CSD Newsletter
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Oil Industry Safety Directorate
Esteemed Readers,

Oil Industry Safety Directorate, established in the year 1986, has completed 30 glorious years in service of the Indian Oil and Gas industry.

In the intervening period since last edition of this Newsletter, “Oil Industry Safety Awards” for the year 2014-15 were presented by Shri Dharmendra Pradhan, Hon’ble Minister of State (I/C), Ministry of Petroleum & Natural Gas on 29th Nov’2016. These awards are given for recognizing the efforts of Oil & Gas Industry in enhancing safety performance of the Oil & Gas installations thereby improved productivity, profitability and sustainability.

In the field of further enhancing our knowledge partnerships, OISD conducted workshops on “Workshop for auditors on Mounded Storage Vessels and its Cathodic Protection System” & “Emerging risks in E&P operation and lessons learnt from past accidents”. I firmly believe that Industry must have definitely benefitted out of such interaction.

Various OISD Safety Standards, Guidelines and Recommended Practices are under revision. The same have been detailed in the newsletter. We look forward to active contribution from the Industry.

Trend of fatality of workers particularly that of the contract workers is on increase. This trend needs to be arrested forthwith. We must focus on improving the quality of training programs being imparted to the contract workers. Attention must shift on effectiveness of the programs rather than on the numbers covered.

Encouragement to all the stakeholders for reporting the ‘Near Miss’ incidents is another important area where renewed focus is needed. History has shown repeatedly that most loss producing events (incidents) were preceded by warnings or near miss incidents. Recognizing and reporting near miss incidents can significantly improve worker safety and enhance an organization’s safety culture. Analysis of ‘Near Miss’ incidents and wide disseminations of such analysis with employees at large shall go a long way in prevention of major incidents.

Friends, I conclude by saying that let us strive towards making the Oil & Gas Industry a better and safer place to work. We must make our installations safe enough to set a benchmark for the global industry to follow. Let all our stakeholders take pride in associating themselves with our business.

I look forward to your views, suggestions and ideas to improve upon further and enable continuous improvement.

V.J. Rao
Major OISD activities July - Dec ‘16

**EXTERNAL SAFETY AUDITS (ESA)**

- **IOCL**
  - POL Terminal at Trichy, Tamilnadu was carried out during 13th-15th July, 2016
  - HMR & HBPL product pipeline was carried out during 18th-22nd July, 2016
  - POL Terminal at Hazira, Gujarat was carried out during 19th-21st July, 2016
  - LPG Bottling Plant at Mayiladuthurai, Tamilnadu was carried out during 25th-27th July, 2016
  - POL Depot at Banthara, Uttar Pradesh was carried out during 27th-29th July, 2016
  - LPG Bottling Plant at Rangipo, Sikkim was carried out during 8th-10th August, 2016
  - POL Depot at Navalur, Karnataka was carried out during 17th-19th August, 2016
  - LPG Bottling Plant at Jhunjhunu, Rajasthan was carried out during 22nd-24th August, 2016
  - LPG Bottling Plant at Trishundi, Uttar Pradesh was carried out during 31st Aug – 2nd Sept, 2016
  - POL Depot at Chandrapur, Maharashtra was carried out during 8th-9th Sept, 2016
  - LPG Bottling Plant at Ahmedabad, Gujarat was carried out during 8th-10th Sept, 2016
  - LPG Bottling Plant at Jhansi, Uttar Pradesh was carried out during 22nd-24th Sept, 2016
  - POL Depot at Feroke, Kerala was carried out during 26th-28th Sept, 2016
  - POL Depot at Raniganj, Assam was carried out during 28th-30th Sept, 2016
  - POL Terminal at Rewari, Haryana was carried out during 19th-21st Oct, 2016
  - POL Depot at Akola, Maharashtra was carried out during 26th-28th Oct, 2016
  - POL Depot at Dehri, Madhya Pradesh was carried out during 7th-9th Nov, 2016
  - Chaksu-Mathura section of SMPL crude oil Pipeline was carried out during 15th-17th Nov, 2016.
  - POL Terminal at Loni, Maharashtra was carried out on 17th Nov, 2016
  - POL Depot at Ahmednagar, Maharashtra was carried out during 21st-22nd Nov, 2016
  - LPG Bottling Plant at Jaipur, Rajasthan was carried out during 1st-3rd Dec, 2016
  - LPG Bottling Plant at Borkhola, Assam was carried out during 15th-17th Dec, 2016
  - POL Terminal at Lumding, Assam was carried out during 15th-17th Dec, 2016

- **HPCL**
  - POL Depot at Pakni, Maharashtra was carried out during 11th-13th July, 2016
  - LPG Bottling Plant at Vishakhapatnam, Andhra Pradesh was carried out during 28th-30th July, 2016
  - POL Depot at Miraj, Maharashtra was carried out during 29th-31st Aug, 2016
  - POL Depot at Bharatpur, Rajasthan was carried out during 29th-31st Aug, 2016
  - LPG Bottling Plant at Ussar, Maharashtra, was carried out during 18th-20th Oct, 2016
  - POL Depot at Sangur, Punjab was carried out during 14th-16th Nov, 2016
  - LPG Bottling Plant at Kondapalli, Andhra Pradesh was carried out on 16th Nov, 2016
  - POL Depot at Salawas, Rajasthan was carried out during 26th-28th Dec, 2016

- **BPCL**
  - LPG Bottling Plant at Tanjore, Tamilnadu was carried out during 21st-23rd July, 2016
  - POL Depot at Ongole, Andhra Pradesh was carried out during 28th-30th July, 2016
  - POL Depot at Gooty, Andhra Pradesh was carried out during 9th-11th Aug, 2016
  - LPG Bottling Plant at Naini, Uttar Pradesh was carried out during 19th-21st Sept, 2016
  - BPCL-Mumbai Refinery was carried out during 25th Sept-1st Oct, 2016
  - BORL-Bina Refinery was carried out from 26th Sept – 1st Oct, 2016
  - POL Depot at Jhansi, Uttar Pradesh was carried out during 17th-19th Oct, 2016
  - LPG Bottling Plant at Bikaner, Rajasthan was carried out during 24th-26th Oct, 2016
  - POL Depot at Rairu, Madhya Pradesh was carried out during 26th-28th Oct, 2016
  - LPG Bottling Plant at Bhitoni, Madhya Pradesh was carried out on 7th-9th Nov, 2016

