MINING PLAN

OF

Applied area for Iron Ore by M/s Kumar Enterprises -Bangalore in Ramghad Village, Sandur Taluk, Bellary District, and Karnataka state over an extent of 66.774 Ha (165.00 Acres)... Private/fresh/Forest lands/A cat.

OF

M/s Kumar Enterprises,

No 25, 9th Cross,
Kumar Park West,
Bangalore-560020

(RULE 22 A OF M. C. R. RULES 1960)

JANUARY –2007

Prepared by

M. HABEEBULLAH, M. Sc. FGS (Ind)
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CERTIFICATE

This is to certify that the Progressive Mine Closure Plan of Mining plan of applied mining lease of Iron Ore of M/s Kumar Enterprises -Bangalore in Ramghad Village, Sandur Taluk, Bellary District, and Karnataka state over an extent of 66.774 Ha (165.00 Acres). Complies all the statutory rules, regulations, orders made by the central or state Government, statutory organizations, court etc., have been taken into consideration and where ever any specific permission is required, I will approach the concerned authorities.

I also give an undertaking to the effect that all the measures proposed in the progressive Mine Closure Plan will be implemented in a time bound manner as proposed.

Place: Bangalore
Date: 09/01/2007

SIGNATURE OF THE APPLICANT

Sri Shivkumar
MD
M/s Kumar Enterprises

CERTIFICATE

This is to certify that the mining plan of applied mining lease of Iron Ore of M/s Kumar Enterprises -Bangalore in Ramghad Village, Sandur Taluk, Bellary District, and Karnataka state over an extent of 66.774 Ha (165.00 Acres)

Prepared in full consultation with us we have understood its content. I agree to implement the same in accordance with the law.

Place: Bangalore
Date: 09/01/2007

SIGNATURE OF THE APPLICANT

Sri Shivkumar
MD
M/s Kumar Enterprises

CERTIFICATE

This is to certify that the "provisions of Mineral Conservation and Development Rules 1988", have been observed in the mining plan of applied mining lease of Iron Ore of M/s Kumar Enterprises -Bangalore in Ramghad Village, Sandur Taluk, Bellary District, and Karnataka state over an extent of 66.774 Ha (165.00 Acres) and wherever specific permissions are required the applicant will approach the concerned authorities of Indian Bureau of Mines for granting the permission.

Place: Bellary

Date: 09/01/2007

(M. HABEEBULLAH)
M. Sc. FGS (Ind)
RQP/BNG/127/98/A

CERTIFICATE

This is to certify that the provisions of Mines Act, Rules and Regulations made there under have been observed in the mining plan of applied mining lease of Iron Ore of M/s Kumar Enterprises -Bangalore in Ramghad Village, Sandur Taluk, Bellary District, and Karnataka state over an extent of 66.774 Ha (165.00 Acres) and wherever specific permissions are required, the applicant will approach the Director General of Mines Safety, Dhanbad, Bihar.

It is also certified that the information furnished in the above Mining Plan is true and correct to the best of my knowledge.

Signature of RQP

Date: Bellary
Place: 09/01/2007

(M. HABEEBULLAH)
M. Sc. FGS (Ind)
RQP/BNG/127/98/A

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Mining Plan for Ramghad Iron Ore Mine of M/s Kumar enterprises in Ramghad village Sandur Taluk, Bellary District.

PART A

1.0 GENERAL:

M/s Kumar Enterprises, Applied for mining lease for Iron Ore in Ramghad Village, Sandur taluk, Bellary District, Karnataka State, over an extent of 66.774 Ha (165.00 Acres) to the Department of Mines & Geology, Bangalore.

The Applicant is submitting the mining plan as directed by Director, department of mines and Geology, Bangalore vide letter No. DMG/MLS/ AML: 05-06/3325 Dated: 03/03/2005 is enclosed as Annexure-I. Hence, this mining plan is prepared and submitted under provisions of Rule-22 (4) of MCR 1960.
Translated copy of Kannada letter issued by State Govt. in English is enclosed as Annexure II

1.1 Name and Address of the Applicant:

Name	:	**Mr. R. Shivkumar, MD**
Address	:	M/s Kumar Enterprises, No 25, 9th Cross, Kumar Park West, Bangalore-560020.

1.2 Statue of the Applicant

The applicant Mr R. Shivkumar is Managing Director of M/s Kumar Enterprises and it is a proprietary concern and involving Mining & Trading.

1.3 Minerals which are occurring in the area & which the Applicant intends to mine.

The Applicant intends to Mine Iron Ore and BHQ's.

1.4 Period for which the mining lease is granted/renewed/proposed to be renewed:

The applicant is applied for the mining lease for a period of 20 years for mining iron ore from subject area.

This Mining Plan is approved subject to the conditions / stipulations indicated in the Mining Plan approval letter No. MP/BLR/RE-188-52
Date...16/1/2007

ಪ್ರಾದೇಶಿಕ ಗಣಿ ನಿಯಂತ್ರಕರು
ಉಸ್ತುವಾರಿ ಅಧಿಕಾರಿ(ದ. ವ.)
ಕ್ಷೇತ್ರೀಯ ಗಣಿ ನಿಯಂತ್ರಕ
प्रभारी अधिकारी(द.ओ.)
Regional Controller of Mines
Incharge - South Zone Office

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1.5 Name, Address & Registration number of the recognized person who prepared the mining plan:

M. Habeebullah,
M. Sc FGS (Ind)
NGRI-Trained,
Chief Geologist.
M/s. Earth Envirotech
82 (8) (B), K. C. Road,
Bellary District, Karnataka,
Phone No: 08392-271937, mobile: 9448173166
Registration No: RQP/BNG/127/98/A
Valid up to: 13/12/2010

1.6 Name and Address of the prospecting Agency:

No separate agency has conducted the prospecting operations in the applied area. However the applicant has made 5 trial pits in the applied area for a depth of 3 m. The applicant has collected one float sample and results are given in Annexure No. III and exploration carried out by neighboring lease holder (M/s ZTC) for a proved depth up to 40 to 45 m and found the quality of the Iron Ore is good.

2.0 LOCATION AND ACCESSIBILITY

2.1 Details of the area:

State	:	Karnataka
District	:	Bellary
Taluk	:	Sandur
Village	:	Ramghad
Lease Area	:	66.774 Ha (165.00 acres)
Ownership	:	Forest Lands
Topo sheet No	:	57 A/8
Latitude	:	15^0 00′ 46″ to 15^0 00′ 58″
Longitude	:	76^0 36′ 46″ to 76^0 38′ 59″

(Ref. key plan enclosed vide plate No.1)

2.3 Whether the area is recorded to be in forest (Please Specify whether protected, reserved etc.):

The applied mining leases area of M/s Kumar Enterprises is falling in Sandur Forest area of Ramghad village of Sandur taluk, Bellary Dist as shown in lease sketch issued by DMG, Bangalore is enclosed vide plate No.2

2.4 Ownership / occupancy: Forest land

2.4 Infrastructure:

The applied area is situated about 3.00 Km from Ramghad towards south east direction and is about 8 Km from Siddapur Village towards East direction. There is a good approach road to applied area. The nearest Railway Station on broad gauge line at Ramghad at a distance of 4.0 Km towards South direction from the mine. Sandur town *is a taluk head quarters is about 20.0 Km away from the lease area for all the facilities.*

The nearest post and telegraphic offices is available at Ramghad 3.00 Km from applied lease area. There are regular bus services from sandur to Ramghad village, which is about 3.00 Km from AML area. The drinking water will be supplied to labors from Bore well water from nearest village.

3.0 GEOLOGY AND EXPLORATION:

3.1 Regional Geology

The applied mining lease area forms part of a fairly high range of hills, trending NNW-SSE occur in Ramghad block, the rock formations belonging to sandur schist belt of Dharwar System. The rock types are laterite, schist's and phylites. The laterite is mainly ferruginous, with Iron Ore bands minor occurrences of manganiferous portions, are found in the laterite zone, adjacent to the Iron rich parts, but these deposits are in the form of small pockets only.

The formations are trending NW-SE direction dipping towards NE as well as SW directions. The amount of dip varies from 70^0 to 80^0 at places vertical dips also been observed. Amount and direction of dip varies as the area was folded as synclinorium.

It may be inferred from the above that leaching of silica follows laterisation of the ferruginous quartzite, alumina and alkalis has given rise to the Iron Ore deposits of the area.

3.2 Local Geology.

i) The rock formations encountered in the lease area are as follows.

i) Laterite/soil/cover.
ii) Iron Ore Zone
iii) Shale/Phylite.

In the lease area, the rocks formations show NNW-SSE strike and have been steeply dipping with 68^0 dip towards east.

The Iron Ore body is trending N10W-S10E from intersection point of grid lines E350-N177 to E600-N150 with 68 dip towards east. Iron ore band is about 56 m with thick inter bedded phyllite.

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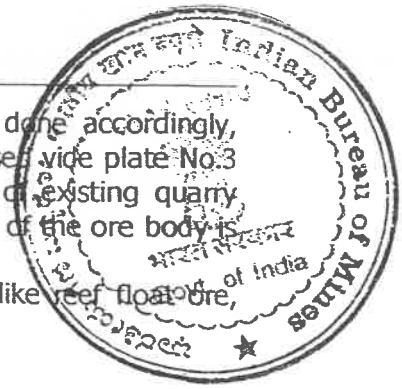

The applied area has been surveyed and Geological mapping is done accordingly, surface & Geological plan and cross-sections are prepared and enclosed vide plate No.3 and 4 respectively. The evidence along with the related exposure of existing quarry faces in the adjoining ML area leads to the conclusion that the depth of the ore body is not less than 45 m.

ii) Lithological units are shown in the geological plan in the index like reef float ore, phyllite etc

3.3 Exploration already carried out:

The applicant has done 5 trial pits (3 m x 3 m size) Dug in the AML area of 3 m and found quality of Iron Ore is good and details i.e., analysis report of the quality of Iron Ore is enclosed vide annexure-III and the location of trial pits are shown in plate No.3 & 4, and the results of Trial pits are shown below.

Sl. No	Trial Pit	Logging Details
1.	No. 1	0.0- 3.0 Mts Iron Ore Reef
2.	No. 2	0.0- 0.2 Mts Laterite with Iron Ore Pebbles
		0.2- 3.0 Mts Iron Ore Reef
3.	No. 3	0.0- 3.0 Mts Iron Ore Reef
4.	No. 4	0.0- 0.5 Mts Laterite with Iron Ore Pebbles.
		0.5 – 3.0 Mts Iron Ore Reef.
5.	No. 5	0.0- 1.0 Mt. Laterite with Iron Ore Pebbles
		1.0 – 3.0 Mts Iron Ore Reef.

3.4 Exploration proposed to be carried out.

Proposed 3 DTH holes shall be drilled for a depth of 100 m each or till existence of Iron Ore deposit during the first three years of planning period. Further when the bench levels go down further holes will be drilled. These DTH holes show the quality and variation of ore zone contact. The proposed DTH holes exploration shall be completed with in three years of the plan period and accordingly upgrade the Iron Ore reserves. The positions of the proposed DTH holes are shown in surface & Geological plan and cross sections enclosed vide plate No.3 & 4.

Exploration to be carried out in the plan period. Proposed DTH holes are numbered.

Year	No. of DTH holes	Depth in mts
I	1	100
II	1	100
III	1	100

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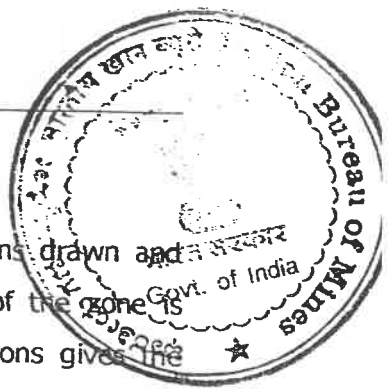

3.5 Method of Estimation of the reserves:

The estimation of reserves is made on the basis of using cross sections drawn and sectional influence has been taken 160 m. The cross sectional area of the ore zone is calculated and multiplied with the length of the influence of the sections gives the volume of the Iron Ore. The volume multiplied with the bulk density gives the tonnage of geological reserves.

