Secretary, P&NG lauds OISD’s activities

Shri Vivek Rae, Secretary, Ministry of Petroleum & NG chaired the 30th Safety Council meeting. The meeting was attended by CEOs and CMDs of Oil & Gas Industry Organizations of PSUs and Private Companies, Director General of Hydrocarbons, Chief Controller of Explosive, Nagpur, Fire Advisor, Ministry of Home Affairs, Senior Officials of Ministry, ED-OISD & Member Secretary of Safety Council, ED-CHT and members from OISD. The 30th Safety Council was held on 4th October, 2013 at the Conference Hall of Ministry of Petroleum & NG.

Shri Hirak Dutta, ED-OISD and Member Secretary, Safety Council made a brief presentation on major OISD activities carried out during FY 2012-13 including some of the landmark achievements of OISD like memorandum of understanding with Centre for Chemical Process Safety USA, enhanced efforts to proliferate knowledge on Safety and Process Safety Issues with Oil Industry Organizations. The activity plan for FY 2013-14 was also shared and was unanimously passed by the Safety Council Members. The balance sheet as on 31st March, 2013 that was signed on 24th April, 2013 and other budgets of OISD were also approved by Safety Council Members. The members expressed satisfaction and reposed their faith and confidence on OISD.

It was informed that OISD has expanded its Audits program to include Safety Audits of Liquefied Natural Gas (LNG) Regasification Terminals in India. A comprehensive check list for safety audits of these installations has been developed and the same shall be adopted in the next Steering Committee Meeting. Secretary, PNG appreciated the efforts of OISD to
include audits of LNG Terminals in India and advised OiSD to carry out the External Safety Audits of these installations also.

During the meeting, 02 numbers of new OiSD standards, 03 revised OiSD standards and 02 amendments in OiSD standards were presented and approved by the Safety Council Members. Regarding OiSD 244, some of the members made certain observations and therefore it was decided that OiSD standard 244, a comprehensive standard on Marketing, would be put up to Chairman’s Committee for their guidance and advise.

Regarding OiSD standard 194, the proposal of ED-OiSD, to form an expert committee to look into the issue of prescribing minimum safety distance of the LNG unloading jetties from other jetties/ marine facilities was agreed. The committee shall constitute of one member each from EIL, SHELL Global, Petronet LNG Limited, ONGC and OiSD (Member Coordinator). The committee shall advise their recommendations within 8 weeks.

While reviewing the analysis of incidents in the entire oil & Gas sector, it was observed that most of incidents are taking place due to violation of SOPs & work permits and poor supervision. Further statistics also indicated a disturbing increasing trend in off-site incidents involving bulk transportation by road – both in POL & LPG. Considering such disturbing trends, Secretary, PNG observed that there is an immediate need of improving safety systems and enforcement of safety standards with increasing accountability of Senior Management in this context.

Safety Council approved OiSD proposal for giving access to registered users for free download of the OiSD standards via links in its website homepage.

SCM held on 4th October, 2013 concluded with vote of thanks to the Chair.
Dear Readers,

Trend charts in presentations provides us with lot of inputs. North bound trend, over a period of time, in capacity utilization, margin, productivity indicate improvement and a sign of healthy business. Specifies that adequate control, review mechanism exist and by and large there is a climate of contribution. South bound trend, in the above areas, indicate the reverse meaning thereby socks have to be pulled; belt need to be tightened. Focused attention is required for making all round improvement. Detailed analysis is, therefore, required to identify the weaknesses; make action plan for improvement.

What does sinusoidal trend indicate? Loose control! Lack of employee engagement! Or obsolete technology! Does it mean absence of adequate Knowledge & Skills? Is it attributed to culture? Or is it a Leadership concern? Whatever may be it; sinusoidal trend pronounces absence of adequate review and control mechanism. It is disturbing.

To my mind such a trend in any of the business parameter impact the entire business. Can any business proclaim that its operational records are excellent but maintenance records are not? It is not believable. Similarly can any enterprise assert that although its safety performance records are not good but have achieved operational excellence? Not possible.

Friends, it is not either or situation; both are equally important. Therefore, we need to strengthen both Safety Performance records and Operational Integrity; Safety Performance and Maintenance Integrity; Maintain highest Safety standards with uninterrupted Supply Chain. Mangers worth his salt always maintain this. Must not grumble Safety a burden.

Although the number of incidents are gradually coming down but overall trend in Oil & Gas sector in safety performance is yet to attain reasonable satisfaction level. In a particular year, we observe that numbers of incidents are less but next year the same depict upward trend. We need to arrest this.

What is to be done? During my visits and interactions with various individuals across hierarchy, I hear that safety in each of the organizations is given top priority. Meetings start with safety agenda, safety talks & priorities so on and so forth. Dear Readers, allow me to apprise that the posture safety is our priority is perhaps not good enough? Priority of an organization may change; depending upon its business needs. Does it not imply that safety priorities would also change? Safety cannot be a priority. It should be a value. An intrinsic value of an Organization. Priorities change but values do not.

Some of the recent incidents within the country and outside indicate loose managerial control. Perhaps complacency. And lack of knowledge. People take it easy and thus invite unsafe situations. Common senses are not applied. Past experiences are not recalled. Any activity in highly flammable industry like ours is not risk-free. Even commissioning cooling tower which we might think extremely safe or cleaning oily water and sewage drain with high pressure jet. This attitude that such rudimentary activities do not require attention is unacceptable. Thus the safety culture of the enterprise is important. The value it attaches to its core value is paramount. Organizations with strong safety culture ensure no laxity in its system.

