

EXECUTIVE SUMMARY

1. INTRODUCTION

Agromark Foods Pvt. Ltd. (AFPL) Distillery unit registered under the Company Act 2013, and Rule of Companies (Incorporation) Rule 2014, having the Certificate of Incorporation Rule 2014, having Certificate of Incorporation no.U15400MH2020PTC351605 of 10 day of December 2020. Factory is located at Gat No. 502/1A, 502/1/B and 505, Bhadane, Dhule, Maharashtra, 424303. The company is promoted by Mr. Purushottam Dadaji Hiray (Director). Agromark Foods Pvt. Ltd. (AFPL). Proposes to manufacture RS/ ENA/ Ethanol from procured Molasses/ Grain based distillery, by procuring traders/ nearby farmers with its command area of 50 Km from the plant location.

The proposed project will procure RS/ ENA/Ethanol from procured Molasses/ Grain Based Distillery Unit. In the command area, the availability of Grains is abundant and as such Grains based distillery unit is proposed of the capacity of 105 KLPD for production of 105 KLPD RS/105 KLPD ENA/105 KLPD Ethanol as per demand. The main raw material is grain, which will be procured from the nearby farmers. This will help to maintain socio economy in the region.

Distillery effluent i.e. Spentwash generated from the analyzer column during the operation, will be further concentrated in standalone Multi – Effect Evaporator (MEE). Spent wash will be used for DDGS which will be used for Byproduct. Distillery will be based on “ZERO EFFLUENT DISCHARGE”.

The aggregated capital investment for the proposed 105 KLPD Molasses/ grain based distillery has been estimated at Rs. **128 Crores**.

The promoters have extensively and carefully analyzed the present and future scenario of central Govt. policies for promotion of ethanol addition in the petroleum fuels. They have also studied the present and future irrigation facilities.

1.1 PROJECT LOCATION

The proposed Project will be done at Gat No. 502/1/A, 502/1/B and 505, Village: Bhadane, Taluka: Dhule, District: Dhule, Maharashtra. The centre point GPS (Global Positioning System) location of the project site is 20°57'7.20"N Latitude & 74°29'24.30"E Longitude & is at 650 m from mean sea level.

The salient features of the project site are

Table 1: Salient features of the project site

Sr. No.	Features	Description
1.	Latitude	Latitude: 20°57'7.20"N
2.	Longitude	Longitude: 74°29'24.30"E
3.	Elevation above MSL	650 m
4.	Nearest highway	NH 53
5.	Nearest railway station	Dhule Railway station – 30 Km
6.	Nearest air port	Shirpur Airport – 64.02 Km
7.	Nearest town	Town- Khede– 15.68, City Dhule – 29.94 Km
8.	Nearest human settlement	Bhadane (1.46 km)
9.	Nearest water body	Panzara River (1.06 km)
10.	Protected Area	None within 10 km
11.	Reserved Forests	None within 10 km
12.	Wildlife Sanctuary	None within 10 km
13.	Archeological site	None within 10 km
14.	State boundary	None within 10 km
15.	Defense installations	None within 10 km
16.	Average Rainfall	770 mm

2.0 PROJECT DESCRIPTION

The proposed project will procure RS/ ENA/ Ethanol from procured Molasses/ Grain based distillery unit. As the main raw material is grain, which will be procure from the nearby farmers. This will help to maintain socio economy in the region. The details about the manufacturing capacity of unit are given in table below:

Table 2: Proposed Products manufacturing quantities

Sr. no.	Product	Unit
1.	Rectified Spirit / ENA/ Ethanol	105 KLPD
2.	Bagasse	75,000 MT/A
3.	Coal	32,000 MT/A
4.	Fuel Oil	30 lit./ day 0.03 %
5.	Impure Spirit	5 KLPD
6.	DDGS	64 tons/ day, 19200 MT/A
7.	CO2	60 TPD

A) Land use Details

The total area available with the factory is **9.58 Hectares** Out of which, **3.200** Hectares will be utilized for green belt development. A detailed area breakup is given below

Table 3: Area Statement

Sr. No.	Description	Area in Sq. m	% of Area
1.	Total BUA	23500	24.5 %
2.	Green belt area	32000	33 %
3.	Total Parking area	14500	15 %
4.	Total Road Space Area	15500	16 %
5.	Open Area	10300	11.5 %
	Total Plot Area	95,800	100

B) Power requirement

The proposed power requirement of the project will be approximately 2.5 MW, which will be fulfilled by in-house turbine generator of 2.5 MW capacity and also provide DG Set with capacity of 1000 KVA.

