EXECUTIVE SUMMARY

OF

ENVIRONMENT IMPACT ASSESSMENT

(As Per EIA Notification No. S.O. 1533(E) dated 14th September 2006

FOR

DEOLGAON IRON ORE MINE

Village Deolgaon , Taluka Armori , Dist Gadchiroli, Maharashtra
Lease Area – 1.62 Ha, Production Capacity – 3174 Tonnes / Annum
(Project Category 'B-1')

Submission for

PUBLIC HEARING

to

MAHARASHTRA POLLUTION CONTROL BOARD

PROJECT PROPONENT

M/s. Modern Mineral Industry

Behind Milan Hall Habib Nagar
Teka Naka, Nagpur – 440017, Maharashtra

EIA Consultant

Srushti Seva Private Limited

NABET Accredited
EIA Consultant Organization
Certificate No. NABET/EIA/2124/RA 0254

JANUARY 2024

SUMMARY Of EIA/EMP

1.0 INTRODUCTION:

The Deolgaon Iron Ore Mine is located near Village – Deolgaon Taluka – Armori, District Gadchiroli at distance of about 0.1 km in north direction from Village Deolgaon. The area of the applied lease is 1.62 Ha. The entire applied area is a private land and no forest is involved in the Project.

The Government of Maharashtra had granted the Mining Lease to M/s. Modern Mineral Industry vide its Order No. MMN-2220/C.R.14/IND-9 dated 14.10.2006 for Deolgaon Iron Ore Block of 1.62 Ha. The lease was executed on 28.03.2008 for the period of 30 years.

The project proponent has proposed to apply for the Environmental Clearance @3174 TPA of Iron Ore having ML area of 1.62 Ha. As per EIA Notification dated 14th September, 2006, as amended from time to time; the project falls under Mining of Minerals Category "B1" project.

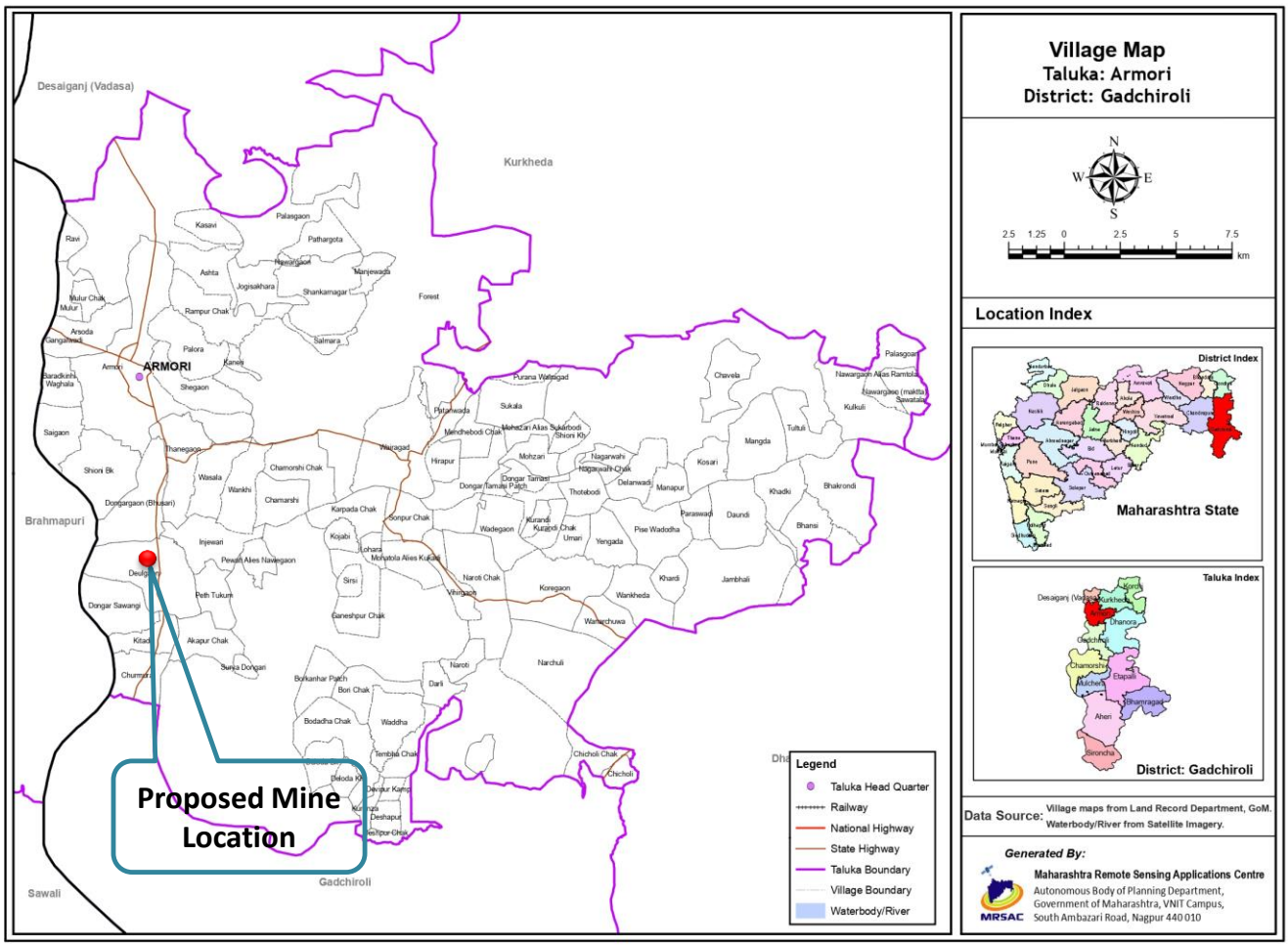
The Mining Plan for the proposed project has been approved by IBM vide Letter No. MCDR-GAD0FE/7/2023-NR-IBM-RO-NAG, dated 15.10.2023. The Project envisages mining of Iron Ore production @ 3174 Tonnes. The life of mine will be 3 years. The envisaged Project Capital Cost is Rs. 1 Crores.

