E. V. RANGA REDDY

(Iron ore and Laterite Mine – 201.914 Ha)
Sy. No. 172, Pagadalapalli Village,
Pendlimarri Mandal, YSR District, Andhra Pradesh

EXECUTIVE SUMMARY

SUBMITTED TO
ANDHRA PRADESH POLLUTION CONTROL BOARD,
REGIONAL OFFICE, TIRUPATI

EXECUTIVE SUMMARY

Introduction

The Mining industry in India is a major economic activity which contributes significantly to the economy of India. India is the largest producer of sheet mica, the third largest producer of iron ore and the fifth largest producer of bauxite in the world. Indeed, it has been argued that iron ore is "more integral to the global economy than any other commodity, except perhaps oil".

Sri E. V. Ranga Reddy proposes to conduct opencast semi mechanized mining for low grade Iron ore and Laterite over an extent of 201.914 ha in Sy. No. 172, Pagadalapalli Village, Pendlimarri Mandal, YSR District, Andhra Pradesh. No Objection Certificate was issued by Sarpanch & Panchayat Secretary of Pagadalapalli Village, Cherlopalli Gram Panchayat in their resolution dated 30.3.2004 for grant of mining lease. Tahasildar (Mandal Revenue Officer) issued No Objection Certificate for grant of mining lease for an extent of 498.93 acres (201.914ha) vide Letter Rfe/36/04 dated 10-5-2004 with a land classification of hill poramboke. Government of Andhra Pradesh, Industries and Commerce (M-III) Department sanctioned the Mining Lease (ML) order vide G. O. Ms. No. 73 dated 13-03-2006 for a period of 20 years. Assistant Director of Mines and Geology (ADM&G), Kadapa has executed the mining lease deed and work orders issued vide proceedings No. 695/M1/06, dated 25.03.2006 for 20 years period with effect from 25.3.2006 to 24.3.2026. The demand for Iron and steel has increased the demand for Iron ore. Considering the growing demand of Iron ore, it is proposed to undertake mining activity in the existing mine lease area for low grade Iron ore production of 2,74,000 TPA and Laterite production capacity of 62,000 TPA and the mining scheme is prepared for four years i.e. 2012-13 to 2015-16. The Scheme of mining is approved by Indian Bureau of Mines, vide Lr. No. 659 (532)/Iron ore & Lat/2005/Hyd. dated 25.3.2013 for annual production of 2,74,000 TPA of low grade Iron ore and 62,000 TPA of Laterite. The capital cost of the project is Rs. 3.0 Crores.

Ministry of Environment and Forest (MoEF), Government of India Issued a notification vide S.O. 1533 dt. 14/9/2006; mandates prior environmental clearance for various developmental project or activity. Mining of Minerals spread over ≥ 50 ha of mining lease area needs to obtain prior environmental clearance vide Serial No. 1(a) under category 'A' of the schedule of the above mentioned notification. Accordingly the project proponent

obtained terms of reference from Ministry of Environment, Forests and Climate Change, Government of India (GOI) for conducting environmental study and prepare Environmental Impact Assessment (EIA) and Environment Management Plan (EMP), following the due process as mentioned in the said notification, vide letter no. J-11015/46/2013-IA. II (M) dated 18.7.2014. The present study follows the prescribed TOR's after necessary due diligence regarding violation of EP act, and the draft EIA report is prepared in partial fulfillment of public consultation process.

M/s Team Labs and Consultants have prepared Environmental Impact Assessment Report for the proposed activity. The report has been prepared based on; detailed characterization of status of environment in the area of 10 km radius from mine site for major environmental components including water, air, noise, soil, flora, fauna and socio-economic environment for one season; assessment of air emissions, liquid and solid wastes from the proposed mining activity along with noise level assessment and pollution control measures proposed to be adopted.

Mine Location

The mine lease area is situated on Survey of India topo sheet no. 57J/11 with co-ordinates of 14° 26' 18.1" - 14° 27' 17.7" N Latitude and 78° 36' 01.5" - 78° 37' 04.2" E Longitude with a highest elevation of 244m above MSL in Southwest portion of ML area and lowest elevation of 187m above MSL in northeast portion of the ML area spread over an extent of 201.914 Ha. Pagadalapalli village is located at a distance of 1.0km in East direction from the ML area boundary. There is no forest land or habitation within mine lease area and it is classified as hill poramboke. The main road access for ML area shall be Kadapa-Vempalli road which is at a distance of 250m from the ML area in south direction. Pendlimarri Mandal headquarter (Kadapa - Vempalli road) is located at a distance of 2.3 km from the lease area in east direction. Pendlimarri to Nagayapalle road is passing at a distance of 250m from the ML area in east direction. Major Town and railway station is Kadapa town, located at 21km away from the lease area. Papagni River is flowing from SW to NW at a distance of 5.8km from the ML area in NW direction. Ganganapalle reserve forest is located at 4.5km in south direction from the mine lease boundary. There are no national parks, wildlife sanctuaries, critically polluted areas and inter-state boundaries within 10km radius of the ML area.