During my recent visit to USA as part of USTFDA reverse trade mission team, I probed CEO of M/s Solomon Associates can’t we benchmark safety performance parameters. Pat came the reply success of benchmarking safety performance squarely depend upon how much an organization desires to share.

I got the answer. It obviously relates to Culture of the organization. Its core values.

I strongly believe that Indian Oil & Gas industry is mature enough to share. Once we decide to share the bad news half the battle is won. Let’s ponder. Let’s reflect.

Happy Deepawali.

Hirak Dutta
Major OISD activities during April-September, 2013

External Safety Audits (ESA):

- **IOCL**
  - Foreshore Terminal (FST) Chennai during June 3-6, 2013.
  - POL Depot, Barauni during July 3-5, 2013.
  - POL terminal, Tuticorin during August 8-10, 2013.
  - LPG Bottling plant, Leh during August 12-14, 2013.
  - POL Terminal at Narimanam, Tamilnadu during September 5-7, 2013.

- **ONGC**
  - 2 Production installations, 3 workover rigs, 2 drilling rigs, Ahmedabad Asset during April 29 - May 3, 2013.
  - One drilling rigs for Northern region (Madhya Pradesh) during May 2-3, 2013.
  - 3 Production installations, 1 drilling rig of Agartala Asset during June 3-7, 2013.
  - Jacket (structure) of Offshore platforms, Mumbai during July 15-17, 2013.
  - 4 Production installations, 2 drilling rigs & 2 workover rigs at ONGC’s onshore Asset, Sivasagar (Assam) during July 29-31, 2013.
  - Cambay sub asset (production installations-4, work over rig-1 & drilling rig-1) during September 9-11, 2013.
  - Offshore jack up drilling rigs Sagar Kiran & NCY during September 16-19, 2013.

- **HPCL**
  - POL Terminal, Hasan (Karnataka) during May 9-11, 2013.

- **BPCL**
  - LPG Bottling Plant, Rajkot during April 24-26, 2013.
  - LPG Bottling plant, Bangaluru during August 5-7, 2013.

- **GAIL**

- **CPCL**

- **Oil & Gas Pvt. Ltd.**
  - Drilling rig, Agartala Asset on June 5, 2013.

- **Jubilant Oil & Gas Pvt. Ltd.**
  - Drilling rig of Agartala Asset during June 5, 2013.

External Safety Audit (ESA) – Cross Country Pipeline

- **ONGC**
  - Mumbai-Uran trunk crude oil pipeline (30” Dia., 204 KM) during September 3-7, 2013.

- **GAIL**
  - Vizag-Secunderabad LPG cross country pipeline (576 Km) during September 16-18, 2013.

Pre-commissioning Audit (PCS A):

- **IOCL**
  - Aviation Fuel Station (AFS) Bodhgaya on April 20, 2013.
  - POL depot, Chandrapur (Nagpur) on July 22, 2013 for additional tankage and TLF gantry.
  - HSD tank farm & associated facilities of Mathura refinery on September 14, 2013.
  - Butadiene Unit, Panipat Naphtha Cracker Complex during September 16-17, 2013.

- **HPCL**
  - LPG Bottling Plant Paharpur during May 27-29, 2013
  - LPG Bottling Plant Vizag June 18, 2013
  - POL Terminal Bhatinda on June 21, 2013
  - Additional facilities (POL TLF gantry), Bhatinda on June 21, 2013.
• POL TW loading gantry, Vizag on June 22, 2013.
• 2x650 MT mounded bullets for LPG storage, LPG Plant, Paharpur on May 27, 2013.
• POL terminal, Ennore during August 16-17, 2013.
• DHT & HGU units Vizag Refinery during August 12-13, 2013.

♦ ONGC-MRPL
• ONGC-MRPL’s Petrochemical plant (OMPL), Mangalore during August 2-3, 2013.
• Offshore jack up drilling rigs Sagar Kiran & NCY during September 16-19, 2013.

♦ BPCL
• NHT/CCR unit of BPCL’s Mumbai refinery on May 31, 2013.

♦ ISRL
• Emulsion Styrene Butadiene Rubber Unit (ESBR) at ISRL (Joint Venture of IOCL, TSRC-Taiwan & Marubeni) Panipat during September 24-25, 2013.

Pre-commissioning Audit (PCSA) – Cross Country Pipelines

♦ IOCL
• LPG plant, Aligarh during June 11-13, 2013.
• Integrated offshore crude handling facility (second header piping and pigging facilities) at Paradeep during July 22-23, 2013.

♦ HPCL
• LPG transfer line (8" dia., 2.65 Km long) from ONGC-Hazira to HPCL bottling plant during May 15-16, 2013.
• Multi product pipelines (6.5 KM of 24" dia. and 5 KM of 4" dia) from jetty to Vizag refinery on June 19, 2013.

♦ BPCL
• Malarna intermediate pump station for Kota-Piyala augmentation project, Mumbai-Manmad-Bijwasan product pipelines on June 24, 2013.

♦ GAIL
• Kochi-Kottanad-Bangaluru-Mangalore NG pipeline (spur line 41.5 Km in Kochi area) during July 24-26, 2013

Surprise Safety Audit (SSA):

♦ IOCL
• POL Depot, Ranchi during May 2-3 May, 2013
• LPG Bottling Plant Cherlapalli during May 16-17, 2013

♦ ONGC
• Chartered drilling rig Discovery-I on May 14, 2013.

♦ HPCL
• LPG Bottling Plant, Bhatinda during April 16-17, 2013.
• LPG Bottling plant, Jatni during August 20-21, 2013.
• LPG Bottling Plant at Hazariwadi, Maharashtra during September 4-5, 2013.

