



# ENVIRONMENT STATEMENT

(Form-V)

**JSW LIMESTONE MINE**  
(JSW CEMENT LTD.)

**YEAR 2014-2015**



**JSW LIMESTONE MINE**

Village-Bilakalagudur, Mandal- Gadivemula  
Dist. Kurnool (A.P)

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## 1. Introduction

M/s. **JSW Cement Limited** has set up 7.0 MTPA limestone mine at village Bilakalagudur and Bujanur, Gadivemula Mandal, District Kurnool (A.P). The mine is operational since 2011.

## 2. Objective of the study

The objective of the present study is to review the performance of overall Environment management system established by JSW Cement so as to identify opportunities for improvements which could be beneficial to both environment and its components. And also inserted by **rule 2 of the Environment (Protection) second Amendment & Rules, 1992 vide G.S.R. 329 (E), dated:13-3-1992**, "Every person carrying on an Industry, operation or process requiring consent under section 25 of the water (prevention and control of pollution) Act 1974 (6 of 1974) or under section 21 of the Air (Prevention and Control of Pollution), Act 1981 (14 of 1981) or both or authorization under the Hazardous wastes (Management and Handling) Rules, 1989 issued under the Environmental (Protection) Act 1986 (29 of 1986) shall submit an environmental audit report for the financial year ending 31<sup>st</sup> March in Form - V to the concerned state pollution control board on or before the 30<sup>th</sup> day of September every year beginning 1993."

## 3. Benefits of Environmental Audit

Environmental audit helps the organization understand environmental interactions of products, services and activities and manage environmental risks. The key benefits of audits are:

- a) It helps in reduction of raw material consumption by way of waste minimization and adoption of recovery of waste and recycle the same.
- b) Determine performance of the process systems and helps to improve those systems.
- c) Determine efficiency of pollution control systems.
- d) Acquired data and information can be utilized for further improving the environmental performance of the facility.
- e) It helps to identify the sources of pollution and also the measures for controlling pollution at the source.
- f) It helps organisation understand how to meet its legal and other requirements.
- g) It helps to meeting specific statutory reporting requirements.
- h) It helps organisation understand how they can improve environmental/ energy performance and save money.
- i) It helps the organization to determine the impact of its activities on the surrounding environment and identify suitable preventive measures.
- j) Acquired data on fuel/ energy consumption can be used to implement energy/ fuel saving measures.

With this view, an in-depth study was conducted to review the process efficiency, quality & quantity of emissions/effluents generated, performance of air pollution control systems, mode of solid waste generation, collection & disposal and other associated activities having potential to impact the environment.

#### 4. Location

M/s JSW Limestone Mine is located at Bilakalagudur and Bujanur (V), Gadivemula (M), Kurnool (Dist) of A.P. The site is 28 km from nearest State Highway which is connecting to Hyderabad to Chennai via Kurnool-Kadapa. The total water requirement is drawn from bore well and used for Mines utilities. The location map is shown in [Fig.1](#). The land is flat terrain sloping towards Southeast. No major hills or mountains are there in the area.

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#### 5. Raw Material and products

Raw materials used and products produced in the financial year [2014-2015](#) are as follows:

##### 5.1 Raw Materials

|                |   |               |
|----------------|---|---------------|
| ROM Lime Stone | - | 18, 63,877 MT |
|----------------|---|---------------|

##### 5.2 Product

|           |   |              |
|-----------|---|--------------|
| Limestone | - | 16,81,758 MT |
|-----------|---|--------------|

#### 6. Water Requirement

The total water consumption and its break up are given below:

##### Water consumption in m<sup>3</sup>/day (2014-15)

|              |   |  |
|--------------|---|--|
| Process      | : | Nil  |
| Cooling      | : | 71.0 (Water used for dust suppression on haul roads) |
| Domestic     | : | 4.0  |
| <b>Total</b> | : | <b>75.0</b>  |

Water used for dust suppression is evaporated and hence no waste water is generated during the mining operations. The domestic requirement includes drinking and sanitation. Domestic waste water is disposed into septic tanks followed with soak pits.

Water requirement is met by pumping ground water through 1 bore well. Bore well water analysis data are shown in [table 6.1](#) which indicate that due to mining operations, there is no significant change in groundwater quality that can cause damage to the existing biotic system.

