

**EXECUTIVE SUMMARY
(ENGLISH & ASSAMI)**

**NAME OF THE MINE – NEW UMRANGSHU LIMESTONE MINE
NEAR VILLAGE – NEW UMRANGSHU, TEHSIL- UMRAMGSHU
DISTT – DIMA HASAO (N.C. HILLS), ASSAM**

**LEASE AREA– 200.00 HECT,
PROJECT COST – 260 LAC
CATEGORY - “A”**

PURPOSE :

1. Amalgamation & Renewal of Mining Lease
2. Proposed Production -4,44,500 tonnes/annum (ROM)



LESSEE

M/s ASSAM MINERAL DEVELOPMENT CORPORATION LTD
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**ACCREDITED BY NABET UNDER “A” CATEGORY FOR OPEN CAST MINES
S.NO. 154 DATED 05.05.2014**

QCI – NABET Scheme for Accreditation of EIA Consultant Organizations

Annexure I-A

Name of the Consultant: Udaipur Min-Tech Pvt. Ltd.

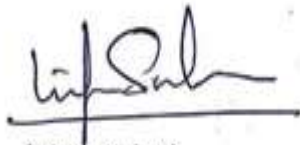
206, "Apeksha Complex",
Sector 11, Hiran Magri,
Udaipur- 313002

Sectors Approved – 01 Nos.

Sl. No.	Sector No.	Name of Sector	Category** A/B
1	1	Mining of minerals (Opencast only)	A

Total = 01 Sector*

**Sectors allocated to individual EIA Coordinators are mentioned in Annexure I-B*



(Vipin Sahni)
Director

CONTENTS

CHAPTER NO.	PARTICULAR	PAGE NO.
0	ACCREDITATION CERTIFICATE OF NABET	2
1.0	INTRODUCTION	5
1.2	BACKGROUND	6
1.3	LOCATION & COMMUNICATION	7
2.0	PROJECT DESCRIPTION	8
2.1	STUDY AREA AT A GLANCE	8
2.2	TOPOGRAPHY, DRAINAGE	9
2.3	GEOLOGY	9
2.3.1	REGIONAL GEOLOGY	9
2.3.2	LOCAL GEOLOGY	11
2.3.3	GEOLOGICAL RESERVES	12
2.4	MINEABLE RESERVES	13
2.5	MINING METHODS	13
3.0	DESCRIPTION OF ENVIRONMENT	15
3.1	TOPOGRAPHY & DRAINAGE	15
3.2	HUMAN SETTLEMENT	15
3.3	EXISTING ENVIRONMENTAL SCENARIO	15
4.0	ANTICIPATED ENVIRONMENTAL IMPACT AND MITIGATION MEASURES	18
5.0	ANALYSIS OF ALTERNATIVES	20
6.0	ENVIRONMENTAL MONITORING PROGRAM	20
7.0	ADDITIONAL STUDY	21
8.0	PROJECT BENEFITS	21
9.0	ENVIRONMENTAL MANAGEMENT PLAN	21

EXECUTIVE SUMMARY
ENGLISH & ASSAMI

EXECUTIVE SUMMARY

New Umrangshu Limestone Mine

Area – 200.0 hect.

Near Village New Umrangshu, Tehsil – Umrangshu,

District – Dima Hasao (N.C.Hills), Assam

1.1 INTRODUCTION

M/S UDAIPUR MIN – TECH PVT. LTD. has prepared the EIA along with EMP for New Umrangshu Limestone mine of area 200.00 Hect. near village – New Umrangshu, Tehsil – Umrangshi, District – Dima Haso (N.C.Hills), Assam.

The Company has wide experience of mining. It is proposed to work the deposit by mechanized open cast method of mining

Now, Company wants the proposed production 4, 44,500 TPA of Limestone. Therefore, Company made the application for Environment clearance for production 4,44,500 TPA to MOEF, New Delhi, vide letter no. AMDC/P/277/2012-13/937 dated 26.10.2012 and Ministry received the application on 09.11.2012. Meeting of TOR was conducted on 13-15/03.2013 at MoEF, New Delhi. MoEF had released the TOR, vide order no. J-11015/443/2012-IA.II (M), dated 06.12.2013

As per new EIA Notification Dated 14th Sept. 2006, Environmental Clearance is required at the time of fresh grant lease, renewal of mining lease & enhancement of production where the mine lease area is 5.00 hect & above.

