M/S. SPECTRUM DYES & CHEMICALS pvt. LTD.

March, 2018
Report No. 1718A058

DRAFT RAPID ENVIRONMENTAL IMPACT ASSESSMENT AND EMP REPORT

FOR

EXPANSION OF DYES AND CHEMICALS MANUFACTURING UNIT

[Schedule 5 (f) Synthetic Organic Chemicals industry (Located outside the Notified Industrial Area) Category–"A" As per EIA Notification 2006 and its Amendment thereof]

PRODUCTION CAPACITY:-

SR. NO.	NAME OF PRODUCTS	Existing (MT/ MONTH)	Proposed (MT/ MONTH)	Total After Expansion (MT/ MONTH)
1	S.O.Dyes	250	650	900
2	Dispersing Agent	1500	0	1500
3	Textile Auxiliaries	2125	-2125	0
4	Hydrous & Specialty Chemicals	1000	-1000	0
5	Dyes Intermediate	400	350	750
Total				**3150**
OR				
1	Formulated SO Dyes	-	2400	2400
2	Dyes Intermediate	400	350	750
Total				**3150**

PROJECT PROPONENT

M/s. Spectrum Dyes & Chemicals Pvt. Ltd

AT

Block No.-484, 502, 503-A, 504 & 505, N.H.No.8, Palsana-394315, Dist: Surat, Gujarat

Baseline study Period - 1st Oct 2017 to 31st Dec 2017

[**ToR Letter No:** IA-J-11011/517/2017-IA-II(I) **Dated: 9/12/2017**]

PREPARED BY:

EN-VISION ENVIRONMENTAL SERVICES;

NABET/EIA/1417/SA 0018

201 - 301 UNION TRADE CENTER (UTC)
NEAR APPLE HOSPITAL, UDHANA DARWAJA,
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Website: en-vision.co.in, Phone-0261-2344773/ 774
E-mail: shah.kunhal@gmail.com; eia@en-vision.co.in

LABORATORY USED:

1) En-Vision Environmental Services & Testing Laboraties, Surat (NABL Approved)

2) Pollucon Laboraties, Surat (MoEF & NABL Approved)

DRAFT RAPID ENVIRONMENTAL IMPACT AND EMP REPORT

CLIENT	**:**	**M/S. SPECTRUM DYES & CHEMICALS PVT. LTD.**
PROJECT TITLE	**:**	**DRAFT RAPID ENVIRONMENTAL IMPACT EXPANSION IN DYES & CHEMICAL MANUFACTURING UNIT**
SITE ADDRESS	**:**	**BLOCK NO.-484, 502, 503-A, 504 & 505, N.H.NO.8, PALSANA-394315, DIST: SURAT, GUJARAT**
PROJECT NO.	**:**	**1718068**
REPORT NO.	**:**	**1718A058**
VERSION	**:**	**01**
RELEASED	**:**	**MARCH, 2018**

**** PREPARED BY ****

EN-VISION ENVIRONMENTAL SERVICES;

(NABET/EIA/1417/SA 0018)

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DISCLAIMER

en-vision

PREFACE

M/s. Spectrum Dyes & Chemicals Pvt. Ltd. has proposed Dyes manufacturing unit located at Block No-484, 502, 503-A, 504 & 505, N.H.No.8, Palsana-394315, Dist.: Surat, Gujarat.

As per Environmental Impact Assessment (EIA) Notification 2006, the proposed project is categorized as A, 5(f) Synthetic Organic Chemicals Industry. In order to assess the likely impacts arising out of the proposed project, M/s. Spectrum Dyes & Chemical Pvt. Ltd.. has retained M/s. En-vision Environmental Services, Surat (Gujarat), to undertake the Environmental Impact Assessment (EIA) study for the various environmental components which may be adversely affected, to assess the impact arising out of the proposed project and to prepare a Environmental Management Plan (EMP) to minimize those negative impacts.

The cooperation and assistance rendered by M/s. Spectrum Dyes & Chemicals Pvt. Ltd. in the preparation of this report is gratefully acknowledged.

M/s. En-vision Environnemental Services

Kunhal Shah
(Partner)

SPECTRUM

UNDERTAKING

I, Avneep Bansal Director of M/s. Spectrum Dyes & Chemicals Pvt. Ltd. proposing for Obtaining Environmental Clearance for " Expansion In Dyes & Chemicals Manufacturing Unit – Spectrum Dyes & Chemicals Pvt. Ltd." at Block No-484, 502, 503-A , 504 & 505, N.H.No.8, Palsana-394315, Dist.: Surat, Gujarat, do hereby solemnly affirm an undertake as stated herein under;

- The contents (information and data) of the EIA Report of the above said project is owned by us and whatever stated herein is true to the best of our knowledge and belief.

