EXECUTIVE SUMMARY

OF

ENVIRONMENTAL IMPACT ASSESSMENT REPORT & ENVIRONMENTAL MANAGEMENT PLAN

FOR

PUBLIC HEARING

OF

Proposed Expansion of Viscose Filament Yarn

(25,000 TPA to 30,000 TPA)

At

P.B. No 22, Murbad Road, Shahad,
Ulhasnagar, District-Thane (Maharashtra)

Study Period: Winter Season (December, 2014 to February, 2015)

APPLICANT

Century Rayon

(A Division of Century Textiles & Industries Ltd.)

P.B. No.: 22, Shahad - 421 103
District -Thane (Maharashtra)
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EXECUTIVE SUMMARY

1.0 PROJECT DESCRIPTION

1.1 Introduction

Century Rayon, a unit of B.K. Birla Group of Companies, was established in 1956 at Murbad Road, Shahad, Ulhasnagar, District - Thane , Maharashtra. It is the biggest producer of Viscose Filament Yarn (VFY) in the country having a capacity of 25,000 TPA catering to Textile and Industrial yarn. The company also produces Carbon Disulphide (CS_2), Sulphuric Acid (H_2SO_4) etc. which are input materials for producing VFY and industrial yarn along with by-products such as Anhydrous Sodium Sulphate and Sodium Sulphide .

The company has now proposed expansion of Viscose Filament Yarn (25,000TPA to 30000 TPA) within its existing plant premises at Murbad Road, Shahad, Ulhasnagar, District- Thane, Maharashtra.

As per EIA Notification dated 14th Sept., 2006 and as amended from time to time, the project falls in Category 'A', Project activity S. No. - 5(d).

Application (Appendix- I/Form-1 /ToR and Pre-Feasibility Report) for obtaining Environmental Clearance for this expansion project was submitted to MoEF&CC, New Delhi on 13th October, 2014.

First Technical Presentation for the same was held before EAC (I) on 21st Jan., 2015.

ToR Letter was issued by MoEF&CC, New Delhi vide letter no.–J-11011/415/2014-IA II(I) dated 31st March, 2015.

1.2 Brief Description of the Project

Brief description about the Project is given in Table - 1.

Table - 1

S. NO.	PARTICULARS	DETAILS
A.	**Name and Size of the project**	Proposed Expansion of Viscose Filament Yarn (25,000 TPA to 30,000 TPA)
B.	**Location details**	
1.	Location	Murbad Road
2.	Town	Shahad
3.	Taluka	Ulhasnagar
4.	District	Thane
5.	State	Maharashtra
6.	Latitude	19° 14' 37.17" N to 19° 15' 0.34" N
7.	Longitude	73 ° 9' 33.36" E to 73 ° 10' 8.26" E

S. NO.	PARTICULARS	DETAILS
C.	**Area Details**	
1.	Total Plant Area	o Total Plant area is 93.56 acres (37.86 ha). o Proposed expansion will be done within the existing plant premises.
2.	Greenbelt / Plantation area	30.87 Acres (12.49 ha) i.e. ~ 33% of the total plant area has already been developed under greenbelt/plantation.
D.	**Environmental Setting Details *(with approximate aerial distance and direction from the plant site)***	
1.	Nearest Village/Town	Shahad (~1 km in West direction)
2.	Nearest City	Kalyan (~1.5 Km in WNW direction)
3.	Nearest National / State Highway	o SH-2 (adjacent in South direction) o SH-76 (~3 km in WSW direction) o NH-3 (~7 km in NW direction)
4.	Nearest Railway Station	Shahad Railway Station (~500 m in West direction)
5.	Nearest Airport	Chhatrapati Shivaji International Airport (~36 Km in SW direction)
6.	National Parks/ Wild Life Sanctuaries/ Biosphere Reserves Reserved / Protected Forest within 10 km radius	No National Park, Wild Life Sanctuary, Biosphere Reserve, Reserved / Protected Forest exist within 10 km radius of the Plant site.
7.	Nearest water bodies	o Ulhas River (~1.2 km in NE direction) o Kalu River (~ 4.5 km in WSW)
8.	Nearest Sea port	o Nhava Sheva JNPT Port (~ 40 Km in SW direction)
9.	Seismic Zone	Zone-III [as per IS 1893 (Part-I): 2002]
10.	Critically Polluted Area as per CEPI - CPCB	MIDC (Phase-I & Phase-II) of Dombivalli declared as Critically polluted area under CEPI as per MoEF Circular dated 15.03.2010 exist at a distance of ~7 Km & ~7.5 Km respectively in SW from the plant site.
E.	**Cost details**	
1.	Total cost for expansion project	Rs. 125 Crores
2.	Cost for Environment Protection measures	o Capital Cost - Rs. 7.0 Crores o Recurring Cost - Rs. 1.6 Crores/ Annum

