

EXECUTIVE SUMMARY

For

OVER AN EXTENT OF 43.319 HACTARES OF QUARTZITE MINE

Sy. No. 425 of Chinthakunta Village, Muddanuru Mandal, Kadapa District of Andhra Pradesh.

Proposed By

M/s. MANGALORE MINERAL TRADERS

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Prepared By



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EXECUTIVE SUMMARY

1.0 INTRODUCTION

The Mining Lease area of 43.319 Ha. Quartzite Mine of **M/s. Mangalore Mineral Trades**, located in Sy.No. 425 of Chinthakunta Village, Muddanur Mandal, Kadapa District, Andhra Pradesh State.

Originally the lease was granted to Smt. S. Khader Bee, Muddanur, for mining of Quartzite, white shale and Yellow Ochre over an extent of 43.319 Ha in Sy.No. 425 of Chintakunta Village, Muddanur Mandal, Kadapa District, Andhra Pradesh State. The lease was granted vide G.O. Ms. No. 44, I & C (M III) Department dated 24-02-2003 for 20 years with effect from 08-04-2003 and valid up to 07-04-2023 (Proceedings of the Asst. Director of Mines & Geology Yarranguntla Vide Proc No. 811/M3/2003 dated 08-04-2003). Later the mining lease was **transferred in the name of M/s Mangalore Mineral Trades**, Mangalore Vide G.O. M.S. No. 136 Indus & Comme (M III) department dated 30-06-2004 and proceedings of the Asst. Director of Mines & Geology Yerraguntla vide Proc No. 1888/M3/2004 dated 21-08-2004. A mining plan was approved by the Directorate of Mines & Geology, Hyderabad vide Letter No. 37582/MP-2/2002, dated 20-01-2003. The validity of Mining plan period ends on 31-03-2008. Subsequently a mining scheme was prepared and got approved by DMG, Hyderabad vide approval letter No:218/MS-YGL/2015 dated 07-05-2015.

Presently the mine is in non-working condition from 2004 to till date. The total cost of the project is 25 Lakhs only. Lessee proposes to produce about 3,90,000 TPA of Quartzite mineral.

As per TOR Letter No: No. SEIAA/AP/KDP-85/2015-2996 dated 07th August, 2015, issued by SEIAA, A.P. the lessee has to obtain Environmental Clearance from State Environmental Impact Assessment Authority, Andhra Pradesh.

Accordingly the lessee has evaluate the possible environmental aspects and their associated impacts that will be arise due to the production of 3,90,000 TPA of Quartzite and to delineate the management plan to prevent, control, mitigate or minimize the adverse environmental impacts envisaged. The data collected for this mining project during post monsoon season i.e. for the months of October 2015 to December 2015. M/s. Global Enviro Labs have prepared an EIA covering an area of 10 kms radius from the project site.

2.0 DETAILS ABOUT THE MINE

The proposed mine deals with the production of 3,90,000 TPA of Quartzite, in Survey No. 425 of Chinthakunta Village, Muddanur Mandal, Kadapa District of Andhra Pradesh. The lease area will be worked by manual open cast method by using drilling & blasting.

The applied area is located about 0.3 km from Kammavaripalle Village and it is about 9 kms from Muddanur mandal and Renigunta air port is about 150 km. The applied area is accessible by means of Jeeps and Lorries.

2.1 MINING

The mining is done by open cast method. It is proposed to mine Silica Sand from Quartzite deposit, which is running north-west and south-east in the ML area as shown in the Geological Plan. The Quartzite (Silica Sand) production will be obtained by excavating two benches with height ranging from one to three mts. One after the other from higher level to lower levels. All operations will be carried out manually without Drilling & Blasting by using machinery (as per the TOR Ir no: SEIAA/AP/KDP-85/2015-2996 Dated 07-08-2015). It is expected that the mine will be operated for 300 days in a year. There will not be much development work involved in proposed mining area because, the Quartzite (Silica sand) is exposed to surface without much overburden. During the ensuing scheme period, it is proposed to raise about 8,13,100 Tones of Quartzite (Silica Sand) by excavating two benches. The working will be started on SW side and then advanced towards NE of the quartzite (Silica sand) deposit as shown in production and Development plans. As the workings are proposed on higher elevations no ground water is expected into the working pits. The rainwater that accumulates in the workings during monsoon will be bailed out by installing a diesel operated pump set. The mine will work in one shift of eight hours duration and six days in a week, for 300 days in a year.