For the purpose of calculations, the bulk density of ore and waste has been taken as 3.0 tons/cum and 1.6 tons/cum respectively. Within the ore zone the recovery of ore is 90% and remaining 10% considered as intercalated waste consisting of shale/phyllite.

Considering field conditions, and exploration carried out by neighboring lease holder M/s ZTC., the Proved Reserves has been taken 40 m depth & probable reserves has been taken 10 m depth for estimation of Iron Ore reserves. The category wise, proved and probable reserves are as follows.

Category	Reserves in metric tons	UNFC code
Proved		
Reef	55,80,000	111
Float Iron Ore	10,08,000	111
Probable-reef	10,08,000	333
Total	78,96,000	

90% of mineable reserves are mined: i.e. 90% of 55,80,000 metric tons is 50,22,000 metric tons for five year planning period, i.e. on an average of 10,04,400 metric tons/annum, i.e., only reef portion, Float Iron Ore 10,08,000 metric tons 50% will be 5,04,000 metric tons per year 1,00,800 metric tons shall be mined during the plan period.

Float Iron ore is occurring between N-50 to N220 & E 50 to E 300.

The detailed calculation of category wise Geological Reserves are enclosed as Annexure No. IV

3.6 Mineable Reserves.

Considering the 7.5 m width buffer zone and pit slope of 45 the mineable reserves are 90% of 55,80,000 tons is 50,22,000 metric tons and total waste, including (Intercalated

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waste + side burden waste = 22,30,200 tons). Ore to waste ration is 1:0.44 mineable reserves and waste calculation is enclosed Annexure No. V.

It is proposed to produce reef ore 10,04,400+float ore 1,00,800=11,05,200 tons of Iron Ore per annum. Hence, the life of the mine is 78,96,000tons/11,05,200 tons=7.14 years say 8 years. During the present plan period 3 DTH holes shall be drilled to know the depth of the deposit. After completion of the exploration and accordingly the reserves are re-estimated. Hence, the life of the mine will be recalculated.

4.0 MINING:

The method of mining will be open cast with Mechanized. A bench height of 10 m is proposed. Drilling and blasting will be required for the Iron Ore Zone. The proposed bench height will be maintained at 10 m and width of the benches will be 10 m.

During first year it is proposed to start the work at RL 730 m and 720 m at AA' Section to a depth of 6 m face height and 85 m width, 75 m Advancing towards SSW.

During second year is proposed to work at RL at 720 & 710 m at BB' Section over a face width of 80 m and 70 m respectively and advancing 85 m & 45 m respectively.

During third year is proposed to work at RL at 710 & 700 m at CC' Section over a face width of 80 m and 70 m respectively and advancing 85 m & 45 m respectively.

During fourth year is proposed to work at RL at 710 & 700 m at DD' Section over a face width of 80 m and 70 m respectively and advancing 85 m & 45 m respectively.

During fifth year is proposed to work at RL at 700 & 690 m at EE' Section over a face width of 80 m and 70 m respectively and advancing 85 m & 45 m respectively.

During the plan period, maximum production of reef ore 10,04,400+float ore1,00,800=11,05,200 tons tons per annum of Iron Ore is envisaged and a maximum waste handling of 4,46,040 tons per annum shall be tackled. Pit layout plan and sectional views showing production and development scheme for I, II, III, IV & V years is enclosed as plate No. 5A to 5E.

During plan period a total of reef ore 50,22,000 tons+5,04,000 tons of float ore=55,26,000 metric tons of Iron Ore shall be mined; intercalated and side burden waste 22,30,200 tons respectively shall be handled during plan period. A scheme of year wise development & production calculation are enclosed as Annexure No. VII.

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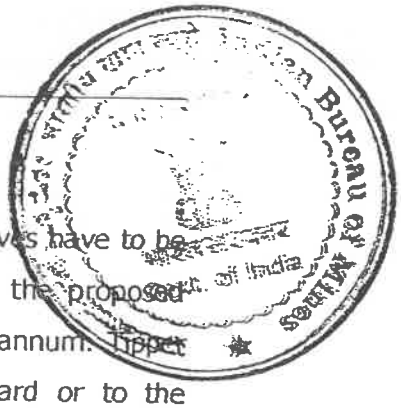

4.1 Extent of Mechanization:

The Iron Ore formations occurred is hard to break from the reef; explosives have to be used for blasting the mineral. This requires drilling of blast holes. As the proposed production are about 5, 94,424 tons excluding mineral rejects etc., per annum. Tipper trucks will be needed for haulage of Iron Ore lumps to the stockyard or to the destination. The trucks required for transportation of mineral from pits to the stockyard and to the destinations can be hired.

The compressor, jackhammers etc., will be used for initial breaking of ground with explosives. Reduction of size of the mineral as per specification, loading into trucks etc., shall be done mechanically. The waste, overburden and mineral rejects shall be loaded into the truck and the same shall be dumped at the place earmarked for the purpose.

Drilling:

Drill holes for blasting shall be drilled with Wagon hole drill machine of 100 mm dia. these shall be drilled at 2.0-to 3.0 m interval. Since the bench height proposed is 10 mts., drilling of wagon holes is to be carried-out in three stages of 3 mts. deep. Drilling and blasting will be done in three stages to cover 10 mts. deep face. First 3 mts. holes have to be drilled with 10 to 15 inclinations in a row. After blasting, the loose material will be cleared from the top 3 mts. again, another 3 m & 3 m holes with 10% extra drilling to avoid toe has to be done and blasted to work on a bench of 6 m height.

These shall be inclined at 10 to 15 angle to achieve the 60-bench slope.

Drilling of about 10% excess of bench height is proposed to avoid problems of toe and back break.

Loading: Excavators

Considering the loading capacity of 200 t/hr

(i) Total maximum handling of waste and ore in a year : 14,50,440 tons
(ii) Per day maximum ore and waste handling will be = 14,50,440/300=4,835
(iii) Per hour handling with 7 hours effective hour = 4,835/7 = 691 t.
(iv) No. of excavators required = 4 nos.

Tippers: Capacity 10 tons

(i) Total maximum handling of waste and ore in a year = 14,50,440 tons
(ii) Per day maximum ore & waste handling: 14,50,440/300=4,835 t
(iii) No. Of trips required for handling by 10 tons tippers = 4,835/10 = 483.5 or 484
(iv) No. Of trips by one tipper in 7 hour shift = 3X7 = 21 trips
(v) No. Of tippers required = 484/21 = 23.04 say 24

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Requirement of Machineries:

(i)	Wagon hole drill	1
(ii)	Excavators	4
(iii)	Tippers 10 tons	24
(iv)	Water tankers 10 KL	1
(v)	Jack hammer drill	1

4.2 Year-Wise Development for the first five years

The summarized quantities of year wise intercalated wasted and side burden waste for five years are given below. (All figures are in metric tons)

Year	Development (Intercalated Waste 10% + Side Burden)
I	1,00440+3,45,600=4,46,040
II	1,00440+3,45,600=4,46,040
III	1,00440+3,45,600=4,46,040
IV	1,00440+3,45,600=4,46,040
V	1,00440+3,45,600=4,46,040
Total	5,02,200+17,28,000=22,30,200

4.3 Year-wise production for five years.

The summarized quantities of year-wise production for plan period are given below. (All figures are in metric tons)

Year	**Production in tons reef+float**
I-years	10,04,400+1,00,800=11,05,200
II-years	10,04,400+1,00,800=11,05,200
III-years	10,04,400+1,00,800=11,05,200
IV-years	10,04,400+1,00,800=11,05,200
V-years	10,04,400+1,00,800=11,05,200
Total	50,22,000+5,04,000=55,26,000

4.4 Conceptual Mining Plan:

After Completion of DTH hole Drilling, the ultimate pit limit and also the conceptual mining plan will be modified.

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Exploration:

For the present plan period one D T H holes will be drilled per year.

Mine development:

For winning of iron ore, laterite, shale/phyllite must be removed as part of development.

In the 20 years of Lease Period. And in the first three years planned period a total of 3 bore hloes shall be drilled and reserve are the re-estimated, accordingly after completion of all the five DTH Boreholes to a depth 100 m. Then the production & waste can be assessed for 2nd, 3rd, & 4th five-year plan period, and the result of the same shall be submitted to IBM.

Also for optimum and systematic and scientific exploitation of ore reserves, provision for environmental protection will be given. The proposed production schedule waste disposal is as shown below.

Year	Production in tons reef+float	Development (Intercalated Waste 10% + Side Burden)	Ore to Waste Ratio
I	10,04,400+1,00,800=11,05,200	1,00440+3,45,600=4,46,040	1:0.44
II	10,04,400+1,00,800=11,05,200	1,00440+3,45,600=4,46,040	1:0.44
III	10,04,400+1,00,800=11,05,200	1,00440+3,45,600=4,46,040	1:0.44
IV	10,04,400+1,00,800=11,05,200	1,00440+3,45,600=4,46,040	1:0.44
V	10,04,400+1,00,800=11,05,200	1,00440+3,45,600=4,46,040	1:0.44
Total	50,22,000+5,04,000=55,26,000	5,02,200+17,28,000=22,30,200	1:0.44

At present, the conceptual plan showing mining pit, ultimate benches, dump yard, proposed road and afforestation programme covering 7.5 m-barrier zone is enclosed as plate No.6.

Figures for the conceptual plan period can not be given now only after the drilling is completed and the deposits shall be re-estimated than only figures for conceptual plan period can be given.

5.0 BLASTING:

5.1 Broad blasting parameters:

Considering the fact that hard iron ore reef has to be broken. It requires the use of class II explosives. As the side burden waste is soft, as seen from the adjoining lease area.

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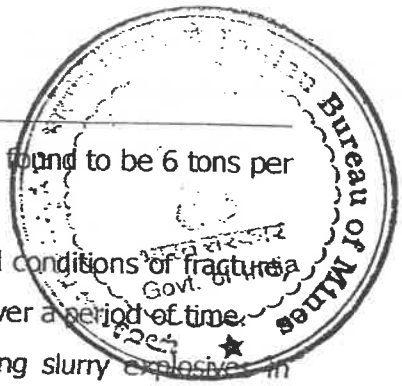

Waste will be handled by ripping & dozing. The tonnage factor is found to be 6 tons per Kg. of explosives by practical experience gained in this area.

The quantities of explosives required will vary depending on local conditions of fracture, joints, hardness etc., and can only be established by actual use over a period of time.

Blasting of jackhammer holes shall be done by safety fuse using slurry explosives in single row. Each hole of 1.5 m depth with a spacing of 1 m and burden of 0.75 m will give 1.00 x 0.75 x 1.50 x 2.9 = 3.26 tons.

The charge per hole and method of initiation etc., are given below.

Charge per hole: Rock to be blasted per hole = 3.26 tons, with 6 tons powder factor. Charge per hole will be 3.26/6 = 0.54 kg.

Method of initiation: ordinary detonator with safety fuse will fire Holes. The maximum quantity of ore & waste to be drilled is 14,50,440 tons per annum. On this basis therefore holes required to be blasted will be 14,50,440/3.36 = 431679 holes per annum the maximum quantity of explosives required per annum is 431679 = 71947 Kg. (power factor of 6) or 71947/300 = 240 Kg explosives required per day

5.2 Type of explosives to be used:

As mentioned in the above para 5.1, the applicant shall use Ammonium Nitrate, Slurry explosives; delay Detonators and Safety fuse for blasting purposes.

