ENVIRONMENT IMPACT ASSESSMENT REPORT

Executive Summary

HIMADRI CHEMICALS & INDUSTRIES LIMITED

(CARBON BLACK DIVISION)

Factory:

Mahistikry, Haripal,
Hooghly
West Bengal
India

Head Office:

23A, Netaji Subhas Road, 8th Floor,
Kolkata - 700 001
West Bengal
India

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1. Introduction

Himadri Chemicals & Industries Ltd., the flagship Company of Himadri Group, was founded to develop, manufacture and market chemical products, with a special emphasis on coal tar and its derivatives. The company was incorporated in the year 1987 as a Private Limited Company under the name of Himadri Castings (P) Limited. Subsequently the name of the company was changed to Himadri Chemicals and Industries Limited and converted into public Limited Company in the year 1991. The Company has diversified into corrosion protection and manufacturing coal tar based pipe-coating products. The company is listed at the Bombay Stock Exchange and National Stock Exchange. The company achieved a turnover of Rs 422.00 Crs in the FY 2007 and EBIDTA of 104 crores. The core strength of Himadri lies in its R& D team and which is constantly developing new technologies and products.

M/S Himadri Chemicals & Industries Limited (HCIL) is setting up a Greenfield carbon black manufacturing unit at the site near to existing plant. The plant will have a capacity of 50,000 M.T. per annum. The raw material of this plant is coal tar based oil, petroleum based oil, which will sourced from existing coal tar distillation plant. The unit will produce 7000 M.T. of carbon black feed stock in combination of coal based and petroleum based oil from our existing units. This will help company to produce high value added products from oil, which is a clear edge than the existing manufacturer of carbon black for import 90% of their required CBFS from U.S. and Gulf.

The Project also includes setting up of a 12 MW power plant utilizing waste gas of the plant.

The above project meets IFC Performance Standards (PS) and the World Bank Group applicable EHS Guidelines upon successful implementation of the mitigation methods.

2. LOCATION OF THE PROJECT:

The site is situated at Mahishtikry, P.O. & P.S. Haripal, Dist- Hooghly, West Bengal at a distance of about 55 Km from Kolkata by Road located between Latitude 22^0 52' 15.91"N and Longitude 88^0 12' 52-56" E..

- The project is connected by a NH-2 and NH-6, which is beside the Durgapur Express way Connecting Kolkata, Delhi, Chennai and Mumbai The connectivity to

the site is quite good at present and is expected to be further improved to a great extent shortly

- The nearest Railway Station located to the site is Haripal (E. Rly) on Howrah-Tarakeswarline via Sheoraphuli junction. The project location is about 40 Km from Kolkata-Howrah by rail and is easily approachable through regular suburban trains.
- Netaji Subhas Chandra Bose International Airport at Dum Dum is the nearest airport at a distance of about 45 Km.from the site and Netaji Subhas Dock (Sea Port) is about 60 Km away.

Photograph satellite image shows the Location of Himadri Chemicals & Industries Limited situated beside the Durgapur expressway (National Highway-2)

CDM and Proposed Project: Global warming is now an accepted problem. The Clean Development Mechanism (CDM) is one of several "flexibility mechanisms" authorized in the December1997 Kyoto Protocol to the 1992 United Nations Framework Convention on Climate Change (signed at the Rio de Janeiro "Earth Summit"). The proposed project will also utilize the waste gas to generate green power and can be seen as an environment - friendly project which will help combating global warming and for sustainable development.

3. DESCRIPTION OF THE PROJECT

Carbon Black Feed Stock is basically recovered from coal tar and fractional cut from petrol tar. Company is the largest coal tar distillation unit in the country and implementing a project of fractionation of petroleum tar; hence for forward integration

this project is conceptualized. All raw materials of this project will be available inhouse production as against competitors who are importing Carbon Black Feed Stock. Carbon black is a powdery commercial form of elemental carbon that is manufactured in highly controlled processes to produce particles and aggregates of varied structure and surface chemistry.