3.0 COLLECTION OF BASELINE DATA

The data collected for this mining project to know the existing quality of air, water, soil characteristics, flora & fauna, noise levels and socio economic details of the study area during the post monsoon season i.e. for the months of October 2015 to December 2015.

3.1 AIR ENVIRONMENT

In order to assess the existing ambient air quality in the study area of 10 km radius of the mine area, a network of 8 ambient air quality stations were selected and samples were collected to analyze for various parameters like PM_{2.5}, PM₁₀, SO₂, and NO_x concentrations. The sampling stations were selected based on the Topography/ Terrain of the study area, Populated areas, Residential areas etc.

The values of ambient air quality of all the monitoring stations for various parameters during the study period (October 2015 to December 2015) will be as following.

The maximum value of PM_{2.5} in the proposed project area is 23 µg/m³, PM₁₀ is 39.0 µg/m³, SO₂ is 6.7 µg/m³ and NO_x is 6.8 µg/m³.

The average value of PM_{2.5} in the buffer zone in the range of 19.5 – 28 µg/m³, PM₁₀ in the range of 35 – 50.5 µg/m³, SO₂ in the range of 5.5 – 7.6 µg/m³ and NO_x in the range of 6.8 – 7.7 µg/m³.

The concentrations of various parameters in the air quality of the study area were found to be well within the norms prescribed by NAAQ.

3.2 NOISE ENVIRONMENT

In order to know the baseline noise levels, in and around the Mine site, Noise levels were measured at the Mine complex and also at 8 villages in the study area. The day-night noise levels were monitored at all locations and the maximum noise levels ranging from 51.5 dBA to 65.4 dBA. The noise levels recorded at all the stations were found to be less than the standards prescribed.

3.3 WATER ENVIRONMENT

In order to assess the Groundwater quality impacts 6 nos of samples were collected. These samples were analyzed for various physical and chemical and bacteriological parameters to know the potability levels.

All the water samples collected shows that the parameters well within the drinking water standards specified in IS 10500.

3.4 LAND ENVIRONMENT

7 nos. of soil samples were collected and analyzed for Physical & Chemical parameters.

3.5 BIOLOGICAL ENVIRONMENT

The details of flora and fauna present in the study area were described elaborately in the EIA report

3.6 SOCIO-ECONOMIC ENVIRONMENT

The detailed description of the Socio-Economic Environment is presented in the EIA report.

4.0 ENVIRONMENTAL IMPACTS

4.1 AIR ENVIRONMENT

The impacts on air environment from a mining activity depend on various factors like production capacity, machinery involved, operations and maintenance of various equipments and vehicle. Apart from these, there will be other activities associated viz transportation of mineral and waste, stocking facilities and dump management within the mine lease area that may contribute to pollution.

An attempt has been made to predict the incremental rise of various ground level concentrations above the baseline status in respect of air pollution due to proposed silica sand & quartzite production for a total quantity of 4,16,000 TPA. The Industrial Source Complex – Short Term model (ISCST3) is a computerized air quality model, which was approved by United States Environmental Protection Agency for mining applications is used for predicting the Ground Level Concentrations (GLC) due to the mining activity.

The maximum ground level concentration of PM10 is estimated to be about 22.9 µg/m³ within the mine area and the same was found to reduce to a value of less than 7.6 µg/m³ at a distance of about 0.5 km from the mining operations towards down wind direction.

The net concentration of PM10 in the mine area and buffer zone is well within the National Ambient Air Quality Standards (NAAQS). Hence there will not be any adverse impact on air environment due to the proposed mining activity.