5.3 Whether secondary blasting is needed, if so describe in brief:

In case of boulders bigger than half a cubic meter, it has to be broken after the initial blasting. Catridges of 140 Gms shall be used for such secondary blasting.

If the boulders are smaller than ½ a cubic meter, it will be broken manually. As the fines % is maximum i.e. 75% to 80 % as compared with the adjoining lease area. Boulders recovery is very less; there by no necessity of secondary blasting is required.

5.4 Storage of Explosives:

Explosives will be needed for blasting iron ore for the average targeted Production of 4,83,840 tons per year.

The location of the proposed magazine is shown in plate no.3. The capacity of the proposed magazine will be as under:

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Slurry explosives	500 Kg
Ordinary detonators	5000 numbers
Safety fuses	2000 m

The applicant shall possess a magazine license for storage and safe usage of the explosives in the mining operations for this area.

6.0 MINE DRAINAG:

The location of the deposit to be mined is at an elevation of 740m MSL. The water table is far below the altitude at about 500 m above MSL. So, there is no danger for the drainage of the water in the working mine. More over, the rainwater will be drained naturally through the natural valleys in the rainy season. To arrest siltation during rainy season, proposal to construct 4 Nos. of check dams will be completed during first year plan period. Retaining wall will be constructed all along the waste dump and around the mining pit. This work will be completed during the first three years plan period. To arrest the rainwater entering the pit and to arrest the dump erosion garland drainage system is made at RL 660 m, which will be completed within the first two years plan period. Ref. Environment plan plate No.7.

No Nallahs are located in the lease area and in the surrounding are, except one nallah which flows when there is rainfall in this area, which has been clearly marked in the Environmental plan (Ref. plate No.8)

Working expected to be at 994 m above mean sea level and the working will reach 958m above sea level by the end of the mining plan period.

7.0 STACKING OF MINERAL REJECTS & DISPOSAL OF WASTE.

The dumping area is selected Eastern part of the applied area to avoid ore zone and outside the ultimate pit limit. The whole five year period dump accommodation is shown in conceptual plan plate No.6. The area marked for waste/mineral Rejects dump is located with in the lease area over an extent of 1.00 Ha which is adequate for the waste dumps.

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The over burden is loaded into the Tipper of 10 tons capacity and taken to the predetermined waste dump yard. Retention wall will be constructed at the foot of the dumps to prevent wash-offs and erosion.

8.0 USE OF MINERAL:

The Iron Ore occurred in this area would be produced and supplied to steel industries situated in Koppal and Bellary District.

The saleable material has to be in lumps of +10mm-40mm. Size with a minimum of 63.5% Fe content. The Iron Ore fines have got good market, which is being utilized for pelletisation by M/s. Jindal Vijayanagar Steels Ltd., Thoranagallu.

If required the sub-grade Iron Ore, which is – 58 % Fe will be blended with the high-grade iron ore of + 64% Fe. And sold to the ferrous industries regularly for conserving the low-grade iron ore.

9.0 OTHERS.

9.1 Site Services:

A mine office, Rest shelter for staff & labours, First aid station, latrines and urinals etc., will be constructed and maintained in the mining lease area. Water tanker to staff and labourers will be supplied for drinking water. The drinking water shall be stored in M.S. water tank and covered with a thatched roof to keep it cool.

9.2 Employment Potential:

A list of staff ad workmen will be employed is given below. The list shows the technical staff will be adequate to meet the statutory requirements as well as the practical needs of the mine.

Highly Skilled:	Manager	-	1
	Mining Engineer	-	1
	Geologist	-	1
	Foreman	-	2
	Mate	-	4
	Blaster	-	2
Skilled Workers		-	8
Semi Skilled Workers		-	25
Un-skilled workers		-	20

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10.0 MINERAL BENEFICIATION:

No Mineral beneficiation is planned to be conducted. Since the ore Available in the applied area is soft & percentage of fines content is various from 75 to 80% The ore will be dispatched as it is hence, crushing is not required.

11.0 PROGRESSIVE MINE CLOSURE PLAN

1. Introduction

Name of the Applicant:	M/s Kumar Enterprises, No 25, 9th Cross, Kumar Park West, Bangalore-560020.
Location of the Lease area	Ramghad Village, Sandur taluk, Bellary Dist. Karnataka State
Extent of the lease	66.774 Ha. (165.00 acres)
Type of lease area	Forest Lands
Details of the area: With location map	The lease area shown in Key Plan, Plate No-1 and lease sketch is shown in Plate No. 2.
Method of mining	Open cast/mechanized Mining
Mineral processing operations	No Mineral Processing involved.

Reasons for closure:

The plan prepared is for progressive mine closure, as final closure plan will be prepared & submitted one year prior to the proposed closure of the mining operations as per the directives of notification GSR 330(E) dated 10-04-2003, MCDR-1988.

Progressive Closure of Mining operations for the areas pertaining to exhaustion of mineral are discussed for reclamation /rehabilitation of areas, which are, matured enough after ascertaining the accomplishment of total extraction of the mineral.

Statutory obligations:

The legal obligations if any which the lessee is bound to implement like special conditions imposed while execution of lease deed, approval of mining plan, directives issued by IBM, MoEF, CPCB, or KSPCB, shall be taken up, as the area is more than five hectares, MoEF- EC Clearance will be obtained before starting of the mines.

The progressive Mine Closure plan is prepared as per the directives of Indian Bureau of Mines (MCDR –1988, Rule 23A) as a component of the Mining Plan.

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Closure plan preparation

Name Of The Applicant:
M/s Kumar Enterprises,
No 25, 9th Cross,
Kumar Park West,
Bangalore-560020.

Name of the Recognized Qualified Person: Sri M. Habeebullah
Registration No: RQP/BNG/127/98/A
Phone No: 08392-230946(O)
Mobile: 9448173166

Mine closure / progressive mine closure plan involves reclamation and rehabilitation process to restore the physical, chemical & biological quality disturbed by the mining to acceptable level with an objective of leaving the area in such a way that rehabilitation does not become a burden after completion of the mining operations and with an vision to create a self sustained eco-system.

3.0 Mine description

3.1 Geology

Geology of the area and the leasehold discussed in page no. 3 of the Mining Plan.

3.2 Reserves

The Details of the Reserves calculations is furnished in Annexure –IV

3.3 Mining method

The mine is operated by mechanized method of opencast mining.

3.4 Mineral beneficiation

No beneficiation process is involved.

4.0 Closure plan

4.1 Mined out land

Current plan period and as depicted in the year wise production and development plans and in the interest of mineral development, it is not proposed to reclaim any mined out portion of the mines, only the 7.5 m buffer zone along the periphery or boundary would be afforested. The balance area would be reclaimed at the end of all mining operations only.

Summary / abstract of the water & Risk assessment are given below.

Water & air quality, waste management

As the mining shall be carried in the Iron Ore area to a depth of 50 m. The water table in the area is below 500 m RL from the top RL of 760 m RL. Therefore there will not be any kind of water pollution.

4.3 Drainage control to hydrologic balance:

To prevent the precipitated water entering into the working pits, through surface drainage and runoff water containing some silt, the following measures shall be adopted.

The O. B. soil cover is scrapped in advance of the workings and formed as bund using a part of the O. B. soil. This bund will act as barrier for precipitated water entering into the pit. The seepage is negligible.

4.4 Storage and reuse of topsoil:

No topsoil is generated; therefore there is no question of storage of topsoil. Only intercalated waste is likely to be generated.

4.5 Land restoration /reclamation:

Land restoration or reclamation of the area is very essential in any mining industry. Proper measures adopted during restoration will control most of the adverse environmental impacts of mining and also improve the aesthetic beauty of the area. Due to mining activities in this area the profile of the ground will change due to formation of pits.

4.6 Infrastructure

Regular monitoring & maintain of the infrastructure facilities such as roads, buildings & structures, transport etc., will be taken up for their physical stability & day to day use.

4.7 Disaster management & risk assessment

The mining areas are also under the preview of the Mines Act.1952. Mettaliferous Mines Regulations-1961, Mines Rules-1960 etc and the DGMS with its offices all over the country monitor the workings of a mine with regard to health and safety aspects of mines and its workers thereon.

However the risk to general public may arise from the following

- Failure of external overburden dumps
- Failure of mine bench slopes
- Fly rocks from blasting operations
- Plying on trucks on public roads
- Fire in bulk in fuel storage and others

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There is absolutely no risk to public on account of any of the above factors as entry as unauthorized personnel and vehicles into the mining and processing areas is restricted. Also there is no question of anyone inadvertently approaching, the mining area as the AML area is situated on a hilly terrain and the Hill slopes/Valley do not have any path ways to be used by any one.

Assessment of risk involved due to each of the above factors is given here below.

- Normally failure of external dumps is possible if there are heavy rains and if dumps are not stabilized. The rainfall in this area is very meager and does not in pose any threat, plus the handling of waste is economic and hence maintenance of dumps can be taken care by stabilizing it through biological or other means before the mining operations are over.
- No Slope stability problems are envisaged not only in this AML area, but also in this entire sector and also the strata encountered is quite compact and hard.
- Blasting will be done by controlled blasting techniques like optimum charge, cord relays etc will be the predominate features and also blasting will be conducted under the supervision of statutory Manager while involving experienced and competent persons for front line blasting operations.
- Only Ten Ton tippers (6 wheelers) are proposed to be used, using local available drivers. So these vehicles will fit into the normal category of Automobiles that ply on roads and would follows all the traffic norms on haulage roads. Hence there is no danger to public and property because of transportation vehicles.
- The applicant does not intend to store fuel in bulk quantities in the mining Lease area. Hence no risk is involved due to this factor.

Contact details of person responsible for disaster management:

M/s Kumar Enterprises,
No 25, 9th Cross,
Kumar Park West,
Bangalore-560020.

4.8 Care and Maintenance during temporary discontinuance

No temporary discontinuance would be there in this plan period from any of the statutory authorities be it Forest, Pollution Control Board, Mines and Geology etc as Mining Lease will be obtained for 20 years from now, plus Environmental Clearance will be given for life of Mine, and all the formalities with regard to Mineral Laws (MMDR, MCR and MCDR) will be complied.

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Also the life of mine as explained earlier at the given rate of production is about 8 years. Hence no discontinuance of working would be there in this plan period once the mine starts operating.

5.0 Economic repercussions of closure of man and mine power retrenchments.

There is no manpower retrenchment or socio-economic repercussions as mining activities are likely to continue.

The present plan period is a progressive Mine Closure Plan indicating the reclamation and rehabilitation measures shall not take place simultaneously with the mining operations, because of the depth of the ore i. e 50 m. Further exploration will be done and only after proving the depth persistence than only the area can fully be reclaimed back.

6.0 Time schedule for abandonment

Further exploration will be done and only after proving the depth persistence than only the area can fully be reclaimed back.

An area of 2.10 Ha during the proposed Mining plan period of 5 years and there is no proposal for closure of the mine.

7.0 Abandonment /rehabilitation cost

7.1 Cost estimation

The estimate of cost based on the activities required for implementing the protective and rehabilitation measures including their maintenance & monitoring program are depicted in the statement furnished below.

S. No.	Activity	Recurring cost/annum
1	Afforestation work	Rs. 5,000/-
2	Dust control & suppression	Rs. 5,000/-
3	Retaining wall, Check dam, etc	Rs. 10,000/-
4	Environmental Monitoring	Rs. 15,000/-
	Total estimate	Rs 35,000/-

8.0 Financial assurance

The details of Financial Assurance & the manner in which it is being submitted a required under rule 23(F)(2) of Mineral Conservation and Development (amendment) Rules, 2003 is furnished below.

