हिन्दी सप्ताह समारोह
(14 से 21 सितंबर 2009)

देश उद्योग सुरक्षा निदेशालय में 14 सितंबर से 21 सितंबर, 2009 तक हिन्दी सप्ताह आयोजित किया गया। इस हिन्दी सप्ताह का शुभारंभ 14 सितंबर 2009 को हुआ जिसमें सर्वश्रेष्ठ श्री जे. श्री. वर्मा, कार्यकारी निदेशक ने “हिन्दी दिवस” के अवसर पर अपने संदेश में कहा कि “14 सितंबर अर्थात भारतीय राष्ट्रीय महत्त्व का दिन है। भारत के संविधान निर्माण ने 14 सितंबर 1949 को हिन्दी को राजभाषा के रूप में स्वीकार किया था। तभी से यह दिन पूरे भारत वर्ष में हिन्दी दिवस के रूप में मनाया जाता है।

हिन्दी भारत में अधिकांश जनता द्वारा बोली और समझी जाती है। हिन्दी सभी भाषा—भाषायों को जोड़ने के लिए संयुक्त भाषा है। हमें आपकी सीमाओं और भाषाओं से हिन्दी का योगदान बढ़ाना है और इससे हमारी राष्ट्रीय एकता मजबूत होगी। हमें अपने स्तर पर रोजाना के काम—काज में अधिक से अधिक हिन्दी का प्रयोग करने पर बल देना होगा।

श्री जे. श्री. वर्मा, कार्यकारी निदेशक
हिन्दी दिवस के अवसर पर संदेश देते हुए।
27th Meeting of Safety Council was held on 18th September, 2009 at Shastri Bhawan, Ministry of Petroleum and Natural Gas, New Delhi and was chaired by Shri R. S. Pandey, Secretary, Petroleum & Natural Gas and Chairman, Safety Council.

Following major points were discussed:

1. Chairman, Safety Council, appreciated the various activities of OISD, which primarily cover PSU Oil and Gas Companies. He, however, expressed the concern about safety issues in the private sector for which OISD lacks statutory status. ED-OISD, however, mentioned about the statutory powers given to it recently for monitoring safety issues in offshore areas.

In order to monitor safety aspects in the Oil and Gas sector properly, he further directed that an approach paper on empowerment of OISD with statutory status should be prepared and submitted.

2. The Council noted the major activities of OISD during 2008-09 under various heads and also plan for 2009-10.

2.1 External Safety Audits (ESAs)

The progress of External Safety Audits in Refineries, Gas Processing Plants, Marketing locations, E&P Onshore & Offshore Installations, Cross Country Pipelines and Pre-commissioning audits of Refineries and Marketing Locations were appraised to members.

The activity plan for the year 2009-10 to carry out ESA of 4 Refineries, 2 Gas Processing Plants, 20 Marketing Installations (including surprise inspections), 55 E&P on land installations, 10 E&P offshore installations, 1600 kms of Cross country...
Pipelines and Surprise Audits of 6 Refineries and Gas Processing Plants were approved by Safety Council.

**Monitoring of External Safety Audit Recommendations**

The progress on implementation of recommendations along with areas of concern of ESA in Refineries, Gas Processing Plants, Marketing Locations, E&P onshore & offshore Installations and Cross Country Pipelines was apprised to the members.

**2.2 Accident Reporting, Investigations and Analysis**

Safety Council members were apprised about the incident trend and detailed analysis of major incidents during the year 2008-09. It was also advised that there had been no fire in Refineries and LPG Installations of Marketing during this period.

**3. Adoption, Ratification and Amendments in OISD Standards**

The safety standards being highly technical in nature & having far reaching implications for the entire Oil & Gas Industry, Secretary, P&NG and Chairman Safety council, decided that the proposal for adoption of new standards, ratification of standards, amendments in OISD Standards should go through review and recommendation by a committee of chairman of three oil marketing companies namely IOC, BPCL & HPCL including other concerned CHs. The committee may also take the help of technical experts. OISD shall make available the entire details and proposal to the committee.