Source: *Pre-feasibility Report*

1.3 Location Map

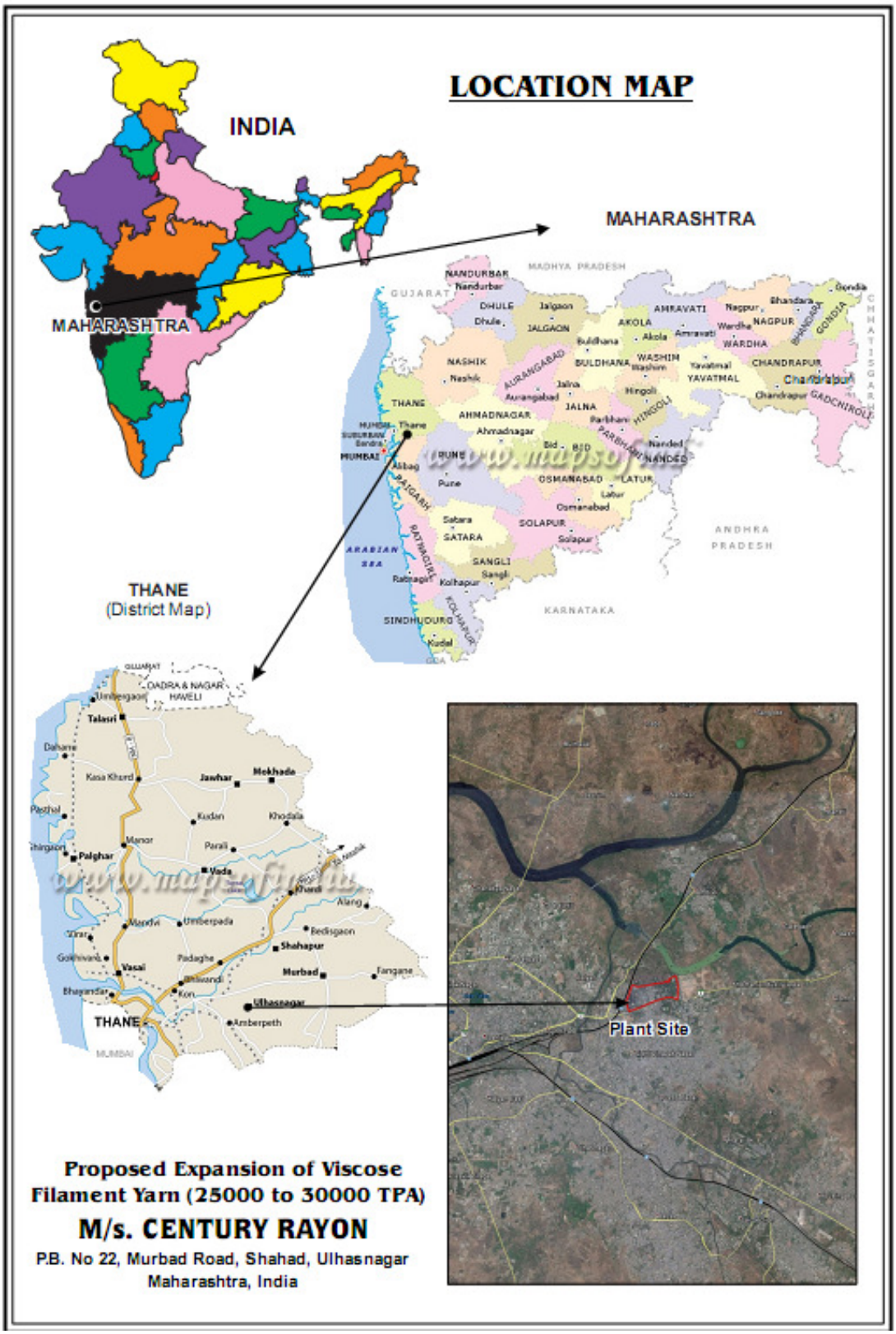

Figure 1: Location Map

1.4 REQUIREMENTS FOR THE PROJECT

1.4.1 Raw Material Requirement for the Project

The raw material required for the proposed expansion project is given below in Table - 2.

