

EXECUTIVE SUMMARY & CONCLUSION

1.1 INTRODUCTION

M/s Flourish Paper and Chemicals Limited. is a green field technical grade pesticide manufacturing project. It is scheduled under S.No. – 5 (b), Category ‘A’ as per EIA notification, 2006 and amendments there after. The M/s Flourish Paper and Chemicals Limited proposes to set up new technical grade pesticides manufacturing unit of capacity 11700 MTPA at Khasra No. 449, 450, 451, 460, 461, 458, 463, 464, 465, 466 **Village** - Bhagwanpur, Barawala Road, **Tehsil**- Derabassi, **District**- S.A.S. Nagar (Mohali),140507. Total plot area is 35953.47 sq.m. (**Existing** 3715.95 sq.m.+ **Proposed** 32237.52 Sq.m) . The total cost of project will be around 23.27Crores (**Existing:** 12.65 Crores, **Proposed:** 10.62 Crores).

Project Proponent Mr. Atul Mehra (Managing Director) law graduate and hardcore marketing professional and founder of Flourish Paper and Chemicals Limited. He is a dynamic go getter having over 30 year of industrial exposure with excellent market-ing/commercial knowledge and business acumen.

Sanction of ToR has been accorded to M/s Flourish Paper & Chemicals Limited by MoEF&CC vide letter no - IA-J- IA-J-11011/248/2020-IA-II(I) dated 06.12.2020

Environmental baseline study for the proposed project was carried out from 1st November 2020 to 31st January 2021.

1.2 LOCATION OF PROJECT

TABLE 1.1: LOCATION AND BRIEF DRSCRIPTION OF PROJECT

S.N.	Parameter	Description			
1.	Category of project as per EIA notification & Amendment	The proposed project is categorized under Schedule 5 (b), Category ‘A’ {“Pesticides industry and pesticides specific intermediates (excluding formulations).			
2.	Name of Company	M/s Flourish Paper and Chemicals Limited			
3.	Existing Production Capacity	S.NO	LIST OF EXISTING PRODUCTS	MT/Day	
		1	Rosin Based Sizing Agent	8.33	
		2	Starch Based Sizing Agent	11.66	
		3	Wax Based Sizing Agent	16.66	
		4	Acetic Acid	25.00	
		5	Potassium Chloride	4.00	
4.	Proposed Products	LIST OF PROPOSED PRODUCTS			
		S.NO	LIST OF PRODUCTS	CATEGORY	PROPOSED TPA
		1	Metalaxyl	Fungicide	300
		2	Tricyclozole	Fungicide	2400
		3	Dithianon	Fungicide	2400
		4	Pretilachlor	Herbicide	1200
		5	Difenoconazole	Fungicide	1200
		6	Thiamethoxam	Insecticides	600

		7	Trichlopyre	Herbicide	1200
		8	Tebuconazole	Fungicide	300
		9	Antracol	Fungicide	2100
		Total			11700
5.	Location	Khasra No. 449, 450, 451, 460, 461, 458, 463, 464, 465, 466 Village Bhagwanpur, Barawala Road, Tehsil - Derabassi, District - S.A.S. Nagar (Mohali), Punjab - 140507			
6.	Total land area of plot	Total Plot Area 35953.47 Sq.m. (Existing 3715.95 Sq.m.+ Proposed 32237.52 Sq.m.)			
7.	Project cost	Existing - 12.65 Crore Proposed : 10.62 Crore Total : 23.27 Crore			
8.	Electricity requirement	Total power requirement Existing : 250KW Proposed : 500KW Total : 750 KW			
9.	Source of electricity	Punjab state power supply ltd.			
10.	D.G. sets	Existing : 200 kVA Proposed : 500 kVA			
11	Water Consumption	Total Water requirement is 189.8 KLD out of which 99.92 KLD will be recycled and 89.88 KLD fresh water will be required.			
	Source of water	The water requirement of proposed project will be met through in-house bore well. CGWA permission for ground water withdrawal has been obtained vide letter no. PWRDA/07/2021/L2/162 dated 19.07.2021			
	Waste Water Generated	129.48 KLD Industrial wastewater and 7.20 KLD Domestic wastewater will be generated			
	Mode of Disposal	Treated water will be used in cooling tower/boiler and gardening.			
12.	Boiler	Boiler: Existing 3.5 TPH and Proposed 4.0TPH			
13.	Fuel	1. Risk Husk Briquette for Boiler: Total :-17 MT/Day Existing 8 MT/Day and Proposed - 9 MT/Day 2. HSD for D.G Set: Total :-82 Liters/Day Existing 32 Liters/Day and Proposed :-50			
14.	Solid Waste Generation	Fly Ash (Total – 1000 MTPA) Existing 450 MTPA, Proposed - 550 MTPA			
15	Nearest Highway	National Highway 22 : 4.38 KM away from project site in W direction National Highway 73 : 4.6 KM away from project site in E direction National Highway 64 : 10.60Km away from project site in NW direction State Highway -1 : 9.55 Km away from project site in ESE direction			
16	Nearest Railway station	Ghaggar Railway Station : 5.40 m away from project site in NW. Dappar Railway Station : 10.11 m away from project site in SW.			
17	Nearest Airport	Chandigarh Airport - 14 KM away from the project site in NW direction.			

1.3 MONTHLY PRODUCTION AND EQUIPMENT DETAILS

TABLE 1.2: MONTHLY PRODUCTION CAPACITIES

S. No.	Product	Type	No Of Working Day	Production (MT/Month)	Capacity (MTPA)
1	Metalaxyl	Fungicide	100	1275	5100
	Tricyclozole	Fungicide			
	Dithianon	Fungicide			
2	Difenoconazole	Fungicide	100	900	3600
	Tebuconazole	Fungicide			
	Antracol	Fungicide			
3	Pretilachlor	Herbicide	100	750	3000
	Trichlopyre	Herbicide			
	Thiamethoxam	Insecticides			

TABLE NO. 1.3: LIST OF EXISTING AND PROPOSED EQUIPMENT.

