

A PRACTICAL TRAINING  
REPORT ON



**United Phosphorus Ltd**

ANKLESHWAR

# **COMPANY INTRODUCTION**

- **UPL IS A CHEMICAL COMPANY.**
- **MAIN BRANCH OF UPL IN INDIA IS AT WORLI, MUMBAI.**
- **THERE ARE 5 UNITS OF UPL IN ANKLESHWAR**
- **UNIT-5 IS SITUATED ABOUT 15 KMS TO EAST FROM ANKLESHWAR RAILWAY STATION.**
- **CHEMICALS LIKE RED PHOSPHORUS, YELLOW PHOSPHORUS, CL<sub>2</sub> GAS, H<sub>2</sub> GAS ETC. ARE TREATED AT UPL UNIT-5**

# **DEPARTMENTS**

- **PERSONAL DEPARTMENT**
- **SAFETY DEPARTMENT**
- **CHEMICAL PLANT DEPARTMENT**
- **POWER PLANT DEPARTMENT**
- **MECHANICAL ENGINEERING DEPARTMENT**

# SAFETY DEPARTMENT

- Safety is the first step before doing any type of work.
- As UPL is the chemical company dealing with dangerous substance like phosphorus. Its an very important aspect of the company to give protection to all the workers of the company.

# SAFETY EQUIPMENTS

EQUIPMENT	QUANTITY
1 safety shower	63
2 hydrant	104
3 extinguisher	280
4 cl2 kit (clorine)	3
5 air line kit	7
6 air line box	11
7 hose box	34
8 hose station	17
9 assembly point	6
10 alarm point	22
11 suluce or isolation valve	42
12 ECC (emergency control center)	3
13 sand bucket stand	33
14 scba (self contain breathing abbrtus)	19

# TYPES OF FIRE

- 1 solid fire. (wood , paper)
- 2 oil fire. (petrol, kerosene)
- 3 gas fire. (hydrogen, chlorine)
- 4 metal fire. (copper, iron)
- 5 electrical fire.

