




**HSE Measures & ERDMP of MR**  
 By  
**U.K. Shakyawar, Chief Manager(HS&E)**  
**30<sup>th</sup> Jun'14 – 1<sup>st</sup> Jul'14**

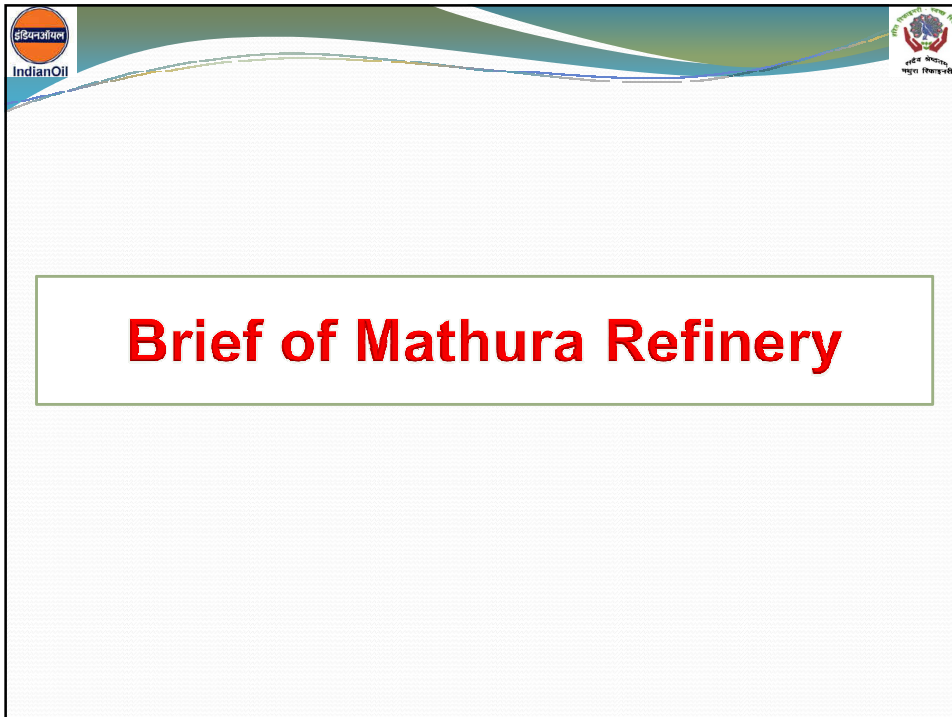


**Clean Refinery      Mathura Refinery      Green Refinery**


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- ✓ Emergency Response & Disaster Management Plan
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## Brief of Mathura Refinery

मथुरा रिफाइनरी का शिलान्यास  
मन्त्री श्रीमती इन्दिरा  
गान्धी द्वारा दिनांक २ अक्टूबर  
को सम्पन्न हुआ।


مٹھرا ریفرائری کا شیلانیا  
وزیراعلیٰ شریمتمتی اندیرا  
گاندھی سے ۲ اکتوبر  
کو مکمل ہوا۔

**2nd Oct 1973**  
Foundation stone laid  
by  
Smt. Indira Gandhi, the  
then PM



- Refinery with 6.0 MMTPA capacity commissioned in 1982 with technologies from USSR & UOP.
- Present Capacity : 8.0 MMTPA .


## Mathura Refinery – A Unique Refinery



- First industry in the country for which Scientific Environmental Impact Assessment (EIA) study carried out before commissioning.
- First industry in the country for installing Sulphur Recovery Units with stand by unit since beginning.
- First refinery in Asia and third in the world awarded coveted ISO-14001 certification in July'1996.
- First Refinery in the world to achieve ISO-18001 (OHSMS) in Nov'1998.

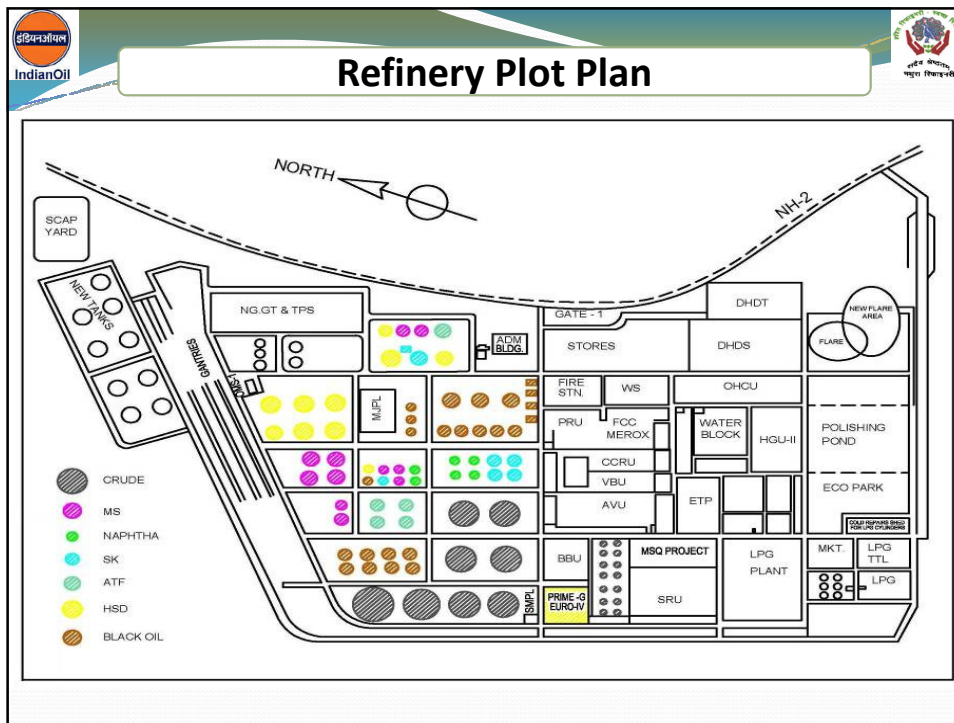



## Mathura Refinery – A Unique Refinery



- Only Refinery in India to commission a Hospital (Swarn Jayanti Samudaik Hospital) outside township for community welfare in April'1999.
- First Diesel Hydrotreater (DHDT) / MSQU unit for production of Euro-III HSD and MS commissioned in 2005 & dispatch of BS-IV MS and HSD started from Jan'2010 ahead of schedule.
- First Refinery in India to conduct off-site disaster mock drill on Jun'2012 in presence of approved third party as per ERDMP Regulation-2010

