

EXECUTIVE SUMMARY

Of

LIMESTONE MINE

In

UMSOO-MOOTANG AREA

THANGSKAI VILLAGE, JAINTIA HILLS, MEGHALAYA STATE.

CAPTIVE LIMESTONE MINE OF

1.5 MTPA CEMENT PLANT

(AREA OF MINING LEASE : 128.52 HA)

For

2.0 MTPA LIMESTONE PRODUCTION

By

M/s. ADHUNIK CEMENT LIMITED

EXECUTIVE SUMMARY

1.1 INTRODUCTION

ADHUNIK GROUP (AG) is in line of Iron & Steel and Ferro Alloys industry over four decades. Armed with an experienced team of professionals, today AG is equipped with extensive as well as in-depth knowledge of iron & steel market all over the country. The Group was founded by the late Mahadeo Prasad Agarwal, under whose stewardship the group grew from strength to strength. The group has manufacturing facilities located in Eastern India in the States of West Bengal, Orissa, Jharkhand and Meghalaya which are having major locational advantages in terms of availability of raw material, power, skilled manpower and logistics.

Adhunik Cement Limited (ACL), a group company of Adhunik Group is incorporated to develop Greenfield cement plant of 1.33 MTPA capacity in the state of Meghalaya. Environmental clearance for the plant was obtained from MoEF.

1.2 PRESENT PROPOSAL

ACL proposes to produce 2.0 MTPA of limestone from the mining lease located in Umsoo-Mootang Area, Thangskai village, Jaintia Hills District, Meghalaya, to meet the Limestone requirement of the proposed cement plant. The Mining Lease is spread over an area of 128.52 ha and is a captive source of the cement plant of ACL.

An amount of Rs. 8.75 crores will be budgeted for this project.

1.3 DESCRIPTION OF THE ENVIRONMENT

The study area covers 10 km radius of the Limestone Mine located near Thangskai village, Jaintia Hills District, Meghalaya.

As part of Environmental Impact Assessment study, baseline environmental monitoring was carried out for Winter – 2009-'10 season, covering the months of December 2009- February 2010.

The predominant wind directions during the season were from the S to WSW sector accounting to about 68.71% of the time with calm winds of less than 1.0 kmph for about 18.71% Wind speeds during this period were varying between 1-15 kmph and during some of the times the wind speed was recorded more than 15 kmph.

Ambient air quality of the study area has been assessed through a network of 7 ambient air quality locations.

Results of the ambient air quality at all the above locations were found to be well within the limits of National Ambient Air Quality (NAAQ) standards specified for Rural and Residential areas. Concentrations of PM₁₀, SO₂ and NO_x are mainly contributed due to vehicular traffic and local activities. The following is the summary of ambient air quality in the study area

Summary Of Ambient Air Quality ($\mu\text{g}/\text{m}^3$)

98TH PERCENTILE VALUES		
PM₁₀	SO₂	NO_x
31.7 – 38.5	<5	13.2 – 14.8

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

Noise levels were measured at 6 villages located within 10 km radius in and around the mining lease area.

Noise levels recorded were found to be in the range of 44.4-60.9 dB (A) during day time and in the range of 37.8-43.1 dB (A) during night time in the study area.

Six water samples (4 ground water & 2 surface water) were collected from the study area. The water quality of the samples showed compliance of all parameters with the drinking water standard of IS 10500.

Soil samples were collected from seven locations for assessing the quality. The soil samples revealed average fertility.

The study area consists of 12140 populations with a sex ratio of 980 females per 1000 male. Percentage of SC & ST in the study area is about 0.01 % and 91.8 % of the total population respectively. The average literacy rate in the study area is found to be average i.e 64.4%. About 41.0 % of the total population is engaged in working category. The main occupation of the people in the study area is Agriculture & other works.

