be brought in SCADA before start of operation.
- All pipelines shall be purged with inert gas, the moment, they are decommissioned. Records, duly signed by competent person, shall be maintained.
- In smaller length pipeline to prevent internal corrosion, options to be explored i.e. injection of corrosion inhibitor, scraper pigging and compatibility of pipeline material with composition of oil/gas.
- Route details and emergency handling procedures should be made available/displayed in concerned control room for prompt response by shift In-charge.

Provided for information purpose only. This information should be evaluated to determine if it is applicable in your operations, to avoid re-occurrence of such incidents.
Abiding by the rudimentary concept viz “Safety is not expensive, It is PRICELESS”, Roof Life Line & Skylight Protection has been installed at RGT, Cairn Oil and Gas (Vedanta Limited). It is established note that substantial number of incidents are an outcome of major identified risk amongst which “Working at Height” is recognized as one of the supreme precursor.

With reference to article published in “Business Standard” edition dated 1st May, 2019, approx. 121 workplace deaths were encountered in the year 2018-19. Fire-related accidents fall from height, road accidents and truck handling were some of the common workplace hazards which was resultant in mentioned number of fatalities. Cairn Oil & Gas undertook major initiative in negating the probable aftermath of “Working at Height Hazard” by installation of Roof lifeline & Skylight Protection in one of the prominent location viz “Mechanical Work Shop”.

We are aware that “Audits – Internal / External” is one of the prominent leading indicator and pursuant same, there is checkpoint in our Vedanta Sustainability Assurance program which guide that when we need to access the roof to perform maintenance, repair or inspection, a fall protection system is essential and corresponding to same, a horizontal lifeline fall protection system allows the user to access complete span of the roof in a safe and efficient manner. Entire checks pursuant this project was duly complied in a time bound manner and safety attitude pursuant “Working at Height Hazard” had been compounded tenfold owing to expertise amalgamated in personnel associated with this consequential project.

Principle of this mechanism-Horizontal lifeline systems have a pass-through feature & this allows continuous uninterrupted access to the user by means of a special machined trolley that safely transitions over intermediate anchors without having to disconnect from the fall protection system. Further, usage of energy absorbing posts reduces the forces of the fall on your roof to protect the structure and the user.

Such initiatives lay the cornerstone for other HSE initiatives which act as catalyst to enhance safety culture associated with workplace environment.
NEWS IN BRIEF

The Safety Council
To ensure proper implementation of the various aspects of safety in the Oil & gas Industry in India, Government of India had set up a Safety Council at the apex under the administrative control of Ministry of Petroleum & Natural Gas. The Oil Industry Safety Directorate (OISD) assists the Safety Council, which is chaired by Secretary, P&NG and members representing the entire spectrum of stakeholders – PSU, Pvt. Sector & JVs – as well as relevant expert bodies. To review the safety performance, the Safety Council meets once a year.

The 36th Meeting of the Council was held on 06th Aug’19

Shri MM Kutty, Secretary, MoP&NG and Chairman Safety Council at the 36th Safety Council meeting at Shastri Bhavan, New Delhi

Key issues discussed & reviewed during the meeting are as under:

- Approval of eight numbers revised OISD Standards / Guideline / Recommendatory practices.
- Analysis of OISD Safety Audits Compliance status (ESA/SSA).
- Analysis of Major Incidents in the Industry over the last three years.
- Workshop on "Safer decommissioning of offshore structures including ships" at London, UK
- Swachhta Pakhwada celebration (1st to 15th July’19)

Additional Director (E&P) was invited to attend workshop on "Safer decommissioning of offshore structures including ships" at London, UK during 8th to 9th July’19, conducted by the Royal Academy of Engineering in partnership with the Lloyd's Register Foundation.