Proposed Method of Mining

The mine workings are being carried out by manually or by using hired excavator as most of the working area is covered by the float ore. It is also proposed to use Jackhammer drilling, blasting and excavator to remove the hard ore body (Hard ore) whenever necessary. Laterite/iron ore excavations are proposed to be carried out in two benches of 3m height & 3m width with the help of excavator without drilling and blasting from three places i.e. between pit-4, pit-6 & pit-7 to produce about 62,000 (25-45% Fe) tons of Laterite per year on an average and 2,74,000 (45-58% Fe) tons of Iron ore per year on an average in four years. The present average depth is 8m in these pits and the mining operations will continue to another 7m depth in these pits as the hematite hard ore bands are available upto 15m depth. The excavated ROM will be screened manually with different sieves and the ROM will be separated as lumpy ore, fines and waste. The waste is dumped at proposed dump yards. The lumpy ore will be shifted to the crusher by tractor cum trolley and the fines will be loaded into hired trucks for transportation to Steel, Sponge Iron and Cement plants. Based on the availability of manpower, the loading of mineral into trucks/ tractor cum trolley will be carried out manually or by hired loader.

Conceptual Plan

The existing method of mining is semi mechanized mining by using hired excavator occasionally without drilling and blasting and the same will be carried out to obtain the targeted production of about 2,74000 tons of Iron Ore (45-58 % Fe) and 62,000 tons of Laterite per year. During next four years period the working Pit-4 will be advanced towards west to east and Pit-7 is advanced to east to west initially and later these working will be advanced towards southwest and east to merge in to a single pit. During the four years period over an extent of 6.27 ha additional area is proposed for mining to an average depth of 9m. During the period of four years about 4,92,313 m^3 of ROM of waste will be generated from this mine and it will be used for backfilling the worked out pit-5, which is located on NE side of the area over an extent of 42,260 m^2 and old Dump-4 is proposed for rehabilitation over an area of 0.364ha. The Pit-5 already reached about 17m depth. Ore is available up to 15m depth, after 15m depth shale is encountered. During the period of next four years reclamation and rehabilitation is proposed in pit-5, while mining will be continued in the remaining pits up to a depth of 15m. The reclaimed land will be rehabilitated by plantation of saplings.

Life of Mine

The total mineable reserves are estimated to be 21,37,589 tons of Iron ore and Laterite and the annual production proposed is 2,74,000 (45-58 % Fe) tons of Iron ore and 62,000 (25-45 % Fe) tons of Laterite. The anticipated life of the mine will be 6.36 years, say about 7 years.

Employment Potential

The manpower requirement for the above mentioned production capacity is approximately 184 nos. In the proposed total production of 3,36,000 (Iron ore & Laterite) tons; about 70% (235200 Tons) of mineral will be produced through machinery and the remaining 30% (100800 tons) of mineral will be produced by workers at the rate of 2 tons/head per day. About 168 unskilled workers are required for mining; they are supervised by Mines manager and other staff.

Site services

The area allocated for site services like mine office, first aid cum rest shelter, watchman room, fuel shed, toilets, crushing plant, weigh bridge, store room, mess and generator room is 0.64 ha. Temporary sheds with cement plastered brick walls and G.I. sheet are constructed. In case of minor injuries to the working personnel, first aid kits are always available in the mine's office and will be utilized. The primary health center is located in Pendlimarri which is at a distance of 2.3km.

Water Requirement and Effluent Generation

The total water requirement is 15 KLD. Water requirement for the project is mainly for maintaining the green belt (3KLD), for sprinkling on the haul roads (2.5KLD) to mitigate dust emissions, occasional wet drilling (0.5KLD) and for domestic purposes (9 KLD). The water will be sourced from unused pits which has water storage for the above purposes except for domestic purpose. The domestic water will be drawn from neighboring village.