- **GAIL**
  - DESU-Maruti & DESU-Bahadurgarh NG pipeline was carried out during 25th-27th July, 2016
  - GAIL-Gandhar Gas Processing Plant was carried out from 25th-30th July, 2016
  - Jhabua-Vijapur section of HBJ, DVPL-I and DVPL-II NG pipeline was carried out during 8th-10th Aug, 2016
  - Vijapur-Auriya NG pipeline was carried out during 17th-20th Oct, 2016
  - Dabhol-Banglore NG pipeline was carried out during 21st-25th Nov, 2016
ONGC
- Assam Asset was carried out during 25th-28th July, 2016
- Special ESA of non-piggable pipelines at Kesavadasapalem field in Rajahmundry Asset was carried out during 8th-9th Sept, 2016
- Cambay Asset was carried out during 19th-20th Sept, 2016
- Mehsana Asset was carried out during 17th-21st Oct, 2016
- Mangalore Refinery & Petrochemicals Ltd. was carried out during 14th-19th Nov, 2016
- Offshore Platform (BHS, SJ & SB), Mumbai BHS Asset, was carried out during 13th-17th Dec, 2016
- Rajahmundry Asset was carried out during 14th-15th Dec, 2016
- Mobile offshore drilling rigs (2 Nos.) of Eastern Offshore Asset, Kakinada, was carried out during 16th-17th Dec, 2016

OIL INDIA LTD
- Mobile Offshore drilling rig GSF-140 at East Coast was carried out during 16th-17th Sept, 2016
- Noonmat-Sonapur section of Naharkatiya-Barauni crude pipeline was carried out during 27th Sept-1st Oct, 2016

RIL
- CBM Project Shahdol was carried out during 7th-8th Oct, 2016

CAIRN
- Rajasthan Asset was carried out during 1st-4th Dec, 2016

PETRONET
- Petronet CCK product pipeline from Cochin to Karur was carried out during 29th June – 1st July, 2016

PRE-COMMISSIONING SAFETY AUDITS (PCSA)

IOCL
- Additional facilities at POL Terminal at Dumad, Gujarat was carried out on 18th July, 2016
- Additional tankages at POL Terminal, Hazira was carried out on 19th July, 2016
- Surindernagar-Virangam loopline, for SMPL-DBN project was carried out on 28th July, 2016.
- Virangam-Sidhpur loopline and New pumping units for Virangam-Koyali section at Virangam for SMPL-DBN project was carried out during 29th-30th July, 2016.
- New POL Depot at Imphal, Manipur was carried out during 4th-5th August, 2016
- Crude oil storage tanks (5 Nos.) at Paradip was carried out during 17th-18th Aug, 2016
- Additional Naphtha tank at Bijwasan was carried out on 27th Aug, 2016
- Floating Roof tank at POL Terminal, Roorkee, Uttar Pradesh was carried out on 10th Sept, 2016.
- 2 nos. booster and 2 nos. motor driven pumping units at Haldia under PHBPL augmentation project was carried out on 23rd Sept, 2016.
- Mainline and stations in Jatni- Sambalpur- Saraiapalli-Raipur section of PRPL product pipeline was carried out during 22nd-26th Oct, 2016
- ATF Tanks of IOCL - Panipat was carried out during 4th-5th Nov, 2016
- Additional facilities (Floating Vertical Roof Tank) at POL Depot, Bijapur, Karnataka was carried out on 11th Nov, 2016.
- Stations at Rajola, Aburood & Viramgam under SMPL-DBN project was carried out during 30th Nov – 2nd Dec, 2016
- Additional facilities at POL Terminal, Korba, Chhattisgarh was carried out during 5th-7th Dec, 2016
- PRPL pipeline including 2 terminals at Korba and Jharsuguda was carried out during 5th-7th Dec, 2016.
- Coker A revamp & Biturox Project of IOCL-BR was carried out on 14th Dec, 2016.
- Paradip station for PHBPL augmentation project was carried out during 23rd-24th Dec, 2016.
- Mounded Storage Vessels facility at LPG Bottling Plant, Trichy, Tamil Nadu on 28th Dec, 2016.

HPCL
- Mangalore – Hassan – Mysore -Bangalore LPG pipeline was carried out during 11th-14th Sept, 2016
- DHT Cooling Tower at Mumbai Refinery was carried out on 9th Nov, 2016.
- Additional facilities at POL Depot, Hubli, Karnataka was carried out on 13th Nov, 2016.
- TLF Gantry at POL Terminal, Mannmad, Maharashtra was carried out on 1st Dec, 2016.
- Additional tankages at POL Depot, Akola, Maharashtra was carried out on 2nd Dec, 2016.
- New LPG Bottling Plant at Bhopal, Madhya Pradesh was carried out on 8th Dec, 2016.

BPCL
- Kochi Refinery product pipeline was carried out on 1st July, 2016
- DHDT, ETP & LPG Mounded Bullets at Kochi Refinery was carried out during 19th-21st Sept, 2016
- NHT/ISOM at Mumbai Refinery was carried out during 7th-8th Nov, 2016.
- Additional facilities at LPG Bottling Plant, Sultanpur, Uttar Pradesh was carried out on 2nd Dec, 2016.
• Additional tankages at POL Terminal, Irumpnam, Kerala was carried out on 8th Dec, 2016

➢ MRPL
• Crude pipeline at Mangalore was carried out during 18th – 19th Nov, 2016.

➢ RIL
• Cryogenic Ethane Importing facility at Dahej, Gujarat was carried out during 28th-29th Dec, 2016

➢ OPaL
• HDPE, PE Swing, Butene-1, Flare, Tank Farm-5, Tank Farm-7, Gantry-1 & 4 and CPP was carried out during 30th June – 2nd July, 2016.

SURPRISE SAFETY AUDITS (SSA)

➢ IOCL
• Mathura Refinery was carried out during 11th-13th July, 2016
• POL Depot at Pakni, Maharashtra was carried out on 14th July, 2016
• LPG Bottling Plant at Mannagudi, Tamilnadu was carried out on 28th July, 2016
• AOD-Digboi Refinery was carried out during 28th Aug - 4th Sept, 2016
• POL Depot at Bijapur, Karnataka was carried out on 12th Nov, 2016
• POL Terminal at Salawas, Rajasthan was carried out during 29th -30th Dec, 2016

➢ HPCL
• POL Depot at Gunta, Andhra Pradesh was carried out during 12th-13th Aug, 2016
• POL Depot at Bunktuchi, Assam was carried out on 27th Sept, 2016
• LPG Bottling Plant at Mahul, Maharashtra was carried out on 21st Oct, 2016
• POL Depot at Akola, Maharashtra was carried out on 25th Oct, 2016
• POL Depot at Rairu, Madhya Pradesh was carried out on 29th Oct, 2016
• POL Depot at Hubli, Karnataka was carried out on 14th Nov, 2016

➢ BPCL
• POL Depot at Miraj, Maharashtra was carried out on 1st Sept, 2016
• Delhi Aviation Fuel Facility Ltd (DAFFL) , Delhi was carried out on 14th Oct, 2016
• POL Depot at Akola, Maharashtra was carried out on 24th Oct, 2016
• POL Depot at Desur, Karnataka was carried out on 9th Nov, 2016
• LPG Bottling Plant at Vijaywada, Andhra Pradesh was carried out on 19th Nov, 2016
• LPG Bottling Plant at Sultapour, Uttar Pradesh was carried out on 2nd Dec, 2016
• POL Depot at Salawas, Rajasthan was carried out on 30th Dec, 2016

