

# **SAFETY IN RETAIL OUTLETS**

**DIPANKAR RAY  
GM(E) WBSO  
IOC(MD)**



## **Safety Concern ...**

- **Retail Outlets are Storage and Distribution Point which Receive, Store and Distribute POL like any petroleum depot does ..**

**However unlike a Depot ..**

- **It is a public Touch point with unrestricted accesses**
- **Premises may store Petroleum Oil as well as LPG**
- **It also store merchandise of customer convenience ..**



## Adopting Safety in ..

- Layout and Installation
- Operating Practices
- Maintenance of Facilities



# Layouts and Installation

- **Storage Tanks :**
  - Steel Tanks and FRP Tanks
  - Earth pit and Masonry Pit
  - Firmly anchored to prevent float
  - 1.5 Meters from Boundary Wall
  - Hydro tested at 0.25 Kg/ Sq cm
  - No vapor space in pit
  - Water tight Manhole and strong cover



# Layouts and Installation

- **Fill Points :**
  - In open air with 3 m free all around
  - At least 12 m from adjacent residential dwelling
  - Fill pipes sloped towards storage tank
  - Till bottom of tank
  - Cam lock coupling
  - Tank lorry in drive out position

# Layouts and Installation

- Pipelines :
  - Sloped towards tank
  - Welded with minimum bends
  - Earth continuity
  - Vent pipes with clearance 4 m all around
  - Minimum vent length 4 m
  - 1.5 m above canopy
  - No thread joint
  - Vent mesh minimum 11 mesh per sq cm



# Layouts and Installation

- Dispensing Units

- 6 m from any above ground structure
- Properly earthed
- Electronic peripheral 1.2m from base
- Hose length maximum 4 meters
- Shear valve at base of hose.

# ALDS Safety distance

Serial No.	Water Capacity of vessel (in litres)	Minimum distance from line of adjoining property or group of buildings not associated with storage & operation. (in metre)		Minimum distance between vessels (in metre)	
		Above ground vessel	Underground or above ground vessels covered with earth (mound)	Above ground vessel	Under ground or above ground vessels covered with earth
1)	Not above 2000	5	3	1	1
2)	above 2000 but not above 7500	10	3	1	1
3)	Above 7500 but not above 10000	10	5	1	1
4)	Above 10000 but not above 20000	15	7.5	1.5	1
5)	Above 20000 but not above 40000	20	10	2	1



# ALDS Segregation

- LPG vessel should be 9 meters from Fill and vent pipe of MS / HSD vessel and Dispensers
- LPG Dispensers should be 6 meters from Fill and vent pipe of MS/HSD vessels and Dispensers



# ALDS Safety Fittings

- Liquid and vapor lines
- Safety Release Valve (SRV)
- Remote Operated Valve (ROV)
- Excess flow check valve
- Manual quick shut off valve
- ESD switches
- High level Alarm / cut off

# Layouts and Installation

- **Electrical Installation:**
  - Transformer in DP structure outside licensed area
  - Power distribution panel
    - 1000 mm clear space in front
    - 750 mm clear space in back if approachable .. Else 200 mm
    - 750 mm between panels
    - 200 mm at sides
  - Proper ventilation in panel Room