S.No.	Machine Description	Capacity	Proposed	Existing	Total	Uses
1.	Glass line Reactor	8 KL	5	5	10	Reaction cum Distillation vessel
2.	S.S Reactor	8 KL	3	1	4	Reaction cum Distillation vessel
3.	S.S Reactor	4KL	2	2	4	Reaction cum Distillation vessel
4.	S.S Reactor	5KL	2	2	4	Reaction cum Distillation vessel
5.	S.S Reactor	6KL	3	0	3	Reaction cum Distillation vessel
7.	Filter Press	23*18	2	-	2	Filtration
8.	Filter Press	46 X 36	1	1	2	Filtration
9.	Rotatory Vacuum Drier	760 KG	1	-	1	Vacuum Drying
10.	Notch Filter	1200 LT	1	-	1	Filtration
11.	Notch Filter	2000 LT	1	2	3	Filtration
12.	Centrifuge	24-25 KG	1	1	2	Centrifuge
13.	Centrifuge	36-150 KG	1	-	1	Centrifuge
14.	Centrifuge	250-300 KG	1	0	1	Centrifuge
15.	Fluid Bed Drier	60 KG	2	0	1	Drying
16.	Hot Water Bath	1 KL	1	0	1	Heating
17.	Hot Water Bath	3KL	1	0	1	Heating
18.	Scrubber System	-	1	1	2	Scrubbing
19.	Water Ring vacuum pump with booster	720 mmHg	-	1	1	Vacuum Creation
20.	Water Jet vacuum pump with booster	720 mmHg	-	1	1	Vacuum Creation
21.	Steam Ejector	740 mmHg	-	1	1	Vacuum
22.	Chilling Comp	17 TR	-	1	1	-
23.	Oil Vacuum Pump	730 mmHg	-	1	1	Vacuum

TABLE: 1.4 RAW MATERIAL CONSUMPTION

Raw Material Consumption Per Annum and Mode of Storage						
Sr. No	Name of raw material	MTPA	Physical State	Type of storage	Max. storage Cap. MT/M	Mode of Transportation
METALAXYL						
1	Methoxy Acetic Acid	110.00	Liquid	Drum	9.17	Truck
2	Benzene	72.50	Liquid	Tanks	6.04	Truck
3	Hexane	158.25	Liquid	Tanks	13.19	Tanker
4	Thionyl Chloride	150.00	Liquid	Tanks	12.50	Tanker
5	MDMPA	245.00	Liquid	Tanks	20.42	Tanker
TRICYCLOZOLE						
6	Hydrazinal-4 methyl	2352.00	Solid	Bags	196.00	Truck
	Benzothiazole					
7	Formic Acid	720.00	Liquid	Tanks	60.00	Tanker
8	Ortho-Zylene	150.00	Liquid	Drum	12.50	Truck
DITHIANON						
9	Dimethyl formamide(DMF)	2400.00	Liquid	Tanks	200.00	Tanker
10	Sodium Cyanide	960.00	Liquid	Tanks	80.00	Tanker
11	Carbon Disulphide	1728.00	Liquid	Drum	144.00	Truck
12	Toluene	240.00	Liquid	Tank	20.00	Tanker
13	Dichlone	192.00	Liquid	Drum	16.00	Truck
14	Acetic Acid	192.00	Liquid	Drum	16.00	Truck
PRETILACHLOR						
15	2,6 Dimethyl amine	177.36	Liquid	Drum	14.78	Truck
16	2, Propoxyethyl Chloride	496.80	Liquid	Drum	41.40	Truck
17	Caustic Flakes	168.00	Liquid	Tanks	14.00	Tanker
18	CAS	448.80	Solid	Bags	37.40	Truck
19	Benzene	120.00	Tanks	Bags	10.00	Truck
DIFENOCONAZOLE						
20	Phenylene ketal bromide	1440.00	Liquid	Tanks	120.00	Tanker
21	1,2,4- Triazole	214.20	Liquid	Drum	17.85	Truck
22	Potassium Hydroxide	174.00	Liquid	Drum	14.50	Truck
23	Dimethyl farmamide	25.20	Liquid	Tanks	2.10	Tanker
24	Toluene	60.00	Tanks	Tank	5.00	Tanker
THIAMETHOXAM						
25	THMNO	444.00	Liquid	Drum	37.00	Truck
26	CCMT	450.00	Liquid	Drum	37.50	Truck
27	DMSO	67.50	Liquid	Drum	5.63	Truck
28	Caustic Flakes	82.20	Solid	Bags	6.85	Truck
TRICHOLOPYRE						
29	BCA (90%)	734.40	Liquid	Drum	61.20	Truck
30	Hexane	280.20	Liquid	Tanks	23.35	Tanker
31	NaTCP	1068.00	Liquid	Drum	89.00	Truck

32	Caustic Lye 47 %	228.00	Liquid	Drum	19.00	Truck
TEBUCONAZOLE						
33	Oxirane	270.00	Liquid	Drum	22.50	Truck
34	DMSO	30.38	Liquid	Drum	2.53	Truck
35	1,2,4 Triazole	86.40	Liquid	Drum	7.20	Truck
36	Caustic flakes	10.80	Liquid	Drum	0.90	Truck
37	Toluene	30.00	Liquid	Tanks	2.50	Tanker
ANTRACOL						
38	PROPYLENE DIAMINE (75%)	627.90	Liquid	Drum	52.33	Truck
39	CARBON DISULPHIDE	1134.00	Liquid	Drum	94.50	Truck
40	CAUSTIC LYE 48 %	987.00	Liquid	Drum	82.25	Truck
41	ZINC SULPHATE (13%)	3229.80	Liquid	Drum	269.15	Truck
42	SLS	134.40	Liquid	Drum	11.20	Truck
43	HMTA	18.90	Liquid	Drum	1.58	Truck
44	RHODACAL	27.30	Liquid	Drum	2.28	Truck
45	Ammonia 17%	1339.80	Liquid	Drum	111.65	Truck

