EXECUTIVE SUMMARY

FOR

PROPOSED EXPANSION OF SUGAR MILL TO 8000 TCD AND ESTABLISHMENT OF 35 MW CO-GEN. POWER PLANT & 90 KLPD DISTILLERY

BY

M/s Athani Sugars Ltd. (Unit – 3),

At Village Shewalewadi, Taluka Karad,
District Satara, Maharashtra

EXECUTIVE SUMMARY

Project name and location is M/s Athani Sugars Ltd., At Post Shewalewadi, Tal. Karad, Dist. Satara, Maharashtra state.

Correspondence may be addressed to Shri. Yogesh Patil, Whole Time Director, on above address.

Products and capacities are:

#	Product	Production			Unit	Category
		Existing	New	Total		
1	Cane crushing capacity	2500	5500	8000	TCD	5(j)
2	Co-gen power	00	35	35	MW	1(d)
3	Distillery	00	90	90	KLPD	5(g)

The raw material and utilities requirement with source of supply can be quantitatively stated as:

Item	Existing	Additional	Total	Unit	Particulars
Sugarcane	75000	165000	240000	MT/M	Available in District
Lime	150	330	480	MT/M	Used for keeping proper Environment for process. Available from Satara, Pune and Mumbai market.
Sulphur Dioxide	50	110	160	MT/M	
Phosphoric acid	3.5	7.7	11.20	MT/M	
Bagasse	22500	49500	72000	MT/M	Self and vicinity.
Molasses	3375	7425	10800	MT/M	Self and vicinity.

Utilities:

- Land: The Company owns 196 acre land. The proposed project will be accommodated in the premises of existing factory.
- Water: Fresh Water need daily is 935 m^3. Permission of Irrigation Department is obtained. Water source is Yevati Dam.
- Power: 2500 kW power needed. Available through Govt. Electricity Board and own generation.
- Fuel: Bagasse, 2400TPD, available with self and from the vicinity (if needed).

Process description in brief, can be stated as:

Process:

(A) Sugar: Sugar is prepared in five steps. (a) Juice extraction from sugarcane, (b) Clarification of juice, (c) Evaporation of water from juice, (d) Crystallization of sugar syrup and (e) Centrifugation of massecuite.

(B) Co-gen: Steam is generated from boiler at high pressure. This high pressure steam is then supplied to turbines to produce electricity. Tail steam is also used for process.

(C) Distillery: There are four major steps in preparation of alcohol. (a) Substrate (feed) preparation for fermentation, (b) Yeast propagation and continuous fermentation, (c) Multi-pressure distillation and (d) Dehydration of RS to anhydrous alcohol or purified to get ENA.

This will generate three types of waste namely liquid, gaseous and solid. Responsible care of these will be taken.

1) **Liquid Effluent:** There will be four types of effluent. (a) Sober effluent from cooling, boiler blow down, purging water, (b) Moderate effluent from vessel/floor washing, process, spent lees stream, (c) Condensate water from MEE and (d) Industrial highly polluted water (spent wash) from distillery

2) Gaseous Emission:

.#	**Source**	**Pollutant**	**In-plant Measures**	**Control Equipment**
1	Molasses Yard	SPM road dust, HC	Levelled Roads and land, rubber tire, slow speed. Less waiting	--
2	Boiler	SPM, CO, SO_2	Feed Bagasse/husk more dry, also will be used methane. Improved quality of water	Dampers, ID Fan, CO_2 meter, Fly-ash arrestor ESP, Light ash through very tall stack.
3	Fermentation	CO_2	Tank covered	Collected and scrubbed
4	Distillation	HC	Closed circuit	
5	Spent-wash	HC, Heat	Heat Exchanger	(Not open to sky cooling)
6	Other effluents	H_2O, CO_2	Closed transfer	Fully Aerobic regime.

