

EXECUTIVE SUMMARY

OF

PROPOSED GREENFIELD CEMENT PLANT

CLINKER : 3.15 MILLION TPA

CEMENT : 2.0 MILLION TPA

POWER : 50 MW (2 X 25 MW)

At

**Kalvatala Village, Kolimigundla Mandal,
Kurnool District, Andhra Pradesh**

of



THE RAMCO CEMENTS LIMITED

(FORMERLY KNOWN AS MADRAS CEMENTS LTD)

(An ISO 9001:2008, ISO 14001:2004 and IS 18001:2007 Company)

EXECUTIVE SUMMARY

1.1 PROJECT DESCRIPTION

THE RAMCO CEMENTS LIMITED (RCL) now proposes to setup a green field Integrated Cement Plant in an area of 186.56 Ha with State-Of-The-Art technology at Kalvatata Village of Kolimigundla Mandal, Kurnool District, Andhra Pradesh. The production capacity of the proposed plant will be as follows:

- 3.15 MTPA of Clinker (2 x 1.575 MTPA)
- 2.0 MTPA of Cement
- 50 MW (2 X 25 MW) Coal Based Captive Power Plant

1.2 REQUIREMENTS OF THE PROJECT

The major raw material for manufacture of Cement is Limestone and is sourced from the Captive Limestone Mine.

RCL Cement Plant is spread over an area of 186.56 ha.

Total water requirement of the integrated plant is estimated to be about 2000 m³/day. Initially ground water will be used for plant requirement. An application is made for 2500 m³/day, which is in pipeline.

Andhra Pradesh Government has initiated a proposal of 0.4 TMC reservoir at Mettupalli on Srisailem Right Bank Canal adjacent to OWK reservoir. The water drawl permission estimated as 2600 m³/day by the Government of Andhra Pradesh from this proposed reservoir for this plant.

The total power requirement of the cement plant including the requirement of the colony is estimated to be about 45 MW. This requirement will be met from the proposed 50 MW Coal Based Captive Power Plant.

2 x 1250 KVA DG sets will be installed as standby power supply units. These DG sets will be operated only when there is a normal power supply failure.

Preference will be given for locals for employment based on qualifications & requirement. 300 people will be directly employed and another 1000 will be indirectly employed. In addition there will be indirect employment to many more people, in the form of contractual jobs, business opportunities, service facilities etc. This will enhance the economic status of the region.

RCL will provide full-fledged colony consisting of 400 houses in an area of 48.69 Ha for the benefit of employees. All the necessary infrastructure facilities will be provided in the colony.

A full-fledged water supply and drainage system will be provided and the wastewater generated from the colony will be treated in the Sewage Treatment Plant of 250 KLD Capacity. The treated sewage will be used for greenbelt development within plant and colony.

1.3 PROCESS DESCRIPTION AND TECHNOLOGY

CEMENT PLANT

State-of-Art technology for manufacturing of the cement will be adopted. The main features of the process are given hereunder. It is proposed to install bag-filter system for cleaning of the kiln flue gas and hence no gas-conditioning tower is envisaged. Various stages of cement manufacture are given hereunder.

1. Raw material grinding
2. Blending of raw material
3. Coal mix grinding and handling
4. Preheating of coal mix in the six stage preheater
5. Pyro processing and calcination in the kiln
6. Clinker cooler and storage
7. Cement grinding & packing

POWER PLANT

RCL proposes to install 50 MW coal based Thermal Power Plant. Power generation process is based on Rankine Steam cycle. The steam generated in the boiler when expanded through a turbine, turns the

turbine shaft, which in tandem is coupled to an electric power generator.

1.4 DESCRIPTION OF ENVIRONMENT

The predominant wind directions during this period were from ENE-E-ESE-SE sector accounting to about 49.64% of the total time. Average wind speeds during this period were varying between 1.01-15 kmph and during most of the time the winds were more than 15 kmph. The wind of less than 1.01 kmph was treated as calm, about 13.0% 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.

Air Quality in the study area (All the values are in $\mu\text{g}/\text{m}^3$)

S. No	Pollutant	Range of values (98 th percentile)	NAAQ Standards for Residential areas
1	PM ₁₀	49.8 – 57.4	100
2	PM _{2.5}	21.7 – 29.5	60
3	SO ₂	10.7 – 12.8	80
4	NO _x	12.9 – 14.4	80

Note: CO values are observed less than 1 ppm during study period.

Noise levels were monitored at eight locations at villages and the levels recorded were found to be in the range of 50.6 – 70.8 dB (A) during daytime and in the range of 41.8 – 62.5 dB (A) during night time.

Water samples collected from 8 ground water samples and 1 surface water sample 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.

There are no endangered species of Schedule -1 category reported in 10 km radius.