1.2 BACKGROUND

The Assam Mineral Corporation Ltd. (AMDC) is public limited company wholly owned by Govt. of Assam. The company was incorporated on 19.05.1983 under Companies Act 1956; the company is having its registered office at Guwahati, Assam,

The AMDC was granted mining lease over an area of 33 hectares, near village New Umrangshu, Taluka Umrangshu, District – North Cachar, Assam for mineral limestone on 21.09.1985 vide letter no PEM/22/84/34 for a period of 20 years. The Mining Lease was executed on 30.09.1988 for 20 years.

The company was granted another lease over an area of 167 hectares in the adjacent area in New Umrangshu area vide letter no. PEM/22/84/228 dated 17.06.1992. The Mining Lease was executed on 24.08.1992 for 20 years.

AMDC, applied for renewal of mining lease, on 22.07.2008 in Form J for both the leases along with request for amalgamation of both the leases. Govt. of Assam approved the amalgamation of both the leases vide their letter no. PEM.22/84/Pt.I/11 dated 05.05.2010.

Contect Information:-

Shri J.P. Baruah,

Managing Director,

M/s. Assam Mineral Development Corporation Ltd.

Khanij Bhawan, Behind Sahjahan Market,

Near Ganesh Mandir, R.P. Road, Dispur,

Guwahati – 781001, Assam

Ph. 91 - 361 - 2384078 (off.)

E-mail:- amdcghy@rediffmail.com

The EIA study report has been based upon the following :-

- a) Field data collection on different aspects of environment including air, water, land, meteorology, noise, flora, fauna, agriculture and socio-economy in the study area of 10 km. Radius with New Umrangshu Limestone Mine as its center.
- b) Study of opencast mining methodology, water requirement, source of pollutants and pollution control strategy.
- c) Ecological Prospective and Green Belt Planning.

The EIA study evaluates the impact on the present environmental scenario and check out the environmental management plan incorporating further step to mitigate the adverse impacts of air, noise, water, land pollution on environment.

1.3 LOCATION & COMMUNICATION

M/s Assam Mineral Development Corporation Limited proposes to set up Limestone Mine near village New Umrangshu, District Dima Hasao (NC Hills), Assam. The lease area forms a part of Survey of India topo-sheet no. 83C/NE & 83C/14 lying the co-ordinates Latitudes 25°32'40.56" :: 25°31'17.27" N & Longitudes 92°47'54.36" :: 92°47'26.39" E. The deposit can be approached by an all weathered road from Guwahati via Nangaon, Doboka and Lanka, covering 254 km. except for last 40 km. which passes through hilly terrain, the road is on flat country. The deposit is 140 km. by road from Shillong via Jowai. Umrangshu is connected with Halflong, the district H.Q. of N. C. hills, by an all-weather road of 102 km. by the SH-20. The nearest railway station is Lanka 62 km. on meter gauge section of the N.F. railway. The nearest civilian airport Borjhar is at a distance of 264 km through NH-37 from Umrangshu village.

2.0 PROJECT DESCRIPTION

2.1 STUDY AREA AT A GLANCE

1. The study area includes the village of Umranshu Tehsil within 10 km. radius from the mine as center.

- i) Latitude (N) : 25°31' 17.27" to 25°32' 40.56" N
- Longitude (E) : 92°47'54.36" to 92°47' 26.39" E
- ii) Study area (10 Km. radius) :
- iii) Population : 12869
- iv) District H.Q. : Dima Haso (N.C.Hills)

2. Demography:-

- i) Total Population
 - a) Male : 6890
 - b) Female : 5979
- ii) Literates :- literacy rate of the population in study area is 74%
- iii) No. of Household : 2865
- iv) No. of Villages : 16

4. Climatology (December, 2013 to January, 2014) :-

- i) Mean monthly maximum temp. : 34.9 °C
- ii) Mean monthly minimum temp. : 8.7 °C
- iii) Relative humidity : 100 % (Avg.)