Date:- 26/02/2018

Place:- Surat

For M/s. Spectrum Dyes & Chemicals Pvt. Ltd.

A Bansal

Avneep Bansal
Director

Spectrum Dyes & Chemicals Pvt. Ltd.
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UNDERTAKING

I, Kunhal Shah aged about 49 years, Partner of En-Vision Environmental Services; registered office at 201 & 301, Union Trade Center (UTC), Nr. Apple Hospital, Udhana Darwaja, Surat 395002, Gujarat, do here by solemnly affirm an undertake as stated herein;

1. That we have prepared EIA report for **"Expansion In Dyes & Chemicals Manufacturing Unit – Spectrum Dyes & Chemicals Pvt. Ltd."** at Block No-484, 502, 503-A , 504 & 505, N.H.No.8, Palsana-394315, Dist.: Surat, Gujarat.

2. That the prescribed TORs vide letter No: IA-J-11011/517/2017-IA-II(I) Dated: 9/12/2017, have been complied with and that the data submitted are factually correct.

What is stated herein is true to the best of my knowledge and the same I believed to be true.

Date:- 28/2/2018

Place:- Surat

For M/s. En-Vision Environmental Services.

Mr. Kunhal Shah
(Partner)

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ABBREVIATIONS

AAQ	Ambient Air Quality
AAQMS	Ambient Air Quality Monitoring System
BDL	Below Detection Limit
BOD	Biochemical Oxygen Demand
C&R	Conservation & Reclamation
CEA	Cumulative Effects Assessment
CEC	Cation Exchange Capacity
CEMS	Continuous Emission Monitoring System
CETP	Common Effluent Treatment Plant
COD	Chemical Oxygen Demand
CPCB	Central Pollution Control Board
dB	Decibel
DO	Dissolved Oxygen
DOC	Dissolved Organic Carbon
DoEF	Department of Environment and Forestry
EAC	Environmental Appraisal Committee
EB	Ecology and Biodiversity
EC	Environmental Clearance
EHSIA	Environment, Health, and Safety Impact Assessment
EHSMS	Environment, Health and Safety Management System
EIA	Environment Impact Assessment
EIAA	Environmental Impact Assessment Authority
ELC	Ecological Land Classification
ELU	End Land Use
EMF	Environmental Management Framework
EMP	Environmental Management Plan
EMS	Environmental Management System
EPP	Environmental Protection Plan
FAE	Functional Area Expert
GHG	Greenhouse Gases

GIS	Geographical Information System
GPCB	Gujarat Pollution Control Board
GECL	Globe Enviro Care Ltd.
GPS	Global Positioning System
h	hour
HER	Hazards and Effects Register
IPCC	Intergovernmental Panel on Climate Change
IRIS	Integrated Risk Information System
IRM	Integrated Resource Management
IRP	Integrated Resource Plan
ISO	International Organization for Standardization
IUCN	International Union for the Conservation of Nature and Natural Resources
kg	kilogram
l	Liter
Leq	Equivalent Noise Level
Lmax	Maximum Noise Level
MASL	Meters above Sea Level
mg/l	Milligram per liter
MoEF	Ministry of Environment and Forestry
MoC	Material of Construction
MSDS	Material Safety Data Sheet
NAAQ	National Ambient Air Quality
NNL	No Net Loss (fisheries)
NNLL	No Net Loss Lake
OHRA	Occupational Health Risk Assessment
OHS	Occupational Health and Safety
PER	Preliminary Environmental Review
PM	Particulate Matter
PM_{10}	Particulate Matter less than 10µm in diameter
$PM_{2.5}$	Particulate Matter less than 2.5µm in diameter
PMx	Particulate Matter (all sizes)

QA	Quality Assurance
QAP	Quality Assurance Program
QC	Quality Control
QMP	Quality Management Plan
QMS	Quality Management System
RAPIDS	Regional Air Pollutant Inventory Development System
SAR	Sodium Adsorption Ratio
SEA	Strategic Environmental Assessment
SEAC	State Environmental Appraisal Committee
sec	Second
SEIA	Socio-Economic Impact Assessment
SEIAA	State Environmental Impact Assessment Authority
SPCB	State Pollution Control Board
TDS	Total Dissolved Solids
TOC	Total Organic Content
ToR	Terms of Reference
TSS	Total Suspended Solids
VOC	Volatile Organic Compound
WHMIS	Workplace Hazardous Materials Information System
WHO	World Health Organization

EXECUTIVE SUMMARY OF THE REPORT

1. INTRODUCTION

M/s. Spectrum Dyes and Chemicals Pvt. Ltd. is a large scale industrial unit which is located at Block no-484, 502, 503-A, 504 & 505, N.H. No.8, Palsana-394315, Dist.: Surat, Gujarat. The company manufactures Dyes and intermediate. proposes expansion of Dyes and Chemicals unit as per MoEFCC, New Delhi, EIA Notification 14th September, 2006 and its amendment there of. The baseline study for conducting EIA Study based on the three months field data collected within 10 km radius from project site during post monsoon season from 1St October 2017 to 31St December 2017 and the whole EIA report has been prepared by M/s. En-vision Environmental Services, Surat. The same data has been used in assessment of impacts.