3) Solid waste:

#	**Waste**	Quantity	**Disposal**	**Remark**
1	Canteen	50 kg	Own garden	Organic
2	Colony	100 kg	Own garden	Mixed
3	ETP sludge	2 MT	On Land after composting	Organic, Non-Haz
4	Office & Packing	50 kg	Sales	Non-Haz.
5	Yeast Sludge	167 kg	On greening belt	Organic, and Non-Haz.
6	Ash	76 TPD	Sale to farmers after composting,	Takers available
7	Lube oil	6 Kg/day	Own boiler (with Bagasse)	--

4) Hazardous waste:

S. No.	List of Processes Generating Hazardous Waste	Waste stream		Remark Please vide Note
38	Cleaning of barrels which have held chemical substances	38.1	Chemicals containing residues from barrel cleaning	No. 1 below
		38.2	Sludge from waste-water purification	
41	Waste treatment processes e.g. distillation, separation and concentration technique.	41.4	Distillation residue from the work-up of contaminated halogen-free organic solvents	No. 2 below
44	Every action relating to and every use of lubricating and system oil	44.1	Spent oil	No. 3 below
		44.2	Other spent lubricating and system oil	

Note 1: The number of barrels containing Turkey Red Oil is small, as the substance is not a raw material. It is merely an anti-foam agent. These are on returnable basis to suppliers. So it can be said for the yeast supplement substances, like nutrients, which comes in bags only.

Note 2: The activity is bound to remain inside, as no organic solvents are involved anywhere in the line of process reaction or work-up.

Note 3: Not being an Engineering Industry, use of oil-grease, lubricants, or hydraulic/ system oil is extremely limited. The steps like fermentation, distillation do not involve any rotating machines, hence it is not applicable. Recovered and used for lubricating cane carrying carts.

Responsible measures are taken for mitigating the impact on the environment with proper discharge and disposal.

- Water pollution: This is Zero Liquid Discharge unit. No water is discharged from the site to surrounding area. The sober effluent is given physico-chemical treatment. Then this water is combined with Moderate effluent which is treated with equalization, neutralization, aeration, secondary clarifier and tertiary treatment.
- Spent wash generated in proposed project shall be used as fuel for Distillery boiler.
- Air pollution: Air pollution control equipment like ESP, ID Fan, dampers. Stack of appropriate height installed.
- Solid waste: Handling of solid waste is considered, which is limited in volume. Some of it is already proposed to be used for good cause to serve as raw material or fuel or as manure. Hazardous waste is only in the form of limited waste oil and can be used after separation a either for lubricating the carts or burnt in boiler along with bagasse. Ash is useful both for brick-making as well as foe farming, and hence, much in demand. Thus, this leads to conservation of natural resources.
- Noise: Sturdy foundation provided for machines, personal protective equipment like ear plugs given to workers, tree belt as sound barrier around factory and sides cladding.

In case of hazardous operation, safety systems are incorporated**.** Sugar and Co-gen operation is not hazardous. However, there is risk of fire while preparation and storage of alcohol. The study is done for pool fire and appropriate fire fighting equipment are provided throughout the factory premises. Workers are trained for safety and emergency cases.

Capital cost of proposed project is Rs. 451 Crores. The estimated time for completion is one year. Production will be commenced only after obtaining all required permissions

Within 10 km Influence Zone, there is no Tropical Forest, Biosphere Reserve, National Park, Wild Life sanctuary and Coral Formation Reserve. The Yevati dam (1 Km), City Karad (25 Km), Railway station and Tehsil Place Karad (32 Km), District place Satara (78 Km), National Highway (18 Km) and State Highway (6 km) is at a sufficient, safe distance. The Clearance is obtained from Local Grampanchayat and hence will have public acceptability.

The area is in dry tropical climate with hot summer and cold winter with scanty rain fall. The surrounding area of the project site is rural agrarian. Annual rainfall is low with an average of about 1400 mm. River Warna is located at about 13 km to the site and Yewati dam is less than 1 Km from the site. Rain water streams are present in the region and they carry water during rainy days.

Baseline environmental data – air quality, surface and ground water quality, soil characteristic, flora and fauna, socio-economic condition of the nearby population is obtained by monitoring. Quality of surface water, ground water, air is found to be within limit and satisfactory. Soil characteristics are also agreeable. There are no eco-sensitive areas and endangered species of flora & fauna within 10 km area. People in study area are mainly dependant on agriculture. For improving their status and avenue for livelihood, industries like this are required.