2.2 TOPOGRAPHY, DRAINAGE

2.2.1 Topography & Drainage

The topography of the lease area is mainly undulating land marked with shallow nallah and hilly type. The higher elevation point is 445 mRL and lower elevation point is 315 mRL.

2.2.2 Drainage

The Amrang Nallah cuts across the lease area and flows SW to NE. Very little water remains in the nallah during eight months period of the year, however the nallah remains very active during monsoon.

Drainage of water will not cause any problem in this lease area. Kopili River (8.0km in NW), Langlai River (8.0km in SE), Langyen River (3.5km in E), Mangla River (8.1 km in NE) and Umrang Dam (6.7km in SW) and some natural nallah exist in the study area.

2.3 GEOLOGY

2.3.1. Regional Geology

The limestone deposits near New Umrangshu are part of the Carbonate belt extending from the Kopili – Kharkar confluence in the south-west to Panimur in the North-east. Along its 40 km of extension, good outcrops appear at Tumbung and at 4 km, 11th km and 13th km on the Garampani – Lanka road and also near New Umrangshu village. The width of limestone belt varies from 1 km to 2.4 km.

The limestone belongs to the Sylhet limestone Formation of the Jaintia Group of Eocene age. It is overlain by thick Shale-sandstone alternation and is underlain by Sandstone bed, which occurs at the top of Pre-Cambrian rocks. The general stratigraphic sequence of the area is given below:

REGIONAL STRATIGRAPHIC SEQUENCE

Group	Formation		Lithological units
Jaintia (Eocene)	Kopili Shale & Sandstone		Alternation of splintery shale and fine to medium grained brownish sandstones, with occasional bands of calcareous shale.
	Sylhet Limestone Formation		Thick limestone, fossiliferous, hard, well bedded with occasional partings and bands of shale.
	Basal sandstone		White, massive, hard sandstone with impersistent coal seam
	-----Un-Conformity----- -----		
Jurassic	Volcanic Rock		Highly weathered trap
	-----Un-Conformity----- -----		
Pre-Cambrian	Basement crystalline		Granite and various gneissic rocks

The traps and Pre-Cambrians has very few exposures. Highly weathered traps exposed along the Lumding nallah and the pre-Cambrians are exposed along the Khandong ridge and at the dam sites of the Kopili Hydel Project, west of the limestone deposit.

Basal sandstones are well exposed near Kopili Kharkar confluence and on the beds of nallah cutting across the limestone country. Sylhet limestone occupies a large tract along the Kopili valley and is exposed intermittently all along its 40 km of strike length from Elli falls to Panimur.

Kopili shale and sandstones normally cap the limestone. The main exposure seen in the Umrangshu valley, which is a faulted block entirely, formed of

Kopili shale and sandstone. Other good outcrops are seen at many places along Umrangshu – Lanka road.

Structure:

A thick pile of Eocene sediments consisting of shale, sandstone and limestone occur in sub-horizontal disposition. These beds rest uncomfortably over the Pre-Cambrian basement crystalline.

The general strike of the sedimentary beds is NE-SW with a dip of 2° to 6° towards SE. The limestone ridge is bounded by a major fault along its southern base. However, no major faults have been detected affecting the limestone deposit. A few minor dislocations of localized nature have been identified within the deposit. Sink holes and solution cavities are present but they are normally restricted towards the base of the limestone bed. Limestone are well jointed.

2.3.2 Local Geology

The limestone deposit lies along the eastern side of the Umrangshu – Lanka road at a distance of about 5 km. from Umrangshu Township. It is exposed over an area of 11 sq.km. The present prospect forms the western flank of the AMDC block of the deposit. The limestone is exposed along the bed of the deep ravine curved out by the Amrang nallah. The Amrang Nula flowing on NNE-SSE course within the prospect has moderate to steep gradient.

The block consists of two distinct limestone beds intervened by a thin but consistent shale band of approximately 6 – 8 m thick. The top and bottom bands are about 30 – 80 m thickness. The Kopili shale and sandstone immediately overlies limestone sequence occupying the high ground along the ridges. A thin mantle of top soil normally covered the Kopili formation. The bottom band limestone is underlined by Quartzite sandstone.