TABLE NO. 1.5 : DETAILS OF UTILITIES SERVICES

S.No.	NAME OF EQUIPMENT	CAPACITY		USAGE
		EXISTING	PROPOSED	
1	Boiler - 1	3.5 TPH	4 TPH	Steam Generation
3	Cooling tower	300 TR	200 TR	Process Water Cooling
4	Cooling tower	-	200 TR	Process Water Cooling
5	Chiller-1 (Brine)	-	20 TR	Refrigeration
6	Chiller-2 (Brine)	-	20 TR	Refrigeration
7	Chiller -3 (Chilled water)	15 TR	100 TR	Refrigeration
8	RO for wastewater	-	80KL/day	W/W Treatment
9	MEE	-	900Ltr/Hr	W/W Treatment
10	DG Set	200 KVA (1 no.)	500 KVA (1 no.)	Electricity generation
11	ETP			W/W Treatment
12	Incinerator	-	200 kg/hr	HW Incineration

1.4 INVESTMENT OF THE PROJECT

The estimated cost of the proposed project will be around Rs. 23.27Crores (Existing: 12.65 Crores. Proposed: 10.62 Crores.

As per MoEF&CC OM dated 30.09.2020, all the activities proposed by PP in provision of CER is now been a part of EMP. The EMP budget is given below:

S.No.	Particulars	EXISTING Capital Cost (Lacs)	EXISTING Recurring Cost (per annum)	PROPOSED Capital Cost (Lacs)	PROPOSED Recurring Cost (per annum)
1	Air /Noise pollution control (Vent Condenser, Charcoal Absorber)	10	0.50	50	2.0
2	Water Pollution Control ETP, MEE & RO	25.0	1.0	200	10.0
3	Green belt	0.50	0.10	2.5	0.75
4	Occupational Health	0.50	0.10	2.5	0.75
5	Environmental Monitoring	0.50	0.10	2.0	1.00
6	Hazardous waste disposal (Incinerator)	0.50	0.25	50	1.50
Total		37lacs	1.95lacs	307 Lacs	16 lacs

ACTIVITIES IN PROVISION OF CER		
S.No	Particulars	Proposed Budget in Lakhs
1	Govt. Sr. Secondary School, Derabassi	4.0
2	Sarvhitkari Vidya mandir school, Derabassi.	4.0
3	Plantation on roads in industrial area with tree guards and their maintenance	2.0
Total		10

1.5 DESCRIPTION OF ENVIRONMENT

The environmental monitoring for Ambient air quality, water quality, soil quality, noise levels, meteorology and traffic survey of the study area extending 5km beyond the site boundary was carried out by M/s Chandigarh Pollution Testing Laboratory (CPTL) per the Terms of Reference (ToR) granted on dated – 6th Dec 2020 approved by the Ministry of Environment, Forest & Climate Change (MoEF&CC).

To predict the impact of the proposed activities on the surrounding environment, the current baseline environmental status was studied by collecting the data and carrying out monitoring for the period of November 2020 to January 2021. The environmental monitoring data has been analysed with respect to ambient air quality, water quality, noise levels, soil characteristics, flora & fauna and parameters concerning human interest. On the basis of monitoring data, the relevant impacts on various environmental components were also predicted by using appropriate mathematical models as well as impact assessment techniques. An appropriate environmental management plan was also delineated to minimize the adverse impacts.

A. AIR ENVIRONMENT

The baseline status of environmental quality has been monitored in post monsoon from November, 2020 to January, 2021 in 10 km radial distance from the project site.

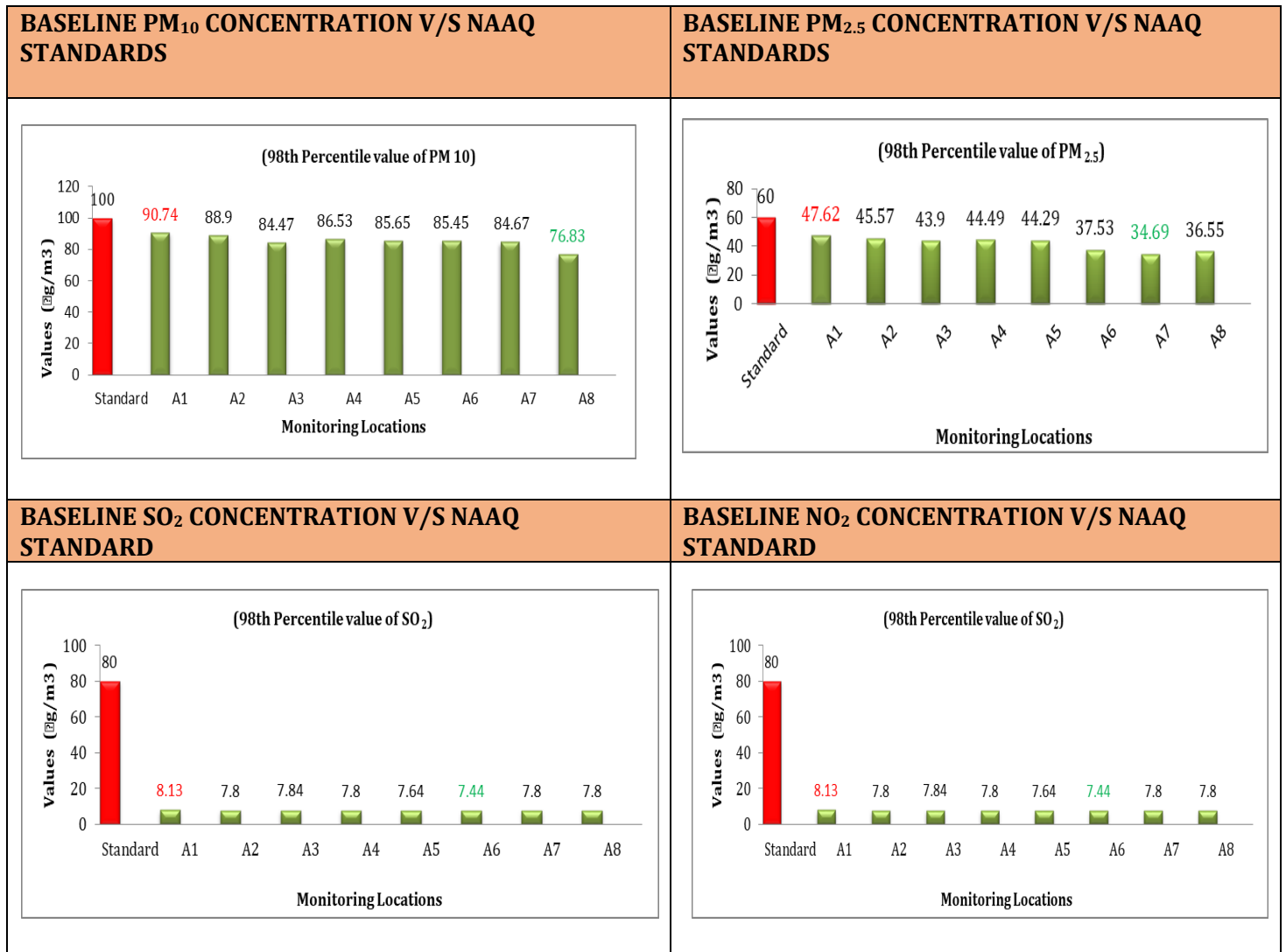
Eight monitoring stations were selected for monitoring of Ambient Air quality, Ambient Noise, Soil and Ground water. 4 locations were selected for surface water monitoring. The monitoring

