

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;

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LABORATORY USED:

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

**2) Pollucon Laboratories, 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

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DISCLAIMER

En-Vision Environmental Services has taken all reasonable precautions in the preparation of this report as per its auditable quality plan. En-Vision also believes that the facts presented in the report are accurate as on the date it was written. However, it is impossible to dismiss absolutely, the possibility of errors or omissions. En-Vision therefore specifically disclaims any liability resulting from the use or application of the information contained in this report. The information is not intended to serve as legal advice related to the individual situation.

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

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

Place:- Surat


Avneep Bansal
Director



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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

For M/s. En-Vision Environmental Services.

Place:- Surat

Mr. Kunhal Shah
(Partner)



www.en-vision.co.in

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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 |
| PM _x | 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 Standby | 1250 KVA | -- | -- |
| | 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.* PM₁₀, PM_{2.5}, SO₂, NO_x 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 Separator, 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 Separator, Bag filter |
| 4 | Thermo pack 3,00,000 Kcal/Hr. Heat transfer area 24m ² | M 5 | 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 column 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 column scrubber |
| 9 | Scrubber At DD1 Plant / Mono-Azo # | 16.5 M | 250 mm | - | Br ₂ So ₂ | 2 mg/Nm ³ 20 mg/Nm ³ | Two Stage venturi scrubbers followed by packed column 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 column 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 column scrubber |
| 4 | Scrubber At DD2 Plant (Coupling) | 5.3 M | 650 mm | - | So2 | - | Two Stage venturi scrubbers followed by packed column scrubber |
| 5 | Scrubber At Solvent - II Plant | 2.0M | 250 mm | - | Br ₂ , So ₂ , Cl ₂ | - | Two Stage venturi scrubbers followed by packed column scrubber |
| 6 | Scrubber At MAA Plant | 6.0 M | 150 mm | - | Br ₂ , So ₂ , Cl ₂ | - | Venturi scrubbers followed by packed column scrubber |
| 7 | Scrubber At Solvent – III Plant Stage-1 Acid | 5.6 M | 450 mm | - | So ₂ Cl ₂ | - | Packed column scrubber |
| | Scrubber At Solvent – III Plant Stage-2 Alkaline | 5.6 M | 450 mm | - | So ₂ Cl ₂ | - | Packed column 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 column 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 column scrubber |
| 10 | Primary Treatment Plant (Equalization tank) | 3.5 M | 355 mm | - | Cl ₂ Hcl Br ₂ Hbr | - | Packed column 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 29.9°C reached in October 2017 which represent the hot month. The coldest month was December when temperature drops to 22.2°C. 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 PM₁₀, PM_{2.5}, SO₂, NO_x, CO and VOC. As per the monitoring in Post-monsoon season, PM₁₀ 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 to 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); SO₂ 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); NO_x varied between 17.10 µg/m³ to 21.40 µg/m³ (min); 19.10 µg/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); 250 µg/m³ to 540 µg/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 PM₁₀, PM_{2.5}, SO₂ and NO_x 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°C 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 60.00-68.80 [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 05 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 $\mu\text{g}/\text{m}^3$, NO_x will be 0.50569 $\mu\text{g}/\text{m}^3$, SO₂ will be 1.01139 $\mu\text{g}/\text{m}^3$ and HCL will be 0.1063 $\mu\text{g}/\text{m}^3$ 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.