# COLOUR AND NUMBER CODING.

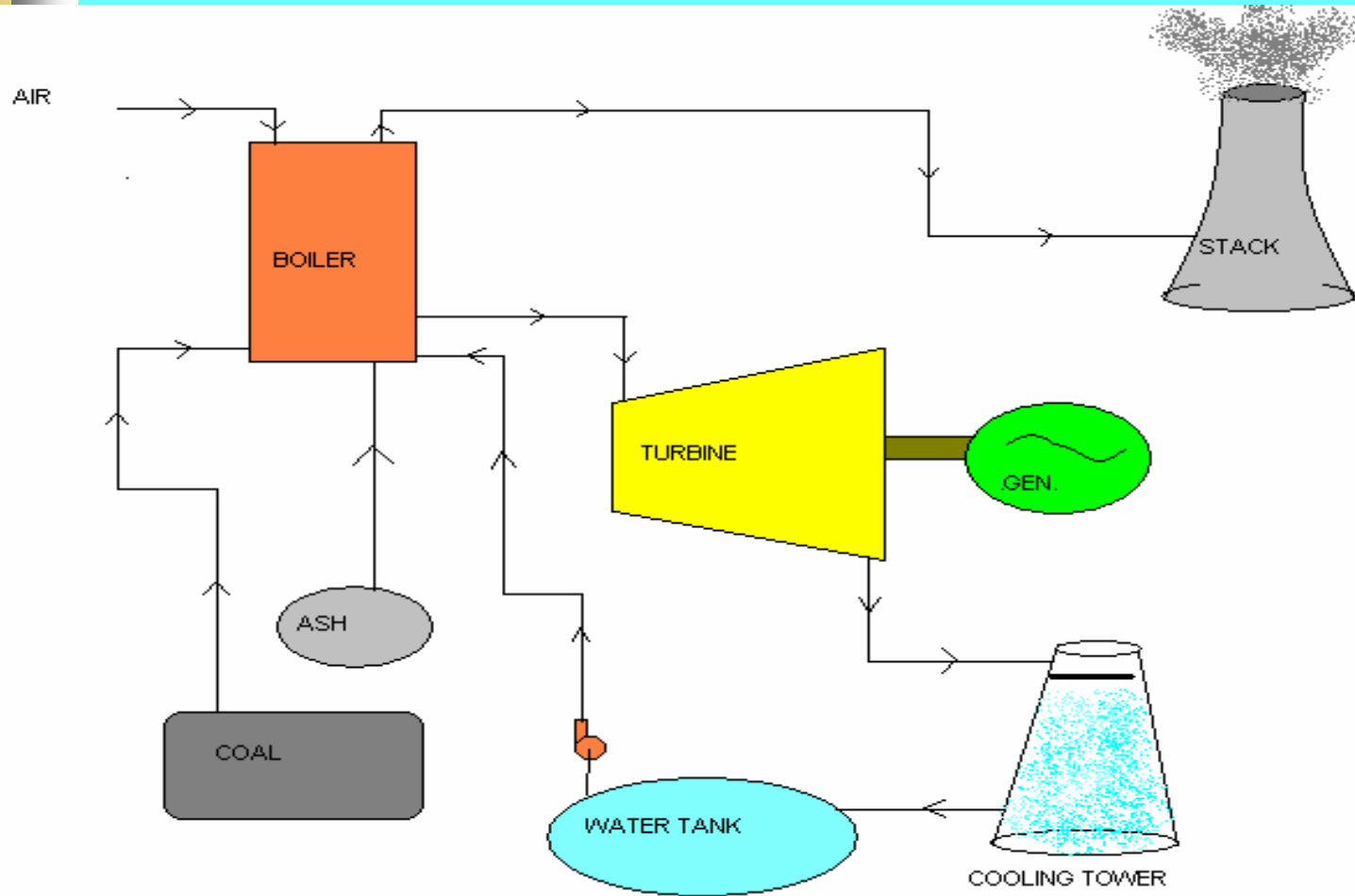
- **BLUE** :- health
- **RED** :- flammability.
- **YELLOW** :- reactivity.
- 
- **0** :- non danger
- **1** :- minor
- **2** :- more
- **3** :- **danger**
- **4** :- **dead**

# POWER PLANT.

- Power plant is located in south side of factory. This plant is used for producing all the electricity and steam needed by various plants of the factory. This plant is designed to generate about **125 megawatts power.**