stations were selected on the basis of surface influence, demographic influence and meteorological influence

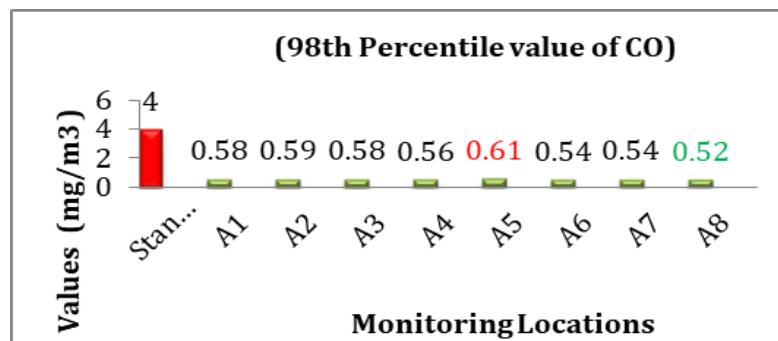
TABLE 1.6: AMBIENT AIR QUALITY MONITORING STATIONS

S.No.	Station	From the plant area		Coordinate	
		Distance in KM	Direction	Longitude	Latitude
A1	Project Site	0		30°34'42.89"N	76°53'32.64"E
A2	Sunderpur	3.0	W	30°34'29.09"N	76°55'23.20"E
A3	Ghazipur	9.0	N	30°38'16.40"N	76°56'04.20"E
A4	Singhpura	8.5	NW	30°37'46.33"N	76°48'58.18"E
A5	Jaswantgarh	8.0	NE	30°38'05.21"N	76°56'10.21"E
A6	Mukandpur	8.0	SW	30°32'37.04"N	76°51'06.87"E
A7	Bhagsi	6.5	S	30°31'20.27"N	76°55'15.87"E
A8	Mauli	9.5	SE	30°31'43.09"N	76°58'36.23"E

Note:- Air Sampler was placed at height 3-4 m .



BASELINE CO CONCENTRATION V/S NAAQ STANDARDS



B. WATER ENVIRONMENT

✓ Ground water quality

Total 8 ground water sample were collected from 10K.m. radius of project site for check the quality of ground .Location table is given below:

TABLE 1.7 GROUND WATER MONITORING LOCATIONS

S. No	Locations	From the plant area		Coordinate	
		Distance in KM	Direction	Latitude	Longitude
Ground Water					
GW1	Project Site	0		30°34'42.89"N	76°53'32.64"E
GW2	Sunderpur Village	3.0	W	30°34'29.09"N	76°55'23.20"E
GW3	Ghazipur Village	9.0	N	30°38'16.40"N	76°56'04.20"E
GW4	Singhpura Village	8.5	NW	30°37'46.33"N	76°48'58.18"E
GW5	Jaswantgarh Village	8.0	NE	30°38'05.21"N	76°56'10.21"E
GW6	Mukandpur Village	5.0	SW	30°32'37.04"N	76°51'06.87"E
GW7	Bhagsi Village	6.5	S	30°31'20.27"N	76°55'15.87"E
GW8	Mauli Village	9.5	SE	30°31'43.09"N	76°58'36.23"E

- The pH value of ground water is an important index of acidity or alkalinity. pH value of the sample varies from 7.31 to 7.64 in all locations, which is well within the specified standard of 6.5 to 8.5.
- Electric Conductivity vary from 298 ms to 380 ms. Highest Electric Conductivity was found at GW3 (Ghazipur village)and minimum at GW2 (Sunderpur village).

- Total dissolved solids ranges from 381 to 465 mg/l. Minimum value was found at (GW8) at Mauli and maximum at (GW2) Sunderpur. All the results were found well within permissible limit of IS 10500: 2012.
- The hardness values in ground water of the study area ranges between 180 to 220 mg/l. Maximum value was found at (GW6) Bhagsi and minimum at (GW4) Singhpura. All the results were found below the acceptable limits of IS 10500: 2012.
- The chloride values in ground water of the study area ranges between 9.9 to 24.9 mg/l. Chloride values at all locations were found below the acceptable limit as per Indian Standard IS: 10500- 2012.
- The fluoride content was found well within permissible limits at all location of study area.
- The analysis results of ground water samples of study area indicate that the quality of ground water is suitable for human consumption. Over all, the obtained results are meeting the permissible limit of Indian Standard IS: 10500-2012.
- ✓ **Surface water quality**

TABLE 1.8 SURFACE WATER MONITORING LOCATIONS

S. No	Locations	From the plant area		Coordinate	
		Distance in KM	Direction	Latitude	Longitude
Surface Water					
SW1	Ghaggar river (Up stream)	6.46 Km	NW	30°36'49.45"N	76°50'11.65"E
SW2	Ghaggar river (Down stream)	7.18 Km	NW	30°36'26.40"N	76°49'25.82"E

- pH of downstream Ghaggar River is 8.16 and upstream is 7.20.
- Total dissolved solids of Ghaggar upstream river is 466 and downstream is 540 mg/l.
- Dissolve Oxygen of Upstream Ghaggar river is 6.4 mg/l and downstream is 6.1 mg/l.
- Biological oxygen demand of Ghaggar downstream is 6.2 mg/l and upstream is 4.0 mg/l.
- No metallic contamination was found in the river water. The water quality was found to meet the Best Designated Use – ‘D’ Criteria of CPCB (i.e fit for fish propagation).