Carbon black is derived from the incomplete combustion of feed stock (the distillation of coal tars and the production of ethylene). It is typically produced by the partial oxidation of hydrocarbon liquids or gases at temperatures in excess of 3,000 degrees Fahrenheit. As a result of this cracking a part of the feedstock is transformed into carbon black. The exit carbon black laden gasses are quenched in a quench tower by water spray and passed through main bag filter (MBF) where the bulk of the carbon black is filtered out from the gases. The bulk of the exhaust gases (consisting of CO, H2, H2O, etc.) from MBF almost free of carbon particles are sent through waste gas booster fan as fuel gas for the 12 MW Power Plant and part of the exhaust gases to be used as fuel gas for the combustor of rotary dryer.

All the carbon black particles collected from the bag filters are mixed with molasses as binder and water and palletized to form uniform pellet size. The pellets are dried and then cooled in an air-cooled rotary heat exchanger at the exit of the dryer. The dried pellets/beads from the dryer section are lifted by a bucket elevator and transferred to the storage bins by cross screw conveyors. Product is packed, sealed, labeled and sent for loading on to the trucks. This operation is almost automated.

The waste gases will be utilized as fuel in waste gas boiler to generate steam @ 55 TPH, 485 ^{0}C, 66Kg/cm^{2}. The steam generated from the waste gas boiler above will be passed through a straight condensing type TG set to generate power at approximately 12 MW, Exhaust gas will be released through a stack of height 74m suitably designed based on emission parameters. The entire electricity to be generated from the 12 MW power plant will be exported to the grid i.e. WBSEDCL

ManufacturingProcess

Manufacturing involves

1. Partial decomposition in limited oxygen index of aromatic hydrocarbon oil.

2. Passes through big heat exchangers for utilizing of sensible heat, to generate power.
3. Separate Carbon Black from laden air through back filters.
4. Palletize the fluffy black into agglomerator through water and additives.
5. Dry the agglomerates in rotary drier.
6. Then pack in
    a) 25 kg 3 ply super Kraft bags
    b) 1 M.T polyperepelyn jumbo bags.
7. The waste gas from filtration process generates steam through boiler and this steam subsequently generates power through turbine.

Water: The raw water requirement for the project will be 3800 m^3/day. Treated effluent amount 2000 m^3/day will be reused in the process. Water will be taken through bore well from the ground.

Total project cost excluding land will be about Rupees 192.5 crores.

4. DESCRIPTION OF THE ENVIRONMENTAL

Project site has a tropical savanna climate. The annual mean temperature is 26.8°C, although monthly mean temperatures range from 16°C to 33°C and maximum temperatures is often exceed 38°C. The main seasonal influence upon the climate is the monsoon. Maximum rainfall occurs during the monsoon in August and the average annual total is above 1,500mm. Moderate northwesterly to northeasterly winds prevails for most of the year with a high frequency of calms. Summer is dominated by strong southwesterly monsoon winds. Winters are comfortable with temperatures lying between 11^0C to 17°C.

Demographics and other socioeconomic analysis based on 2001 India census data; arround 10 KM impact zone has been carried out. The study zone area is rural. There are few villages within the 10 KM impact zone had a population of 19,539. Males constitute 51% of the population and females 49%. Singur has an average literacy rate of 76%, higher than the national average of 59.5%: male literacy is 81%, and female literacy is 71%. In Singur, 9% of the population is under 6 years of age. All the villages have educational facilities.

Terrestrial and aquatic flora, fauna were studied and present status of flora and fauna around the site has been reported. There is no forest area or wild life in the region.

5. ENVIRONMENTAL MONITORING PROGRAMME

To assess the present air quality of the area, ambient air quality monitoring stations were setups considering wind direction and sensitive areas. Monitoring was done for the month of June 2007. Suspended Particulate Matter (SPM) in the area during the study period was moderate within the industrial area standard (500 µg/m3). Highest monitored value was 201.57 µg/m3. Respirable Particulate Matters (RPM) concentration was also moderate and was within the industrial area standard (150 µg/m3). Sulphur dioxide concentrations during the monitoring period in the study area were found to be generally low and within the industrial limit. Nitrogen dioxide concentrations during the monitoring period were moderate and well within industrial limit.