C) Water Consumption details

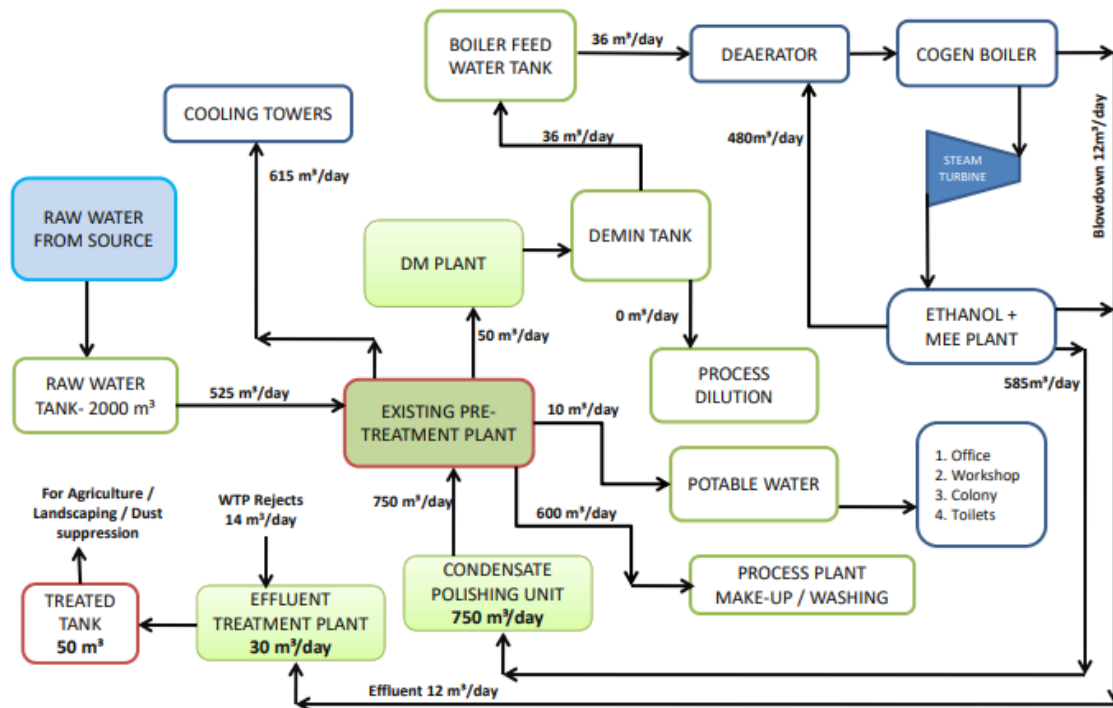
The Akkalpada Malharsagar Dam, major Irrigation Project, is a boon for the agricultural development. The dam has been constricted on river Panzara. The dam has total irrigation potential of more than 50,000 hectares. Total water requirement for the factory shall be 525,000 litres per day. This requirement shall be met by a pipeline from nearby dam, which is a perennial source of water at a distance of about 7 kms from the site.

Source of water is also from CGWA, Application for the same is done. **Application copy is attached as Annexure.**

The water requirement for the proposed distillery Project operation will be for boiler blow down losses and make up, and water required for fire-fighting, ash handling, washing / cleaning, as well as for potable purposes & for colony etc. Water requirement has been worked out maximum at 525 m³/day. Water drawn will be taken to the reservoir and then to WTP. The water treatment system proposed for the cogeneration plant will include a raw water storage tank within the plant, softening plant for supply of soft water for cooling water circuit and other uses, followed by De-mineralized (DM) plant for supply of DM water for boiler make up in the de-aerator. The softening and DM water plants will be designed based on the typical raw water analysis indicated below, as well as actual samples to be taken, prior to design.