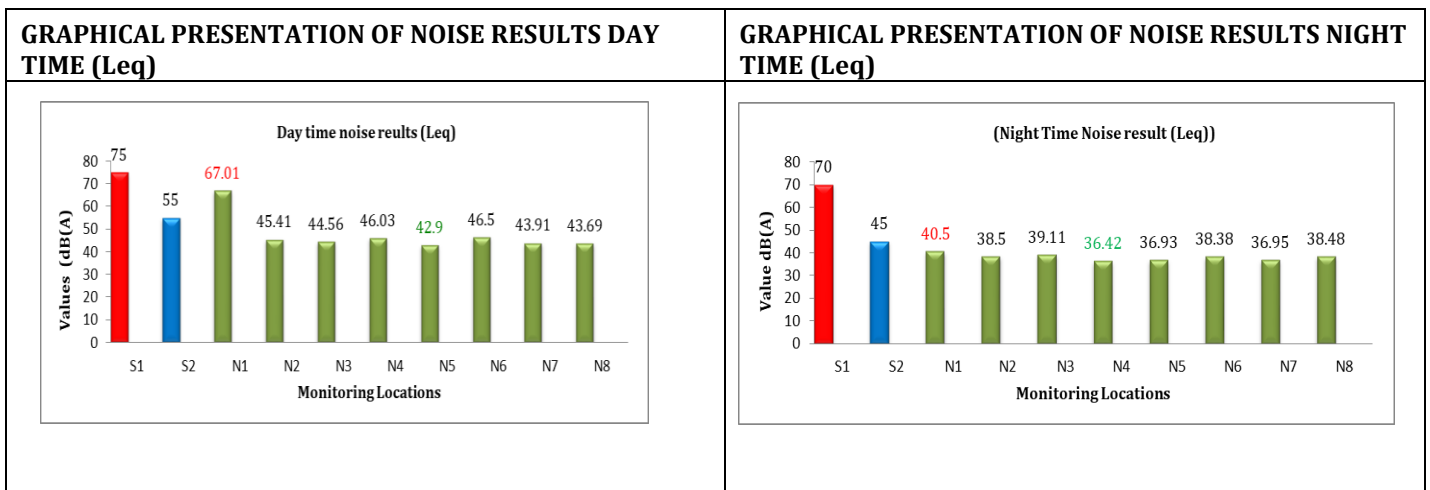
C. NOISE ENVIRONMENT

Eight locations were selected within 10 k.m. radius of project site for monitoring Noise level locations are tabulated below:-

**Ambient Noise Levels in The Study Area [dB(A)]
TABLE 1.9: AMBIENT NOISE QUALITY**

SN	Station	From the plant area		Coordinate		Zone
		Distance in KM	Direction	Latitude	Longitude	
N1	Project Site	0	-	30°34'42.89"N	76°53'32.64"E	Core
N2	Sunderpur Village	3.0	W	30°34'29.09"N	76°55'23.20"E	Buffer
N3	Ghazipur Village	9.0	N	30°38'16.40"N	76°56'04.20"E	Buffer
N4	Singhpura Village	8.5	NW	30°37'46.33"N	76°48'58.18"E	Buffer
N5	Jaswantgarh Village	8	NE	30°38'05.21"N	76°56'10.21"E	Buffer
N6	Mukandpur Village	5	SW	30°32'37.04"N	76°51'06.87"E	Buffer
N7	Bhagsi Village	6.5	S	30°31'20.27"N	76°55'15.87"E	Buffer
N8	Mauli Village	9.5	SE	30°31'43.09"N	76°58'36.23"E	Buffer

The physical description of sound concerns its loudness as a function of frequency. Noise in general is sound, which is composed of many frequency components of various types of loudness distributed over the audible frequency range.



D. SOIL ENVIRONMENT

The soil samples were collected from core zone and buffer zone of project site, were analyzed in Environment and Chemical laboratory of M/s Chandigarh Pollution Testing Laboratory (CPTL) accredited by NABL and recognized by MOEF&CC

TABLE 1.10 SOIL MONITORING LOCATION

S. No	Locations	From Project Site		Latitude	Longitude
		Distance	Direction		
S1	Project Site	0		30°34'42.89"N	76°53'32.64"E
S2	Sunderpur Village	3.0	W	30°34'29.09"N	76°55'23.20"E
S3	Ghazipur Village	9.0	N	30°38'16.40"N	76°56'04.20"E
S4	Singhpura Village	8.5	NW	30°37'46.33"N	76°48'58.18"E
S5	Jaswantgarh Village	8.0	NE	30°38'05.21"N	76°56'10.21"E
S6	Mukandpur Village	8.0	SW	30°32'37.04"N	76°51'06.87"E
S7	Bhagsi Village	6.5	S	30°31'20.27"N	76°55'15.87"E
S8	Mauli Village	9.5	SE	30°31'43.09"N	76°58'36.23"E

The average analysis of soil sample reveals that most of the soil of S.A.S. Nagar (Mohali) district has developed in situ.

