

**EXECUTIVE SUMMARY
OF
DRAFT
ENVIRONMENTAL IMPACT ASSESSMENT REPORT**

For
**INCREASE OF LIMESTONE PRODUCTION FROM 3.30 TO 5.40 MTPA
WITH INCREASE OF TOTAL EXCAVATION
FROM 3.398 MTPA TO 5.550 MTPA**

From
**SAGAR CEMENTS LIMESTONE MINE
MINING LEASE AREA: 326.58 Ha. (NON-FOREST LAND)
(Category: A)**

**CAPTIVE LIMESTONE MINE
OF**



SAGAR CEMENTS LIMITED

At
Pedaveedu (V), Mattampally (M), Suryapet (D), Telangana.

**Report Submitted to Telangana State Pollution Control Board
for conducting Environmental Public Hearing**

EXECUTIVE SUMMARY

1.1 INTRODUCTION

Sagar Cements Limited (SCL) is one of India's leading cement manufacturer with an installed production capacity of 8.25 MTPA with operating plants at Telangana, Andhra Pradesh, Odisha and Madhya Pradesh. SCL is operating a Cement Plant with a Clinker production capacity of 2.0 Million Tonnes Per Annum (MTPA), Cement production capacity of 2.35 MTPA and 7 MW Waste Heat Recovery Based Power Plant at Mattampally Village & Mandal, Suryapet District, Telangana State.

SCL has proposed for expansion of Cement Plant for increase of Clinker from 2.0 MTPA to 4.81 MTPA and Cement from 2.35 MTPA to 5.0 MTPA for which Environmental Clearance was granted vide letter no. J-11011/379/2006-IA.II(I) dated 29.01.2019. The limestone requirement of the Cement Plant is being met from the Captive Mine i.e., Sagar Cements Limestone Mine (ML area: 326.58 Ha).

Limestone requirement of cement plant increases from 3.30 MTPA to 5.40 MTPA due to expansion of Cement Plant. SCL has applied for two new Mining leases in Forest area close to Cement Plant. Due to non-sanction of the mining leases in forest land, it is proposed to increase limestone production from present operating mine.

The proposed activity comes under Category – 'A' project due to mining lease area more than 250 Ha as per Environmental Impact Assessment (EIA) Notification SO 1533, of 14-09-2006 and subsequent amendments. It necessitates obtaining the Prior Environmental Clearance from Ministry of Environment and Forests & Climate Change (MoEF&CC).

SCL applied for amendment in Terms of Reference for increasing limestone production from 3.3 MTPA to 5.40 MTPA and Increase of total Excavation from 3.398 MTPA to 5.550 MTPA [Cement grade LS - 5.100 MTPA Sub Grade LS (Blendable) 0.30 MTPA + Topsoil- 0.15 MTPA].

The Terms of Reference was approved by MoEF&CC for carrying out the Environmental Impact Assessment study vide letter No J-11015/53/2003-IA.II(M) dated 13.06.2022 and TOR Amendment letter no. No J-11015/53/2003-IA.II(M) dated 24.08.2022

1.2 PRESENT PROPOSAL

The present proposal pertains to obtaining Environmental Clearance (EC) for "**Sagar Cement Limestone Mine**", Captive Limestone Mine of SCL spread over an area of 326.58 Ha for increase of the limestone production from 3.30 MTPA to 5.40 MTPA with increase of total Excavation from 3.398 MTPA (Cement grade LS-3.135 MTPA + Sub Grade LS (Blendable) - 0.165 MTPA + Top Soil - 0.098 MTPA) to 5.550 MTPA [Cement grade LS - 5.100 MTPA Sub Grade LS (Blendable) 0.30 MTPA + Topsoil- 0.15 MTPA] along with 1 X 1000 TPH Crusher (already existing) at Pedaveedu and Mattampally Villages, Mattampally Mandal, Suryapet District, (earlier Nalgonda), Telangana State.

1.3 DESCRIPTION OF ENVIRONMENT

As part of the Environmental Impact Assessment study, baseline environmental monitoring was carried out for Summer Season 2022, covering the months of March'22, April' 22 and May' 22.

METEOROLOGY

During the study period, the maximum temperature was observed in May i.e. 47.2°C and minimum temperatures were observed in March i.e. 16.3°C. Similarly, the maximum humidity level was observed in April (100%) and the minimum was in March (9%). The average wind speed recorded in the season was 3.6 m/s. The predominant wind directions for the study period is SSE followed by SE and S with the percentage frequencies 33.97, 17.53 and 9.83 respectively.

AIR ENVIRONMENT

Ambient air quality of the study area has been assessed through a network of nine ambient air quality locations.

