

# **EXECUTIVE SUMMARY**

OF

## **PROPOSED CEMENT PLANT**

**(CLINKER PRODUCTION : 2.05 MTPA  
CEMENT PRODUCTION : 2.54 MTPA)**

AT

**BAGA VILLAGE, ARKI TAHSIL,  
SOLAN DISTRICT, HIMACHAL PRADESH**

BY

**JAIPRAKASH ASSOCIATES LTD.**

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**2.54 MTPA CEMENT PLANT, JAIPRAKASH ASSOCIATES LTD**  
**BAGA VILLAGE, ARKI TAHSIL SOLAN DISTRICT, HIMACHAL PRADESH**

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## **1.0 INTRODUCTION**

**JAIPRAKASH ASSOCIATES LTD** has proposed to setup a 2.54 mtpa cement plant at Baga Village, Arki Tahsil, Solan district with a capital investment of Rs 700 Crores which includes Environmental Management Plan cost of Rs 80 crores

In order to assess the likely impacts of the proposed cement plant, JAL has initiated steps to carry out Environmental Impact Assessment over a radial distance of 10 km around the proposed plant site during Summer, 2004 covering the months of April to June '04.

## **1.1 PROPOSED CEMENT PLANT**

The proposed clinkerisation plant is based on dry process and precalciner technology with annual clinker output of 2.05 mtpa and cement of 2.54 mtpa. All the units in the upstream and downstream of the kiln will be designed for an installed clinker production capacity of 6500 tpd.

## **1.2 LOCATION**

The plant site is located in an area of 166.01 ha in Baga village, Arki Tehsil, Solan District of Himachal Pradesh.

## **1.3 RESOURCES AVAILABILITY**

☞☞**Limestone** : The major raw material for manufacture of cement is Limestone. The captive limestone deposit (Baga-Bhalag) is located at a distance of about 0.3 km from the plant.

☞☞**Land** : The total land of cement plant and colony is about 166.01 ha.

☞☞**Water** : The total water consumption of the plant including colony is about 3000 m<sup>3</sup>/day which will be met from Borewells/river sutlej.

☞☞**Power** : The power requirements of the cement plant is about 30 MW. This requirement will be met from grid. To augment the power requirement during exigencies, JAL will install two DG sets each of 6.0 MW.

☞☞**Infrastructure** : JAL will install complete utilities and other infrastructural facilities in the cement plant.

☞☞**Manpower**: The total manpower requirement of the cement plant is estimated to be about 570.

☞☞**Township** : JAL will provide a common full fledged township comprising of housing facilities for plant, mine and security personnel

## 2.0 BASELINE ENVIRONMENT

Summary of baseline environmental quality monitored during Summer '04 is given below:

- ✍✍ Meteorology The predominant wind direction was from SW-E sector
- ✍✍ Ambient air quality monitored at nine locations showed all values well within the limits of NAAQ standards specified for Rural and Residential industrial areas.
- ✍✍ Noise levels monitored at nine locations were found to be well within the limits.
- ✍✍ Water samples collected from ten locations within the study area showed compliance of all parameters with the drinking water standard of IS 10500.
- ✍✍ Six soil samples collected showed moderate fertility.
- ✍✍ Socio Economic Status in the study area is found to be moderate with respect to livelihood, amenities etc. Transport and other infrastructural facilities such as market centers, business establishment, recreation etc in the area will be improved.

## 3.0 ENVIRONMENTAL IMPACTS AND MANAGEMENT PLAN

JAL has incorporated all necessary steps to mitigate the environmental pollution in the design stage it self.