Table - 2
Raw Materials Requirement for the Project

S. No.	Particulars	Requirement (MT / annum)			Source	Approx. Distance (Km)	Mode of transportation & No. of Trips
		Existing Consumption	Additional Consumption	Total Consumption after proposed Expansion			
1.	Wood pulp	26250	5250	31500	Century pulp and Paper + GP Cellulose Asia marketing (HK) ltd. (Imported)	Indigenous 1600 Imported- 65	Trucks 3 - 4 Trips / day
2.	Caustic Soda	16250	3250	19500	Captive Caustic Soda Plant	Within the Plant premises	Through Pipelines
3.	Carbon Di Sulphide	7750	1550	9300	Captive CS_2 Plant	Within Plant premises	Through pipelines
4.	Sulphuric Acid (100%)	27,500	5500	33000	Captive Sulphuric Acid Plant	Within Plant premises	Through pipelines
5.	Zinc Ingots / Zinc oxide	225	45	270	Shree Arihant metals Rubamin Ltd. (Local)	Local 20 - 40	Trucks 28 Trips / annum

1.4.2 Other Basic Requirements for the Project

Other Basic requirements for the proposed expansion have been given in Table no. 3:

Table - 3
Basic Requirement for the Project

S. No.	Utility	Requirements		Source
		Existing	After Proposed Expansion	
1.	Water (m^3/day)	15,500	19,550	Ulhas River & Recycled water
2.	Power (MW)	24.60	26.60	Maharashtra State Electricity Board (MSEDCL) and Co-generation Power Plant
3.	Steam (TPH)	69.01	69.01	Boiler- 60 TPH (In-Operation) 2x30 TPH (Stand-by)
4.	Fuel	Coal - 266 TPD LSD - 80 TPD	Coal- 266 TPD LSD - 80 TPD	From Authorized Dealer by Truck
5.	Manpower	6845	6995	Unskilled / Semi-skilled - local area skilled - outside / local.

1.5 Manufacturing Process

Century Rayon is manufacturing three types of Viscous Filament Yarn (VFY), which are as follows:

- Pot Spun Yarn
- Tyre Cord Yarn
- Continuous Spun Yarn (CSY)

Manufacturing Process of VFY:-

- Wood pulp sheet containing cellulose is treated with dilute caustic soda to make it Alkali Cellulose. The sheets are then cut into small crumbs under controlled condition in shredder.
- The crumbs are allowed to age in controlled conditions of temperature and humidity for controlling viscosity of viscose to make the cellulose suitable for further operation.
- The crumbs are reacted with Carbon-di-sulphide in the Simplex/Churn to form cellulose xanthate. The cellulose xanthate is dissolved in dilute Caustic Soda to make viscose solution which is further ripened and de-aerated to remove air bubbles before sending to spinning.

