

**EXECUTIVE SUMMARY**  
*OF*  
**SONADIH CEMENT PLANT**

**For**  
**INCREASE OF CLINKER PRODUCTION FROM 3.5 MTPA TO**  
**5.1 MTPA**  
**CEMENT FROM 1.0 TO 3.0 MTPA**  
**(BY INSTALLATION OF UNIT - III)**  
**AND**  
**INSTALLATION OF 75 MW COAL BASED**  
**THERMAL POWER PLANT**

**At**  
**Sonadih Village, P.O. Raseda,**  
**Baloda Bazar- Bhatapara District, Chhattisgarh.**

**BY**



**LAFARGE INDIA LTD.**

*Prepared By*



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**NABET Accreditation No: NABET/EIA/1316/RA002**

## **EXECUTIVE SUMMARY**

### **1.1 PROJECT DESCRIPTION**

**LAFARGE INDIA LTD. (LIL)** is operating a 3.5 Million Tonnes Per Annum (MTPA) Clinker manufacturing (Cement – 1.0 MTPA) Cement Plant located at P.O. Rasedi, Balodabazar-Bhatapara District, Chhattisgarh.

Present clinker production capacity of the plant is 3.5 MTPA and Cement – 1.0 MTPA with two manufacturing units i.e. -Unit I and Unit II. The Cement Plant is supported by the Captive Limestone Mine located adjacent.

LIL proposes to increase the clinker production capacity of the cement plant from 3.5 MTPA to 5.1 MTPA by installing a new line (Unit – III) of 1.6 MTPA clinker production capacity. Cement production after expansion will be increased from 1.0 to 3.0 MTPA. It is also proposed to set up a 75 MW Coal based Thermal Power Plant to meet the power requirement of the cement plant.

### **1.2 REQUIREMENTS OF THE PROJECT**

The main raw material, Limestone will meet from the Captive mines.

LIL Cement Plant is placed in an area of 91.8867 ha and is completely owned by LIL. No additional area will be required for expansion.

The present water consumption of the plant including colony is about 3700 m<sup>3</sup>/day. Additional water requirement for Cement and power plant will be 1100 m<sup>3</sup>/day. Water for the plant is sourced from Seonath River. An agreement has been entered with Executive Engineer, Water Resources Department, Raipur for water drawl from River Seonath.

The present power requirement of 41 MVA is met from CSEB grid. Additional Power requirement is 25 MVA for Unit – III and the total power requirement of complex ie 66 MVA will be met from the proposed Coal

based Thermal Power Plant. LIL has installed DG sets of 16 MW capacity as standby units for supply of power during contingency.

The strength of existing manpower working in plant is 450. LIL proposes to recruit about 50 persons for operation of Unit – III and Coal based Thermal Power Plant.

A full-fledged township comprising of housing facilities for plant, mine and security personnel and supporting staff and other amenities such as Guest House, Hospital, Shopping Complex etc. If required additional 25 quarters will be constructed to accommodate the additional staff of Unit – III.

A full-fledged water supply and drainage system is already in place and the wastewater generated from the colony is being treated in the sewage treatment plant to meet the standards. The treated sewage is used for greenbelt development within plant and colony.

### **1.3 DESCRIPTION OF ENVIRONMENT**

To study the impacts arising out of proposed cement production, EIA study was carried out in the study area of 10 km radius during winter season 2016-17. Summary of the same is given below:

- Predominant Wind direction during the period was from NNE-NE-ENE sector accounting to about 34.27 % of the total time. Wind speeds during this period were varying between 1-15 kmph. The winds of less than 1.0 kmph were treated as calm, about 35.19 % of the time the winds were under calm condition.
- Ambient air quality monitored at eight locations showed all values well within the limits of NAAQ standards specified for Industrial, Rural, Residential & Other areas.
- Noise levels were monitored at eight locations at villages and were found to be well within the limits.
- Water samples collected from sixteen locations within the study area. All the samples showed compliance of all parameters with the drinking water standard of IS 10500.