2. PROJECT DESCRIPTION

2.1 PROJECT DETAILS

Category of the project:	A
S. No. in the Schedule:	5(f) Synthetic Organic Chemicals industry
Location of the project:	Block no-484, 502, 503-A, 504 & 505, N.H.No.8, Palsana-394315, Dist.: Surat, Gujarat.
Total project cost:	Rs. 47.5783 crore
Cost for EPCM (Environmental Pollution Control Measures):	Capital Cost: Rs. 3,155.91 Lacs and Recurring cost: Rs. 1,165.38 Lacs Per Annum.

2.2 PROJECT REQUIREMENT

PARTICULARS	REQUIREMENT			
		Existing	Proposed	Total
Land Requirement		46158.23sq. m	3666.29sq. m	49824.52 sq. m
Water Requirement and its Source	Source from existing 4 Nos. of bore wells and proposed new 3 nos; of Bore- well	1142.5KLD	1557.5 KLD	2700 KLD
Electricity Requirement and its Source	DGVCL	4000 KVA	2000 KVA	6000 KVA
	Gas Engine	1250 KVA	--	--
	Standby			
	Gas Engine	1250 KVA	1250 KVA	2500 KVA
	D.G 2x380KVA	760 KVA	--	760 KVA
	D.G 2x500KVA	1000 KVA	--	1000 KVA
	D.G 2x1250KVA	2500 KVA	--	2500 KVA
Manpower Requirements		1080 Nos	122 Nos	1202 Nos.
Fuel Requirement	Coal	50 tons/day	25tons/day	75 tons/day
	Natural Gas	460 scm/hr	--	460 scm/hr
	GAS	10 SCM/hr	--	10 SCM/hr

2.3 PRODUCT LIST

1A: List of Products along with their Production Capacity

SR. NO.	NAME OF PRODUCTS	Existing (MT/ MONTH)	Proposed (MT/ MONTH)	Total after expansion (MT/ MONTH)
1	S.O.Dyes	250	650	900
2	Dispersing Agent	1500	0	1500
3	Textile Auxiliaries	2125	-2125	0
4	Hydros & Speciality Chemicals	1000	-1000	0
5	Dyes Intermediate	400	350	750
Total				**3150**
OR				
1	Formulated SO Dyes	-	2400	2400
2	Dyes Intermediate	400	350	750
Total				**3150**

1B. List of Byproducts along with their Production Capacity

SR. NO.	NAME OF BYPRODUCTS	Existing (MT/ MONTH)	Proposed (MT/ MONTH)	Total after expansion (MT/ MONTH)
1	RC DMF (Recovered)	40	0	40
2	RC Methanol (Recovered)	130	0	130
3	RC Acetone (Recovered)	15	0	15
4	RC Sodium Sulphite (Recovered)	15	0	15
5	RC Toluene (Recovered)	7.5	0	7.5
6	Sodium Bromide Solution	15	0	15

2.4 RAW MATERIAL

Raw material for dyes and chemicals unit will be purchased from the different sources and it will be stored in chemical storage area in Carboys, Drums, bags and some are in storage tanks. Transportation of raw materials are made through road by trucks/tankers.

2.5 WATER CONSUMPTION & WASTE WATER GENERATION

Total water requirement for the proposed project will be 2700 KLD which mainly for process, Boiler & cooling (make up water), Domestic uses and for gardening & others. Total water requirement shall be met from existing 4nos. of bore well and proposed 3 nos. of bore well. 2245.0 KL/day industrial wastewater generated from process & utilities of the proposed project. Domestic sewage (75.0 KLD) generated will be treated in Secondary Treatment Plant. Generated industrial effluents will be treated in proposed ETP. Existing process effluent is sent to CETP of M/s. NPICSL, hence now onward, treated effluents will also be sent to CETP of M/s. NPICSL, Palsana for further treatment and disposal

2.6 AIR EMISSION AND AIR POLLUTION CONTROL MEASURES

The air emission from the proposed project would be the flue gas emission from boiler, Thermic fluid heater (boiler), Gas Generator and Diesel based D.G. Set. Major pollutant *i.e.* PM_{10}, $PM_{2.5}$, SO_2, NOx is generated from the stacks attached to unit. From the proposed unit process emission will be generated.

