

**EXECUTIVE SUMMARY OF
DRAFT EIA REPORT
OF
M/s. SANORG LABORATORIES PVT. LTD.**

FOR

**Expansion of Existing Drug Intermediates
Manufacturing Unit
To
Bulk Drug & Intermediates Manufacturing Unit**

AT

**SURVEY NOS. 538, 539, 542 & 547, CHOLLAIR (V),
YADAGIRIGUTTA (M), NALGONDA (D),
TELANGANA STATE.**

PREPARED BY



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1. INTRODUCTION

M/s. Sanorg Laboratories Pvt. Ltd is an established Drug Intermediates manufacturing unit at Survey Nos. 538, 539, 542 & 547, Chollair (V), Yadagirigutta (M), Nalgonda (Dt), Telangana State. Existing plant is in 11.81 Acres (47822.36 SQM), the company wishes to expand their Drug Intermediates manufacturing facility to Bulk Drug & Intermediates manufacturing facility. The company wishes to manufacture the proposed products by replacing existing products after expansion. The company proposes to invest an additional amount of Rs. 10.67 Crores towards its modernization and pollution control equipment.

The proposal is to obtain Environmental Clearance from the Ministry of Environment, Forest and Climate Change (MoEFCC) and Consent Orders from SPCB to manufacture proposed products with a total production capacity of 745.2 TPA. Draft EIA report is prepared considering the Terms of Reference (ToR) issued by MoEFCC vide F. No.J-11011/291/2013 - IA II (I) Dated 31st March 2014.

1.1. PROJECT DESCRIPTION

The salient features of the unit are furnished below.

TABLE-1: SALIENT FEATURES OF THE PROJECT

Project location	Details
Name of the project	M/s. Sanorg Laboratories Pvt. Ltd
Location of the project	Survey Nos. 538, 539, 542 & 547, Chollair (V), Yadagirigutta (M), Nalgonda (Dt), Telangana State
Latitude & Longitude	Latitude : 17 ^o 34'24.63"North Longitude: 78 ^o 59'49.85" East
Land acquired for the plant	11.81 Acres (47822.36 SQM).
Land use	For industrial purpose
Nearest Town	Yadagirigutta - 4.8 KMs (W) Bhongiri - 11.3 KMs (WSW)
Major urban Settlements	Hyderabad - 45 KMs (WSW)
Nearest Highway	National Highway (NH- 202) - (Warangal – Hyderabad) –1.2 KMs (W)
Nearest Railway station	Bhongiri Railway Station – 11 KMs (WSW)
Nearest Airport	Rajiv Gandhi International Airport, Shamshabad - 70 KMs (WSW)
Reserve Forest	Mala gutta RF -5.9 KMs (E) Mallapa gutta RF -7 KMs(ENE)

2. PROCESS DESCRIPTION

The manufacturing process of Bulk Drug & Intermediates consists of chemical synthesis extending to stages of processing involving different type of chemical reactions. Total production capacity of Existing is 8.925 TPA and Proposal will be 745.2 TPA. (Given in Table - 2 & 3). The unit will take adequate control measures for storage and handling of Raw materials, solvents and cylinders with in factory premises.

TABLE - 2: EXISTING PRODUCTS AND QUANTITIES

S. No	Name of the Product	Quantity In Tones / Annum
Group - A		
1	5- Bromo phthalide	0.64
2	2- Chloromethyl-3,5 - Dimethyl 4-Methoxy Pyridine Hydrochloride	4.0
Group - B		
3	4- Hydroxy pyridine	0.3
4	5-Methoxy indole	0.225
5	2-Chloromethyl - 3 methyl - 4 - Trifluoroethoxy Pyridine Hydrochloride	8.4
Group - C		
6	S - Trizine	0.8
7	3-Acetyl Pyridine	1.2
8	2 [[(4- Nitro) -3 -Methyl pyridine -2-yl] methyl thio] - 1H benzimidazole	1.2
Total		8.925

Note: Only one Group at any given point of time

TABLE- 3: PROPOSED PRODUCTS AND QUANTITIES AFTER EXPANSION

S. No	Name of the Product	CAS No	Therapeutic category	Quantity In MT/ Month	Quantity In Kg/Day
1	Fluconazole	86386-73-4	Systemic antifungal	5.00	166.67
2	Gabapentin	60142-96-3	Anticonvulsant	5.00	166.67
3	Itraconazole	84625-61-6	Antifungal	1.00	33.33
4	Rosuvastatin	287714-41-4	Antihyperlipidemic	1.00	33.33
5	Escitalopram oxalate	128196-01-0	Antidepressant	1.00	33.33
6	Domperidone	57808-66-9	Antiemetic	5.00	166.67

7	Tramadol hydrochloride	46941-76-8	Analgesic	10.00	333.33
8	Omeprazole	73590-58-6	Antiulcer drug	5.00	166.67
9	Esomeprazole Magnesium trihydrate	217087-09-7	Antiulcer agent	1.00	33.33
10	Lansoprazole	103577-45-3	Gastric Acid Secretion Inhibitor.	1.00	33.33
11	Pantoprazole sodium	138786-67-1	Proton Pump Inhibitor	2.50	83.33
12	Rabeprazole sodium	117976-90-6	Gastric anti secretory agent	2.50	83.33
13	Losartan potassium	124750-99-8	Antihypertensive.	2.00	66.67
14	Telmisartan	144701-48-4	Antihypertensive	2.00	66.67
15	Valsartan	137862-53-4	Antihypertensive	1.00	33.33
16	Tamsulosin hydrochloride	106463-17-6	Anti-adrenergic	0.10	3.33
17	Duloxetine	116539-59-4	Antidepressant	5.00	166.67
18	Levocetirizene Dihydrochloride	130018-87-0	Antihistamine	2.00	66.67
19	Ornidazole	16773-42-5	Anti amoebic agent	10.00	333.33
	Total			62.10	2069.99

2.1 RESOURCE REQUIREMENT & INFRASTRUCTURE FACILITIES

A) Land Use Details:

The plot area of **M/s. Sanorg Laboratories Pvt. Ltd** is 11.81 Acres (47822.36 SQM), there is no additional land required for its expansion, and the land use details are presented below.