- Eight soil samples collected showed low to medium fertility.
- Socio economic status of the study area is found to be moderate.

## 1.4 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

### 1.4.1 AIR ENVIRONMENT

The baseline concentrations monitored in the EIA study includes the emissions of the existing units of Cement Plant (Unit – I, Unit – II). Therefore, additional emissions are mainly due to Installation of Unit – III.

Incremental ground level concentrations estimated are discussed below:

#### OVERALL SCENARIO

Predicted maximum ground level concentrations obtained for 24-hour mean meteorological data of Winter Season, 2016-17 are superimposed on the following existing baseline concentrations to project the overall post expansion scenario in the study area.

The Overall Scenario with predicted concentrations over the baseline are shown below.

**OVERALL SCENARIO,  $\mu\text{g}/\text{m}^3$  (Winter Season 2016-17)**

<b>24-Hourly Concentrations</b>	<b>Particulate Matter - 10 (PM<sub>10</sub>)</b>	<b>Particulate Matter - 2.5 (PM<sub>2.5</sub>)</b>	<b>Sulphur Dioxide (SO<sub>2</sub>)</b>	<b>Oxides Of Nitrogen (NO<sub>x</sub>)</b>
Baseline concentration, max	56.2	26	13.5	14.8
Predicted Ground level Concentration (Max)	15.2	1.6	4.8	10.6
<b>Overall Scenario</b>	<b>71.4 {100}</b>	<b>27.6 (60)</b>	<b>18.3 {80}</b>	<b>25.4 {80}</b>

**NOTE: Values in parenthesis are National Ambient Air Quality (NAAQ) standard limits specified for Industrial, Residential, Rural and other areas.**

#### **1.4.2 AIR ENVIRONMENT – ENVIRONMENTAL MANAGEMENT PLAN**

LIL will implement the following measures from Day -1 of Unit – III to comply with the new National Ambient Air Quality Emission Standards issued by the Ministry vide G.S.R. No. 826(E) dated 16th November, 2009.

The atmospheric emission from the proposed cement plant constitute flue gases from kiln/raw mill, coal mill, cement mills and packing section. The major emission will be particulate matter. SO<sub>2</sub> and NO<sub>x</sub> emissions will be generated from the kiln.

Various pollution control equipment proposed under Unit - III

- Installation of glass bag house system for cleaning of raw mill/kiln flue gases and Bag filter/ESP for Cooler, Cement Mills will be provided with Bag filters.
- Installation of about 32 bag filters along with ventilation systems to control the fugitive dust generated from the material handling areas.

All the flue gas outlets will be provided with state of art air pollution control equipment with control efficiency of 99.8-99.9 % to maintain the particulate emission level below 30 mg/Nm<sup>3</sup>. The cement dust collected in the pollution control devices will be recycled back to the cement manufacturing process.

#### **1.4.3 NOISE ENVIRONMENT**

The major noise generating sources are coal mill, Kiln/Raw mill, packers of cement plant and compressors. These sources are located far off from each other. Under any circumstances the noise level at plant boundary will not exceed 65 Db (A) at day time and 60 dB (A) at night time.

LIL has implemented the following so that noise levels are not exceeded the limits 75-dB (A) during the daytime and 70 dB (A) during the nighttime within the factory premises.

A wide green belt has been developed towards three sides of the plant where village and colony is there. Extensive plantation has been done all along the periphery of the plant with local plant species. All the open spaces have been utilized for plantation purposes. LIL have planted more than 2000 saplings per hectare. More than 6.0 lakh saplings have been planted till date.

LIL has developed greenbelt all along the boundary wall which acts as barrier for attenuating noise levels.

#### **1.4.4 WATER ENVIRONMENT**

The present water requirement of the plant including colony is about 3700 m<sup>3</sup>/day. Additional water consumption of 1100 m<sup>3</sup>/day is required.

