Executive Summary

of

Manufacturing of 14,400 TPA Manganese Oxide

Proponent

M/s. Shree Hanuman Minerals

Sr. No. 7/2, Bahmani (P H No. 80) At Post Borkhedi Distt. Nagpur, Maharashtra

By

Pollution & Ecology Control Services

NAGPUR

EXECUTIVE SUMMARY

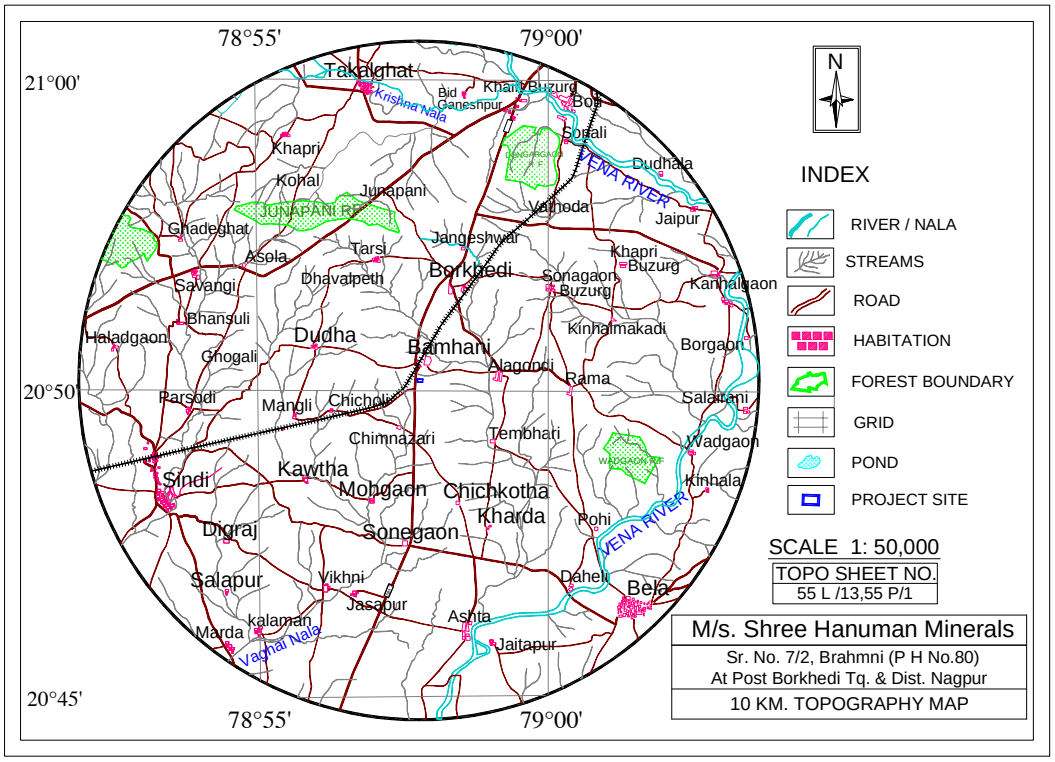
1. Project Name and Location

M/s. Shree Hanuman Minerals is registered as small scale industry. The office and works of Shree Hanuman Minerals is at Sr. No. 7/2, Bahmani (P H No. 80) At Post Borkhedi Distt. Nagpur, Maharashtra

The present and proposed manufacturing facility of the Company is situated over 1.42 Ha area, at Survey No. 7/2, Village Bahmani, Post Borkhedi, District Nagpur, Maharashtra.

The proposed project is a Primary Metallurgical Project for manufacturing of Manganese Oxide and Manganese Dioxide over 1.42 Ha area, at Survey No. 7/2, Village Bahmani , Post Borkhedi, District Nagpur, Maharashtra. Coal shall be used as a reducing agent for Conversion of Manganese Ore to Manganese Oxide.

