

**M/S. RAJSHREE SUGARS AND CHEMICALS LTD
UNIT III.
(Co-gen Plant)**

**S.F. Nos. 50, 59, 60, 61, 62, 109, 110 & 112
Semmedu village,
Gingee Taluk,
Villupuram District,**

Management Summary for the
Usage of Coal as Fuel in the existing bagasse based power plant

(20.5 MW per hour Capacity)

1.0 INTRODUCTION

M/s. Rajshree Sugars & Chemicals Ltd has installed 20.5 MW cogeneration plant at Semmedu village, Villupuram district. This cogeneration plant has the “consent to operate” issued by TNPCB for using bagasse as fuel. The total bagasse generated from the sugar plant is being consumed by the cogeneration plant.

This cogeneration plant is being operated at lower capacities due to the lesser availability of bagasse. In order to operate the cogeneration plant to its rated potential, **M/s. Rajshree Sugars & Chemicals Ltd.** proposes to use coal as additional fuel in the 110 TPH, 110 ATA boiler. During the crushing season coal will be used along with bagasse in the boilers for the short fall of fuel requirement and during the off season the boiler will be operated with coal as fuel.

M/s. Rajshree Sugars & Chemicals Ltd. - Unit III (Co-gen Plant) is located at S.F. Nos. 50, 59, 60, 61, 62, 109, 110 & 112, Semmedu village, Gingee Taluk, Villupuram District, which is about 45 km away from Villupuram. The gross assets value of the existing power plant is Rs.76 Cores.

This unit is located about 45 KM from Villupuram nearer to the national highway 66 connecting Gingee and Thiruvannamalai. This unit is located towards north direction of this road. The nearest major human settlement is Gingee and railway station at Thiruvannamalai.

2.0 PROJECT DESCRIPTION

2.1 Products Manufactured

The Production Capacity of Co-gen Plant will be as follows.

1. Power - 20.5 MW

2.2 Raw Materials

The monthly requirement of raw materials and process chemicals for the existing unit is given in Table 2.1.

(a) Consented Quantity

<u>Raw Material</u>	<u>Quantity T/M</u>
During Season	
Bagasse	30,456 T/M
During Off-season (60 days)	
Bagasse	24,804 T/M

(b) Now applied for

<u>Raw Material</u>	<u>Quantity T/M</u>
During Season (240 days)	
Bagasse	30,456 T/M
Or	
Coal	11,520 T/M
During Off-season	
Coal	11,520 T/M

During season, Bagasse or Coal will be used as fuel. During off-season, 100 % Coal, will be used as fuel.

2.3 Manufacturing Process

The high pressure steam passes through the turbo generator and generates power. The exhaust low steam from the turbine is used in the processing of sugar. This process of utilization of steam for generating power and for processing of sugar is called cogeneration.

The installation of High Pressure Boiler and steam Turbine enables the plant to generate additional power using the same quantity of bagasse besides meeting the power and steam requirement of sugar mill. The additional power is pumped to the Electricity Board's Grid.

2.4 Power and Fuels

During Season

As per HBD, during the season possible power generation will be 20 MW only. At the existing capacity, the average power demand is about for sugar plant 3.85MW and for power plant 2.105 MW per hour. The balance power 14.045 MW is exported to TNEB grid during the season.

During off-season

The power generation is 20.5 MW during the off-season. At the production capacity, the average power demand is about 1.995 MW for power plant and 0.2 MW for sugar plant per hour. The balance power 18.305 MW is exported to TNEB grid during the off-season.

2.5 Raw Water

The total requirement of raw water for this unit will be 925 KLD. The entire raw water requirement for the unit will be met from the bore wells inside the factory premises.

2.6 Land

The cogeneration plant occupies an area of 19 acres. The built area of the cogeneration plant is 3.5 acres. Green belt is developed in 4 acres. The balance land is used for roads, other utilities and for gardening purposes.

2.7 Manpower

The total workforce including staff and workers will be 100.

3.0 DESCRIPTION OF THE ENVIRONMENT

3.1 Climate

The climate is generally arid with temperatures varying from 28.3 °C to 38.3°C. The rainfall is maximum in the NE monsoon period and minimum in SW monsoon period.

3.2 Ecology

There is no endangered species of flora and fauna noticed in this area. The area does not shelter any specific wildlife.

3.3 Hydrological Conditions

3.3.1 Surface Water

The run-off during monsoon period contributes to the surface water. These villages get water due to rain in rainy season.

3.3.2 Ground water

The ground water table varies from 68 m to 92 m. It is therefore a low to medium potential zone for ground water.

3.4 Water Quality

Water samples were collected from different locations and the following parameters will be monitored such as pH, Colour, Odour, Turbidity, Electrical conductivity, Total alkalinity, Total hardness, Calcium, Magnesium, Iron, Chlorides, Sulphates, Fluorides, Nitrates, Total dissolved solids.