This Draft EIA/EMP Report has been prepared in accordance with the ToR issued by SEIAA, Maharashtra MoEF&CC on 24.11.2023. The Draft EIA/EMP is being submitted to Maharashtra Pollution Control Board for conduction of Public Hearing, as per the provisions of EIA Notification 2006 and amendments thereof.

2.0 PROJECT DETAILS:

The Deolgaon Iron Ore Mine is located at a distance of about 24 Kms from Gadchiroli in north direction near Village – Deolgaon Taluka – Armori, District Gadchiroli and falls in SoI Toposheet No. 55 P/15. The bounding coordinates of the mine lease area lies between Latitude - 20° 23' 22.29"N to 20° 23' 26.75" N and Longitude - 79° 59' 19.12"E to 79° 59' 24.70"E.

Location & Accessibility: The Deolgaon Iron Ore Mine is located at a distance of about 24 Kms from Gadchiroli in north direction near Village – Deolgaon Taluka – Armori, District Gadchiroli and falls in SoI Toposheet No. 55 P/15. The bounding coordinates of the mine lease area lies between Latitude - 20° 23' 22.29"N to 20° 23' 26.75" N and Longitude - 79° 59' 19.12"E to 79° 59' 24.70"E. The Iron Block is well connected by road network. The nearest Railway station is Talodhi Rod at distance 27 Kms. Nagpur Airport is the nearest airport situated at about distance 123 Kms from the lease area.



(Source: MRSAC Map)

Location of the Project

Project Area & Land Requirement : The Project Area is 1.62 Ha Mining Lease Area to be used for mining. The entire applied area is a Private land and no Govt. land or Forest land is involved in the project. There is no human settlement within the proposed mining lease area and hence the Project does not involve shifting of villages located within the Project Area.

3.0 MINING DETAILS:

Mining Method: The mining will be carried out by opencast mechanized mining method will be adopted with the deployment of machines like Compressor, Hydraulic excavators & Tippers etc. No drilling blasting will be done during entire period of mine operation.