Financial assurance @ Rs. 25,000/Hectare, for present 30.00 Ha (for Mining & Allied activities) of land shall be utilized for five-year mining plan period.

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Para- 8.0, Financial Assurance: Since as per CCOM's Circular No. 19/ 2004, the *Financial assurance is to be computed on the basis of area put to various uses indicated* in the Circular, it is expected that the land uses are indicated in following tabular form.

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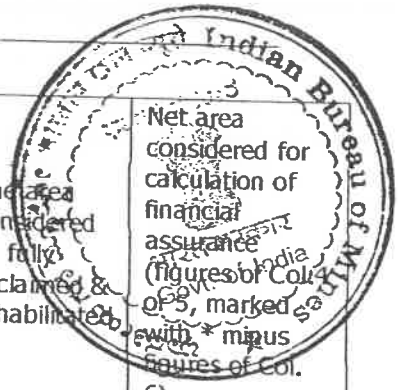

Sl. No	Type of land use	Area of land use			The area considered as fully reclaimed & rehabilitated	Net area considered for calculation of financial assurance (figures of Col. of 5, marked with * minus figures of Col. 6)
		As at present	As at the end of planned period of 5 years	As at the end of Conceptual period (life of the mine)		
1	2	3	4	5	6	7
1	Area of Excavation	Nil	*8.00	20.00	Nil	20.00
2	Storage for top soil	Nil	Nil	*Nil	Nil	Nil
3	Overburden dump	Nil	4.00	*4.00	Nil	4.00
4	Mineral storage	Nil	4.00	*4.00	Nil	4.00
5	Infrastructure (workshop, administrative building etc)	Nil	Nil	*Nil	Nil	Nil
6	Roads	Nil	2.00	*2.00	Nil	2.00
7	Railways	Nil	Nil	*Nil	Nil	Nil
8	Green belt	Nil	4.00	*4.00		---
9	Tailing pond	Nil	---	*---		---
10	Effluent treatment plant	Nil	Nil	*Nil	Nil	Nil
11	Mineral separation plant	Nil	Nil	*Nil	Nil	Nil
12	Township area	Nil	Nil	*Nil	Nil	Nil
13	Others (to be specified)	Nil	Nil	*Nil	Nil	Nil
14	Area which will remains untouched	Nil	44.774	44.774	Irrelevant	Irrelevant
	Total (which should be equal to the lease area in each of columns 3,4 & 5)	Nil	66.774	66.774	Irrelevant	#30.00

If some land use area is Nil, it be mentioned so.
*The area on which financial assurance is to be computed, had there been no area reclaimed and rehabilitated fully.
The area on which financial assurance is to be computed in the instant case.

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Financial assurance @ Rs. 25,000/Hectare, for present 30.00 Ha (for Mining & Allied activities) *of land shall be utilized for five-year mining plan period.*

Therefore, the Bank Guarantee of Rs. 7, 50,000/- shall be provided before the execution of mining lease.

The amount of Rupees Seven Lakhs Fifty thousand only will be deposited as financial assurance/Bank Guarantee to RCOM, Bangalore before execution of lease deed.

SIGNATURE OF THE APPLICANT

Place: Bangalore

Date: 09/01/2007

Sri. ShivKumar
Managing Director
M/s Kumar Enterprises

RQP

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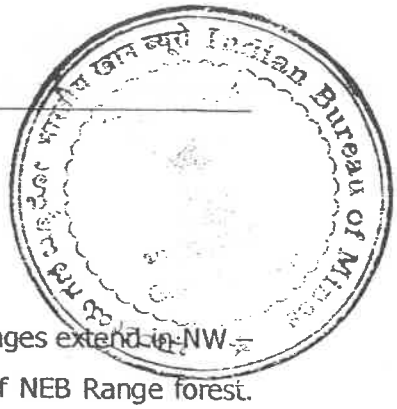

Part I-Base Line Data

1 TOPOGRAPHY AND DRAINAGE:

Topography is both structurally and litho logically controlled. Hill ranges extend in NW – SE. The subject area falls with in this region confining to a part of NEB Range forest. The highest elevation is 780 m and lowest elevation is 640 m above the MSL.

The strike is North 45^0 West. The rainfall of the area is between 500 to 800 mm per annum. The temperature ranges from 22^0 C to 45^0 C. The rainwater flows on the slopes, from North to South.

The area drained by nallahs in the AML area. These nallah flow towards south to north during the rainy season only.

The topography & Drainage pattern of the area is as shown **Plate NO. 1**

2 CLIMATE:

Climate of the area is subtropical with hot summer. It experiences moderate rainfall and exhibits vide temperature variations. The meteorological data of the area for the study period (winter) has been collected and studied for the following Climatic Parameters.

- *Temperature*
- Rainfall
- Relative Humidity
- Wind Speed
- Wind Direction

2.1 TEMPARATURE

The maximum temperatures rise to 45^0 C during the peak summer and maintain the maximum temperature for about a week. But interestingly, during peak summer days also during night, the mercury touches a low of 25^0 C, thus it has a steep temperature gradient. *During winter season the night temperature falls down to 17^{0}C. During* daytime of winter season the temperature will be around 30^{0}C.

The temperature records on study bring out the following:

Lowest temp.	15.2
Highest temp.	29.5
Av. Daily min. temp.	20.9
Av. Daily max. temp	26.0

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With the onset of the southwest monsoon the day temperatures drop appreciably. With the withdrawal of southwest monsoon the day temperatures increase slightly and a secondary maximum in day temperature is reached in September, but night temperatures continue to decrease.

2.2 RAINFALL

The rainfall records have been studied for the last thirteen years (1991-2003). Rainfall data are given in Annexure -III

The area forming part of the western extension of the semi-arid stretches of the south region receives low rainfall. The mean annual rainfall based on the 13 years data is 673.01 mm. The highest rainfall was in 1996 is 820.00mm & the lowest rainfall was in 1995 is 407.90mm the maximum precipitation of over 80% of total annual rainfall occurs in four months between May and October.

2.3RELATIVE HUMIDITY

During the study period review of the data brings out the following:

- The highest RH was recorded in the month of December and lowest RH was recorded in the month January. Difference in mean of minimum and maximum RH is highest in the months of January and lowest in July.
- Annual mean maximum and minimum RH are 76% and 35% respectively.

The relative humidity is generally high during period from July to December. The diurnal variations are least during monsoon season. The relative humidity is least during the summer afternoons when it becomes less than 30%, making the summer very hot and dry. The diumal variation is highest during the winter period.

2.4WIND SPEED

Winds are generally light with strengthening in force during the southwest monsoon when the wind speeds are the highest.

During the study period the maximum wind speed recorded in December is 13.6 mm & minimum in wind speed is 2.5 km/hr. The wind speeds are generally higher in the summer months.

2.5 WIND DIRECTION

From May to September the winds are predominantly from directions between NW and west. In the post monsoon and winter months, wind from direction between E and NE

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become predominant. By the beginning of summer season southwesterly and northwesterly winds begin to blow and these predominate with the advance of the monsoon season.

3 AIR QUALITY:

To establish the existing Ambient Air quality, Air sampling and measurements were conducted. Air sampling stations were established at three (4) locations around the proposed project to assess the background air pollution levels. The locations are

Ambient Air Quality Monitoring Stations

S. No.	Code	Stations
1	A1	At mines AML area
2	A2	Ramghad Village
3	A3	Jaisinghpura Village
3	A4	Venkatagiri Village

The stations were selected based on prominent wind directions and the nearest receptors (villages) likely to be affected by the project operations. Stations A2, A3 & A4 are apart with respect to station A1. The locations of ambient air sampling stations are given Plate. No. 1.

The parameters determined were:

- Suspended Particulate Matter (SPM)
- Respirable Particulate Matter (RPM)
- Sulphur Dioxide (SO_2)
- Oxides of Nitrogen (NO_x)

Gases were sampled at 4-hourly intervals.

The sampling and testing of ambient air quality parameters were carried out as per relevant parts of IS: 5182.

A perusal of Table shows that SPM, RPM, SO_2 and NO_x values are well within the limits prescribed under National Ambient Air Quality Standards by CPCB for areas meant for "Residential and Rural Use" and "Industrial".

4.0 MICRO-METEOROLOGY:

As is well known the transport and diffusion of the pollutants in the atmosphere is governed by meteorological factors. Study of meteorological characteristics is, therefore,

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essential to assess the effects of pollution on the receptors both animate as well as inanimate.

Wind speed, wind direction and atmospheric stability are called primary or basic meteorological parameters, because the dispersion and diffusion of the pollutants depends mainly on these parameters. Ambient temperature, humidity, precipitation, pressure and visibility are secondary meteorological parameters are these control the dispersion of the pollutants indirectly by affecting primary parameters.

Micro-meteorological survey was undertaken for monitoring ambient temperature, wind speed, wind direction, relative humidity, rainfall, cloudiness and solar radiation in the area during the air-sampling period. Weather monitoring station was set up at a height of 5m and readings were recorded at hourly intervals. The meteorological monitoring was done continuously for 3 months to cover the winter season. The salient observations on study of the data are discussed in the following paragraphs.

4.1 TEMPERATURE

The temperature measurement gave the following results:

Maximum	30.4^{0}C
Minimum	15.2^{0}C

4.2 RELATIVE HUMIDITY

Relative humidity was measured during the sampling period and results are as follows:

Maximum	94%
Minimum	22%

4.3 WIND SPEED

The results of monitoring were as follows:

Maximum	13.6 km/hr
Minimum	2.2 km/hr

4.4 WIND DIRECTION

The wind direction was predominantly from E to NE during the day and S & SSE during the night. Overall the dominant direction was from NE (33%) for the monitoring period.

4.5 NOISE

Ambient noise levels were measured at different locations within and around the AML area to establish existing scenario. The noise levels were found to be between 38-51 dBA in the area for most part of the day. The noise levels recorded at the AML and

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movement of vehicles. The nighttime noise level records were generally around 47.1-40.8 dBA or lower.

The location of these sampling spots is:

Code	Location
N1	AML area
N2	Ramghad Village
N3	Jaisinghpura Village
N4	Venkatagiri Village

The noise of levels at the mine boundaries is found to be within limits for residential areas even during the daytime.

5.0 WATER QUALITY

Water resources in the area are ground water and rainwater. There is no surface water in the immediate vicinity of the AML area. Samples were collected from four ground water sources around the AML area and tested for drinking purposes. The locations of these sampling spots are:

S. No.	Code	Stations	Distance from AML area	Direction
1	GW1	Ramghad Village Bore well water	1.5 Km	W
2	GW2	Jaisinghpura village bore well water	3.5 Km	SE

The water samples generally conform to IS: 10,500 for drinking water. The inconsistencies are covered within the exceptions provided for absence of alternative sources in the BIS specifications.

7.0 SOIL QUALITY:

Representative soil samples have been collected from the four places in the ML and immediate surroundings. Locations of the sampling spots are:

S. No.	Code	Stations
1	S1	AML area
2	S2	Agricultural land near Ramghad Village
3	S3	Agricultural land near Jaisinghpura Village

The soil physical analysis indicates that the soil texture from silt clay to sandy loam. The areas near the villages have potential for agriculture.

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8.0 FLORA

The soils in the area are coarse, porous and deficient in nutrients and organic matter. Sources of water are limited and rainfall irregular and insufficient. These limiting factors determine the nature of various components of the biological environment.

The study area for flora comprises of an area falling within a radius of 5 km from the proposed ML area. The study area is comprises of Forest, Revenue & agricultural lands. In the lease consists of bushes & small trees. The density of forest growth is 1.0.

The agricultural crops are Jowar, Sunflower, cotton & Turdal is grown. Here and there seen some Neem trees, Tamrind trees, Jali trees, Eucalyptus. Forests department and the local working plan have not reported any rare, endangered and endemic flora in the mining area.

