

SRINIVASA MINERALS

(Pyrophyllite Mine - 60.705 Ha)

**Sy. No: 1095, Surabhi Village, Chakrayapet Mandal,
YSR District, Andhra Pradesh**

EXECUTIVE SUMMARY

Submitted By

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EXECUTIVE SUMMARY

Introduction

Pyrophyllite is a hydrous silicate of aluminium. It resembles closely with talc in many physical and optical properties but differs in chemical composition in that talc contains magnesia instead of alumina. Pyrophyllite finds application in high grade ceramics & refractories and also as filler in pesticide industry.

M/s. Srinivasa Minerals proposes to conduct opencast semi-mechanized method of mining for Pyrophyllite with production of 47578.42 TPA over an extent of 150.00 acres (or) 60.705 ha. The production achieved in previous years is 2723 tones. The mine lease is located in survey no. 1095, Surabhi Village, Chakrayapet Mandal, YSR District, Andhra Pradesh. The mining lease was granted by Industries and Commerce (I&C) (M.III) Department, Government of Andhra Pradesh vide G.O. Ms No. 22 dated 18.01.2002 for 20 years period. The mining lease deed was executed and work orders issued by Asst. Director of Mines and Geology, Kadapa vide proceedings No. 473/M3/2002 dated 16.09.2002 for 20 years period with effect from 20.8.2002 to 19.8.2022 (i.e., from the date of registration of lease deed). The proposed mine lease area is a government land situated on highly elevated ground. The Scheme of mining is approved by Joint Director of Mines and Geology, Government of Andhra Pradesh, vide Lr. No. 5576/MS-KDP/2012, dated 28.6.2014. The capital cost of the project is Rs. 50 Lakhs.

Ministry of Environment, Forests and Climate Change (MoEF&CC), Government of India Issued a notification vide S.O. 1533, dt. 14.9.2006 mandates prior environmental clearance for various developmental projects or activities. Mining of Minerals spread over ≥ 50 ha of mining lease area needs to obtain prior environmental clearance from MoEF&CC 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 MoEF&CC, 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-11015/434/2012-IA.II (M) dated

April 22, 2013. The present study follows the prescribed TOR's and draft EIA report is prepared in fulfillment of the public consultation process.

M/s Team Labs and Consultants have prepared an Environmental Impact Assessment Report for the proposed activity. The report has been prepared using baseline data of environmental status within 1 km radius of the mine lease area for major environmental components; water, air, noise, soil, flora, fauna and socio-economic environment for one season, and the proposed measures to be adopted for mitigating and controlling pollution.

Mine Location

The mine lease area falls in survey of India Topo sheet no. 57 J/12 at the intersection $78^{\circ} 32' 21.9''$ - $78^{\circ} 33' 45.2''$ E longitude and $14^{\circ} 13' 27.1''$ - $14^{\circ} 13' 53.5''$ N latitude. The mine lease area includes a part of hillock with highest MSL of 465 m. The mine lease area is surrounded by open land in all directions. The nearest habitation from the proposed active mine area is Muvvulapalle located at a distance of 1.3 km in NW direction. The main road access for ML area shall be Vempalli - Rayachoti (Via B.Timmayagaripalle) road which is at a distance of 1.5 km from the ML area in south direction. Papagni River is passing from southwest to northwest direction at 8.5 km in W direction. There are three Reserve Forests in the study area. Payalopalle RF is at a distance of 2.0 km from the ML boundary in east direction. Surabhi RF is at a distance of 2.0 km from the ML boundary in east direction. Idupulapaya RF is at a distance of 3.0 km from the ML boundary in South direction. There are no sanctuaries, national parks, critically polluted areas and inter-state boundaries within 10 km radius from the mine lease area.

Proposed Method of Mining

The mining operations are carried out by semi-mechanized opencast method by forming benches at 3m x 3m. Pyrophyllite mineral is occurring on hilly terrain without any over burden. The mining operations will start in north-eastern end of the lease boundary on hill top where pyrophyllite mineral was exposed laterally and vertically. Ramp is made upto the mine face where mineral as well as side burden loaded into the trucks by poclain and transported to the level ground. The mineral

and side burden are stacked separately. The requirement of blasting is minimal and in the present case whenever blasting is required, it is proposed to drill 33mm dia holes by using jack hammer operated by compressed air. Slurry explosives are filled in these blast holes for blasting.

Development and Production

The Pyrophyllite vein is exposed to surface without over burden. As expressed in the present mining the weathered country rock such as schist occurring as a side burden which is removed as waste during the course of mining is stacked separately.