Baseline Environmental Status

The baseline data for ambient air quality, surface and ground water quality, noise, and soil quality was collected and analyzed for various parameters to determine the existing quality and flora and fauna study of the impact area was conducted during period of March – June 2014. The ambient air quality monitoring results shows that the values are within the prescribed limits of National Ambient Air Quality standards. The surface water source is dry

during data collection period. Ground water sample analysis results show that the values are above the limits for total dissolved solids, total hardness, calcium, magnesium and copper at few locations compared to Indian Standard Drinking Water Specification of IS: 10500-2012. Noise quality parameters in the study area are within the prescribed limits of prescribed Ambient Noise Standards. The details of flora and fauna present in the study area are described elaborately in the EIA Report.

Identification and Quantification of Impacts

The project activities that are likely to cause potential impacts on environment are mining operations and associated infrastructure. Mining operations involve development of benches, haul roads, drilling, blasting, excavation, crusher, handling and transportation of mineral, DG set and waste materials. The likely effects of these activities are land degradation, Fugitive dust generation, noise and vibration levels, increased run-off during monsoon and Human health risks.

ISCST3 model was used for air quality impact predictions. The predicted maximum 24 hourly GLC's of PM_{10} and $PM_{2.5}$ is 0.31 $\mu g/m^3$ and 0.12 $\mu g/m^3$ within the mine lease area. The cumulative values (baseline + predicted) are found to be within the prescribed standards of national ambient air quality.

Environment Management Plan

The management plan is drawn in consultation with the project proponent, mining engineer and geologist after evaluating various methods for mitigation and control of pollution. The environment management plan is drawn to address the impacts monitored, identified and predicted. The environment management plan addresses the impacts identified.

Controlling Dust Emissions

Dust will be generated during mining, drilling, crushing and also during handling and transportation of the material. The haulage of Iron ore and Laterite within the mining area will lead to emissions of fugitive dust in the mining area. It is proposed to provide adequate control measures which include water sprinkling in haul roads to reduce the fugitive dust emissions. Tractor mounted sprinkler will be deployed. Dust generated during occasional drilling and blasting will be suppressed by covering the drill rods by wet gunny cloth and wet drilling operation. DG set shall be located in a separate closed shed with acoustic enclosure

by providing sufficient stack height as prescribed by CPCB. The crusher hopper and unloading point shall be provided with water spray. Bag filter will be provided in the crusher unit and the conveyor systems shall be enclosed. Development of greenery surrounding the crusher area shall also act as barrier.

Noise Pollution Control

Within an operational mine, major noise sources are operation of mine machineries, equipment, occasional drilling and blasting and vehicular movement. The following measures will be adopted to reduce noise levels; Improved silencers, mufflers and closed noise generating parts, Regular and proper maintenance of noise generating machinery including transport vehicles, siting of office and other infrastructures away from the noise sources with the probability of sound waves being directed towards them being least.

It is proposed to provide personal protective equipment like earmuffs, earplugs to the workers who work near noise generating sources. The exposure to noise levels is also mitigated by adopting employee rotation.

Water Resources and waste water generation

The required water of 15 KLD for drinking and other purposes shall be met from nearby villages through tankers for domestic purpose and existing pits for other purposes. The only source of wastewater is domestic consumption, which is in the order of 6.0 KLD. Domestic wastewater shall be sent to septic tank followed by soak pit. The ground water levels are observed to be 40m below ground level, whereas the mining activity is conducted on a hillock at a height of 25 m from ground level and the maximum depth of mine working is 17m. Hence the mining activity shall not disturb ground water regime. To minimize the erosion and contamination of surface water from the workings, garland drain will be made around the working pits and garland drainage is proposed surrounding the new and old waste dumps. To prevent surface water contamination by oil/grease, leak proof containers shall be used for storage and transportation of oil/grease. The rain water accumulating at pit bottom in rainy seasons will be diverted to foot hills by making a drain and settling tanks. A low head diesel pump unit will be deployed for dewatering the working mine pit if such conditions arise. In view of the above there will be minimal impact on water environment due to mining activities.