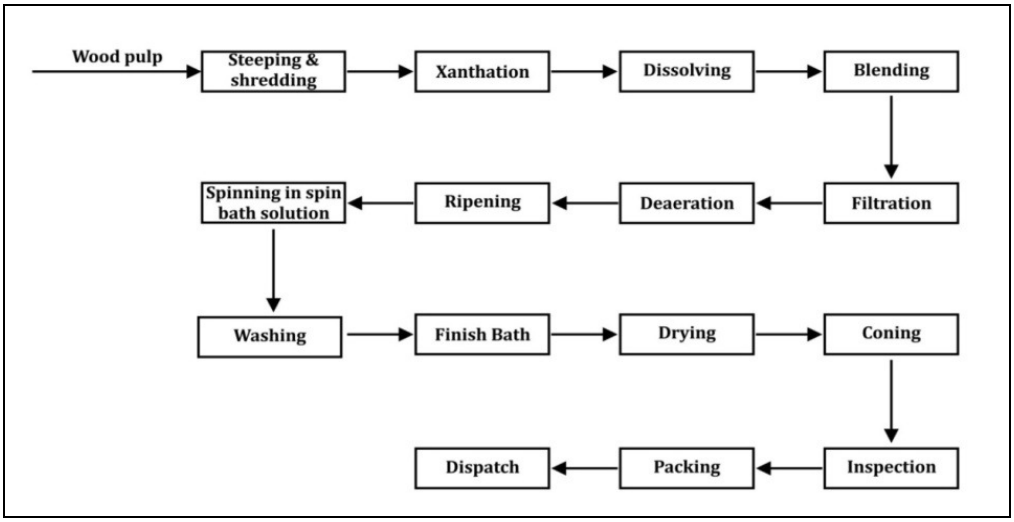

Figure 2: Process Flow Diagram of Viscose Filament Yarn

2.0 DESCRIPTION OF ENVIRONMENT

2.1 Presentation of Results (Air, Noise, Water & Soil)

The baseline monitoring for the proposed expansion project has been carried out during Winter Season (December, 2014 to February, 2015).

A. The Air Quality Monitoring concentration for all the 8 AAQM stations

All the parameters are well within limits specified by NAAQS/CPCB/MPCB.

S. NO.	Parameters	Results in Core Zone	Results in Buffer Zone
1.	$PM_{2.5}$	36.3 to 44.5 µg/m^3	29.1 to 46.7 µg/m^3
2.	PM_{10}	74.6 to 90.3 µg/m^3	65.3 to 96.8 µg/m^3
3.	SO_2	8.3 to 13.3 µg/m^3	6.3 to 14.3 µg/m^3
4.	NO_2	19.7 to 26.6 µg/m^3	14.6 to 29.3 µg/m^3

S. NO.	Parameters	Results in Core Zone	Results in Buffer Zone
5.	CS_2	35.0 to 43.0 µg/m^3	11.0 to 20.0 µg/m^3
6.	H_2S	13.0 to 20.0 µg/m^3	8.0 to 12.0 µg/m^3
7.	CO/Methane & Non Methane Hydrocarbon	BDL	BDL
8.	PAH (Benzene Soluble Fraction)	ND	ND

B. Ambient Noise Levels were measured at 8 monitoring locations around the plant site

Noise levels vary from 49.9 to 62 Leq. dB (A) in day time and in night time from 41 to 52.9 Leq. dB (A). All the parameters are well within limits specified by NAAQS/CPCB/MPCB.

C. Surface water analysis for all the 7 sampling locations around the plant site

Surface water analysis of parameter like TDS (148 to 3089 mg/l), pH (6.56 to 7.89 mg/l), Alkalinity (69.28 to 198.70 mg/l) are also found within the permissible limits.

D. Groundwater analysis for all the 8 sampling locations around the plant site

All the Parameters of ground water analysis like TDS (146 mg/l to 534 mg/l), pH (7.22 to 7.78), Total Hardness (40.8 mg/l to 297.2 mg/l), Alkalinity (63.04 to 242.0 mg/l), Chloride (43.5 to 117.81 mg/l), Calcium (11.45 to 80.13 mg/l) & Magnesium (2.97 to 27.29 mg/l) etc. are found within the permissible limits.

E. Soil monitoring analysis for all the 8 sampling locations around the plant site

The analysis of the soil samples collated characterize the soil as sandy loam so it is a preferred category for industrial purpose. The concentration of Nitrogen ranges from 186.14 to 240.20 kg/ha while Phosphorus ranges from 14.20 to 21.20 kg/ha in the soil samples. All the parameters are well within limits specified by NAAQS/CPCB/GPCB.

2.2 Biological Environment

Flora: Floral species which are most commonly found in the area are *Butea monosperma (*Palash), *Azadirachta indica (*Neem), *Dalbergia latifolia (Shisham), Sapindus emarginatus (Ritha), Acacia nilotica (Babool), etc.*

Fauna: Commonly found animal in the study area are Vulpes bengalensis (Common fox), *Felis chaus (Jungle Cat), Canis aureus (Jackal), Herpestes edwardsii* (Mongoose), *Semnopithecus entellus* (Common Langur), etc.