4.0 BASE LINE ENVIRONMENTAL STATUS:

The Base Line Environmental quality data for various components of environment viz. Air, Noise, Water, Soil and Socio-Economic were generated during October to December 2023 for a period of 13 weeks covering 10 Kms around the Deolgaon Iron ore Mine. Other environmental data on Flora and Fauna, Land Use Pattern, Forest etc. were also generated through field surveys and also collected from different State Government Departments.

Air Environment

Air Quality Monitoring was carried out at 5 Stations consisting 1 Sampling Stations within the Core Zone (Project Area) and 4 Sampling Stations in Buffer Zone (10 Kms around Core Zone). Parameters of twelve air pollutants viz. PM_{10}, $PM_{2.5}$, Sulphur Dioxide (SO_2), Oxides of Nitrogen (NO_X), Ozone (O_3), Carbon Monoxide (CO) and Heavy Metals were monitored. These parameters were included for representing baseline status of ambient air quality within the Study Area.

Results & Discussion: On the basis of observations the parameter wise result of monitored parameters are discussed below compared with National Ambient Air Quality Standards.

Particulate Matter (PM_{10}): The maximum PM_{10} concentration covering all the air quality monitoring stations i.e. A-1 to A-5 were observed in the range of 47.2 to 57.1 µg/m^3. Almost all the stations have PM_{10} concentrations less than half of 24 hours average permissible limit i.e. 100 µg/m^3 as prescribed by MoEF&CC for industrial, residential, rural and other area.

Particulate Matter ($PM_{2.5}$): The maximum $PM_{2.5}$ concentration covering all the air quality monitoring stations A-1 to A-5 were observed in the range of 27.1 to 37.6 µg/m^3 as against the NAAQ Standards of MoEF & CC prescribed limit of 60 µg/m^3 for industrial, residential, rural and other areas.

Sulphur Dioxide (SO_2): The maximum SO_2 concentrations covering all sampling stations A-1 to A-5 were in the range of 10.68 to 15.04 µg/m^3. All monitored stations have SO_2 concentrations well within the stipulated (annual 24 hours) limit of 80 µg/m^3 as prescribed for industrial, residential, rural and other areas under revised NAAQ Standards of MoEF&CC.

Oxides of Nitrogen (NO_X): The maximum NO_x concentrations covering all sampling A-1 to A-5 were observed in the range of 12.32 to 22.9 µg/m^3. All monitored stations have NO_X concentrations well within the stipulated (annual 24 hours) limit of 80 µg/m^3 as prescribed for industrial, residential, rural and other areas under NAAQ Standards of MoEF&CC .

Heavy Metals: Representative samples from all sampling stations were collected and analyzed for heavy metals i.e. Lead, Arsenic & Nickel. The concentrations of heavy metals were observed **below detectable limit** at all the stations**.**

Free Silica: A few samples of PM_{10} were analyzed for free silica which was found to be below detection limit.

Noise : Baseline noise levels were measured at seven (05) locations during day time and night time and varied from 38.5 to 54.9 dB (A) were well within the prescribed limits for residential area.

Water: In all 3 surface and 4 ground water sampling stations were selected in the study area and samples were collected and analysed for relevant water quality parameters. The results of analysis are in brief, are presented below.