9.0 FAUNA

Animals

The common wild fauna are jungle cat, jackals, monkeys, rats, bandicoots etc.,

S.No	English name	Zoological Name
Animal		
1	Fox	Vulpes Bengalenis
2	Hare	Lepusnigricollis
3	Jackle	Canis aureus
4	Mongoose	Herpestes
5	Rat	R.rattus
Birds		
1	Common Bee-eater	Meropsorentalis
2	Sparrow Hawk	Accipiter nisus
3	House Crow	Corousplendens
4	Owl	Asio flammeus
5	Pigeon	Columbia livia
6	Redvented BulBul	Pycnonotus
7	Sparrow	Passer domesticus
Amphibians & Reptiles		
1	Cobra	Najatripudians
2	Krait	Bangarus coerulens

Insects	
1	Honeybee
2	Dragonfly
3	Wasp
4	Beetles

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5	Termites
6	Bugs
7	Scorpion
8	House Fly
9	Spider
10	Red Ants

11. SOCIO-ECONOMIC CONDITIONS:

The socio-economic conditions were studied over an area falling within 5 km radius of the AML area. The study reveals the following

There are 2 habitation villages in the study area. The study area completely falls in Sandur taluk. The nearest inhabitation is Siddapur village 1.5 km from the mine

Population and Literacy:

There is no habitation with in the AML area. The 3 human settlements areas in the study area have total population as per 2001 Census of 3485. The habitations are shown in Plate No 1. Considering the socio-economic aspect, the area has been divided into two zones namely, Core zone & Buffer zone.

Core zone is the active area where mining and allied activity takes place. The buffer zone covers an area of 5 kms from the center of the core zone and it includes core zone also. There are no inhabited villages in it, in the lease area. Hence this socio-economic study pertains to buffer zone only.

ASSESSMENT OF IMPACT ON MINING:

The mining activities proposed will have both positive and negative effects on the surroundings. This is called an impact. The impact could useful or detrimental to the environment. The net impact could be determined by evaluating the impact on various parameters.

The parameters with adverse impact due to certain unavoidable reasons have to be nullified, kept to the minimum or brought to have positive effects by taking suitable corrective measures, it is possible create better environment due to mining and other incidental activities.

The impacts depend upon the magnitude, mechanization and method of mining, extent of infrastructures facilities, environmental profile and characteristics of environment.

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The impact prediction due to the mining activity has been made in respect of the parameters considered in the present scenario. The Parameters of ambient air quality, water quality, socio economic aspects, inventory of flora due to mining operations in the buffer zone. These help in prediction of the impact more correctly.

PART II- Environmental Impact Assessment.

The mining activities proposed will have both positive and negative effects on the surroundings. This is called an impact. The impact could useful or detrimental to the environment. The net impact could be determined by evaluating the impact on various parameters.

The parameters with adverse impact due to certain unavoidable reasons have to be nullified, kept to the minimum or brought to have positive effects by taking suitable corrective measures, it is possible create better environment due to mining and other incidental activities.

The impacts depend upon the magnitude, mechanization and method of mining, extent of infrastructures facilities, environmental profile and characteristics of environment.

The impact prediction due to the mining activity has been made in respect of the parameters considered in the present scenario. The Parameters of ambient air quality, water quality, socio economic aspects, inventory of flora due to mining operations in the buffer zone. These help in prediction of the impact more correctly.

13.3.1 ENVIRONMENTAL IMPACTS

The impact assessment focuses on the study area viz., 10 km radius around this Mine.

The basic environmental components likely to be affected by the mining projects are:

Air Environment.

Noise & Vibration Environment

Water environment

Land environment

Socio-economic environment

Air Environment

The atmospheric pollutants are hazard to all the living organisms in biosphere.

The most common source for environment pollution in air is SPM, RPM, and SO_2 & NO_x.

As the air is very important ingredient for the health and hygiene of the human beings,

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great care is taken for the assessment of quality. The present limit is in the area and buffer zone are well with in limits prescribed by CPCB for areas meant for industrial.

Noise and vibration environment

In the core zone & buffer zone noise level are with in the limits. Noise also will be produced by blasting operation but as the blasting operations are carried out at a particular time and all care will be taken to maintain safe distances from the location, the effect of noise will be negligible as no work persons are allowed near the blasting place. More ever, the mine will be operated with the minimum frequency of blasting.

Water environment

The existing water resources in the study area are mostly tube wells in the villages. There are no water discharges into water bodies from the lease area. As such no possibility of pollution of water resources due to liquid waste. As the water flowing through the waste overburden dumps during the monsoon shall carry some silt, thus increasing the suspend solids in the surface waters. Iron does not contain concentration of any trace elements. But provision of garland drains to divert the rainwater from entering dumped areas and construction of toe wall at foot of the dumps shall prevent the silt from flowing into the seasonal nallahs or tanks. In all two water samples from different locations were collected. The physico-chemical analysis show that the parameters are under permissible limits, all the samples tested are with in the permissible limit.

Socio-Economic Environment:

The impact of mining project is of positive nature. The subject mining projects provide direct employment for about 100 persons (directly & indirectly) and also crates job in the service sector for an equivalent numbers in transportation, loading, afforestation in the mine. Majority of this workforce from surrounding villages.

In this buffer zone villages, this mining is one of the economic activities resulting in generation of revenue to the state and central government by way of royalties, taxes central excise etc. the living conditions of the persons depending upon the activity, thus contributing the overall up gradation of living, health, education opportunities of the children etc.,

Impact of mining and beneficiation on environment

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The mining operation proposed for the next 5 years is only in the areas already Mining operation in progress.

The following are the likely impacts of mining on environment.

- Due to blasting work to be done, some noise pollution and dust generation will occur during the short time of blasting.
- Transporting vehicles are likely to produce dust.
- Some degradation will take place in the worked out area. Other than the above, there shall be no disturbance to the existing environment.

PART III

12.0 ENVIRONMENTAL MANAGEMENT PLAN:

12.1 General:

Environmental plan (Plate No. 7) is enclosed.

Environmental plan drawn on a scale of 1:5000 with contour interval 10 meters. Showing the lease boundary, 60 meters limit from the lease boundary and 500 meters limit from the lease boundary. Also existing nalas except shrubs and small bushes and also the same is true in case of 500 meters.

Further Environmental Management Measures are suggested to mitigate the possible impacts that may be caused to the various attributes of environment due to the proposed operations of the mine.

The action proposed to minimize the above said expected environmental degradation in respect of each affected area is as follows:

Storage and Preservation of top soil:

No topsoil is produced in the proposed next 5 years mining. Hence the storage and preservation of topsoil does not arise for the next 5 years. Since the area is under mining for a very long period, at the beginning the topsoil was removed, sorted and preserved. This will be utilized for afforestation if feasible.

Proposal for reclamation of land affected by mining activities during and at the end of mining. The worked out area will be back filled with waste and afforestation will be encouraged in the area.

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In case of forest- program of phased compensatory afforestation:

About 0.50 Hectares of land is proposed for afforestation for the next 5 years. Please see Plate –8 for the proposed area for afforestation for next 5 years. Apart from this avenue plantation will also be done on both sides of transporting road, site services and along the boundary etc. The number of saplings were proposed to be planted during plan period is 2500.

The plants, which are proposed for the next 5 years afforestation, are Acacia, Fale, Casuarinas, Hippe, Gulmohar etc. To ensure maximum growth of the seedlings required number of labors should be utilized for watering and caring the plants whenever necessary in general and summer season in particular.

Measures for dust suppression:

Water mixed with Arcanum to husk is sprinkled on mine roads to control dust generation on roads and water on the working faces to suppress the dust. Wet Drilling, Tarpaulin *covering on the loading trucks*

Measures to minimize vibration:

The required Earth moving machineries deployed for mining. The drilling/blasting is also *restricted. Hence, the vibration produced by the transport vehicles and also by drilling* /blasting activities is considerably less than the threshold value and therefore this does not impact on the present existing environment.

Stabilization and Vegetation of dumps;

Two retaining walls are proposed to check the run off silt for the proposed waste dump. Please see Plate – 8.

To prevent erosion of top layer during rains, the dump slopes shall be terraced by steps and plants such as grass etc. with spreading root system planted on these in consultation with the Forest Department.

Treatment and disposal of water from mine and beneficiation plant:

This is not applicable in the present case as there shall be neither in rush of water into the mines nor the water is used in the beneficiation.

Measures for minimizing adverse effects on water regime:

As described earlier there are nalas draining the hill slopes of the lease area. To check *erosion of their sites and prevent silt being carried during monsoon period, 4 check*

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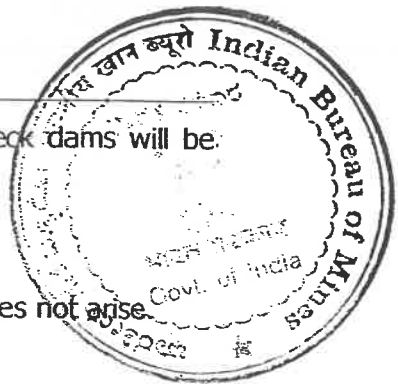

dams are proposed across the nalas (Plate No 7). The proposed check dams will be constructed in a phased manner depending upon the flow of rainwater.

Afforestation of tailing ponds:

No tailing ponds are created and hence afforestation of tailing ponds does not arise.

Stacking of toxic material:

No toxic substances are produced during mining of Iron Ore.

12.2 MANAGEMENT MEASURES FOR AIR QUALITY:

All the concentrations of the pollutants show well with-in permissible limits as prescribed by CPCB. However, existing mining activity may cause more Air Pollution if proper care is not taken at the source. Generation of dust in the working area can be controlled by water sprinkling system, to keep the pollutants with-in the permissible limits, as, prescribed by CPCB, such as:

Water spraying on the roads, waste dumps, sub-grade stacks and mine faces.

Development of green barriers along the roads, waste dumps and around statutory buildings.

Construction of well-compacted haulage roads.

Monitoring of air quality periodically to take necessary steps to keep the polluting constituents with-in the permissible limits

MANAGEMENT MEASURES FOR WATER QUALITY:

The chemical analysis of the Iron ore and soil do not show any toxic substances, which can dissolve and pollute water quality. However, the following measures are advocated to reduce any possible pollution of water quality.

Creation of garland drains to regulate and drain the rainwater from the quarry and directs its course away from the dumping areas.

Provision of retention/toe walls at the foot of the dumps.

Construction of the check dam of seasonal nalas.

CONTROL OF NOISE AND VIBRATION:

12.3 Noise:

The following abatement measures will be taken.

Planting of trees with thick foliage along roads to act as acoustic barriers.

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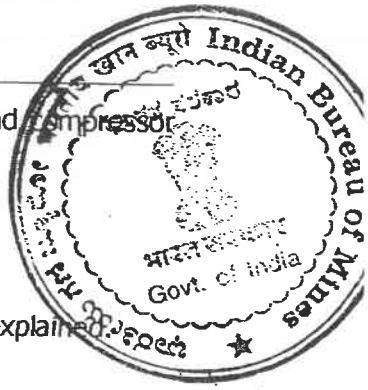

Protective devices like earmuffs/ear plugs shall be provided to drillers and compressor operator etc.

Proper and regular maintenance of vehicles and other equipment.

12.4 LAND RESTORATION:

The measures to reclaim the lease area are categorized as under and are explained below.

Green belt

Areas to be dumped

Engineering structures and their construction.

Program of phased afforestation

The following measures are suggested for bringing back the lease area to near original or better land use.

Green Belt:

Planting a suitable combination of trees, which can grow fast and also has a good leaf density, shall develop a Green belt. It will act like a buffer to trap the airborne dust and to reduce the noise levels.