TABLE- 4: LAND USE DETAILS

S. No	Description	AREA IN SQM		
		Existing	Proposed	Total (After expansion)
1	Built Up Area	3629.71	2101.00	5730.71
2	Green belt Area	16327.50	Nil	16327.50
3	Roads and Open Area	27865.15	-2101.00	25764.15
	Total	47822.36		47822.36

➤ **More than 33% of Land allotted for Green Belt.**

B) Existing & Proposed Water Consumption Details

The existing water consumption is 32.48 KLD, details are given below.

TABLE- 5: EXISTING WATER CONSUMPTION DETAILS

S. No	Purpose	Water Consumption Details In KLD
1	Process & Washings	4.08
2	Boiler , Cooling towers, DM Plant	24.0
3	Scrubber	0.2
4	Domestic Usage	1.2
5	Gardening / Irrigation	3.0
	Total	32.48

The Total water consumption for the proposed expansion project is **208.0 KLD**. Water consumption details are given in below Table. No.6. Water requirement will be met through Ground Water.

TABLE- 6: PROPOSED WATER CONSUMPTION DETAILS AFTER EXPANSION

S. No	Purpose	Water Consumption In KLD
1	Process	62.00
2	Washings	2.00
3	Boiler Daily Make up	53.00
4	Cooling Towers Makeup	77.00
5	DM Plant	2.00
6	Scrubber system	2.00
7	Domestic Usage	2.00
8	Gardening	8.00
	Total	208.00

☞ Out of Total Water consumption of **208.0 KLD** an amount of **36.2 KLD** of water will be recovered by the ZLD system and reused, Hence, Total fresh water requirement is **171.8 KLD** and will be met from Ground Water. Company having permission from Ground Water Department (SGWD), Government of Telangana for with drawl of ground water.

C) Energy Requirement

Power requirement of proposed expansion project will be made available through Telangana State Southern Power Distribution Corporation Limited [TSSPDCL]. Total power requirement of proposed plant shall be 900 KVA.

D) Utilities

For generation of Steam, the Industry is having a boiler of 2.0 TPH, in addition to the existing; the industry proposes to install another two more Boilers 2.0 TPH & 5.0 TPH coal fired boilers. The coal requirement will be met from government allocation or from local authorized sources.

In addition to the existing 125 KVA DG set, the industry proposes to install 500 KVA DG to use during the power failures. These DG sets are sufficient even for the proposed expansion. The emission details are presented in bellow table 7 & 8.

TABLE- 7: DETAILS OF UTILITIES FOR EXISTING & PROPOSED

S. No	Description	Capacity	Existing		Proposed After Expansion
			Dropped	Continued	
1	Coal fired boilers	2.0TPH	-	Continued	
		2.0TPH	-	-	Proposed
		5.0TPH	-	-	Proposed
2	DG Sets	1 X 125 KVA	-	Continued	
		1 X 500 KVA	-	-	Proposed
3	Cooling towers	1X250 TR	-	-	Proposed
		2X500 TR	-	-	Proposed
4	Electricity Supply from TSSPDCL	200 KVA	-	Continued	-
		900 KVA	-	-	Proposed

TABLE- 8: EMISSION CHARACTERISTIC DETAILS OF EXISTING & PROPOSED BOILERS

Particulars	Units	2.0 TPH Coal fired Boiler (Existing)	After Expansion	
			2.0 TPH Coal fired Boiler (Proposed)	5.0 TPH Coal fired Boiler (Proposed)
Type of Fuel	--	Indian Coal	Indian Coal	Indian Coal
Coal Consumption	TPD	5.0	5.0	12.5
Ash Content	%	47	47	47
Sulphur Content	%	0.8	0.8	0.8
Nitrogen Content	%	1.07	1.07	1.07
No. of Stacks	No	1	1	1
Height of stack	m	30	30	32
Diameter of Stack	m	0.60	0.60	0.60
Temperature of Flue Gas	°C	95	95	110
Velocity of Flue Gas	m/s	6.5	6.5	8.5
Particulate Matter at outlet	gm/sec	0.21	0.21	0.27

of Bag filter (Based on 115 mg/Nm ³ at outlet)				
Sulphur dioxide emission	gm/sec	0.46	0.46	1.15
Oxides of Nitrogen emission	gm/sec	0.57	0.57	1.54
Pollution control equipment	-	Multi cyclone separator followed by suitable pack of Bag filters	Multi cyclone separator followed by suitable pack of Bag filters	Multi cyclone separator followed by suitable pack of Bag filters

E) Pollution Control Equipment:

i) Cyclone separator: The denser particles which are carried away by boiler flue gases will get separated in the cyclone separator and collected in the bottom of the cyclone separator at a definite interval.

ii) Bag Filter: The boiler flue gases from cyclone separator enter into pack of bag filters, where particulate matter will be separated leaving as cake on bags surface. They are cleared by shaking or vibrating by pulse jet causing the filter cake to be loosened and to fall in the Hopper.

iii) Boiler Stack: The adequate stack height (30-32 mts) will be provided for pollutants (SO₂, NO_x, PM & CO) dispersed in a very large area so that ground level concentration is within CPCB permissible limits.

iv) Scrubbers: Two scrubbers of 2-Stage are proposed to scrub the SO₂ and HCl. The packing media in the scrubber is 25mm poly propylene rings.