FLUE GAS EMISSION AND CONTROL MEASURES ARE GIVEN IN FOLLOWING TABLE:

A FLUE GAS STACKS : [EXISTING]

Stack No.	Stack Attached To	Stack Height	Stack Diameter	Fuel	Pollutants	Permissible value	APC Attached
1	Steam Boiler6 MTPH (Running) 4 MTPH (Stand by) *	36.5 M	1300 mm	Coal, Lignite	PM So_x No_x	150mg/Nm^3 100 ppm 50 ppm	High Efficiency Multi Cyclone Seperator, Bag filter
2	Thermo pack2,00,000 Kcal/Hr	21 M	250 mm	NG	PM So_x No_x	150mg/Nm^3 100 ppm 50 ppm	Sufficient Stack Height
3	HAG	34 M	1000 mm	Coal, Lignite	PM So_x No_x	150mg/Nm^3 100 ppm 50 ppm	Dual Teema Cyclone Seperator, Bag filter
4	Thermo pack 3,00,000 Kcal/Hr. Heat transfer area 24m^2	5 M	305 mm	NG	PM So_x No_x	150mg/Nm^3 100 ppm 50 ppm	Sufficient Stack Height
5	(LDO/HSD)/NG Based Power Plant (stand by)	30 M	800 mm	LDO/ HSD/ NG	PM So_x No_x	150mg/Nm^3 100 ppm 50 ppm	Sufficient Stack Height
6	(LDO/HSD)/NG Based Power Plant on plot no. 484 (stand by)	32 M	800 mm	LDO/ HSD/ NG	PM So_x No_x	150mg/Nm^3 100 ppm 50 ppm	Sufficient Stack Height
7	DG Set – 02 Nos stand by (380 KVA)	11 M	150 mm	HSD	PM So_x No_x	150mg/Nm^3 100 ppm 50 ppm	Sufficient Stack Height
8	DG Set – 02 Nos stand by (500 KVA)	11 M	150 mm	HSD	PM So_x No_x	150mg/Nm^3 100 ppm 50 ppm	Sufficient Stack Height
9	DG Set – 02 Nos stand by (1250 KVA)	11 M	150 mm	HSD	PM So_x No_x	150mg/Nm^3 100 ppm 50 ppm	Sufficient Stack Height

Note - * indicate that in proposed expansion, we will resell our Existing 4 MTPH Boiler (Stand by)

A Flue Gas Stack: [Proposed]

Stack No.	Stack Attached To	Stack Height	Stack Diameter	Fuel	Pollutants	Permissible value	APC Attached
1	Steam Boiler 10 MTPH **	36 M	1450 mm	Coal, Lignite	PM So_x No_x	150mg/Nm^3 100 ppm 50 ppm	ESP (Combine Stack and APC for boiler and HAG)
2	HAG						

Note - ** indicate that in proposed expansion, we will use our Existing 6 MTPH Boiler as a stand by

B PROCESS STACKS :[EXISTING]

Stack No.	Stack Attached To	Stack Height	Stack Diameter	Fuel	Pollutants	Permissible value	APC Attached
1	Spray Dryer No. 3	21.4 M	700 mm	NG / Steam (HAG) Afer Expansion	PM So_x No_x	150 mg/Nm ^{3} 40 mg/Nm ^{3} 25 mg/Nm ^{3}	Cyclone + Wet Scrubber
2	Spray Dryer No. 4 ***	18.4 M	450 mm	Steam	PM So_x No_x	150 mg/Nm ^{3} 40 mg/Nm ^{3} 25 mg/Nm ^{3}	Cyclone + Wet Scrubber
3	Spray Dryer No.5	21.4 M	1200 mm	NG / Steam (HAG) Afer Expansion	PM So_x No_x	150 mg/Nm ^{3} 40 mg/Nm ^{3} 25 mg/Nm ^{3}	Cyclone + Wet Scrubber
4	Spray Dryer No.6	33.0 M	1100 mm	Steam (HAG)	PM So_x No_x	150 mg/Nm ^{3} 40 mg/Nm ^{3} 25 mg/Nm ^{3}	Cyclone + Wet Scrubber
5	Spray Dryer No.7	33.0 M	1200 mm	Steam (HAG)	PM So_x No_x	150 mg/Nm ^{3} 40 mg/Nm ^{3} 25 mg/Nm ^{3}	Cyclone + Wet Scrubber
6	Spray Dryer No.8	33.0 M	1200 mm	Steam (HAG)	PM So_x No_x	150 mg/Nm ^{3} 40 mg/Nm ^{3} 25 mg/Nm ^{3}	Cyclone + Wet Scrubber
7	Scrubber at Bromide Plant	16.5 M	250 mm	-	Cl_2 Hcl Br_2 Hbr	9 mg/Nm ^{3} 20 mg/Nm ^{3} 2 mg/Nm ^{3} 30 mg/Nm ^{3}	Two Stage venturi scrubbers followed by packed columm scrubber
8	Scrubber At AQ-I Plant	16.5 M	250 mm	-	Cl_2 Hcl Br_2 Hbr	9 mg/Nm ^{3} 20 mg/Nm ^{3} 2 mg/Nm ^{3} 30 mg/Nm ^{3}	Two Stage venturi scrubbers followed by packed columm scrubber
9	Scrubber At DD1 Plant / Mono-Azo #	16.5 M	250 mm	-	Br2 So2	2 mg/Nm ^{3} 20 mg/Nm ^{3}	Two Stage venturi scrubbers followed by packed columm scrubber
10	Oleum Storage Tank	6.0 M	50 mm	-	Sox	40 mg/Nm^3	Scrubber