- The pH values of all ground water samples ranged between 7.76 to 8.27 pH, whereas those of surface water samples varied between 7.58 to 7.97. These values are within the acceptable pH range of 6.5 to 8.5 as per IS 10500:2012 standards for drinking water.
- All surface water samples showed Dissolved Oxygen levels ranging from 6.8 to 7.4 mg/l which is good as expected.
- All ground water samples showed dissolved solids concentration from 326 to 542 mg/l, which are below permissible limit of 2000 mg/l as per IS 10500:2012. Whereas all surface water samples showed dissolved solids ranging from 246 to 338 mg/l which are below permissible limit of 1500 mg/l as Per IS 2296 (Class C) for surface water quality standards.
- All ground water samples showed suspended solids concentration from 4.4 to 10.3 mg/l whereas all surface water samples showed suspended solids concentration ranging from 1.1 to 7.6 mg/l.
- The chloride concentrations in all ground water samples were 77.5 to 129.2 mg/l, the values are below acceptable limit of 250 mg/l as prescribed in IS 10500:2012. Chloride concentrations were 39.2 to 56.4 mg/l in surface water which are below permissible limit of 600 mg/l as Per IS 2296 (Class C) for surface water quality standards.
- The sulphate concentrations in all ground water samples were 56.7 to 116.7 mg/l, These values are below acceptable limit of 200 mg/l as prescribed in IS 10500:2012.
  In surface water samples sulphate concentrations were 17.97 to 66.85 mg/l which are below permissible limit of 400 mg/l as Per IS 2296 (Class C) for surface water quality standards.
- All ground water samples showed hardness values ranging from 156 to 361, which are within the permissible limit of 600 mg/l as permisible in IS 10500:2012 and in surface water samples total hardness showed values from 131 to 170 mg/l.

Soil: Soil samples were collected at 3 selected locations in the study area to assess the existing soil conditions around the mine. In general all soils have moderate fertility are suitable for cultivation of arable crops.

Biological Environment: The core and buffer zones included the village settlements, cultivated fields, forest areas as well as wasteland. A detailed inventory of floral and faunal assemblage of the core and buffer zone was carried out and the details of flora and fauna are provided in EIA/EMP. National Park, Wildlife sanctuary, defense installation or sensitive area are not located within 10 km radius of the mine.

Social Environment: Primary Socio economic survey on selected villages has been carried out and the details are provided in EIA/EMP. As per census 2011 demographic characteristics of the study area are represented by a number of criteria, namely population composition, sex ratio, family structure, and age distribution pattern. Attempt has been made to compare the demographic features between the census data whenever corresponding data are available. The area selected for the study constitutes 39 inhabited villages.

The population is distributed among 12286 households in the study area. The 39 inhabited villages have a population of 48565 comprising of 24453 males and 24112 females. As may be observed from the graph the composition of the society as far as males and their counterpart's female are concerned indicates healthy distribution.

Drainage: There is no important river or stream passing through the ML area. Khobragadi Nadi is flows about at a distance 1.5 km in north direction & Wainganga River is about 2.8 km in west direction from the leasehold area. There are numerous drains, but none of them is perennial in nature.

5.0 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

- **Impact on Climate :** The proposed Project is not expected to have any major irreversible impact on the climatological features like temperature, rainfall, wind speed, humidity etc.

- **Impact on Drainage:** Due to mining activities proposed on the plateau top, where rainwater is not being logged now will be prone to water logging. The run off rate will also reduce due to formation of temporary pit at the top. This will change the hydrological condition of the area especially the surface water flow following the natural drainage lines along the slopes.

- **Impact on Land Use:** The proposed opencast Iron ore will result in change of the land use pattern of the Mining Lease Area. The land degradation is expected during mining activities of excavation, overburden dumps, mineral Storage etc.

- **Impact on Soil:** Soil erosion may also get accelerated on areas where the overburden will be dumped. As there is neither a toxic effluent nor solid waste from the mines, quality of soil is not expected to be adversely affected. Impact on soil will be localized i.e. around the mine site.

- **Impact on Air Quality due to Mining:** In order to estimate the ground level concentrations, due to the emission from the proposed increase in production, EPA approved Industrial Source Complex AERMOD View Model has been employed. Predicted 24 hourly Ground Level Incremental Concentrations of PM_{10}& $PM_{2.5}$ are estimated to be 0.16 $\mu g/m^3$ and 0.11 $\mu g/m^3$ respectively. This prediction is based on various mining operations and site specific meteorological data in worst scenario.

- **Impact on Air Quality due to Transportation:** The maximum ground level concentration due to proposed transport is estimated to be negligible.

- **Impact on Noise Quality:** From the analytical studies, it is observed that the maximum resultant noise levels near the mine lease boundary will be about 55 dB(A). The noise levels will be further reduced and the predicted resultant noise levels at the nearest village habitation i.e. Deolagon village will be below 50 dB(A).