Land Management

Land degradation is one of the major adverse impacts of opencast mining in the form of excavated voids and also in the form of waste dumps. During plan period about 6.27ha area will be occupied by pit against the existing area of 17.89ha, dumps will occupy about 2.984ha in addition to existing area of 0.88ha and plantation will cover 0.775ha. Site services like office, rest shelter cum first aid center have been developed in an area of 2.24ha and approach road covers an area of 2.06ha. The worked out pit-5 will be backfilled with mine waste and reclaimed land will be rehabilitated by developed green belt and some of the pits are used as reservoir to store the rain water. During the period of next four years reclamation and rehabilitation is proposed to pit-5. During plan period about 19.93 ha area is going to be mined out. Other temporary constructions are dismantled after completion of mine workings.

Waste Management

Topsoil is not generated much from the mining as it is mixed with gravel and it will be treated as waste. The un-saleable material consisting of gravel or fine material with below 25% Fe will be treated as waste. During the next four years about 4,92,313 m^3 of waste will be generated from this mine. In this mine ROM recovery is 50%, remaining 50% shall go as waste and below 25% Fe material from recovery will be considered as mine wastage. During next four years the quantity of ROM rejected and below 25% Fe material generation will be about 5,00,901 m^3. The total ROM waste that will be generated at the end of lease period or life time based on the present reserve estimate is approximately 15,06,749 m^3. Dump yard is proposed in Northern side of the lease area with 284m length, 105m width and to a height of 20m with slopes of 45^0 angles with a bench system having 5m height benches with a capacity of 5,96,400 m^3 to form contour terraces and later the waste will be used for back filling the pit-5 in the coming four years. Retaining walls (with boulders mine waste material) of suitable size will be constructed around the base of the dumps to prevent sliding and wash off of the material. The waste dumps will be stabilized by constructing a retaining wall around the toe of the dump to a length and width of 284m and 1.5m and to a height of 2m at proposed dump area and about 140m length and 1m width to a height of 2m at old dump-4 area. The overall slope will be maintained at 20^0. Hazardous waste like waste oil and used batteries generated from the DG sets and mining machinery will be sent to authorize recyclers.

Socio-Economic Environment

There are no settlements in the ML area. Hence no rehabilitation and resettlement (R&R) is required. The mining activity will improve the economic status of the people around the lease area. The proposed mining project will generate direct employment to 184 personnel. About 160 people will get benefited by indirect employment. Apart from employment, the state government and village panchayath will get royalty due to mining. The project proponent has earmarked an amount of Rs. 30 Lakhs for CSR activities like green belt development, social welfare activities like education, health, communication facility and etc to the surrounding villages.

Green Belt

Greenbelt is proposed as an additional mitigation measure for dust control in addition to water sprinkling. It is proposed to have dense green belt in and around the mine site, crusher area, loading and unloading facilities, and in abandoned mine area during reclamation process. About 0.775ha area on eastern and western side barrier will be planted during next four years. Precautionary measures like regular watering, providing manure and fencing will be taken up to achieve 90% of survival rate of plantation.

Occupational Health and Safety Measures

Protective equipment will be provided to the employees such as safety shoes, helmets and dust masks. Dust masks would be provided for the safety of workers at site, engaged at the strategic locations/dust generation points like drills, loading and unloading points, crushing etc. Dust masks would prevent inhalation of particulate matter thereby reducing the risk of lung diseases and other respiratory disorders. Regular health monitoring of workers will be carried out. The health impact due to dust shall be addressed by rotation of employees from dust generating jobs after periodic health monitoring.

Environmental Monitoring Program

The monitoring program consists of collection and analysis of air, soil, noise and water samples. Environmental monitoring shall be conducted on enarterly basis to assess the pollution level in the ML area and in the surrounding areas as well. An Environment Management Cell shall be established to look after all the environment related activities. This cell will be headed by the Mines Manger. The Environment Management Cell is responsible for all the environmental management activities including environmental monitoring, greenbelt development and to ensure statutory compliance with the regulatory authorities.

Budget for implementation of EMP

Sufficient fund allocation will be made towards environmental management and monitoring program. In order to implement the environmental protection measures, timely funds will be released as per requirement. A capital budget of Rs. 87 Lakhs has been allocated for EMP, with a recurring cost of Rs. 23.8 Lakhs per annum.

Corporate Social Responsibility

It is proposed to spend Rs. 30 Lakhs in five years for CSR activities like medical camps and supply of medicines in nearby villages, health awareness programs like HIV/AIDS, TB, Asthma and other lifestyle related diseases, supply of bags, books, uniforms and educational facilities to brilliant poor students, Plantation and construction of toilets in nearby schools. The management will provide training and awareness on job facilities to unemployed graduates and post graduates, embroidery and tailoring training to backward and weaker section women and finance to local sports persons.