1.5 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

1.5.1 AIR ENVIRONMENT

The baseline concentrations monitored in 10 km radius of the study area reflect the emissions from all the sources including emissions from cement plant, thermal power plant and mines.

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

PREDICTED GROUND LEVEL CONCENTRATIONS AND OVERALL SCENARIO, $\mu\text{g}/\text{m}^3$

24-HOURLY CONCENTRATIONS	Particulate Matter - 10 (PM ₁₀)	Particulate Matter - 2.5 (PM _{2.5})	Sulphur Dioxide (SO ₂)	Oxides Of Nitrogen (NO _x)
Baseline Concentration (Max)	57.4	29.50	12.8	14.4
Predicted Ground Level Concentration (Max)	11.64	1.35	2.36	14.26
Overall Scenario	69.04 {100}	30.85 {60}	15.16{80}	28.66 {80}

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

The ambient air quality values are not exceeding the stipulated standards due to the expansion when the predicted values are superimposed on the baseline value i.e., when the contribution of expansion is added to the background air quality.

1.5.2 AIR ENVIRONMENT - ENVIRONMENTAL MANAGEMENT PLAN

CEMENT PLANT & THERMAL POWER PLANT - CONSTRUCTION PHASE

The construction activity would result in increase of PM₁₀ concentrations due to fugitive dust. Frequent water sprinkling in the vicinity of the construction sites would be undertaken and will be continued after the completion of construction as there is scope for heavy truck mobility. It will be ensured that diesel powered vehicles are properly maintained to comply with exhaust emission requirements.

CEMENT PLANT - OPERATIONAL PHASE

The atmospheric emission from the cement plant constitute flue gases from raw mill, coal mill, cement mills, packing section, kiln and crusher. The major emission is particulate matter. SO₂ and NO_x emissions are generated from the kiln.

The cement plant is designed to comply with the new emission norm specified in MoEF&CC notification GSR 612(E) dated 25.08.2014 for particulate matter and GSR 496 (E) dated 09.05.2016 for Sulphur dioxide and Oxides of Nitrogen

The cement plant will have the following pollution control equipment:

- Bag house system for cleaning of 2 Nos. of raw mill/kiln flue gas with 99.9 % efficiency.
- Bag houses for 2 Nos. of coal mills and 1 No. for Cement Mill
- 1 No. of ESP for each cooler for control of dust.
- Bag filter systems along with ventilation systems to control the fugitive dust generated from the material handling areas.
- Low NO_x burners & Low NO_x Calciners for both kilns

All the flue gas outlets will be provided with state of art air pollution control equipment to maintain the particulate emission level below 30 mg/Nm³.

The cement dust collected in the pollution control devices will be recycled back to the cement manufacturing process.

50 MW (2X25 MW) CAPTIVE POWER PLANT - OPERATIONAL PHASE

The power plant is designed to comply with the new emission norm specified for Thermal Power Plant as per MoEF&CC notification under GSR 3305(E) dated 07.12.2015.

Major pollutants emitted from the thermal power plant are Particulate Matter & Sulphur Dioxide from CFBC Boilers. The thermal power plant will have the following pollution control equipment:

- 2 Nos. of ESPs for 2 Nos. of boilers with 99.8% efficiency to control particulate matter emissions.
- Lime injection in the CFBC boiler for control of Sulphur dioxide emissions
- Low Nox burner for control of Oxides of Nitrogen.

1.5.3 NOISE ENVIRONMENT

Noise levels generated in the cement plant & thermal power plant will be confined within the RCL complex and is further reduced due to attenuation of greenbelt. Noise level at the plant boundary, calculated from the above equation, is expected to be less than 65 dB (A) without considering any attenuation factors. Minimum greenbelt of 15 m width will be developed along the periphery of the plant with total greenbelt of 65.46 ha within the cement plant, amenities area and colony area.

1.5.4 WATER ENVIRONMENT

Water is required for cooling, dust suppression, sanitary facilities and gardening.

Fresh water requirement of the cement plant is estimated to be about 2000 m³/day. Water demand will be met from Ground water/Canal proposed to be laid by APIIC.

CONSTRUCTION PHASE

All infra-structural services including water supply, sewage, drainage facilities and electrification will be provided.

OPERATIONAL PHASE

No wastewater will be released from the cement plant from process area. The treated waste water (neutralized) from power plant to the extent 100 m³/day and the Treated sewage water (200 m³/day) will be used for greenbelt development and for dust suppression activities, bringing down the fresh water requirement for plant to 2000 m³/day (2300 m³/day - 300 m³/day)

A full-fledged Sewage treatment plant of 250 KLD will be provided in colony complex to treat the domestic waste water.

No discharge of waste water either into surface body or into ground and hence no traps for desilting/ removal are proposed.