### 3.1 AIR ENVIRONMENT

The major units of emission from the proposed activity are

1. Cement plant & Captive Lime stone mines
2. Standby Power Supply System – DG sets

The increase in ground level concentrations due to above emissions computed using EPA approved ISCST2 model are given below

#### Post Project Scenario ( $\mu\text{g}/\text{m}^3$ )

24-Hourly Concentrations	Suspended Particulate Matter (SPM)	Sulphur Dioxide ( $\text{SO}_2$ )	Oxides Of Nitrogen ( $\text{NO}_x$ )
Baseline Scenario (98 <sup>th</sup> percentile) max	98.3	9.6	11.7
Predicted Groundlevel Concentration (Max)	5.24	7.43	9.90
Overall Scenario (worst case)	103.54{200}	17.03{80}	21.6{80}

**NOTE:** The values in parentheses is the CPCB limit for rural and residential areas.

With the above values superimposed on the baseline concentrations, the post project ambient air quality was found to be well within the National Ambient Air Quality Standards (NAAQ)

### **IMPACT DUE TO TRANSPORTATION**

Raw material and final product of the cement plant will be transported by road. *The major emission from the vehicular traffic are Suspended particulate matter, carbon monoxide and hydro carbon+ Oxides of nitrogen.*

Predicted concentrations of SPM, CO and HC+NOX beyond 200 m on either side of the road way were found to be less than 5 | g/m<sup>3</sup>, 2 | g/m<sup>3</sup> and 5 | g/m<sup>3</sup> respectively.

#### **3.1.1 AIR POLLUTION CONTROL MEASURES**

Various pollution control equipment proposed:

- ~~✘✘~~ Installation of bag house system for cleaning of raw mill/kiln flue gas.
- ~~✘✘~~ Installation of 3 major bag filter systems and one ESP for control of dust generated from various process units.
- ~~✘✘~~ Installation of about 20 bag filter systems along with ventilation systems to control the fugitive dust generated from the material handling areas.
- ~~✘✘~~ Installation of X - ray analyser to monitor the raw material quality and smooth pyro processing to have better control on the process and thereby on the bag house of the Kiln.
- ~~✘✘~~ All the flue gas outlets will be provided with state of art air pollution control equipment to maintain the particulate emission level below 50 mg/Nm<sup>3</sup>
- ~~✘✘~~ The cement dust collected in the pollution control devices is recycled back to the cement manufacturing process.
- ~~✘✘~~ JAL will incorporate interlocking mechanism for all the pollution control equipment and process units.
- ~~✘✘~~ The roads in the cement plant will be paved to prevent dust emissions.
- ~~✘✘~~ In order to control emissions due to transportation activity, and also to avoid congestion of traffic on the road connecting plant and NH-88, JAL proposes to widen and pave (black topping) the existing 17 km length kuccha road as per National Highway standards.

✂✂ To control the dust emissions from dropping/transfer points of the belt and bucket conveyors, Bag filters will be provided at various locations of the transfer points.

✂✂ All the raw material stock piles will be covered with aprons to absorb fugitive dust emissions.

Apart from above, JAL proposes to implement the following additional measures for control of fugitive dust:

✂✂ A closed clinker stock pile system and bag filter for clinker hoppers

✂✂ Automatic dust cleaning system will be employed for removing the dust on the floors

✂✂ Cement roads will be constructed inside the plant to avoid dispersion of dust.

✂✂ Water sprinkling arrangements in the raw material stockyards and cement bags loading areas .

✂✂ Development of greenbelt all around the plant boundary.

### **3.2 NOISE ENVIRONMENT**

During operation, the major noise generating sources are coal mill , Kiln/ Raw mill, packers of cement plant and DG sets.

Noise level at the plant boundary, calculated from the above equation, is expected to be less than 55 dB(A) without considering any attenuation factors. It is proposed to develop an area of about 5 ha under greenbelt along the periphery of the cement plant which will act as a barrier and further reduced the noise levels.

#### **3.2.1 NOISE POLLUTION CONTROL MEASURES**

The following are the noise control measures proposed to be undertaken in the cement plant.

✂✂ Provision of acoustic dampeners in foundations and insulators in the interiors

✂✂ Encasement of noise generating equipment.

✂✂ A thick greenbelt will be developed all around the plant boundary to act as noise attenuator.

✂✂ In addition personnel working near high noise level generating sources will be provided with ear muffs.

- ✂✂ Proper and suitable acoustic barrier will also be provided around areas generating high noise.
- ✂✂ Effective preventive maintenance and vibration measurement of all rotating equipment will help in the improvement of plant life and also noise reduction.
- ✂✂ Automatic door enclosures for control room and laboratory etc

### 3.3 WATER ENVIRONMENT

Water consumption in the cement plant, standby power supply system, domestic requirement, greenbelt development and colony is estimated to be about 3000 kl/day respectively.

