

**REPORT ON CHECK INSPECTION OF SIVALARPATTI LIMESTONE MINE-LEASE- I**  
**OF M/S. THE RAMCO CEMENTS LIMITED**

Name and designation of inspecting officer: Shri V. Jaya Krishna Babu,  
Controller of Mines (South Zone),  
Indian Bureau of Mines, Bengaluru.

Date of Inspection : 06.03.2023

**1. General information of the mine :**

- i) Name of mine : Sivalarpatti Limestone Mine-Lease-I
- ii) Owner : Shri. P.R.Venketrama Raja  
(Lessee – M/s.The Ramco Cements Limited)
- iii) Nominated owner : Shri. P.R.Venketrama Raja
- iv) Mining Engineer : K.Saravanan
- v) Agent : S.Ramalingam
- vi) Mine Manager : K.Saravanan
- vii) Total Lease area : 150.11 ha
- viii) Location : Village: Pudur, Kullakattakurichi,  
Sivalarpatti & Muthusampuram  
Taluk : Vilathikulam  
District : Thoothukudi  
State : Tamilnadu
- ix) Lease period : 50 Years
- x) Date of Expiry : 21.05.2045
- xi) Date of approval of mining plan: 19/01/1996
- xii) Date of approval of ROMP : 30/07/2020
- xiii) Period of Mining Plan/  
Scheme of Mining : 2020-21 to 2024-25 (RoMP)
- xiv) Production (Year 21 to 22) : 5,23,033.16 Tonnes of Limestone
  
- Mineral rejects generated : -
  
- Despatches : 5,23,033.16 Tonnes of Limestone

## 2. Brief Description of the mine :

a) A brief description of the mine covering location, geology, problems associated with mining of the deposit etc. may be given.

### Location of the Mine :

Latitudes: N 90 18' 03" - 90 20' 4.8"

Longitudes: E 780 08' 13" - 780 09' 54"

### Geology of the Area:

The entire area comprises of Archaean formations completely covered by 1.0 to 2.00 meter of thick black cotton soil. Below this soil cover, the rocks namely Charnockite, Granite, Granulite, Syenite and pegmatite as intrusion besides limestone as a ore body occur. Charnockite, Pyroxene Granulite and granite occur as hang wall and footwall rock for limestone band.

The entire limestone band is completely concealed under the black cotton soil except in one or two places, where outcrops are seen. The country rock is Charnockite of Archaean age. The limestone varies from dull white to milky white and grey in colour, coarse to medium grain and is crystalline. Pyroxene granulite, Charnockite, hornblende gneiss and Syenite pegmatite occur as associated rock. Presently, the limestone band is exposed in the mine of The Ramco Cements Limited. The Limestone is also exposed in the floor of the pond situated at the Southern periphery.

The limestone body occurs in the form of a narrow linear band within the banded granulites following the general NNW-SSW foliation trend of the country rocks. The length is around 3.70 kms. The width of the band is varying from 25 m to 85 m in different sections; the average being around 50m.

The limestone body shows a general dip of 35 to 45° in NE direction, the footwall showing gentler dip than that of hanging wall. The variation in attitude and inclination at the hanging wall and footwall margins results in local bulging and narrowing of the limestone band which appear to pinch out completely at the northern end.

b) Description on deployment of mining machinery given in the following format:

Sl. No	Machineries Deployed	Capacity	No. of units	In use	Ideal	Percent-age of utilization	Brief Description	Remarks
1	2	3	4	5	6	7	8	9
1	Front End Loader	3.00 Cu.M	1	1	-	90%	Wheel Mounted	Outsourced
2	Back-Hoe/Bull clam	0.90 Cu.M	3	3	-	90%	Diesel (Hydraulic)	Outsourced
3	Haulers/Dumpers/Tipper s	25 Tons	8	8	-	90%	AMW/BHARAT BENZ/TATA Make	Outsourced
4	Drill/Blast holes & Wagon drills	115 mm Dia	1	1	-	90%	BVB 25 drill (Atlas Copco make)	Outsourced
5	Air Compressor	450 cfm	1	1	-	90%	Diesel Portable Stationery (Atlas Copco make)	Outsourced