LOCAL STRATIGRAPHIC SEQUENCE

Group	Formation	Lithological units	Thickness
Jaintia (Eocene)	Kopili Shale & Sandstone	Shale & sandstone	0-8 m
	Sylhet Limestone Formation	Top Band limestone	28 – 29 m
		Bottom Band limestone	50-52 m
	Basal sandstone	Sandstone with carbonaceous shale	Not Known

2.3.3 GEOLOGICAL RESERVES: -

Total Geological, Mineable / Recoverable Reserves & Resources as per UNFC classification.

	Category	UNFC Code	Quantity
Total Resources	(A+B)		277.44
Reserves (A)	Proved	(111)	121.64
	Probable	(121)	
		(122)	
Remaining Resources (B)	Feasibility Mineral resources	(211)	13.13
	Pre-Feasibility Mineral resources	(221)	
		(222)	
	Remaining Measured Mineral Resources	(331)	
	Remaining Indicated Mineral Resources	(332)	
	Inferred Mineral Resources	(333)	142.67
	Reconnaissance Mineral Resources	(334)	

2.4 MINEABLE RESERVE:-

The mine planning has been devised for a peak annual ROM production of 444,500 tonnes of ROM limestone

a.	Total Mineable Reserves of Limestone	121.64 MT
b.	Total production (ROM) during next five years	2.02 MT
c.	Mineable Reserves of Limestone at the end of fifth year period	119.62 MT
d.	Proposed rate of production (ROM) from Sixth year onwards	0.45 MT
e.	Life of the mine after fifth year period	265 years
f.	Total Expected Life of the Mine in years	= (5 + 265) years = 269

2.5 MINING METHODS:-

The area is located in hilly terrain and involves development of access road and removal of overburden. Mine is in operation and ancillary facilities are already established.

It is proposed to work the deposit by mechanized open cast method of mining with the use of Excavator for loading of blasted rock. Following broad design parameters have been considered.

- Bench height of 6.0 m will be developed.
- Minimum bench width will be 12 m.
- Individual bench slope will be 80° from vertical.
- 100-115 mm dia. blast holes using wagon drill.
- Excavator of bucket capacity 0.93 Cum. will be used.
- For ore and waste 6 tippers are proposed to be used.
- Haul roads will be developed at minimum gradient of 1:16.
- ANFO with cap sensitive explosive will be used.
- Secondary blasting will be carried out as and when required.
- Water sprinkler will be used for dust suppression in the mine.
- Provisions of MMR 1961 will be strictly be adhered.

i) POLLUTION CONTROL STRATEGY IN THE MINING AREA

a) Air Pollution : The major contribution of air pollution is by opencast mining such as excavation, transportation etc. which will led to momentary rise in particulate matter(PM₁₀). Adequate measures will be adopted to suppress the air pollution viz. regular spraying of water in lease area, haulage road particularly near opencast working and green belt will be developed in ML area. The workers will be provided dust masks & trained to use these.

b) Noise Pollution: The mining activities viz. excavation and transportation, drilling, blasting will create noise pollution but these sources of noise are not continuous. The noise pollution would be minimize by proper maintenance of machine and development of green belt.

c) Water Pollution : Mining activities will not influence the existing water quality. There is no wastewater generated from the mines. In the rainy season the water be collected in the pit, which will be pumped out and used in plantation & dust suppression. As Limestone is nontoxic mineral and there is no contamination of any toxic substance used in the mining process. Hence, it does not require any further treatment.

d) Solid Waste Pollution : The waste generated from the mining will be collected and dumped in demarked area. The retaining wall will be made to arrest the flow of waste. These dumps when matured will be stablised with plantation.

3.0 DESCRIPTION OF ENVIRONMENT

3.1 Topography & Drainage

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3.1.2 Drainage

The Amrang Nallah cuts across the lease area and flows SW to NE. Very little water remains in the nallah during eight months period of the year, however the nallah remains very active during monsoon.

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3.2 HUMAN SETTLEMENT:

There is no human settlement within the lease area. Total 16 villages with 2865 household are there within the study area with population of 12869.