- The average analysis of soil sample reveals that most of the soil of S.A.S. Nagar (Mohali) district has developed in situ.
- The bulk density of the soil in the study area ranged between 1.18 to 1.46 gm/cc which indicates favourable physical condition for plant growth. The water holding capacity was found in the range of 19.4 % to 22.2 %.
- pH is an important parameter indicative of alkaline or acidic nature of soil. It greatly affects the microbial population as well as solubility of metal ions and regulates nutrient availability.
- pH of area ranges from 7.08-7.50. Maximum at S8 (Mauli) and minimum at (S5) Jaswantgarh which indicates that soil was neutral to slightly alkaline in nature.
- Electrical conductivity is a measure of soluble salts in the soil was in the range of 350 to 432 µmhos/cm. Electrical conductivity available in average quantity.
- Organic matter and organic carbon present in the soil influences its physical and chemical conditions and is responsible for stability of soil aggregates. Organic matter ranges from 1.29%-1.46%.
- Available nitrogen were found in the range of 0.29% to 0.48%. ,which is better to sufficient in quantity. This showed that soil was fertile in organic and nutrient contents.
- Total Potassium were found in the range of 0.54% to 0.80%. which was found medium to average in quantity and total Phosphorous were found in 0.28% to 0.42%.

- Plant requires some of the heavy metals at microgram levels for their metabolic activities. Some heavy metals are also called Micronutrients. Their efficiency becomes a limiting factor in the plant growth
- It was observed that levels of Cu, Cd, Fe, Zinc, were found to be in the range of Cu 0.44 ppm to 0.80ppm, Cd is ND ,Fe 2.06 to 2.96 ppm, Zn 0.48 to 0.64 ppm. No toxic metals are observed in the soil-water extract.

1.6 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Air Environment

Main source of gaseous emission will be fugitive emissions and pollutant into air from the proposed project will be through flue gas stacks attached to boiler, DG set, through process vents and flue gas stack attached to incinerator.

Adequate stack height of DG set will be maintained and Multicyclone with dry scrubber will be installed at boiler to control emission pollutant under norms.

The table is given below for the sources of air pollution and its control.

TABLE 1.11: SOURCES OF AIR POLLUTION AND ITS CONTROL

Sr. No	Source of Emission	Type of Emission	Stack Height (meter)	Fuel Name & Quantity	Pollution Control Equipment
1	Boiler	SPM SO _x NO _x	30	Rice Husk Briquettes 17 MT/day	Existing: - Air pre heater, heat recovery unit and cyclone is being used. Proposed: Multi-Cyclone and Dry Scrubber
2	Process Vent	HCl, SO ₂ , Solvent Vapours Pesticide in the form of P.M.	15	-	- Caustic Scrubber - VOC control system - Activated carbon adsorption system
3	D.G. Set (300 KVA): emergencies use only	SPM SO _x NO _x	5	HSD As and when required	Dust Collector, Silencer
4	Stack attached to Incinerator	SPM SO _x NO _x	30	HSD As and when required	- Caustic Scrubber

Water Environment

Zero discharge in unite

The water requirement of proposed project will be met through borewells. CGWA permission for ground water withdrawal has been obtained vide letter no. PWRDA/07/2021/L2/162 dated 19.07.2021. During construction phase, water shall be required for construction of structures, infrastructure facilities and for domestic purpose.

Domestic wastewater to be generated shall be treated in STP plant by aerobic and anaerobic process. During operation phase, initially freshwater requirement will be 189.8 KLD. 99.92 KLD treated wastewater will be recycled in cooling tower, boiler, process, scrubber and reactor washing hence freshwater requirement for proposed project will be 89.88 KLD. No water/ waste water will be discharged inside/outside the unit. ZLD will be maintained.

TABLE 1.12: WATER REQUIREMENT

Particulars		Water Consumption KLD			Recycled Water (KLD)	Fresh Water Requirement (KLD)
		Existing	Proposed	Total		
Industrial	Process	25.00	91.50	116.50	35.62	80.88
	Boiler/Cooling	25.00	30.10	55.10	55.10	0.00
	Scrubber	0.00	1.00	1.00	1.00	0.00
	R. Washing	0.00	1.00	1.00	1.00	0.00
	Lab	0.00	1.00	1.00	0.00	1.00
	Plantation	0.50	6.70	7.20	7.20	0.00
Domestic		3.00	5.00	8.00	0.00	8.00
TOTAL (KL/DAY)		53.50	136.30	189.80	99.92	89.88