The Ambient Air Quality monitored in the study area was found to be well within the limits of NAAQ standards prescribed for Residential, Rural & Other Areas.

SUMMARY OF AAQ DATA – STUDY AREA 98th PERCENTILE VALUES $\mu\text{g}/\text{m}^3$)

Station Code	Locations	PM ₁₀	PM _{2.5}	SO ₂	NO ₂
A1	Plant Site	54.8	31.1	15.3	16.7
A2	Mine Site	61.7	31.6	16.3	17.4
A3	Mathampalli	57.1	27.4	12.2	14.2
A4	Chautpalli	55.2	24.7	12.9	14.4
A5	Raghunathapalem	48.7	26.1	11.5	12.3
A6	Gundlapalli	52.2	25.5	13.0	14.3
A7	Sultanpur tanda	46.0	27.8	12.8	14.0
A8	Pedavidu	51.7	24.5	11.7	12.5
NAAQ Standards for Industrial, Residential, Rural and Other Areas (24 Hrly)		100	60	80	80

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

NOISE ENVIRONMENT

Core Zone

The day-time equivalent noise levels are varying from 62.8 to 68 dB (A), whereas the night-time equivalent is ranging between 50.1 and 57.3 dB (A). The noise levels found slightly higher compared to other locations, due to industrial activities. However, noise levels are within the prescribed limits.

Buffer zone

The day-time equivalent noise levels are varying from 53.4 to 44.4 dB (A), whereas the night-time equivalent is ranging between 37.5 and 43.7 dB (A). The noise levels found slightly higher at Pedavidu compared to other locations, due to local activities in the villages. However, noise levels are within the prescribed limits.

WATER ENVIRONMENT

Eight ground water samples and seven surface water samples were collected from in and around the study area. Analytical results of groundwater samples were compared with IS 10500-2012, the results found within the permissible limits. The surface water results are compared with designated best use criteria laid by CPCB. The surface waterfalls in class C, which indicates the water can be used for drinking after conventional treatment and disinfection.

SOIL ENVIRONMENT

Eight soil samples were collected within 10 km radial distance of the study area and were analyzed to study the soil quality.

BIOLOGICAL ENVIRONMENT

There are no endangered species of Flora existing in the area and it has neither ecological nor economic importance and most of the area consists of barren hills with scarcely covered with nominal species of shrubs and bushes. The area does not habitat any thick vegetal cover there is usually thin grass growth which may appear during the short rainy season.

The reported / observed fauna in the study area is checked for their conservation status as per The Wildlife Act 1972. There are no Schedule-I species reported in Study area.

1.4 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

1.4.1 AIR ENVIRONMENT

The air borne particulate matter is the main air pollutant contributed by opencast mining. Various emission sources are identified due to increase of the limestone production from 3.30 MTPA to 5.40 MTPA with increase of total Excavation from 3.398 MTPA (Cement grade LS- 3.135 MTPA + Sub Grade LS (Blendable) - 0.165 MTPA + Top Soil - 0.098 MTPA) to 5.550 MTPA [Cement grade LS - 5.100 MTPA Sub Grade LS (Blendable) 0.30 MTPA + Topsoil- 0.15 MTPA] along with 1 X 1000 TPH Crusher (already existing) from Limestone Mine of SCL (ML Area: 326.58 Ha.).

The mining operations are carried out by adopting mechanized method employing drilling, excavation and dumping. The same method will be continued after expansion. The total quantity of material considered for estimation of impacts

TOTAL EXCAVATION QUANTITY (MTPA)

		Before Expansion	After Expansion	Incremental quantity
Limestone	Cement grade Limestone	3.135	5.10	1.965
	Sub Grade LS (Bendable)	0.165	0.30	0.135
Topsoil		0.098	0.15	0.052
Total Excavation		3.398	5.55	2.152

There are other Mining Leases and Cement Plants in the vicinity of the subject mine in the study area. Information on operating and proposed Cement Plants and Mining leases was collected for estimation of cumulative ground level concentrations.

The incremental rise of various ground level concentrations above the baseline status in respect of air pollution due to above proposed sources are estimated using EPA approved AERMOD model version 10.2.0 which are designed for point sources, line sources and area sources for the prediction of impacts.

Many of the mining operations are not continuous. For estimation of worst-case concentrations, it is assumed that all emissions are continuous and steady for 24 hours.