1.4 ANTICIPATED ENVIRONMENTAL IMPACTS & MITIGATION MEASURES

1.4.1 AIR ENVIRONMENT

ACL proposes to produce about 2.0 MTPA of limestone from the mining lease to support the 1.5 MTPA capacity of cement plant. To win this limestone, ACL is required to handle total material of 4.252 MTPA which includes limestone and overburden. Various emission sources are identified from the mining operations for the total material handling of 4.252 MTPA

The cumulative impact of cement plant, power plant and Captive limestone mine was worked out. The sources of emission considered are given below :

- ☉ 1.3 Million TPA of Clinker,
- ☉ 1.5 Million TPA of Cement,
- ☉ 25 MW Coal based Thermal Power Plant &
- ☉ 2.0 Million TPA of Limestone

Ground level concentrations due to the cement plant, power plant and mining activities have been estimated to know the incremental rise and distance of impact in the study area. The following table shows the overall scenario:

OVERALL SCENARIO, $\mu\text{g}/\text{M}^3$ (Winter '2009-10)

	PM10	SO₂	NO_x
Baseline concentration	38.5	<5	7.8
Predicted Concentration	25.44	19.69	26.44
Overall scenario	63.94	24.69	34.24
NAAQ limit for Rural and Residential area	100	80	80

Thangskai village is located within the 0.5 km of the mining lease area. ACL will adopt effective dust suppression measures such as water sprinkling methods and greenbelt development. Hence no major impact is envisaged.

AIR POLLUTION CONTROL MEASURES

- ☞ Use of wagon drill provided with dust collectors.
- ☞ Use of sharp drill bits for drilling holes. Charging the holes by using optimum charge and using millisecond delay detonator.
- ☞ Water sprinkling at regular interval will be carried out on the main haul road and other service roads by water sprinklers.
- ☞ Approximately 20 m³/day of water is proposed to be used for dust suppression operations at mining lease.
- ☞ Regular grading of haul roads and service roads will be taken up to clear accumulation of loose material.
- ☞ Blasting will be avoided during high windy periods.
- ☞ Excavation operations will be suspended during periods of very strong winds.
- ☞ Over filling of dumpers and consequent spillage will be avoided.
- ☞ Workmen in the work zone will be provided with dust masks.
- ☞ The vehicles and machinery will be kept in well-maintained condition so that emissions will be minimized.
- ☞ Plantation of wide leaf trees, creepers, tall grass around working pit, waste dump, along roads, and in buffer zones will help suppress dust.

1.4.2 NOISE ENVIRONMENT

Noise will be produced due to drilling, blasting, compressors, pumps, movement of vehicles and other machinery. The noise generated by the mining activity will dissipate 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 and on the personnel working in the vicinity.

NOISE POLLUTION CONTROL MEASURES

- ☉ Proper and regular maintenance of vehicles, machinery and other equipment.
- ☉ Provision of earplugs to the workers at sites of high noise generation
- ☉ Limiting time exposure of workers to excessive noise.
- ☉ The noise generated by the machinery will be reduced by proper lubrication of the machinery and equipment.
- ☉ Proper and timely maintenance of mining machinery
- ☉ Staggered pattern of blasting will be adopted.
- ☉ Noise levels will be controlled by using optimum explosive charge, proper delay detonators and proper stemming to prevent blow out of holes.
- ☉ Speed of trucks entering or leaving the mine will be limited to moderate speed of 25 kmph to prevent undue noise from empty trucks.

1.4.3 WATER ENVIRONMENT

A number streams are originating in the mining lease area and drain towards west and southeast into the Wahlareng which meets the Parang river, 5 km southwest. Most of the streams are dry and have only seasonal flow.

ACL proposes to construct gully plugs and check dams at appropriate places for removing the silt from the storm water draining from the mining lease area. The silt free storm water will be discharged into the nearby seasonal streams. Dumps will be provided with garland drains and silt traps to avoid erosion and siltation. A check dam will be constructed at the discharge end and the silt free water will be let into the nearby seasonal stream.

There is no perfect water table in this area, only erratic water channels are observed and are at very deep where pit floor will not reach. Hence mining will not intersect ground water table.

The total water requirement of the mine is estimated to be about 30 m³/day. From this consumption about 1 m³/day of waste water will be generated from the workshop. This wastewater contains about 20 ppm of oil and grease will be subjected to oil removal and the treated wastewater will be used for green belt development.

The sewage (1.6 m³/day) generated from the mines office will be treated in septic tank and soak pit.