3.3 EXISTING ENVIRONMENTAL SCENARIO –

A) Water Environment:-

i) Ground Water Resources and Quality:

In the lease area no ground water resources either. The water table in the lease area is about 20-25 m bgl from ground level. The ultimate depth of mining will be 304 mRL. Hence, water table will not be intersected in the mine working.

ii) Surface Water Resources and Quality: Drainage pattern of the area is dendritic. The Amrang Nalla cuts across the lease area and flows SW to NE.

Very little water remains in the nallah during eight months period of the year, however the nallah remains very active during monsoon. Due to mining drainage pattern will not be affected. Therefore, question of adverse impact on surface water bodies does not arise. There are some rivers in buffer zone (10 km radius) i.e. Kopili, Langlai, Langyen, Mangla River and Umrang Dam, which are far away from the mining lease area and lies in buffer zone.

B) Ambient Air Quality:-

The major contribution to the air pollution is dust and other pollutants present in the air are SO_x and NO_x. To assess the pre mining condition ambient air monitoring was carried out.

The regional PM₁₀ level at the proposed mining site ranges from 52.22 to 63.81 ug/m³, SO_x ranges from 3.78 to 6.85 ug/m³ and NO_x ranges from 7.32 to 9.85 ug/m³. The PM₁₀, SO_x and NO_x are within the permissible limit in the study area.

C) Micro-Meteorology:-

Meteorological information were collected twice in a day at 8.30 am and 17.30 pm during the period of Dec. 2013 to Feb. 2014. Based on these information following inferences can be made.

a) Temperature: The max. and min. temperature measured in the study area during the study period are:

Month	Temp.(°C)	
	Max	Min
Dec., 13	28.0	8.7
Jan., 14	28.8	8.8
Feb., 14	34.9	9.6

b) **Relative Humidity:** The minimum and maximum relative humidity Observed during the study period are:

Month	Humidity (%)	
	8.30 hrs	17.30 hrs.
Dec., 13	100	64
Jan., 14	100	50
Feb., 14	100	42

c) **Wind Speed:** The Minimum and Maximum wind speed were observed during the study period are:

Month	wind speed(Km./Hr.)			
	8.30		17.30	
	Max	Min	Max	Min
Dec., 13	08	02	06	02
Jan., 14	10	02	06	02
Feb., 14	06	02	04	02

D) NOISE LEVEL:-

Noise level in the study area were found within the limit.

E) LAND USE OF THE LEASE AREA:-

The total lease area is 200.00 hect.

Govt. Wasteland – 200.00 hect.

Forest land - Nil

F) SOCIO – ECONOMIC ENVIRONMENT:-

The study area includes 16 villages within the 10 km. radius with a total population 12869 forming 2865 household as per census 2011.

In the study area about 74 % of the total population is literates. Male literates are 6890 and female literates are 5979.

As per census 2011, about 32% of the total are main workers, 8% are marginal workers & 3% of the total population are non – workers.

F) UTILITIES :

a) Water Requirement : Around 2.0 KLD water will be used for drinking purpose, 4.5 KLD water will be used for green belt development. About 5.5 KLD will be used for dust suppression, Thus total is 12.0 KLD.

b) Man Power : At the time of mining operation, the total employment will be around 36 persons.

4.1 ANTICIPATED ENVIRONMENTAL IMPACT AND MITIGATION MEASURES

4.1.1 Topography

Topography of the surrounding area will remain unchanged. While that of the mining lease area will change due to mining, excavation, dumping etc.

4.1.2 Drainage

No impact on drainage pattern within or outside the lease area due to mining project.

4.2 IMPACT ON CLIMATE

Temperature, rainfall, wind speed & humidity pattern is a regional behavior and is not likely to be affected by the mining activity over a small area.

4.3 IMPACT ON AIR ENVIRONMENT

The ambient air quality monitoring results show that all the parameters such as PM₁₀, SO₂, NO_x are within the limits.

4.4 IMPACT ON NOISE LEVEL

The noise levels in the working environment are compared with standards prescribed by occupational safety and health administration (OSHA-USA) & CPCB-NEW DELHI, the acceptable limits are observed.

