

## **FACT COCHIN DIVISION**

### **Unit Profile**

**The Fertilizers And Chemicals Travancore Limited – Cochin Division (FACT-CD)** is the second manufacturing division of **FACT**. The factory is situated at Ambalamedu, Kochi. The Division was formed as part of the planned efforts by Govt to give the greatest scope to the use of indigenous technology in setting up large sized fertilizer plants. FEDO and P & D of FCI (now PDIL) were entrusted with the responsibility of installing these large plants with minimum foreign assistance. The site development included the formation of an artificial reservoir stretching over 200 acres of low-lying paddy fields by constructing a suitable earthen dam to meet water requirements of plants and township. The reservoir is supplied with water from the Periyar Valley Irrigation Project through a canal.

The FACT-CD has two phases. The phase - I of the division is having facilities to produce 1,98,000 tonnes of Ammonia and 3,30,000 tonnes of Urea per annum. But due to high raw material cost and non-remunerative end product prices, these plants are not productive presently. Only phase II plants are in production now. Phase – II consists of three plants namely, Sulphuric acid plant, Phosphoric acid plant and NP plant having annual capacities of 3,30,000 MT, 115200 MT of P<sub>2</sub>O<sub>5</sub> and 4,85,000 MT of complex fertilizers respectively.

The factory site is connected by rail, road and waterways, which facilitate movement of raw materials and products. FACT-CD has a track record of earnestness in combating pollution. The facility provided for treatment of effluents / emission include a Urea Hydrolyser stripper installed at Urea plant, a phase –II effluent treatment plant wherein the effluents are treated with controlled lime addition, Fume scrubbers for emissions from Complex plant, DCDA Process with Candle filters at the outlet of absorption towers of Sulphuric acid plant, and start up scrubber system in the Sulphuric acid plant to name a few.

A well-developed township for accommodating the employees is also provided at Ambalamedu close to the factory.

### **Specific Energy Consumption**

The specific energy consumption figures for NP 20:20 for last three years are presented below:

Year	Electrical Energy ,kWh/ton	Thermal energy, MkCal/Ton
2005-2006	55	0.1874
2006-2007	56	0.1827
2007-2008	72	0.1584

## **Energy Conservation Achievements**

### **1. During the period 2005 – 06**

#### **Utilising excess steam by replacing the motor drive of the cooling water pump with turbine drive:**

In Sulphuric acid plant, the motor of the cooling water pump was replaced with a steam turbine, which was taken from Ammonia plant. The steam required to run the turbine was met by utilizing the excess steam produced in the plant, which was being vented. Due to this modification, a 225 Kwh motor could be stopped and thus energy was saved. With this modification, the annual saving is Rs.60 lakhs. This scheme was implemented in October 2005.

### **2. During the period 2006 – 07**

#### **Utilizing the steam from Sulphuric acid plant in FACT-CD canteen**

In FACT-CD canteen, cooking was done using electrical heaters/ electrically powered steam generators. It was proposed to install jacketed vessels and use the steam available from SAP for cooking purposes. The 5 ata steam available is reduced to 2 ata using a PRDS available at FACT- PD before supplying for cooking. The total investment was Rs. 8.4 Lakhs. Energy saving will be about 1134 KWh/day. The estimated savings is **Rs. 11 Lakhs per annum**. This scheme was implemented in **February 2007**

### **3. During the period 2007 – 08**

#### **(a) Turbine driven pump for the Raw water pump in SAP**

It is proposed to use the DM water pump of no:4 boiler along with its turbine ( from thermal plant ) as the raw water pump in SAP (22KW). The present raw water pumps can be retained as spare. The initial investment is Rs. 1 Lakh . Annual savings is Rs. 3.6 Lakhs per annum. This scheme was implemented in January 2008.

#### **(b) Turbine drive for SAP cooling tower fan**

Replaced the motor of CT fan in SAP with steam turbine drive . Initial investment is Rs. 1 Lakh. By replacing this motor (55KW) annual saving is Rs. 9 Lakhs. This scheme was implemented in **January 2008**.

#### **(c) Turbine drive for Glycol pump in NPK plant**

The Glycol pump motor (100KW, 1450 rpm) in NPK plant was replaced with the turbine of Ammonia plant TG set. The total cost of the project is around Rs.16Lakhs. The annual savings is Rs.20Lakhs. This scheme was implemented in **February 2008**.