The SO₂ emissions are scrubbed by using C.S lye solution and HCl gas is scrubbed by using chilled water media. The scrubbing system will have two circulation pumps and scrubbing liquid tanks as required.

TABLE- 9: STACK EMISSION DETAILS OF EXISTING & PROPOSED DG SETS

Capacity In KVA	Emission of SPM in mg/Nm ³	Emission Of SO ₂ in mg/Nm ³	Emission of NO _x in mg/Nm ³	Stack dia. In m	Flue Gas Temp. in °C	Stack Height in m	Flue gas Velocity In m/sec.
125 KVA (Existing)	65.0	110.0	135.0	0.30	220	10	18.50
500KVA (Proposed after expansion)	80.0	190.0	235.0	0.30	150	10	23.20

3. BASELINE ENVIRONMENTAL STATUS

3.1 Study Area Included In Environmental Setting

Studies were carried out in about 10 km radius area from the site with respect to meteorology, flora, fauna, land and socio-economies of the area. Further sampling and analysis of air quality, water quality, noise level and soil quality were carried out. The air quality, water quality, noise level and soil quality in the study area is evaluated based on this physical sampling and analysis.

The base line data were monitored during study period of **March 2014 – May 2014**. The study team conducted site surveys and field experiments for gathering the information on air quality, water quality, noise quality and soil quality.

3.2 CLIMATE OF THE STUDY AREA

A. Temperature:

Study period the minimum and maximum temperatures were recorded as 18°C and 41°C respectively.

B. Relative Humidity:

During study period at project site, the maximum relative humidity was recorded as 52 % and minimum as 30 %.

C. Wind Pattern during Study Period

The analysis of the average wind pattern shows predominant winds from SE, NW and W with wind frequencies of 23.4, 14.2 and 9.6 % respectively. The calm conditions were prevailed for 9.5 % of the total time. Average wind speed is 3.5 m/s.

D. Rainfall

No rainfall during the study period at project site. The normal annual rainfall in the District is 753 mm (Source: Climatologically normal's 1961-1990, Indian Meteorological Department, Government Of India).

3.3 SAMPLING LOCATION DETAILS

Total eight locations were selected for Base line status. Air, Water & Noise results are presented in Table 10, 11 & 12 respectively.

3.4 AMBIENT AIR QUALITY

The ambient air monitoring was carried out for 24 hours a day twice a week for 12 week per location in the study area. Ambient Air Quality Monitoring (AAQM) was carried out at eight locations during period of **March 2014 – May 2014**.

- **Particulate Matter (PM₁₀):** Maximum value of 59.16 µg/ m³ was recorded at Project site.
- **Particulate Matter (PM_{2.5}):** Maximum value of 19.55 µg/ m³ was recorded at Project site.
- **Sulphur Dioxide (SO₂):** Maximum value of Sulphur dioxide of 12.36 µg/ m³ obtained near the sampling location of Project site.
- **Oxides of Nitrogen (NO_x):** A maximum value of 16.41 µg/ m³ was prevailing at the time of sampling at Project site sampling station.
- **Carbon Monoxides (CO):** Maximum value of Carbon Monoxide of 0.65 mg/ m³ obtained near the sampling location Peddakandukur.
- **Volatile Organic Compounds (VOCs)**
Volatile Organic Compounds (VOCs) concentration in study area was found to be Below Detectable Limit of 1ppm.
- **Benzene**
Benzene concentration in study area was found to be Below Detectable Limit of 5 ppm
- **Poly Aromatic Hydro carbons (PAH)**
PAH concentration in study area was found to be Below Detectable Limit of 1ppm

TABLE-10: THE MAXIMUM, MINIMUM & 98TH PERCENTILE VALUES FOR ALL THE SAMPLING LOCATIONS

Code	Name of Sampling Location	PM ₁₀ (µg/ m ³)			PM _{2.5} (µg/ m ³)			SO ₂ (µg/ m ³)			NO _x (µg/ m ³)			CO (mg/m ³)		
		Min	Max	98 th	Min	Max	98 th	Min	Max	98 th	Min	Max	98 th	Min	Max	98 th
A1	Project Site	53.40	59.80	59.16	15.50	19.60	19.55	8.30	12.50	12.36	12.20	16.50	16.41	0.32	0.65	0.63
A2	Chollair	40.50	48.90	48.58	8.60	16.90	16.72	8.20	10.80	10.71	12.30	14.90	14.85	0.22	0.62	0.62
A3	Rayagiri	40.20	48.80	48.57	8.50	16.70	16.33	8.40	10.80	10.71	12.40	14.90	14.90	0.22	0.61	0.60
A4	Vangapalli	41.20	48.90	48.62	8.20	16.80	16.66	8.20	10.80	10.71	12.10	14.90	14.90	0.22	0.62	0.61
A5	Yadagirigutta	40.20	48.70	48.47	8.20	16.40	16.12	8.20	10.80	10.71	12.20	15.48	15.17	0.21	0.62	0.62
A6	Pedda Kandukur	40.10	48.90	48.58	8.20	17.20	17.02	8.20	10.80	10.71	12.40	14.90	14.90	0.23	0.67	0.65
A7	Aler	40.20	48.50	48.41	8.10	16.70	16.47	8.20	10.90	10.76	12.70	14.90	14.90	0.24	0.61	0.61
A8	Matakodur	40.10	48.60	48.42	8.20	16.90	16.35	8.10	10.80	10.75	12.20	14.80	14.80	0.22	0.62	0.62
CPCB Standards'		100.00			60.00			80.00			80.00			2.00		