4.5 IMPACT ON WATER QUALITY –

A) Surface Water-

The opencast mining operation usually causes water pollution and suitable measures are taken to control water pollution. The sources of pollution generally are :

- Wash off from dumps
- Pumping of mine water into surface water bodies
- Soil Erosion

B) GROUND WATER QUALITY

Ground Water Pollution is not the case with this mine, as mineral or soil does not contain any harmful ingredients that could leach down to the water table. Thus the mine workings shall not affect the ground water quality. Ground water table will not be intersected.

4.6 IMPACT ON FLORA AND FAUNA –

As the mining activities will be confined to core zone only, no adverse impact is foreseen on the flora of the forest area & no impact on the fauna in the core zone, as the area is poor from faunal point of view.

4.7 IMPACT ON TOP SOIL-

There are patches of thin layer of soil over mineralized area whose quantity assessment is very difficult, however during mining soil will be removed in advance. Efforts shall be made to recover the sub-soil from the cracks and fissures, it shall be scrapped in separate slice and shall be kept preserved as stacks under tarpaulin cover and utilizes for plantation work. Collected Soil will not be allowed to stack for more than three year. Therefore impact on soil in the lease area will be negligible.

4.8 SOCIO - ECONOMIC CONDITIONS

There is no inhabitation within the lease area. The only employment is based on agriculture, mining jobs. The mining operations are providing employment to 36 local persons.

5. ANALYSIS OF ALTERNATIVES-

The deposit-is located on surface & can be mined by open cast method of mining economically. At present status of mining, underground method of mining is not feasible.

6. ENVIRONMENTAL MONITORING PROGRAMME

The monitoring of pollutant in mine will be carried out for air, water, soil and noise. It takes care of all monitoring needs of the mine. Additionally ambient air and work zone monitoring in mine will be conducted every season near mining operation, loading and transportation(haul road) areas by private agency. The analysis results of air monitoring will be properly recorded and submitted to the statutory authorities from time to time. Noise measurement of mine equipment will be done once in a year. Water quality once in season & soil quality once in two year on all planted areas.

7. ADDITIONAL STUDY-DISASTER MANAGEMENT PLAN

The following natural /industrial problems may be encountered during the mining operational are

- Inundation-filling of the mine pit due to excessive rains.
- Slope failures at the mine faces or stacks.
- Accident due to storage of explosives and blasting
- Accident due to fire.

Water table will not be touched during proposed working. No high risk accidents like landslides, subsidence flood etc. have been apprehended. But possibility of accidental disaster is also not ruled out. Therefore, all the statutory precautions should be taken for quick evacuation as per MMR-1961 & MCDR-1988.

8. PROJECT BENEFIT

The surrounding inhabitants are mainly agricultural oriented. Opportunities for jobs in activities such as mining serve as a source of permanent livelihood. The mine will create employment directly or indirectly. Additional, certain works like transportation will be outsourced on contract.

9.0 ENVIRONMENTAL MANAGEMENT PLAN

9.1 LAND RECLAMATION

Waste will be dumped at earmarked site and finally plantation at site. If soil encountered during mining will be stacked at seprate site and utilized in plantation.

RECLAIMED LAND IN DIFFERENT STAGES (IN HECT.)

Land: Stage Wise use reclamation Area (Ha.)						
S. No.	Year	Disturbed	Afforestation	Reclaimed/Rehabilitated		
				Afforestation on mined out benches	Afforestation on waste dump	Water reservoir
1.	Present	11.718	5.18	--	--	--
2.	5 th Year	35.250	15.18	--	--	--
3.	End of Life	94.72	27.80**	4.5	10.00*	56.82***

*About 10 hect area will be planted on waste dump area.

**About 27.80 hect area will be planted (about 4.918 hect area along lease boundary, 4.5 hect on mined out benches, 12.882 hect along nallah, 1.5 hect near the magazine site, 2.77 hect along road side, 1.23 hect near the office).

*** About 56.820 hect area will be used as a water reservoir.

Total 37.80 hect area will be planted at the end of lease period.

9.2 PLANTATION

Afforestation during first five year period will be done in the area, as shown on the Layout plan . It is proposed that Company will plant 4.918 Hect. area all along the lease boundary, at the end of plan period total 15.18 hect will be developed as green belt. One workman will be deputed for maintains of the plantation throughout the year.