**Table -6.1**  
**BORE WELL WATER ANALYSIS DATA (mg/L)**

| S. No. | Parameters                          | Values |
|--------|-------------------------------------|--------|
| 1.     | pH                                  | 7.67   |
| 2.     | Turbidity (NTU)                     | <1     |
| 3.     | Dissolved solids                    | 728    |
| 4.     | Total Hardness as CaCO <sub>3</sub> | 280    |
| 5.     | Alkalinity as CaCO <sub>3</sub>     | 325    |
| 6.     | Calcium as Ca                       | 70     |
| 7.     | Magnesium as Mg                     | 26     |
| 8.     | Chlorides as Cl                     | 107    |
| 9.     | Sulphates as SO <sub>4</sub>        | 85     |
| 10.    | Nitrates as NO <sub>3</sub>         | 18     |
| 11.    | Flouride as F                       | 0.82   |
| 12.    | Iron as Fe                          | 0.08   |

## 7. Pollution Control in mines

Industry has installed 3 nos of continuous ambient air quality monitoring stations for estimation of emissions levels in plant and mining area.

The following measures have been adopted for air pollution control in mines:

1. Use of controlled blasting technique to ensure low vibration, less fly rocks, low noise and low dust emission
2. Using latest drilling machines equipped with built in dust extraction system with dust filters.
3. Regular water sprinkling on haul roads through tankers and roadside water sprinklers
4. Roadside Water sprinkler installed at crusher dump hopper,
5. Regular monitoring of ambient air quality and vibration levels
6. Regular preventive maintenance of HEMM to ensure that Sox and NOx levels remain well below the prescribed limits.

7. Thick greenbelt being developed around the lease area. This will act as a natural wind as well as sound barrier and will prevent propagation of dust and noise waves from spreading into external environment.

## 7.1 Ambient Air Quality

Ambient air quality monitoring is carried out on continuous basis through 3 nos. of Continuous Ambient Air Quality Monitoring Stations (CAAQMS) located as under:

1. Near Project office
2. Near MRSS Building
3. Near Laboratory

Ambient air quality is monitored continuously for the estimation of Particulate matter -PM<sub>10</sub> and Particulate matter- PM<sub>2.5</sub>. Average values for the parameters monitored are represented in Table 7.1. The analyzed values for PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub> and NO<sub>2</sub> are within the limits prescribed by the APPCB.

**Table 7.1**  
**Average values of Ambient air quality data (µg/m<sup>3</sup>)**

| Location                   | Mine view point | Gadivemula Village | Pasaravai Village | Velpanoor Village |
|----------------------------|-----------------|--------------------|-------------------|-------------------|
| Particulate Matter- PM 10  | 61.42           | 35.78              | 40.27             | 31.02             |
| Particulate Matter -PM 2.5 | 22.26           | 12.34              | 10.12             | 9.28              |
| Sulfur dioxide (Sox)       | 5.10            | 3.18               | 3.42              | 2.76              |
| Nitrogen Dioxide (NOx)     | 7.27            | 5.52               | 4.24              | 3.72              |

The present air quality data for PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub> and NO<sub>2</sub> are observed to be well within permissible limits prescribed by Andhra Pradesh Pollution Control Board (APPCB)/ CPCB / MoEF.

## 7.2 Ambient Noise Levels

Ambient Noise levels are measured at 4 locations in the factory on monthly basis. In addition, work zone noise levels are also monitored periodically recognizing the fact that high noise levels may have adverse impact on the workers health and also on the surrounding environment. Noise levels are measured using sound level meter. The results of ambient noise levels are presented in table 7.2 which shows that the observed values are well within the permissible limits.

**Table 7.2**  
**Average values of Ambient Noise Levels**

| S. No. | Location             | Noise Levels in dB(A) | Noise Levels in dB(A) |
|--------|----------------------|-----------------------|-----------------------|
|        |                      | Day time              | Night time            |
| 1.     | Near Mine View Point | 68.28                 | 62.4                  |
| 2.     | Gadivemula village   | 51.37                 | 48.4                  |
| 3.     | Bollaram Village     | 50.85                 | 46.7                  |
| 4.     | Madavaram Village    | 52.38                 | 46.2                  |

**Note:** Day time is reckoned in between 6 am and 10 pm – Limit 75 dB (A)

Night time is reckoned in between 10 pm to 6 am – Limit 70 dB (A)

## 8. Greenbelt Development

Greenbelt development brings the following benefits.

- a) Mitigation of fugitive emissions including odour
- b) Noise pollution control
- c) Partial sequestration of GHG
- d) Prevention of soil erosion
- e) Improving the landscape of the area
- f) Aesthetics

Extensive green belt is being developed in the mining area with plantation of approx. **41696 Nos.** of tree saplings and around 20046 Nos. of shrubs and herbs covering an area of **24.54 %** of the total lease area.

## 9. House Keeping

Proper cleaning of different sections is required to maintain healthy environment and also to avoid unnecessary production loss. JSW Cement, being an ISO 14001 & OHSAS 180001 certified company, maintains high standards of housekeeping. There are section level teams to oversee housekeeping in their respective areas. In addition, all the areas are periodically audited by Internal as well as external auditors for compliance to the prescribed standards.

