

EXECUTIVE SUMMARY

A. BRIEF DESCRIPTION PROJECT

S. NO.	DETAILS	INFORMATION		
1	Name of the Project	Proposed Mineral Beneficiation Project		
2	Capacity	MnO ₂ : 5000 MT/Annum MnO: 5000 MT/Annum		
3	Regulatory Framework	Activity of 2 (b), namely “Mineral Beneficiation” as per EIA Notification 2006		
4	Location of the project	Plot No. B-19/1, Bhandara Industrial Area, Village-Gadegaon, Tal-Lakhani, District-Bhandara, State- Maharashtra		
5	Toposheet No.	550/12 & 550/16		
6	Geographical Coordinate	Latitude	Longitude	Elevation (MSL)
		21°5'11.63"N	79°45'44.26"E	481
7	Name of Project Proponent	Vidya Minerals & Processors		
8	Available Land	Total land area : 13811.00sq.m		
9	Power Requirement	Existing: 500 KV Proposed: 100 HP Source: MIDC Power Supply DG Set (Form Backup support): Existing: 160 KVA Proposed: 160 KVA		
10	Man Power	20 persons Source: Local persons shall be hired		
11	Project Cost	3.66 crore Existing:2.66 crore Proposed:1.00crore		
Environmental Setting				
12	Nearest Railhead	Bhandara Road Railway Station, 20 Km NW direction		
13	Nearest Airport	Dr. Babasaheb Ambedkar International Airport, Nagpur, 74 Km W direction		
14	Nearest Town	Bhandara 14.60 Km NW direction		

S. NO.	DETAILS	INFORMATION
15	Nearest Village	Rajegaon-1.0km
16	Nearest Water Bodies	No River is crossing from Project Site. Mallpar Talab: W direction, 6.5 Km Rawanwari Talab: SW direction 7.0 Km Few small water bodies are also present within 10 km radius study area.
17	Nearest Highway	NH-6, 400 M NE direction
18	General topography	Plain land
19	Eco Sensitive Zone (National Park, Wildlife Sanctuary, Biosphere Reserve, Wild Life Corridors etc.)	Ganglewara Reserve Forest is location towards NE direction from the project location at 1.0 Km from the project site. Matora RF is located towards NW direction at 7.0 Km and Mahaka RF is present at towards SW direction at 6.0 Km from the project site. As project location located in Notified Industrial Area, hence all area is already developed and no forest land falling within the industrial area not even in the project area.
20	Historical & Archeological Important Place, Defense Establishment	Not within 10 km radius area

B. PROJECT PROCESS

Manufacturing Process

After receipt of material it is tested for its impurities. After getting full information's about its impurities following processes are followed to remove impurities and improve the purity of Manganese Ore.

❖ Screening:

The material which is received from mine area is firstly stored and screen so that uniform sizes are obtained for further process.

❖ Zigging:

'MnO₂' produced by Zigging operation. If 'Fe' is more in some lost, some free iron may in the form of Fe₃O₄ (balance in the form of non-magnetic Fe₂O₃/FeO) may be removed by giving a pass on magnetic separator prior to roasting but essentially after jigging and second pass after roasting is carried out.

For MnO production reduction process will be carried out in roasting furnace. The roasting is carried out with excess of coke in order to maintain highly reducing atmosphere in the kiln. The objectives of this process are to reduce MnO₂ to MnO by heating in furnace.

Though coke application rate is 10 to 15% of the ore charged, normally 25/30% coke is charged in the kiln. The un-burnt coke 10/15% is taken out of the kiln is re-used for next batch. Hence, after establishing the production cycle, the coke application rate comes to approximately 15% of the Mn-ore charged in the kiln.

After roasting is carried out, the roof is taken away and the entire roasted mass is quenched in-site with water. After bringing the temperature down to normal handling temperature the material from the kiln is removed and spread on drying platform.