Swachhta Pakhwada celebration (1st to 15th July’19)

Various activities related to Swachh Bharat Pakhwada were observed at OISD. The major events like swachhta pledge by OISDians to keep their premises and surroundings clean, self-cleaning of their respective rooms, collection and disposal of scraps, cleaning of entire premises by housekeeping staff etc. were organized during the Pakhwada. The Executive Director, OISD addressed the gathering and encouraged them to stay clean and promote cleanliness in and around the office as well as their own house/ building. After the pledge taking ceremony, team OISD undertook the cleanliness activities of the OIDB periphery nearby the building entrance.

Oil Industry Safety Directorate organized slogan, painting competition and talk on health & hygiene in Shyam Singh Girls Inter College, Noida to observe Swachhta Pakhwada. The event was marked by an impressive participation of 225 nos of girl students. Sanitary kits and refreshment were distributed to girls.

On the concluding day, prizes were given to the winners of various internal competitions (Speech Contest, Good Habits suggestion, painting for the family members of OISD and the outsourced workers).

Swachhta Pakhwada celebrated at OISD

Prize distribution to winner of speech contest on Swachhta by Secretary, OIDB

Observance of Swachhta Hi Seva campaign (11th to 25th Sept’19)

Swachhta Hi Seva campaign was celebrated at OISD. Banners & hoardings depicting messages on Swachhta Hi Seva in OISD & OIDB building and cleaning drive in the periphery of OIDB Bhawan were performed by all the Officers and Staff members on 11th Sept’19.

Swachhta Pledge was taken in OISD Conference Hall. Executive Director (OISD) addressed the gathering and briefed the activities planned by OISD during the Swachhta Hi Seva
हिंदी पखवाड़ा का आयोजन (12 से 27 सितंबर '19)
हर वर्ष की भांति इस वर्ष भी तेल उद्योग सुरक्षा निदेशालय में हिंदी के प्रचार एवं सार्वजनिक कोष का विस्तार करने हेतु विनामुद्रेत् 12 से 27 सितंबर '19 तक हिंदी पखवाड़ा का आयोजन किया गया। इस दौरान हिंदी ज्ञान से सम्बंधित कई प्रतियोगिताएं जैसे समाचार ज्ञान प्रतियोगिता, अनुयाय अनुयायित्व, भाषा-मंथ, काल्य प्रश्न आदि का आयोजन किया गया जिनमें सभी अधिकारियों/कर्मचारियों ने बड़े पड़कर भाग लिया।

27 सितंबर, 2019 को आयोजन के समापन समर्थक के अंतर्गत श्री सुरीश दी विलियम्स, उप सचिव (तेल रिफाइनरी) द्वारा आयोजित की गई। इस अवसर पर श्री पंजी मेहरोजा कार्यकारी निदेशक एवं श्री सुरीश दी विलियम्स, उप सचिव (तेल रिफाइनरी) ने सभी कर्मचारियों से अनुरोध करते हुए दैनिक काम काज में हिंदी का अधिक से अधिक प्रयोग करने की आगाज की। कार्यक्रम के अंत में श्री सुरीश दी विलियम्स, उप सचिव (तेल रिफाइनरी) द्वारा हिंदी पखवाड़ा के विजेताओं को पुरस्कृत किया गया।

Rashtriya Ekta Divas
Rashtriya Ekta Divas was celebrated at OISD on 31st Oct’19 by remembering the Iron Man and the architect of Modern India, Sardar Vallabhbhai Patel on his birth anniversary. The day was marked by taking pledge in the spirit of unification of India which was made possible by the vision and action of late Sardar Vallabh Bhai Patel. Quiz competition was held to highlight Sardar Vallabh Bhai Patel’s role at critical juncture in India’s history.

Nukkad Natak during Swachhta Pakhwada celebration at OISD.

Pledge taking ceremony at Oil Industry Safety Directorate during Swachhta Hi Seva campaign

Collection of plastic bags & in return providing paper bags to local vendors by OISD during Swachhta Hi Seva campaign

On the concluding day, Officers and Staff of OISD collected used/ spare plastic items like utensils, toys etc. from their residences and these re-usable items were donated to Goonj, New Delhi (NGO).
ISO 9001:2015 Re-certification of OISD
In the year 2013 OISD became the first ISO 9001 Certified Organization amongst all the OIDB grantee Organizations. ISO certification of OISD has been revalidated by M/s DNV during Periodic Audit on 2nd Dec’19.