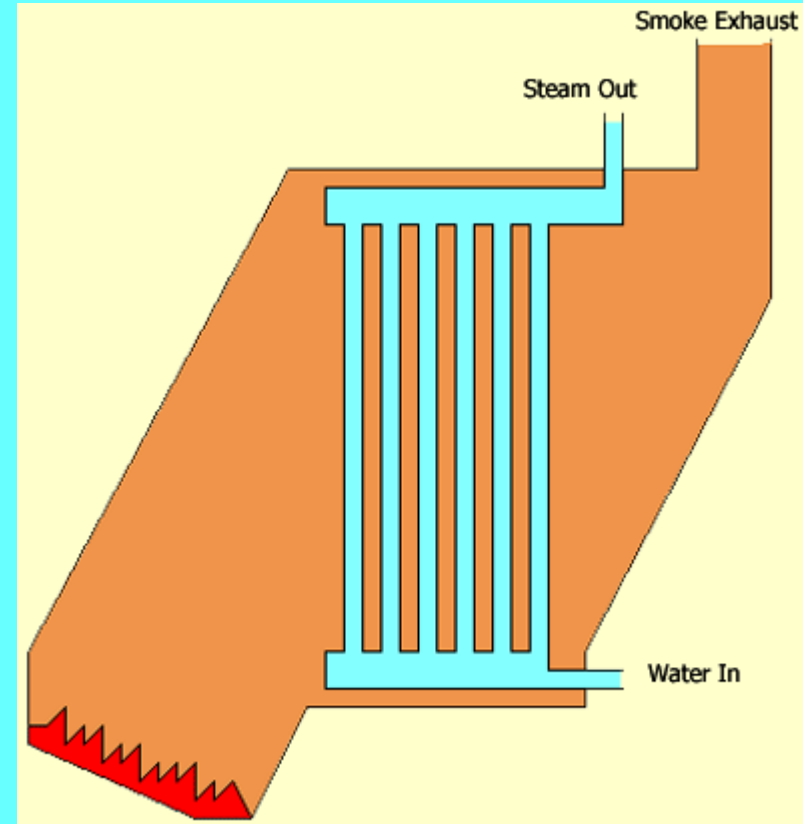
# LINE DIAGRAM OF POWER PLANT



**STEAM POWER PLANT**

# WATER TUBE BOILER

A **water-tube boiler** is used in UPL unit5. in which water runs through a rack of tubes that are positioned in the hot gases from the fire. The following simplified diagram shows you a typical layout for a water-tube boiler:



# PUMPS

Pumps are the major rotary equipment used at each and every point of the factory to handle liquids. Factory has large variety of pumps to serve for different liquids at different temperature and pressure. **Pumps are used to transfer liquid from one place to other.**

# **PUMPS USED**

**THERE ARE THREE TYPES OF  
PUMPS USED IN THE COMPANY.**

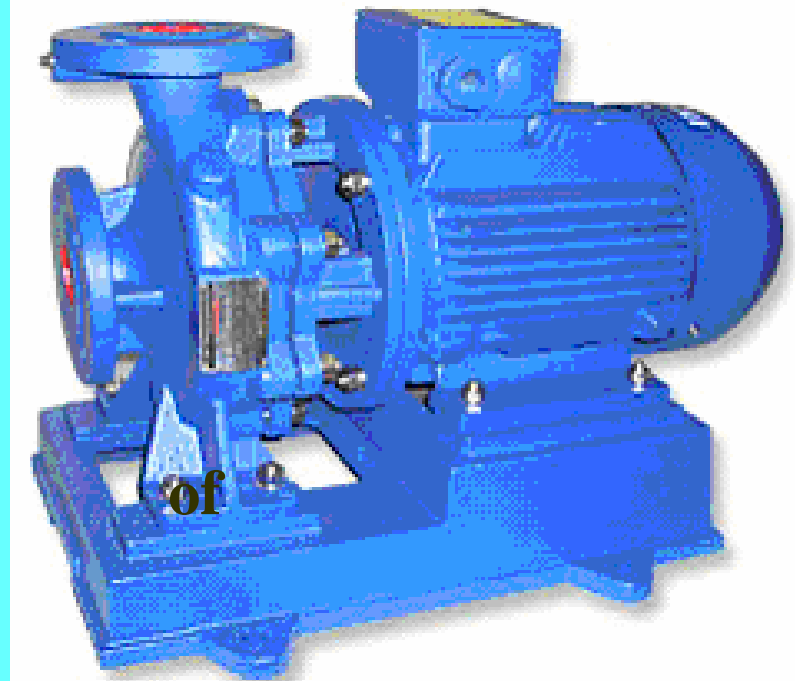
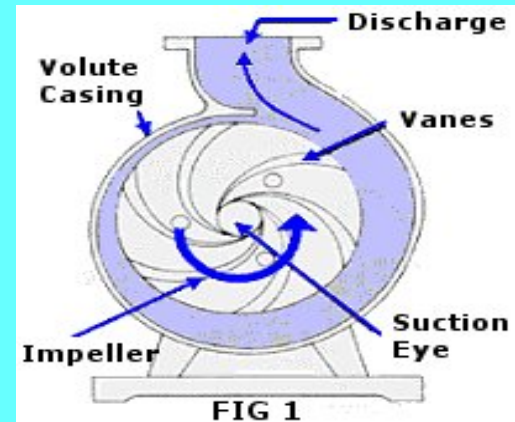
**1 CENTRIFUGAL PUMPS.**