Air Environments in Core & Buffer Zones – Post Project Scenario

µg/m³					
CORE ZONE		BUFFER ZONE			
		Village Name	Baseline Concentration (PM10)	Predicted Concentration	Overall Scenario
Baseline Concentration PM10 (Max)	39	Down wind direction	43	7.66	5.66
Predicted Concentration (Max)	22.9	Kammavaripalle	52	<2.55	54.55
Overall Scenario	61.9	Chinthakunta	56	<2.55	58.55
		Aravetipalle	47	<2.55	49.55
		Denepalle	49	<2.55	51.55
		Yamavaram	60	<2.55	62.55
		Bondalakunta	44	<2.55	46.55
		Baduguvaripalle	42	<2.55	44.55
Specified NAAQ limit	100	Specified NAAQ limit for Residential area			100

4.2 WATER ENVIRONMENT

The Mining activity is on hill area and will not have any effect on the ground water and the static water table in this area is below 40 m.

There are no major streams and rivers, which can get effected by the mining. Hence, there will be no effect on the surface water

The rainwater drains the slopes of the area and joins to seasonal nallahs, which is running in out side the area.

Water samples collected from bore wells located in the buffer zone have indicted that the ground water is free form heavy metal concentration and after implementation proposed mining activity will not interference on the water quality.

Water Consumption & Wastewater Generation

The water requirement for this mining activity will be 19 KLD. Breakup details are:

Dust suppression purpose: 15.0 KLD, Domestic purpose: 2.0 KLD, Greenbelt purpose: 2.0 KLD

There is no generation & discharge of wastewater from this mine. About 0.5 KLD of Domestic Effluent will be generated from this mine and this will sent to septic tank fallowed by soak pit

4.3 NOISE ENVIRONMENT

The ambient noise levels in the mine area will be in with in stipulated standards. Hence, there will not be any adverse impact on noise environment due to the proposed mining activity.

4.4 LAND ENVIRONMENT

RECLAMATION

Reclamation of mined out portions are not proposed during schem period as the mining operations will not reach to the full extent of mineral deposit. Progressive trenching and embankment by safety bunding will be taken up. As a measure of protection 2m corridor all along the lease corridor a protection bund will be raised, a safety pit will be excavated with 1.5m width and one meter depth will be excavated to avoid the trespassing of the human and cattle / wild life into the lease hold area. The pit slope will be maintained a 23° in order to protect humans and cattle / wild life protection.

WASTE GENERATION

No Waste is anticipated from this mine except topsoil which will be stacked over and used for plantation purpose. For winning of Quartzite (Silica Sand), top soil must be removed as a part of development. The dumping area is selected in southern side of the mine workings and ultimate pit limit covering an area of 0.60 Ha. As the ore body is exposed on the hill top, open cast method has been adopted. A bench height of 3m is proposed and width of the bench will be more than 6 m. The total area is proposed to be opened into benches in descending order. All active dumps will be reclaimed concurrent to mining operations and at the foot of the dump retaining walls will be constructed to avoid wash off the material. At foot of the hills the check dams will be constructed across the valleys & also gully plugs will be constructed at the gullies.

Nature of top soil/ waste and mineral rejects

There is little top soil will be generated during the scheme period however this will be utilized for afforestation purpose.

4.5 BIOLOGICAL ENVIRONMENT

It is evident from the baseline data on flora and fauna of the core area and the buffer zone there are no RET species. The area is not ecologically sensitive. The proposed mining activity shall be confined a hilly area surrounded by scrublands or barren hills. The direct

adverse impacts of the mining activity shall be limited to the area where deposits are located. At least 23 Ha out of the total 43.319 Ha shall not be disturbed during the first five years. It means, less than 50% is going to be diverted for mining during the first five years. In the remaining 50% of the MLA no damage shall be done to the vegetation cover. The MLA currently provides firewood and thatching material. With the provision of LPG under the Deepam scheme and pucca houses under the weaker sections housing schemes, the demand for these two materials has already declined. Rain water is diverted and stored in mine pits and used for dust suppression and plantations. In fact in an area like the mine under consideration rain water harvesting and ground water can only be beneficial. The same water is going to be used for greenbelt development

Impact of the project on grazing:

- Vegetation in about 20 Ha is going to be destroyed and the remaining mine lease is for the use of the current users and dependents. Loss of fodder and grazing resources from the 20 Ha is negligible. Over 50% of the MLA shall remain under the cover of thorny bushes dominated by *Ziziphus horrida*. Undisturbed MLA is a source of fodder for goats and it shall continue to serve the same purpose. In fact the goats help to propagate the thorny bushes found in the MLA.