❖ **Magnetization:**

After drying, magnetic separation carried out. The non-magnetic part is sent pulverizing to 100/150 mesh and further packed with proper air-tight sealing in double line oven-sacks and kept- ready for pelleting for loading in container.

The magnetic material is accumulated to a bulk quantity and periodically second time passed over magnetic separator, the non-magnetic fraction separated out of this material is mixed with other routine material and magnetic material is salvaged suitably, either for Si-Mn product ion in smaller furnace or sold to common plants/either users.

Then tailings from jigging operation containing more quartz is accumulated and periodically re-jigged to remove ore production free from silica. This material after re-

jigging is sent of roasting where the material with more silica is salvaged for Fe-Mn production, to some extent.

Manufacturing Process of Manganese Oxide

- After Raw Material receipt at the site it is tested for the contents of various elements and then the material is screened. After screening manual zigging is carried out.
- The material is then heated in coal fired furnace. From where it is transferred for drying and magnetic separation.
- Then the material is dried and after Magnetic Separation it is feed to grinding Machine, where it is powdered in the required mesh size.

After grinding it is semi automatically packed in 25 kg/50 kg/ or 1000 kg HDPE Bags and kept ready for dispatch.

C. BASELINE STATUS OF ENVIRONMENT

Summary of the Environmental monitoring undertaken at different locations during Pre monsoon Season (March 2019 to May 2019) are given below for various parameters:

Parameter	Location	Results	Standards			
Ambient Air Quality	8 Location	PM2.5: 13.2 to 32.4 µg/m ³ PM10: 44.3 to 65.2 µg/m ³ SO _x : 9.8 to 14.2 µg/m ³ NO _x : 10.5 to 15.9 µg/m ³	PM2.5 : 60 µg/m ³ PM10 : 100 µg/m ³ SO _x : 80 µg/m ³ NO _x : 80 µg/m ³			
Noise Level	10 Location	Day: 43.2 to 55.5 dB(A) Night: 36.7 to 50.5 dB(A)	Industrial	Day: 75 dB(A)	Night: 70 dB(A)	
			Residential	Day: 55 dB(A)	Night: 45 dB(A)	

Water Quality	Ground Water: 8 Location	pH : 7.4 to 7.91 neutral to slightly alkaline in nature TDS : 152.8 to 1080.0 mg/l TH : 72.0 to 800.0mg/l	6.5 to 8.5 2000 mg/l 600 mg/l
	Surface Water: 1 Location	pH : 7.92 neutral to slightly alkaline in nature TDS:152.8 (mg/L) TH: 72.0 (mg/L)	
Soil Quality	8 Location	pH: 6.73 to 7.99 which shows the sample is neutral to slightly alkaline in nature Potassium as K :75.3 to 91.8 kg/ha Sodium as Na: 43.4 to 59.8 mg/kg	-

All analysis results of AAQM, Noise Level, Ground & Surface Water and Soil were found well within the limit prescribed of CPCB and other regulatory agencies.

D. ENVIRONMENTAL MANAGEMENT PLAN (EMP)

Air Pollution Management

- ➡ 30 m stack attached to furnaces for better dilution and dispersion of pollutants
- ➡ Wet scrubber is attached preceding to the stack to arrest particulate matter
- ➡ All vehicles and their exhausts will be well maintained and will be regularly monitored for emission generated from the vehicle exhaust.
- ➡ Control of the airborne fugitive emissions from the ore handling area will be achieved through regular water sprinkling in this area.

- ➡ Green belt will be developed around the plant area. Green Belt area has been identified about 4577.7 sq. meter

Waste Water Management

- ➡ No Industrial Effluent will generate due to the proposed activity
- ➡ Total water requirement for proposed project will be 18 CMD (Existing: 10 CMD and Proposed: 8 CMD). Out of which waste water generation is 2.16 CMD from domestic use.
- ➡ 15.3 CMD of water will be used in the process (jigging process). In this process water will be continuously recycled and reused until total water will evaporate
- ➡ Domestic waste water will be treated by Bio toilets.