Green initiative
As a green initiative, OISD disposed 2,530 Kgs of waste paper for recycling purpose. In return, OISD received 85 nos of recycled A4 size paper reams and 30 nos of tree saplings. These tree saplings were planted by OISD at OIDB Bhawan during Swachhta Pakhwada celebration in July’19.

Conference on Industrial Safety and Disaster Management (8th to 10th July’19)
Shri Ranjan Mehrotra, Acting Incharge ED-OISD and Shri Leela Prasad Konduri, AD (Pipeline) attended 34th Conference on Industrial Safety and Disaster Management on ‘Zero Tolerance towards Industrial Disasters’ as panellists at Hotel Taj Palace, New Delhi.

Fire India Panel discussion (20th Sep’19)
Shri Ranjan Mehrotra, Acting Incharge ED-OISD took part as panelist during Fire India held in New Delhi on 20th Sept’19.

Oil & Gas HSE Conclave (11th to 12 Dec’19)
Shri DM Mahajan, Joint Director (P&E) gave presentation on “Process Safety Management” in the ”Oil & Gas HSE Conclave” organized by GAIL at New Delhi on 11th Dec’19.

Conference on Industrial Safety and Disaster Management 4th to 6th Dec’19)
Shri Rajonish Boruah, Addl. Director (E&P) gave presentation in the 35th Conference on Disaster Risk Reduction & Industrial Safety during at Gangtok, Sikkim.
Congratulations!!

Master Pawan Goyal son of Mr Mahesh Goyal, Joint Director (MO), OISD secured All India Rank–4 in India’s most prestigious entrance examination JEE (Advance)-2018. After completing two semesters (2018-19) at IIT-Mumbai and based on his past credentials in National & International Science Olympiads he has been selected for admission in Massachusetts Institute of Technology (MIT), Boston (USA) in Computer Science Engineering in 2019.

Miss Pragyasa Baishya, Daughter of Mr. Naba Kumar Baishya, Additional Director (P&E), OISD is studying in class IX at Vishwa Bharati Public School, Noida. She has bagged second runners up trophy in open singing completion along with Noida Dance Championship Session-II on 29th Dec’19 held at Noida Shilp Hut. There were about 2500 participants in the initial round and 10 participants among them were selected for final round of competition.

Miss Bagmita Dutta daughter of Mr Mrinal Kumar Dutta, Additional Director (P&E), OISD is studying in class XI at Cambridge School Noida. She is excellent Kathak Dancer and has won the first prize in “Dance to Express” a Delhi NCR level Dance Competition held at Tansen Music School on 16th Nov’19. She has also won the 2nd Runner Up at National Dance Competition held at Muktidhara Auditorium, Gole Market, New Delhi on 24th Dec’19.

Master Ritvik Tanwar son of Sh. Pradeep Tanwar, Additional Director (MO-LPG) has cleared English Olympiad Level 1, Class XI. He has scored 19 Zonal Rank and 27 International Rank with 99.27 percentile score

OISD family congratulates all the achievers and their family members for the success and also wish best of luck for future endeavours.
LPG Bottling plant - Wai, Maharashtra, BPCL
OISD Safety Audit during 25th to 27th Nov'19

Before

After

Before

After
Exercise PRASTHAN

Joint Mock drill conducted by the Indian Armed forces and orchestrated by the Eastern Naval Command at Ravva Offshore, Cairn Oil and Gas, Vedanta Limited

Goldmine

OIL INDUSTRY SAFETY DIRECTORATE
Ministry of Petroleum & Natural Gas
8th Floor, OIDB Bhawan, Plot No 2, Sector-73, Noida, Uttar Pradesh-201301
Fax No. (0120) 2593802 / 2593858, Website: www.oisd.gov.in