The topographical map is shown in the Figure below:



Source: SOI Toposheet

Topographical Map (10 km Radius)

2. Products and Capacities

The production scenario of the proposed plant is given below:

Sr. No	Product	Raw Material Quantity
1	Manganese Oxide	14400 TPA

3. Requirement of Land, raw material, water, power, with source of supply

Requirement of Land

The land required for the proposed project is 1.42 Ha (14200 Sq.m.)**.**

Raw Material

The raw material requirement for the proposed unit is given below**.**

Sr. No	Product	Raw Material Quantity	Source	Mode of Transportation
1	Manganese Ore	18000 TPA	MOIL, Dongri Buzurg	Tarpaulin covered trucks. Distance: 130 km
2.	Steam coal	10800 TPA	WCL	Tarpaulin covered trucks. Distance: 40 km

Water Requirement

The water requirement for the proposed plant is mainly for the purpose of zigging process as well as for drinking, sanitary. The total water demand for the project is about 3 KLD which will be sourced from Ground Water.

Power Requirement

The power requirement for the proposed project will be 80 KW. The required Electricity shall be sourced from State Electricity Board.

4. Process Description

Manufacturing Process of Manganese Oxide

(A) 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.

(B) The material is then heated in coal fired furnace. From where it is transferred for drying and magnetic separation.

(C) Then the material is dried and after Magnetic Separation it is feed to grinding Machine, where it is powdered in the required mesh size.

(D) After grinding it is semi automatically packed in 25 kg/50 kg/ or 100 kg HDPE Bags and kept ready for dispatch.

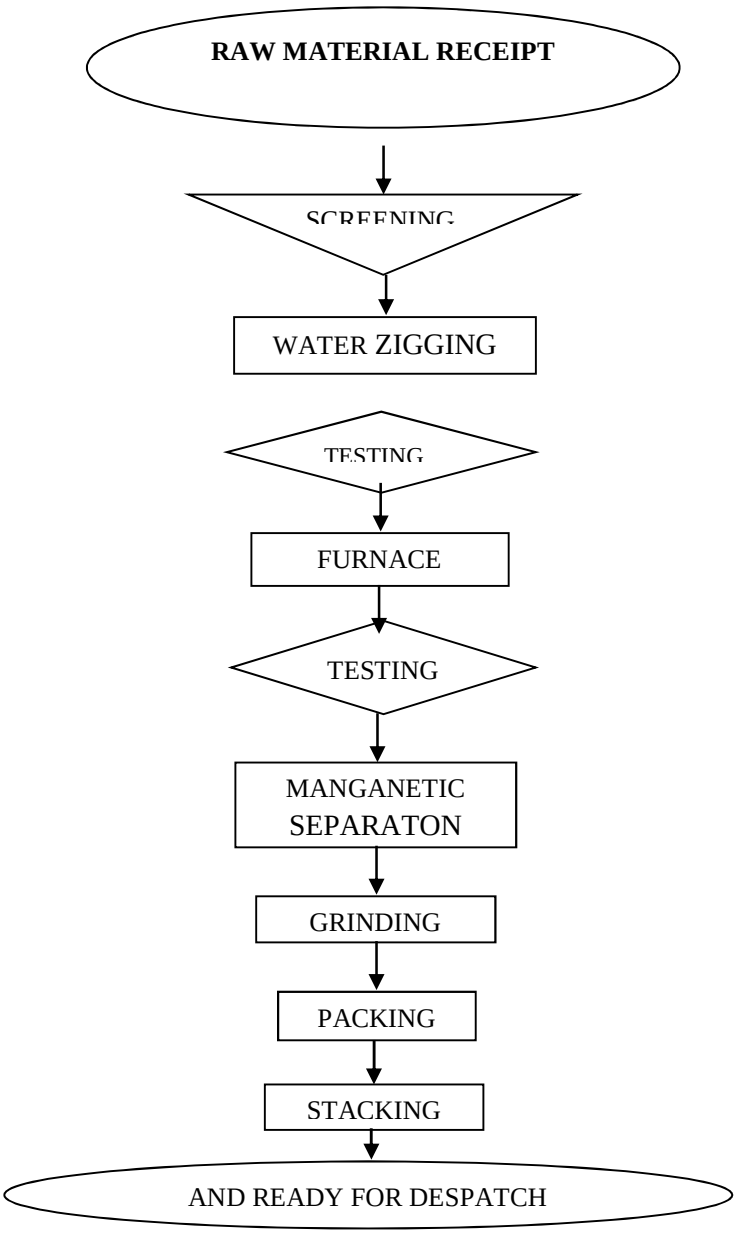


Figure : Process Flow Chart of MnO Production

5. Mitigation Measures

The present baseline concentrations were monitored in the EIA study. The additional emissions are mainly from furnace during roasting of manganese ore with coal, grinding of Manganese Ore.