Water balance calculations:

Distillery division



Water Balance

➤ Industrial Use

- The proposed water requirement of the unit will 1301 m³ /day, out of which daily fresh water requirement will be 525 m³ /day. Treated water from CPU 750 m³ /day.
- Source of water from Irrigation department 333 m³ /day and CGWA 350 m³ /day. Permission from irrigation department is obtained; application for CGWA is done attachment for same is attached here with.
- The detailed water budget of proposed distillery unit is given in

Table 4: Water Budget for Distillery Unit

Sr. No.	Details	Water Requirement
1.	Fresh Water	525 m ³ /day
	Treated water from CPU	750 m ³ /day
	Treated Water from ETP	26 m ³ /day
	Total Water Requirement	1301 m ³ /day
2.	Cooling Tower/ Distillation	616 m ³ /day
3.	DM Water	49 m ³ /day
4.	Domestic	10 m ³ /day
5.	Gardening	26 m ³ /day
6.	Process Plant/ Make up/ Washing	600 m ³ /day

Fresh water requirement will be 5 kl/ kl of alcohol.

- **Water Requirement and wastewater generation of the factory**

Table 5: Water requirement and wastewater generation of each unit

Sr. No.	Water Requirement	Wastewater generation
1.	Distillery Division	
	Based on “Molasses/ Grains”	
	1301/day	When Molasses as Raw material- Effluent generated will be 825 m ³ /day spentwash. After conc. In MEE plant Conc. Spentwash generated will be 205 m ³ /day which will be fed to dryer and it will produce 135 TPD of biomanure. Conensate generated from MEE plant will be 620 m ³ /day and spentlees generated in distillery will be 180 m ³ /day (Total 800 m ³ /d condensate) which will be given to CPU and CPU of outlet of 750 m ³ /day will be recycled in fermentation.

D) Air Emission Management

Rice husk/ Briquette/Bagasse and coal will be used as fuel for 1*25 TPH Multifeed boiler
The bagasse requirement of the proposed unit will be 75,000 MT/A and coal requirement at 32,000 MT/A

Stack of 55 meters height and electrostatic precipitator (ESP) as APC equipment will be provided to control the dispersion of pollutants releasing due to combustion of fuel.

Table 6: Details of boilers and its APC equipment for proposed unit

Sr. No.	Stack attached to	Types of Fuel	Height in meter	APC System
1.	1*25 TPH Boiler	Rice Husk/Briquette/Bagasse/Coal	55 m	ESP

E) Solid waste Management

a) Non Hazardous solid wastes details

Table 7: Details of non-hazardous waste generated and its disposal

Sr. No.	Description of waste	Quantity	Mode of Collection and Disposal
Boiler Related Details			
1.	Bagasse consumption	248 tons/day	--
2.	Ash generation from boiler	12 tons/day	Boiler Ash is used for brick manufacturing unit
Spentwash generation details			
Other Solid Wastes			
1.	Paper waste	0.01 MT/M	Manually collected and stored in a designated area and sold to scrap vendors
2.	Plastic waste	0.01 MT/M	

b. Hazardous Waste

Table 8: Hazardous waste generated and its disposal

Sr. No.	Category	Description of waste	Quantity	Mode of Collection and Disposal
1.	5.1	Used Oil	100 Lit/A	Shall be burnt in boiler.

3. Description of the Environment

Primary baseline environmental monitoring studies in 10-km radius study area were conducted through NABL approved laboratory – Shreeji Aqua Treatment Pvt. Ltd. during December 2021 - February 2022.

3.1 AIR ENVIRONMENT

Ambient air monitoring was carried out at 8 locations for 24 hours a day, twice a week at each location over/for a period of three months (December 2021 to February 2022) to determine background concentrations. The Maximum concentrations of each pollutant observed are considered as a background concentration of the respective location, the summary of the results is given below.

1. Particulate Matter (PM₁₀)

The study reveals that maximum concentration was observed to be in the range of 39.1-50.9 $\mu\text{g}/\text{m}^3$. The highest maximum 24-hourly concentration was recorded at sampling location A2 and A3. At the same time minimum concentration was observed at location A8. The average concentration of PM₁₀ can be said to be ranged between 44.20-46.1 $\mu\text{g}/\text{m}^3$. The high concentration of particulate matter recorded at project site (A1) It should be noted that the concentration of PM₁₀ was not observed to be exceeding the standards prescribed by the CPCB on any occasion.