3.5 WATER QUALITY

Water sampling and subsequent analysis was carried out to determine both the groundwater and surface water quality of the study area.

Ground water samples are collected at 8 locations and surface water samples was collected at 8 locations in the 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 -11: WATER ANALYSIS RESULTS

S. No	Parameters	Ground water		Surface water	
		Min	Max	Min	Max
1	pH	7.32	8.51	7.73	8.04
2	Total dissolved solids (mg/l)	600.00	1705.00	153.00	537.26
3	Total hardness (mg/l)	133.90	896.10	61.80	167.80
4	Chlorides (mg/l)	77.59	572.20	19.39	174.60
5	Fluoride (mg/l)	<0.1	<0.1	<0.1	<0.1
6	Sulphates (mg/l)	47.33	259.30	22.00	331.20

- Ground water samples collected from 8 locations within 10 km radius of the plant site analyzed as per the Standard methods and the water quality of the study area is found to be above limits for some parameters. And Heavy Metals concentration in the analysis results is BDL (Below Detectable Limits) with in 10KMs Radius.
- Surface Water samples collected at 8 locations within 10 km radius from the plant and water quality of the study area is found to be above limits for some parameters. And Heavy Metals concentration in the analysis results is BDL (Below Detectable Limits) with in 10KMs Radius.

3.6 NOISE ENVIRONMENT

Noise level monitoring was carried out at eight locations during the period of **March 2014 – May 2014**.

During monitoring period, the LEQ (dB (A)) noise levels varied between 63.93 dB (A) to 68.97 dB (A) during Day time in study area respectively. Noise levels varied between 53.98 dB (A) to 57.42dB (A) during night time in study area respectively.

The noise level varied at the same place at different times due to fluctuations in traffic movements as well as commercial and domestic activities going on in the study area but it was under the permissible limit prescribed by CPCB.

TABLE- 12: NOISE LEVELS OF THE STUDY AREA

S.No	Name of the place	Day Time In Leq	Night Time In Leq	CPCB NORMS (Day time)	CPCB NORMS (Night time)
1.	Project Site	64.71	53.98	75dB (A)	70dB (A)
2.	Chollair	63.99	56.40		
3.	Rayagiri	64.24	56.28		
4.	Vangapalli	66.41	56.90		
5.	Yadagirigutta	64.69	57.42		
6.	Pedda Kandukur	63.93	57.10		
7.	Aler	65.00	56.58		
8.	Matakodur	68.97	55.03		

3.7 SOIL ENVIRONMENT

On data obtained, it is ensured that the soil quality at around the site is appropriate and normal in terms of soil contaminants is reported.

3.8 LAND USE/ LAND COVER OF THE STUDY AREA

Land use / land cover map is prepared by visual interpretation of high-resolution satellite data with the help of Survey of India Topographic maps on 1: 50,000 scale. Two seasons' data (Rabi year 2013) is used for the delineation of different units. The units are confirmed by the ground truth / field visits.

TABLE-13: LAND USE / LAND COVER OF THE STUDY AREA

S. No	Land use	Area in SQM	Area in Percentage (%)
1	Built- Up Land	13.502	4.3
2	Water bodies	16.956	5.4
3	Crop Land	214.776	68.4
4	Forest	9.106	2.9
5	Wastelands	59.66	19.0
	Total	314.00	100

3.9 DEMOGRAPHIC AND SOCIO-ECONOMIC PROFILE

The baseline demographic and Socio - Economic data have been collected at eight Villages falling within 10 Kms study area the Project-Influence Area and especially that of the 'Chollair Village'.

- The total population of the study area is 59023 with 50.24% of Male Population and 49.76% Female Population while the Demographic distribution is 42.18% & 57.82% for Rural & Semi-Urban Areas, respectively.
- The Average Literacy Rate in the study areas is 56.51% & 73.53%, for Female & Male population, respectively and the rate of Illiteracy is at an alarmingly high 43.49% for Women and 26.47% for Men Populations.
- All Villages, in the study area, are electrified – both for common facilities like, Street Lights, Public Water Pumping, etc.

4. IDENTIFICATION, PREDICTION & MITIGATION MEASURES

4.1 Air Environment

Process emissions are SO₂, HCl, H₂, CO₂, N₂, and O₂ which are liberated from manufacturing process of proposed products.

4.2 Expected Process Emissions Details

The predicted process emissions are from reactions, they are Sulfur dioxide (SO₂) which is scrubbed by using C. S. Lye solution, Hydrogen chloride (HCl) scrubbed by using Chilled water media, Hydrogen (H₂) Diffused with flame arrestor through nitrogen gas and Carbon dioxide (CO₂), Nitrogen (N₂) & Oxygen (O₂) are dispersed into atmosphere.

