

THE ANDHRA SUGARS LIMITED
(CHEMICALS AND FERTILIZERS DIVISION)
SY. NO. 132 - 134 AND 137, SAGGONDA VILLAGE,
GOPALAPURAM MANDAL, WEST GODAVARI DISTRICT,
ANDHRA PRADESH

PRE-FEASIBILITY REPORT

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SUBMITTED TO
MINISTRY OF ENVIRONMENT, FORESTS AND CLIMATE CHANGE
GOVERNMENT OF INDIA
INDIRA PARYAVARAN BHAWAN, JOR BAGH ROAD, NEW DELHI

Pre - Feasibility Report

M/s. The Andhra Sugars Limited

Sy.No.132-134 & 137, Saggonda Village,
Gopalapuram Mandal, West Godavari District,
Andhra Pradesh

1. Executive Summary

M/s. The Andhra Sugars Limited located at Survey No. 132, 133, 134 & 137 Saggonda Village, Gopalapuram Mandal, West Godavari District, Andhra Pradesh obtained Environmental Clearance for Expansion of Caustic Soda Plant of capacity 400 TPD of Vide Letter no J-1101/245/2005- IA II (I) dated 08.02.2006. The unit obtained consent and authorization (CFO) for manufacturing of 400 TPD Caustic Soda of vide Letter No. APPCB/VSP/RJY/44/CFO/HO/2016 dated 09.02.2016. It has obtained

The Andhra Sugars Limited, Saggonda is proposed to expand manufacturing capacity of existing facility and inclusion of synthetic organic chemicals in existing area of 320 acres with capital investment for proposed expansion is Rs. 800 crores. Expansion includes enhancement of process equipment and storage facility. The proposed expansion has employment potential of 452 no.s.

The site is located at the intersection of latitude 17°10'49"N and longitude 81°03'8"E. The site is surrounded by open lands in north, South and east directions. Coal Based power plant in west of site. River Godavari is towards east of the site at a distance of 4 Km from the site flowing from north to south . Kavvada Canal Flows from SW to NE direction of the site at a distance of 5 km in north direction. Vinjaram Reserved forest is at a distance of 8.5 Km towards NE Direction of the site. Polavarm Reserved forest is at distance of 7.4 Km towards NW direction of the site. There are no ecologically sensitive areas like national parks, sanctuaries within 10 km radius of the site.

2. Introduction of the Project

M/s. The Andhra Sugars Limited located at Survey No. 132, 133, 134 & 137 Saggonda Village, Gopalapuram Mandal, West Godavari District, Andhra Pradesh obtained Environmental Clearance for Expansion of Caustic Soda Plant of capacity 400 TPD of Vide Letter no J-1101/245/2005- IA II (I) dated 08.02.2006. The unit obtained consent and authorization (CFO) for manufacturing of 400 TPD Caustic Soda of vide Letter No. APPCB/VSP/RJY/44/CFO/HO/2016 dated 09.02.2016. It has obtained

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2.1 Brief Description of Nature of the Project:

The Andhra Sugars Limited (ASL) was established in the Year 1947. It has manufacturing facilities at viz., Tanuku, Taduvai, Bhimadole, Kovvur and Saggonda in Andhra Pradesh producing different products. The philosophy of the company has always been the part of utilisation of its by-products to produce other products, providing quality products at reasonable cost.

2.2 Need for the project and its importance to the country and or region:

World population is growing at an alarming rate. In the Indian sub continent population growth is more than that of developed countries. To meet the needs and comforts of ever-growing population industrialization became inevitable. For the growing population the needs of health care substitutes are also increasing.

2.3 Demands-Supply Gap:

The project is envisaged to meet the demand supply gap in both domestic and export market demand is increasing day by day.

2.4 Imports Vs. Indigenous Production:

The project shall meet to reduce the imports of Caustic Soda and Caustic Potash and also enhance the foreign exchange reserves.