2. Particulate Matter (PM_{2.5})

The major source of PM_{2.5} is said to be the combustion of fossil fuels, fire wood and industrial emissions etc, present within study area. The maximum of PM_{2.5} (32.2 $\mu\text{g}/\text{m}^3$) during the study period was recorded at location A2 and A3, whereas the minimum value (21.2 $\mu\text{g}/\text{m}^3$) concentration was recorded at A6 location. The average concentration of PM_{2.5} during the study period was computed to be in the range of 26.32-28.52 $\mu\text{g}/\text{m}^3$.

3. Sulfur Dioxide (SO₂)

High level of SO_x in ambient air indicates the presence of combustion of fossil fuel in the vicinity. The ambient air monitoring results indicate that the highest concentration of SO_x is experienced at A5(21.5 $\mu\text{g}/\text{m}^3$). The presence of working industries and fuel burning are the

principle source of emission for SO_x. The average concentration of SO_x recorded during the study period ranged between 15.67-16.95 µg/m³ respectively.

4. Oxides of Nitrogen (NO_x)

The various forms of Nitrogen in NO, NO₂ and N₂O are collectively called as Oxides of Nitrogen. The highest value of NO_x during the monitoring period was observed at location A1 while the minimum value was recorded at A6. The average concentrations were in the range of 20.01-22.56 µg/m³. The maximum 24 hourly value of NO_x was recorded at the monitoring location A1 (27.5 µg/m³) whereas the minimum concentration of NO_x was recorded at location A6 (13.8 µg/m³).

5. Carbon Monoxide (CO)

The anthropogenic source of CO is due to incomplete combustion of fuel majorly in absence of air. The highest value of NO_x during the monitoring period was observed at location A1 (0.13 mg/m³) while the minimum value was recorded at A6, A7 & A8 (0.02 mg/m³). The average concentrations were in the range of (0.05 - 0.09 mg/m³).

The ambient air quality monitoring results indicates that the overall air quality in the study area is within permissible standards prescribed by NAAQ Standards.

3.1.1 IMPACT ON AIR QUALITY DUE TO PROPOSED ACTIVITY

To estimate impact of proposed 25 TPH boiler on air quality, ambient air quality modelling (AERMOD) is performed considering full working potential of boiler. The AERMOD has been performed considering technical specification of boiler, stack, and fuel properties and nearby sensitive receptor for PM₁₀, PM_{2.5}, SO₂ and NO_x. The obtained results i.e. incremental values were added with baseline values to know the final resultant concentration at AAQMS due to proposed activity. From the results, it can say that,

It can be noted that the final GLC values of all receptor locations were within NAAQS. Results of the Ambient Air monitoring are enclosed in the **Annexure II**

- 1) Under the working conditions of 1*25 TPH boilers, PM₁₀GLCs at all the 8 receptor locations are in the range of **47.65 µg/m³** to **50.47 µg/m³** which are within the limits of AAQS.
- 2) Similarly, PM_{2.5} GLCs for those receptors are in the range of **29.45 µg/m³** to **32.15 µg/m³** which is within the limits of AAQS.
- 3) For SO₂, GLCs are in the range of **19.49 µg/m³** to **20.69 µg/m³** which is within the limits of AAQS.
- 4) NO_x GLCs are in the range of of **23.63 µg/m³** to **27.17 µg/m³** which is within the limits of AAQS.

It can be inferred that there shall not be any adverse effect on Ambient Air Quality due to the proposed establishment project.

3.2 WATER ENVIRONMENT

Water sampling and subsequent analysis was carried out to determine both the groundwater and surface water quality of the study area. Ground water & Surface water samples were collected at 8 locations & 8 locations respectively within study area. These samples were analyzed for physical and chemical parameters to ascertain the baseline status in the existing surface water and ground water bodies.