♦ BPCL
• LPG Bottling Plant, Cherlapalli (Hyderabad) during April 30 & May 1, 2013.
• LPG Bottling Plant, Phyla (Faridabad) during May 7-8, 2013.
• POL Depot, Najibabad (UP) on May 11, 2013.
• POL TOP Rajbandh (WB) on May 30, 2013.
• LPG Bottling Plant, Jind during July 10-11, 2013.
• LPG Bottling plant, Jalgaon during August 22-23, 2013.
• LPG Bottling Plant at Hisar during September 12-13, 2013.

Special Safety Audit (SSA):

♦ IOCL
• POL Depot Vizag on April 30, 2013.
• POL Depot, Ranchi during May 2-3, 2013.
• POL Depot, Haldwani on August 10, 2013.
• POL Depot, Ambala on August 14, 2013.

♦ BPCL
• POL Depot Jalandhar on April 20, 2013.
• POL Terminal, Haldia on April 22, 2013.
• POL Depot Vizag on April 29, 2013.
• LPG bottling Plant, Durgapur (West Bengal) during May 23-24, 2013.
• POL Terminal Mathura on June 7, 2013.
• POL Depot Jatni (Orissa) during June 5-6, 2013.
• POL Depot Bhatinda on June 22, 2013
• POL terminal, Devangunthi (Karnataka) on July 8, 2013.
• POL terminal, Tondiarpet (Chennai) on July 13, 2013.
• POL Depot, Hisar on August 31, 2013.
• POL Depot, Tirunelveli, Tamilnadu on September 20, 2013.

♦ HPCL
• POL Terminal, Haldia on April 23, 2013.
• POL Terminal Mathura on June 8, 2013.
• POL Depot, Tirunelveli, Tamilnadu on September 21, 2013.
Special Safety Audit (SSA) – Cross Country Pipeline:
- Jetty & Dock lines of OMC's & CPCL at Chennai to assess the compliance of safety and other related issues in Manali area during August 22-24, 2013 by a Committee nominated by ED-OISD. Samples were collected from bore wells and some Diesel contamination observed in some wells.

Consent accorded to operate:

- **ONGC**
  - Offshore process platform B-193 with associated pipelines & well platforms and BGEPIL’s New fixed offshore wellhead platform on June 11, 2013.
  - Well platforms B-192-1, B-192-5, B-192-8 & WO-24 (cluster-7 well platform project), and well platforms WO-5 & B-119/121 (cluster-16 well platform project), MH Asset, on June 28, 2013.
  - Offshore drilling rig (DP drillship) "GSF Explorer" on July 4, 2013.
  - Offshore drilling rig (DP drillship) "DD-KG-1" of RIL on July 16, 2013.
  - Offshore well platform "SB-14" on September 28, 2013.

- **IOCL**

- **BORL**
  - SPM, Vadinar on May 24, 2013.

Review Meetings:
- Secretary, P&NG reviewed status on implementation of MB Lal recommendations with OISD on May 22, 2013.
- Secretary, P&NG reviewed status on OISD 116 & 117 / Equivalent system to Hollow metallic rim seal fire protection with OISD on May 22, 2013.
- Secretary, P&NG took a meeting on Oil Industry Contingency Plan (OICP) on June 27, 2013; the meeting was attended by representatives of Oil Industry and OISD.
- Addl. Secretary, P&NG reviewed status on implementation of MB Lal recommendations with Industry members & OISD on July 2, 2013.
- Secretary, P&NG convened a meeting on Safety Zone around offshore installations on July 9, 2013; the meeting was attended by representatives from Navy, Ministry of Defence, ONGC and OISD.
- ED-OISD attended the meeting of Consultative Committee on Hindi Implementation at Pudducherry on July 23, 2013.
- Draft Bill for providing Statutory Powers to OISD was presented to Addl. Secretary, MoP&NG on July 31, 2013; series of meetings held on the subject.
- Modified version of Draft Bill for providing Statutory Powers to OISD was reviewed by Addl. Secretary on September 26, 2013.
- ED-OISD attended Parliamentary Standing Committee meeting at Jaipur on June 21, 2013.

Knowledge sharing by OISD officials:
- ED-OISD addressed operational heads of BPCL on “Ignoring Warning Signals & its Consequences” at Maneshwar on June 20, 2013.
- ED-OISD addressed Senior Executives of HPCL at Pune on August 8, 2013.
- ED-OISD chaired a session and addressed delegates in plenary session on Safety Issues in Hydrocarbon Sector in 3rd Asia-Pacific HSE Conference at Kuala Lumpur on August 26, 2013.
- ED-OISD addressed delegates in OSH India, 2013 Conference organized by UBM at Mumbai on September 17, 2013.
- ED addressed delegates in Global HSE Conference organized by Cairn India on critical issues in Process Safety Management on September 27, 2013.
- Addl. Director (Env.) presented a paper on "Petroleum Industry Experience in Occupational Safety & Health" on September 25, 2013 in OS&H Conference organized by SCOPE for CPSE's.
- Addl. Directors (Asset Integrity & PL) presented paper in prestigious CONCOR conference at New-Delhi.