**2 RECIPROCATING PUMPS.**

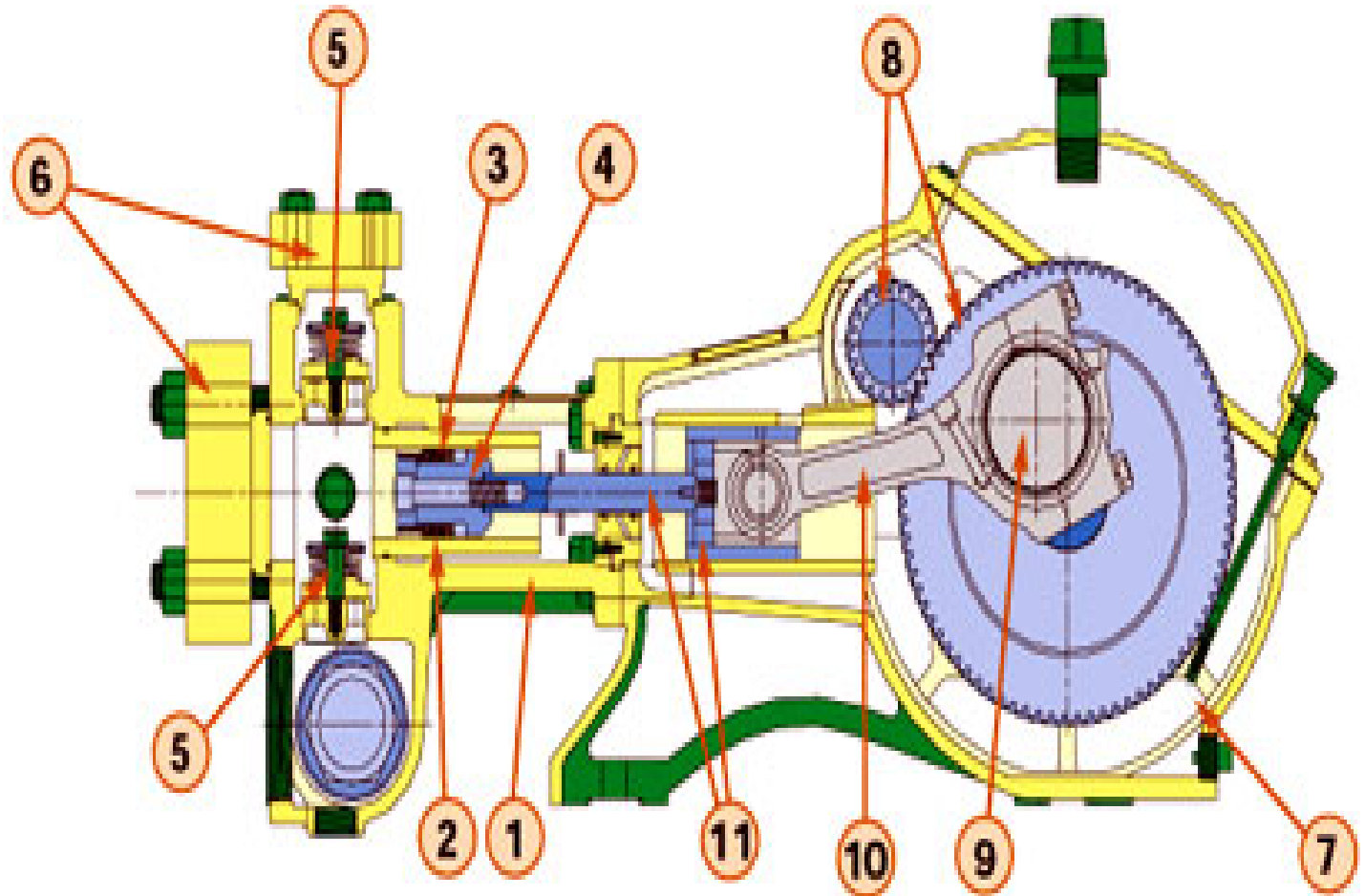
**3 DIAPHRAGM PUMPS.**

# CENTRIFUGAL PUMP

**90% of pumps used in company are centrifugal pumps.** Liquid enters the pump at centre of rotating impeller and gains energy as it moves to the outer diameter of impeller liquid is forced out of pumps can transfer large volumes of liquid but efficiency and flow decreases rigidly as pressure and viscosity increases. This is because centrifugal pumps are used to create moderate pressure of large volumes fluid.