➤ EXPECTED POLLUTING PROCESS EMISSION DETAILS:

S. No	Name of the Gas	Quantity In Kg/Day	Disposal Method
1	Hydrogen chloride	4.00	Scrubbed by using Chilled water media
2	Sulphur dioxide	82.00	Scrubbed by using C.S Lye solution

➤ EXPECTED NON - POLLUTING PROCESS EMISSION DETAILS:

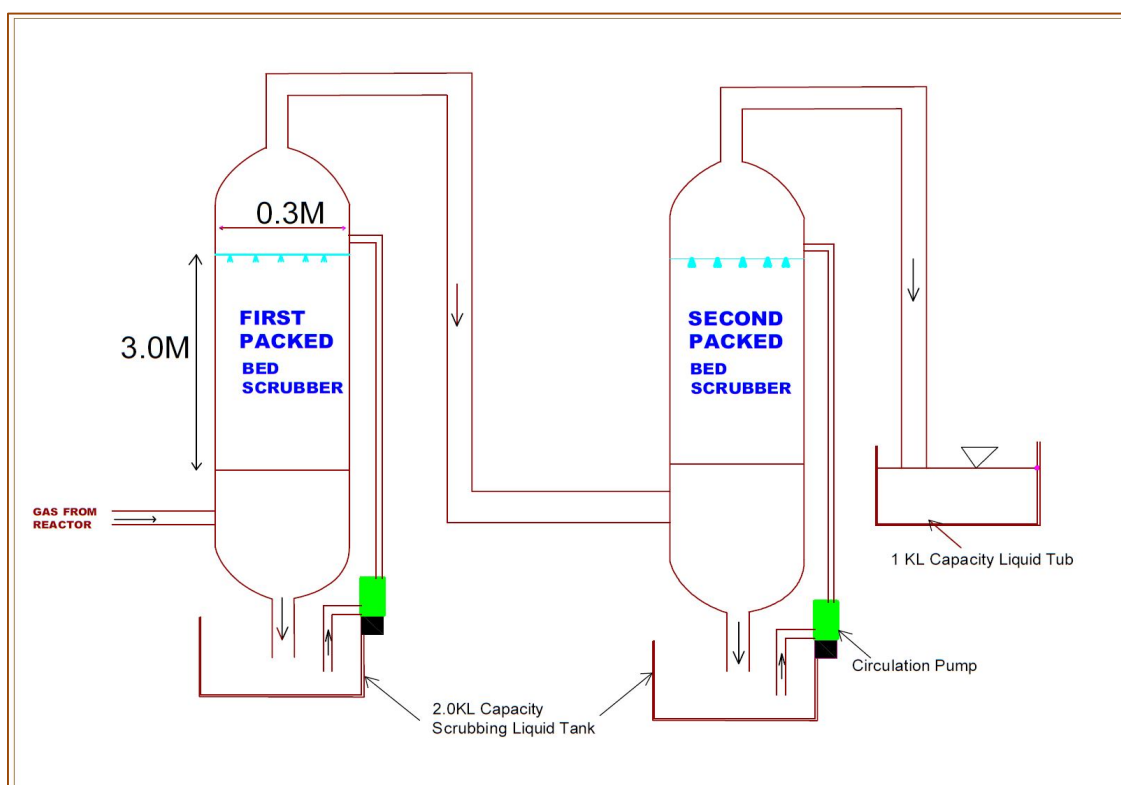
S. No	Name of the Gas	Quantity In Kg/Day	Disposal Method
1	Hydrogen	24.00	Diffused with flame arrestor through

			nitrogen gas
2	Nitrogen	6.00	Dispersed into atmosphere
3	Oxygen	6.00	Dispersed into atmosphere
4	Carbon dioxide	230.00	Dispersed into atmosphere

4.3 Process Emission Control System

Two stage scrubber system. Scrubbers with 300 mm (Diameter) X 3 meters (Height) & 300mm (Diameter) X 3 meters (Height) capacities will be installed for control of process emissions. The Schematic diagram of emission control system is given below.

FIGURE-1: SCHEMATIC DIAGRAM OF PROPOSED EMISSION CONTROL SYSTEM



4.4 Existing & Proposed Water Environment

The total water consumption for proposed project is **208.0 KLD** and the existing waste water generation is **14.4 KLD**, total proposed waste water generation will be **100.0 KLD** which is from process, floor & reactor washes, cooling tower blow down, boiler blow down, scrubber, DM plant and domestic usage. The effluent generation and its HTDS & LTDS effluent details are given below.