4.6 SOCIO-ECONOMIC ENVIRONMENT

It will be obvious to assume that the activities of the mining operations have to be produced some improvements in the socio-economic levels in the study area.

The proposed mining activities will provide employment to local persons of different skills and trades. The employment potential ameliorated economic conditions of these families directly and provided employment to many other families indirectly who are involved in business and service oriented activities. This in-turn will improve the socio-economic conditions of the area.

5.0 ENVIRONMENTAL MANAGEMENT PLAN

The major objective and benefit of utilizing EIA in mining initial stage itself is to prevent avoidable losses of environmental resources and values as a result of well-planned EMP. Environmental Management Plan includes protection/mitigation/enhancement measures as well as suggestions for the post project-monitoring programme to implemented y the project proponent.

5.1 AIR ENVIRONMENT

Dust is the major pollutant generated from the mining operations. Dust control measures are as follows.

- Applying water for dust suppression on mine haul roads.
- Regular Compaction & grading of haul roads and service roads to clear accumulation of loose material.
- Compaction & gradation on both sides of Haul Roads.
- Controlling speed of dumpers / trucks.
- Avoid overloading of dumpers and consequent spillage on the roads.
- Good maintenance of vehicles & machinery.
- Water sprinklers of fixed type will be provided at the mine approach roads from mine face / benches to crush hopper to prevent the generation of dust.
- Transfer chutes will be provided at mineral discharge points, loading points etc., to minimize discharge height and spread of air borne dust.
- The operators cabin in the drills, dumpers and other HEMMs are provided with dust free enclosure and persons working at high dust prone areas will be provided with dust mask.
- Good housekeeping at the mining, loading will be practiced.
- Avoiding over filling of tippers and consequent spillage on the roads.
- Silica sand and quartzite carrying trucks will be effectively covered by tarpaulin to avoid escape of silica sand and quartzite to the atmosphere.
- Air quality will be regularly monitored both in the core zone and the buffer zone.

5.2 WATER ENVIRONMENT

There will not be any wastewater generation from the proposed mining activity.

The salient features on the mitigation measures are:

- ❖ Garland drain will be provided to check soil wash off during monsoons.
- ❖ Construction of check dams & Gully plugs across seasonal/perennial nallahs flowing through the ML area

- ❖ Run-off from the mining area will be passed through a series of arrestor dams with filter beds to allow settling of solid particles.
- ❖ Contour bunding and trenches are proposed during monsoon to minimize soil erosion.
- ❖ Arrestor wall, protective bunds and trenches will be provided
- ❖ Water quality monitoring will be carried out in all the seasons

5.3 NOISE ENVIRONMENT

To control noise pollution during the proposed mining operations following steps will be practiced.

- Actual noise emissions of the equipment will be ensured that they will be as low as possible.
- Fitting effective mufflers to the equipment wherever required.
- The high temperature time in the afternoon will be selected for blasting which will naturally reduce the noise pollution.
- All roads will be maintained in good condition to reduce vehicle noise. Vehicle noise is exacerbated by high speed and by deceleration and acceleration and these will be avoided.
- The workers will be provided with protection equipment, earmuffs and earplugs as a protection from the high noise level generated at the mine site wherever required.
- Noise levels will be controlled by using optimum explosive charge, proper delay detonators and proper stemming to prevent blow out of holes as well as usage of the sequential blasting machine in combination with non-electric initiation systems.
- Speed of trucks will be limited to moderate speed of 25 KMPH to prevent undue noise from empty trucks.
- Planting of trees has been taken up along the mining lease boundary for controlling noise apart from earmarking the limit of the mine pit boundary.
- Proper maintenance will be done for noise generating machinery including transport vehicles

5.4 LAND ENVIRONMENT

5.4.1 WASTE MANAGEMENT

No Waste is anticipated from this mine except topsoil which will be stacked over and used for plantation purpose. For winning of Quartzite (Silica Sand), top soil must be removed as a part of development. The dumping area is selected in southern side of the mine workings and ultimate pit limit covering an area of 0.60 Ha. As the ore body is exposed on the hill top, open cast method has been adopted. A bench height of 3m is proposed and width of the bench will be more than 6 m. The total area is proposed to be opened into benches in descending order. All active dumps will be reclaimed concurrent to mining operations and at the foot of the dump retaining walls will be constructed to avoid wash off the material. At foot of the hills the check dams will be constructed across the valleys & also gully plugs will be constructed at the gullies.