1.5.5 SOLID WASTE MANAGEMENT

CONSTRUCTION PHASE

The site preparation for construction will slightly alter the environmental conditions resulting in air and noise pollution. However this is a scenario of pre-project and is of short duration. There is no structure at the proposed area where the proposed unit will be located.

OPERATIONAL PHASE

No solid waste will be generated from the cement plant. The dust collected in the air pollution control equipment in the cement plant will be recycled back to the process. Solid waste generated from the power plant (flyash) will be used in cement plant.

Refractory bricks are one of the solid waste generated from the kiln section. Due to wear and tear, RCL will replace the refractory bricks as and when required.

SOLID WASTE GENERATION FROM COLONY

Solid Waste generated of the colony will be handled in compliance with SWM Rules 2016. Waste will be segregated as wet waste and dry waste to enable recycling of dry waste and composting of wet waste. Awareness will be created among households of the residents of the colony. Two garbage disposal bins will be provided to each house hold, one for dry waste and one for wet waste. Items like aluminum foils, tetra packs, glass, paper, plastics, metals, etc. fall under the dry waste category, whereas kitchen waste such as stale food, fruits and vegetables come under wet waste. The details of solid waste generation are given below

- Solid waste generated from the colony is estimated to be about 500 kg/day.
- Plastic / Glass and Paper will be segregated and disposed to vendors.
- Garbage / Organic food waste will be treated in vermin-compost units and the manure will be utilized for greenbelt development.
- The STP sludge which is estimated to be about 50 kg/day will be used as manure for the greenbelt.

1.5.6 GREENBELT DEVELOPMENT

Total 65.46 ha (35 % of total project area) will be developed as greenbelt area, in phased manner.

RCL will develop greenbelt along the boundary of the cement plant and colony area as per the following greenbelt development plan

GREENBELT DEVELOPMENT PLAN

Year	No. of sapling	Area (Ha)
1 st	24285	16.19
2 nd	18450	12.3
3 rd	18450	12.3
4 th	18450	12.3
5 th	18555	12.37
Total	98190	65.46

The local species recommended by CPCB as per Programme Objective series: PROBES/75/1999-2000 will be planted.

1.6 ENVIRONMENTAL MONITORING PROGRAMME

CONTINUOUS EMISSION MONITORING INSTRUMENTS

Continuous online stack monitoring equipments will be installed for 8 stacks viz.,

- Kiln RABH stacks (2 Nos.),
- Clinker Cooler ESP stacks (2 Nos.),
- Coal mill bag filter stacks (2 Nos.),
- Cement mill bag filter stack and

- Thermal Power Plant ESPs stack (1 No.).

Particulate emissions from the stacks will be maintained well within the prescribed limits and it will be connected to APPCB server & CPCB server.

Ambient air Quality is being monitored from fixed monitoring stations by an approved third party on monthly basis for the parameters PM₁₀, PM_{2.5}, SO₂, NO_x, for 24 hours basis and the levels are well within the prescribed limits.

In addition to the above, **RCL** is carrying out the stack and AAQ monitoring through third party periodically.

1.7 ENVIRONMENTAL MANAGEMENT PLAN

RCL has budgeted an amount of Rs. 120 crores for implementation of environmental management plan and recurring cost is about Rs. 12.0 Crore per annum.

1.8 PROJECT BENEFITS

EMPLOYMENT OPPORTUNITIES

The plant will provide direct employment to about 300 people. In addition, there will be indirect employment to 1000 people in the form of contractual jobs, business opportunities, service facilities etc. This will enhance the economic status.

ENTERPRISE SOCIAL COMMITMENT (ESC) & CORPORATE SOCIAL RESPONSIBILITY (CSR)

As responsible corporate citizens, RCL have always given top most priority for ESC in its vision and philosophy. Today, taking its iconic shape, RCL became a formidable brand and this mission is accomplished with the support of great people and their values. Apart from delivering superior cement products, RCL dedicated itself in paying back all those humble human beings as a token of gratitude for their outstanding contribution.

RCL is continuously contributing toward welfare & community development activities under its ESC programmes not only at villages where it is operating its units but also in other parts of the state.

As part of Enterprise Social Commitment (ESC), RCL has earmarked 2.5 % of the total project cost i.e., Rs 37.5 crores (2.5 % of project cost of Rs. 1500 Crores) towards the Enterprise Social Commitment.

CONCLUSION

RCL will implement the State of the Art Cement plant in compliance with new standards stipulated by MoEF&CC for cement plant and thermal power plant.

An amount of Rs 120 crores will be spent for implementation of Environment Management Plan. 2.5 % of the project cost will be spent on Enterprise Social Commitment which will result in improvement of amenities in the area

With the above proposed measures the project will have positive impact on the surroundings of plant with respect to Environment and Social Welfare.