No wastewater is generated from cement plant process. The wastewater generation from the cement plant is mainly from domestic consumption.

LIL is operating a full-fledged sewage treatment plant (STP) designed for a maximum load of 550 m<sup>3</sup>/day and about 300 m<sup>3</sup>/day of treated waste water will be used for greenbelt development.

About 90 m<sup>3</sup>/day of waste water will be generated from the power plant including cooling tower blow down, boiler blow down and softener regeneration.

Waste water streams from power plant i.e., cooling, DM plant regeneration & Boiler blowdown are mixed in the common tank and is used for greenbelt development.

#### **1.5 SOLID WASTE MANAGEMENT**

No solid waste is generated from proposed Unit – III. However, Flyash generated from CPP will be used for manufacturing of Portland Pozzolana Cement (PPC).

## **1.6 GREENBELT DEVELOPMENT**

The cement plant is located in an area of 91.8867 Ha. The required greenbelt as per norms is 33 % of the plant area which is about 30.32 ha. LIL has developed more than 37 ha. of the plant area under greenbelt which is covering more than 40 %.

## **1.7 ENVIRONMENTAL MONITORING PROGRAMME**

The management of LIL is committed to eco-friendly operations. LIL has been certified ISO 14001 for environmental performance. LIL has implemented all the environmental measures as per the requirement of ISO 14001 in both cement plant and at mines and we have also certified for Occupational Health & Safety Management System OHSAS 18001 and Quality Management system ISO 9001.

LIL has established a dedicated Environmental cell to monitor and analyze the various environmental components of the cement plant.

LIL has installed Continuous Emission Monitoring System (CEMS) at all major Stacks of both line, (Make- Durag/Sick Mahik) for Particulate Matter & SO<sub>x</sub> & NO<sub>x</sub> Analyzer (Make- ABB) at Kiln/Raw Mill Stack for On-Line Monitoring.

The same will be installed for Unit – III

LIL has installed 4 nos of On-Line Ambient Air Quality Monitoring Stations for monitoring of PM 10, PM 2.5, SO<sub>2</sub>, NO<sub>x</sub>, & CO at following location

1. Near Time office
2. Near Material Gate
3. Near Crusher
4. Near Scrap Yard

## **1.8 ENVIRONMENTAL MANAGEMENT PLAN**

LIL has budgeted an amount of Rs. 90 Crores for implementation of environmental management plan for expansion of Unit-III and Captive Power Plant.

LIL is incurring an amount of Rs 425 Lakhs annually and expected to incur additional Rs. 200 Lakhs for implementation of Environmental Management Plan.

## **1.9 PROJECT BENEFITS**

Any industrial activity will help in improving the socio-economic benefits in areas like employment, communication, educational etc.

### **PROPOSED CSR BUDGET**

LIL has earmarked amount of Rs. 2.3 crores per annum towards the Enterprise Social Responsibility/Commitment. Based on Public Hearing issues, item-wise details along with time bound action plan will be prepared and submitted to MoEF&CC after conduct of Public Hearing.

### **SUMMARY AND CONCLUSION**

The new unit of LIL i.e., Unit – III will be based on state of art technology. LIL will implement five/six stage precalciner technology for Unit – III.

The increase in emissions due to proposed unit is marginal and overall scenario is well with the NAAQ standard.

The finished product i.e., clinker is transported by rail from plant railway siding through clinker wagon loading system, Cement is dispatched by truck. Plant is having wagon tippler facility for unloading the raw material received by Rail/Truck i.e. coal, gypsum, etc.

No additional land will be acquired by LIL for the new unit.

No solid waste generation due to expansion of the project



37 Ha of the plant area is under greenbelt within plant site which is around 40 % of total area LIL will take up plantation in the surrounding areas and all available open space.

The capital cost of proposed expansion will be approximate Rs. 1645 Crores. LIL will incur an amount of Rs.2.3 crores per annum for implementing various social welfare measures as part of CSR activities.