TABLE-14: EXISTING EFFLUENT GENERATION DETAILS

S. No	Description of Out let	Max daily discharge in KLD	Methods of Treatment and Disposal
1	HTDS effluents: Process & Washings - 10KLD	10.0 KLD	<p><u>I. Till the MEE system consisting of stripper, MEE & ATFD are commissioned.</u></p> <ul style="list-style-type: none"> ➤ Transport to M/s. Enal Drugs (P) Ltd., Unit-II, and Sy.Nos:38, 39 & 41 Vangapally, Yadigirigutta (M), Nalgonda district for further treatment and Disposal in MEE system. <p><u>II. After commissioning of MEE system i.e. Stripper MEE & ATFD:</u></p> <ul style="list-style-type: none"> ➤ Shall be stripped off for organics recovery ➤ Stripper condensate to distillation for separation of Organic compounds followed by disposal to cement plants for co processing and distillation effluents shall be Recycled. ➤ Stripped effluents for Forced evaporation in MEE & flowed by ATFD. ➤ Condensate from MEE & ATFD shall be routed to EO system ➤ ATFD salts sent to TSDF
	LTDS effluents: Cooling tower blow down (0.5 KLD) + DM plant & Softener regeneration & scrubber - 1KLD + Miscellaneous effluents - 0.4 KLD	1.9 KLD	<p><u>I. Till the RO plant of the unit is commissioned</u></p> <ul style="list-style-type: none"> ➤ Transport to M/s. Enal Drugs (P) Ltd., Unit-II, and Sy.Nos:38, 39 & 41 Vangapally, Yadigirigutta (M), Nalgonda district for further treatment and Disposal in MEE system. <p>II. After installation & commissioning of RO plant</p> <ul style="list-style-type: none"> ➤ LTDS effluents shall be filtered in the RO plant ➤ RO permeate water to boiler /cooling tower make up. ➤ RO rejects to ATFD.
2	Domestic	2.5 KLD	
	Total	14.4 KLD	

TABLE-15: PROPOSED EFFLUENT GENERATION DETAILS AFTER EXPANSION

S. No	Purpose	Effluent Generation In KLD
1	Process	71.00
2	Washings	2.00
3	Boiler Blow down	8.00
4	Cooling Towers Blow Down	13.00

5	DM Plant Regeneration	2.00
6	Scrubbing system	2.00
7	Domestic	2.00
	Total	100.00

TABLE-16: PROPOSED HTDS & LTDS EFFLUENT DETAILS AFTER EXPANSION

S. No	Purpose	HTDS In KLD	LTDS In KLD	Effluent In KLD	Disposal Method
1	Process	63.00	8.00	71.00	HTDS Effluent sent to ETP with MEE system.
2	Washings	0.00	2.00	2.00	
3	Boiler Blow down	8.00	0.00	8.00	
4	Cooling towers Blow down	0.00	13.00	13.00	LTDS effluents treated in ETP. RO Rejects to MEE system and RO permeate to reuse; Condensate from MEE to Biological Treatment followed by RO and reuse. MEE residue to ATFD for drying
5	DM Plant Regeneration	2.00	0.00	2.00	
6	Scrubbing system	2.00	0.00	2.00	
7	Domestic	0.00	2.00	2.00	Septic tank followed by Soak pit
	Total	75.00	25.00	100.00	

Effluent Treatment / Disposal: Zero Liquid Discharge (ZLD) concept consisting of steam stripper, MEE system, ATFD, Biological Treatment and RO will be installed to treat the effluents generated from plant and to reuse the treated water.

The MEE System with 150 KLD capacities and RO system with 100 KLD Capacity will be installed for treatment of effluents generated from plant operations. The Schematic Diagram of MEE System is given below. The details of MEE system given in Draft EIA Report Chapter-10.

4.5 Noise Environment

The main sources of noise pollution in the plant are Boilers, Reactors, DG Sets, compressors and other Noise generating units. Vehicular movements during operation phase for loading / unloading of raw materials and finished products and transporting activity may also increases the noise levels.

All the noise generating equipments like motor's, gear boxes and compressors are regularly maintained with lubricating material to avoid noise generation. All the DG sets are providing with acoustic enclosures. A thick greenbelt will be developed along the periphery of the plant boundaries to minimize the noise pollution from the source.

4.6 Land Environment

The proposed plant activities are unlikely to alter the land-use pattern in the project site. The unit will take adequate measures for storage, handling and disposal of hazardous waste. Hence, there will be no significant adverse impact on land environment.

4.7 Ecological Environment

Detailed flora and fauna studies were carried in the study area. As per baseline studies, there are no endangered, threatened & protected plants and animal species were recorded in the study area. Hence, no significant adverse impact is envisaged on ecology.

4.8 Existing & Proposed Solid Waste

The Solid waste generation and disposal methods from Existing & proposed project are given below.

TABLE-17: EXISTING SOLID WASTE & HAZARDOUS WASTE GENERATION, DISPOSAL DETAILS

S. No	Description	Quantity	Method Of Disposal
SOLID WASTE GENERATION, DISPOSAL DETAILS			
1	FE Residue	9.9TPM	TSDf, Dundigal, Rangareddy district for secured land filling.
2	Spent catalyst	17Kg/month	
3	ETP sludge	300 Kg/month	
4	Distillation bottom residue	35Kg/month	TSDf, Dundigul, Rangareddy district for incineration /Authorized cement plants for co processing
5	Spent carbon	67Kg/month	
HAZARDOUS WASTE GENERATION, DISPOSAL DETAILS			
1	Spent solvents	1.75TPM	Recovered within the premises duly sending the residue to TSDf, Dundigal, Rangareddy district for incineration.
2	Waste oil	40 Liters / Annum	Authorized Agencies for Reprocessing / Recycling
3	Containers & Container Liners ➤ Containers ➤ Container liners	50 No's / month 100 No's / month	After Detoxification, it shall be dispose of to outside agencies.