Note - *** indicate that in proposed expansion, we will resell our Existing Spray Dryer No.4
indicate that in proposed expansion, we will use our existing DD1 scrubber for Mono-Azo plant and install new scrubber for DD1 Plant

B Process Stacks : [Proposed]							
Stack No.	**Stack Attached To**	**Stack Height**	**Stack Diameter**	**Fuel**	**Pollutants**	**Permissible value**	**APC Attached**
1	Spray Dryer No.9	33.0 M	1200 mm	Steam (HAG)	PM		Cyclone + Wet Scrubber
2	Scrubber At NKS Plant	2.5 M	250 mm	-	So2	-	Two Stage venturi scrubbers followed by packed columm scrubber
3	Scrubber At DD2 Plant (Diazo)	6.0 M	250 mm	-	Cl_2 Hcl Br_2 Hbr	-	Two Stage venturi scrubbers followed by packed columm scrubber
4	Scrubber At DD2 Plant (Coupling)	5.3 M	650 mm	-	So2	-	Two Stage venturi scrubbers followed by packed columm scrubber
5	Scrubber At Solvent - II Plant	2.0M	250 mm	-	Br2, So2, Cl2	-	Two Stage venturi scrubbers followed by packed columm scrubber
6	Scrubber At MAA Plant	6.0 M	150 mm	-	Br2, So2, Cl2	-	Venturi scrubbers followed by packed columm scrubber
7	Scrubber At Solvent – III Plant Stage-1 Acid	5.6 M	450 mm	-	So2 Cl2	-	Packed columm scrubber
	Scrubber At Solvent – III Plant Stage-2 Alkaline	5.6 M	450 mm	-	So2 Cl2	-	Packed columm scrubber
8	Scrubber At NEW DD1 Plant (Diazo)	5.5 M	650 mm	-	Cl_2 Hcl Br_2 Hbr	-	Two Stage venturi scrubbers followed by packed columm scrubber
9	Scrubber At NEW DD1 Plant (Coupling)	5.5 M	1000 mm	-	Cl_2 Hcl Br_2 Hbr	-	Two Stage venturi scrubbers followed by packed columm scrubber
10	Primary Treatment Plant (Equalization tank)	3.5 M	355 mm	-	Cl_2 Hcl Br_2 Hbr	-	Packed columm scrubber

2.7 SOLID WASTE GENERATION AND DISPOSAL

All the solid/Hazardous waste will be collected, stored, transport and disposed properly as per the GPCB guidelines. For which company has obtained membership for the TSDF site as required. -IX.

S. No.	TYPE OF HAZARDOUS WASTE	EXISTING (MT/ month)	PROPOSED (MT/ month)	TOTAL (MT/ month)	WASTE CATEGORY	SOURCE	WASTE MANAGEMENT DETAILS
							DISPOSAL
1	ETP Sludge	500	750	1250	35.3	Effluent Treatment Plant	Collection, Storage Transportation, Disposal at GPCB approved TSDF site
2	Used/spent Oil	1.8 MT/Year	0	1.8 MT/Year	5.1	Various maintenance processes	Collection, Storage, Transportation, Disposal by selling to registered re-refiner
3	Discarded Containers	60000 MT /Year	0	60000 MT/ Year	33.3	Various production units	Collection, Storage, Decontamination, Transportation, Disposal by selling to registered party
4	Process Waste	5	0	5	26.1	Manufacturing process	Collection, Storage Transportation, Disposal at GPCB approved CHWIF
5	Distillation Residue	75	100	175	36.1	Manufacturing process	Collection, Storage Transportation, Disposal at GPCB approved CHWIF or co/pre-processing
6	GYPSUM	500	0	500	D2	Effluent Treatment Plan	Collection, Storage Transportation, Disposal by selling to actual user authorized by GPCB

3. BASELINE ENVIRONMENT

The baseline environmental quality of Air, water, soil, noise, socioeconomic status and ecology has been assessed in the post-monsoon season (1St October 2017 to 31St December 2017) in a study area of 10 Km radial distance from the project site which shows a healthy environment.