WATER BALANCE

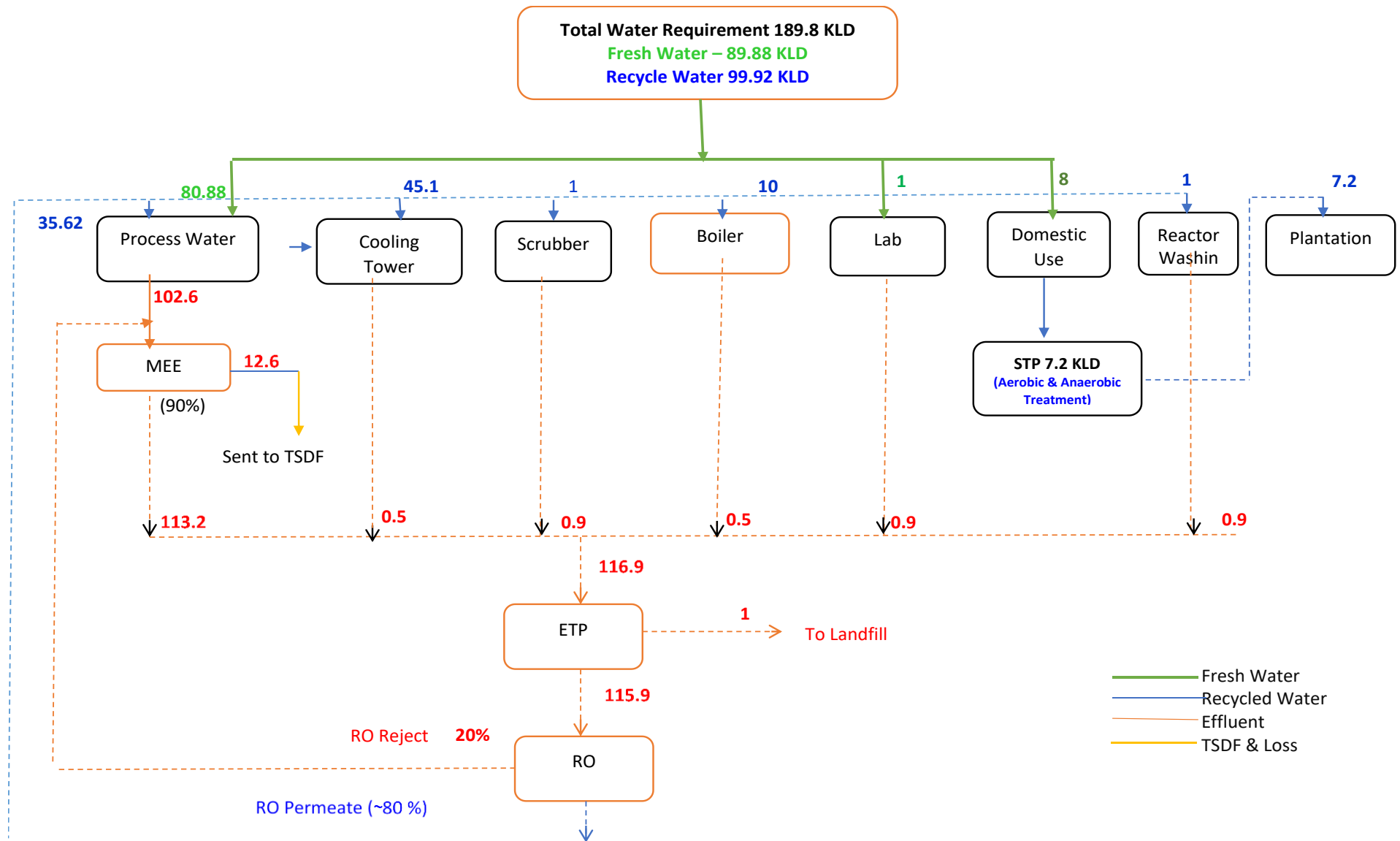
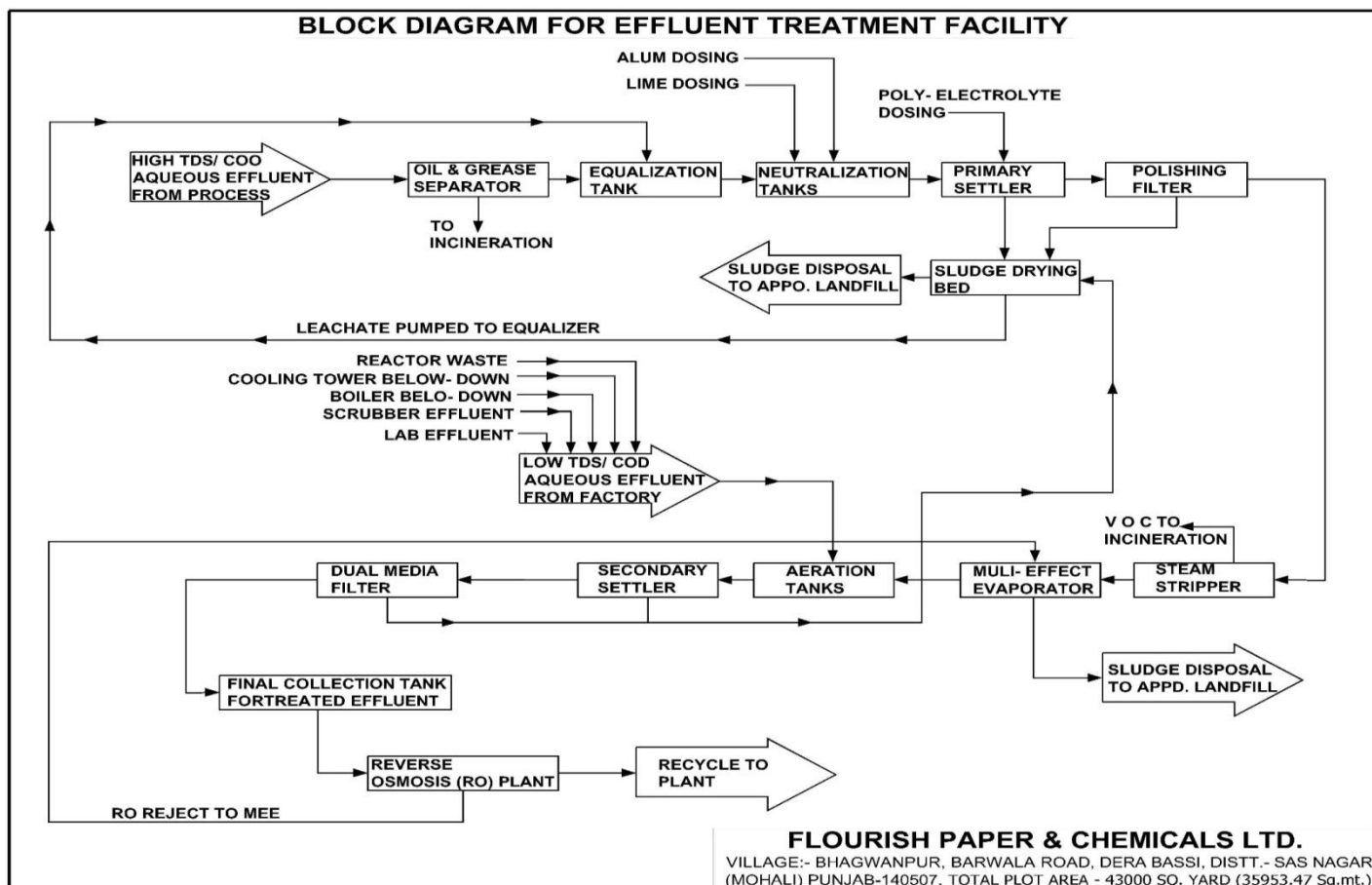


TABLE 1.13: DETAILS OF WASTEWATER GENERATION

Particulars		Wastewater (KLD) Generation		Total (KLD)	Disposal Method
		Existing	Proposed		
Industrial	Process	20.10	82.50	102.60	Process Effluent & RO- Reject Will Be Sent To MEE. Other Effluent Including MEE Consensate Will Be Sent To ETP & ETP Treated Effluent Will Be Sent To RO-Plant RO - Permeate Will be recycled, and ZLD Will Be Maintained At Site
	Boiler/Cooling	0.50	0.50	1.00	
	Scrubber	0.00	0.90	0.90	
	R. Washing	0.00	0.90	0.90	
	RO - Reject	0.00	23.18	23.18	
	LAB	0.00	0.90	0.90	
Industrial		20.60	108.88	129.48	
Domestic		2.70	4.50	7.20	Domestic w/w Will Be Sent To STP And Reused In Plantation
TOTAL (KL/DAY)		23.30	113.38	136.68	

1.7 ETP PROCESS DESCRIPTIONS AND FLOW DIAGRAM

Wastewater generated from the proposed pesticide manufacturing plant will be segregated into separate streams depending on their pollution levels as given in wastewater treatment methodology.