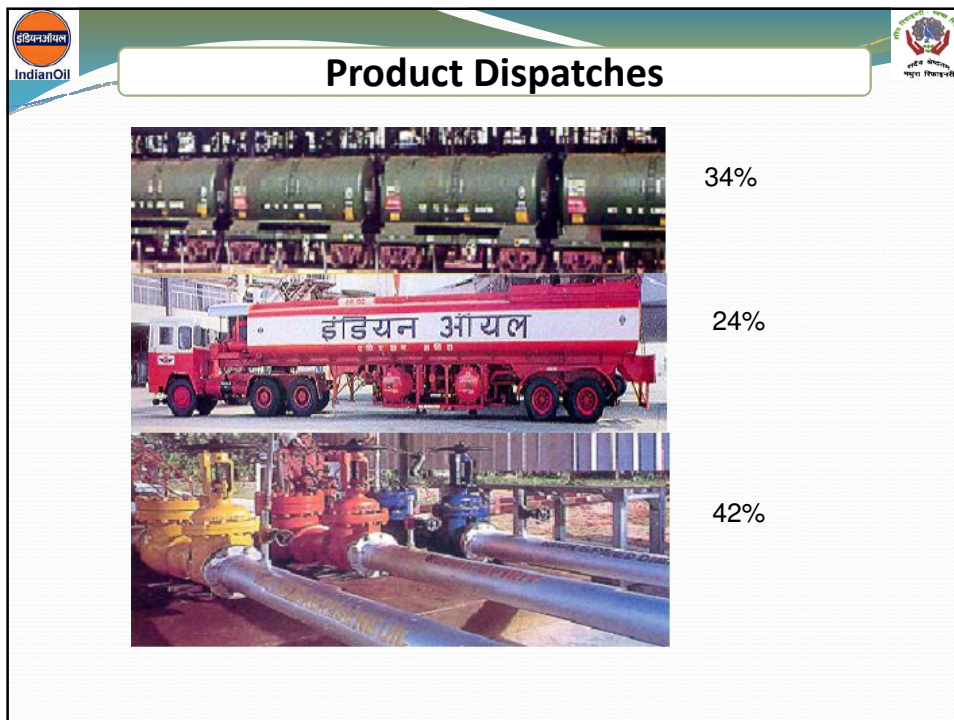
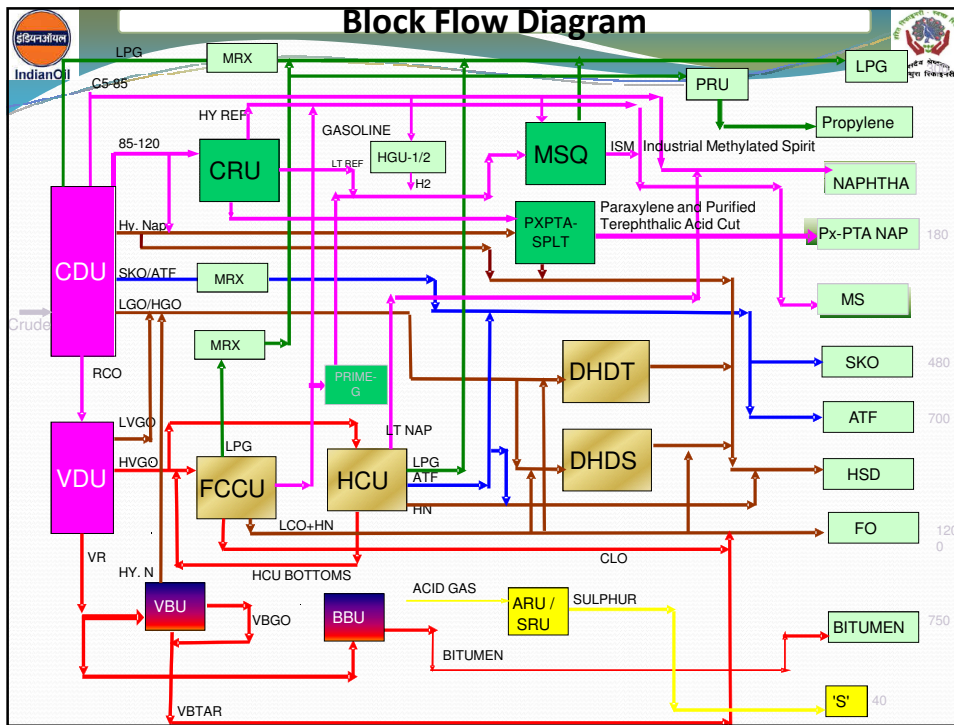






### Major Process Units

Unit	Licensor	Capacity, MMTPA	Commissiong Year
Distillation unit (AVU)	USSR	8.0	1982
Visbreaker (VBU)	UOP	1.0	1982
Fluidised Catalytic Cracker (FCCU)	UOP	1.34	1983
Propylene (PRU)	EIL	0.024	1996
Catalytic Reformer (CCRU)	AXENS	0.466	1998
Diesel hydro Desulphuriser (DHDS)	AXENS	1.1	1999
Hydrogen HGU-I	HTAS	0.034	1999
Hydrocracker OHCU	CHEVRON	1.2	2000
Hydrogen HGU-II	TECHNIP	0.06	2005
Diesel hydrotreater (DHDT)	AXENS	1.8	2005
MS Quality (Penex)	UOP	0.44	2005
Gasoline Desulphurisation (PRIME-G)	AXENS	0.525	2010