Seminars / Programs:
- DGMS Conference on “Safety in Mines” was attended by Shri Tarsem Singh, Addl. Director on July 4, 2013.
- Mr. Shashi Vardhan, Addl. Director attended Core Group Meeting of Experts on Monitoring and Prevention of Chemical Industrial Disasters and made a presentation at NDMC, New Delhi on 13th June, 2013.
- ED-OISD attended the USTDA Conference at USA from May 13-18, 2013 along with other senior executives from oil companies.
- World Environment Day was celebrated at OISD on June 5, 2013. Presentation on sustainable development was made by external faculty and slogan & essay competition was organised for employees.
- Hon’ble Minister, P&NG & Minister of State, P&NG presented the OISD Safety Awards on July 19, 2013 in a function at Hotel Le-Meridien, New Delhi to winners under various categories including individuals for their outstanding contribution towards safety.
Meetings & Presentations at OISD:

- Mr Andrew A. East, Director, HMT Rubbaglass Ltd., UK made a presentation on May 24, 2013 on “Floating roof storage tank design and compliance with EPA requirements”.
- Meeting with IADC (International Association of Drilling Contractors) representatives held on June 13, 2013 at OISD on Drilling related issues.
- Institute of Engg. & Ocean Technology (IEOT), ONGC, Panvel made a presentation on methodologies of Risk & Reliability Studies on June 27, 2013.
- OISD & CCPS meeting held at OISD, Noida on July 16, 2013 to firm up the plans in the mutually identified areas of collaboration between the two knowledge partners.
- Representatives of OMC made a presentation on Emergency Response Centre to OISD on July 25, 2013.
- Series of meetings held with Dr. T.K. Joshi, GAIL, IOCL, ONGC, OIL and others regarding finalization of programme on Occupational & Environmental Health Conference planned during December 13-14, 2013.
- Deputy Director (Implementation), Dept. of Official Language (regional implementation), Ghaziabad visited OISD for inspection of Hindi Implementation in office on August 13, 2013.

Others:

- Technical Committee meeting held on May 4, 2013 at CBRI, Roorkee on evaluation of equivalent Rim Seal Fire Detection and Protection System for Class-A External floating roof tanks. Recommendation firmed up and would be submitted to Ministry within weeks’ time.
- Functional committee meeting for preparation of safety standard on Lube Plants held on May 14, 2013.
- Functional Committee meeting for revision of OISD Standard (OISD-RP-180) on “Demick Floor Operations (onshore drilling/ work over rig)” held on May 27, 2013.
- Functional Committee meeting for preparation of safety standard on “Sustained Casing Pressure Management in Onland Wells” held on May 31, 2013.
- Functional committee meeting for revision of OISD-DGDN-202 “Inspection of drilling & work-over rig mast and substructure held on June 11, 2013.
- ED-OISD held discussions with CCEO, PESO, Nagpur on August 8, 2013.
- Functional Committee meeting of OISD Standard on safety of Lube & Grease Manufacturing plants held during August 20-21, 2013.
- M/s ED-OISD & Director (Process) met Addl. Solicitor General, Tamilnadu on August 22, 2013 to clarify issues regarding reported contamination of bore well water in Chennai; review meetings conducted with IOCL, BPCL and CPCL on the topic.
- Deloitte presented draft report for phase-III study to OISD Directors on September 20, 2013; revised version post presentation reviewed on September 25, 2013, final draft for phase-III is awaited.

The total installed capacity for electricity generation in the country has gone up from 16,271 MW (1971) to 236,387 MW (2012) – CAGR 6.6%.

Thermal power plants accounted for 66%, hydro power plants 16.5% and nuclear 2.02% of the total installed capacity.

Of the total electricity sales, Industry Sector accounted for 44.84%; domestic 22.01%; agriculture 17.34% and commercial sector 8.97% (2011-12).

Within the Industry Sector, most energy intensive industries are Iron & Steel around 21.4%; construction around 9.2%; chemical & petrochemicals 4.4%.

Annual CO₂ emissions (in ‘000 tons) of countries like China, USA, India, Russia and Japan for 2011 were estimated at 9.7, 5.4, 1.97, 1.83 and 1.24 respectively.
Oil Industry Safety Awards FY 2011-12

In a glittering function organized by Oil Industry Safety Directorate, the Oil Industry Safety Awards for FY 2011-12 were presented by Dr. M. Veerappa Moily, Hon’ble Union Minister of Petroleum & Natural Gas, Smt. Lakshmi Panabaka, Hon’ble Minister of State for Petroleum and Natural Gas, to the award winning Companies. Shri Vivek Rae, Secretary, Petroleum & Natural Gas presided over the function. Other dignitaries present during the ceremony included CEOs of awards winning Oil and Gas Organization’s, senior representatives from entire Oil & Gas Sector and team OISD.

The programme started with the Lighting of Lamp by the Hon’ble Ministers, Secretary, Petroleum & Natural Gas and ED, OISD. This was followed by Panchavadyam, the traditional Indian Drum. The highlights of the programme included presentation of ISO 9001:2008 certificate to OISD by Hon’ble Union Minister of Petroleum and Natural Gas, Dr. Veerappa Moily.

Dr. Veerappa Molly, in his speech, while congratulating the ‘Award Winners’ said that safety must be looked upon as a value inherent to every part of individual company’s operation. Our main focus should be on creating a safe work environment in the Oil and Gas industry with an underlying commitment to create an incident and injury-free work environment in the entire Oil & Gas Industry in India. MOP&NG constituted Oil Industry Safety Directorate (OISD) in 1986 to enhance safety in Oil & Gas Industry. Oil Industry has immensely benefited from the OISD standards and safety audits carried out by OISD, he reiterated.

Hon’ble Minister further mentioned that Oil & Gas Industry of our country, which today has become a hub of opportunities spread across all business segments in India, has been making useful and significant contributions in this regard by ensuring supply of energy at affordable prices to every nook and corner of this vast country on round the clock basis. While underlining the importance of the Oil & Gas Industry in keeping the wheels of nation moving on round the clock basis (24X7), the minister laid special emphasis on the need for the Industry for adopting the best Safety Practices.