2.3 Socio-Economic Environment

The total population of the study area (10 km radius) as per 2011 Census records is 1,935,584.

Scheduled Caste fraction of the total population of the study area is 11.21% and that of Scheduled Tribe is 3.43%. Literacy rate of the area is 75.39% and that of workers who are actually engaged in occupation is 38.13% including 35.04 % of Main workers & 3.08% of marginal workers. Rest 45.06% of the total population, are considered as non-workers.

3.0 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Anticipated environmental impacts due to the proposed expansion project along with mitigation measures are given in Table - 4:

Table - 4
Environmental Impacts and Mitigation Measures

Discipline	Impact	Mitigation Measures
Construction Phase		
Air	Increase in Particulate emission	* Proper upkeep and maintenance of vehicles, * Sprinkling of water on construction site, * Sufficient greenbelt has already been developed to suppress particulate emissions outside the plant boundary.
Water	Surface Run-off during rainy season	* An adequate drainage system & storm water drains for run-off water will be provided during construction phase
Noise	Increase in Noise while construction and fabrication work	* Use of proper personal protective equipment
Soil	Generation of Solid Earth waste	Recycling of most of the solid earth waste for leveling of uneven terrain.
Operation Phase		
Air	Increase in concentration of particulate matter and gaseous emissions	* ESP filters with Boilers to maintain the PM (Particulate Matter) emission level within the prescribed limit. * Stack of adequate height as per CPCB. * Water spraying, Bag Filters & proper covered storage facilities for coal yards and coal crushing unit respectively. * Use of SO_2 scrubbing system & H_2S absorption system for CS_2 plant. * Use of Alkali scrubbers and mist eliminator for Sulphuric Acid plant. * Installation of bag filters and proper water sprinkling at the material transfer points.
Water	Industrial Effluent & Domestic Sewage	* Wastewater generated from the plant is being / will be treated in existing ETP and treated water is being / will be discharged into the Saline zone of Ulhas creek. * Oil skimmers have been provided in the drain channels to remove oil. * Waste water generated from colony is being / will be treated in existing STP and treated sewage is being/will be used for Greenbelt development.

Discipline	Impact	Mitigation Measures
Noise	Increase in noise level within the plant area	* Ear plugs is being/will be provided to persons working in high noise zone. * Properly insulated enclosures have been / will be provided to equipments making excessive noise. * Development of Greenbelt in and around the plant site.
Biological Environment	Positive as greenbelt of appropriate width has been developed and maintained by Century Rayon in the area	Development of green belt with carefully selected plant species is of prime importance due to their capacity to reduce noise and air pollution impacts by attenuation/assimilation and for providing food and habitat for local macro and micro fauna.
Socio-economic Environment	Overall development of the area in respect of the infrastructure development, educational growth, health facilities etc.	-

4.0 ENVIRONMENTAL MONITORING PROGRAMME

Details of the environmental monitoring schedule / frequency, which will be undertaken for various environmental components, as per conditions of CTO are given in Table - 5.

Table - 5
Post Project Monitoring

S. No.	Description	Frequency of monitoring
1.	Meteorological Data	Two Hourly
2.	Ambient Air Quality at Plant site	Twice a week
3.	Stack monitoring	Quarterly
4.	Water Quality	Quarterly
5.	Noise Level Monitoring	Quarterly / as per CPCB

5.0 ADDITIONAL STUDIES

Additional Studies conducted as per ToR Letter No. no. - J-11011/415/2014-IA II(I) dated 31st March, 2015 issued by MoEF&CC, New Delhi are Risk Assessment & Disaster Management Plan and Hydro-geological Study.

6.0 PROJECT BENEFITS

India has large consumption of Viscose Filament Yarn (VFY) however the production capacity is not commensurate to meet the demand, as 4 out of 7 Viscose Manufacturing Plants viz. M/s Travancore Rayon in Kerala, M/s. South India Viscose in Tamil Nadu, M/s. Baroda Rayon in Gujarat & M/s. National Rayon in Maharashtra have shut down production. This leads to import of VFY. So, the proposed expansion of VFY by Century Rayon will not only reduce the dependency on import but would also contribute to the spirit of ***"Make in India"*** campaign set by our **honorable Prime Minister, Shri Narendra Modi**. This will not only help in improving the GDP of our country but would also generate a fair amount of direct, indirect and induced employment in the study region.