- **Impact due to Ground Vibrations & Fly Rocks:** The drilling and blasting will not be carried out for mining operation. Mining will be adopted with the deployment of machines like rock breaker, Hydraulic excavators etc.

- **Impact on Water Regime:** The mine operation will be above water table as such there is no shallow aquifer exists in the core zone. Accordingly there will not be any adverse impact on ground water. It is expected that suspended particle in surface water during rainy season may increase. The suspended solids generated during the mining operations pose major problem for contamination of surface water.

- **Impact on Flora & Fauna:** There will be negligible impacts on bio diversity of the area beyond what is already present due to traffic on the State Highway. There is no Wildlife Sanctuary or National Park in 10 Km radius of the Mine. There is no reported migratory path of wildlife or bird species of threatened or protected species. The transport route of the mineral also lies away from these areas.

- **Impact on Socio-Economic Aspects:** The project is likely to create positive impacts due to creation of employment opportunities both direct and indirect. Generation of employment opportunities is important as the project region is devoid of any industrial activities and agriculture is the only main source of income.

6.0 ENVIRONMENT MANGEMENT PLAN

6.1 Air Environment :

- Internal roads will be frequently sprinkled with water for which truck mounted water tankers with sprinkler arrangement have been provided.
- Ore will be covered by tarpaulins to prevent its spread during transportation.
- Regular maintenance of vehicles and machineries will be carried out in order to control emissions.
- Green belt will be developed at suitable places.
- Personal protective devices viz ear plug, dust masks etc. will be provided to all the workers.
- Good housekeeping and proper maintenance will be practiced to control pollution.

6.2 Water Environment:

The Mining Project shall require continuous supply of water for various purposes during mining, plantation etc. apart from drinking water supply. The main source of water pollution in opencast mining project is the surface run-off due to rainfall. There may be accumulation of rain water during monsoon season and the accumulated water may contain fine silt. This shall be treated in Settling Tank of adequate dimensions. The treated water (overflow) will be used for plantation and dust suppression.

The mine water pumped from the mine pit, shall be collected in a Settling Tank at surface and after treatment part of it shall be utilized for water spraying in the mine, plantation and the excess balance (if any) shall be discharged to natural water course.

There is no nallah, river or any other water body passing through or existing within or near the vicinity of the lease area which can cause inundation.

In order to restrict the surface runoff from mines to control the soil erosion and wash off from dumps following measures shall be adopted;

- Garland Drains shall be provided around the mine wherever required to arrest any soil from the mine area being carried away by the rain water;
- Loose material slopes shall be covered by plantation by making contour trenches at 2 m interval to check soil erosion both due to wind and rain;
- Retaining walls (concrete or local stone) shall be provided, around the dump or wherever required to support the benches or any loose material as well as to arrest sliding of loose debris.

6.3 Noise & Vibration

- Noise shall be best abated at source by choosing proper machinery/equipment and by providing noise insulating enclosures or padding where practicable.
- Proper maintenance of vehicles will be done to keep the noise level within limits.
- At the boundary of mining lease green belt by plantation of local trees species will be developed which will act as acoustic barrier. Planting of bushy trees of rich canopy in and around the mine area will be carried out to intercept noise transmission. A 7.5 m wide belt of trees of different heights will be useful to act as noise attenuator in the mining areas.

6.4 Waste Generation and Management:

No waste will be generated during the mine plan period except mineral rejects. 459.75 tones mineral rejects will be generated during mining in the mining plan period. The mineral rejects may be saleable depending upon market demand.

6.5 Top Soil Preservation:

The leasehold area is devoid of any soil cover, no soil will be generated during this plan period.