**4. Implementation of Offshore Safety Rules**

It has been informed that OISD has been designated as competent authority to exercise power and functions as stipulated in P&NG (Safety in Offshore operations) Rules, 2008 vide Gazette Notification issued in June, 2008. Subsequent to it, 17 Offshore Installation had been accorded consent to operate. Safety Audits of 7 Offshore Installations including private has been carried out during 2008-09 besides accident investigation at Offshore Rig “Pride Pennsylvania (ONGC)”.

OISD has signed an MOU with MMS of USA for mutual co-operation in regulatory matters, safety, capacity building and knowledge sharing.

**5. Interaction with other Ministry**

As per the decisions taken in previous Safety Council meeting, 44 more standards are identified for inclusion in Petroleum Rules. Petroleum and Explosives Safety Organisation have initiated a process to include these identified standards in Petroleum Rules appropriately.

It was also informed that OISD has discussed similar matter with, Directorate General of Factories Advisory Services & Labour Institute (DGFASLI) under Ministry of Labour for inclusion of OISD standards in the Factory Rules of State Govts. along with recognition to external safety audits carried out by OISD. OISD has also consented to DGFASLI for adopting standards on testing of Storage Tanks containing highly flammable liquids and gases by the State Governments under the provisions of respective Factory Rules.

**6. Participation in International Forums**

OISD has become the 9th member of International Regulatory Forum (IRF) Norway as well as have obtained the membership of the following International Organisations:

- World LP Gas Association, France
- International DME Association (IDA), France
- American Society of Mechanical Engineers (ASME), USA
- National Fire Prevention Association (NFPA), USA

**7. Adoption of Annual Audited Accounts for the year 2008-09**

The annual accounts for the financial year 2008-09 duly audited by CAG empanelled Chartered Accountants were approved by Safety Council.

**8. Budget vis-à-vis Actual for the year 2008-09**

Budget vis-a-vis actual for the year 2008-09 and Revised Budget Estimates for the year 2009-10 & 2010-11 (Revenue & Capital) were approved by Safety Council.

**9. Other items**

The five year incident analysis book for the period 2004-09 titled “Analysis of Major Incidents in Oil & Gas Industry: 2004-09’ was released by Shri S. Sundaresan, Addl. Secretary. The analysis contains the causes, recommendations for prevention and details of major accidents in Exploration & Production (including Private Sector in Offshore), Refining & Gas Processing, Pipeline Transportation, Marketing Installations and Road Transportation of Petroleum products by Oil PSUs.

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**PIPING DESIGN- MUST KNOW**

**Question 1 : Which are the various ASME codes followed for designing piping system?**

**Answer :** Following ASME codes are generally followed for various piping design system:

(i) ASME B 31.1 : Power Piping  
(ii) ASME B 31.2 : Fuel Gas Piping  
(iii) ASME B 31.3 : Process Piping  
(iv) ASME B 31.4 : Pipeline Transportation system for liquid hydrocarbons and other liquids.

(v) ASME B 31.5 : Refrigeration Piping and Heat Transfer components.  
(vi) ASME B 31.8 : Gas Transmission and Distribution Piping System.

**Question 2 : Which are the OISD Standards followed for piping design?**

**Answer :** Following OISD standards are followed while designing piping system:

(i) OISD–STD-116 : For fire fighting piping network within refinery and process plants.

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Shri S. Sundaresan, Additional Secretary, MOP & NG, releasing "Analysis of Major Incidents in Oil & Gas Industry 2004-2009" book prepared by OISD
(ii) OISD-STD-117 : For fire fighting piping within Marketing POL Terminal and Pipeline Terminal.

(iii) OISD-STD-141 : For cross country liquid hydrocarbon pipelines excluding LPG.

(iv) OISD-STD-144 : Piping within LPG Bottling plant.

(v) OISD-STD-179 : Piping for CNG station.

(vi) OISD-STD-214 : For Cross country LPG Pipelines.


Question 3 : Which of the above OISD Standards are Statutory as per various Indian Govt. Rules as on date?