Smt. Panabaka Lakshmi, Minister of State for Petroleum & Natural Gas, while speaking on the occasion, urged upon the Industry to not only safeguard lives and equipment within the confines of boundary limits of their respective installations but also ensure that there are no hazards posed to nearby surroundings, environment and society at large. She urged upon the Industry leaders to meticulously assess the effectiveness of existing safety system in totality and initiate measures to further enhance safety levels.

Shri Vivek Rae, Secretary, P&NG, while dwelling upon the need to drive excellence in safety, went on to urge the Industry members to aim and achieve the goal of Zero incidents of fire and accidents in the entire Oil & Gas Industry. While emphasizing upon the importance of safety he stated that safety is never negotiable and it can be never compromised. Shri Rae quoting from Aristotle, the Greek philosopher on Excellence advised industry members to aim for consistent superior level of performance. He went on to add that the process of according statutory status on OISD for entire Oil & Gas Industry in India is being actively pursued by Ministry.

Earlier while welcoming the dignitaries, Shri Hirak Dutta, Executive Director, OISD mentioned that this month is the 25th anniversary of Piper Alpha disaster that killed 167 people. We must learn from all such incidents and ensure that mistakes are not repeated. He also mentioned that OISD regularly publishes Live Case Studies on various incidents of oil & gas industry which must be referred to and learnings / recommendations from the incidents are implemented to avoid recurrence. Mr. Dutta while congratulating...
the award winning organizations mentioned that we will have to travel quite-a-distance and work with dedication and passion to achieve the target of NIL incidents in oil & gas industry.

Sixteen (16) numbers of 'Oil Industry Safety Awards' were presented for the year 2011-12 to the oil industry organizations. OISD safety awards also include Individual Awards to the employees & contract workmen who have made significant contribution to enhance safety. For the first time OISD awards were given to the organization reporting highest number of near-miss incidents.

The programme concluded with the “Vote of Thanks” proposed by Shri S.L. Chakraborty, Director (Process & Engg.), OISD who thanked the Hon'ble Ministers and Secretary for not only being present during the occasion but also lauding the efforts of OISD and Oil Industry in enhancing safety in the industry.

### Safety Award Winners for the Performance year 2011-12

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Group</th>
<th>Unit Basis</th>
<th>Award winners</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Oil &amp; Gas Assets (On shore)</td>
<td>On shore assets</td>
<td>ONGC-Rajamundry</td>
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<tr>
<td>2.</td>
<td>Offshore Production Platforms</td>
<td>Production Platform - Pvt/JV companies</td>
<td>BG-Panna</td>
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<tr>
<td>3.</td>
<td>Refineries</td>
<td>Refinery</td>
<td>IOCL-BGR</td>
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<tr>
<td>4.</td>
<td>Other Processing Plants</td>
<td>Processing Plant</td>
<td>GAIL-Lakwa</td>
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<tr>
<td>5.</td>
<td>Cross Country Pipelines</td>
<td>Crude Oil Pipeline</td>
<td>Cairn Barmer-Salaya</td>
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<tr>
<td>6.</td>
<td></td>
<td>Product Pipeline</td>
<td>HPCL-Mundra-Delhi</td>
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<tr>
<td>7.</td>
<td></td>
<td>LPG &amp; Gas Pipeline</td>
<td>GAIL-HVJ</td>
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<tr>
<td>8.</td>
<td>POL Marketing Organisations</td>
<td>Oil Marketing Company - POL</td>
<td>HPCL</td>
</tr>
<tr>
<td>9.</td>
<td>LPG Marketing Organisations</td>
<td>Oil Marketing Company - LPG</td>
<td>BPCL</td>
</tr>
<tr>
<td>10.</td>
<td>Most consistent Performer</td>
<td>Onshore Oil &amp; Gas asset</td>
<td>ONGC - Rajamundry</td>
</tr>
<tr>
<td>11.</td>
<td>Best Near-Miss Incident</td>
<td>Refinery</td>
<td>Essar Oil Refinery Ltd.</td>
</tr>
<tr>
<td>12.</td>
<td>Marketing Operations</td>
<td>Individual: (Company/ Contract Employee)</td>
<td>BPCL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2. Shri B.N. Malleswara Rao, Field Operator, HPCL-Visakh Refinery</td>
</tr>
</tbody>
</table>
1. THE INCIDENT:

FCC Unit flare KOD draining into open channel led to a Major fire incident in a Refinery recently.

In the beginning of night shift, the shift operators went for field round in Gas Concentration Unit (GCU) section of FCC. One of the operators started draining the liquid content from the unit flare Knock Out Drum (KOD) through a 2” dia. drain line. After 10 to 15 minutes time, suddenly at ~11:00 PM, fire erupted around the area of draining which subsequently engulfed the entire area including numbers of pumps, nearby OWS (Oily Water System)/Close Blow Down Catch Basin) as well as instrumentation & electrical cables. Flame height was more than 10–15 meter from the grade level.

Considering the seriousness of the incident, disaster management plan was actuated immediately and fire was extinguished within 15 minutes. After ensuring no re-ignition, all clear siren was sounded after one hour and fifteen minutes from the fire incident time.

Electric power cables to the motors, instrumentation cables, pumps and instruments in the fire zone got burnt / damaged due to fire. One employee received severe burn injury.

As a precautionary measure, FCCU unit was shut down immediately.

As per the subsequent communication the employee succumbed to the burn injury after 9 days. It was also gathered that unit was not fully stable on the date of incident, as the unit startup was in progress since a day prior to the fire incident date.