Table 9: Water Analysis Results

Sr. No	Parameters	Ground water		Surface water		Desirable	Permissible
		Min	Max	Min	Max	IS Standards	10500:2012
1.	pH	7.10	7.50	7.10	7.30	6.5-8.5	No relaxation
2.	Dissolved Solids (mg/l)	354.00	465.10	286.54	356.48	500	2000
3.	Chlorides (mg/l)	61.22	84.62	44.21	62.34	250	1000
4.	Fluoride (mg/l)	<0.01	<0.01	<0.01	<0.01	1	1.5
5.	Sulphates (mg/l)	36.84	61.20	38.74	51.24	200	400

Ground water and surface water samples were collected and analyzed as per the Standard methods and the water quality of the study area is found within the permissible limits of IS: 10500- 2012.

3.3 NOISE ENVIRONMENT

In order to assess the noise levels in the study area, monitoring was carried out at 8 locations within 10 km radius of the study area.

Day time Noise Levels (Leq)_{day}

Industrial Zone: The day time noise level at the Project site was found in the range of 50.60 dB (A), which is well below the permissible limit of 75 dB (A), due to industry is not working state presently.

Residential Zone: The daytime noise levels in all the residential locations were observed to be in the range of 47.01 dB (A) to 51.01 dB (A), which is well below the permissible limit of 55 dB (A).

Night time Noise Levels (Leq)_{night}

Industrial Zone: The night time noise level in the Project site was observed in the range of 42.24 dB (A), which is well below the permissible limit of 70 dB (A), due to industry is not working state presently.

Residential Zone: The night time noise levels in all the residential locations were observed to be in the range of 40.11 dB (A) to 42.08 dB (A), which is well below the permissible limit of 45 dB (A).

The industry is making all efforts to control the noise levels within the limits by providing acoustic measures and silencer pads etc. all the employees in these work places will be provided with ear plugs / muffs.

Table 10: Noise levels of the study area

Sr. No.	Station	Standard dB(A) Leq	Limit	Time	dB (A) Leq
1.	Project Site	75		Day	50.60
		70		Night	42.24
2.	Near Vitthal Kirana Store	55		Day	50.70
		45		Night	42.08
3.	Sakri Road near Dinesh Gaming	55		Day	50.55
		45		Night	41.45
4.	Nurnagar.	55		Day	51.01
		45		Night	42.00
5.	Deur BK	55		Day	47.80
		45		Night	40.27
6.	Lonkhedi	55		Day	47.01
		45		Night	39.50
7.	Sakri	55		Day	47.42
		45		Night	40.48
8.	Khandalai BK	55		Day	48.08
		45		Night	40.11

3.4 SOIL ENVIRONMENT

The soil monitoring was carried out at 8 locations in the study area, and analyzed for chemical and physical characteristics; the summary of the results is as under

- Soil in the area is mainly clayey in nature hence good water holding capacity.
- The finding of the study reveals that pH of soil in the range of 7.00 to 7.40, which is an indicative of the **neutral to slightly alkaline** soil.
- The values for Nitrogen at all locations varied between 212.40 to 289.64 kg/ha. Maximum concentration of nitrogen was observed at location S-6.
- The concentration of phosphorus was estimated to be between 40.12 to 78.95 kg/ha.
- It is important to note that the concentration of potassium was found to be at all locations ranging between 52.41 to 84.62 kg/ha.

Based on the above findings it can be concluded that the soil samples can be classified as per soil classification given by Tondon H.L.S. (2005). The samples fall under **medium to high** fertile soils.

3.5 LAND USE/LAND COVER OF THE STUDY AREA

The land use pattern of the study area was studied by analysing the available secondary data published in the District Primary Census abstract of the year 2001 & 2011.

Salient features of the adopted methodology are given below:

1. Acquisition of satellite data
2. Preparation of base map from Survey of India topo sheets
3. Data analysis using visual interpretation techniques
4. Ground truth studies or field checks using GPS
5. Finalization of the map
6. Digitization using head up vectorisation method
7. Topology construction in GIS
8. Area calculation for statistics generation
9. Masking

Four spectral bands provide high degree of measurability through band combination including FCC generation, bands rationing, classification etc. These features of the IRS data are particularly important for better comprehension and delineation of the land use classes. Hence, LISS-4 data and IRS-P5 – Cartosat-I data having 2.5 m spatial resolution having pan chromatic imagery has been used for land use mapping.

The satellite data from the compact disc is loaded on the hard disk and by studying quick look (the sampled image of the appropriate area ;) the sub-scene of the study area is extracted.