From aesthetic point of view also, this shall have a positive impact. At this proposed mine. It is proposed to develop a green belt of 2 meters width just on the edge of the boundary in two rows will be covered. The species selected for this purpose shall be Eucalyptus shall be planted along with some bushes and legumes to improve the soil fertility. The above green belt shall be developed in consultation with the local forest authorities regarding the selection of sit specific species, seedling management, plantation techniques and their upkeep by man de weeding, manuring and regular watering.

Area to be dumped:

The 1.00 Ha area required mineral storage and sub-grade mineral, the 0.50 Ha area required waste/over burden-dump and topsoil directly used for afforestation. The dumping shall be done in step like manner, in the area earmarked for the purpose towards eastern side in the lease area and will be afforested by agaves, etc., on the top of the dumps plantation shall be done, with local species like jail, neem.

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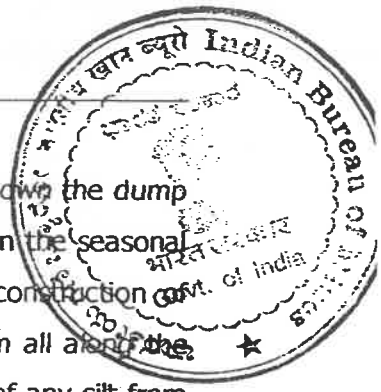

Engineering construction measures:

The aim of these constructions is to see that no silt is allowed to flow down the dump slopes carrying the solid particles along with the rainwater and deposit in the seasonal nallah, water tanks or adjacent agricultural fields. It is proposed to construction of retention/toe wall at the foot of the dumps and constructed check dam all along the nallah. The purpose of retention wall & check dam is to arrest the flow of any silt from the dump slopes. These are required to be constructed below the dumps and also below the sub-grade mineral dumps to see that no wash-off takes place.

The size of the retention wall shall be 1.0m wide and 0.75m heights and Check dam length is about 17meters, height will be 4meters & width will be 3meters.

The lessee shall construct 4 Nos. of check-dams across the nallah as shown in Environmental plan vide plate No.7.

iv) Program of phased afforestation:

Afforestation or plantation program will go hand-in-hand with mineral excavation. An area of 1.00 ha is earmarked for afforestation at the foot of the hills, with-in the lease area. It is proposed to grow eucalyptus species. Every year about 0.20 ha will be afforested. About 150 saplings shall be planted with a spacing of 2m x 2m.

Avenue plantation will be done on either side of the haulage road. The necessary help from the soil conservation and forest department will be sought in identifying the right kind of species of plants ensuring at least 80% of survival rate.

12.5 HAZARD CONTROL:

Maintenance of proper bench geometry, following the precautions to be taken for transport, handling and use of explosives, good maintenance of roads and transport units shall avoid accidents.

13.0 IMPLEMENTATION AND MONITORING SYSTEM:

13.1 GENERAL:

The environmental management plans for this iron Ore mine is detailed in the previous chapters on the basis of impact assessment. Control and mitigation measures for the adverse impacts have been proposed. As the major environmental attributes are not confined to the area alone, implementation of the proposed control measures and monitoring there of have to be undertaken on a regional basis. The applicant, however, will ensure the implementation of the measures, and carry out efficient monitoring

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13.2 IMPLEMENTATION OF CONTROL MEASURE:

For any project of this nature (mining) two stages of implementation of environmental control measures may be envisaged.

A. During the Project Development or Pre-mining stage.

B. *Operational stage.*

13.2.1 Operational Stage Implementation:

The measures implemented during this stage are the following measures need attention.

1. *Plantation program as planned and measures to ensure good survival rate.*
2. Optimization of land use for dumping and stacking yard.
3. Implementation of noise measure
4. *Maintenance of vehicles.*
5. Drawing action plans and implementation of land reclamation program.
6. Measurement of the depth of water table in the dug-wells of buffer zone once in all the *four seasons.*
7. All safety precautions during mining operations to avoid accidents.

13.3 ENVIRONMENTAL MONITORING PROGRAM:

The following schedule of monitoring is proposed to be following during the operation of the mine, following the guidelines issued by the competent authorities from time to time.

13.3.1. *Ambient Air Quality:*

The Ambient Air quality shall be monitored for RPM, SPM, SO_2 and NOx for three seasons (excluding rainy season) in all the stations fixed for the purposes.

13.3.2. *Fugitive Air Quality:*

Fugitive Air quality shall be monitored, haulage road, loading point, Mines office and working pits.

13.3.3. *Dust Fall Rate:*

Dust fall rate measurements shall be carried out, for 30 days at a stretch at all the stations.

13.3.4 Water Quality:

Water quality will be monitored for all the parameters listed in IS: 10500. All the locations for all the four seasons.

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13.3.5 Noise Levels:

Noise levels shall be monitored at the locations given in this report during summer seasons.

13.3.6 Micrometeorology:

Micro meteorological station shall be located at the mines office to measure temperature, rainfall and R. H. during Air monitoring period.

13.3.7 Soil Samples

The quality of soil shall be monitored regularly once in a year.

13.3.8 Vibration

The source of ground vibration if blasting of deep hole on proposed mining activity. The permissible limits the peak particle velocity (PPV) depend upon charge per delay, delay interval and type of explosive.

The following measures shall be adopted:

- Charge per delay shall be regulated.
- M.S. delay detonators/relays shall be exclusively used.
- Stemming column shall be more than the burden to avoid blown out shots.
- Each blast shall be carefully planned, supervised, executed and observed.

13.3.9 Plantation:

Plantation program detailed in the report shall be implemented as per schedule. Frequent advice sought from appropriate authorities, will go a long way in helping a healthy maintenance of the plantation.

13.4 ENVIRONMENTAL CELL:

In order to implement the measures suggested for mitigating the adverse impacts on the environment, as, also to monitor some of the environmental parameters regularly, a separate cell shall be constituted with the employed personnel identifying clearly, the functions and responsibilities of each member of the cell, as follows:

Mining Engineer	:	Overall supervision of the implementation and monitoring, socio-economic measures.
Asst. Manager	:	Vibration studies, implementation of all the measures relating to air, water, noise, soil and afforestation.
Part time Medical Officer	:	Occupational health.

13.5 FINANCIAL IMPLICATIONS:

After an in-depth examination of the Environmental Management Plan, the management may make estimates of expenditure on annual basis for the implementation of different programs, activity-side and obtain approval and allocation well in advance so that the programs run unimpeded.

The following tentative estimates are made for the implementation of various proposed activities :(in Rs. Lakh)

S. No		Capital cost		Annual recurring cost	
		Existing	Proposed	Existing	Proposed
1	Pollution Control (Separately provide break-up)	N. A	5.00	N. A	1.00
2	Pollution Monitoring (Separately provide break-up)	N. A	5.00	N. A	1.00
3	Occupational Health	N. A	5.00	N. A	1.00
4	Green Belt Mine Township	N. A	5.00	N. A	1.00
5	Reclamation / Rehabilitation of mined out area	N. A	5.00	N. A	1.00
6	Others (specify)	N. A	---	N. A	
Total			25.00		5.00

APPLICANT

M/S KUMAR ENTERPRISES

EARTH ENVIROTECH

(M. HABEEBULLAH)
M. Sc. FGS (Ind)/RQP
NGRI-Trained
Chief Geologist

This Mining Plan is approved subject to the conditions / stipulations indicated in the Mining Plan approval letter No. MP/BLR/FC-158-52
Date....16.11.2007

ಪ್ರಾದೇಶಿಕ ಗಣಿ ನಿಯಂತ್ರಕರು
ಉಸ್ತುವಾರಿ ಅಧಿಕಾರಿ(ದ. ವ.)
क्षेत्रीय खान नियंत्रक
प्रभारी अधिकारी(द.क्षे.)
Regional Controller of Mines
Incharge - South Zone Office

M/s Earth Envirotech, Mining & Environmental Consultants, No.82/8/b, K. C. Road, Bellary-583 101. Phone: 08392- 271937, Mobile: 9448173166, E-mail: habeebbly@rediffmail.com

ANNEXURE I

ಸಂಖ್ಯೆ : ಗಭೂಇ/ಗಗುಕಾ/400 ಎಎಂಎಲ್2004 ದಿನಾಂಕ: 21.10.2004

ಗೆ,

ಮೆ: ಕುಮಾರ್ ಎಂಟರ್‌ಪ್ರೈಸಸ್,
ನಂ.25, 9ನೇ ಕ್ರಾಸ್,
ಕುಮಾರ ಪಾರ್ಕ್ ವೆಸ್ಟ್
ಬೆಂಗಳೂರು - 20

ಮಾನ್ಯರೆ,

ವಿಷಯ : ಗಣಿಗುತ್ತಿಗೆಗಾಗಿ ದಿನಾಂಕ 22.07.2004 ರಂದು ಬಳ್ಳಾರಿ ಜಿಲ್ಲೆ, ಸಂಡೂರು ತಾಲ್ಲೂಕು ರಾಮಘಡ ಗ್ರಾಮದ 165-00 ಎಕರೆ ಪ್ರದೇಶದಲ್ಲಿ ಪರಿಷ್ಕರಣೆಗಾಗಿ ಅರ್ಜಿ ಸಲ್ಲಿಸಿರುವ ಬಗ್ಗೆ.

***

ಮೇಲ್ಕಂಡ ವಿಷಯಕ್ಕೆ ಸಂಬಂಧಿಸಿದಂತೆ ನಿಮ್ಮ ಅರ್ಜಿಯನ್ನು ಮುಂದುವರೆಸಲು ಈ ಕೆಳಕಂಡ ದಾಖಲೆಗಳನ್ನು ಸಲ್ಲಿಸಲು ಕೋರಿದೆ.

1) ಇಂಡಿಯನ್ ಬ್ಯೂರೋ ಆಫ್ ಮೈನ್ಸ್‌ರವರಿಂದ ಅನುಮೋದಿಸಿದ ಮೈನಿಂಗ್ ಪ್ಲಾನ್ (165 ಎಕರೆಗೆ) ಪ್ರತಿಯಲ್ಲಿ

2) ಕರ್ನಾಟಕ ರಾಜ್ಯ ಮಾಲಿನ್ಯ ನಿಯಂತ್ರಣ ಮಂಡಳಿಯವರಿಂದ ಪಡೆದ ನಿರಾಕ್ಷೇಪಣಾ ಪತ್ರ.

3) ಅರಣ್ಯ ಪರಿಸರ ಮತ್ತು ಜೀವಶಾಸ್ತ್ರ ಇಲಾಖೆಯವರಿಂದ ಪಡೆದ ಪರಿಸರ ವಿಮೋಚನಾ ಪತ್ರ.

ತಮ್ಮ ವಿಶ್ವಾಸಿ

ನಿರ್ದೇಶಕರು

Annexure – II

Government of Karnataka

Office of Director
Department of Mines & Geology
No.49, Khanija Bhavan,
Race Course Road, Bangalore-1
Date: 21/10/2004

No.DMG/MLS/400 AML: 2004

To,
Mr. R. Shivkuamr, MD
M/s Kumar Enterprises,
No 25, 9th Cross,
Kumar Park West,
Bangalore-560020.

Sir,

Sub: -Consideration of application for grant of Mining lease in Ramghad village, Sandur Taluk, Bellary District, over an area of 165.00 acres for Iron Ore.

With reference to the above subject, you are hereby requested to produce the following documents to process the file further for grant of mining lease.

1) Mining Plan in triplicate approved by Indian Bureau of Mines.
2) Clearance from Karnataka State Pollution Control Board
3) Ecology and Environment Clearance.

After submission of the above documents, further processing shall be taken up.
Yours faithfully,

SD/
DIRECTOR.