Water Quality: There is small water canal within 1 kilometer. The main seasonal influence upon the climate is the monsoon. Maximum rainfall occurs during the monsoon in August and the average annual total is above 1,500mm. Ground water is available at a depth of 85 to 135 M. Water quality is suitable for drinking.

As surface water (Pond Water) source around, the groundwater samples from various sources and also pond water samples were collected for measurement. The bore well water has dissolved solids content is 443 ppm and in pond 189 ppm.

The noise levels were monitored at five places and were within the desired level at all the site.

6. ENVIRONMENTALIMPACT AND MITIGATION MEASURES

A number of probable negative impacts on environment due to construction activities have been identified and will be mitigated or neutralized with proper environmental control measures. The site does not have significant vegetation or any ecologically sensitive area. So the clearance will not have any significant impact on the ecology. Dust suppression methods, mainly sprinkling of water in dust prone activities will be taken up. Proper sanitation and drinking facilities will be arranged for workers. Land has been purchased from the villagers providing the market price as desired.

The operational phase will generate some effluents. The production of carbon black does not generate any process effluent. There is no process effluent as such in power generation. There will be wastewater from e.g. cooling tower blow down, boiler blow down, DM Plant regeneration waste, plant service wastewater etc.

The plant will have an effluent treatment plant (ETP). The effluent water from the plant is passed through a set of gravity type Oil Separators and the overflow the tank is mixed with lime and flocculants and fed to the Clarifier. The clear water from the top is passed through Sand Filter bed. The intermittent water from area run off is passed through another set of Oil Separators and then the overflow sent to the filter beds. Treated water is recycled back to the process. No water is generally discharged outside, it is a Zero discharge plant.

Solids settled in the bottom of the settling tank and the clarifier is sent as slurry to the sludge drying bed. The overflow from the drying bed is recycled. Dried sludge is sent to plant for reprocessing & sold to a particular market as reinforcing agent. The oil collected in the separators is transferred to Oil Storage Tank.

Primary source of gaseous emission is the reactor where the CBFS is reacted to form carbon black particulates and the waste gas. As described in the process description this gas containing carbon black particulates is passed through successive bag filters to remove the particulates and finally the gas is burnt to raise steam for generating power and for drying operation in the process. The air pollution control measures to be provided are adequately designed bag filters to all dust prone points to eliminate carbon pollution. Exhaust gas will be released through a stack of height 74 m.

There are no major solid wastes generated in the process.

7. PROJECT BENEFIT

The automobile industry and the tyre industries are expanding rapidly in the country. Automobile production in the country has doubled in a decade & there is a huge demand for longer wearing automobile tyres. The use of carbon black as a filler for rubber fulfils this need providing longer wearing and more durable pneumatic tyres. The use of carbon black in tyres remains its most important application, coupling the fortunes of the carbon black industry to that of the automotive industry. There is a

huge potential for export of carbon black throughout the world. There are considerable potential for employment generation resulting improving economic condition of nearby people.

8. ENVIRONMENTAL MANAGEMENT PLAN

Environment Management Plan (EMP) consists of the following activities: i) Specific action plan for implementing mitigation measures; ii) Monitoring of Environmental Quality; iii) Training; iv) Statutory requirements and Implementation; v) Documentation and vi) Green Belt Plantation. No effluent will be discharged and the treated wastewater will be reused in the process. There will be regular ambient air quality monitoring. All the stacks will be monitored once a month. Also there will be online stack monitoring facilities from which the results will be directly available for PM, SO2, H2S and CO. Rainwater harvesting will be practiced to use all water available to use it properly later. Green belt around the plant will be developed. There will be strict surveillance so that all process solid wastes are stored properly and then reused.

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