Conceptual Plan

The mining operations will follow semi mechanized open cast method. The entire reserves estimated under proved, probable and possible categories are exploitable except mineral blocked in 7.5 m buffer zone all along lease boundary as per statutory requirement. The reserves estimated category wise; proved, probable and possible is 902851.16 t based on the mine scheme. Therefore the average targeted production is about 47578.42 TPA the anticipated life of the mine is considered as 19 years. Since it is a semi mechanized open cast mine the impact is less, the land degradation is limited to the extent of open cast benches and the area used for waste dumps and haulage roads.

Employment Potential

The manpower requirement for the above mentioned production capacity is approximately 31 no's and all the workers are supervised by Mines manager.

Site services

The Site services provided are office cum store room, canteen, first aid room cum rest shelters, toilets and stock yard with temporary structures in the mine lease area. The area allocated for site services is approximately 0.005 ha. Temporary sheds with cement plastered brick walls and G.I. sheet or grass roofing are constructed for site services. The workers required shall be sourced from surrounding villages. Drinking water is obtained from the nearby villages through tankers to mining staff

and workers. A tractor mounted tanker is provided for sprinkling of water mainly on village roads to suppress the dust generated due to vehicular movement. Fencing is also provided around the workings pits to avoid accidental slippage of men and animals, while the worked out pits are used as reservoir for storage of rain water.

Water Requirement and Effluent Generation

The total water requirement is 6.5 KLD. Water requirement for the project is mainly for maintaining the green belt (2.0 KLD), for sprinkling on the haul roads (2.0 KLD) to mitigate dust emissions, occasional wet drilling (1KLD) and for domestic purposes (1.5 KLD). The water will be sourced from rainwater stored in the worked out pits is used for sprinkling, wet drilling and green belt development. The domestic water will be drawn from Surabhi 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 2015. The ambient air quality monitoring results shows that the values are within the prescribed limits of National Ambient Air Quality standards. 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. There are no Schedule I flora or fauna within the impact area.

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, handling and transportation of mineral 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, PM₁₀ is 1.67, 0.7 µg/m³ respectively within the mine lease area. The cumulative values (baseline and 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 and also during handling and transportation of the material. The haulage of Pyrophyllite within the mining area will lead to emissions of fugitive dust in the mining area. It is proposed to provide 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.

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, location of site office and other infrastructures away from the noise sources. Personal protective equipment like earmuffs, earplugs will be provided to the workers involved in work closer to noise generating sources. The exposure to noise levels is also mitigated by adopting employee rotation.

Water Resources and waste water generation

The daily water requirement for the mine operations would be approximately 6.5 KLD comprising of requirement for water sprinkling on mine haulage roads etc consuming 2 KLD; Wet drilling operations consuming about 1 KLD; green belt development water consumption of about 2 KLD; and domestic water requirement of 1.5 KLD. The water will be sourced from rainwater stored in the worked out pits is used for sprinkling, wet drilling and green belt development. The domestic water will be drawn from Surabhi Village, which is 2.5 km from the mine lease boundary. The wastewater generated from domestic usage in the order of 1.2 KLD will be sent to septic tank followed by soak pit. The other major impact anticipated from mining activity is erosion and sedimentation, as large area of land is exposed to erosion. The area exposed due to mining shall be 5.375 ha while the area used for dumping is 0.32 ha in this project. It is proposed to provide garland drains with rip rap at the discharge point to avoid sediment joining streams outside the ML area.

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 2.5ha area will be occupied by pit, dumps will occupy about 0.32ha and plantation will cover 2.0ha. Site services like office, rest shelter cum first aid center have been developed in an area of 0.005ha and approach road covers an area of 0.46 ha. Other temporary constructions are dismantled after completion of mine workings.

Waste Management

The waste material (side burden) and mineral waste will be stored in southern side of the Mine lease in an area of 0.32ha. It is proposed to store the wastes to a height of 20 m with a slope of 45° with a bench system to form contour terraces of 5 m benches. The waste will be used for back filling in the future.

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 31 personnel. About 10 people will get benefited by indirect employment. Apart from employment, the state government and village panchayath will get royalty due to mining.

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, loading and unloading facilities, and in abandoned mine area during reclamation process. About 2.0 ha area will be planted during next five years 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 dust generation points like drills, loading and unloading points 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 quarterly 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.

The total capital expenditure envisaged for environmental management is Rs.12.8 lakhs with annual recurring expenditure of 8.46 lakhs.

Corporate Social Responsibility

It is proposed to spend Rs. 5.0 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.

Mine Closure Plan

The disturbed land including area disturbed due to excavation, dumping, construction of haul roads, ramps, structures would be fully reclaimed before finally abandoning the mine. Thus the area shall be fully reclaimed during the last five years of life of the mine. During post mining period, in the mine area all the disturbed areas will be reclaimed before decommissioning / abandoning the mine. The closure involves the following; back filling the over and side burden, fencing around the pit and greenery development with a cost estimate of Rs. 4.8 lakhs.