➢ ONGC
• ONGC – Gandhar was carried out during 25th-30th July, 2016
• ONGC – Tapi, Park was carried out during 23rd-27th Aug, 2016
• ONGC – Hazira was carried out during 13th-16th Sept., 2016

➢ OIL
• Dulpuran was carried out during 28th Aug - 4th Sept, 2016

➢ ESSAR
• ESSAR Vadinar was carried out during 14th-16th Dec, 2016

➢ CONSENTS TO OPERATE ACCORDED TO:
• ONGC for unmanned Well Head Platform VSEB, VSEC on 05th July, 2016
• ONGC for Mobile Offshore jack-up drilling rig “Vivekanand-1 & 2” on “Oct, 2016
• ONGC for unmanned wellhead platform IH on 13th Oct, 2016
• ONGC for unmanned wellhead platform C-24-P3, C-24-P4, C-24-RP, C-25 & B-12-1 on 14th Oct, 2016
• ONGC for mobile offshore drilling unit – Rig “Aban Abraham” on 21st Oct, 2016.
• ONGC for mobile offshore drilling unit – Rig “Jack Bates” on 25th Oct, 2016
• BGEPL for Mobile offshore Jack up drilling rig “Glavestonkey” on 11th Nov, 2016
• CAIRN for Mobile offshore Jack up drilling rig “Aban DDS” on 13th Dec, 2016

➢ MEETINGS
• Joint team of industry and OISD visited facility of BOP manufacturer to verify their recertification process and capability at Pune during 09th-10th July, 2016.
• JS(R) review meeting for issues related to pipeline security attended by ED, OISD on 18th July, 2016
• Review meeting on safety & maintenance of cross country pipelines taken by ED, OISD for pipeline operators on 22nd Aug, 2016
• ED-OISD attended the meeting on Pipelines safety & integrity chaired by JS(R) on 6th Sept, 2016
• A meeting was held by Director (E&P) with BGEPL well engineering team regarding ‘Well abandonment plan’ for Tapti field at OISD office on 7th Sept, 2016
• Director E & P attended meeting at DGH on ‘Riser Leak at unmanned platforms’ on 27th Sept, 2016
• Director (MO-LPG) held a meeting at IOCL, HO, Mumbai of industry members for discussion on provision of Gas Monitoring System (GMS) at LPG Tank Wagon Gantry on 30th Sep, 2016
• Safety inspection of 02 survey vessels of M/S Focus Energy Ltd. at Surat Offshore, Gujarat by Director (E&P) along with DGH representative on 3rd Nov, 2016.
• Additional Director (E&P) held meeting with private (E&P) operators at DMP at OISD, Noida on 7th Nov, 2016
• Director (E&P) attended meeting at DGH, Noida for discussion on 2nd phase of Tapti field abandonment with BGEPIL on 11th Nov, 2016
• Inspection of well control equipment repair and recertification facility of JVS company at Baroda by joint team of OISD and ONGC on 19th Nov, 2016

 KNOWLEDGE SHARING BY OISD OFFICIALS

• Marketing Operations (LPG) group organized a 1 day joint workshop with HPCL on ‘Workshop for auditors on Mounded Storage Vessels and its Cathodic Protection System’ on 29th Sep, 2016 at HPCL’s LPG Bottling Plant, Loni, Ghaziabad.
• Lectures delivered by Director (E&P) and other OISD officers at a training program “Challenges of oil industry Safety” organized by RTI Chennai, ONGC at Mysuru from 19th-21st Oct, 2016
• E & P organized a two days workshop on “Emerging risks in E & P operation and lessons learnt from past accidents” during 28th-29th Dec, 2016 at OIDB Bhawan, Noida

 FUNCTIONAL COMMITTEE MEETINGS ON SAFETY STANDARDS:

• New OISD-RP-243 on ‘Recommended practices on CBM operations’ organised at OISD on 5th Aug, 2016
• Revision of OISD-RP-205 on “Crane operation, maintenance & testing (for upstream)” organised at OISD on 23rd Sep, 2016
• Revision of OISD-STD-191 on “Oil filled explosive safety” was organised at OISD on 25th Oct, 2016
• Functional Committee meetings (5 Nos.) on revision of OISD-RP-157 on “Transportation of Bulk Petroleum Products” were organised at OISD during July-Dec, 2016.
• Functional Committee meetings (5 Nos.) on revision of OISD-RP-167 on “POL Tank Lorry Design & Safety” were organised at OISD during July-Dec, 2016.
• Functional Committee meetings (2 Nos.) on revision of OISD-STD-151 on “Safety in Design, Fabrication and Fittings: Propane Tank Trucks” were organised at OISD during July-Dec, 2016
• Functional Committee meetings (2 Nos.) on revision of OISD-STD-159 on “LPG Tank Trucks – Requirements of Safety on Design/Fabrication and Fittings” were organised at OISD during July-Dec, 2016.
• Functional Committee meetings (2 Nos.) on revision of OISD-STD-160 “Protection to Fittings Mounted on Existing LPG Tank Trucks” were organised at OISD during July-Dec, 2016.
• Functional Committee meetings (2 Nos.) on revision of OISD-STD-161 “LPG Tank Truck Incidents: Rescue & Relief Operations” were organised at OISD during July-Dec, 2016.
• Revision of OISD-STD-162 “Safety in Installation and Maintenance of LPG Cylinders Manifold” was organised at OISD on 3rd Aug, 2016.
• Revision of OISD-STD-188 on “Corrosion Monitoring of Offshore & Onshore Pipelines” was organised at OISD on 4th Oct, 2016.
• Functional Committee meetings (3 Nos.) on revision of OISD-STD-206 “Guidelines on Safety Management System in Petroleum industry” were organised at OISD during Oct-Dec, 2016
• Revision of OISD-STD-156 on “Fire Protection Facilities for Ports Handling Hydrocarbons” was organised at OISD on 23rd Nov, 2016

“A leader is one who knows the way, goes the way, and shows the way.”
- John Maxwell
A major fire broke out in one of the MS tank wagons which was under decantation at Desur Industry railway siding (Belagavi District), Karnataka. The fire continued for more than 3 hours. The railway siding operations got severely affected & remained shut-down for a considerable period of time. The siding was taken for revamping as PESO suspended operation of the siding. Considering the inferior infrastructure of the siding, it was decided to go for complete revamping meeting all OISD standards. Entire revamping works were completed in a record time of 4 months i.e. from 01/11/2015 to 03/03/2016. Rails were welded through thermit welding (in place of conventional bolted joints) which eliminates the maintenance of the joints. All the facilities have been constructed in line with OISD-STD-244.