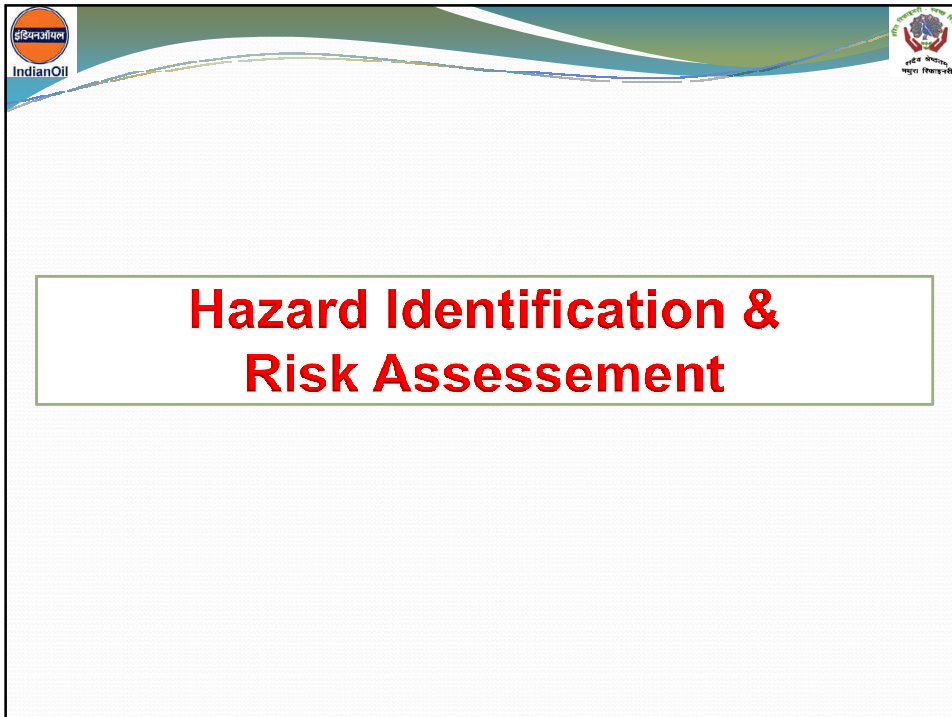
### Inventory of Hazardous Materials

S. No.	SERVICE	INVENTORY - STORAGE
1	CRUDE OIL	430000 M3
2	OTHER CLASS 'A' HC Naphtha, MS & MSQU feed	337900 M3
3	OTHER CLASS 'B' HC ATF, SKO & HSD	381380 M3
4	OTHER CLASS 'C' HC LDO, FO & Bitumen	251800 M3

### Inventory of Hazardous Materials

S. No.	SERVICE	INVENTORY - STORAGE
5	LPG	9000 M3
6	PROPYLENE	2700 M3
7	HYDROGEN	900 M3
8	NITROGEN	160 M3
9	AMMONIA CYLINDERS	50 Nos
10	CHLORINE TONNER	10 Nos

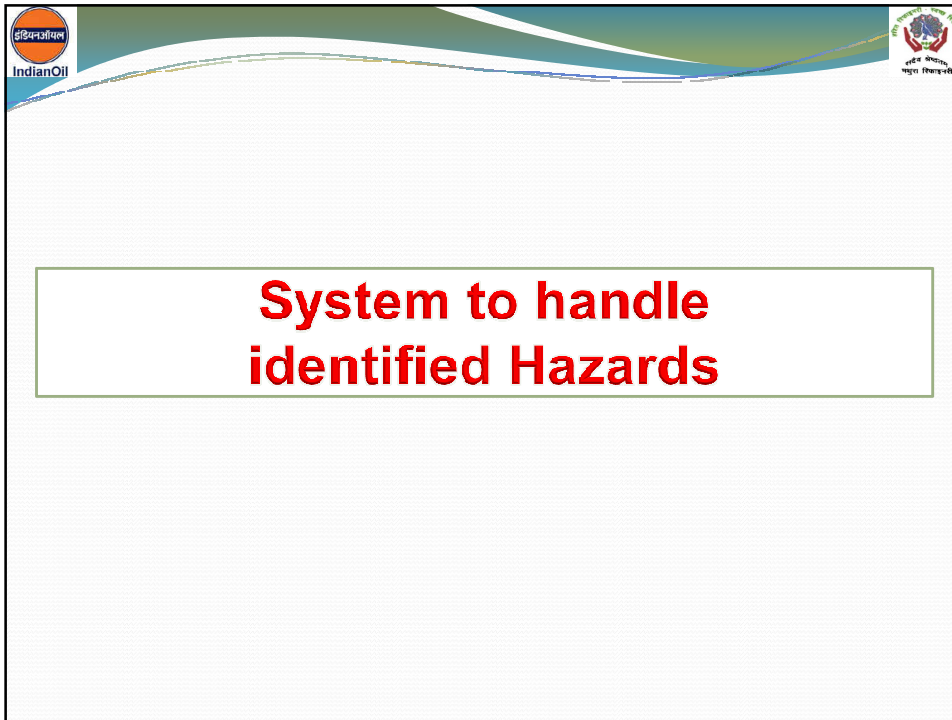


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एन.डी.ओ.ए.ए.ए.  
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## Hazards Identification & Risk Assessment

- Conduct Initial Survey
- Identify Hazards & Risks
- Assess & Prioritize Issues
- Set Objectives
- Develop Implementation Plan
- Monitor /Review Plan






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### Risk Reduction Measures - Height

- Working at height permit along with scaffolding checklist.
- Steel scaffolding for any work at height.
- Safety briefing to all the contractor personnel at site.
- Walkways and railings around fixed roof tanks.
- All structural ladders/monkey ladders checked regularly.
- Fall protection equipment.
- Stopped use of temporary ladder.




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## Risk Reduction Measures - Height




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मंत्रालय

- Use of trolley mounted BA.
- Penalty imposed on contractors
- Medical check up of personnel working at height.
- Use of wire guide rope while working on roof during M&I of tanks.
- Deployment of safety personnel by the contractors.
- Training on working at height, safety survey, daily structure safety tour, Monthly safety day with theme




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## Risk Reduction Measures - Chemical



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- Display of safe handling procedure.
- Display of MSDS on safe use of chemicals.
- Proper labeling for storage of chemicals.
- Eye wash-cum safety showers installed
- Provision of wind socks
- Use of chemical handling suits & PPEs.
- Use of standard Cartridge face mask & Self Content BA sets.
- Availability of chlorine handling kit and Training provided on its use.
- Training on hazardous chemical handling, daily structure safety tour, Monthly safety day on theme



## Risk Reduction Measures – TW Loading



- Compliance to safety requirements as per check list
- Automated system of loading at specific velocity.
- Earthing of rail line, Electrical continuity of joints of loading arms/pipes.
- Interlocks with tank wagon earthing.
- Use of non-sparking tools.
- Provision of flame proof light fittings.
- Provision of safety harness for each working personnel in gantry .
- Gas detectors in gantry .
- Water sprinklers and HVLRs for gantries
- Displaying loading procedures with do's or don't in gantry
- Provision of each header shock absorber in gantry
- Provision of Emergency S/D switch in gantry.
- Provision of emergency light in the gantry
- CCTV Cameras installed for tank wagon loading gantry