The proposed project activity will result in air emissions from the following areas.

a) Raw material Handling and storage area

b) Furnace (MnO)

c) Transportation

- M/s. Shree Hanuman Minerals shall provide dust suction system which will control fugitive emission due to material and raw material handling.
- Regular monitoring of air quality parameters.
- A Stack of 30 mt ht will be attached to furnace (MnO) with wet scrubbers to minimize the concentration of pollutants which is mainly PM_{10}, $PM_{2.5}$.
- The vehicles transporting raw materials will be covered with tarpaulin in order to prevent dust emission during the transport.
- It would be ensured that all the vehicles in the working zone are properly maintained to keep emissions within the permissible limits.
- At loading and unloading points, arrangement for Water sprinkling will be made so that dust generation during transportation of materials will be minimized further.
- The finished product will be transported by the same trucks carrying raw material.
- Plantation in the plant premises will be done in the 33% of the total land.
- All the internal roads shall be concreted / asphalted to reduce the fugitive dust due to vehicular movement
- Water spraying will be practiced frequently
- Whenever, APCS is not working, then raw material feed will be stopped. Consequently there will be no production in the unit till APCS is rectified.

Prediction of Air quality

The mathematical model used for predictions on air quality impact in the present study area is ISC-AERMOD View. It is the next generation air dispersion model, which incorporates planetary boundary layer concepts. These models are used extensively to assess pollution concentration and deposition from a wide variety of sources. The predicted values in respect to PM_{10}, SOx and NOx were found to be below the Ambient Air Quality Standard of CPCB.

Noise Pollution & control measures

In plant, workers particularly working near higher noise sources, may be exposed to higher level upto 75 dB(A) for longer durations. However, provision of ear plugs or ear muffs shall be made for in-plant workers working at such locations.

The employees shall be trained in the mitigation measures and personal protection measures to be taken to prevent noise related health impacts.

Impact on Water

The total water requirement for the proposed activities is 3 KLD. During plant operation waste water will be generated from the zigging process. The wastewater generated in this process will be treated in the settling tank and will be reused in the process. The sewage generation will be 0.8 m3/day in the proposed facilities which will be treated in Packaged Type STP. No major river within 1 km of the study area.

Solid Waste Generation

The solid waste generation in the proposed plant is given in table below

Table: Solid Waste Generation & Mitigation Measures

Waste	Quantity	Mitigation Measures
Ash	1080 TPA	Will be sold to brick manufacturers

Green belt

Green belt will be developed within the Plant premises covering a total area of about 4686 sq mt (33%) of total Plant area and 800 no. of trees will be planted. The plantation work for green belt development will be carried out. Local species would be preferred.

6. Capital Cost

Total Project cost for proposed project is Rs.3.0 Crores.

7. Baseline Environmental Data

Air Environment

The baseline environmental quality for the February, March, April, May 2019 was assessed in an area of 10 km radius around the proposed project site. The ambient air quality monitored at 8 locations selected based on predominant wind direction, indicated the following ranges;

PM_{10} - 31.5 $\mu g/m^3$ – 63.8 $\mu g/m^3$

$PM_{2.5}$ - 15.2 $\mu g/m^3$ – 40.1 $\mu g/m^3$

SO_2 - 7.1 $\mu g/m^3$ – 32.5 $\mu g/m^3$

NOx - 9.5 $\mu g/m^3$ – 35.7 $\mu g/m^3$

The concentrations of PM_{10}, $PM_{2.5}$, SO_2 and NO_x were found within the National Ambient Air Quality Standards (NAAQ).

Water Environment

A total 13 samples including five surface & eight ground water samples were collected and analyzed. The water samples were analyzed as per Standard Methods for Analysis of Water and Wastewater, American Public Health Association (APHA) Publication.

The data indicates that the ground water as well as the surface water quality are below the stipulated standard for drinking water (IS 10500 – 1993).

Noise Environment

Noise levels measured at eight stations were within limit of 55.0 dB (A) for Residential Area or 75.0 dB (A) for Industrial Area as given in MoEF Gazette notification for National Ambient Noise Level Standard.

