

EXECUTIVE SUMMARY

1.0 INTRODUCTION

Tamil Nadu Cement Corporation Limited, (TANCEM), Tamil Nadu government undertaking, is operating a modern dry process cement plant of 0.5 MTPA (Million tonnes per annum) capacity near Ariyalur in Perambalur District of Tamil Nadu, from 1979 onwards. TANCEM proposes to double the capacity of this plant to 1 MTPA. Consequent to the expansion, the limestone requirement will go up from the existing 0.8 MTPA to 1.6 MTPA to cope up with the expansion needs.

In view of the increased needs of limestone over and above the existing production rate, for the proposed cement plant expansion, and also to utilize the available high iron low grade limestone in their existing mining lease areas which is in large quantities. TANCEM have located high grade low iron limestone in Kallankurichi village, in Ariyalur Taluka of district Perambalur through extensive exploratory drilling undertaken by Directorate of Geology and Mining and TANCEM's own exploratory team. After firming up mineable proved reserves of 0.97 Million Tonnes in these areas, TANCEM has applied for mining lease over an area of 30.045 ha. in Kallankurichi village including patta and government poramboke lands, which is under process by the concerned statutory authorities.

2.0 PROJECT DESCRIPTION

2.1 Geology

Regional

The area forms part of well known cretaceous formations of Trichy.

Local

The limestone is not exposed on surface and is found below the soil or kanker formation. The rock formations met in the area are of sedimentary origin grouped to the Ariyalur stage of Maestrichtian (upper cretaceous period).

2.2 Reserve

Total geological reserves estimated are 1.29 million tonnes. Mineable reserves estimated are 0.97 million tonnes.

2.3 Exploration

Total no. of boreholes explored : 3
Total meterage undertaken : 92.35 m
Type of drill used : Diamond drill at 300m distance

2.4 Mining

- The mining will be done by mechanized opencast method.
- The mine is expected to produce about 33,600 tonnes limestone per year.
- The stripping ratio will be around 1:1.35.
- The anticipated life span of mine will be approx. 30 years.
- Blasting only at hard formations.
- The excavators for mining and dumpers for transportation will be deployed to handle the ore and waste.

2.5 Solid Waste

Black cotton soil of thickness 0.5 m is the topsoil. Arenaceous limestone of thickness 2.5-5.0 m. is also the overburden. Total generation of over burden during 1st 5 years of mining will be 150817 tonnes (Top soil – 13757 tonnes and Waste arenaceous limestone - 137060 tonnes)

2.6 Site Service

Site facilities like mine office, first aid center, toilets, rest shelter, canteen, a small workshop will be maintained within the lease area. Drinking water, tea and snacks will be provided.

2.7 Water Requirement

During mining water will be required for various purposes. Details are given in the table below.

Activity	Water Requirement, m ³ /d
Dust suppression	10.0
Domestic	1.0
Green Belt	2.0
TOTAL	13.0

3.0 PRESENT ENVIRONMENTAL SCENARIO

3.1 Topography and Drainage

The average elevation is about 80 m above MSL. Area is plain covered with Black cotton soil.

3.2 Climate

Climate of this area is warm and humid

3.3 Air Environment

Meteorology

Meteorological data of summer-2006 (March-May) season was collected. Predominant wind direction in this season was from WNW. Average wind speed is 3.71 m/s. Relative humidity ranges from 22% to 100%. Maximum temperature is 39.6^o C and minimum 21.4^o C.