2.5 Domestic/export Markets:

The products shall cater to both domestic and export markets.

2.6 Employment Generation (Direct and Indirect) due to the project:

The present project for manufacturing of Chlor Alkali and chlorine based products requires substantial handling of raw materials, goods in process and finished goods. Hence, direct and indirect employment will be generated.

3. Project Description

3.1 Type of Project including interlinked and interdependent projects, if any:

M/s. The Andhra Sugars Limited located at Survey No. 132-134 & 137, Saggonda Village, Gopalapuram Mandal, West Godavari District, Andhra Pradesh obtained consent and authorization (CFO) for manufacturing of 400 TPD of vide Letter No.

APPCB/VSP/RJY/44/CFO/HO/2016 dated 09.02.2016. It has obtained Environmental Clearance for Expansion of Caustic Soda Plant from 200 TPD to 400 TPD of Vide Letter no J-1101/245/2005- IA II (I) dated 08.02.2006

3.2 Size or magnitude of operation:

Manufacturing Capacity

S.No.	Product Name	Capacity (TPD)		
		Existing	Proposed	Total after expansion
1.	Caustic Soda	400	400	800
2.	Caustic Potash	--	100	100
3.	Liquid Chlorine	240	4	244
4.	Hydrochloric Acid (33%)	600	400	1000
5.	Caustic Soda Flakes	140	140	280
6.	Hydrogen Gas (bottling)	2.83	1.0	3.83
7.	Liquid Hydrogen	1.0	1.0	2.0
8.	Sodium Hypochlorite	20	20	40
9.	Sulphuric Acid	300	--	300
10.	Poly Aluminum Chloride	90	--	90
11.	Sodium Chlorate	--	60	60
12.	1. Chlorinated Paraffin Wax (52%)	--	20	20
	2. Hydrochloric Acid (33%)	--	30	30
13.	1. Mono Chloro Acetic Acid	--	20	20
	2. Hydrochloric Acid (33%)	--	33	33
14.	Chloro Methanes :	--		
	1. Methyl Chloride		10	10
	2. Methylene Chloride		61	61
	3. Chloroform		56	56
	4. Carbon tetrachloride		7.6	7.6
	5. Hydrochloric Acid (33%)		65.8	65.8

3.3 Process Description with process details (a schematic diagram/flow chart)

Process description is as in the Form I Annexures.

3.4 Raw material required along with estimated quantity likely source, marketing area of final product/s, mode of transport of raw material and finished product.

All the raw materials required for manufacturing mostly available in India or from abroad. There are no banned chemicals or products which are proposed to be used.

It is proposed to enter into long term arrangements with some of the raw material suppliers both in India and overseas to avoid shortages at any time.

3.5 Availability of water its source, energy/power requirement and source should be given

Water is required for process, scrubbers, washing, cooling tower makeup, steam generation and domestic purposes. The required water shall be drawn from River Godavari in addition to reuse of treated wastewater. . The total water requirement increased from 3360 KLD to 9252 KLD after expansion consisting of 8428 KLD fresh water and the remaining of recycled water. Total water balance is presented in **Table below**.

Total Water Balance

Purpose	INPUT (KLD)				OUTPUT (KLD)			
	Fresh Water		Recycled Water		Loss		Effluent	
	Existing	Proposed	Existing	Proposed	Existing	Proposed	Existing	Proposed
Process & Washings	1590	1883	85	152	1630	1925	45	110
Cooling Towers	1175	2400	195	350	1340	2648	30	102
Boiler	355	505			325	460	30	45
DM Plant Regeneration	175	225					175	225
Scrubber		20						20
Domestic	15	35			3	5	12	30
Gardening	50		12	30	62	30		
Gross Total	3360	5068	292	532	3360	5068	292	532
Total	8428		824		8428		824	

3.5.1 Electricity:

The required energy shall be drawn from AP Transco.