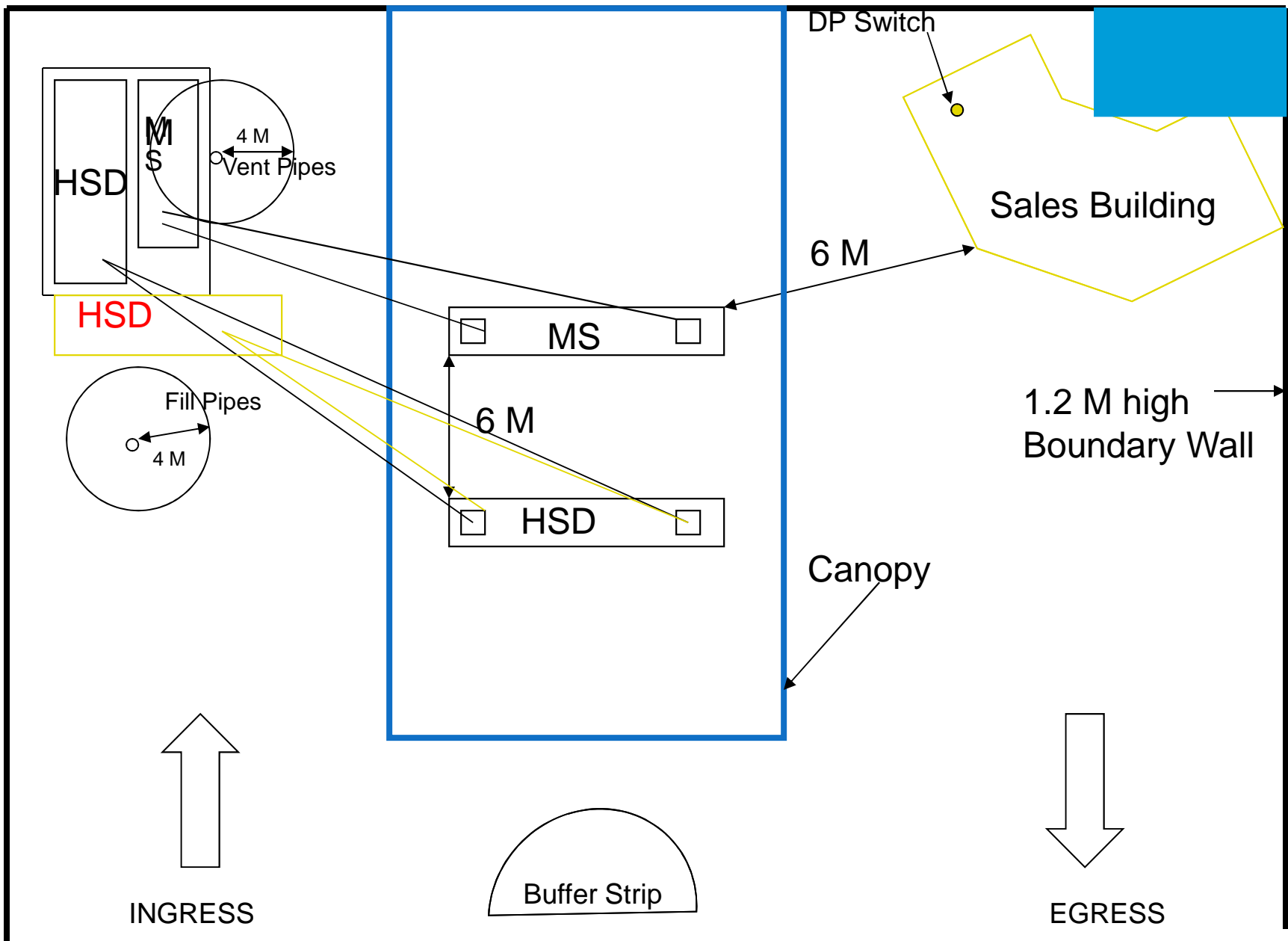
# Layouts and Installation

- **Illumination**
- Lux Requirement :
  - Approach Area : 50
  - Under Canopy : 150
  - Sales building : 100
  - Electrical Room : 100
- Metal Halide / CFL / MI Lights



# Layouts and Installation

- **Earth Pit requirement**
  - Two dedicated earth pits in grid with all Tanks, Dispensers, unloading point, canopy, yard lights through GI strips and double earth connection
  - Two dedicated earth pits for each High Mast
  - Two dedicated earth pits each for DG set Neutral and Body.
  - Two dedicated earth pits for Automation Equipment





# Operating Practices

# Accidents in RO s

- Static Charge
- Unsealed decantation
- Refueling during decantation
- Improper forecourt management
- Presence of Naked light – Cooking in backyard







Accident1

# Accidents in RO s

- Spillage from hose
- Engine on during refueling
- Nozzle on jeep bumper.





Accident2

# Accidents in RO s

- Tampered FLP glands
- Vapor accumulation in ducts
- Decantation of unauthorized product
- Use of mobile phone





Accident3

# Causes of Accident at Running RO during construction work



- Hot work without precautions
- Improper de gassing
- Debris falling
- During excavation product line/ electric cable damaged

# Causes of Accident at Running RO during constructionwork

- Loose electric connection creating spark
- Improper unbalanced Ladder and scaffold
- Wind direction not noticed
- Construction area not cordoned



# Safety equipment ...

- 2x 10 kg DCP Fire Extinguishers for each Dispenser
- 2x10 Kg DCP Fire Extinguishers during unloading
- 1 x 4.5 Kg Co2 Fire extinguisher in electric room
- Minimum 4 Nos Sand Buckets in the fore court
- 2x75 Kg DCP Fire extinguisher for ALDS storage





# Safety checks

- Fire Extinguishers as per Norms ..
- Safety inspection daily
- Safety Audit once in 6 months
- Electrical Audit ... once in a year

# Fire Extinguishers

## Component

Visual Check

DCP, Hose, Nozzles

CO<sub>2</sub> Cartridge

Performance

Pressure Testing

## Periodicity

- Daily
- Monthly
- Quarterly
- Yearly
- Once in three years



# Daily Checks

- Cleanliness and House keeping
- All equipment working Condition
- No spillage / leakage
- Fire extinguishers in place
- Vents are not choked
- Boards are in place
- Employees are in sound health



# Safety Audit ...

- Compliance to statutory requirements
- Availability and condition of extinguisher
- House keeping
- Operating practices
- Electrical maintenance



# Work Permit ..

- To be given by Dealer :
  - Accesses to roof and cavity of building / canopy
  - Forecourt repair / Concrete cutting / excavation
  - Water removal from Tank
  - Electrical Repair and Maintenance
  - Promotional Activities
  - Repair / AMC of signage / Dispensers



# Work Permit ..

- To be given by Authorized person :
  - Repair / cleaning of Tanks and Pipelines
  - Tank removal
  - Major non routine electrical maintenance
  - Hydro testing / Pressure Testing
  - Hot work including welding / grinding / cutting
  - Demolition and revamping



# Electrical Audit

- Deviation from laid down procedures
- Insulation and Grounding
- Protection and metering system
- Loose connection and over heating
- Repair and Maintenance



**THANK YOU**