## Risk Reduction Measures – Tank Water Draining



- Procedure available for water draining operation & follows
- Allowance of proper settling time.
- Only free water drained.
- Sample collected from drain point and checked for free water.
- Controlled draining for avoiding overflow of OWS funnel.
- Draining of free water under strict supervision.
- Drained material routed to ETP
- Hot job permission not granted in the same dyke
- HC Gas detectors installed in class 'A' Hydrocarbon storage tank
- CCTV Cameras provided
- Auto drain valve (46 Nos) provided





## Risk Reduction Measures – HS Water Draining

- Water draining procedure displayed near Horton sphere.
- Control valve & two valves in each drain lines at a suitable distance.
- The drain line is extended to sump out side the sphere dyke.
- Draining preferably during day time.
- Water seal provided at sump for avoiding escape of accumulated liquid LPG to storm water
- Flame proof fittings
- PPEs use by the operators
- CCTV Cameras provided



## Risk Reduction Measures – Start of Unit

- Pre-startup checks and liquidate check list points.
- Area cleared for shut down left over materials / debris.
- Blinds Checklist adhered and monitored.
- Pressure test and identification/ rectification of leaks.
- Alarms and interlocks checked.
- Oxygen free by steaming/purging with nitrogen.
- Blow-down System exists.
- Multi disciplinary clearance obtained before start up
- Hot bolting of flanges of high temperature equipments.
- PPEs used by all the personnel in the plant
- Safety showers, fire extinguishers etc checked before startup
- Start-up standing instructions of the unit followed



## Risk Reduction Measures – Unit S/D

- Gradual feed and temperature reduction.
- Proper flushing of all process lines and coil flushing of furnace.
- Making the unit free from any hydrocarbon and to confirm by gas test.
- Proper isolation system of equipment before man entry as per check list.
- Blinds Checklist adhered and monitored.
- Blow-down System exists.
- PPEs used by all the personnel in the plant
- Gas test for confined area during every shift.
- Shutdown standing instruction of the unit followed
- OWS sealing
- Proper cleaning of unit area before any hot job.

## Risk Reduction Measures – Furnace Start-up



- Furnace operation procedure displayed near the furnace
- Checking of general conditions of the furnace for any foreign material lying inside.
- Keeping stack damper wide open.
- Commissioning all instruments and check interlocks.
- Purging fire box till steam is seen at stack outlet.
- Emergency shut down push buttons provided 15 M away from furnace.
- Light up pilot burners.
- Keeping clean metallic hose connected to FO burners
- Using portable gas lighter if necessary for lighting main burners
- Establish flow through furnace coil.
- PPEs used by all the personnel in the plant

## Risk Reduction Measures

**For Escape of large quantity oil in OWS/ Sump:**

- Standard Operating Procedure for ensuring normal and safe operation
- HC detectors installed in tank farm for class 'A'
- Take dyke exists to arrest oil spillage.
- Oil seal available in the OWS system
- Transfer of IS sump to emergency surge tank.
- Provision of sand bags
- Medium expectation foam generators available for spill coverage.
- Galley sucker available.
- Recovery of free oil by oil skimmer from IS sump.
- Pumping of recovered oil from ETP to slop tank of OM&S-I.
- Co-ordination with OM&S-I and units for any leakages.
- Frequent skimming of oil from API, TPI and Dissolved Air Flotation (DAF) feed sump.
- Proposal for ETP study with RHQ for approval.

## Risk Reduction Measures

**For Working in Hazardous areas like Boiler House/ Compressor House/ SRU etc :**

- Standard operating procedure for ensuring normal and safe operation
- Display of start-up & shutdown Do's & Don'ts
- PPEs used by all the personnel in the plant
- Use of portable H<sub>2</sub>, HC, H<sub>2</sub>S & CO Gas detectors
- Water sprinklers for compressors
- Gas test for confined area during every shift.
- Provision of wind socks
- Safety showers, fire extinguishers etc provided





## Risk Reduction Measures - Oil Spillage


- Oil spillage in tank farm is controlled within the tank dyke and routed to ETP.
- Oil spillage in open space passes to open channel and collected in oil catchers and recovered through gully sucker.
- Mock drill also carried out as per emergency preparedness plan.
- Sand bags kept ready for containment.
- Emergency preparedness pocket manual issued to the employees.
- Functional training Safety & Fire fighting training/ First aid training imparted as training calendar.



## Internal Safety Audit

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## Internal Safety Audit System



- Refinery is divided into 13 areas/ facilities
- Date of the audit of the concerned area finalized at the beginning of the year
- Audit team of three to four executives are formed
- Audit is carried out as per the OISD-STD-145 checklist
- Recommendations are firmed up for compliance in consultation with Area In-charge
- Monthly status is discussed in Management HSE meeting

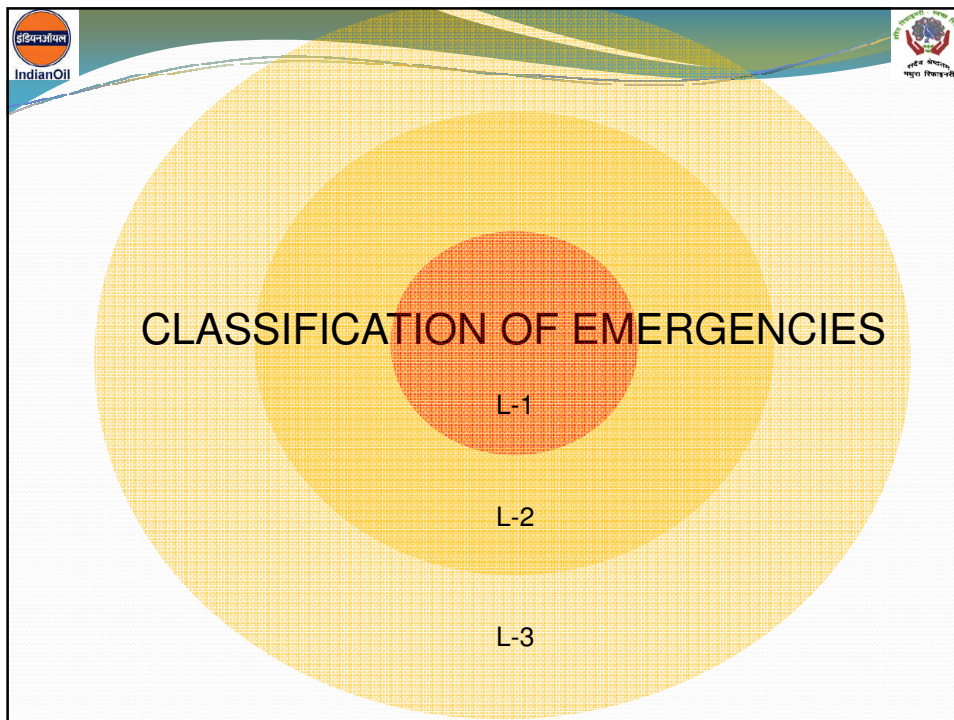
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## Emergency Response & Disaster Management Plan