3.5 Ambient Air Quality and Noise Levels

The ambient air quality was studied for eight locations. It is found that the Suspended Particulate Matter (SPM) is found to vary from 95 micro g/m³ to a maximum of 175 micro g/m³. The concentration of NO_x and SO₂ are found to be very low. The noise levels recorded at various locations indicate that it is mostly less than 68 dB(A) which is less than the permissible limit for Industrial areas.

4.0 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

4.1 Air Emissions

S. No.	Description	Air Pollution Control Measures
1.	Boiler (110 TPH)	90 m height & 2.7 m dia stack with Electro Static Precipitator has been provided.
2.	DG Set (1000 KVA) – 2 Nos	Each 21 m height of stack with suitable acoustic measures has been provided.

4.2 Wastewater Generation

S. No.	Particulars	Water quantity m ³ /day	Method of Treatment
1.	Boiler Blow Down	139.00	To Sugar Plant ETP
2.	R.O. rejection	246.00	
3.	Sewage	19.20	
4.	Cooling Tower Blow Down	25.00	

246 m³/day of R.O. Plant reject, 25 m³/day of cooling tower bleed off, 139 m³/day of boiler blow down and 19.2 m³/day of domestic sewage are treated by Effluent Treatment Plant located at Sugar Plant and the treated effluent is used for green belt development, Ash quenching in boilers, gardening purposes and also for irrigating factory farm.

4.3 Solid Waste

The solid waste will be generated from this unit is as follows.

(a) Consented Quantity

S.No.	Solid Wastes	Quantity per month	Method of Disposal
1	Ash (Bagasse)	15 T/day	Used as manure

(b) Now applied for

S.No.	Solid Wastes	Quantity per month	Method of Disposal
1	Ash (Bagasse)	15 T/day	Used as manure
2	Ash (Coal)	48 T/day	Sold out to brick manufacturing industries and cement industries

4.4 Noise

The noise level in the inside & outside the factory shall be maintained at low level.

5.0 Environmental Monitoring Programme

5.1 Environment, Safety and Health Monitoring

The environment, safety and health-monitoring programme in the factory are as follows:

1. Monthly monitoring of stack emissions
2. Daily monitoring of water and wastewater
3. Quality monitoring of ambient air, noise and work place air
4. Monitoring of occupational safety

Once again the unit assures that, there will be no adverse impact due to proposed activities.

Budgetary Allocation for Environmental Management

Category	Capital Investment	Annual Operating Costs
	(Rs. in Lakhs)	
Air Pollution Management	358.72	3.5
Water and Wastewater Management	72.85	0.9
Solid Waste Management	100	1.2
Greenbelt	2.0	1.5
Environmental Monitoring and Training	5.0	1.3
Total	538.7	8.40

6.0 Additional Studies

6.1 Organization Structure

The General Manager is responsible for the factory operations. There are several executives for various sections such as Engineering, Production, Human Resource, Purchase, Store, Accounts, Environmental & Safety, Maintenance, and Quality Control etc.

6.2 Land Use Pattern

The entire area is a patta land owned by the company and it is in the form of shrub land. The buffer zone has no forests.

6.3 Socio-Economic Conditions

There is no habitation or settlement in the industrial area. The nearest village of Semmedu is having a population of 1739 with 940 males and 799 females as per 2001 census data. The major source of income of the local population is from agriculture.

6.4 Greenbelt Plan

Greenbelt shall be developed inside the factory premises covering a total area of about 4.0 Acres. The unit will also develop the nearby area around the industry for greenbelt. The inter-spaces shall be laid with shrubs. The inter-space between trees planted will be maintained about 5m.

7.0 Project Benefits

1. Improves rural economy
2. Direct and Indirect employment in surrounding areas

8.0 ENVIRONMENTAL MANAGEMENT PLAN

8.1 Air Quality

For the emission from the Boiler (110 TPH), 90 m height of stack with Electro Static Precipitator will be provided. For D.G set (1000 KVA) 2 nos – 2 Nos of 21 m height of stack with acoustics measures will be provided.

8.2 Water Resource

This unit depends on bore well for its different water requirements and the quantity will be around 925 m³/day.

8.3 Waste Water

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8.5 Land Degradation

Since, the wastewater from the process and domestic will be thoroughly treated by the ETP, the chances of contamination of soil will be nil. The vacant area in the industry will be used for tree plantation to improve the surrounding environment of the industry.

8.6 Noise Level

As per the observations, the noise level in the buffer zone is found to be very low.

8.7 Socio-Economic Consideration

This project does not involve any displacement of local people. Employment opportunities will be improved in the nearby villages because of this unit and this will provide direct employment opportunity for 100 persons. The unit as a responsible corporate citizen tries to contribute towards social causes like health, education, and amenities for the surrounding areas.

For Rajshree Sugars and Chemicals Ltd - Unit III

President