#### **(d) Reduction in impeller diameter of cooling water pump**

The cold well pump in PAP had a capacity of 2250M<sup>3</sup>/Hr as per original design. Consequent to the stopping of the concentration section , the cooling water requirement of PAP came down to around 1500 M<sup>3</sup>/Hr and the pump was running with discharge throttled. It was decided to replace the impeller of cold well pump No.2 with smaller sized one to reduce power consumption. The smaller size impeller supplied by the manufacturer was fixed and pump lined up in **January 2008**.

The reduction in power consumption is around 26 KW and the annual saving in power cost is around **Rs.6Lakhs**. The cost of new rotor is Rs. 2lakhs which gives a pay back period of 4 months.

#### **Energy Conservation Plans and Targets**

**A project has been planned for the coming year 2008 -09 using excess LP steam in Sulphuric Acid plant.**

LP steam at the rate of 20 TPH is vent out in the Sulphuric acid plant. It is proposed to install a TG set to produce around **1.7 MW power** . The power can be supplied to the electrical system. Total cost will be Rs. 6.5crores which has a pay back period of 21 months.

#### **Installing variable speed motor for filter feed pump in PAP**

It is proposed to install a variable speed motor for the filter feed pump in the Phosphoric acid plant . This will save about **30KW** of power. Annual saving is expected to be around **Rs.5.0Lakhs**. An investment of Rs.5.0Lakhs is calculated. This is to be implemented in **February 2009**.

#### **Turbine drive for DH fan in NPK plant**

The DH fan in NPK plant, which supplies air to Bagging plant , is driven by a 600KW, 1450 rpm motor. It is proposed to replace the motor with turbine drive of the BFW pump of 30 TPH boiler in Ammonia plant. A reduction gear to match the speed of the fan should be used for the purpose. The investment is around Rs.20Lakhs. The estimated savings is **Rs.90Lakhs** per annum. The estimated steam requirement is 4 MT/hr.

#### **Environment and Safety**

##### **Safety department**

Safety department is functioning to provide safe and healthy work environment to the employees of this organization. The company is having a declared Health and Safety policy. A Safety committee is constituted with representatives of employees and senior officers from operations and maintenance departments. Chief Superintendent of Production is the chairman of the safety committee. The committee meets at regular

intervals to discuss the accident prevention programmes. The employee's representatives are encouraged to bring to the notice of the chairman about any unsafe conditions noted in plants. It is ensured that the decisions taken in the safety committee are implemented in a time bound manner.

A Housekeeping Inspection Committee is functioning to keep better housekeeping standards in the Plants and its surroundings. The committee visits the plants at regular intervals and assesses the standards by awarding marks to each area. The results are informed to all employees to create general awareness.

In order to make the organization an accident free one, the departments where no accidents occurred and the departments where accidents are lesser than the previous year are well appreciated.

As a part of accident prevention programmes safety work permits are made mandatory for carrying out maintenance jobs in plants. Three types of safety work permits are in vogue in the organization, namely Hot work permits, Vessel Entry permits and Cold work permits.

Ours is an organization that comes under the definition of Major hazard Industries. A detailed On-site Emergency Plan is prepared and submitted to statutory authorities. Based on this mock drills are done to face any eventualities like fire or toxic release.

### **Environment Control**

FACT-CD is committed to the protection of Environment by prevention of pollution and continual improvement in the Environmental performance. The company has installed several facilities for the prevention of pollution like Effluent Treatment Plant, Sewage treatment Plant, Ammonia Stripper, Fumes scrubber in NPK plant, Start up scrubber in Sulphuric acid plant, Attack scrubber and General scrubber in Phosphoric Acid plant etc. Green belt development is also carried out.

We are regularly monitoring the pollutants in stack as well as in effluent and we are operating as per guidelines from Kerala State Pollution control Board.

The company successfully put in place an Environment Management System and got the certification of **ISO 14001:1996** in January 2000 from M/S DNV, Netherlands. We were re-certified in February 2006 as per **ISO 14001:2004** version with validity up to January 2009.

As per the Environmental Policy, following efforts are undertaken.

1. Minimization of waste
2. Conservation of resources
3. Recycling and re-use
4. Use of Environment friendly Technology.