Answer : Following OISD standards are statutory as per Indian Govt. Regulations

(i) OISD – STD-116 : Fire protection facilities for Petroleum Refineries and Oil/Gas Processing plants.

(ii) OISD-STD-117 : Fire protection facilities for Petroleum Depots, Terminal and Pipeline Installations.

(iii) OISD-STD-141 : Design and Construction requirements for Cross Country hydrocarbon pipelines.

(iv) OISD–STD-144 : Piping within LPG Bottling plant operations.

(v) OISD-STD-179 : Safety requirements on compression, Handling and Refueling of Natural Gas in Automotive Sector.

Question 4 : What is the difference between Pipe and Tube?

Answer : (i) The primary difference between pipe and tubing is how the size is designated. Pipe is designated by a “Nominal Pipe Size” based upon the ID (inside diameter) of the most common wall thickness, schedule and grade.

(ii) Pipe can be thick according to formula d/t >10 while tube is generally thin according to this formula. This means if d/t <10, then it can be termed as tube. When ‘d’ is outside diameter and ‘t’ is thickness.

(iii) A tube is used when one needs to transfer heat from its walls while in pipes, one tries to stop the heat transfer such as one uses tubes in boilers because steam needs to transfer the heat while steam is required to be transported, insulated pipes are used because this save heat energy.

(iv) The size of a tube is determined by it’s OD and the thickness. The actual OD of a tube is just the same as it’s nominal OD. A certain size of a tube will keep the same OD no matter what the thickness is. It is true for pipe except that the actual OD is larger than it’s nominal OD. However, for a pipe size of 14” NB and above, the actual OD of a pipe is just the same as it’s nominal OD (outside diameter).

For example, for a 1” schedule 5s pipe, the actual OD is 1.315”, the thickness is 0.065” and the ID is 1.185”. When it’s thickness is schedule xxs (0.358”), then it’s ID is reduced to 0.599”. A 3/4” iron pipe has an OD of 1.050”, while a 3/4” steel tube has an OD of 0.75 inches.

Question 5 : while welding of pipe trunion to pipe / reinforcement pad, a hole or some portion of welding is left – why?

Answer : While welding of pipe trunion to pipe / reinforcement pad, a hole or some portion of welding is left to allow venting of hot gas which gets generated during the welding.

Question 6 : What is the difference between machine bolt and stud bolt?

Answer : Machine bolt has a head on one side and nut on other side while stud bolt have nuts on both sides.

Question 7 : What is SMAW and TIG welding?

Answer : These are called method of welding. SMAW is known as Shielded Metal Arc Welding whereas TIG is known as Tungsten Inert Gas welding.

Question 8 : What is the thumb rule to calculate spanner size for a Bolt?

Answer : It is 1.5 times the diameter of the Bolt

Question 9 : What are the ASME dimensional standards for flanges & fittings?

Answer : In general following ASME standards are used:

(i) ASME B 16.3 : Malleable Iron Threaded Fitting : Class 150 and 300.

(ii) ASME B 16.5 : Pipe flanges and Flange fittings NPS ½ to NPS 24.

(iii) ASME B 16.9 : Factory made wrought Butt Welding Fittings.

(iv) ASME B 16.11 : Forged Fittings, Socket- Welding and Threaded.

(v) ASME B 16.25 : Butt welding fittings.

(vi) ASME B 16.36 : Orifice Flanges

Question 10 : In which location Eccentric reducers and Concentric reducers are used?

Answer : Generally Eccentric reducers are used in pump suction and Concentric reducers are used in pump discharge and vertical piping.

............... TO BE CONTINUED.......KEEP A WATCH
Following document / standard were hoisted on OISD WEB SITE http://www.oisd.gov.in for comments / views from public, professionals, bodies etc. be sent to OISD as per details given below:

<table>
<thead>
<tr>
<th>Document No.</th>
<th>Subject</th>
<th>Comments to be sent to</th>
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<tbody>
<tr>
<td>—</td>
<td>Draft guidance note to “Petroleum and Natural Gas (Safety in Offshore Operations) Rules, 2008”.</td>
<td><a href="mailto:anup.walia@gov.in">anup.walia@gov.in</a></td>
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<tr>
<td>OISD-STD-189</td>
<td>Fire protection system for onshore drilling rigs, workover rigs &amp; oil / gas production installations.</td>
<td><a href="mailto:anup.walia@gov.in">anup.walia@gov.in</a></td>
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DRAFT OISD STANDARD HOISTED ON OISD WEB SITE FOR PUBLIC COMMENTS.