Ambient Air Quality

Ten ambient air quality-monitoring stations i.e. 2 in core zone and 8 in buffer zone were identified and monitored and the results obtained are as follows:

Range and 98 percentile Values of AAQ Test Results

Units: $\mu\text{g} / \text{m}^3$

	SPM	RPM	SO ₂	NO _x
Core Zone (min.-max.)	110-222	33-86.1	5.5-13.8	7.8-19.7
98 percentile (max.)	213.2	71.9	13.6	19.6
Standard	500	250	120	120
Buffer Zone (min.-max.)	92-197	21.9-76.3	4.6-13.3	5.4-19.0
98 percentile (max.)	195.6	67.8	13.2	17.7
Standard	200	100	80	80
HC & CO values at all location in core and buffer zone are found to be <1 ppm				

3.4 Noise Level

Noise levels were monitored at ten locations. Two stations in core zone and eight stations in buffer zone were selected. The results are as follows:

Sampling Stations	Noise level dB (A)	
	L _{min}	L _{max}

Core Zone	36.9	50.4
Buffer Zone	36.5	59.0

3.5 Water Environment

One surface and six ground water samples were collected to know the water quality. Summary of the test results are given below.

Sample code	pH	TH mg/l	TDS mg/l	Cl mg/l	F mg/l
SW1	6.62	44	77	19	0.20
GW1	7.2	40	72	22	0.92
GW2	7.1	35	78	20	0.88
GW3	7.4	28	58	13	0.25
GW4	6.9	22	41	9	0.20
GW5	6.8	50	192	49	BDL
GW6	7.1	35	154	52	0.18

3.6 Land use and Soil Quality

Total land in core zone is 30.045 ha., out of which, 27.910 ha. is patta land and 2.135 ha. is paramboke land. Presently there is no mining activity in this 30.045 ha. area.

3.7 Ecology

The lease area does not have any forestland within. In the buffer zone, mixed vegetation is observed. It comprise of shrubby vegetation, rocky barren patches with very scanty vegetation.

Fauna in the core and buffer zone does not comprise of any Schedule I and II animals.

3.8 Socio - Economic Environment

There is no human habitation within the mining lease area. Total 26 villages are in study area of 10 km radius. The socio-economic conditions are summarized below:

<i>Description</i>	Numbers	%
Total Villages	26	
Total no. of House Hold	20560	
Total Population	85052	100.00
Total Male Population	41942	49.31
Total Female Population	43110	50.69
Total SC Population	21726	25.54
Total ST Population	341	0.40
Total Literate Population	42658	

4.0 ENVIRONMENTAL IMPACT ASSESSMENT

- The impacts on air are mainly due to generation of dust during loading, unloading and transportation of ore and emissions such as SPM/SO₂/NO_x from the transporting trucks.
- The anticipated incremental value of SPM will be 228 and 197.2 ug/m³ within the core and buffer zone respectively.
- Noise levels will be increased due to Heavy Earth Moving Machines and transportation.
- The maximum anticipated noise levels will be around 53 dB(A) towards west of ML area at a distance of 40m from ML boundary
- Total water consumption will be around 13 m³/day.
- There is no wastewater generation from mine activity. Mining will not touch the ground water table.
- Out of 30.045 ha. total 27.34 ha. land will be used for excavation.
- There is no human settlements within the mine lease area hence, the mining activity does not involve any displacement of human settlement.
- Area is having the sparse vegetation hence impact on the biological environment due to the mining activities will be meager.

5.0 ENVIRONMENTAL MANAGEMENT PLAN

- To control the dust emissions, water tankers will be engaged to spray water on haul roads continuously to suppress the dust.
- Transport vehicles are maintained regularly in order to minimize the emissions from them.
- Plantation will be carried out which acts as pollution sink.
- To reduce sound emissions like improvised silencers, mufflers and closed noise generating parts will be used.
- Regular and proper maintenance of noise generating machinery including the transport vehicles to maintain the noise levels.
- Toe walls and garland drains will be constructed for the proper channel of surface drainage.
- Dump slopes will be covered with grass plantation to stabilize and prevent erosion.

- Besides 7.5m thick green belt development along the mine boundary plantation will be carried out on backfilled, waste dump and undisturbed area.
- Rs. 2.5 and Rs. 9.5 lakhs has been allocated for social development activity as capital and annual recurring cost respectively.

6.0 ENVIRONMENTAL CONTROL COST

The capital and annual recurring environmental control cost for adoption of various control measures as suggested in the report are Rs. 31.20 lakh and Rs. 13.0 lakh respectively.