Details of facilities provided at revamped Tank Wagon siding are as follows:

i) **Fire Fighting Facilities**
   All conventional type monitors were replaced with UL/FM listed monitors. Alternate provision of monitors and hydrants with elevated foam monitors and Portable HVLR monitors of 1000 GPM capacity at siding.

ii) **Provision of CC Apron at Siding**
    Entire old CC apron was dismantled and revamped with proper grading/slope including replacement of the track and fittings.

iii) **Fall Arrestor System**
    Fall Arrestor System has been provided on both the spurs with 1 no. over head crossover with escape ladder across both the railway spurs.

iv) **Lighting facilities provided**
    Lighting facility provided meets the lux level standards as per OISD-STD-149 norms for night operations of the tank wagon unloading.

v) **OWS and drainage facility**
    Entire drainage facility and OWS have been revamped.

vi) **Motorable Road around the Siding**
    Motorable road around the Tank wagon unloading siding has been provided for movement of fire tenders.
SAFETY ALERT

Fatality during Internal Painting of Water Tank at Construction site

By Shri L.L. Sahu

THE INCIDENT
- A person engaged in painting works of a new Fire Water Tank fell on stack scaffolding material and got cut on backside of head.
- He was immediately taken to a hospital & died due to head injury.

SEQUENCE OF EVENTS
- A closed depot was under revamping in order to meet the revised fire water requirement, a new water tank of 2200 KL was constructed & painting job was under progress.
- As a part of surface preparation by blasting, arrangement comprising of scaffolding, air compressor, slag blast hopper etc. were made. Four persons were engaged in the operation viz. blasting & hopper operator, with a helper and a supervisor. The supervisor, standing near the manhole was communicating instruction between blasting operator and hopper operator.
- While sand blasting was in progress at top stack, blasting operator reporting choking of Blaster Gun (Nozzle) and advised the supervisor to release the pressure of the hopper. The supervisor, in turn, advised the hopper operator for the same. The hopper operator, standing nearly 10 mts. from the hopper, advanced towards the hopper for checking. When he was approaching the hopper, approx. one foot away, the top end of the hopper flew away with a sudden bang sound (shearing off the weld at the periphery) due to high pressure. The hopper also lifted about half a meter up and bounced back. The impact was so high that one of the legs of hopper got cracked and another leg got bent. While landing, craters of 4-6 inch deep were formed in the earth at the places where the legs of hopper rested.
- The hopper operator was coming towards the hopper in order to release the pressure, panicked on hearing the bang sound and tried to escape by walking backwards. In the process, he slipped and fell down on scaffolding pipes stacked at that place and suffered a cut on his head as the helmet from his head fell off which was lying near the incident spot.

ANALYSIS
- The deceased was newly engaged for the work (only 3 days of working)
- Slag-Hopper pressurized up to 7 Kg/cm² was not having any pressure testing certificate. The welding seam of the inside portion of Slag-Hopper was not done in a competent manner and was a single run weld.
- The compressor used was very old.
- The Pressure Relief Valve provided on the slag-hopper did not operate.
- The slag used in the hopper was not being sieved. This has resulted into frequent clogging of the blasting nozzle.
- Sand hopper was locally fabricated, without any Equipment Specification Tag.

Fig: After the blow off the entire hopper was lifted in air and came down. 4"– 6" craters were formed at the places where the legs rested.

- Sand blast pipe was partly new and partly old (having joints) without any pressure test certificate.
ROOT CAUSE OF THE INCIDENT

- Choking of nozzle of the hopper & non-functional safety relief valve.
- Improper use of helmet as a result of which the helmet did not give the desired protection.
- Non adherence of Standard Operating Procedure for a critical job like sand blasting.
- Engaging manpower without imparting proper safety training and assessing the suitability for the assigned job.
- Usage of non-standard critical equipment viz. hopper.

RECOMMENDATION

- Critical equipment’s shall be permitted only after verification of valid approvals, test certificates etc., as per applicable standards.
- PPE (Personnel Protective Equipment) policy shall be strictly implemented, as per recommended practices.
- Competency and experience of the personnel should be established before engaging.
- Functional & safety training should be imparted to all personnel prior to assigning any job.
- Standard Operating Procedures (SOPs) should be developed for all critical activities and shall be shared with contractors and their workmen.
- Display boards containing Do’s and Don’ts for a particular job near the work place.
- Implementation of Work Permit System. Job Safety Analysis should be carried out for all critical jobs and should form a part of the work permit issued.
- Area earmarked for operation of pressure vessels should be properly cordoned off and personnel should enter the area with specific authorization from Site Engineer/Location Incharge.
- Unwarranted material should be removed from the work place and should be safely stacked at a designated place without causing hindrance to on-going works.

The best executive is the one who has sense enough to pick good men to do what he wants done, and self-restraint enough to keep from meddling with them while they do it. 

-Theodore Roosevelt
SAFETY ALERT

Fatality at workover rig during Reverse acid wash
By S/Shri A.K. Jain, Joint Director (E&P) & Sundar Iyer R, Director (E&P)

INTRODUCTION

• A fatal incident took place on a work over rig during reverse wash of acid. A workover rig personnel working as helper, while checking the dip in the suction tank, fell unconscious on the grating of the suction tank. The victim was taken to the nearby health centre (5km from the well site). The doctor examined and found the victim with no pulse, no heart rate, and BP unrecordable. The victim was declared dead after the examination. Postmortem report of the deceased mentioned that the cause of the death was asphyxia as a result of suffocation.

BRIEF DESCRIPTION

• Change to “The well was drilled with S-profile trajectory to the depth of 3650 meters. In the year 2002. Initially the well was producing oil & gas and later well was converted into a water injector. The workover rig was deployed for servicing of the well. Acid job was carried out to improve the injectivity in the perforated intervals of 2849-54m, 2860-56m & 2869-74m with the following composition - 3M of Plain hydrochloric acid (HCl) solution of 10% concentration (with 30 kg acid corrosion inhibitor, 25 kg Ethylene diamine tetra acetic acid, 30 kg surfactant) and 3M mud acid (10% concentrated HCl acid, 50 kg ammonium bio fluoride, 30 kg acid corrosion inhibitor, 30 kg surfactant). The whole solution was placed against the perforation. Well was kept under pressure of 3000 psi for soaking of the acid. Reverse wash was planned with the rig pump after 02 hrs of soaking. There were two Mud tanks available at the rig, each having 04 compartments. Before starting the reverse wash 30 kg lime was placed in the pill tank (one compartment of tank no: 2). The suction was taken from one of the compartment of tank no: 1, and return was taken in the pill tank. After pumping for around 20 min, the derrick man went at tank no:2 to check whether the required quantity of liquid was collected back or not. He observed pungent smell and he covered his nose with cloth and saw another person (victim) climbing up the tank no:1 from the other side and collapsing on the grating of the tank no:1. Immediately the victim was shifted to the nearby health centre.