3. Implementation of Mining Plan or Review of Mining Plan:

Sl.No.	Proposal in the approved Mining Plan or Scheme of Mining (period 2021-22)	Observations regarding implementation of proposals given in approved Mining Plan or Scheme of Mining	Remarks
1	<b>CONSERVATION OF MINERALS</b>		
	Optical Sorting is one of the most advanced versions of mineral beneficiation methods adopted in Pandalgudi Crushing Plant for Mineral beneficiation. The principle behind the system is to recognize the minerals/rocks in terms of their colours (RGB values) and reject the wanted/unwanted minerals/rocks. In this case, the limestone comprises unwanted black colored rocks which dilute the quality of limestone. These black rocks need to be removed to improve the limestone quality. In the Optical sorting method, the main hardware comprises an optical line scan camera and air-nozzles. As the rock pieces fall through the visibility-field of the camera, the colors are recognized, processed by software, compared with pre-stored values and suitable command is passed to the actuators of the air nozzle to shoot the rock pieces which are to be ejected off the falling stream. All these happen in real time, in a matter of few seconds. Only the dry beneficiation is being practiced by simple primary screening and optical sorting for removal of black stone.		
a)	<b>Exploration:</b> 5 Nos of DDH borehole proposed	5 Nos of DDH borehole completed	As per proposal

b)	<b>Utilisation of sub-grade mineral:</b> Nil	Not Applicable	Entire Limestone produced is being utilized for cement manufacturing. Hence, no sub grade limestone is proposed to utilize.
c)	<b>Any other proposal for monitoring</b> : Nil	Not Applicable	No other proposal made during the plan period
<b>2</b>	<b>SCIENTIFIC MINING</b>		
a)	<b>Mine Development and method of mining-</b> Opencast Fully Mechanised "A Category"  <b>Production:</b> 689400 Tonnes of Limestone	Opencast Fully Mechanised "A Category"  5,23,033.16 Tonnes of Limestone	nil
b)	<b>Handling of Waste/ subgrade material -</b> Handling of Waste : 656,320 m <sup>3</sup> (1877075 Tonnes)  Sub Grade - Nil	475485 m <sup>3</sup> (1359887 Tonnes)  Nil	Nil  Entire Limestone produced is being utilized for cement manufacturing. Hence, no sub grade limestone is proposed to utilize.
c)	<b>Area reclamation &amp; rehabilitation:</b>  Area afforested over the waste dump – 1.50 Ha (1800 Saplings)  Rehabilitation of waste land within lease – 1.09 Ha (1200 Saplings)	1.50 Ha (1800 Saplings)  1.20 Ha (1440 Saplings)	Total 3240 Nos saplings carried out over the waste dump & Waste Land for rehabilitation.