Solid Waste Generation and Its Disposal

- ➡ Total 240 Ton/month of Ash (Fly Ash: 192 Ton/month, Bottom Ash: 48 Ton/month) Month and Domestic waste will be generated from the project activity
- ➡ Fly as well as bottom ash will be mechanically collected and sent to Brick Manufactures
- ➡ Tailing recycled in roasting Furnace
- ➡ Garbage collection bins will be provided at requisite locations for collection of dry waste & wet waste

Occupational Health & Safety Management

- ➡ Safety policy shall be displayed in the plant area
- ➡ Water sprinkling will be carried out in raw material unloading area
- ➡ Health check-up for operational workers will be carried out
- ➡ PPE will be provided to operational workers viz. Nose mask, ear muffs, ear plugs, safety gloves, helmets and safety goggles
- ➡ Training will be provided to workers in case of emergency
- ➡ First Aid box will be provided for emergency health hazards

- ➡ Emergency contact details of ambulance, hospital, police, safety in charge will be available
- ➡ Fire Fighting System will be provided at requisite location
- ➡ Sign boards will be provided at requisite location for safety measures
- ➡ “No Smoking Zone” shall be marked at fire prone area in the plant
- ➡ Safety audits shall be conducted

E. COST OF IMPLEMENTATION OF ENVIRONMENTAL MANAGEMENT PLAN

Total cost of Environmental Management Plan during construction phase is about 7.5 Lacs/per annum. Capital cost of Environmental Management Plan during operation phase is about 35.0 Lacs. Details of EMP are given below:

Table No.10.3: Environment Management Plan (EMP) Cost during Construction Phase

Serial Number	Attributes	Parameter	Total Cost per annum (Rs. In Lacs)
1	Air management pollution	Regular water sprinkling and closed transportation of construction material etc	1.50
2	Water management Pollution	Supply of drinking water & arrangement of modular toilets	1.0
3	Solid Management Waste	Storage and proper disposal of Solid waste, construction waste and other waste	2.0
4	Occupational health & Safety	Providing of PPEs, fire safety arrangements, first-aid facility	2.0
5	Others	Other as per requirement	1.0
Total			7.5

Table No. 2.8: Environment Management Plan (EMP) Cost during Operation Phase

Serial Number	Component	Description	Capital cost Rs. In Lacs	Operational and Maintenance cost (Rs. in Lacs/yr)
1	Air Pollution Management including instrumentation	Air Pollution Management including instrumentation. Water sprinkling etc.	5.0	3.0
2	Water and Waste water management	Arrangement for drinking water and for waste water treatment	5.0	2.0
3	Solid waste management	Disposal of waste management. Separate storage arrangement etc.	5.0	3.0
4	Greenbelt Development	Two tier plantations shall be developed including planting of Big, Medium Trees and shrubs and maintenance	15.0	3.0
5	Environmental Monitoring & Analysis	Arrangement for monitoring, Portable instruments purchases, regular monitoring etc.	5.0	8.0
6	Miscellaneous	Miscellaneous	0.0	2.0
Total			35.0	

Project Cost

Cost of the project is given below:

Total cost of the proposed Minerals Beneficiation Project is about 1.00 Crore.

F. CONCLUSION

- ➡ Proposed project does not anticipate any adverse impacts on environment
- ➡ Workplace/ operation hazards, which will be minimized by providing personal protective equipment's, safety precautions & emergency plan
- ➡ Consequently, impacts on air, water, land and ecological environments are insignificant and the socio-economic benefits are predominantly positive

- ➡ Positive impact on employment generation will be envisaged in construction as well as operational phases
- ➡ Air emission through stack will be controlled by wet scrubber
- ➡ Proposed project unit shall be conducted as per EIA Notification 2006