Supervised classification using all the spectral bands can separate fairly accurately, the different land use classes at level II on the basis of the spectral responses, which involve the following three steps:

1. Acquisition of ground truth
2. Calculation of the statistics of training area
3. Classification using maximum likelihood algorithm

The training areas for classification were homogeneous, well spread throughout the scene with bordering pixels excluded in processing. Several training sets have been used through the scene for similar land use classes. After evaluating the statistical parameters of training sets, the training areas were rectified by deleting no congruous training sets and creating new ones.

3.6: ECOLOGY AND BIODIVERSITY

A change in the distribution pattern, diversity, frequency, abundance, dominance, and density reflects a change in composition of biotic communities which can be assessed over a time and related to the existing ecological factors. Information on the impact of environmental stress on the community structure serves as an inexpensive and efficient early warning system to check the damage to an ecosystem. The change in biotic community is studied by the pattern in the distribution, abundance, and diversity. This peculiarity of plants can be utilized to assess the impacts of ensuring project on flora and fauna of the region, which are important components of biological environment. In this regard, the baseline condition of the study area needs to be studied. As the environment change, species best adapted to that environment

becomes predominant. Diversity influences by the nature of the ecosystem. Flora is basically the plant and fauna the animal life that are present in a region or habitat or at a particular time. Flora and fauna form a major part of biodiversity.

3.7 DEMOGRAPHIC OR SOCIO-ECONOMIC PROFILE

The project has a positive response from the public. The willingness to pay and the willingness to accept the project has positive an outcome. The ratio between this is around 1:10. It means the benefits are ten times greater than the loss. The losses due to the polluting agents are proposed to be diluted through various methods. The wastes and the pollutions can be reducing with some measures as suggested in the report. The social and cultural vulnerability index responds a very less and level of resilience is at the higher side. The sustained high growth rates and poverty reduction, however, can be realized only when the sources of growth are expanding, and an increasing share of the labour force is included in the growth process in an efficient way. From a static point of view, growth associated with progressive distributional changes will have a greater impact in reducing poverty than growth which leaves distribution unchanged. This is in fact expresses the inclusive growth of the region.

4.0 Anticipated Environmental Impacts and Mitigation Measures

Table 11: Anticipated environment impacts its effect and mitigation measures during construction phase

Sr. No.	Impacts	Effects	Mitigation Measures
1.	Dust	Respiratory diseases	All the internal Roads are tar felted Dust separation sprinkling water, use machinery meeting
2.	Noise	Impairing, Hearing, Fatigue related Health issues	Provide acoustic measures and silencer pads to reduce noise level. Provide personal protective equipment to the workers.
3.	Land	Reduction of vacant land	Utilize the existing infrastructures and adopt vertical expansion and maximize the operation schedules.
4.	Top soil	Loss of fertility	Utilize for Green belt development.
5.	Water	Additional water is required for construction activities and Drinking	Minimize the water requirements by adopting mechanical mixing and Drinking water in Bottles instead of Taps.
6.	Wastewater	Improper disposal of waste water leads to contamination of water sources and soil	Domestic wastewater shall be treated in aeration tank of proposed distillery CPU and treated wastewater shall be used for gardening.

The anticipated impacts during operational phase due to the proposed activity on air, water, soil, noise, ecology and biodiversity, and socio-economic environment are assessed and mitigation measures to minimize the impacts on the same are suggested in Chapter 4 in this report.

5.0 ANALYSIS OF ALTERNATIVE (TECHNOLOGY AND SITE)

Analysis of alternative site

Agromark Foods Pvt. Ltd. (AFPL) will be standalone Distillery unit registered under the Company Act 2013, and Rule of Companies (Incorporation) Rule 2014, having the Certificate of Incorporation Rule 2014, having Certificate of Incorporation no. U15400MH2020PTC351605 of 10 day of December 2020. Factory is located at Gat No.502/1/A, 502/1/B and 505 Village- Bhadane, Taluka-Dhule, District- Dhule, Maharashtra, 424303. The company is promoted by (Director). Agromark Foods Pvt. Ltd. Proposes to manufacture RS/ ENA/ Ethanol, by procuring traders/ nearby farmers with its command area of 50 Km from the plant location

The proposed project will procure RS/ ENA/ Ethanol from procured B Molasses/ Grain based distillery unit. In the command area, the availability of Grains is abundant and as such Grains based distillery unit is proposed of the capacity of 105 KLPD for production of 105 KLPD RS/105 KLPD ENA/105 KLPD Ethanol as per demand. The main raw material is grain, which will be procure from the nearby farmers. This will help to maintain socio economy in the region.