3	PROTECTION OF ENVIRONMENT		
a)	<b>Afforestation:</b> 3000 Nos of plantation in waste dump & waste land within the lease area for the total extent of 2.59 ha	About 2.70 Ha (3240 No. of Neem, Pungai & Vagai Saplings) planted in waste dump & waste land within the lease area	As per plan
b)	<b>Quality of air –</b> PM 10 – 100 µg/m <sup>3</sup> PM 2.5 – 60 µg/m <sup>3</sup>	PM 2.5 levels 18.8 µg /m <sup>3</sup> -29.4 µg /m <sup>3</sup> PM 10 levels 45.3 µg /m <sup>3</sup> – 61.2 µg /m <sup>3</sup>	The existing Ambient Air Quality levels for PM10, PM 2.5, SO2 and NO2 are within the prescribed CPCB limits for “Industrial, Residential, Rural & other areas”.
c)	<b>Quality of water</b> pH Value – 6.5 to 8.5 °C TDS – 2000 mg/L Cl – 1000 mg/L Ca – 200 mg/L Mg – 100 mg/L SO4 – 400 mg/L F – 0.3 mg/L	pH - 6.87 to 7.83, TDS - 290 to 1308.0mg/l, Chloride - 74.8 to 415.0 mg/l, Calcium 21.7 to 144 mg/l, Magnesium - 11.5to47.5 mg/l, Sulphate - 20.1 to 480 mg/l, Fluoride - 0.26 to 0.69 mg/l	The water quality of ground waters were found to be well within the prescribed IS: 10500 Norms for Drinking water.
d)	<b>Noise level –</b> Day & Night equivalent in the core zone area - 90 dB(A)  55 dB(A) for day time and 45 dB(A) for night time in the Residential Area	Day & Night equivalent Level – 64.5 to 66.4 dB (A)  Day & Night equivalent Level – 46.5 to 49.7 dB (A)	The work zone noise levels is maintained less than 90 dB(A) for the people exposed to various mining operations. The DGMS Prescribe exposure limit of 90 dB(A) for workmen in a 8-hour working shift.
e)	<b>Vibration –</b> below 12.5 mm/s for each blast	0.0953 mm/s at.0.121 sec	Vibrations are monitored regularly with an imported vibration monitoring equipment Minimate. The peak particle velocity is found to be within the prescribed limit by DGMS. (below 12.5 mm/s for each blast).
f)	<b>Any other proposal for monitoring</b> - Nil	Nil	No other proposal made during the approved plan period.

**4. History of Violations after approval of Mining Plan or Scheme of Mining:**

Sl. No	Date of inspection	Name of inspecting officer	Violations of MCDR, 88 observed and pointed out	Rectification of violations	Remarks
1	20-10-2020	Shri. SALIL SANDIP KUJUR	<p>RULE NO-11(1)</p> <p>a).There was a proposal to maintain the stripping ratio at 1:2.85 during the Year 2020-2021. However, the same was actually maintained at 1:3.22 during the year.</p> <p>b).There was a proposal to remove 15,000 m<sup>3</sup> of Top soil during the year 2020-21. However, no Top soil was removed during the year.</p>	<p>As per the approved mining plan the proposed production is 6,89,725 Tons, Development is 19,40,167 tons and the Ore : OB Ratio is 1:2.85.</p> <p>The actual production is 5,95,304 tons, development is 19,17,075 tons and the Ore :OB Ratio is 1:3.22.</p> <p>The proposed production quantity is not achieved due to Covid-19 pandemic. The shortfall in Limestone production than envisaged is 94,421 tons &amp; in development is 23,092 tons. Hence, there was slight deviation in Ore: OB ratio. The Ore: OB ratio will be maintained henceforth.</p> <p>Due to covid-19 pandemic, the envisaged production &amp; development quantity is not achieved during the FY 2020-21. Hence we have not removed the top soil. We handled the same quantity in this year 2021-22</p>	Violation has been rectified within 45 days from the date of issue of violation letter.

**5. Socio-Economic Development Plan :**

<b>Sl. No.</b>	<b>Proposed Action Plan towards socio Economic Development</b>	<b>Expenditure proposed (In Rs, Lakh)</b>	<b>Expenditure incurred in (in Rs, Lakh)</b>	<b>Remarks</b>
1	General Development in the area	-	-	-
	i) Housing	-	-	-
	ii) Water Supply	1.50	1.50	Drinking water, Bore wells & Hand pumps.
	iii) Sanitation	1.50	1.50	General Medical Camps & Eye Camps
	iv) Health, Safety and Medical Facilities	2.00	2.00	Financial contribution to medical help to near-by villagers
2	Education and Training	6.00	6.00	Tuition Centre, Tailoring School & Donation of Note Books
3	Employment to local inhabitants	22.26	22.26	Employment to local inhabitants
4	Public Transportation and communication	2.00	13.16	Donations provided for Construction of Road, Park & Infrastructure.
5	Recreation and other sports activities	1.00	1.00	Financial Contribution Towards Temple Construction & renovation.
6	Expenditure for environment management	3.90	3.90	Expenditure towards PMCP Activities
7	Other Old age pension	-	-	-
<b>8</b>	<b>Total</b>	<b>40.16</b>	<b>51.32</b>	-