NO MUTUAL AID SCHEME AVAILABLE  
AS NO INDUSTRY EXISTS IN THE SURROUNDING

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### Classification of Emergencies

Emergencies can be categorized into three broad levels on the basis of seriousness and response requirements, namely: –



- **Level 1** : This is an emergency or an incident which:
  - (a) **can be effectively and safely managed**, and contained within the site, location or installation by the available resources
  - (a) has no impact outside the site, location or installation.
- **Level 2** : This is an emergency or an incident which:
  - (a) **cannot be effectively & safely managed** or contained at the location or installation by available resource & additional support is alerted or required.
  - (b) is having or has the potential to have an effect beyond the site, location or installation and where external support of mutual aid partner may be involved.
  - (c) is likely to be danger to life, the environment or to industrial assets or reputation.



## Classification of Emergencies

- **Level 3:** This is an emergency or an incident with off-site impact which could be catastrophic and is likely to affect the population, property and environment inside and outside the installation, and management and control is done by district administration.
- **Note:** Level-I and Level-II shall normally be grouped as onsite emergency and Level-III as off-site emergency.

## Classification of Emergencies

SN	TYPE OF EMERGENCY	SIREN CODE	Level
1	Small Fire	No siren will be sounded	<b>L-1</b>
2	For Major Fire / Major Emergency	Wailing type Siren for continuously two minutes	<b>L-2</b>
3	Disaster (Evacuation Siren)	Repetition of Major fire siren 3 times with a gap of 1 minutes in between. Total duration– 8 minutes.	<b>L-3</b>
4	All Clear Siren	Straight jetting sound for two minutes	-
5	Testing of Siren	Straight jetting sound for one minute (Daily at 7.45 Hours). Disaster mode on 1 <sup>st</sup> day of the month Major Fire mode on 2 <sup>nd</sup> day of month.	-



# ERDMP as per ERDMP Regulation 2010



## FOREWORD

Petroleum products are essential in the progress of a country. Hence consumption of petroleum products is considered as one of the indicators for the prosperity of any nation. Huge amount is being spent towards the production of petroleum products and our country is trying to become self-sufficient. However considering their intrinsic properties, crude oil and petroleum products pose considerable hazard in storage, handling and processing. Any exigency arising out of and in the course of its storage, handling and processing due to their inflammable and explosive properties can lead to a major disaster. In the past few years, there have been numbers of industrial disasters world over, which have threatened process plant personnel, equipment and environment. In view of this, it is essential that we remain prepared to handle emergency.

The On-Site Emergency Preparedness Plan of Mathura Refinery named as ERDMP has been revised under Emergency Response & Disaster Management Plan (ERDMP) Regulation - 2010 as per PNGRB (Petroleum & Natural Gas Regulatory Board). In this plan, the probable scenarios have been developed after detailed study of incidents encountered in the past as well as the outcome of Comprehensive Risk Analysis study. The functions of the Site Main Controller and other key personnel have been explained in detail. The manual is updated time to time to address all the changes in the organizational structure or to incorporate the major changes.

It is expected that all the coordinators identified in the manual are fully conversant with the updation and their roles & responsibilities in the event of an emergency situation. Also efforts should be made to educate other employees of the refinery about timely actions in case of an emergency. This document gives general guidelines only. These may be altered, if felt necessary, during the actual emergency based on unforeseen circumstances prevailing at that time.


Emergency Response & Disaster Management Plan (ERDMP) containing total 26 chapters including 30 annexures and 26 figures is available on Mathura Refinery intranet "Galaxy". All employees should refer it regularly.

Place :- Mathura  
Date :- 18.6.2012


  

(Mukesh K. Padia)  
Executive Director

ERDMP DOCUMENT OF MATHURA Refinery  
is hereby accredited as per the PNGRB Codes of Practices for Emergency Response and Disaster Management Plan (ERDMP) Regulation 2010 vide  
PNGRB Order No. 1322, dated 20th June 2012.  
Director (Mathura)



# ERDMP as per ERDMP Regulation 2010




## PREFACE

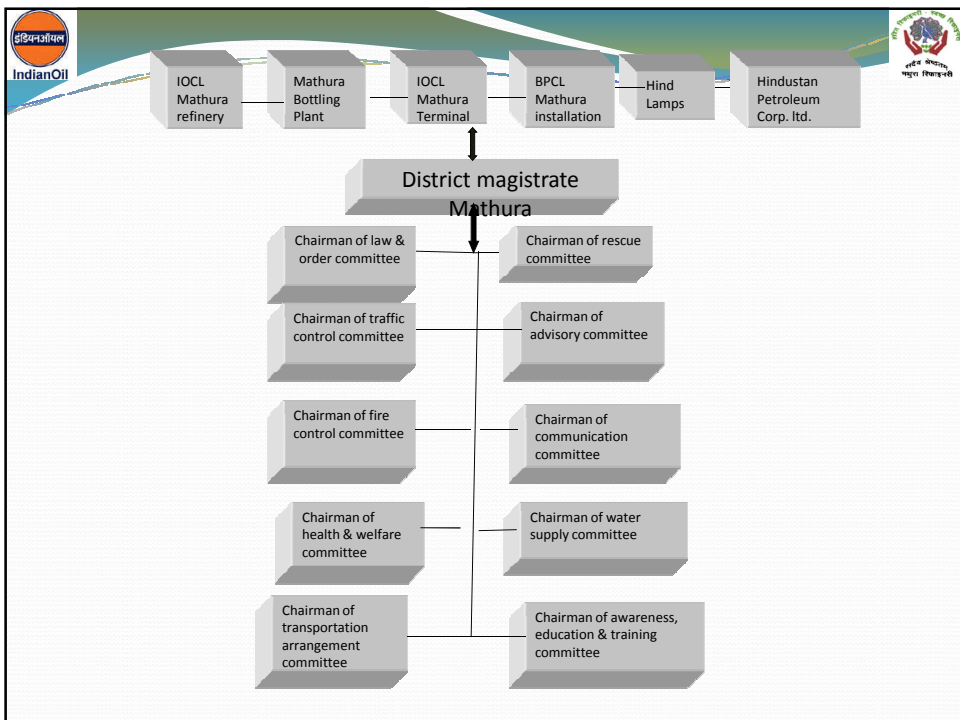
Other than having historical and mythological importance Mathura district is also important in providing and fulfilling the chemical needs of the Uttar Pradesh and the country. There is no doubt about the fact that Mathura district is disaster prone as it is having most of the MAH (Major hazardous installation) Installations, but the petroleum products are essential for the progress of the country. For becoming self sufficient for a country like India, production of petroleum products at a large scale is a necessity today. However other side of petroleum products is that they are disastrous in nature and pose considerable hazards in storage, handling and processing as they are toxic, highly reactive, explosive and flammable. Thus, extreme and utmost care is necessary for such chemicals at all stages of manufacturing, processing, treatment, packaging, storage, transportation, usage, collection, distribution and conversion or sale.