The treatment and disposal of waste water generation from the plant is given below

#### WASTEWATER UTILIZATION

Source of generation	Quantity (KI/day)	Treatment and End usage
Standby DG sets cooling blowdown	200	Green belt development in the plant and mines.
Domestic wastewater – plant	16	Domestic wastewater generated from the colony and plant will be treated in a full fledged sewage treatment plant. The treated wastewater (216 m <sup>3</sup> /day) will be used for development of greenbelt/lawns within the plant/colony area.
Domestic wastewater – colony	200	

#### RAINWATER HARVESTING

*JAL will design the storm network to collect the rainwater from the plant area. the collected rainwater will be diverted to the proposed rainwater harvesting pits for recharging the ground water.*

### 3.4 LAND ENVIRONMENT

#### 3.4.1 SOLID WASTE MANAGEMENT

The dust collected in the air pollution control equipment in the cement plant will be recycled back to the process. Hence no solid waste which requires disposal is generated from the plant.

Solid waste generated from colony and sewage treatment plant will be disposed after segregating the waste into bio-degradable and

nondegradable. JAL will install an incinerator for disposing the Bio degradable waste and non degradable waste will be land filled at identified areas.

### **3.4.2 GREEN BELT DEVELOPMENT**

An area of about of 20.0 ha of land in the cement plant and 15.0 ha in the colony will be developed under greenbelt. JAL will develop a full-fledged nursery within the plant area for development of saplings.

## **3.5 SOCIO ECONOMIC ENVIRONMENT**

### **3.5.1 REHABILITATION & RESETTLEMENT**

*The proposed project will involve displacement of about 62 families for which a separate R & R plan has been prepared and submitted to Govt. of Himachal Pradesh for approval.*

### **3.5.2 EMPLOYMENT AND SOCIAL WELFARE**

The management of JAL, has proposed to give preference to local people for recruitment in semi skilled and unskilled categories. A total of about 600 persons would be given indirect employment during construction and installation of cement plant and about 570 persons will be recruited in the operational phase.

JAL proposes to setup a colony with 300 quarters outside the plant premises with all infrastructural facilities such as school, guest house, health center, hospital, shopping complex etc.

### **3.5.3 SOCIAL WELFARE TO LOCALS**

*To uplift the economic status of the surrounding villages, JAL will take up the following social welfare/development programmes for the villages in the vicinity.*

- a. Education : Opening of a school.*
- b. Health : Hospital with required facilities and trained staff.*
- c. Water supply : Proper water supply system will be designed to supply water.*

## **4.0 POST PROJECT MONITORING PROGRAMME**

EMP also details the Post Project Monitoring to be undertaken by the plant authorities in order to maintain environmental quality within the stipulated standard limits specified by State Pollution Control Board, CPCB and Ministry of Environment and Forests.

JAL will establish a dedicated Environmental cell to monitor and analyse the various environmental components of the cement plant.

✍✍ An automatic weather monitoring station would be installed within the plant premises for a proper measurement and record of meteorological parameters.

✍✍ JAL will install 4 Nos of Continuous Emission Monitoring instruments i.e at *Kiln / Raw mill, Coal mill stack, Clinker cooler stack and Cement mill stack* to have online check on following parameters

✍✍ JAL will install auto ambient air monitoring station for monitoring of ambient air quality in the surrounding villages as per the guidelines.

✍✍ The wastewater samples will be collected regularly both at inlet and outlet of sewage treatment plant to assess the performance and compliance as per the norms.

✍✍ A full-fledged environmental laboratory will be established in the plant

## **CONCLUSION**

*JAL strongly believes in the concept of eco friendly industrialization. This has been amply demonstrated in the operation of two cement plants at Madhya Pradesh as per standards prescribed by the State and Central Pollution Control Boards. Apart from eco-friendly operations, various socio economic development activities have been undertaken to bring about overall socio economic development in the area.*

*With the same commitment and dedication, JAL will commission the new cement plant at Himāchal Pradesh. Hence the project may be accorded environmental clearance.*

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