2. OBSERVATIONS

- As per the process, the uncondensed gases (comprising of lean gas, LPG and unstabilised naphtha) from the receiver drum, of main fractionator’s overhead system is compressed by two stage WGC (wet gas compressors) and successively cooled in Air fin coolers and trim coolers. The condensed liquid (unstabilised gasoline) along with uncondensed gas is received in the High Pressure (HP) Receiver.

- The unstabilised gasoline from the HP receiver is transferred to the Stripper column, by the dedicated transfer pump, for further processing. The other stand-by transfer pump, is a common spare for transferring the liquid both from HP receiver and Primary absorber column, which is having a separate dedicated pump.

- On the date of fire incident, in the evening shift, FCCU was in unsteady in operation.

- At around 09:00 PM on that day, the pump, which was taking suction from HP receiver tripped. Operating people tried to start the other standby pump, but, it did not take start. As the standby pump did not take start, the earlier pump was restarted from Substation after resetting by electrical technician at around 09:25 PM.

- As a result of pump tripping, the level of HP receiver, whose operating pressure is 14.4 kg/sq.cm.g, started increasing from around 38% at 09:10 PM to 100% at 09:17 PM. To control the increase in level in the HP receiver, the throughput of the unit was temporarily reduced. However, the increasing in level had gone beyond 100 % resulting in popping up of Safety Valve of the HP separator.

- PSV popping got reflected in the in the DCS Panel; but since there was no Pressure Transmitter (PT) in the HP receiver, the fluctuation in HP separator pressure went un-noticed. The released material through PSV (which floats with flare K.O. vessel) of HP receiver is flared to flare K.O. drum of FCCU located inside the unit operating pressure: 1.1 kg/sq.cm.g), from where lighter hydro carbon gases go to main flare header. Facilities exist to heat the KOD condensate material by low pressure steam.

- As per the design provision KOD contents are to be routed to CBD but since lines to CBD for the last many years were defunct, liquid was drained to OWS; an unsafe act and not acceptable as per norms. Currently, provision exists to drain the accumulated liquid only to OWS instead of draining to CBD (Closed Blow Down) system as it is not maintained/defunct.

- At around 10:45 PM, the night shift field operator started draining from the KOD. Draining was kept continued, as liquid was coming continuously. The liquid drained from KOD comprise low boiling lean gas, LPG and unstabilised naphtha component etc., it started evaporating and formed vapour cloud around the area.

- The furnace (FCCU) is located at a distance of only 5 meters from OWS drain against the OS&D norm of 15 meter. Thus it (the source of ignition) is in very proximity to the area where the liquid from KOD is drained; vapour cloud formed due to draining of KOD material in OWS & resulted in explosion and flash fire.

3. ROOT CAUSE ANALYSIS OF THE INCIDENT:

- Facility has been provided in design for draining condensate/lighter material from the Flare KOD to CBD which is kept dis-functional since last few years. It is not permissible to drain KOD material directly to OWS due to safety reasons.

- Draining of low boiling liquid containing LPG and naphtha component in the open drain connected with OWS manhole is the main cause of fire. The vapour cloud which formed from the drained liquid migrated towards the nearby Feed Preheater and caused fire. The liquid collected in the KOD should always be routed to closed blow down system or slop system and not to open drain.
The dedicated transfer pump, was having occasional starting problem particularly during change over schedule. The problem of any critical pumps/system should be analysed and corrective action taken promptly to prevent any unexpected failure of the system. In the extant case failure of pump led to high level in HP separator and consequential popping of PSV that led to high level in KOD.

Lapses:
- Draining liquid from KOD into open channel instead to CBD system.
- Not rectifying defunct CBD lines from KOD since last few years.
- Non-rectification of electrical problem associated with spare pump which was identified two months back.
- Improper location of Hydrocarbon detector.
- Gap in communication.

4. LEARNINGS FROM THE INCIDENT:
1. Liquids from KOD should be routed to the Closed Blow Down system (CBD) as per OISD STD 106 and never to open drain / OWS.
2. Hazop study / MOC should be carried out for all Modification / critical Operations & implement the safety measures to prevent recurrence.
3. The transfer pump is a common spare for transferring the unstabilised gasoline from HP receiver, and rich gasoline from the bottom of Primary Absorber. Considering the criticality of the operation, providing independent pumps (one running + one standby) for both the system for continuous uninterrupted operation of the unit, may be looked into.
4. The present OWS manholes are very near to the process Feed Preheater. The separation distance is 5 M (approx.) as against the requirement of 15 M. The manholes should be immediately sealed in line with OISD STD 106 and 111. The displaced OWS vent lines should be repaired to prevent escape of vapour from the base of damaged portion of the pipe.
5. Immediate restoration of CBD facility must be taken up.
6. The HCD should be located close to the source of draining point for prompt early warning.
7. Decongestion of the area surrounding the KOD is required by removing the redundant facilities such as DM water tank and pumps along with allied facilities needs to be removed to provide more space around the furnace area.
8. Coordination between field operator, panel and shift in charges must be strengthened for safe operation of the plant. Draining of KOD in night shift need to be carried out carefully in close coordination.
9. Provision of PT on the HP receiver with pressure indication and alarm in DCS panel should be available for taking quick action during any plant interruption.
Corrosion Threats to Refineries and Some Good Practices to Mitigate Them

INTRODUCTION
Recently, a number of catastrophic accidents took place in some refineries in India and abroad because of pipeline / equipment failure due to corrosion. This has lowered the confidence level of refinery people and spoiled the reputation of the organisation. Corrosion is a major integrity threat to many oil and gas assets. Corrosion is very expensive. An effective corrosion management programme and good industry practices to identify, monitor, and mitigate corrosion problem will help preventing corrosion accidents in refineries. Corrosion prone 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 corrosion failures and accidents, inspection recommendations should never be neglected.