**WORKSHOP ON OFFSHORE SAFETY ORGANISED BY OISD IN ASSOCIATION WITH MMS, USA**

A WORKSHOP ON “OFFSHORE SAFETY” WILL BE HELD DURING 25th TO 26th FEBRUARY 2010 AT NEW DELHI IN ASSOCIATION WITH MINERALS MANAGEMENT SERVICE (MMS), DEPARTMENT OF THE INTERIOR, USA. FOCUS OF THE WORKSHOP WOULD BE BRINGING OUT CRITICAL SAFETY ISSUES RELATED TO DEEP WATER EXPLORATION AND PRODUCTION OPERATIONS. THREE EXPERTS FROM MMS WILL PROVIDE INPUTS ON THE PREVAILING INTERNATIONAL PRACTICES, ESPECIALLY IN THE GULF OF MEXICO, USA.

BESIDES THE ABOVE, THE WORKSHOP WILL ADDRESS ISSUES OF THE INDUSTRY RELATED TO OFFSHORE SAFETY RULES BEING ADMINISTERED BY OISD.

**SAFETY ALERT**

**TANK OVERPRESSURE ISSUE**

**The Incident**

- A large Fuel Oil storage tank was made ready to receive product.
- Just after opening the tank-side valve, the operator noticed that the tank was expanding and was started lifting from its base.
- As the tank landed back, the shell to floor weld failed in one quadrant of the tank, releasing 25 Kl of oil & water.
- There were no casualties but damage to the tank and associated equipment was significant.

**Cause of the Incident**

The probable cause was the huge pressure rise associated with the confined evaporation of hot water, followed by rapid condensation, as follows:

- There was a substantial amount of free water in the oil, both in the tank and the pipe line transferring product into the tank.
- Steam heating had been applied on the pipeline for a considerable amount of time which heated the water/product mix to over 100°C in places.
- When the inlet valve of the storage tank was opened the hot water rushed into the tank and evaporated very rapidly.
- There was an increase by 1600 times in volume from water to steam. These huge volume of steam virtually not able to pass through the tank’s vents, leading to swelling of the shell.
- Damage to the tank indicate that the tank was then sucked back due to a rapid pressure drop when the steam cooled rapidly and condensed back to water.

**Lesson Learnt**

- One must and regularly check for accumulation of water in oils.
- Degree of heating on pipelines, must be limited and controlled to keep it below 100°C.
- It should be ensured that operating personnel be trained to understand the hazards of steam, especially the potential for rapid pressure increase when water evaporates rapidly in a vessel and the rapid pressure drop when steam condenses.

**IMPORTANT FACT TO KNOW**

*Damaged Tank*  

At 100°C, 1 barrel of water evaporates to 1600 barrels of Steam

**Source:** Process Safety Forum

**Damaged to vent and roof**
SAFETY ALERT
BLAST IN NATURAL GAS PIPELINES

INCIDENT:
1. A Blast occurred in a Natural Gas trunk pipeline delivering natural gas to three cities abroad. The Gas was flowing through a 32" (820 mm) diameter pipeline. The blast followed by fire formed a crater of 4 meters deep and with a diameter of 12 meters. The pipeline had had its last technical inspection in 2005. After the checkup, the company owning and operating the pipeline declared the pipeline to be in a good state and ruled out any explosion.

CAUSE OF THE INCIDENT: Experts said the explosion had been caused either by a poor welding seam or by a mudslide.

Five member teams of welders worked nonstop for about 48 hours on the blast site to repair the pipeline and restored operation.