3.6 Quantity of wastes to be generated (liquid and solid) and Scheme for their Management/disposal:

The sources of effluent generation from the plant are from the process, Floor washings, Utilities, Scrubber and plant domestic wastewater. The Effluent Treatment details and the Solid Waste Management details are listed in the below tables.

Quantity of Effluent Generated and Mode of Treatment

Description	Quantity (KLD)			Mode of Treatment
	Existing	Proposed	After Expansion	
Process & Washings	45	110	155	Will be treated in ETP followed by RO plant & R.O. permeate will be utilized for cooling towers makeup & R.O. rejects will be utilized in Brine Saturator to achieve ZLD.
Cooling Towers	30	102	132	
Boiler	30	45	75	
DM Plant Regeneration	175	225	400	
Scrubber		20	20	
Domestic Wastewater	12	30	42	Sent to Sewage treatment plant and treated wastewater reused for green belt development within plant premises.
Total	292	532	824	

Total Solid Waste Generated and Mode of Disposal

S.No.	Description	Unit	Quantity			Mode of disposal
			Permitted	Proposed	Total after expansion	
1	Brine sludge	TPD	10	12	22	Sent to lined land fill within the premises
2	Saturated mud	TPD	0.6	0.7	1.3	
3	Sulphur sludge	TPA	100		100	As filler material for SSP plant at Kovvur
4	Spent Catalyst	TPA	0.4		0.4	TSDF, Parawada, Visakhapatnam
5	Waste Oil	LPA	2400	2400	4800	Used in Heating furnace within the plant premises
6	KCl brine sludge	TPD		2.5	2.5	Will be sent to lined land fill within the premises
7	Saturated mud	TPS		0.15	0.15	
8	Gypsum	TPD		1.5	1.5	To cement industries / sent to lined land fill with in the premises
9	Alumina Sludge	TPD	1.35		1.35	Sent to lined land fill within the premises
10	ETP sludge	TPA	2	2	4	Sent to lined land fill within the premises

Solid waste from CPW & MCA plants: NIL

4. Site Analysis

4.1 Plant Location

M/s. The Andhra Sugars Limited located at Survey No. 132-134 & 137, Saggonda Village, Gopalapuram Mandal, West Godavari District, Andhra Pradesh obtained consent and authorization (CFO) for manufacturing of 400 TPD of vide Letter No. APPCB/VSP/RJY/44/CFO/HO/2016 dated 09.02.2016. It has obtained Environmental Clearance for Expansion of Caustic Soda Plant from 200 TPD to 400 TPD of Vide Letter no J-1101/245/2005- IA II (I) dated 08.02.2006

The Andhra Sugars Limited, Saggonda is proposed to expand manufacturing capacity of existing 400 TPD Caustic Soda to 800 TPD, Liquid Chlorine from 240 TPD to 244 TPD (After part of chlorine utilization for the proposed new chlorine based products) Hydrochloric acid (33%) from 600 TPD to 1000 TPD, Caustic Soda Flakes from 140 TPD to 280 TPD, Hydrogen Gas Bottling from 2.83 TPD to 3.83 TPD, Liquid Hydrogen from 1 TPD to 2 TPD, Sodium Hypo Chlorite from 20 TPD to 40 TPD. It also proposed to manufacture Caustic Potash (100 TPD), Chloro Methanes (200 TPD), Sodium Chlorate (60 TPD), Mono chloro Acetic acid (20 TPD) & Chlorinated Paraffin Wax (20 TPD). The total capital cost for expansion is Rs. 800 crores. Total existing plant area is 320 acres. Expansion includes enhancement of process equipment and storage facility. The proposed expansion has employment potential of 452 no.s. The manpower required for operation of the plant for both technical and non-technical are already available.