S. NO.	NEAREST INFRASTRUCTURE FEATURE	DISTANCE FROM PROJECT SITE
1.	Nearest Village	Palsana at around 1.9 km in SE
2.	Nearest National Highway	NH-8 at around 0.05 Km E
3.	Nearest State Highway	SH-168 at around 1.1 Km S
4.	Nearest Railway Station	Chalthan at around 7.0 Km NNW
5.	River	Mindhola at around 2.6 Km SE
6.	Airport	Surat at around 24.3 km NWW
7	Reserve Forest/National Park/Protected Forest	None within a radius of 10 Km
8	Severely Polluted Area	Vapi 96 Km S, Vatva 261 Km NNW and Ankleshwar 65 Km N.
9.	Seismicity	Zone III

3.2 MICRO-METEOROLOGY

The study was conducted during the months October, November and December (i.e. 1st October 2017 to 31st December 2017), which are considered to be representative of Post-monsoon and winter season. The maximum temperature 29.9ºC reached in October 2017 which represent the hot month. The coldest month was December when temperature drops to 22.2ºC. During the other months, temperature was more or less moderate in nature and pleasant to bear.

The predominant wind direction during this Study period is observed to be blowing from North East. Average wind speed during this period is 1.1 m/s. Calm wind during this period 32.7 %.

3.3 AMBIENT AIR QUALITY

The ambient air samples were collected from eight locations and analyzed for PM_{10}, $PM_{2.5}$, SO_2, NOx, CO and VOC. As per the monitoring in Post-monsoon season, PM_{10} varied between 56.20 µg/m3 to 63.20 µg/m3 (min); 60.70 µg/m3 to 65.20 µg/m3 (max); 59.91 µg/m3 64.16 µg/m3 (mean); $PM_{2.5}$ varied between 29.30 µg/m3 to 32.20 µg/m3 (min); 32.20 µg/m3 to 34.70 µg/m3 (max); 30.77 µg/m3 to 33.53 µg/m3 (mean); SO_2 varied between 14.30 µg/m3 to 17.90 µg/m3 (min); 15.80 µg/m3 to 19.60 µg/m3 (max); 15.19 µg/m3 to 18.60 µg/m3 (mean); NOx varied between 17.10 µg/m3 to 21.40 µg/m3 (min); 19.10µg/m3 to 24.10 µg/m3 (max); 18.22 µg/m3 to 22.47 µg/m3 (mean); CO varied between 230.00 µg/m3 to 510.00 µg/m3 (min); 250µg/m3 to 540µg/m3 (max); 239.58 µg/m3 to 525.21 µg/m3 (mean); VOC detected at project site only and its concentration is 0.70 µg/m3 (min); 0.90 µg/m3 (max); 0.83 µg/m3 (mean). From the above mentioned results it is observed that PM_{10}, $PM_{2.5}$, SO_2 and NOx concentrations are well below the stipulated standards of CPCB/GPCB.

3.4 GROUND WATER QUALITY MONITORING

The pH varied 6.72 to 7.27; Total Dissolved Solids 540 mg/L to 1448 mg/L; Chemical Oxygen Demand 8.0 mg/L to 16.0 mg/L; Nitrate 6.0 mg/L to 24.0 mg/L; Calcium as Ca+2 32.0 mg/L to 84.0 mg/L, Magnesium mg+2 22.24 mg/L to 36.42 mg/L; Chloride 60.0 mg/L to 545.0 mg/L; Sulphate 32.0 mg/L to 72.0 mg/L.

3.5 SURFACE WATER

The pH varied 6.80 to 7.57; Total Dissolved Solids 238 mg/L to 1088 mg/L; Chemical Oxygen Demand 8.0 mg/L to 96.0 mg/L; Biochemical Oxygen Demand for 3 days at 27^0C 2.0 mg/L to 90 mg/L; Nitrate 10.0 mg/L to 28.0 mg/L; Chloride 25.0 mg/L to 210 mg/L; Sulphate 8.0 mg/L to 34.0 mg/L. Turbidity 0.80 NTU to 32.4 NTU, Calcium Ca+2 32.0 mg/L to 102.4 mg/L, Magnesium mg+2 7.29 mg/L to 56.8 mg/L.

3.6 BACKGROUND NOISE LEVEL

The noise level measured in study area at different eight locations. The Project site is only pertaining in category of industrial area and the noise level was found between 61.00 dBA to 65.0 dBA in daytime and 59.40 dBA to 61.30dBA in night time. The noise levels varied in the residential area of the study area during day time [night time] in the range of 60.O0-68.80 [54.20-61.60] dBA.