ANNEXURE – III

GOVERNMENT OF KARNATAKA
DEPARTMENT OF MINES AND GEOLOGY
CHEMICAL LABORATORY
Certificate of Analysis

NO.DMG/LAB/2005-05/267

To KUMAR ENTERPRISES
NO.25, 9TH CROSS,
KUMARAPARK WEST,
BANGALORE-20

Reference Your letter No Nil dated 10-08-2005

Not Sampled by Department.

S.N	SAMPLE	SiO_2%	Al_2O_3%	Fe_2O_3%
1	IRON ORE SA.NO KE-M69, SANDUR TALUK	1.64	3.36	88.16
2	IRON ORE SA.NO.KE-P, SANDUR TALUK	2.04	0.28	93.35

Place Bangalore
Date 12-08-2005

CHIEF CHEMIST
CHIEF CHEMIST
GROUND WATER SURVEY UNIT
DEPT. OF MINES & GEOLOGY
BANGALORE-560 001

SECTION WISE GEOLOGICAL RESERVE ESTIMATION
IRON ORE

Section	Section Influence	Area in M^2	Volume in M^3	Bulk Density	Geological reserves in tons	Category
AA'-1st reef	120	2800	3,36,000	3.0	10,08,000	Proved
	120	560	67,200	3.0	2,01,600	Probable
AA'-2nd reef	120	300	36,000	3.0	1,08,000	Proved
	120	60	720	3.0	2,160	Probable
BB'-1st reef	120	2800	3,36,000	3.0	10,08,000	Proved
	120	560	67,200	3.0	2,01,600	Probable
BB'-2nd reef	120	300	36,000	3.0	1,08,000	Proved
	120	60	720	3.0	2,160	Probable
CC'--1st reef	120	2800	3,36,000	3.0	10,08,000	Proved
	120	560	67,200	3.0	2,01,600	Probable
CC'-2nd reef	120	300	36,000	3.0	1,08,000	Proved
	120	60	720	3.0	2,160	Probable
DD'-1st reef	120	2800	3,36,000	3.0	10,08,000	Proved
	120	560	67,200	3.0	2,01,600	Probable
DD'-2nd reef	120	300	36,000	3.0	1,08,000	Proved
	120	60	720	3.0	2,160	Probable
EE'-1st reef	120	2800	3,36,000	3.0	10,08,000	Proved
	120	560	67,200	3.0	2,01,600	Probable
EE'-2nd reef	120	300	36,000	3.0	1,08,000	Proved
	120	60	720	3.0	2,160	Probable
				Total	66,96,000	

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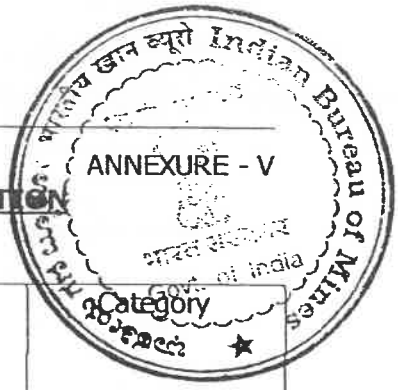

SECTION WISE MINEABLE RESERVE ESTIMATION
IRON ORE

Section	Geological reserves in tons	Mineable reserves @ recovery 90%	Intercalated Waste recovery 10%	Category
AA'-1st reef	10,08,000	9,07,200	1,08,000	Proved
	2,01,600	1,81,440	20,160	Probable
AA'-2nd reef	1,08,000	97,200	10,800	Proved
	2,160	1,944	216	Probable
BB'-1st reef	10,08,000	9,07,200	1,08,000	Proved
	2,01,600	1,81,440	20,160	Probable
CC'-1st reef	1,08,000	97,200	10,800	Proved
	2,160	1,944	216	Probable
CC'-2nd reef	10,08,000	9,07,200	1,08,000	Proved
	2,01,600	1,81,440	20,160	Probable
DD'-1st reef	1,08,000	97,200	10,800	Proved
	2,160	1,944	216	Probable
DD'-2nd reef	10,08,000	9,07,200	1,08,000	Proved
	2,01,600	1,81,440	20,160	Probable
EE'-1st reef	1,08,000	97,200	10,800	Proved
	2,160	1,944	216	Probable
EE'-2nd reef	10,08,000	9,07,200	1,08,000	Proved
	2,01,600	1,81,440	20,160	Probable
Total	66,96,000	60,26,400	6,69,600	

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Annexure – VI

SECTION WISE SIDE BURDEN WASTE CALCULATION

Section	Section Influence	Area in M^2	Volume in M^3	Bulk Density	Side burden waste in tons
AA'-1st reef	120	1000	1,20,000	1.6	1,92,000
	120	1000	1,20,000	1.6	1,92,000
AA'-2nd reef	120	250	30,000	1.6	48,000
	120	250	30,000	1.6	48,000
BB'-1st reef	120	1000	1,20,000	1.6	1,92,000
	120	1000	1,20,000	1.6	1,92,000
BB'-2nd reef	120	250	30,000	1.6	48,000
	120	250	30,000	1.6	48,000
CC'-1st reef	120	1000	1,20,000	1.6	1,92,000
	120	1000	1,20,000	1.6	1,92,000
CC'-2nd reef	120	250	30,000	1.6	48,000
	120	250	30,000	1.6	48,000
DD'-1st reef	120	1000	1,20,000	1.6	1,92,000
	120	1000	1,20,000	1.6	1,92,000
DD'-2nd reef	120	250	30,000	1.6	48,000
	120	250	30,000	1.6	48,000
EE'-1st reef	120	1000	1,20,000	1.6	1,92,000
	120	1000	1,20,000	1.6	1,92,000
EE'-2nd reef	120	250	30,000	1.6	48,000
	120	250	30,000	1.6	48,000
				Total	24,00,000

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SECTION WISE TOTAL WASTE CALCULATION

Sections	Intercalated Waste in tons	Side burden Waste in tons	Total Waste in tons
AA'-1st reef	1,08,000	1,92,000	3,00000
	20,160	1,92,000	2,12,160
AA'-2nd reef	10,800	48,000	58,800
	216	48,000	48,216
BB'-1st reef	1,08,000	1,92,000	3,00000
	20,160	1,92,000	2,12,160
BB'-2nd reef	10,800	48,000	58,800
	216	48,000	48,216
CC'-1st reef	1,08,000	1,92,000	3,00000
	20,160	1,92,000	2,12,160
CC'-2nd reef	10,800	48,000	58,800
	216	48,000	48,216
DD'-1st reef	1,08,000	1,92,000	3,00000
	20,160	1,92,000	2,12,160
DD'-2nd reef	10,800	48,000	58,800
	216	48,000	48,216
EE'-1st reef	1,08,000	1,92,000	3,00000
	20,160	1,92,000	2,12,160
EE'-2nd reef	10,800	48,000	58,800
	216	48,000	48,216
TOTAL	6,69,600	24,00,000	30,69,600

ORE TO WASTE RATIO

66,96,000 to 30,69,600=1:0.45

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Annexure – VII

YEAR WISE PRODUCTION & DEVELOPMENT FOR FIVE-YEAR PERIOD

(All figures are in metric tons)

Year	Production @ 90% recovery	Development (Intercalated Waste 10% + Side Burden)	Ore to Waste Ratio
I	10,04,400	1,00440+3,45,600=4,46,040	1:0.44
II	10,04,400	1,00440+3,45,600=4,46,040	1:0.44
III	10,04,400	1,00440+3,45,600=4,46,040	1:0.44
IV	10,04,400	1,00440+3,45,600=4,46,040	1:0.44
V	10,04,400	1,00440+3,45,600=4,46,040	1:0.44
Total	50,22,000	5,02,200+17,28,000=22,30,200	1:0.44

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ANNEXURE – VIII

YEAR WISE RAIN FALL DATA

YEAR	Rain fall data in mm
1991	708.0
1992	812.3
1993	684.4
1994	703.4
1995	407.9
1996	820.0
1997	716.7
1998	703.7
1999	709.6
2000	710.0
2001	805.2
2002	552.0
2003	416.0
2004	448.0

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ANNEXU[illegible]

Maximum & Minimum Temperature, Relative Humidity, Average Wind Speed & Direction.

Date	Temperature in ^{0} C		Relative humidity in %		Avg. Wind speed in Km	Wind direction
	Max	Min	Max	Min		
01-03-06	27.8	21.4	82	40	4.9	SE
02-03-06	29.5	22.1	88	38	5.0	E
03-03-06	29.3	18.6	89	35	8.0	E
04-03-06	27.9	22.6	88	29	8.6	N
05-03-06	27.9	21.2	87	32	9.3	NE
06-03-06	26.2	20.2	89	30	9.4	NE
07-03-06	28.6	18.9	90	27	11.2	N
08-03-06	29.6	19.4	87	29	12.0	N
09-03-06	26.4	20.0	90	36	8.6	NE
10-03-06	29.2	20.4	83	35	13.6	E
11-03-06	28.6	20.4	82	30	9.0	SE
12-03-06	26.6	20.1	83	28	7.2	NE
13-03-06	26.4	18.2	82	29	9.4	E
14-03-06	26.1	19.1	84	25	8.0	E
15-03-06	27.4	19.0	83	25	8.8	NE
16-03-06	28.1	18.8	80	26	5.8	NE
17-03-06	26.4	18.6	83	26	5.2	N
18-03-06	26.4	19.6	86	24	5.5	NW
19-03-06	29.4	20.4	86	33	5.2	NW
20-03-06	26.3	20.1	87	34	5.9	NW
21-03-06	28.4	18.5	85	30	5.8	N
22-03-06	29.5	22.0	88	31	5.7	NE
23-03-06	26.1	22.6	80	30	5.5	NE
24-03-06	29.2	20.3	87	33	5.6	NE
25-03-06	28.3	16.3	86	35	5.1	N
26-03-06	27.5	15.6	83	36	6.9	NE
27-03-06	29.5	16.0	83	34	4.2	N
28-03-06	30.2	17.4	88	32	3.8	NE
29-03-06	28.5	17.3	89	35	8.3	E
30-03-06	28.6	18.3	90	32	6.9	SE
31-03-06	29.2	18.8	83	22	5.8	E

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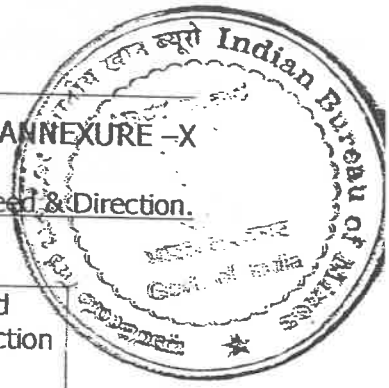

ANNEXURE –X

Maximum & Minimum Temperature, Relative Humidity, Average Wind Speed & Direction.