2. In USA, three people were injured in a Natural Gas pipeline blast, which occurred at 1 A.M. near Amarillo, and they were taken to an area hospital with burns. The flame of the fire could be seen from a distance of 32 Km. Firefighters were able to contain most of the flames by 5:30 A.M. though small grass fires continued for some more time. Nearby residents were evacuated, and the pipeline’s gas was shut off. One house was destroyed, and several others were damaged which were located in about 24 Kms west of Amarillo. The heat from the fire did a lot of damage to the houses, the blinds inside; the houses were melted.

3. In another blast that occurred in a 50 years old, 30" diameter Natural Gas Pipeline, 12 members of a family were killed who were camping near the pipeline. On the recommendations of the pipeline safety regulator, the pipeline operating company has undertaken a massive inspection plan of its 16,000 km long pipeline.

INCIDENT AT OFFSHORE

INCIDENT
In a recent incident on an offshore installation, there was an explosion in an open drains tank containing oily water. The tank contained an explosion proof certified electric heater. However, the sheath on the electric heating element had corroded, exposing the conductor.

Although the incident is still being investigated, it is thought that this fault led to ignition of flammable material in the tank.

WHAT WENT WRONG?
The contents of a drains tank are somewhat unpredictable but:
1. May be corrosive [e.g. due to saline water content]; and
2. May contain hydrocarbon slops, leading to a flammable atmosphere if the vapour pressure is high enough and air ingress can occur, e.g., through tundishes, inadequately sealed hatches, etc.

Corrective actions and Recommendations:
1. Operating personnel should ensure that they are aware of all Explosion proof certified electric heaters installed in their installations and should ensure that the purpose of each heater is understood.
2. Redundant heaters should be decommissioned [as this is the inherently safer option] and the risks associated with those remaining in service should be appropriately managed in order to reduce those risks to a level which is as low as practicable reasonably.
3. Operating personnel should ensure that any relevant apparatus in a tank whose interior is classified as a hazardous area is appropriately certified. It must be known that some explosion proof certified products have special conditions for safe use [indicated by an X on the certificate number].
4. Operating personnel should address any such special conditions for the safe use of explosion roof certified electric heaters on their installations. For example, the heated part of the element may require to remain immersed when energised; in order to guarantee this, it may be necessary to provide an automatic interlock on tank level to isolate the heater supply when liquid level falls, and appropriate interlocks for start-up and shutdown conditions, in order to prevent violation of the heater’s temperature rating and to avoid damage to the heater sheath. Also, a separate over temperature trip function may be required in addition to any temperature control function. Orientation of the heater may be an issue – a horizontally mounted heater is more likely to remain immersed having following advantages:
   a. Less likely to experience corrosion associated with conditions around the liquid surface,
   b. Less likely to overheat, and
   c. Less likely to expose any damaged section of the element to any potentially explosive atmosphere.

5. Operating personnel should address the routine inspection and maintenance activities of:
   a. The tank internals and, in particular, the condition of the heater element sheaths, as mechanical integrity of the sheath is fundamental to safe operation of these heaters and sheathing is likely to be part of the certification conditions.
   b. The electric elements and, in particular, the electrical condition of all elements and in case of poor performance / readings, then consideration should be given to remove the heater from the tank and inspect its mechanical integrity.
   c. The instrument protection systems, in particular, the operation of any temperature control function and any protective trip functions should be addressed. For example BS EN60079-17:2007 Reference 1 Table 11 addresses the inspection schedule for Ex “d” apparatus, and mentions checks on automatic electrical protective devices [this could include start-up/shut-down interlocks, liquid level trip functions and high temperature trip functions], and checks on specific conditions of use [this could include the integrity of the heater sheath].