In past few years, there have been numbers of industrial disasters world over, which have threatened process plant, personnel, equipment and environment. Proper planning and preparedness can minimize the occurrences of emergencies caused through chemical accidents. In response to a chemical emergency a coordinated efforts at the district level is very much essential. Keeping the situation in mind an "OFF SITE EMERGENCY PLAN" of Mathura district was prepared.


This document is prepared and developed on the basis of valuable guidelines laid down by the ministry of environment & forest, Government of India and with the coordination of members of District Crisis Group viz. Asst. Director of factories Aligarh zone, District magistrate Mathura, Chief medical officer, Chief Fire officer, District Information officer, Chief controller of explosives, city magistrate, Chief of Jal Nigam, representative of U.P. Pollution control board, Transport officer, Safety officers of all the MAH installations, district Agricultural officer and the president of local crisis group. We have tried to put all possible ways to avoid any chemical accidents in preparing this document. This document is prepared to reflect the important commitment and to facilitate better and clear understanding between industry, administration and development of capacity within them to deal with chemical emergency. We hope this document will serve as useful ready instrument for the management and handling of chemical emergency in the Mathura district to all major hazardous units as well as all concerned departments.


District Magistrate  
मथुरा








## On-site Emergency Committee




The ON-SITE EMERGENCY COMMITTEES of the following Major Accident Hazards (MAH) units comprises of-



1. M/S IOCL Mathura Refinery, Mathura
  - A. Works main controller : GM (Tech.) IOCL MR
  - B. Alternate Person : DGM (PN) IOCL MR
2. M/S INDIAN OIL CORPORATION, Indane Bottling Plant,
  - A. Works main controller : Senior Plant Manager
  - B. Alternate Person : Assist. Plant Manager
3. M/S IOCL Mathura Terminal Mathura
  - A. Works main controller : Chief Terminal Manager
  - B. Alternate person : Asst. Terminal Manager
4. M/S BPCL Tank Terminal Mathura
  - A. Works main controller : Senior Terminal Manager
  - B. Alternate person : Asst. Terminal Manager
5. M/S HIND LAMP
  - A. Works main controller : Chief General Manager
  - B. Alternate Person : Works manager
6. M/S Hindustan Petroleum Corporation Ltd.
  - A. Works main controller : Depot Manager
  - B. Alternate Person : Dy. Manager (Depot)



## Off-site Emergency Committee





	CHAIRMAN	ALTERNATE
<b>Off-Site Emergency Controller</b>	<b>District Magistrate</b>	<b>his nominee</b>
<b>Sub committee</b>		
(I) <b>Law &amp; Order Committee</b>	<b>ADM –City</b>	<b>ADM- F&amp;R</b>
(II) <b>Rescue Committee</b>	<b>City magistrate</b>	<b>SDO</b>
(III) <b>Traffic control Committee</b>	<b>ADM City</b>	<b>A.R.T.O.</b>
(IV) <b>Advisory Committee</b>	<b>Asst. Director of factories</b>	<b>or his nominee</b>
(V) <b>Fire Control Committee</b>	<b>Chief Fire Officer</b>	<b>In-charge Fire Services</b>
(VI) <b>Communication Committee</b>	<b>Dy. Director of information</b>	<b>Dy. Controller civil Defense</b>
(VII) <b>Health &amp; Welfare Committee</b>	<b>C.M.O.</b>	<b>C.S. District Hospital</b>
(VIII) <b>Water supply Committee</b>	<b>G.M. Jal Nigam</b>	<b>Chief Engineer Jal Nigam</b>
(IX) <b>Transport arrangement committee</b>	<b>ARTO</b>	<b>S.P. Traffic</b>
(X) <b>Awareness, Education and Training Committee</b>	<b>Chief warden civil defense</b>	<b>D.I.O.S.</b>



## Role of DM Mathura

- Establishing control Room near refinery premises at any of the locations feasible in the order of priority Refinery Administration Building, (alternatively Projects Building) CRC's office at Gate No.9 / Refinery Thana / Mohini Petrol Pump & Shopping Center in front of Gate No.1 of refinery with the provision for a standby Control Room in Township in case the main Control Room becomes dis-functional.
- Establishing communication linkage at the Control Room with the help of IOCL, BSNL and Police.
- Requisition of fire fighting services from Mathura / Agra / Aligarh if the situation demands.
- Co-ordinating the rescue operations with police, Fire Services, Home Guards & Civil Defense.
- Arrangement for announcement through P.A. system to the affected population about action to be taken by them and advising for evacuation, if required.

## Role of DM Mathura

- Requisitioning all possible modes of transport for shifting to predetermined shelters if required, with the help of District Transport Authorities as well as UPSRTC.
- Identify places of safe shelters where the evacuated population has to be enforced. Organize tents etc. if the shelter places are open grounds.
- Organize necessary medical aid through district health authorities and other voluntary institutions.
- Ensure supply of food, drinking water and proper sanitation to the evacuated persons kept in various shelter locations.
- Arrange protection of property of the evacuated villagers during their absence.
- Coordination with UP State Govt. authorities at Agra / Lucknow.
- Coordinating assistance to Refinery Management for their On-Site Emergency Management.
- Monitoring the shelter camps and villages, till such a time that normalcy is restored.
- Making public announcements from time to time in the villages, shelter camps and in the city and coordination with media persons.
- Transportation of the villagers back to the villages after normalcy has been restored.