# RECIPROCATING PUMP



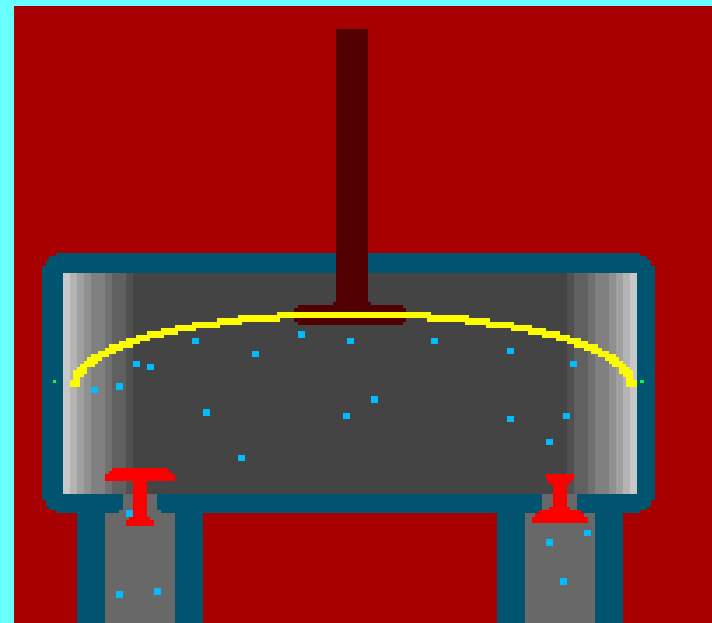
- **1.Cylinder Body:** High strength ductile iron or aluminum bronze
- **2.Cylinders:** Tapered steel shells with super-smooth, hard K-ramic® coating
- **3.Packing:** Buna-N and cotton duck multi-lip V-ring packing supported by a phenolic or bronze follower
- **4.Piston Assembly:** Stud, pressure ring, spring, retainer and cap screw are all solid stainless steel
- **5.Valve:** Spring-loaded flat valves have stainless steel seats, springs and valves with long-wearing bronze spring retainer and valve cage. Optional stainless steel center post-type features Delrin valves
- **6.Valve & Cylinder Caps:** Tough cast iron or carbon steel with Buna-N O-ring seals
- **7.Gearcase:** Rugged cast iron protects the gears and serves as oil reservoir for continuous splash lubrication when running pump in either direction of rotation
- **8.Pinion & Main Gear:** Helical cut and machined from high-strength alloy steel, and can rotate in either direction
- **9.Crankshaft:** Automotive type, forged from alloy steel supported by tapered roller bearings
- **10.Connecting Links:** Cast iron or ductile iron with replaceable bronze wrist-pin bearings and steel-backed automotive type inserts
- **11.Crossheads/Piston “Pony” Rods:** Heavy-duty rods are smoothly-ground and highly-polished stainless steel, threaded and pinned axially to crosshead

# DIAPHRAGM PUMPS

THERE ARE TWO TYPES OF DIAPHRAGM PUMPS.

1 HYDRAULICALLY  
OPERATED PUMP

2 AIR ACTUATED TYPE  
PUMP





# AIR ACTUATED PUMP



# Special thanks to...

- **Mr.vinod patel, Mr.mahesha manan, Mr.kamlakar patil, Mr.ashish patel, Mr. mahindar mahida.**

**They help in gaining knowledge of whole company and help me in complete the training and give some useful data's which I do not know. This training is very helpful for me in future.**

WELCOME FOR

● **QUERIES???**

● **HEARTLY THANKS**