**FORM - V**  
**(See rule 14)**

**Environmental statement for the financial year ending the 31<sup>st</sup> March 2015**

**PART - A**

|    |   |   |
|----|---|---|
| 1. | Name and address of the Owner/Occupier of the Industry, operation of the process. | <b>Mr. ANIL KUMAR PILLAI</b><br>Director & CEO<br>JSW Cement Limestone Mine<br>(M/s. JSW Cement Ltd.)<br>Bilakalagudur (V), Gadivemula (M),<br>Kurnool (Dist), A.P -518 508 |
| 2. | Industry category   | NIC Code: 14107<br>NIC Code description:<br>Mining/quarrying of limestone, lime shell,<br>'kankar' and other calcareous minerals including<br>calcite, chalk and shale      |
| 3. | Production Capacity   | 7.0 million TPA   |
| 4. | Year of establishment   | 2011  |
| 5. | Date of the last environmental statement submitted                                | 23.09.2014  |

**PART - B**

**Water and Raw Material Consumption**

**(I) Water consumption in m<sup>3</sup>/day.**

|          |   |                                 |
|----------|---|---------------------------------|
| Process  | : | Nil                             |
| Cooling  | : | 71.0 (sprinkling on haul roads) |
| Domestic | : | 4.0                             |

| Name of products | Process ( <b>cooling</b> ) Water consumption per unit of product output |  |
|------------------|---|--|
|                  | During the previous financial year ( <b>2013-14</b> )                   | During the current financial year ( <b>2014-15</b> ) |
|                  | (1)   | (2)  |
| Limestone        | 0.0103 M <sup>3</sup> / MT of Limestone                                 | 0.0115 M <sup>3</sup> / MT of Limestone              |

*Note: Water used for greenbelt development is accounted in plant cooling water consumption*

**(II) Raw Material consumption**

| S. No. | Name of raw material | Name of products | Consumption of raw material per unit output (Per Tonne) |                                   |
|--------|----------------------|------------------|---|-----------------------------------|
|        |                      |                  | During the previous financial year                      | During the current financial year |
| 1.     | ROM Limestone        | Limestone        | 1.0 MT/ MT of Limestone                                 | 1.1083 MT/ MT of Limestone        |



### PART - C

Pollution discharged to environment/unit of output generated (Parameter as specified in the consent issued)

| S. No.          | Pollutants | Concentration of Pollutants in discharge  |  |   |                                 |
|-----------------|------------|---|--|---|---------------------------------|
| a.              | Water      | Not applicable since no waste water is generated from the process   |  |   |                                 |
| b.              | Air        | Quantity of pollutants discharged (mass/day) (kg/day)   | Concentrations of pollutants in discharges (mass/volume) (mg/Nm <sup>3</sup> ) | Percentage of variation from prescribed standards with reason |                                 |
|                 |            | No source emission from the mines. Details of ambient air quality monitored in mining area is as under:<br><br>The ambient air quality in & around the lease hold area is falling within the standards without any deviation. |  |   |                                 |
|                 |            | Parameters  | Core Zone (µgm/M <sup>3</sup> )  | Buffer Zone (µgm/M <sup>3</sup> )                             | Standards (µgm/M <sup>3</sup> ) |
|                 |            | PM-10   | 65.25  | 37  | 100                             |
|                 |            | PM-2.5  | 15.08  | 10  | 60                              |
|                 |            | SO <sub>2</sub>   | 8.75   | 05  | 80                              |
| NO <sub>x</sub> | 15.5       | 10  | 80   |   |                                 |

### PART - D

#### Hazardous Wastes

(As specified under Hazardous Wastes (Management and Handling) Rules, 2003) & amended as Hazardous Waste (Management, Handling & Transboundary Movement) Rules, 2008

| S. No. | Hazardous Waste                 | Total quantity                     |                                   |
|--------|---------------------------------|------------------------------------|-----------------------------------|
|        |                                 | During the previous financial year | During the current financial year |
| a.     | From Process                    | Nil                                | Nil                               |
| b.     | From pollution control facility | Nil                                | Nil                               |

**PART - E**

**Solid Waste**

| Sl. No. | Solid Waste   | Total quantity (Kg.)               |                                   |
|---------|---|------------------------------------|-----------------------------------|
|         |   | During the previous financial year | During the current financial year |
| a.      | From Process  | ---                                | ---                               |
| b.      | From pollution control facility                     | Nil                                | Nil                               |
| c.      | (1) Quantity recycled or reutilized within the unit | ---                                | ---                               |
|         | (2) Sold  | Nil                                | Nil                               |
|         | (3) Disposed  | ---                                | ---                               |

**PART - F**

Please specify the characterization (in terms of composition & quantum) of hazardous as well as solid wastes and indicate disposal practice adopted for both these categories of wastes.