Identification of hazards in handling, processing and storage of hazardous material and safety system are provided to mitigate the risk. There is risk of fire while preparation and storage of alcohol. The study is done for pool fire and appropriate fire-fighting equipment are provided throughout the factory premises. Workers are trained for safety and emergency cases. Precautions suggested by Factory Inspectors, MPCB and Experts are taken into account while preparing the Disaster Management Plan for the factory. Baggasse storage is kept limited due to everyday consumption for own co-gen plant.

Likely impact of the project on air, water, land, flora-fauna and nearby population is kept very minimal. The emissions in air are controlled by air pollution control equipment like efficient ESP, dampers, ID Fans and tall Stack. Air modeling is done to study Ground Level Concentration. The incremental concentration is very small and resultant concentration is well within limit. As this is ZLD, surface or ground water is not polluted. All waste water generated is treated and recycled. There are no endangered species of flora-fauna in study area. Monitoring will be done regularly to keep a watch.

Emergency preparedness plan in case of natural or in plant emergencies is handled. Disaster management cell and plan is prepared to tackle man-made and natural disaster. People in this cell are trained to face emergency cases. Safety equipment are also provided to workers and installed in the premises. Workers are also trained to avoid accidents during operation.

Issues raised during public hearing and response will be conveyed to MoEF.

Corporate Social Responsibility (CSR) Plan is being prepared as per Govt. Regulations. Suggestions received during Public Hearing will be incorporated in the CSR Plan. Major facets are given below.

#	**Particulars**
1	Education and Boarding for children of Workers
2	Seminars and training for farmers
3	Health camp, medical facilities
4	Tree plantation and providing saplings
5	Women empowerment
6	Vocational training for youth
7	Funds for facilities in village and surrounding area
8	Funds to Chief Minister/Prime Minister Relief Fund

Suggestions given in Company Act, 1956 and its amendments will also be taken into account. The fund allocation will be finalized after discussion with society, SPCB and Revenue authorities

Occupational Health Measures are taken. For the present, it is found that the situation is within Permissible Exposure level (PEL). In order to maintain the same, what measures the company has adopted to keep them within PEL so that health of the workers can be preserved is mentioned. For future work, namely exposure specific health status evaluation of worker, we propose to conduct health evaluation on a pre-designed format for chest X rays, Audiometry, Spirometry, Vision testing (Far & Near vision, colour vision and any other ocular defect), ECG during pre placement and periodical examinations as per Factory Act & Rules. This will be for future working when alcohol manufacturing is involved, with an aim of maintaining OHS standards as per OSHAS/USEPA. Plan and fund allocation to ensure the occupational health & safety of all contract and casual workers is separately earmarked

#	**Occupation**	**Type of Evaluation**	**Frequency Pre-placement & Thereafter**		
			For Age <30 every (years)	**For Age 30-40 every (Years)**	**For Age 41-50 every (years)**
1	Cane crushing area	Chest X-ray, Spirometry & vision testing	5	4	2
2	Sugar Process area & Co-generation Area	Chest X-ray, Spirometry & vision testing	5	4	2
3	Main Control Room	Far & Near Vision, colour vision and hearing test	5	4	2
4	Ash & Bagasse handling area	Chest X-ray, Spirometry, vision & Hearing testing	5	4	2
5	Noise prone area	Audiometry	Annually		

Post project monitoring will be carefully done and six-monthly report will be displayed.

#	Facet	Stations at	Parameters	Frequency
1	Surface water	One upstream One downstream One nalla	BOD, pH, SS, TDS, Colour	H-Y
2	Groundwater	One up-gradient Two down-gradient near the lagoon & compost yard	BOD, pH, SS, TDS, Colour	H-Y
3	AAQ (Ambient Air Quality)	Three directions @ 120 degrees, one of it especially covering the spot indicated by mathematical modeling	RSPM, SO2, NOx	H-Y
4	Noise	Three directions @ 120 degrees, as may be advised by MPCB	Decibel	H-Y day and night

Above mentioned facets will be monitored regularly and compliance reports will be submitted regularly to MoEF (Regional Office), CPCB (Zonal Office) and SPCB (Regional Office). Online monitoring system shall also be installed.

Cooperation will be extended to all Government Authorities and nearby neighbours with transparency.