## 1. Role of Law & Order Committee

**(1). LAW AND ORDER COMMITTEE:**

- A. Committee – Head : City Magistrate
- B. Alternate person : ADM Finance

**RESPONSIBILITIES:**



1. The primary responsibility of the committee is to maintain law during an emergency that is caused by chemical spill, fire, explosion or dispersion.
2. The committee would be responsible to prevent and control looting and theft incident during an emergency.

**Procedures:**

- (a) The committee Chairman would initiate actions of his committee, soon after receiving first information about the emergency in control room.
- (b) Deployment of policemen at the outskirts of the affected area.
- (c) Help to hospitalize casualties & will identify deaths and arrangements in informing relatives of the injured or deceased.
- (d) Investigate the deliberate acts of sabotage and preventing looting etc.
- (e) Deployment of policemen to all important crossings and locations.
- (f) Take actions to prevent sabotage and looting
- (g) Preventing entry of all people into the affected area except the participation in authorized emergency relief operations
- (h) Instructing people of affected area to stop all normal business activities & move to safe shelters
- (i) Undertake to communicate on the spot instructions to public as necessary on matter of immediate actions.
- (j) Patrolling of the affected area in order to insure law and order.
- (k) Authority to use lathi charge on unruly mob or deploy other means as per specified norms.





## 2. Role of Rescue Committee

(2). **RESCUE COMMITTEE:-**

A. Chairman : ADM City  
 B. Alternate Person : SP

**Responsibilities:**



1. The primary responsibility of the Rescue Committee is to provide rescue service during an emergency.
2. To educate large number of people from area which are likely to get affected so that they are able to provide rescue services to their families, their neighbors and others.
3. To maintain a team of 10 ( ten ) volunteers trained in rescue operation, so as to meet any emergency. The committee will also conduct periodic drills for this preparedness.
4. For all expenses the committee shall get sanctions, authorize and maintain proper accounts, which will be audited annually.

## 2. Role of Rescue Committee

**Procedures:**

- (a) Rescue team members shall use their own personal vehicles for emergency and routine drills. Nominal reimbursement as specified would be made.
- (b) The committee would maintain a record of all procedures as agreed with in the committee. One member of the committee would be nominated secretary for this purpose
- (c) The committee would meet in quarter to review preparedness actions. There would be standing instructions regarding preparedness, which shall be documented also.
- (d) The information about the emergency would be given by the control room to the chief warden or his nominee who would then immediately organize rescue services.
- (e) The rescue committee would inform the health and welfare committee as soon as possible about the likely victims and during the emergency shall maintain this communication.
- (f) Rescue committee would keep the control room also posted about the developments.

### 3. Role of Traffic Control Committee

**(3) TRAFFIC CONTROL COMMITTEE:-**



A. Chairman : SDM City  
 B. Alternate person : RTO, Mathura

**Responsibilities:**

1. To exercise the traffic control during the emergency condition in and around the affected area.
2. To make connectivity between the police station of the affected area for movement and diversion of the traffic to a safe direction

**Procedures:**

- (a) This committee would report to Law & Order Committee.
- (b) While conducting the traffic control the traffic policeman would give priority to emergency vehicles and authorized persons engaged in rescue and relief operation.

### 4. Role of Advisory Committee

**(4) ADVISORY COMMITTEE:-**



Chairman: Asst. Director of Factories Aligarh Or his nominee

**Responsibilities:**

1. To provide constant advice to the Off Site Emergency Authority i.e. District Magistrate or his nominee on control of emergency situation during the emergency.
2. To help in preparing Off-Site Emergency Plan and review the plan every three year for necessary changes
3. To release information to media during and after emergency.

**Procedures:**

- (a) Communication with other center in India Where APELL programme is being implemented should be maintained.
- (b) In the event of an emergency Director of factories, U.P. would receive the information from the control room. He would ask a specific member to go on the computer and others to gather relevant information. Director of factories U.P. would himself proceed to the control room so that he can give constant advice to OEC.

## 5. Role of Fire Control Committee

**(5) FIRE CONTROL COMMITTEE:-**



A.Chairman : Chief fire Officer alternate In-charge of Fire Services

**Responsibilities :**

1. The fire control committee shall be responsible for arranging all fire fighting operations during an emergency and will supplement with the local Industry's fire brigade.
2. To educate public on fire protection measures.

**Procedures:**

- (a)The chief fire officer would receive detailed information including severity and type of incident regarding any fire incident from the control room. He would then initiate action on fire fighting operations.
- (b)The chief fire officer would be overall in charge of all off-site fire fighting operations. However for firefighting operations within any industrial unit the in house fire officer would be in charge. CFO in this case will only function with him ably as an advisor.
- (c)The CFO would keep the control room informed about the latest position on fire control during emergency.

## 6. Role of Communication Committee

**(6) COMMUNICATION COMMITTEE:-**

A. Chairman : DY. Director Information

B. Alternate person : DY. Director Civil Defense



**Responsibilities:**

1. To ensure trouble free functioning of all communication links during the emergency.
2. To educate people regarding precautions to be taken or applying first aid measures for different situations.

**Procedures:**

- (a)The officer would be overall in charge of education campaign.
- (b)The officer would receive detailed information including severity and type of incident regarding any fire / accident from the control room. He would then initiate action for educate public avoiding panic situation.





## 7. Role of Health & Welfare Committee

**(7) HEALTH & WELFARE COMMITTEE:-**

A. Chairman : C. M. O. Mathura  
 B. Alternate Person : C.S.

**Responsibilities :**

1. To educate people regarding first aid for different situations.
2. The committee will arrange for treatment of casualties in the prominent local hospital.
3. To make available medicine at the time of incident. The Committee will identify all hospitals/resources of medical treatment to render medical aid to victims of different type of exposures in the city.
4. Arrange for quick treatment of effected persons in all hospitals, nursing homes, and at clinics of private doctors in nearby areas.
5. Setup a medical center at a suitable location for disbursing medical treatment to affected peoples.
6. The committee will keep and prepare medical information sheet regarding the casualties and transfer of victims to different location for further treatment.
7. To dispatch sufficient number of medical teams for rendering First Aid in affected area as needed.
8. To make arrangements in hospitals and nursing homes to look after people who need indoor admission, longer treatment and care.
9. For meeting all medical expenses committee will obtain sanctions, and will utilize and produce proper account of money.