3.7 SOIL QUALITY

Different parameters are analyzed to know the quality of soil in the study area. The porosity and water holding capacity of soils are in the range of 41.30 % to 42.50 % and 28.70 % to 30.79 %. The TDS was present in range between 2776 mg/Kg to 3140 mg/Kg. Chemical properties like pH are in the range of 7.50 to 7.80. Nitrate and Sulphate were observed in the range of 50 mg/Kg to 60 mg/Kg and 262 gm/Kg to 285 mg/kg and alkalinity 772 mg/Kg to 792 mg/Kg. Other parameters analyzed in soil sample were observed under limit.

3.8 LAND USE PATTERN

Land use within 10 Km radius of the study area has been determined with the help of satellite imagery, and broadly consists of settlements, Industrial, Tank/River/reservoir, Single crop, land with scrub, land without scrub, mining area and stony waste area and predominant land use is Single crop. Agricultural Land(80.55%), Barren/Un-cultivable/Waste/Scrub land(6.23%),Water Body(0.55%), Industrial land(7.18).

3.9 SOCIO-ECONOMIC STUDY

The proposed project area falls under state Gujarat, Surat district and comprises 43 villages are falling in tehsil Palsana,19 villages are falling in tehsil Chorasi, 15 villages falling in Jalalpore tehsil and 0 5 villages are falling in Navsari tehsil under district of Surat Gujarat state in the study area. The information/data has been analysed for all the 83 villages. The total households are 53341 in the region. The composition of the population in project area 231050 was found to be slightly skewed in favor of male. Total males are 128815 and total females are 102235 this is reflected in the males are more than females. Total SC population is 8362 (3.62%); total ST population is 67710 (29.30%). The ratio (number of female per thousand male) in the surveyed area is 793 this shows that male population is higher in the region as compared with the female population. The social development of a region is signified by many indices. One of which is literacy status of the population. The literacy rate in the project area is around 162870 (70.49%).

3.10 ECOLOGICAL ENVIRONMENT

Neither the core area nor the buffer zone is located in any ecologically sensitive area. There are no reserve forests, wildlife sanctuaries or national parks, wildlife migratory corridors, or important bird areas (IBAs). There are no rare or endangered or threatened (RET) species and all the species are common and of widespread occurrence. The atmospheric emissions from the stack of the proposed expansion are not going to significantly alter the ambient air quality. When all issues and the results are taken in to consideration, the project is not going to endanger any endangered species and its impacts on flora and fauna shall remain within the CPCB permitted limits. It is easily possible to attain the global objective of “No net loss” of biodiversity.

4. ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

4.1 IMPACT ASSESSMENT

An effort has been made to identify various environmental, social and ecological impacts due to proposed expansion project during construction and operation phases considering present environmental scenario as baseline. The corresponding mitigation measures to take care of the adverse impacts are also discussed in following sections.

4.2 IMPACTS DURING CONSTRUCTION PHASE AND ITS MITIGATION MEASURES

During Construction Phase, the Fugitive Dust Emission due to civil work and vehicular movement is not expected to spread too far as water spraying will be carried out to suppress the dust emission at the site and as well as on road. The increase in noise levels due to the movement of vehicles will be taken care of by regulating the movement of vehicles and the impact on the human beings will be taken care of by providing the working people with ear plugs / ear muffs. As the proposed expansion site is mostly barren land having shrubs and herbs, there will not be any significant impact on the ecology of the study area.

4.3 IMPACT DURING OPERATION PHASE AND MITIGATION MEASURES

4.3.1 AIR ENVIRONMENT

Major air emissions are anticipated by the gaseous emissions from a single or small group of stacks is a local phenomenon. Fugitive dust emission will be due to raw materials handling, loading and unloading of raw materials and finished goods, conveying and feeding point, vehicular movements, crushing and screening operations etc. The ISCST3 scientific model has been used to predict the proposed air quality on the environment. The results of the air modeling study indicates that the maximum Ground Level Concentration (GLC) for the parameter PM will be 3.5797 µg/m3, NOx will be 0.50569 µg/m3 , SO2 will be 1.01139 µg/m3 and HCL will be 0.1063 µg/m3 due to the proposed project.

4.3.2 NOISE ENVIRONMENT

The noise pollution management will be taken up in the following manners;

- By selecting low noise generating equipment,
- Isolating the noise generating equipments and working area
- Job rotation system will be provided as it is implementing in the existing unit
- By administrative and safety measures, providing noise level monitoring, remedial measures, providing noise safety appliances to the working personnel.