Land Environment

The characteristics of the soil sample were compared with different depths for respective parameters in four stations.

The observations of soil characteristics are discussed parameter wise below;

a) Texture of all soil samples are silty-loam, Sandy and Loamy in Texture Classification.

b) Colour of soil samples from agriculture and waste land is Grey and sample from forest land is light- in colour.

c) The bulk density of soil samples are in the range of 1.21 to 1.99 gm/cc.

d) Soil samples from have pH values between 7.50 to 9.49. The pH values are indicating nature of soil samples as between slightly neutral to alkaline.

e) Soil samples have conductivities between 0.052 to 0.164 mmhos/cm.

f) Soil samples have Organic Matter between 0.30 to 1.86 %. These values represent average fertility of soils.

g) Soil samples have concentration of Available Nitrogen values ranged between 70.0 to 863.3 kg/ha.

h) Soil sample have concentration of Available Phosphorous values ranged between 21.3 to 145.3 kg/ha.

i) Soil sample have concentration of Available Potassium values range between 85.1 to 423.6 kg/ha.

j) Characteristic of Agricultural land soil is a little deficient in Nitrogen nutrients concentration.

8. Impact of the Project

The impacts of the projects are tabulated below:-

Impact on Air Quality

The emissions are mainly from furnaces during roasting of manganese ore with coal and grinding of Manganese Ore.

The proposed project activity will result in air emissions from the following areas.

a) Raw material Handling and storage area

b) Furnace

c) Transportation

Noise Levels

During operational phase in the proposed project the major noise generating source is plant machinery. Under any circumstances the noise level from each of these sources will not exceed 75 dB (A). Noise levels generated in the project site will be confined within the Proposed plant the impact of noise levels on surrounding will be insignificant.

Impact on Water

The total water requirement for the proposed activities is 3 KLD. During plant operation waste water will be generated from the zigging process. The wastewater generated in this process will be treated in the settling tank and will be reused in the process. The sewage generated will be about 0.8 m^3/day in the proposed facilities which will be treated in Packaged Type STP. No major river within 1 km of the study area.

Impact on soil

The reserved forest in the study area is in patches. There is no designated ecological park or Bio Reserve/Wild life sanctuary in the 10 km radius of the proposed plant site. The

impact on terrestrial ecology will be negligible in the first instance and shall be insignificant.

9. Environment Monitoring Programme

The environmental monitoring is important to assess performance of pollution control equipment installed in the proposed project of M/s. Shree Hanuman Minerals. The proposed project is for a manufacturing of Manganese oxide. The sampling and analysis of environmental attributes including monitoring locations will be as per the guidelines of the Central Pollution Control Board.

Environmental monitoring will be conducted on regular basis by M/s. Shree Hanuman Minerals through MoEF&CC Recognized Laboratory to assess the pollution level in the proposed plant. Therefore, regular monitoring program of the environmental parameters is essential to take into account the environmental pollutant of the study area.

The objective of monitoring is:

- To verify the result of the impact assessment study in particular with regards to new developments;
- To follow the trend of parameters which have been identified as pollutants;
- To check or assess the efficiency of the controlling measures;
- To ensure that new parameters, other than those identified in the impact assessment study, do not become critical due to the commissioning of proposed facilities;
- To check assumptions made with regard to the development and to detect deviations in order to initiate necessary measures;

The attributes, which needs regular monitoring, are specified below:

- Air quality
- Water and wastewater quality;
- Noise levels;
- Soil quality;

10. CER

As per the Notification dated 1.05.2018 issued by MOEF&CC, it is mandatory to prepare Corporate Environment Responsibility Plan (CER) to spend 2 % (project cost $\leq$ 100

crores) of total capital cost of the project on social, economical and peripheral development activities. As per the above mentioned new office memorandum CER dated 1.05.2018. Rs. 6.0 lacs have been allocated for CER based on public hearing issues and requirement of the local people.

11. Occupational Health Measures

M/s. Shree Hanuman Minerals will provide all necessary provisions under Factory Act. All personal protect equipments like Safety shoes, helmet & uniform will be issued to each employee based on the nature of job involved. Details given in the EIA report.