OBSERVATIONS:

• The spent acid received during reverse wash was not taken in a separate tank (special tank for acid) and the tank was not placed at a distance of 100 ft. upwind from the well centre.

• Acid protective PPE (Mask, Respiratory protection) were not used by crew at time of taking returns in the tanks.

• The victim was a helper, and had not undergone mandatory trainings (like MVI, firefighting, first aid).

• Material safety data sheet (MSDS) of chemicals used in the acid job were not available at site.

• Reverse wash of the Acid job at the well was not carried out under the direct personnel supervision of an official authorized for the purpose.

• No failure of equipment as well as material was observed.

ANALYSIS FOR ASCERTAINING CAUSE OF THE INCIDENT

• The official authorized for the job did not ensure that no person other than those required for acidizing operation remains in the vicinity of the well.

• The victim was a helper and was not authorized to work on the tank.

• Job assignment was not indicated in the check list for stimulation job.

• There was improper supervision, there was no authorized supervisor from operator side during reverse wash job.

• Tool box meeting was conducted prior to the acid job, where it was clearly mentioned

  • use proper PPE during reverse wash

  • Not to go near the tank during reverse wash.

The above instructions were not followed during the reverse wash operation as the victim approached the tank during the job without wearing Proper PPE (Mask, Respiratory protection).

The operational personnel of the rig were not having adequate experience in Acid reverse wash operation.

RECOMMENDATIONS:

• Safety management system for work-over rigs is to be revisited and reviewed seriously.

• PPE specific to the job should be used by persons involved in the acid jobs.

• Only authorized and trained persons should be deployed for special jobs like acid jobs.

• Persons not directly involved in the operation should remain beyond a designated safe distance during acid job.

• Concentration and volume of the acid to be pumped should be decided depending upon injectivity and formation characteristics.

• The responsibilities of operator and contractor in operations, and well stimulation jobs (like acid job) should be clearly defined.

• Competency criteria for key operational personnel of charter hired rigs should be developed considering all the requirements for the specific level and associated job.

• Competency of work-over operational personnel has to be enhanced by training, retraining and regular assessments.

• Level of supervision should be increased for work-over wells.
TECHNICAL ARTICLE

Recent Refinery Accidents:
Good Practices of Asset Integrity Management to Prevent Accidents

By Shri S.K. Bagchi

S.K. Bagchi
Addl. Director (Asset Integrity)

ABSTRACT

• Recently, a number of catastrophic accidents took place in some refineries in India and abroad because of pipeline/equipment failure. Therefore, equipment failure is a major integrity threat to many oil and gas assets which also lowers the confidence level of people who are operating and maintaining these assets.

• This paper addresses a few recent catastrophic accidents which took place in the refineries in India and abroad due to failures of equipment/piping and their root causes for experience sharing. Some good industry practices in asset integrity management like a system approach for corrosion management, applications of new technologies for condition monitoring of static equipment and key components of an effective asset integrity management system have been discussed to prevent asset integrity related accidents.

• Many accidents could have been averted provided the integrity of the assets was well maintained. Some of the good industry practices for an effective asset integrity management discussed in the paper would ensure that the operators identify significant warning signs beforehand and take appropriate action to prevent equipment/piping failure. Timely utilization thereof would result in preventing hazards, loss of lives and property and the reputation of the organization.

INTRODUCTION

• Recently, a number of catastrophic accidents took place in some refineries in India and abroad because of pipeline/equipment failure. This has lowered the confidence level of refinery people and spoiled the reputation of the organisation. Equipment failure is a major integrity threat to many oil and gas assets.

• Equipment/piping failure is very expensive. Some good industry practices for an effective asset integrity management will help preventing asset integrity related accidents in refineries. Pipes and equipment must be inspected properly at certain intervals and inspection recommendations for repair/replacement must be carried out in a timely manner. In order to avoid such failures and accidents, inspection recommendations should never be neglected.

ASSETS OF PROCESS PLANTS ARE INHERENTLY HAZARD PRONE

Assets of process plants are inherently hazard prone due to the following reasons:

• Large inventory of petroleum products are highly inflammable;
• Processing at high pressure, temperature;
• Using hazardous chemicals;
• High complexity & process integration;
• Loss of containment results in Fire/Explosion; and,
• History of major incidents in India & abroad

SOME RECENT CATASTROPHIC ACCIDENTS IN REFINERIES

a) CHEVRON REFINERY USA INCIDENT – AUGUST 06, 2012

• A leak was noticed in a pipe from crude unit #4.
• The pipe carries heated hydrocarbons to other processing units.
• The repair crew opted to leave the unit in service and began repairs on the leaky pipe.
• On removal of insulation the leak from corroded pipe increased and spilt boiling hydrocarbons that created a vapour cloud and major fire.

Root cause of the incident-

• Poor Asset Integrity – No inspection of the pipe and

Figure 1 and 2 - Chevron Refinery fire
decision to carry out online maintenance on leaky pipe without proper isolation.
- Corrosion under insulation. Corroded piping was not replaced in time.

b) RUPTURE OF HIGH SPEED DIESEL (HSD) PIPE IN AN INDIAN REFINERY
- On 28th September 2012 a fire incident took place inside the tank farm 700 area of a refinery due to sudden rupture of a 20" diameter HSD line.
- Four contract personnel were engulfed in this fire incident. Three of the affected personnel subsequently succumbed to their injuries at a hospital.

Root Cause of the Incident:
- Root cause for incident indicates that rupture of pipeline had taken place because of abrupt pressure surge in the pipeline due to sudden start/stop of the pump or sudden closure of valve.
- Severe external corrosion and deep pitting on the pipeline has led to substantial thickness reduction of the pipeline section which ultimately resulted in failure. With such conditions the pipeline should not have been operated or should have been derated until the replacement was undertaken.

Fluctuation in wash water injection rate compared to the design wash water injection rate.
- Wash water is injected to the 8 banks of AFC and its equitable distribution is done manually. This is difficult to maintain.

d) FIRE AT CDU/VDU OF AN INDIAN REFINERY
- On 31/05/2013 a major fire incident took place in CDU/VDU of a refinery due to sudden failure of crude booster pump of CDU/VDU.
- The fire lasted for about four hours which caused extensive damage to all the 3 crude booster pumps, technological structures, pipe racks with piping, insulation, electrical and instrument cables are damaged due to fire. However, there was no injury / loss of life due to the fire incident.

Root Cause of the incident:
- The root cause is the failure of Lock nut of the Impeller.
- Failure of the nut caused the impeller to move towards the suction end (casing side) and touch the casing plate by the hydraulic pressure on the back of the impeller. This resulted in significant rubbing action of the impeller against the casing plate and the impeller acted like a cutting tool to cut the casing plate circumferentially like machining.