6.6 Plantation:

Plantation will be carried out in the non mineralized area on regular basis. It is proposed to select the local tree species having 3 tier arrangements for plantation all along the mining lease in order to control dispersion of fugitive dust from the mining lease are. Around 2000 trees/ha will be planted till the end of life of mine at different locations i.e. safety zone, around the quarry edge, along the roads, office, workshop etc. At the conceptual stage, out of the total mining lease area (of 1.62 ha), the total under plantation would be 0.57 ha, and area under pits would be 1.05 ha. Plantation of about 1140 native species of is envisaged over a period of 3 years of Mine Life. The pit will be used as water reservoir with prior permission from IBM.

The mitigation measures suggested above shall be implemented so as to mitigate/minimize the impact on environment due to operations of proposed mining activities. In order to facilitate easy implementation, mitigation measures are phased as per the priority implementation. A separate budget allocation is made for the environmental protection measures. The monitoring of the pollution to know the effectiveness of the applied control measures will be carried out at regular interval. A budgetary provision of 10.20 lakhs as capital expenditure and Rs 3.25 lakhs as annual recurring expenditure is made in the management.

6.7 Land Acquisition and Compensation:

The Mining Lease Area of 1.62 Ha is an almost barren land and belonging to the Project Proponent. The area does not have any habitation. Thus, neither there will be any Land Oustee nor any R & R of the Project Affected Persons shall be involved in the Iron Ore Mine Project.

6.8 Employment Potential:

About 14 persons (staff and workers) will be required initially for this mine. It is proposed to have a Mines Manager to supervise. He will be a qualified and experienced person who will be responsible for dealing with environmental issues also. Preference will be gives to local people meeting the eligibility criteria required for the job under consideration.

6.9 Corporate Social Responsibility (CSR)

Modern Mineral Industries to undertake a number of activities under the Corporate Social Responsibility Initiative during the operation of Deolgaon Iron Mine Project. The capital CSR budget has been worked out as per the expressed felt needs of villagers during Rapid Rural Appraisal. The proposed total budget is to the extent Rs 6.50 and will be spent in neearby villages of study area.

6.10 Corporate Environment Responsibility (CER)

In addition to the CSR, company proposes to undertake a number of activities as one time measure under the Corporate Environment Responsibility Initiative during the operation of mining project. A budgetary provision @2% of the Capital Cost, of Rs. 2 lakhs is proposed to be allocated and utilized for the implementation of issues raised during the Public Hearing.

7.0 PROJECT BENEFITS:

The primary benefits to the Government (State as well as Central) from any mining project are generation of additional revenues in terms of receipt of royalties and other statutory levies against the Iron mined. The secondary benefits to the Government are socio-political benefits in terms of enhanced economic activities and employment opportunities in the Project Area resulting into overall development of the area.

The Project shall have positive impacts in the Project Area and surrounding villages in terms of development of infrastructure facilities like roads and communication, schools as well as basic amenities viz. drinking water, sanitation, health care, and overall socio economic development.

The Company shall initiate necessary steps to create above facilities which will ultimately help in uplifting the living standards of local communities.

The direct requirement of manpower for Deolgaon Iron Mine has been assessed at 14 along with further generation of indirect manpower. The Project shall offer creation of Secondary & Tertiary Business Opportunities for the local people in the form of Service Industry resulting in development of ancillary & allied services like Security, Canteen & Mess, Transport, Civil Repair & Maintenance, HEMM Repair and Maintenance etc.

APPEAL

In compliance with the environmental procedure the environmental clearance application is made. Necessary scientific studies have been undertaken as per the guidelines set by the Ministry of Environment and Forests (MoEF). The suggestions/recommendations of all the experts, competent authorities, and government officials are being sought for the impacts of the proposed project. Views and guidance of the local residents, community based organizations, social organizations are extremely important in order to devise a full proof Environment Management Plan for the proposed mining project and also mitigate the damages caused due to the project. Allocation of necessary funds, manpower and machinery will be made to for the protection and conservation of all the components of environment. It is ensured that all mandatory clearances will be sought from respective competent authorities before operating the proposed mining of Deolgaon Iron Ore Deposit. M/s. Modern Mineral Industry is committed to implement the suggestions for the improvement of the environment and assure that every attempt will be made for the conservation and protection of the natural resources to the maximum extent.