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

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

	Particulate Matter (PM10)	Particulate Matter (PM2.5)	Sulphur Dioxide (SO ₂)	Oxides of Nitrogen (NO _x)	Carbon Monoxide (CO)
	24-hourly Values				8-hourly values
Baseline concentration, max	62.3	32.5	16.7	17.9	1144 (<1 ppm)
Predicted Ground level Concentration (Max)	15.20	9.12	6.40	10.45	85.14
Overall Scenario	77.5	41.62	23.1	28.35	1,229.14
National Ambient Air Quality (NAAQ) standard limits specified for Industrial, Residential, Rural and other areas.	100	60	80	80	2000

The environmental control measures which are proposed to control the fugitive dust released are given below:

- ☞ Wet drilling to suppress the dust emission from the drill machine at its source by an inbuilt water injection system.
- ☞ Regular water sprinkling on haulage road through fixed water sprinkler
- ☞ Regular water sprinkling on blasted heaps with water tankers.
- ☞ 57.6 m³/day of water is used for dust suppression at mine which will be increased to 131.5 m³/day.
- ☞ Use of sharp drill bits for drilling holes and arrangements for bit regrinding. Charging the holes by using optimum charge and using time delay detonator.
- ☞ Avoiding blasting during high windy periods, night times and temperature inversion periods.
- ☞ Regular grading of haul roads and service roads to clear accumulation of loose material.
- ☞ Avoiding overfilling of Dumpers and consequent spillage on the roads.
- ☞ The vehicles and machinery are kept in well-maintained condition so that emissions will minimize.
- ☞ Afforestation for control of dust. To arrest the amount of airborne dust, plantation is being carried out within the mines.
- ☞ Operator cabins in all major HEMM equipment are air conditioned to minimize dust exposure of the operators.
- ☞ Crusher is provided with sprinklers and Bag filter at unloading hopper

PROPOSED MEASURES AT ENHANCED PRODUCTION

In addition to the above implemented measures, the following additional measures are proposed:

- a) Increased frequency of dust suppression measures by water sprinkling. Additional quantity of 73.9 m³/day will be used for dust suppression
- b) Higher capacity dumpers are used within mine pit to reduce the number of trips for transportation of limestone from mine pit to crusher at pit head.
- c) The existing conveyor is adequate for transportation of enhanced production. Adequacy of the same is provided in above paragraphs. No dumper movement is proposed from crusher to cement plant.

1.4.2 NOISE ENVIRONMENT

The noise generated by the mining activity will be dissipated within a small zone around the mines. There will be no major impact of the mining activity on the vicinity. However, pronounced effect of above noise levels will be felt only near the active working area.

The impact of noise on the villages will be negligible as the nearest village Pedaveedu Village is 830 m from the mining lease boundary and km – N are far located from the working pits.

NOISE POLLUTION CONTROL MEASURES

The following noise abatement measurements are implemented for control of noise and the same will be continued.

- Proper and regular maintenance of vehicles, machinery and other equipment.
- Carrying out blasting only during day time and not on cloudy days
- Limiting time exposure of workers to excessive noise.
- The noise generated by the machinery is reduced by proper lubrication of the machinery and equipment.
- The workers employed are provided with protection equipment, earmuffs and ear-plugs, as a protection from the high noise level generated at the mine site wherever required.
- Noise levels are controlled by using optimum explosive charge, proper delay detonators and proper stemming to prevent blow out of holes.
- Proper and timely maintenance of mining machinery
- Speed of trucks entering or leaving the mine is limited to moderate speed of 25 kmph to prevent undue noise from empty trucks.
- Greenbelt development was developed in of 7.5 m barrier zone would be carried out that acts as a barrier and attenuates the sound level.

1.4.3 WATER ENVIRONMENT

There are no perennial streams or springs existing within the mine area. A natural surface drainage course passes through the central part of the lease area flowing from NNE to SSW direction and joins Mamidimotra vagu and ultimately meets Krishna river. A 50-meter distance on either side of the seasonal nala is left as a safety zone. There are no stream courses of any significance or perennial water bodies within the Mine Lease Area.

No Overburden is generated from the mine which needs dumping/disposal leading to contamination or siltation of water bodies.

To prevent siltation of Mamidimotra vagu, a garland drain of 1180 m length is constructed towards the E to SE part of the ML area and a 1600 m length of garland drain is proposed to construct towards the SE to S part of the ML area. A check dam was constructed at the drain to reduce the flow velocity and allow the sediment to settle out and one more check dam is proposed at the end of the drain to remove silt. Silt-free water will be released into the Mamidimotra vagu which is ultimately joining River Krishna.

Presently mine workings have been reached an average RL of 54 m. The final bottom RL for lease period will be on average 52 m, resulting in a variable depth from surface in the western and eastern part which is a reflection of the surface topography. In the western part of depth would be 56 m and on the eastern side it is likely to be 54 m.