All the above accidents do not take place all of a sudden. The plants provide a lot of indications / warning signs prior to the accidents. We do not receive / process the signals in time,

![Figure 3 - Severity of external corrosion and deep pitting on the pipeline](image)

![Figure 4 - Fire affected tank farm area](image)

![Figure 5 – Casing plate cut circumferentially by rubbing action caused by impeller & impeller detached from the shaft and fallen due to failure of locknut](image)

tend to follow a reactive approach to incidents and seldom learn from past mistakes and learning thereof. Therefore, accidents recur.

Asset integrity is one of the biggest challenges in petroleum refining industry. An effective asset integrity management programme is a must to achieve productivity, operational reliability and safety.

THE KEY COMPONENTS OF AN EFFECTIVE ASSET INTEGRITY MANAGEMENT SYSTEM

The key components of an effective asset integrity management system should include the following attributes:
- Design, fabricate and install all facilities and equipment in accordance with applicable industry codes and recognised best practices
- Operate facilities and equipment within design tolerances and within the safe operating envelope.
- Routinely inspect and maintain equipment in accordance with industry codes and recognised practices, including manufacturer recommendations where appropriate.
- Analyse equipment failures to determine their cause.
- Conduct all related tasks using trained and qualified individuals who use approved procedure and complete the tasks as scheduled.
- Use high quality parts and materials, including a system for positive material identification (PMI).
- Maintain an equipment archive with up to date equipment history.
- Safely dismantle and dispose of the facility at the end of its lifecycle.
- A systematic implementation of the above will help in preventing accidents.

**SOME OF THE GOOD INDUSTRY PRACTICES FOR ASSET INTEGRITY MANAGEMENT TO PREVENT ACCIDENTS**

- Apart from the conventional methods, some of the good industry practices for enhancing asset integrity management and preventing accidents in refineries are highlighted below:

1) **A SYSTEM APPROACH FOR CORROSION MANAGEMENT**

With the advent of technologies employed in high pressure and high temperature secondary hydro processing units, the importance of corrosion management in refineries has increased considerably. Corrosion management is that part of the overall management system, which is concerned with the development, implementation, review and maintenance of the corrosion management policy.

Objective of corrosion management system:
- Reducing the number of corrosion related hydrocarbon releases and other safety related and environmentally damaging outcomes;
- Identifying good practices for setting up an optimal corrosion management scheme;
- Providing an overview of the significant corrosion threats to the oil and gas industry;
- Increased plant availability;
- Reduction of unplanned shutdown and maintenance; and,
- Optimisation of mitigation, monitoring and inspection costs.

The system approach will help in improving overall corrosion management of the refinery and preventing corrosion related failure and accidents.

2) **APPLICATIONS OF NEW TECHNOLOGIES**

a) **Low Frequency Electromagnetic Testing (LFET):** This technique is used to scan the tank floor plates for topside and underside corrosion and is based on the electromagnetic principle. It detects the surface and subsurface crack, pitting and any kinds of metal loss over the floor.

The advantages of LFET of tank bottom plates are as follows:
- 100% scanning of bottom plates can be done directly over coated/painted bottom plate without removing the lining. No couplant or magnets are required.
- Fast scanning resulting in minimization of tank outage time.
- Real Time Data Display and storage in CD.
- Topside and Bottom side defects evaluated in a single scan using new dual frequency electronics option.

b) **Remote Frequency Electromagnetic Technique (RFET):** This technique is used for health assessment of tubes of heat exchangers/air coolers and works by inducing an electromagnetic signal into the tubes to detect any internal wall thickness loss. It detects and sizes corrosion/erosion, pitting etc.

- The advantages of RFET of heat exchanger/air cooler tubes are as follows:
  - The technique detects the wall thickness loss along the length of tube.
  - It does not require a very clean surface and does not require couplant.
  - The technique is suited for ferromagnetic tubes.

RFET has been successfully employed for health assessment and corrosion of air cooler tubes.

c) **Long Range Ultrasonic Testing (LRUT):** This technique uses low frequency guided ultrasonic waves to inspect a length of piping. It locates the affected area in terms of distance from transducer and serves as a screening tool to inspect large lengths of piping especially at difficult to access locations.

The advantages of LRUT for assessment of piping are as follows:
- Assessment of inaccessible areas like culverts, tank dykes etc is possible.
- 100% screening coverage.
- Detects thickness loss from both internal and external side.

The LRUT is successfully carried out for health assessment of offsite piping in inaccessible areas under culverts, dykes.

d) **Acoustic Emission Testing (AET):** AET is an on-line technique for assessment of condition of tank bottom plates. The specialized AE sensors pick up the acoustic emissions released by the corrosion process taking place inside the tank which are processed to assign the rating
of the tank based on which the future actions required for the tank is determined.

The advantages of AET for tank bottom assessment are as follows:
- Tank bottom plates together with the steam coils can be inspected while the tank is in service. However, the tank needs to be in non-turbulent condition without any product movement / circulation including isolation of steam coils for about 8 – 12 hrs. prior to test and also during the test.
- Quick on-line inspection method as internal cleaning of tanks and tank outage is avoided.
- Effective re-scheduling of M&I activities.
- Internally painted tanks, insulated tanks can also be inspected. However, pockets need to be provided in insulation for installation of sensors.
- Generates database for future reference.

Acoustic emission testing (AET) is successfully utilized for condition assessment of crude oil tanks.

e) Composite repair solution for pipelines: This new technology is adopted for refurbishment of corroded and deteriorated piping ensuring reliable extended service life without replacement or weld repair. The composite repair system is designed for the pressure rating of the piping component on which it is applied. The application of the composite repair system involves surface preparation (manual) followed by a base layer of Mixed Reinforced Epoxy Paste (REP) and subsequent layers of Composite Repair Compound (CRC) with wet glass fiber rolls and finally tightening by rubber strips (uniwraps) which are removed after drying period.

The composite repair methodology is successfully adopted for refurbishment of corroded piping which are difficult to isolate and repair by conventional methods.

f) Detection of Corrosion under insulation (CUI): Corrosion under insulation (CUI) is caused by the ingress of water into the insulation, which traps the water like a sponge in contact with the metal surface. The water can come from rain, leakage, deluge systems, wash water, or sweating from cycling temperatures. For detecting the water ingress inside the insulation, advanced water detectors are installed at insulated locations of piping which will raise alarm when the moisture level reaches critical limit.

3) ANNUAL CORROSION SURVEY OF REFINERY

Detail analysis of cause of corrosion failures and remedial measures are compiled and shared with the relevant departments and management for better corrosion management and to prevent recurrence.

4) INSPECTION MANAGEMENT SYSTEM (IMS)

This is an IT based inspection management system which is very helpful in critical data management like retiring thickness of piping / equipment, remaining life, inspection schedule, due date of inspection, critical recommendation, sending inspection recommendations to concerned department and closure of recommendation after completion of job. This system also processes thickness trending of piping and equipment.