The Project Site is conveniently located for development of the Project. Bhadane at a distance of 1.46 km Town- Khede, at a distance of 15.68 km and Dhule at a distance of 30. Dhule is nearest Railway station 30 km away from factory site. Shirpur airport is nearest Airport 64.02 Km away from factory site.

Environmental Setting-

Location – 20⁰ 57'07.02" N and 74⁰ 29'24.30" E

Nearest State Highway – NH- 53

Nearest river –Panzara River- 1.06 km

Seismicity – Seismic Zone III as per IS: 1893 (Part-I):2002

The industry has sufficient land for proposed establishment. The minimum quantity of water is required, which can be obtained from the irrigation department. There are no negative impacts due the proposed establishment. Thus, the existing site is suitable for the proposed establishment.

Analysis of alternative technology

Distillery effluent i.e. Spentwash generated from the analyzer column during the operation will be sent for concentrated in standalone Multi – Effect Evaporator (MEE). Spent wash will

be used for DDGS which will be used for Byproduct. Distillery will be based on “ZERO EFFLUENT DISCHARGE”.

It is proposed to establish 1*25 TPH boiler and stack height of 55 m with Electrostatic precipitator (ESP) as an air pollution control equipment. For proposed establishment project, power requirement is 2.5 MW which shall be full filled from own 2.5 MW TG set.

6.0 ENVIRONMENT MONITORING PROGRAMME

Table 12: Environment management programme

Sr. No	Item	Parameters	Frequency of Monitoring	Location
1.	Ambient Air quality at appropriate location for PM ₁₀ , PM _{2.5} , SO ₂ , and NO _x ,	PM ₁₀ , PM _{2.5} , SO ₂ , and NO _x	24 hourly, Quarterly	5 Locations 1 @ Upwind and 2 @ downwind directions from stack @ 120° to each other Near entry and exit gates
2.	Stationary Emission from Stack PM, SO ₂ , NO _x	PM, SO ₂ , NO _x	Monthly	1 DG set Stack, 2 Boiler Stack
3.	Water	Water quality parameters as per 10500:2012	Monthly	Drinking water locations
	Waste water quality (treated and Untreated)	pH, BOD, COD, TSS, Flow, TDS etc.	Monthly	ETP inlet and Outlet
4.	Noise	Day and Night levels Equivalent noise level- dB (A)	Quarterly or as often as required	8 Locations Upwind and downwind directions Near boilers and near main gate and ETP.
5.	Soil (Qualitative and quantitative testing/analysis to check the soil fertility.)	pH, Cation Exchange Capacity, Total Nitrogen, Phosphorous, Potassium, moisture, Permeability, Conductivity, Texture & structure, Organic carbon	Quarterly or as often as required	1 near Greenbelt 1 near ETP Composite sample shall be taken at each location
6.	Solid waste generation monitoring / Record Keeping	Manual record keeping	To be updated daily	
7.	Greenbelt and plantation monitoring	Type of species shall be decided based on soil & climatic conditions. The number of trees would be 2000 per hectare, however; the number of trees would vary depending on the type of soil	Six Monthly	
8.	Carbon and Water	Maintain the data of raw	Daily and Monthly	

	foot Monitoring	Print	materials consumption, steam consumption, vehicle frequency for transport of raw materials, effluent generation, air emissions, hazardous waste generation, and raw material recovery		
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7.0 ADDITIONAL STUDIES

7.1: Risk Assessment

HAZOP and Quantitative Risk Assessment studies are carried out for each product; disaster management plan, onsite and offsite emergency plan are prepared and given in Chapter 7 of the EIA Report

The thermal radiation for the Ethanol tank confined to the maximum at 287 yards that means the thermal radiation intensity of 10kW/m^2 is potentially lethal within 60 seconds. Similarly, the other threat zone of 5.0 kW/m^2 causes 2nd degree burns within 60 seconds at 411 yards and the rest is 2.0 kW/m^2 subjected to within the unit at 644 yards, which causes pain within 60 seconds.