From the boreholes present in the ML area, plant and vicinity it is observed that the depth of the water table varying is at 30 m (51 m RL) from ground level. The water table will not be intersected during the mining operations. However, in the future, if there is any intersection of the water table necessary permissions will be obtained from CGWB

Present water consumption in the mine is about 100 m³/day. With increase in production, the water requirement increases to 180 m³/day. Source of water for the mine is mine pit.

During the rainy season, the rainwater will be collected in the mine sump. This water will be utilized for mining and allied activities to protect and improve the environment.

No waste is generated from the mine. Hence there will not be impact on water courses.

The wastewater generated from the domestic front is mainly from toilets and canteen. Domestic wastewater generation is 10.8 m³/day. This water is treated in Septic tank followed by Soak pit. Wastewater generated from workshop is treated for oil and grease removal and treated wastewater is used for greenbelt.

1.4.4 LAND ENVIRONMENT

Of the total mining lease area of 326.58 Ha, by the end of lease period of 17.08.2034, 223.91 Ha will be minedout area which will be converted to water reservoir under reclamation. 59.52 Ha area will be under utility services i.e. infrastructure, roads, railway and township. 23.87 Ha

will be developed under greenbelt covering 7.5 m width along mine lease boundary and 50 m width on either side of seasonal stream and balance area of 19.28 Ha. of ML area will remain undisturbed for future mining beyond lease period

No waste is generated from the mine

Subgrade generated in small quantities will be blended with limestone and used. Subgrade will be stacked in the Temporary Mineral Stock Yard located on western direction of the ML area and used in respective years by blending with lower benches limestone. A retaining wall has been proposed to construct across the dump to avoid the wash out of the material during rainy season.

1.4.4.1 CONTROL OF GROUND VIBRATIONS

Blasting is conducted by adopting the latest technology of Shock Tube Initiation System which lower down the ground vibration to a great extent and the same method will be followed in future as well, hence there will be no impact on the nearby dwellings and structure as well. Therefore, there is no danger on account of ground vibration induced by blasting.

Blasting study was conducted to arrive at the safe charge weight keeping the PPV value within the threshold limits of DGMS.

1.4.4.2 MINE SAFETY

Overall working bench slope angle will be maintained not more than 45°. Height of the bench will not exceed the width (working face). The overburden dump (temporary) slope will be maintained not more than 28° without disturbing its own angle of repose.

It is proposed to work entire mineralized area leaving 7.5 m safety distance from the ML boundary. The Ultimate Pit slope will be maintained at 65° while joining the edges of the benches.

1.4.5 AFFORESTATION

The greenbelt was developed in an area of 23.87 Ha along 7.5 m Mining Lease Boundary, nala Safety Barrier Zone and Road Barrier zone within the mine area under the boundary plantation.

SCL Cements limited will take up gap plantation in an area of 23.87 Ha in future

1.4.6 SOCIO ECONOMIC ENVIRONMENT

The mining area does not cover any habitation. The mining activities don't involve any displacement of human settlement. No public buildings, places, monuments etc., exist within the lease area or in the vicinity. The mining operations did not disturb / relocate any village or need resettlement. The mining lease area is already acquired and no additional land is involved for proposed expansion.

1.5 ENVIRONMENTAL MONITORING PROGRAMME

SCL is ensuring the implementation of the EMP measures within the mine area and carryout efficient monitoring.

SCL continues to monitor the environmental parameters as per TSPCB / IBM / MOEF&CC guidelines.

1.6 BUDGETS FOR IMPLEMENTATION OF ENVIRONMENTAL MANAGEMENT PLAN

SCL will incur an amount of Rs. 278.45 Lakhs under capital cost and Rs 349.2 Lakhs under recurring cost (for 12 years) is budgeted for implementation of Environmental Management Plan, for this expansion project.

1.7 PROJECT BENEFITS

The subject mine has resulted in improving the socio-economic benefits in areas like employment, communication; educational etc. the proposed expansion will have the following additional benefits which include

- Employing of high capacity trucks within the mine pit to crusher to reduce the number of trips
- Enhanced quantity of limestone will be transported by conveyor.
- Additional Environmental Management Plan measures will be implemented
- Additional 22 persons will be provided employment under the expansion.
- Continuous support for social development projects under CSR.
- Additional Revenue to the State Government in terms of Royalty
- Additional Revenue to the Central Government in terms of taxes

CONCLUSION

SCL continue implementing the environment management plan and will take up various socio-economic development activities to have the positive impact on the surroundings.