SIZE OF THE HYDROCARBON INDUSTRY IN INDIA
Total installed refining capacity : ~ 194 MMTPA
Oil production capacity : ~ 38 MMTPA
Gas production capacity : ~ 130 MMSCMD
Gas Pipeline : ~ 14,000 km
Volume of POL handling : ~ 145 MMTPA
Crude & Product pipeline : ~ 26,000 km
(Note: POL: Petroleum Oil and Lubricant, MMSCMD: Million Metric Standard Cubic Meters per Day)

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 spilled boiling hydrocarbons that created a vapour cloud and major fire.

Root cause of the incident-
• Poor Asset Integrity – No inspection of the pipe and 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.

Figures 1 and 2 - Chevron Refinery fire
corrosion along the weld joint.
- 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.

**SELECTED VERY HIGH CONSEQUENCE CORROSION RELATED ACCIDENTS**

<table>
<thead>
<tr>
<th>Country</th>
<th>Year</th>
<th>Accidents</th>
</tr>
</thead>
<tbody>
<tr>
<td>United Kingdom</td>
<td>2000</td>
<td>BP Grangemouth – Failure of 3 inch diameter branch pipe on transfer line between fractionator columns of FCCU recovery section. Loss of containment of approximately 11.5 Tonnes of flammable hydrocarbon at elevated temperature.</td>
</tr>
<tr>
<td>USA</td>
<td>2000</td>
<td>Citgo Lemont, IL – Distillation column structural failure due to corrosion &amp; fire incident. The CDU was shut down for six months.</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>2001</td>
<td>Conoco Humber Refinery – Piping failure due to external corrosion in Saturate Gas Plant. Refinery was shut down for several weeks.</td>
</tr>
<tr>
<td>Japan</td>
<td>2002</td>
<td>Tomakomi, Hokkaido – Fin fan cooler tube failure in Desulphurisation unit due to corrosion caused major fire. Evacuation of 10 surrounding companies.</td>
</tr>
<tr>
<td>France</td>
<td>2004</td>
<td>Heater tube rupture in Desulphurisation unit due to corrosion. Major fire. The economic consequences are estimated to be about 28 million Euros.</td>
</tr>
<tr>
<td>USA</td>
<td>2005</td>
<td>BP Texas City – Failure of old and corroded blow drum relief system due to poor inspection and maintenance procedures. 15 people killed, 180 injured. Significant onsite and offsite property damage. Estimated loss $ 1.5 billion.</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>2007</td>
<td>Pipe failure due to corrosion under insulation in the isomerisation unit. Huge loss for the repair job.</td>
</tr>
<tr>
<td>India</td>
<td>2011</td>
<td>Hydrocracker Unit of a Refinery – Failure of pipe due to ammonium bisulphide corrosion. Major fire and huge loss.</td>
</tr>
<tr>
<td>India</td>
<td>2012</td>
<td>Rupture of 14 inch diameter offsite HSD pipe due to significant external corrosion and pressure surge in the pipeline in a Refinery. Major fire. Three contractor’s person working nearby died.</td>
</tr>
</tbody>
</table>

All the above accidents do not take place all of a sudden. The plants provide a lot of indications prior to the accidents. We do not receive the signals in time, tend to follow a reactive approach to incidents and seldom learn from past mistakes and errors. Therefore, accidents recur.

Mitigation of corrosion problems is one of the biggest challenges in the petroleum refining industry. An effective corrosion management programme including the detection and mitigation of the corrosion problems is a must to achieve productivity, operational reliability and safety.

**SOME OF THE GOOD INDUSTRY PRACTICES TO MITIGATE CORROSION THREATS**

Apart from the conventional corrosion detection, monitoring and mitigation practices in refineries, some of the good practices which help in fighting refinery corrosion problems and avoid leakages and accidents 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.
A structured framework for corrosion management is shown below. This model can be applied to the oil and gas industry. 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 sub-surface crack, pitting and any kinds of metal loss over the floor.
The advantages of LFET include:
- 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.
- Topsides and Bottomside 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 include:
- 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 long guided ultrasonic waves to inspect a length of piping. It locates the affected area in terms of distance from the transducer and serves as a screening tool to inspect large lengths of piping especially at difficult to access locations.
The advantages of LRUT include:
- 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 offshore piping in inaccessible areas under culverts, dykes.

d) Acoustic Emission Testing (AET): AETs are 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 include:
- Health, Safety, Integrity & Corrosion Issues
- Clear Policies & Objectives
- Organisational Structure & Responsibilities
- Planning Procedures & Implementation
- Measure System Performance
- Review System Performance
- Getting it Right
- Reports used to achieve improvements
- Reviews used to provide correction
- Meeting the control criteria?
- Independent Audit

Figure 5 - Structured Framework for Corrosion Management
- 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.

f) 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.

g) 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 pitting corrosion cracking.
- Metallurgy upgrades of piping and equipment as per requirement to combat corrosion.

- 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 inspection techniques and an effective corrosion management system discussed above would ensure that the operators identify corrosion and its impact on failure due to corrosion. 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
3) Corrosion Accidents in Refineries by Maureen Harty Word, JRC European Commission (page no. 4).

Figure 6 - The different stages of composite repair
OISD bids fond Adieu:
Anup Walia & Chanakya Sharma

OISDians bid farewell to two of its long associates S/Shri Anup Walia, Director (Exploration & Production) and Chanakya Sharma, Additional Director, Pipelines.