TABLE-18: PROPOSED SOLID WASTE & HAZARDOUS WASTE GENERATION, DISPOSAL DETAILS AFTER EXPANSION

S. No	Description	Quantity In Kg/Day	Method Of Disposal
SOLID WASTE GENERATION, DISPOSAL DETAILS			
1	Organic Residue	1567.00	Sent to Cement Industries
2	Spent carbon	163.00	Sent to Cement Industries
3	Solvent Distillation Residue	281.00	Sent to Cement Industries
4	Inorganic solid waste	584.00	Sent to TSDF
5	ETP Sludge	10.00	Sent to TSDF
6	MEE salts	4357.00	Sent to TSDF
7	Coal ash from Boiler	10000.00	Sent to Brick Manufacturers
HAZARDOUS WASTE GENERATION, DISPOSAL DETAILS			
1	Waste Oils & Grease	200 Liters / Annum	SPCB Authorized Agencies for Reprocessing/Recycling
2	Detoxified Containers and Container Liners	150 Nos / Month	After Detoxification sent back to suppliers/SPCB Authorized Parties
3	Used Lead acid batteries	4 Nos / Annum	Send back to suppliers for buyback of New Batteries

4.9. Risk Assessment and Disaster Management Plan

The Risk assessment studies have been conducted for identification of hazards, to calculate damage distances and to spell out risk mitigation measures. The details are discussed in detail in Chapter – 7 of Draft EIA Report.

5. ENVIRONMENTAL MANAGEMENT PLAN

5.1 ENVIRONMENT MANAGEMENT PLAN FOR CONSTRUCTION PHASE

Adequate and effective environment protection measures will be planned and designed to minimize the impacts due to activities related to pre-construction (preparatory phase) of the project, machinery installation and commissioning stages and end with the induction of manpower and start up. The impacts identified during the construction phase are mainly due to site preparation, foundation work, material handling, and construction of buildings and installation of the machinery.

All possible care will be taken to reduce the noise levels due to construction activity. Also, noise prone activities shall be restricted to the extent possible during night particularly during the period of 10 PM to 6 AM in order to have minimum environmental impact.

5.2 ENVIRONMENT MANAGEMENT PLAN FOR OPERATIONAL PHASE

A) Air Pollution Management

- Gaseous emissions from reactions shall be scrubbed in a two stage scrubber to control the gaseous emissions into the atmosphere.
- Fugitive emissions will be reduced by providing vent condensers to the storage tanks and all the reactors are will be provided with primary and secondary condensers with cooling water and chilled brain circulation respectively to avoid fugitive emissions and solvent losses which ensures the recovery of 95% and also controlled by closed operations and suitable handling methods.
- Adequate stack height will be provided to the proposed boilers for effective dispersion of pollutants' and stack monitoring facilities for the periodic monitoring of the stack flue gases to verify the compliance of the stipulated norms.
- To prevent the particulate matter delivering from the boilers will be arrested by providing Cyclone separator followed by Bag filters.

B) Water Pollution Management

The HTDS effluents will be collected and treated in steam stripper, MEE system & ATFD. Condensate along with LTDS effluent will be sent to biological treatment including R.O system for treatment and reuse. There will be no discharge of effluent outside the plant premises. The unit will be treated as ZLD unit. Salts from ATFD and sludge from the ETP will be sent to TSDF for land fill.

C) Noise Pollution Management

- Extensive oiling, lubrication and preventive maintenance will be carried out for the machineries and equipments to reduce noise generation.
- Green Belt Development around plant boundaries and within plant in an area of 4.0 Acres (16327.50 SQM). .
- A thick Greenbelt along with periphery of the compound wall arrests the Noise pollution from the plant.

D) Solid Waste Management

The hazardous wastes generated from the industry will be from solvents distillation, Process, ETP, Boilers, MEE, discarded containers and bags which will properly stored in a hazardous waste storage area with leachate collection system and then transported and properly disposed.

The entire organic residues will be disposed to cement industries for incineration and Inorganic residues sent to TSDF for secure land fill.

E) Green Belt

The industry proposed to develop greenbelt on all sides of the industry in an area of 4.0 Acres (16327.50 SQM) from the total area of 11.81 Acres (47822.36 SQM) of land, with an amount of Rs.6, 50,000 /- for greenbelt. The Amount will be spent during the period of Three years. First year amount will be Rs.3, 50,000 for plantation. Second year amount will be Rs.2, 00,000/- for development of plants. Third year amount will be Rs. 1, 00,000/- for maintenance and development. A list of plants suitable for greenbelt and to the local agro climatic conditions is given in the Draft EIA report.

F) Solvent Recovery

The solvents like Acetone, Ethyl acetate, THF, n- Hexane, Isopropyl alcohol, Methanol and Toluene will be recovered up to 95 % by using distillation and the remaining 5% will be the loss.

5.3 ENVIRONMENT MANAGEMENT CELL

M/s. Sanorg Laboratories Pvt. Ltd will provide a dedicated Environmental Management Cell with trained staff to look after the proper environmental management of the proposed plant including operation & maintenance of all facilities.