**AUDITS**

**EXTERNAL SAFETY AUDIT**

**EXPLORATION & PRODUCTION**

**ONSHORE**

(A) 17th to 21st August, 2009: Following Installations of ONGC, Mehsana Asset, Mehsana:
   i. Production Installation, ETP Sobhasan (New)
   ii. Production Installation – Balol GGS-1
   iii. Production Installation, NK GGS-4
   iv. Drilling Rig – IPS-V
   v. Work over Rig, UPET-6
   vi. Work over Rig – Deep-2

(B) 31st August to 04th September, 2009: Following Installations of ONGC, Rajahmundry Asset, Rajahmundry:
   i. Production Installation, GCS Narsapur
   ii. Work over Rig, Shiv-Vani-180
   iii. Production Installation, GGS KesanaPallli
   iv. Production Installation, GCS Ponnamanda
   v. Drilling Rig, E-1400-17
   vi. Production Installation, EPS Mandapeta (W)

(C) 7th to 11th September, 2009: Following Installations of ONGC, Assam Asset:
   i. Production Installation, GGS-01 Geleki
   ii. Production Installation, GGS Charali
   iii. Work over Rig, ROM-100-03
   iv. Drilling Rig, Shiv-vari-29
   v. Drilling Rig, E-2000-07
   vi. Work over Rig, GTC-150-1

**PRE-COMMISSIONING SAFETY AUDITS**

**PROCESS**

(A) 24th – 25th September 2009: MS Quality up gradation Project (MSQUP) at IOCL Panipat. IOCL Panipat Refinery has set up new MS Quality up gradation Project (MSQUP) to meet Euro-IV norms for MS from April 2010 as per MOEF guidelines. The project is split into two parts EPCC-1 and EPCC-2. EPCC-1 was offered for pre-commissioning safety audit (PCSA) which includes 410 TMT Naphtha Hydrotrareator unit (NHT), 400 TMT Isomemmisation Unit (PENEX) and 470 TMT Reformate splitter unit (RSU).

(B) 29th September to 1st October 2009: Following units of HPCL-Visakh Refinery’s Clean Fuel Project (VRCFP).
   (a) Naphtha Isomerisation Unit (NIU)
   (b) Amine Absorption Unit (AAU) & Amine Regeneration Unit.
   (c) Continuous Film Contracting Unit (CFC)
   (d) Sulphur Recovery Unit (SRU) Train-III

The Clean Fuel project has been planned to meet the requirement of improved MS/ HSD quality under auto fuel policy published by Government which requires production of Euro III equivalent norms for auto fuel for 11 megacities of India from April ‘2005 and entire country from April’2010. These facilities are installed at an approved cost of Rs. 2147 crores. Under Euro III MS fuel specification, changes in fuel specification require reduction in Sulphur (150 wppm), Benzene (1% Vol), Aromatic content (42% vol), Olefin (18 to 21% vol) and improvement in Octane (91 to 95). Implementation of this project will not increase the refinery processing capacity.

**MARKETING COORDINATION.**

26th August ‘2009 : IOCL POL Depot, Zewan, Kashmir
CONSENT GIVEN BY OISD FOR OFFSHORE INSTALLATION

(a) Consent for operation of already operating mobile offshore installation 'Sagar Laxmi' given on 26.08.09:

Sagar Laxmi is a three legged self elevating jack up mobile process platform. It is presently located in D-1 marginal field. It is designed to handle 21,000 barrels of oil (sour hydrocarbon), 3000 barrels of produced water and 0.58 mmscm of gas per day.

(b) Consent for operation of Drill Ship 'Aban Ice' given on 07.09.09:

'Aban Ice' Drill Ship is owned by Aban Offshore and working for ONGC. It is classed as MODU (Mobile Offshore Drilling Unit) Maltese Cross A (1) by ABS. It has a drilling depth rating of 20,000 ft. in max. 2000 ft. of water and has eight anchors for mooring.

(c) Consent for operation of mobile offshore installation 'Sagar Samrat' given on 14.09.09:

'Sagar Samrat' is a utility cum accommodation barge and do not have any hydrocarbon processing facility. It is bridge connected to NA platform in Mumbai High North field.

SURPRISE SAFETY AUDITS

EXPLORATION & PRODUCTION

31st August to 04th September, 2009: Production Installation-ETP Kesanapalli of ONGC-Rajahmundry Asset.

MARKETING COORDINATION

29th September 2009: IOCL- LPG Bottling Plant, Amousi, Lucknow