5) OTHER GOOD PRACTICES

- Corrosion education of operation, maintenance and inspection people for improvement in knowledge and to enhance national awareness for corrosion.
- Idle time preservation of piping / equipment as per procedure.
- Passivation of austenitic stainless equipment / piping during shutdown to avoid polythionic acid stress corrosion cracking.
- Metallurgy upgrades of piping and equipment as per requirement to combat corrosion.
- Positive Material Identification (PMI) to avoid material mix-up.
- Infrared thermography.
- Focussed inspection for unapproachable locations of piping and equipment like piping under culverts, road crossing, and piping passing through tank dykes. Inspection of unapproachable overhead piping circuits of columns for which erection of scaffolding is very difficult.

CONCLUSION

Many accidents could have been averted provided the integrity of the assets was well maintained. Some of the good industry practices for an effective asset integrity management discussed in the paper would ensure that the operators identify significant warning signs beforehand and take appropriate action to prevent equipment / piping failure. Timely utilization thereof would result in preventing hazards, loss of lives and property and the reputation of the organization.

REFERENCES:

1) Accidents Investigation Reports by S.K. Bagchi, Addl. Director, OISD
2) Guidance for Corrosion Management in Oil and Gas Production and Processing by Energy Institute, London (May, 2008)
3) Recognizing Catastrophic Incident Warning Signs in the Process Industries by Center for Chemical Process Safety
The following are some of points which are commonly observed during the audit of the LPG installations.

1. **Quantitative Risk Assessment:**
   a) QRA is not up to date as facilities have been upgraded since last Risk Analysis was conducted.
   b) QRA is neither signed by the consultant nor accepted by the management.

2. **Exchange of signals for LPG pipeline transfer:**
   Critical control parameters i.e. storage vessel level, pressure, temperature, ROV and MOV status have not been shared / made available and monitored in the control rooms of Supplier’s and Consumer’s company as per OISD-STD-214.

3. **Second crew:**
   Second crew is not available with the packed and bulk trucks.

4. **Personnel technical knowledge:**
   Awareness level of plant personnel for the intricacies of the Cathodic protection and settlement of mounded vessels is low, leading to improper maintenance / checking of MSVs.

5. **Flame proof fittings:**
   Integrity of flame proof fittings is not maintained in hazardous area e.g. unplugged open cable entries in flame proof fittings observed, plastic / non-standard plugs are used for plugging the unused cable entry.

6. **Downstream provisioning:**
   It has been observed that 47.5 kg / 35 kg cylinders manual filling m/c’s have been provided without proper post filling equipment. As per OISD-STD-144 all post filling operation arrangements are required for all size of cylinders being filled in the plant.

7. **Sprinkler system and its working condition:**
   a) Deluge Valves for medium velocity sprinkler (MVS) system are not actuating in set logic as per OISD-STD-144 e.g. as per design / requirement, MVS system of zone 1, 2 and 3 will get operated on air release operation of Deluge Valve of zone 2. However, additionally, MVS system of other zone also gets activated.
   b) Nozzles found choked or missing.
   c) Rupture of sprinkler lines,
   d) Record of spray density of sprinkler system not maintained.

8. **Fire Water Pumps:**
   Simultaneous operation of fire water pumps in excess of design requirement.

9. **Stake Trucks:**
   Packed trucks are fitted with non-standard connection for master cut off switch and Air brakes of some of the packed lorries have also been bypassed.

10. **LPG Filling system:**
    Negative / positive tare weight interlock of the Carousel filling machines is not working / bypassed.

11. **Lux study:**
    Lux level study has not been carried out at Plant level and illumination (lux level) is not as per OISD-STD-149 in critical areas.

12. **Cylinder stacking:**
    Purged LPG cylinders are stacked in open ground without being degassed.

13. **Access control:**
    To be strengthened to establish traceability, identity and head count in hazardous area as well as in non-hazardous area of the plant at any given point of time.

14. **CCTV:**
    CCTV cameras are provided in the plant. However same are not monitored 24 x 7, analyzed and corrective action taken recorded.

15. **Earthing as per IS:3043:**
    Many of the LPG installations are found to be non-
compliant w.r.t. provisioning of earth pits as per IS: 3043.

16. **Drawings:**
As-built drawings for plant layout, pipelines, conveyor etc., of the installation not updated.

17. **Jockey pump on-off Frequency:**
On-off frequency of Jockey pumps is high due to leakages in the hydrant system pipelines.

18. **Work Permit System:**
Work permit system is not in line with OSID-STD-105 e.g.
   a) Closure of permits after work completion,
   b) Permits are not filed/missing after completion of work,
   c) Permits are not prepared for some critical non-routine jobs.

19. **Long Pending Audit Observation:**
   a) Observations of previous audit are not complied as per target
   b) Expected date of completion (EDC) is changed frequently.

20. **Mounded Storage Vessel:**
   a) Record not available for settlement of the mounded storage vessels. Settlement of the mounded storage vessels to be monitored on half yearly basis and records to be maintained.
   b) CP system readings of the MSV are not maintained within design parameters.
   c) No recommendation by the AMC vendor on the readings of CP system. Report of AMC vendor is not countersigned by Plant officials.

21. **Statutory approvals/license:**
PESO license for storage/filling, Factory license, Consent from Pollution Control Board, prohibited area etc. not available/valid.

22. **Product pipeline:**
Record of comprehensive testing of the LPG pipelines not available at location.

23. **Rusting/corrosion observed on pipelines and structure:**
Location specific “Rolling Plan” for painting of all pipelines, structures etc., to be prepared and followed.

“Identification and compliance of the above frequently observed shortcomings / deficiencies shall go a long way in ensuring safety at the location.”

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A true leader has the confidence to stand alone, the courage to make tough decisions, and the compassion to listen to the needs of others. He does not set out to be a leader, but becomes one by the equality of his actions and the integrity of his intent.

-Douglas MacArthur
Safety Audit: IOCL, Ramnagar (Silchar), Assam Depot (28.09.16) and HPCL, Salawas, Rajasthan (26-28.10.16)

As a “Swachh Bharat Mission” initiative, OISD team inaugurated ladies toilet constructed at IOCL, Ramnagar (Silchar), Assam Depot and at Govt. Primary School, Village Kakani, Jodhpur District, Rajasthan.

Fig.: Old unused room adjacent to Security room was lying idle. Now renovated and converted to ladies toilet. Lady security staff is posted at the entrance.

Fig.: OISD team inaugurated ladies toilet facility at Govt. Primary School, Village Kakani, Jodhpur District, Rajasthan.
Safety Audit: LPG Bottling Plant, Kondapalli, HPCL
(16-18.11.2016)
Safety Audit: LPG Bottling Plant, Ahmedabad, IOCL
(8-10.09.2016)
FAREWELL

Shri Tarsem Singh, technical expert in Exploration and Production has made tremendous contribution in helping oil and gas industry in maintaining highest level of safety standards. Shri Tarsem Singh is blessed with a mature, amicable and pleasant personality. He superannuated as Director (E&P), OISD on 31st December, 2016. OISDians extend warm wishes to him & his family for their future endeavours.