Shri Walia a hardcore E&P expert made immense contribution in providing directions to various activities pertaining to exploration and production operations both in offshore and onshore areas. During his tenure OISD was given the added responsibility of Regulator in E&P Offshore area; to act as competent authority to exercise powers and functions as stipulated in Petroleum & Natural Gas (Safety in Offshore Operations) Rules, 2008 to regulate and enhance safety in offshore operations. Towards minimizing incidents and to share the learnings, Shri Walia regularly published Safety Alerts on E&P activities which are very well appreciated by the Industry members.

Entire OISDians looked up to Shri Anup Walia – a matured, well read and highly professional executive for his advice and guidance in all spheres of OISD activities for enhancing safety.

Shri Walia has always been candid and was never scared to call spade a spade. His one point agenda was to enhance safety in E&P operations. Shri Walia was the first person responsible for preparing the draft bill for providing Statutory Status to OISD which is under active consideration of Ministry.

Shri Chanakya Sharma through his devotion and knowledge made a great impact in carrying out audits of pipeline installations including development of safety standards in cross-country pipelines. Being Territorial Army personnel, he was self-disciplined and maintained high standards of work ethics in all his transactions.

Simple yet firm with an eye for nitty-gritties, our Chanakya was a great team member who was adored by everyone in the industry. OISDians wish them a very meaningful and fruitful second innings and success in all their future endeavors.
News in Brief

SK Bagchi’s paper adjudged the Best in CORCON-2013
Shri S.K. Bagchi, Addl. Director (Asset Integrity), presented a technical paper authored by him on “Corrosion Threats to Refineries and Some Good practices to Mitigate Them” in the conference. A technical committee evaluated all technical papers and presented awards for the best paper during the valedictory function. Shri Bagchi’s paper has been adjudged as the best paper in the symposium of “Corrosion in Refineries, Petrochemicals, Chemicals and Fertilizer Industries” at CORCON 2013. Total 180 technical papers were presented in this conference covering wide range of topics on corrosion. CORCON-2013 organized by NACE International Gateway India Section was held at Delhi from 30th September 2013 to 3rd October 2013. The conference was attended by delegates, supporters and exhibitors from all over the world.

Congratulations! Danny entrusted with higher responsibility
Shri Ralph David Danny, Superintendent Engineer Production, ONGC has been elevated to the rank of Chief Production Engineer recently. Shri Danny joined ONGC as Assistant Executive Engineer in 1992 at Central Processing Custody, Gandhar, Gujarat.

We wish Mr. Danny all the best in his future journey.

OISD to organize seminars on E&P Marketing and Occupational & Environmental Health
As part of our agenda to share and propagate knowledge in the field of Safety Management, OISD is planning to organize three consecutive workshops/seminars during the period November, 2013 till January, 2014.

The first program on Exploration and Production titled “Well Integrity” is scheduled on 25-26 November, 2013. The program is aimed at providing insights on Well Operations & its Integrity Issues and is expected to provide a platform to the upstream professionals for sharing common concerns and action ideas to achieve well integrity.

The second program titled “Occupational and Environmental Health” is aimed at enhancing understanding on environmental impact on Occupational Health and improving employee performance by maintaining healthy work environment. The program is organized in association with Oil Industry Organizations and Centre for Occupational & Environmental Health during 13-14 December, 2013.

The third program will be held exclusively for Marketing executives titled “Critical Safety Issues in Marketing Operations - Striving for improved performance” on 16th January, 2014. This one day program will bring to surface various issues that are critical to enhancing safety in Marketing Operations.

For more details log on to OISD website www.oisd.gov.in.

OISDians nominated to attend Hindi Conference
With a view to further Rajbhasha activities, three OISDians viz. Suman, Ramesh Chandwani & Phakir Chand Boylla were nominated to attend 25th Hindi Conference organized by Rajbhasha Vikas Mandal during 16-18 Oct, 2013 at Goa.

Earlier, in line with the objective to propagate and increase use of Hindi in day to day activities, OISD organized Hindi Week during 14-21 September, 2013. A number of programmes were organized during the week including Hindi workshop, special talk by Mr. DS Rawat of MoP&NG; competition on Hindi translation, quiz etc.
वर्षों की मेहनत सक्षम नेतृत्व, साथ तेल उद्योग का मंत्रालय का हर पर राजकीय सम्मेलन ही, सम्मान कर पाया है इतना।

विश्वास यही ले आया है, अब और अधिक जिम्मेदारी।

सहर्ष केबुल करता ओआईएसडी इस आवाहन का।

अब समय है कम और काम अधिक,

उम्मीद पे ख़रा उतरने को, अब कमर है कसने की बारी।

विश्वास निवेशालय को है, सहयोग आपका मिलने से।

सम्मान यह भी हो पायेगा, दुःखर से दुःखर हो कितना।
Improvements noted in Marketing Terminals during OISD Audits

- Thermal Insulation of Foam Tanks using Asbestos Sheet
- Medium Expansion Foam Generator
- Demo of Remote Operated 750 gpm HVLR
- Earthing of Dead end Flanges of Pipelines
- Cut drums used for protection of Foam cans- Innovation
- Water Curtain Nozzle Arrangement for Water Blanket of Stray Fires Outside Boundary Wall
PHOTO GALLERY

Review meeting by Hon'ble Minister at MoP&NG

ED-OISD welcomes Dr. Veerappa Moily

Secy., P&NG arriving at Safety Award Ceremony

Presentation of ISO 9001:2008 certification to OISD

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

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