Project proponent will implement all preventive measures to tackle all type of emergencies arising out of operation or malfunction of individual unit's. The required resources for Onsite and Offsite emergency management plan will be properly planned and provided to implement the plan effectively. The factory shall give highest priority towards Health and safety of the employees and people residing nearby areas. Management shall conduct the training to the nearby villagers to appraise them about their role during emergency. All nearby people shall be given training on do's and don'ts during emergency situation.

Unfortunately, if there is any emergency onsite of offsite, it will be tackled effectively due to availability of required resources at the site. Similarly, all the concern staff and members of the Teams shall be trained appropriately to tackle the emergencies in the plant. By knowing the type of emergency situation that may arise during operation of the plant, appropriate control measures will be implemented to reduce the gravity of the emergencies. Similarly, to avoid the emergency situation, all required mitigation measures will be implemented as recommended.

8.0 Disaster Management Plan

Disaster Management Plan will be implemented in consultation with the District Administration to take care of health and safety during any untoward incident.

In view of handling of processes in industry, On-site Emergency Plans are important and hence has been prepared for the industry. Additionally, recommendations for and Off-site shall be provided to the District Administration. During operational phase, surrounding population shall be made aware of safety precautions to be taken in case of any emergency situation due to the overall project activity.

9.0 Occupational Safety & Health Management

Company shall continue to strictly adhere to the rules of Factories Act 1948 regarding the occupational health facilities to be provided to the workers of the company.

- Industries will provide decontamination facilities for the workers. The health records of the workers will be maintained.
- For the continuous and continual development, company will continue to train & educate the operators and workers with the environment, health & safety rules & regulation, procedure and measures.
- Periodic medical check-ups will be carried out to ensure the health status of the all workers.
- Job rotation will be done.

10.0 Post Project Environmental Monitoring Plan

Post project environmental status will be evaluated as per the Environmental Monitoring Plan framed in EIA along with additional parameters suggested if any Statutory Clearances/Permissions and frequency of environmental attributes including monitoring locations will be as per the guidelines provided by MoEF&CC/CPCB/GPCB. Monitoring shall be carried out by third party laboratories that are accredited by NABL or MoEF&CC.

11.0 Environmental Management Plan

Conduction of Environmental monitoring program as per plan, periodic reviews & audits will be carried out for effective environmental management. Project Management along with EHS department will ensure overall effective implementation of the management plan.

Systems will be in place to ensure compliance of all environmental statutory requirements & obligations and it will be ensured Corporate Environment Policies of AFPL are strongly adhered to all time.

12.0 Budgetary Provisions towards Environmental Management Plan:

The costs involved in environmental monitoring and management to mitigate the adverse effects will be put on account for the proposed project. The capital cost for the EMP will be Rs. 2335 Lakhs. And recurring cost will be Rs. 194.5 Lakhs. The detailed EMP budget is given in table below

Table 13: EMP Budget of industry

Sr. No.	Item	Capital Cost (INR, Lacs)	Annual O&M Cost (INR, Lacs)
1.	Condensate Polishing Unit with Water Recycle / Conservation	750	50
2.	Spentwash MEE Plant for Effluent treatment	750	55
3.	Spentwash Drier for Bio-manure	550	50

4.	ESP on Boiler for Air Pollution Control	180	15
5.	Acoustic Enclosures for Noise Pollution Control	20	0.5
6.	Rain Water Harvesting for Water conservation	5	0.25
7.	Stack Emission Monitoring for Air Pollution Control	10	0.5
8.	Occupational Health Monitoring / Training (PPE, Safety training)	50	20.0
9.	Green Belt Development	15	3.0
10.	Solar lighting for common areas	5	0.25
	TOTAL	2335	194.5

12.0 Corporate Environment Responsibility (CER) Action Plan

Ideally CER planning is envisioned from the perspective of need based assistance in health, education, sustainable lifestyles, social mobilization, infrastructure, water harvesting, agriculture and environmental protection taking into consideration locale specific scenarios around the project area.

The need based CSR/CER plan will be prepared on the basis suggestions from public hearing.