## 8. Role of Water Supply Committee

**(8) WATER SUUPPLY COMMITTTEE:-**



A. Chairman : G. M. Jal Nigam  
 B. Alternate person : Chief engineer Jal Nigam

**Responsibilities:**

1. To ensure immediate water supply for the purpose of fire fighting and emergency use.
2. To ensure drinking water supply to the public of affected area, as a basic need.

**Procedures**

- (a) Water supply committee would report to the fire control committee for further discussion.
- (b) Water requirement for different emergency situations would need to be assessed by the committee.
- (c) The arrangement of drinking water supply in tankers may need to be supplied to the evacuees at their rest shelters.

## 9. Role of Transport Arrangement Committee

**(9) TRANSPORT ARRANGEMENT COMMITTEE:-**



A. Chairman : R.T.O. Mathura  
 B. Alternate Person : C. O. Traffic Mathura

**Responsibilities:**

1. To assist the rescue committee by providing arrangement for transport that may be needed for evacuation purpose during an emergency.

**Procedures:**

- (a) Chairman of the transport committee would report to the chairman of the rescue committee.
- (b) In the event of an emergency, the chairman of the rescue committee would communicate the transport requirement by contacting RTO, who would initiate actions. During the course of emergency RTO would keep contact with chief warden for noting any further change in requirement.



## 10. Role of Awareness, Education & Training Committee

**(10) AWARENESS, EDUCATION & TRAINING COMMITTEE:-**

A. Chairman : Chief Warden Civil Defense  
 B. Alternate Person : D .I .O .S



**Responsibilities:**

1. To create awareness amongst the population residing nearby (within 4km radius.) of the major hazard installation through Gram Pradhans and local administration.
2. To prepare a training schedule of fire fighting and other chemical hazards jointly with MAH Units and conduct the training programme bimonthly in surrounding area of each MAH Unit for the population residing nearby of the major hazard installation. The expenditure of the training programme is reimbursed by the concerned MAH units.
3. To develop booklets & pamphlets will highlight DO's & Don'ts escape routes to be followed and shelter center where they have to reach in case of chemical emergency and distributed to population residing nearby MAH Unit.
4. To educate the first responders of various committees.
5. To impart for voluntary organization regarding prevention and mitigation plan.




**Procedures:**

- (a) The committee would report to district crisis group.
- (b) The written procedure for education and training should be developed by this committee.
- (c) For awareness amongst population within vulnerable zone the committee should develop awareness campaign.




**Best Practices**






## Best Practices – Studies /Audits







Skill development Centre


- Skill development centre
- Hazop Study carried out for all the units including off-site area – five yearly basis
- Risk Analysis carried out after major modification
- Pre-shut down, During Shut down and after shut down safety audits carried out by multi-disciplinary RHQ team and all the suggestions implemented in time bound manner.
- Quarterly Process Safety Performance Indicator (PSPI) Analysis
- Job safety Analysis for critical tasks by multi-disciplinary team.



## Best Practices – Safety Education





Pre-Shutdown Safety Supervisors' meet being addressed by GM(T)

- In-house trainings on Behaviour Based Safety conducted at site (inside battery area) - yearly basis
- Safety supervisors' meet conducted to educate the supervisors on safety - yearly basis
- Training on Hazard Operability Study (HAZOP) conducted – yearly basis.
- Training on Hazard Identification & Risk Assessment was conducted – yearly basis.
- Transporters meet to improve safety during transportation of chemicals / hazardous materials. - yearly basis

## Best Practices – Facilities



Six cylinders (each cylinder of 1200 litres and 30 minutes working duration)  
Breathing Apparatus with 40 m hose



- Installation of breathing station at strategic locations for ease of working only with face mask for longer durations of jobs.
- Fixed (H<sub>2</sub>, H<sub>2</sub>S, HC, Cl<sub>2</sub> & CO) Gas Detectors installed at identified locations with alarm / hooter at field.
- Fixed Hydrocarbon Detectors installed at identified locations with alarm.
- Smoke Detectors installed at identified locations with alarm.
- Fixed Heat Detectors installed at identified locations with auto fire fighting system.
- Portable Gas Detectors for all employee / contract workers who are working in that area.


## Best Practices – Safety Propagation

**Safety Hero being felicitated by Unit Head on monthly Safety Day**




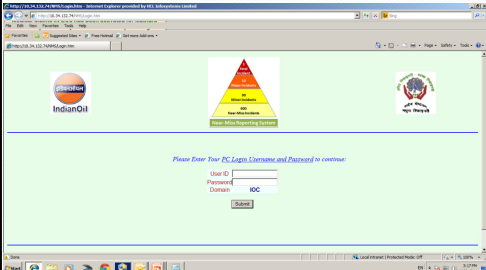
- Monthly Safety Day observed on first working day of the month & distribution of motivation rewards
- Mandatory Safety Training imparted to all contractor workers before entering into refinery battery area.
- Video filming of works done during S/D to capture & rectify unsafe acts & used for education purpose.
- Safety pamphlets of various nature of jobs developed and distributed to contract workers.
- Safety banners printed with “Dos & Don'ts” & pictorials for displaying at prominent locations.






## Best Practices – off the job safety






**On-line Near-miss Reporting system**






**Safe Area of the Month trophy**

- Near-miss Reporting system with auto generated mails to concerned and close out loop for closing of near-miss cases.
- Special safety programs conducted for security personnel deployed at township including live fire fighting training.
- Publication of e- Surakshika on safety promotional activities/ case studies/ safety statistics etc. & wide circulated thru emails as well as on intranet monthly basis.
- Off-the-job safety awareness programs conducted in villages, KVS & DPS.



## Best Practices – Emergency Preparedness



- Process Safety Mock Drill – Monthly in each Plant
- Fire Fighting Mock Drill – Monthly as per schedule
- On-site Disaster Mock drill – Half yearly
- Off-site Disaster Mock Drill – Annually
- Bomb threat Mock Drill - Annually



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# Questions?



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