Year	Peripheral		Dump		Barren area		Mined out benches		Along nallah		Total	
	Area (Hect.)	Trees	Area (Hect.)	Trees	Area (Hect.)	Trees	Area (Hect.)	Trees	Area (Hect.)	Trees	Area (Hect.)	Trees
Existing	--	--	--	--	5.18	5180	--	--	--	--	5.18	5180
I	1.0	1000	--	--	--	--	--	--	1.0	1000	2.0	2000
II	1.0	1000	--	--	--	--	--	--	1.0	1000	2.0	2000
III	1.0	1000	--	--	--	--	--	--	1.0	1000	2.0	2000

IV	1.0	1000	--	--	--	--	--	--	1.0	1000	2.0	2000
V	0.918	918	--	--	--	--	--	--	1.082	1082	2.0	2000
Operational Phase	4.918	4918	--	--	5.18	5180	--	--	5.082	5082	15.18	15180
End of Lease Period	--	--	10	10000	0.32	320	4.5	4500	7.80	7800	22.62	22620
Total	4.918	4918	10	10000	5.50	5500	4.50	4500	12.882	12882	37.80	37800

9.3 AIR POLLUTION CONTROL MEASURES

In addition to the control measures taken during mining and transport operations, following steps are being adopted to prevent air pollution due to airborne dust.

- Trees would be planted along the lease boundary.
- Reclamation and afforestation of mined out area as per schedule with minimum gap between excavation and reclamation to fix the dust and prevent its getting airborne.
- Dust mask will be provided to the workers engaged at dust generation points like excavations, loading, drilling and unloading points.
- Sprinkler arrangement will be used regularly to sprinkle water on the haul road as well as loading points.
- Dense green belts will be developed around the dust generation points. Trees would be planted on both sides of roads used for transportation to arrest dust.
- Afforestation around the mine to filter out the dust and preventing it from reaching the residential areas.
- Dust extractors will be provided in drilling machines to suppress airborne dust. Wherever possible wet drilling will be done.
- Air monitoring will be done once in six months.
- Workers engaged at dusty zones will be provided masks.

9.4 NOISE POLLUTION CONTROL MEASURES

The noise level monitoring carried out in the area has indicated that the present noise levels near the lease boundary are generally within limits. The deployment of various machines for drilling, transport and other auxiliary operations have increased the noise levels but are naturally attenuated within lease area itself. Additional measures i.e. use of silencers, preventing maintained are being taken to further reduce the noise levels.

9.5 WATER POLLUTION CONTROL MEASURES

A) Surface Water

Adequate control measures will be taken to check, not only the wash off from the freshly excavated areas and soil erosion, but also uncontrolled flow of mine water (during monsoon) into mine pits.

A garland drain shall be made to carry away rainwater of the catchments area surrounding the working to the natural nallahs. The drain shall be lined with stone masonry and shall be of adequate size to carry the storm water without overflow.

B) Ground Water

There would not be any adverse impact on the ground water quality due to mining. The mineral formation do not contain any harmful element, which could percolate into the ground and pollute the ground water. Hence, no control measures are required.

C) Water Conservation Measures

The ground water table in this region fluctuates between 20 and 25 mts. from the surface. At the end of lease period, about 56.820 hect area will be used as

a water reservoir. It will arrest environmental pollution, erosion and upgrade the scenic beauty of the area. Proper fencing and slope will be maintained.

9.6 MEASURES TO IMPROVE SOCIO-ECONOMIC CONDITIONS

The overall impact of New Umrangshu Limestone mine on the socio-economics of the area will be very positive one, in that not only it will be generated considerable employment for local population but it will also given a boost to the general economy of the area.

9.7 ENVIRONMENTAL MANAGEMENT CELL

The Environmental Management Cell will also co-ordinate all the related activities such as collection of statistics of health of workers and population of the region, afforestation and green belt development.

9.8 FISCAL ESTIMATE

Annual recurring cost for implementing environmental protection measures & social cost for the mine comes to about Rs. 7.25 lakhs.

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