The site is located at the intersection of latitude 17°10'49"N and longitude 81°37'8"E. The site is surrounded by open lands in north, South and east directions. Coal Based power plant in west of site. River Godavari is towards east of the site at a distance of 4 Km from the site flowing from north to south. Kavvada Canal Flows from SW to NE direction of the site at a distance of 5 km in north direction. Vinjaram Reserved forest is at a distance of 8.5 Km towards NE Direction of the site. Polavarm Reserved forest is at distance of 7.4 Km towards NW direction of the site. There are no ecologically sensitive areas like national parks, sanctuaries within 10 km radius of the site.

5. Planning Brief:

The proposed expansion involves enhancement of process equipment besides improving of yield and the production shall be initiated thereon.

6. Proposed Infrastructure:

6.1 Power Requirement and Supply/Source

The required energy shall be drawn from AP Transco. The power shall be drawn from existing DG sets during load shut downs.

6.2 Utilities

The proposed expansion requires additional steam. The proposed utilities include 25 TPH Coal/Husk fired boiler. List of utilities are presented below;

S.No	Utility	Existing	Proposed	After Expansion
1	Husk Fired Boilers (TPH)	1 x 15 1 x 10	--	1 x 15 1 x 10
2	Coal/Husk Fired Boiler (TPH)		1 x 25	1 x 25
3	Oil Fired Boiler (TPH)	1 x 6	--	1 x 6
4	Waste Heat Recovery Boiler (TPH)	1 x 15	--	1 x 15
5	Incinerator (Kg/hr)		1 x 383	
	DG Sets (KVA)*	1 x 4750 3 x 1000	--	1 x 4750 3 x 1000

Equipments

The basic technology Krupp-UHDE involved in the manufacturing in Chloro Alkali plant is electrolysis of membrane cells, Heat Exchangers, Evaporation plant, Flaking plant, HCl graphite plants, Waste Chlorine absorption system, Chlorine liquifaction and Storage Tanks. To support the process equipment Boilers, Chilling plants, Cooling Towers Etc. are required. In the above equipments some are sourced indigenously and some are imported.

6.3 Waste management

Liquid Effluents

The main sources of effluent generation from the plant are process, washings, Scrubber, blow downs from utilities like cooling tower, boiler & domestic effluents. Treated effluent reused for cooling towers make-up.

Air Pollution

The sources of air pollution from the plant are from proposed 25 TPH Husk/Coal Fired Boiler. Existing sources of air pollution includes 15 TPH and 10 TPH Husk Fired Boiler, 6 TPH Oil Fired Boiler 15 TPH Waste Heat Recovery Boiler , 4750 KVA DG Set and 3 x 1000 KVA DG Set Capacity. The DG sets required for emergency power during load shut down. Existing DG Sets includes 1 x 4750 KVA and 3 x 1000

KVA Capacity DG Sets. Control Equipments includes ESP and Bag filter Bag filters will be provided as air pollution control equipment for 25 TPH Coal/husk Fired Boiler. DG set provided with stack heights based on the CPCB formula for effective stack height.

Solid waste

Solid wastes are generated from the process like brine sludge, saturator mud, ETP sludge and Alumina sludge will be disposed in existing lined land fill facility. Hazardous waste - spent catalyst will be sent to TSDF, Waste oils burned in heating furnace in existing plant. Sulphur sludge is being utilized in Single Superphosphate plant at Kovvur as filler. Gypsum will be sold to Cement Industries / sent to lined land fill within the premises.

7. Rehabilitation and Resettlement (R&R) Plan

Not applicable as the land area is in the existing plant premises.

8. Project Schedule & Cost Estimates

8.1 Likely date of start of construction and likely date of completion (Time schedule for the project to be given)

After obtaining consent for establishment.

8.2 Estimated project cost along with analysis in terms of economic viability of the project

The estimated cost of the project is approximately Rs. 800 crores

Project Cost		
		Rs. In Crores
Plant & machinery		580
Pipe lines & insulation	20% on plant & machinery	116
Electricals & instrumentation	10% on plant & machinery	58
Erection & commissioning & painting	8% on plant & machinery and structures	46
Project Cost (Crores)		800