Outgoing Officers

Shri PS Sehmi was Additional Director (E&P) at OISD. On transfer, he joined as Head (Safety), Corporate HSE, ONGC, New Delhi.

Incoming Officers

Sh. DV Chandrashekar
joined OISD on 25th November, 2016 as Additional Director (E&P). He is a Mechanical Engineer from Osmania University, Hyderabad with MBA in HRD from IGNOU, New Delhi. He has 29 years of experience in Drilling Services, ONGC.

Sh. Sundar Iyer R
joined OISD on 17th January, 2017 as Director (E&P). He is a Mechanical Engineer from NIT Rourkela. He has 33 years of experience in Onshore & Jack-up rigs of Drilling Services, planning of deep water development projects & Internal Audit in ONGC.
Technical Seminar/Conference/Workshops

Technical Seminars/Conferences/Workshops for the Oil industry are conducted by OISD to discuss the latest technological developments, sharing of incident experience etc.

On 29th Sept ‘16, OISD Marketing Operations (LPG) group organized a 1 day joint workshop with HPCL on ‘Workshop for auditors on Mounded Storage Vessels and its Cathodic Protection System’ at HPCL’s LPG Bottling Plant, Loni, Ghaziabad.

OISD E&P group organized workshop on “Emerging risks in E & P operations and lessons learnt from past accidents” at OISD, Noida on 28th-29th Dec, 2016. Representatives from E&P Companies – ONGC, OIL, BGEPIL, Cairn, DuPont, GeoEnpro etc. participated in the Workshop.

Encouragement of Safety Performance across the Industry thru ‘Oil Industry Safety Awards’

To encourage outstanding safety performance of the industry and to inculcate a positive culture of competitiveness among the Industry members, the Ministry of Petroleum and Natural Gas introduced a system of ‘Oil Industry Safety Awards’ in the year 1987. Annual evaluation of Safety Performance of the Industry Members is done by a specially developed methodology, which takes cognizance of hazards associated, incident recorded during the year and safety management system of the installation. Organizations, achieving ‘Exceptional Safety Performance’ during the year, are awarded with the Oil Industry Safety Awards thereby enhancing the productivity and safety in the Industry at large. In addition, individuals making exceptional contributions towards the cause of safety in their respective installations are also encouraged and presented with such awards.

‘Oil Industry Safety Awards’, for the year 2014-15, had been handed over to the recipients by Hon’ble Minister of State (Independent Charge) for Petroleum & Natural Gas in a glittering function at Delhi on 29th November, 2016

Swachh Bharat (Clean India) Mission in OISD

Pursuant to the Hon’ble Prime Minister’s call on “Swachh Bharat” campaign and directive from the Ministry, OISD along with its all functional Directors and employees under the leadership of Shri V.J. Rao, Executive Director and Head of the Organization, assembled at 8th floor OIDB Bhavan on 2nd October, 2016 at 10:00 am to commemorate the 3rd year of celebration of the mission.

Complying with the appeal made by our Hon’ble Prime Minister, ED OISD reiterated the noble objective of the Clean India Mission and reminded all employees on the pledge
taken by all of us on 2nd October ’14 and stressed upon owning up the drive and spread the awareness among others not in the office alone but also among their family members, neighborhood and at their social circles.

The program was kick started by cleaning the building premises and its surrounding at the Ground floor, displaying of placards / flex boards showing several slogans and messages on clean environment and its ultimate benefits.

Subsequent to above, ED took a review of the benchmarking process set in the office for clean working environment and stressed upon its sustainability. Visit to all toilets, pantry as well as store and electrical panel rooms were also taken by the senior members to ascertain the cleanliness and hygiene status.

All the employees wholeheartedly participated in the program and vowed to take it forward by keeping their own office space as well as surrounding at their living place absolutely clean and be an effective campaigner of the Mission.

Periodic Audit of OISD’s ISO 9001:2008 Quality Management System

Mr. VK Khanna, Lead Auditor from M/s DNV undertook the Periodic Audit of OISD on 26th Dec, 2016. Rigorous audit encompassed detailed discussion with Top Management on

Quality Management Systems of OISD followed by audit of all the functional areas viz. E&P, Refinery & Gas Processing, Pipelines, Marketing, Environment, HR-Admin. In the closing meeting with OISDians, the lead auditor shared the findings of the audit and mentioned that M/s DNV is fully satisfied with the robust system & procedures and the customer centric approach of OISD. No major or minor non-conformities to the Quality System were observed by the Lead Auditor.

Cashless Transaction

OISD started Cashless Transaction since April ’16 itself. Presently all financial transactions to employees/ vendors etc. are taking place through Banking System and Internet Banking (NEFT/RTGS).

Great leaders are almost always great simplifiers, who can cut through argument, debate, and doubt to offer a solution everybody can understand.

- General Colin Powell
CONGRATULATIONS

**Master Suryansh**, son of Sh. Vivek Kumar, Joint Director (Pipelines) is student of class IX, Aravalli International School, Sector 43, Faridabad.

**Achievements in sports:**
- District Level Swimming Championship: won 3 gold medal, 3 Silver and declared best swimmer in under 16 years category in year 2016
- Haryana State Level Swimming Championship: won 5 Silver medals and 1 bronze medal in under 16 years category in year 2016
- National Swimming Championship: Represented Haryana State in National Swimming Championship in under 16 years category in year 2016

Congratulations Suryansh! We wish you all the best in your future endeavors.

**Master Ritvik Tanwar**, student of class VIII, Sachdeva Global School Dwarka, son of Sh. Pradeep Tanwar, Joint Director, OISD was felicitated with a medal and certificate by International Astronomical Search Collaboration for valuable contributions to observations of near earth objects and main belt asteroid discoveries by participating in the analysis of images from pansars in 2016. He was also awarded certificate by SPACE organization under NASA programme for preliminary asteroid discovery. Congratulations Ritvik! We wish you all the best in your future endeavors.

**Master Arcchit Mittal** S/o Sh. RamnivaasMiittal, Addl. Director (PL) enrolled for MASTERS of IT in BUSINESS ANALYTICS offered by Singapore Management University in Jan 2016 and graduated a year later in Jan 2017. Some of the interesting electives were customers analytics, visual analytics, marketing analytics, text, social, etc. They were taught many tools for analysing the data and getting insights from them like Tableau, JMP, SAS EM, Python, R, Excel, etc. During this course he was also enrolled in capstone project with SMU-TCS icity lab, which is a collaborative lab between SMU and TCS. The Lab has installed sensors in various elderly homes to detect activities and movements of elderly. Congratulation Arcchit! We wish you all the best in your future endeavors.

"The growth and development of people is the highest calling of leadership"
- Harvey Firestone
“ED, OISD inspected the Heera Platform of ONGC, located in the Mumbai Offshore Basin, on 1st Oct, 2016”