Hazardous Waste Management

Entire quantity of hazardous waste will be handled and disposed as per Hazardous Waste (Management, Handling and Trans boundary movement) Rules'2016, amended time to time. Different categories solid and liquid hazardous waste will be generated. SHE department shall insure to follow CPCB guideline during the collection, storage, handling, transportation and disposal of each category hazardous waste.

TABLE: 1.14 HAZARDOUS & SOLID WASTE GENERATION QUANTITY AND MODE OF DISPOSAL

S. No.	HW/Solid Waste	Category	Existing	Proposed	Total	Disposal Method
A. Hazardous Waste MTPA						
1	Process Residue	28.1	1.00	1294.0	1295.0	TSD/In house incinerate
2	ETP Sludge	35.3	0.48	300.0	300.48	TSD/In house incinerate
3	MEE Sludge	35.3	0.00	2457	2457	TSD/In house incinerate
4	Empty Drums/containers		60.00 nos.	500 nos.	560 nos.	Sale to Authorized
5	Used/spent oil	5.1	0.06	0.130	0.19	Sale to Authorized
B. Solid Waste MTPA						
7	Fly Ash (Boiler)		450	550	1000	Brick Manufacturer/TSD/In house incinerate

Noise Control Measures

The main sources of noise pollution will be from operation of boiler, D.G. set, process plant, APCM and other machineries etc. However, the noise transmitted outside the plant boundary will be low because most of the noise generating equipment's will be in closed structures provided with acoustic enclosure. Greenbelt will be developed around the periphery of the plant. Ear muff, ear plug will be provided to all workers working at noisy area.

Green Belt Development

Total plot area is 35953.47 sq. meter m², land area is available at site; out of this area about 11865 sq. meter (33 %) area is covered as greenbelt and other forms of greenery.. Unit proposed to develop plantation around the boundary of plant and along the periphery of road. A capital cost provision of Rs. 2.5 lacs have been kept for development of greenbelt. The budget includes cost of digging of pits, fertilizers, saplings and maintenance for 3 years.

1.8 ENVIRONMENT MONITORING PROGRAMME

The details of monitoring are given below table:

TABLE 1.15 ENVIRONMENT MONITORING PROGRAMME

Nature of Analysis	Frequency of analysis	Parameters
Wastewater	Monthly by external agency	pH, COD, BOD,TDS, SS, Oil & Grease, etc.
Stack Monitoring of each stack	Monthly by external agency	PM, SO ₂ , NO _x ,
Ambient Air	Monthly for 24 hours or as per the statutory conditions by external agency	PM ₁₀ , PM _{2.5} , SO ₂ , NO _x , HCL, CO
Noise level	Monthly as per the statutory conditions by external agency	Near Main gate, Near. boiler, Process area, Near ETP, Near D.G. etc.
Work area monitoring	Monthly by external agency	RPM, VOC, Acid Fumes
Health check-up of workers	As per the statutory guideline.	

1.9 QUALITATIVE RISK ANALYSIS

Risk analysis and study have been carried out for identification of hazards, selection of credible scenarios, Risk Mitigation measures etc. All the hazardous chemicals will be stored and handled as per MSDS guidelines.

1.10 PROJECT BENEFITS

The proposed project will become beneficial to the surrounding area or community in terms of infrastructural development, Social development, employment and other tangible benefits. The proposed project has a potential for employment of skilled, semi-skilled and unskilled manpower during construction phase as well as operational phase.

1.11 ENVIRONMENTAL MANAGEMENT PLAN

Overall objective of EMP

Prevention: Measures aimed at impeding the occurrence of negative environmental impacts and/or preventing such an occurrence having harmful environmental impacts.

Preservation: Preventing any future actions that might adversely affect an environmental resource or attribute.

Minimization: Limiting or reducing the degree, extent, magnitude, or duration of adverse impacts.

1.12 CONCLUSION

Based on the study it is concluded that,

- Total wastewater generation shall be 136.68 KLD. Industrial effluent i.e. 129.48 KLD will be treated at ETP, MEE and RO and will be reuse in cooling tower .
- Domestic wastewater i.e. 7.20 KLD will be sent to STP for aerobic and anaerobic treatment and treated water will be used in plantation. So, there will be no effluent discharge outside the premises from unit. ZLD will be maimed in plant premises.
- Multi-Cyclone with dry scrubber will be installed at boiler. Hence pollutants will be well within the prescribed norms.
- Solvent recovery system shall be related to VOC control system and finally to activated carbon adsorption system will be provided to avoid release any solvent vapours/fumes in the atmosphere. In any emergency, carbon adsorption system will be disconnected, and vapours diverted to incinerator.
- To prevent Fugitive emission, various steps will be taken like regular sprinkling of water and paved road.
- Adequate arrangement for handling and disposal of Hazardous solid waste will be made.
- Fire protection and safety measures will be provided to take care of fire and explosion hazard.
- Suggestions of qualitative risk analysis study will be followed to minimize accidents and for safe operations.
- Recommendations suggested in Environmental Management Plan will be followed to minimize the impact of proposed project.

Overall, direct and indirect employment opportunities, improvement in basic infrastructures by development of industry etc. will be observed with negligible impact on environment.

It can be concluded that on positive implementation of mitigation measures and environmental management plan during the construction and operational phase, there will be negligible impact on the environment.