1.4.4 LAND ENVIRONMENT

Rocky Overburden (Sandstone) is the only solid waste generated from the mining lease.

The total quantity of waste generation will be of the order of 24.0 million tonnes (9.6 million cum). This waste will be disposed to the earmarked dump of 19.0 ha proposed on the nonmineral area in the southern part - outside the mining lease area. The maximum height of the dump is 25 m with 5 terraces of 5 m height

1.4.5 AFFORESTATION

The total available area for afforestation by the time mining ceases shall be about 34.1 within the mining lease area i.e along 7.5 m wide statutory barrier zone (7.55 ha) & on the mine benches (26.55 ha). about 19.0 ha of dump area outside the mining lease will be stabilized and afforested.

Local species plantation will be taken up in consultation with the Forest department.

1.4.6 CONTROL OF GROUND VIBRATIONS

The following measures proposed to contain the PPV due to blasting within the permissible limits at the mining lease :

- ✎ Blast holes will be initiated by short delay detonators

- ✎ Blasting will be done using sequential blasting machine.
- ✎ Avoiding excessive confinement of charges
- ✎ Care will be taken to ensure that the effective burden is not excessive and the free face is kept effective long.
- ✎ Number of blast holes per delay to be kept minimum.
- ✎ Blasting of maximum number of holes towards the free face.
- ✎ Charge weights per delay will be properly adopted so as to protect different categories of structure surrounding the mining lease area.
- ✎ Based on geological strata of the mining lease, charge weight will be estimated for various distances keeping threshold PPV value of 10 mm/s.
- ✎ Each blast will be carefully planned, checked, executed and observed. Blasting data will be recorded. During blasting a responsible officer will be supervising the whole operation.

1.4.7 SOCIO ECONOMIC ENVIRONMENT

The mining lease area does not cover any habitation. The mining operations will not disturb/relocate any village or need resettlement.

People residing in the nearby villages will be benefitted by the direct and indirect employment opportunities created by the mining activity.

1.4.8 OCCUPATIONAL HEALTH AND SAFETY MEASURES

Excessive dust, noise and vibration are the chief health hazards for the miners. ACL proposes to strictly implement all the prescribed safety measures to maintain the causative factors well within the prescribed safety limits.

M/s ACL will establish its own well equipped occupational health center headed by an experienced Doctors with a team of Nurse, Compounder and Pathologist in the cement plant. The same will be utilized by mine also.

Periodical medical checkup will be carried out. Lectures on First Aid, Personal Hygiene, Environmental Hygiene and safety will be delivered regularly.

Awareness programs will be conducted regularly for all employees on Aids, Malaria, Filariasis etc.

1.5 ANALYSIS OF ALTERNATIVES (TECHNOLOGY & SITE)

ACL proposes to adopt conventional open – cast mechanized method of mining in its proposed Limestone Mine. This method involves drilling, blasting, loading and hauling with Heavy Earth Moving Equipment.

Surface Mining cannot be adopted due to hard nature of the limestone available in the mining lease area

No alternate sites are selected as the limestone deposit available is site specific.

1.6 ENVIRONMENTAL MONITORING PROGRAM

ACL will monitor the environmental parameters as per CPCB/ IBM/ MOEF guidelines.

ENVIRONMENTAL MANAGEMENT CELL

A separate environmental cell headed by mines manager will be constituted to identify clearly the functions and responsibilities of each member of the cell.

1.7 PROJECT BENEFITS

People residing in the nearby villages will be benefitted by the direct and indirect employment opportunities created by the mining activity.

ACL will take up the rural development programmes in the vicinity of the mining lease area. The focus area will be :

- Educational Facilities
- Other Community Services
- Women& Youth Development
- Mobile Medical Services
- Income Generating Schemes
- Cultural Activities
- Computer Education
- Agricultural Activities

ACL has budgeted Rs. 10 lakhs for implementing the above rural development programmes.

1.8 BUDGET FOR ENVIRONMENTAL MANAGEMENT PLAN

Out of Rs 8.75 crores of capital investment, an amount of Rs 85 lakhs will be spent towards implementation of Environmental Management Plan.