Date	Temperature in ^{0} C		Relative humidity in %		Avg. Wind speed in Km	Wind direction
	Max	Min	Max	Min		
01-04-06	27.2	22.3	88	40	6.4	E
02-04-06	28.2	22.1	91	35	7.8	N
03-04-06	29.4	20.6	86	36	8.5	E
04-04-06	27.9	21.6	92	25	10.2	NW
05-04-06	25.9	212	93	24	9.2	NW
06-04-06	26.8	22.2	92	26	8.0	NE
07-04-06	28.4	20.5	94	23	12.0	N
08-04-06	26.6	18.4	90	31	9.0	NE
09-04-06	26.4	22.0	90	33	8.6	N
10-04-06	29.2	21.0	85	36	10.0	NW
11-04-06	30.6	21.4	88	32	9.5	NW
12-04-06	28.6	22.4	86	28	8.2	N
13-04-06	26.4	20.3	85	27	9.0	N
14-04-06	28.1	20.2	86	26	9.7	NW
15-04-06	29.4	19.0	80	26	8.2	NE
16-04-06	28.1	19.5	83	24	5.3	NE
17-04-06	27.4	20.3	88	28	4.8	N
18-04-06	28.4	21.3	86	26	5.3	NE
19-04-06	29.4	21.3	87	30	5.6	N
20-04-06	28.1	21.3	85	30	6.0	N
21-04-06	28.4	20.5	86	35	3.4	NE
22-04-06	29.5	23.4	85	30	3.9	NE
23-04-06	28.1	21.6	83	32	3.4	NW
24-04-06	29.2	22.5	85	30	5.4	N
25-04-06	28.6	15.6	85	35	5.8	NW
26-04-06	26.8	17.6	84	33	8.9	NE
27-04-06	28.1	16.0	85	34	9.8	NE
28-04-06	29.4	15.6	89	32	3.3	N
29-04-06	28.6	16.8	90	31	8.5	SE
30-04-06	26.7	15.2	92	30	6.7	SW
31-04-06	29.4	17.2	85	28	5.8	SE

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ANNEXURE – XI

Maximum & Minimum Temperature, Relative Humidity, Average Wind Speed & Direction.

Date	Temperature in ^{0} C		Relative humidity in %		Avg. Wind speed in Km	Wind direction
	Max	Min	Max	Min		
01-05-06	28.2	19.2	82	34	6.4	NE
02-05-06	29.2	18.2	87	32	5.9	N
03-05-06	30.4	19.6	84	33	8.1	NW
04-05-06	28.9	20.0	86	30	10.8	NW
05-05-06	26.9	20.1	83	28	9.4	N
06-05-06	27.6	20.2	90	33	8.2	NE
07-05-06	29.4	21.5	88	28	11.0	N
08-05-06	28.2	20.4	92	30	8.0	NE
09-05-06	27.4	21.0	87	32	8.4	N
10-05-06	28.2	22.0	88	36	9.0	N
11-05-06	29.3	20.5	87	32	9.2	NW
12-05-06	28.6	20.4	88	28	8.2	NW
13-05-06	27.4	21.3	85	26	9.0	NE
14-05-06	29.1	19.3	86	29	9.6	N
15-05-06	30.4	19.8	85	30	8.4	NE
16-05-06	30.1	19.4	84	29	5.9	NE
17-05-06	29.3	19.7	86	30	3.8	N
18-05-06	28.4	21.0	86	28	5.6	NE
19-05-06	28.5	20.0	85	32	5.1	E
20-05-06	29.1	20.3	85	30	8.0	N
21-05-06	29.4	22.4	86	35	4.2	NE
22-05-06	28.5	22.5	85	30	3.5	NE
23-05-06	28.1	22.4	87	32	2.8	NW
24-05-06	26.2	20.6	88	30	2.5	NW
25-05-06	28.6	16.6	86	35	2.7	N
26-05-06	29.6	16.8	84	33	3.8	NE
27-05-05	29.1	16.5	84	34	4.8	NE
28-05-06	30.0	16.2	90	30	3.6	E

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ANNEXURE – XII

Frequency Distribution

Direction	Frequency distribution wind direction in KM			Total	Frequency distribution in %			Total
	0 to 5	5 to 10	10 to 15		0 to 5	5 to 10	10 to 15	
N	05	20	03	28	5.56	22.22	3.33	31.11
NE	07	23	02	32	7.78	25.57	2.22	35.57
E	01	07	-	08	1.11	7.78	-	8.89
SE	01	03	-	04	1.11	3.33	-	4.44
S	01	01	-	02	1.11	1.11	-	2.22
SW	-	01	-	01	-	1.11	-	1.11
W	-	-	-	-	-	-	-	-
NW	03	10	02	15	3.33	11.11	2.22	16.66
CALM	-	-	-	-	-	-	-	-
TOTAL	18	65	07	90	18.89	73.34	7.77	100.0

No. Of observations: 90

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DUST FALL RATE

Date of sampling: 15-03-2006

Location Code	Location	Dust fall in Mg/ sqm/month
DF1	At Mines	1109
DF2	Ramghad Village	568

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ANNEXURE - XIV

Ambient Air Quality Data

Season: Summer 2006
UNIT: Ug/cum

Date	24 Hours Average			
	SO_2	NO_x	SPM	RPM
ML Area (A1)				
05-03-2006	10	14	85	16
06-03-2006	09	08	92	18
11–03-2006	11	10	91	15
12-03-2006	12	11	88	17
19-03-2006	09	10	92	18
20-03-2006	13	12	94	19
25-03-2006	10	11	93	17
26-03-2006	08	09	91	16
05-04-2006	14	10	90	15
06-04-2006	13	09	94	19
11–04-2006	16	15	89	17
12-04-2006	17	11	88	18
19-04-2006	11	14	91	15
20-04-2006	17	10	90	19
19-04-2006	12	16	92	18
20-04-2006	09	08	88	17
04-05-2006	14	13	86	16
05-05-2006	11	12	80	16
11-05-2006	16	14	85	17
12-05-2006	13	10	84	18
19-05-2006	12	13	81	15
20-05-2006	10	09	85	16
24-05-2006	09	08	87	19
25-05-2006	13	12	89	15

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Date	24 Hours Average			
	SO_2	NO_x	SPM	RPM
Ramghad Village-A2				
05-03-2006	09	11	130	21
06-03-2006	08	07	126	20
11-03-2006	11	10	112	19
12-03-2006	10	14	115	18
19-03-2006	09	10	118	20
20-03-2006	13	12	119	21
25-03-2006	10	11	127	19
26-03-2006	08	09	129	20
05-04-2006	14	10	115	21
06-04-2006	10	16	110	23
11-04-2006	11	14	121	22
12-04-2006	18	16	122	23
19-04-2006	11	14	125	20
20-04-2006	17	10	124	19
19-04-2006	12	16	112	22
20-04-2006	09	14	111	21
04-05-2006	14	13	100	20
05-05-2006	10	12	120	18
11-05-2006	16	12	101	19
12-05-2006	13	10	104	20
19-05-2006	11	13	106	21
20-05-2006	10	15	105	22
24-05-2006	09	08	121	19
25-05-2006	13	11	122	21

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Date	24 Hours Average			
	SO_2	NO_x	SPM	RPM
Jaisinghpura Village –A3				
05-03-2006	18	16	87	19
06-03-2006	08	09	96	16
11–03-2006	14	10	88	18
12-03-2006	10	13	89	20
19-03-2006	11	10	85	21
20-03-2006	13	14	90	18
25-03-2006	12	11	88	17
26-03-2006	08	16	86	18
05-04-2006	12	10	89	21
06-04-2006	10	11	85	20
11–04-2006	15	14	94	16
12-04-2006	18	14	93	17
19-04-2006	10	14	90	18
20-04-2006	17	12	94	21
19-04-2006	12	16	91	19
20-04-2006	09	14	93	20
04-05-2006	14	13	92	17
05-05-2006	10	12	94	19
11-05-2006	14	12	90	16
12-05-2006	13	11	88	17
19-05-2006	10	13	86	18
20-05-2006	14	11	87	19
24-05-2006	09	08	90	18
25-05-2006	14	16	89	17

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Date	24 Hours Average			
	SO_2	NO_x	SPM	RPM
Venkatagiri Village-A4				
05-03-2006	07	06	138	16
06-03-2006	06	07	133	15
11–03-2006	08	08	131	19
12-03-2006	05	09	132	20
19-03-2006	06	06	137	17
20-03-2006	07	08	128	18
25-03-2006	08	09	134	17
26-03-2006	06	07	135	18
05-04-2006	05	08	134	19
06-04-2006	06	06	136	20
11–04-2006	08	07	129	19
12-04-2006	05	06	128	18
19-04-2006	06	06	131	20
20-04-2006	07	08	129	18
19-04-2006	08	07	130	19
20-04-2006	07	08	137	20
04-05-2006	05	07	127	17
05-05-2006	07	09	129	19
11-05-2006	05	08	127	17
12-05-2006	08	09	132	16
19-05-2006	07	07	134	20
20-05-2006	06	06	135	19
24-05-2006	08	08	131	18
25-05-2006	05	06	138	19

National Ambient Air Quality Standards

Units (ug/m^3)	SPM	RPM	SO_2	NOx
Industrial	500	150	120	120
Residential, Rural & other areas	200	100	80	80
Sensitive Areas	100	75	30	30

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ANNEXURE –XV

WATER QUALITY DATA

DATE OF SAMPLING: 08-03-2006

Sl. No	Parameters	Unit	SI Limits	GW1	GW2
PHYSICAL PARAMETERS					
1	Color		Unobject	Color less	Color less
2	Odor		Unobject	Odorless	Odorless
3	Taste		Unobject	Tasteless	Tasteless
4	PH	--	6.5 –8.5	7.10	6.09
5	Conductivity	Umhos/cm	--	1285.00	2097.00
6	Total dissolved solids	mg/l	500-2000	1028.00	1677.60
7	Turbidity	NTU	5-10	1.00	0.00
CHEMICAL PARAMETERS					
8	Total Alkalinity as CaCo3	mg/l	200-600	560.00	580.00
9	Total hardness as CaCo3	mg/l	300-600	460.00	425.00
10	Calcium as Ca	mg/l	75-200	116.80	209.60
11	Chloride	mg/l	250-1000	148.00	358.00
12	Sulphate	mg/l	200-400	35.69	75.84
13	Nitrate	mg/l	45-100	20.84	39.08
14	Sodium	mg/l	150	8.40	4.57
15	Potassium	mg/l	--	1.55	0.50
16	Fluoride	mg/l	0.5-1.5	0.61	0.57
17	Magnesium as Mg	mg/l	30-100	38.88	30.91
18	Iron	mg/l	--	Nil	Nil
Potable/non-potable					

GW1: Ramghad Village Bore Well water
GW2: Jaisinghpura Village Bore well water

Samples analyzed at M/s Bapuji Institute of Engineering & Technology, Davangere.

M/s Earth Envirotech, Mining & Environmental Consultants, No.82/8/b, K. C. Road, Bellary-583 101. Phone: 08392- 271937, Mobile: 9448173166, E-mail: habeebbly@rediffmail.com

ANNEXURE – XVI

NOISE LEVEL DATA

Unit: dB (A)
Date of Sampling :09.03.2006

Sl. No.	Code No.	Locations	Noise level dB (A)		Operations
			Max.	Min.	
1.	N1	ML Area	48.9	43.2	General
2.	N2	Ramghad	49.2	44.5	General
3.	N3	Jaisinghpur	48.0	41.4	General
4.	N4	Venkatagiri	50.2	42.2	General

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ANNEXURE XVII

SOIL QUALITY DATA

Date of Sampling: 11.03.2006

Sl. NO	Parameters	S1	S2	S3
	Time of sampling	15.20	13.10	14.05
1.	Ph	7.4	7.5	8.3
2.	EC (Micro mhos)	0.82	0.72	0.76
3.	Total soluble salts (%)	0.03	0.04	0.04
4.	Nitrate as N {mg/kg)	250	278	230
5.	Phosphorous an P_2O5 (mg/kg)	68	82	79
6.	Potassium as K (mg/kg)	41	40	40
7.	Sodium as Na (mg/kg)	60	70	71
8.	Magnesium in Mg (mg/kg)	86	70	61
9.	Calcium as Ca (mg/kg)	630	542	634
10.	Chloride as Cl (mg/kg)	141	139	149
11.	Organic matter %	0.5	0.4	0.4
12.	Texture a) Sand %	62	65	65
	b) Silt %	20	24	19
	c) Clay %	18	11	16
13.	Maximum water holding capacity in %	30.4	44.6	42.4

Code Location.
S1 = ML Area
S2 = Agricultural Land of Ramghad
S3 = Agricultural Land Soil of Jaisinghpur Village

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