**(i) Hazardous waste:** No hazardous waste generated from the mining activities.

**(ii) Solid waste generated and disposed during 2014-15:** 1, 82,876 MT of sub-grade material stacked at the earmarked location in mines.

**PART - G**

**Impact of the pollution abatement measures taken on conservation of natural resources and on the cost of production.**

Significant resource conservation measures undertaken as follows.

1. Systematic & Scientific Mining Operations and use of HEMMs.
2. Extensive & Intensive geological exploration conducted
3. Controlled blasting techniques adopted
4. Entire plant feed material is analysed using online Cross belt Gamma Analyzer to know the real time chemical composing of the feed.
5. Proportionate Blending of different grades of ore for meeting plant requirements
6. Systematic stacking of sub-grade limestone for future utilization

The above practices contribute to save precious raw material/ product and help in conserving valuable natural resources.

## PART - H

**Additional measurers/ investment proposal for environmental protection including abatement of pollution / prevention of pollution.**

### **Activities planned for 2015-16:**

1. Use of mine pit water (collected rainwater) for plantation and dust suppression
2. Further greenery development in and around the Mines by planting tree saplings.

## PART - I

### **Any other particulars for improving the quality of the environment**

Details of steps taken for improvement of environment during **2014-15**

#### **(i) Environment Management System improvement**

1. Periodical review of EMS including compliance of environmental laws through periodic Management Review & Internal/ external audits
2. Awareness promotion through various environmental competitions, workshops, presentations etc. on world environment day, Earth Day, Bio-diversity Day, Ozone Day etc.

#### **(ii) AIR**

Improvement in Ambient Air Quality through effective control on fugitive dust emission

#### **(iii) Green Belt development**

Extensive green belt is being developed in the mining area with plantation of approx. **41696 Nos.** of tree saplings and around 20046 Nos. of shrubs and herbs covering an area of **24.54 %** of the total lease area.

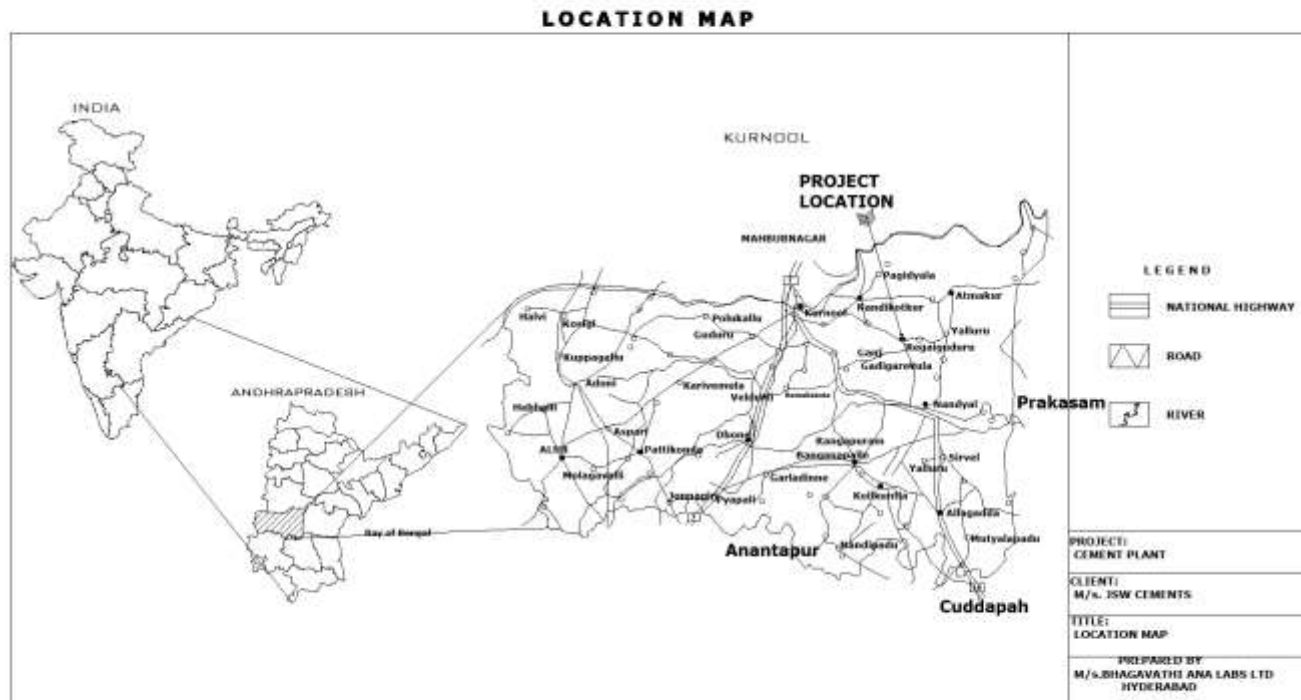


Figure-1