The company is also determined to work towards ***"Swachh Bharat Abhiyan",*** a national campaign started up by **Shri Narendra Modi** in order to accomplish the vision of ***'Clean India'*** by taking up cleaning drives at regular interval of time, construction of public toilets and by providing improved health and sanitation facilities.

The company would encourage the nation-wide programme of ***"Beti Baccho, Beti Padhao"*** programme by carrying out campaigns on importance as well as need of girl child education and acknowledging people regarding detrimental impacts of female feticide on the society as a whole under social commitments.

As a Corporate Social Responsibility the company has developed various educational & infrastructure facilities like Schools, Colleges, Temples, Parks & Playground for the benefit of community at large. It also proposes to adopt villages and would work towards social and infrastructural up-liftment of those villages. Thus, around Rs. 488 Lakhs (Rs. 4.88 Crores) would be spend by the company for carrying out various such activities under Enterprise Social Commitment (ESC) in the surrounding areas.

7.0 ENVIRONMENT MANAGEMENT PLAN

Water pollution due to generation of Zinc-rich effluent is one of the major concern for Rayon plant. Other pollutions envisaged during the production of Viscose Rayon Filament are release of gaseous pollutants from the process stack and generation of solid waste such as ETP sludge, Spent Catalyst, Sulphur waste etc. However, following mitigation measures is being/will be adopted by Century Rayon to minimize the impact of project on the surrounding environment in respect of air, water, noise, soil & the green cover of the plant site:

Particulars	Details
Air Quality Management	* ESP filters with Boilers to maintain the PM (Particulate Matter) emission level less than the prescribed limit. * Alkali Scrubber with continuous online SO2 Monitoring Station & pH alarm system with annunciation. * Mist eliminator has been provided to control the release of Acid mist. * Installation of bag filters and proper sprinkling of ETP recycled water at the material transfer points. * CS_2 & H_2S liberated from viscose in spinning machine is being/will be extracted through powerful exhaust system & discharged through chimney of adequate height. * Water spraying, Bag Filters & proper covered storage facilities for coal yards and coal crushing unit respectively. * Water scrubber in Sodium Sulphate plant to control Sodium Sulphate aerosols emitting to atmosphere. * The shutters of the spinning machines are closed through-out the spinning period except during doffing, it is strictly followed in practice to maintain work environment & to prevent dispersion of gases in shop environment.

Particulars	Details
	* Regular monitoring of ambient air quality and meteorological parameters is being / will be done.
Water Management	* Wastewater generated from the plant is being / will be treated in existing ETP and treated water is being / will be discharged into the Saline zone of Ulhas creek. * Zinc rich effluent is first taken into equalization tank and then pump to Clariflocculator tank where pH is maintained in between 9 to 11 to separate out zinc from effluent. * Oil skimmers have been provided in the drain channels to remove oil. * Waste water generated from colony is being / will be treated in existing STP and treated sewage is being/will be used for Greenbelt development.
Noise Management	* Periodic oiling and servicing of machineries is being/will be done. * D.G., pumps & compressors are enclosed in acoustic enclosures. * Scientific maintenance is already in practice for plant machinery which helps to avert potential noise problems. * Personnel protective equipment like earmuffs/ear plugs are being/will be provided to the workers.
Solid & Hazardous Waste Management	* The treated ETP sludge, Spent Catalyst and Sulphur Waste is being/will be sent to CHWTSDF of M/s. Mumbai Waste Management Limited, Taloja, Dist. Thane (Maharashtra). * The fly ash generated in Captive Power Plant is being/will be given to Brick manufacturers. * Used drums and bags are being/will be given to authorized vender for recycling.
Green Belt Development / Plantation	* Green belt of 30.87 Acres (12.49 ha) i.e. ~33% of the total plant area has been developed in and around the plant boundary and same will be maintained in future. Green belt helps to partially attenuate noise levels in the plant * Local species such as Ashok, Mango, Bottle Palm, Bougainvillea and other Shrubs variety have been planted in consultation with horticulture expert & local forest officer.