Nature of top soil/ waste and mineral rejects

There is little top soil will be generated during the scheme period however this will be utilized for afforestation purpose.

5.5 AFFORESTATION PLAN

This is the most important task in developing a structurally strong and functionally sound greenbelt. But very little attention is paid to this aspect. It is the job of a specialist such as a botanist or horticulturist or silviculturist or an experienced farmer and a committed gardener. The primary consideration in the design and development of the greenbelt is the choice of plant species. It depends on suitability of soil, climate, and availability of water, extent of land available, nature of pollutants; its atmospheric emissions and other local circumstances such as the availability of planting stock.

In the present case, all the natural shrubs growing in the area where no mining is going to be undertaken shall be allowed to grow. Their growth shall be enhanced by aided natural regeneration which includes singling and digging of semilunar trenches at a distance of about 50 Cm to 100 Cm for trapping water and soil. Large gaps will be filled by sowing scarified and pelletized (with dung) seeds of the local shrubs.

Garland drains shall be dug out around the waste dumps. Rain water will be diverted to old mine pits. Stem cuttings of Konda Vepa (*Chukrasia tabularis*) of about 1.5 to 2 m length and 10 to 20 Cm girth will be planted very closely in a rooting mixture of soil, sand and organic manure. The distal cut ends will be covered with wet dung as caps. These cuttings shall be watered and allowed to produce roots and new shoots. Rooted stem cuttings shall be transplanted in a couple of rows on the bunds of the garland drains

and watered till they establish firmly. This is the cheapest, easiest and fastest way to develop thick greenery in a dry area like this. This is also the most common local practice and locals are familiar with the process. It also provides employment to the locals.

As a matter of regular practice, it is suggested that thick rows of plants should be grown all along and around the boundary of the mine site. But it may not be feasible in case of mining sites if the mineral reserves are present along the boundary as well. If the mineral deposits or reserves are present along the boundary of the MLA, it is not desirable to develop greenbelt till the mineral deposits are exploited. Further, there may be sheet rocks which render the area unsuitable for tree growth. Thus it is desirable to make use of spaces or places within the mine lease area where mining has been completed and the old pits are back filled and the areas where there are no deposits. Thus depending on the local circumstances either greenbelt on all sides or block plantations within the MLA will be taken up and the top soil present as overburden will be used for reclamation of the areas meant for plantations.

Based on suitability, desirability and adaptability, a short list of plants is chosen for greenbelt, avenue and block plantations and presented in EIA report.

5.6 OCCUPATIONAL HEALTH & SAFETY

- ❖ Providing a working environment that is conducive to safety & health
- ❖ The management of occupational safety & health is the prime responsibility of mine management from the executive level to the first line supervisory level
- ❖ Employee involvement and commitment in the implementation of health and safety guidelines
- ❖ Provision of all necessary resources
- ❖ Implementing safety and health management system and assessing the effectiveness through periodic audits
- ❖ Setting of safety and health objectives based on comprehensive strategic plans and measure performance against these plans
- ❖ Monitoring the effects of mining activities on safety and health and conducting regular performance reviews
- ❖ Provision of necessary personal protective equipments
- ❖ Establishing and maintaining a system of medical surveillance for employees

- ❖ Ensuring employees at all levels receive appropriate training and are competent to carry out their duties and responsibilities

5.7 IMPLEMENTATION OF EMP & MONITORING PROGRAMME

The lessee will ensure the implementation of the measures within the mine area and carryout efficient monitoring. In order to implement the measures suggested for mitigating the adverse impacts on the environment, it is suggested to monitor the environmental parameters regularly.

5.8 CONCLUSION

The mine is proposed for annual production of only 3,90,000 Tonnes /Annum of Quartzite. The mine shall be worked, fulfilling all statutory obligations as prescribed by DMG, DGMS, MoEF and APPCB. The proposals are submitted for Environmental clearance to SEIAA, A.P.