5.4 ENVIRONMENT MONITORING PROGRAM

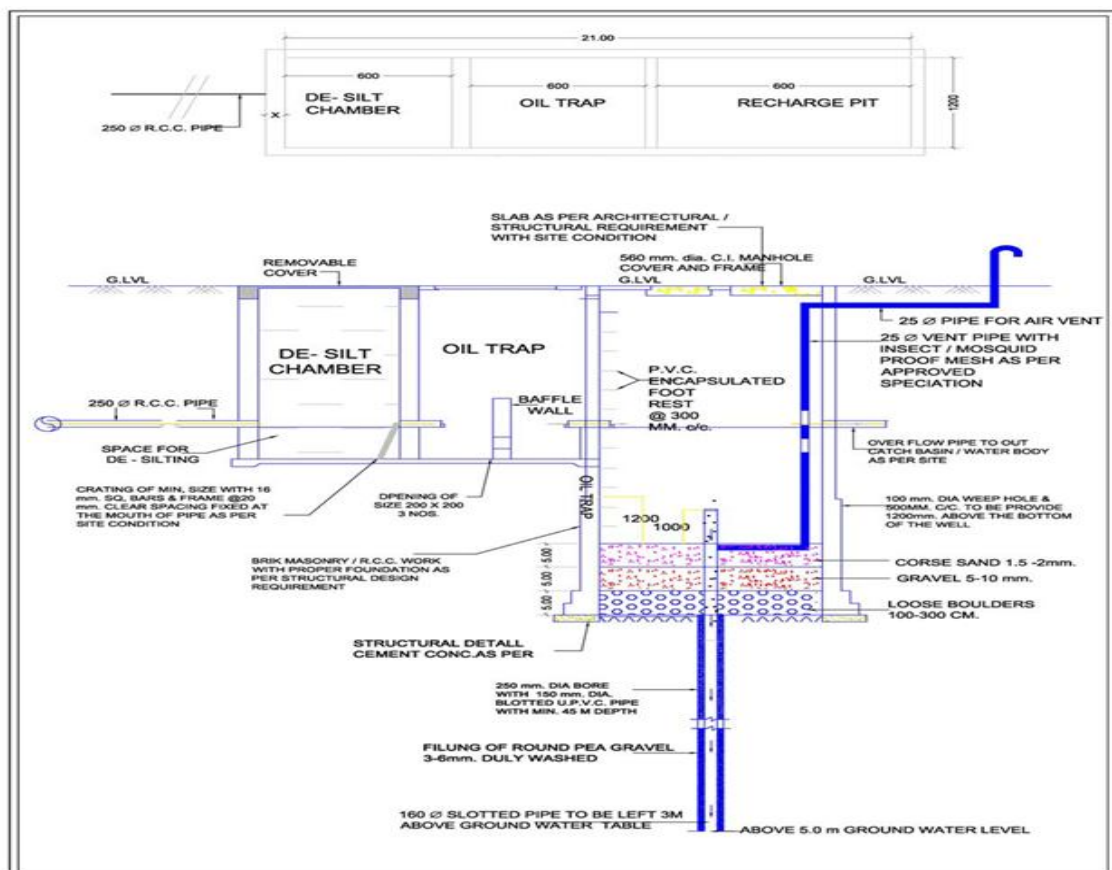
Regular monitoring of environmental parameters is of immense importance to assess the status of environment during project operation. The regular monitoring will be carried out with the MoEF registration / NABL accredited laboratory.

6. PROPOSED ROOF WATER HARVESTING

Rainwater harvesting is a mechanism involved in collecting, storing and using. A rainwater harvesting system comprises various stages – flow of rainwater through pipes or drains, filtration and storage in tanks for reuse or recharge.

Roof top area is considered for harvesting rainwater for this project and other areas are excluded due to possibility of chemical contamination. Roof top rainwater harvesting is one of the appropriate options for augmenting ground water recharge/ storage in urban areas where natural recharge is considerably reduced due to increased urban activities and not much land is available for implementing any other artificial recharge measure.

FIGURE-2: PROPOSED ROOF WATER HARVESTING STRUCTURE



7. EMP BUDGET

The unit has proposed for **176.5 Lakhs** as capital cost and **18.0 Lakhs** as recurring cost for environment pollution control measures.

. TABLE-19: PROPOSED BUDGETS FOR ENVIRONMENTAL MANAGEMENT PLAN [EMP] AFTER EXPANSION

S. No	Particulars	Proposed Capital Cost (Rs. Lac)	Recurring Cost (Rs. Lac)
1	Pollution Control Equipment (Scrubbers, Cyclone separator, Bag filter , Sampling port arrangements etc.,)	20.0	3.0
2	ZLD System (MEE , RO, necessary modification of ETP system)	145.0	7.0
3	Rain Water Harvesting (Roof top water collection pit and Roof top water towards the rain water harvesting pit)	3.0	0.0
4	Green Belt Development (Plantation and Maintenance)	6.5	2.0
5	Health & Safety (PPEs, Medical Surveillances expenses etc.,)	2.0	3.0
6	Environmental Monitoring (Air, Water, Noise, VOCs, Boiler Stack flue gases, DG sets stack monitoring expenses etc.,)	0.0	3.0
	Total	176.5	18.0

8. SOCIO-ECONOMIC DEVELOPMENT

It is predicted that socio-economic impact due to this project will positively increase the chance of more employment opportunities for local peoples. There are no Resettlement and Rehabilitation issues involved in this project. The project infrastructures will be of use to people of the area. The revenue of the village will be definitely increasing due to the project.

9. PROJECT BENEFITS

Proposed expansion project will result in considerable growth and up liftments of local community in the nearby villages by providing the employment. The proposed project will generate direct and indirect employment to the nearby villages and the unavailable technical persons will be recruited from outside.

10. CONCLUSION

M/s. Sanorg Laboratories Pvt. Ltd has committed to implement all the pollution control measures to protect the surrounding environment – adapting Zero-Liquid-Discharge System for all its Effluents, by controlling process emissions and Safe-Disposal of all Solid Wastes – generated either as process wastes or packing wastes.

The project can definitely improve the regional, state and national economy. Industrial growth is an indication of all-round Socio-Economic Development – by generating local Employment and Business Opportunities. The implementation of this project will definitely improve the physical and social infrastructure of the surrounding area.