By these measures, it is anticipated that noise levels in the plant will be maintained below 75 dBA.

4.3.3 WATER ENVIRONMENT

The water requirement for the existing facilities is 1142.5 KLD and for expansion will be 1557.5 KLD. Hence total water requirement will be 2700.0 KLD. Maximum recycle of treated water in cooling tower and steam condensate in boiler will be carried out thus water requirement will reduced. Mainly water requirement is for process, boiler and cooling tower make-up, washing and other utility, domestic and for gardening purpose. Total water requirement will be met from ground water using existing 4nos. of bore well and proposed 3 nos. of bore well.

4.3.4 SOIL ENVIRONMENT

The main source of impact on land and Soil environment will be due to hazardous waste generated during construction and operation activities. The proposed project activity will be located on flat terrain industrial land; no significant topographical change is expected due to construction activities.

The hazardous waste generated from process are process waste and solid waste from ETP are sent to TSDF site for suitable treatment, and empty bags discarded containers/drums/liner/carobys/barrels will be sent back to supplier/ to GPCB approved recycler, etc. The waste oil generated from machinery will be used as lubricant or sent to GPCB approved recycler for suitable treatment.

4.3.5 GREEN BELT DEVELOPMENT

About 8185 sq.m area i.e. 16.42 % of total project plot area is developed as green belt at plant boundary, road side, around offices and buildings and Stretch of open land. Unit has already developed compensatory greenbelt of 5400 sq.m area i.e. 10.83 % of the total project plot area at Udhana-Magdalla Road, Surat and submitted in compliance report of our pervious environment clearance for each half year to the Ministry of Environment, Forest and Climate Change, Regional office-Bhopal. Unit will develop another 2000 sq. m area i.e 4.06 % of total project area with total investment of Rs.15 Lacs approx. for the green belt plantation. Total Green belt area of total project area would be 31.31 %.

5. ENVIRONMENTAL MONITORING PROGRAMME

A regular monitoring of environmental parameters like air, water, noise and soil as well as performance of pollution control facilities and safety measures in the plant are important for proper environmental management of any project. Therefore, the environment and safety cell will handle monitoring of air and water pollutants as well as the solid wastes generation as per the requirements of GPCB/CPCB. The routine monitoring programme will be implemented at site. Besides, to this monitoring, the compliances to all environmental clearance conditions and regular permits from GPCB/CPCB will be monitored and reported periodically.

6. ADDITIONAL STUDIES

6.1 PUBLIC HEARING

Public consultation will be conducted for the proposed project as per Para 7(i) III (i) of EIA Notification, 2006 as the project is located outside the notified industrial area.

6.2 RISK ASSESSMENT

The management is very much aware of their obligation to protect all persons at work and others in the neighborhood that may be affected by an unfortunate and unforeseen incidence occurring at the works. Any hazard either to employees or others arising from activities at the plant site shall, as far as possible, be handled by the personnel of the company and prevented from spreading any further. However in the case of eventuality the Disaster Management plan adopted by the proponents is sufficient and may be able to control the situation.

7. PROJECT BENEFITS

7.1 CORPORATE SOCIAL RESPONSIBILITY (CSR)

The company shall earmarks fund up to 91.53 lacs for proposed unit. The company proposes CSR activity which will include expanding the coverage of CSR, Educational Promotion, Infrastructure facilities, Health facilities, Collaborate in implementation of Govt. Schemes, Awareness program etc.

7.2 EMPLOYMENT POTENTIAL

The additional manpower requirement for proposed expansion will be 122. The ideology of the company is to give employment opportunity to nearby villagers, this is the most positive aspect of company regarding enhancement of the society. This proposed activity expected to create a beneficial impact on the local socio-economic development.

8. ENVIRONMENTAL MANAGEMENT PLAN

8.1 ENVIRONMENTAL MANAGEMENT PLAN (ADMINISTRATIVE ASPECTS)

Environmental monitoring of different parameters will be done regularly and the activity will be coordinated by the Environmental Management Cell (EMC). Mitigation of environmental impacts has to be implemented according to the suggestions and will be monitored regularly to prevent any lapse. The EMC will be under the overall supervision of the Manager (Environment). The cell will report on a regular basis to the Unit Head. The EMC will prepare a formal report on environmental management and mitigation at six month intervals. The company will undertake various training programme for improving the performance of the working personnel. Special training will be arranged in regular intervals to combat emergency scenarios that may occur during the plant operation.

9. CONCLUSION

M/s. Spectrum Dyes & Chemicals Pvt. Ltd has committed to implement all the pollution control measures to protect the surrounding environment. The project can definitely improve the regional, state and national economy. Industrial growth is an indication of socio economic development. The implementation of this project will definitely improve the physical and social infrastructure of the surrounding area.