

EXECUTIVE SUMMARY OF EIA & EMP REPORT

INTRODUCTION

M/s. SAIL & MOIL Ferro Alloys Pvt. Ltd. is planning to set up Ferro Alloys Plant (Fe-Mn 31,000 MTPA, Si-Mn 75,000 MTPA) at **Khasra No. 458, Nandini Mines, P. O. Ahiwara, District Durg, Chhattisgarh.**

Category of the project is A, 3 (a), Under Primary Metallurgical industries as per EIA Notification dated 14th September 2006 & its amendment on 1st December 2009.

PROJECT COST

The total Project Cost is Rs 39228.1 lakhs. Which, includes site development, building, all the plant Machinery and its installation and Environment Protection measures cost. Total capital cost for environmental pollution control measures would be Rs. 1529.0 lakhs, and recurring cost per annum would be Rs. 200 Lakhs.

LOCATION OF THE PROJECT

Location of the proposed project is Khasra No. 458, Nandini Mines, P. O. Ahiwara, District Durg, Chhattisgarh. All basic facilities are available at the site and are well connected with networks of roads and railways.

DETAILS OF RAW MATERIAL CONSUMPTION & ITS SOURCES, AVAILABILITY & TRANSPORTATION

The main raw material & its sources are given below in the following table:-

SR. NO.	NAME OF THE RAW MATERIAL	CONSUMPTION MT/YEAR		SOURCE	MODE OF TRANSPORTATION
		For Fe-Mn	For Si-Mn		
1.	Manganese Ore (47%Mn)	85,000	-	MOIL's mine located in Maharashtra & Madhya Pradesh. But Balaghat region of Madhya Pradesh is consider as reliable source.	By existing Railway siding of Nandini mines
2.	Manganese Ore (44%Mn)	-	10,5000		
3.	Manganese Ore (30% Mn)	-	36,000		
4.	Iron Ore	2,000	-	Bhilai Steel Plant Source.	By Road
5.	Fe-Mn Slag	-	29,000	Plant Sources	By Road
6.	Quartz	-	16,300	Local Sources	By Road
7.	Dolomite	10,000	9,000	Local Sources	By Road
8.	Coke	12,500	38,000	BSP, in case BSP is unable to supply coke the same shall be source form domestic or imported source	By Road
9.	Coal	11,000	25,000	Local Sources	By Road
10.	Carbon Electrode Paste	500	1,900	Nearest Aluminum producers such as Indalco and or Hindalco, etc.	By Road
11.	Oxygen Cyclinders	3,00,000 Nm3	-	By Road through trucks	

BRIEF PROCESS DESCRIPTION

A brief description of the process and material flow is given below.

Raw Materials Storage Yard:

The main raw materials i.e. manganese ore shall arrive at site by rail wagons. Other raw materials will be coming mostly by Road transport. These will be manually unloaded in the Raw material storage yard. There shall be separate stacks for stacking of Manganese Ore of different grades. Blending as and when required can be done. Retrieval of raw material shall be done by pay loaders and dumpers which will unload its content into a ground hopper.

Raw Materials Storage in Day Bins:

Raw materials required for the shop would be received from the raw materials storage yard through a system of belt conveyors and stocked in separate groups of day bins meant for Si-Mn and Fe-Mn respectively. There shall be one common conveying system of raw materials from ground hopper to day-bin and there from day bins to the furnace bins for Silico manganese furnaces and a separate conveying system of feeding raw material from day bins to Ferro-manganese furnace.

Preparation of Charge-Mix:

Predetermined quantities of raw materials drawn from the respective day bins through individual weighing & proportioning systems would be delivered to an overhead bin hopper through a system of conveyors. The charge-mix from the overhead furnace charge hoppers would flow into the furnace through furnace charging chutes.

Smelting:

Ferro-Manganese and Silico-Manganese are continuously reduced in the furnace by solid carbon reductants. The furnaces are always kept filled up with the charge materials and the electrodes deeply submerged into the furnace hearth. Electrode casing and electrode paste are periodically supplemented from the raw material charging floor. Electrode slipping arrangement is provided on the electrode slipping floor, situated below the charging floor.

Tapping:

Liquid Ferro-alloy and slag would be tapped out from the furnaces at periodic intervals. Each furnace would have two tap holes. Only one tap hole would be opened at a time to tap out both Ferro-Alloy and slag. Tap holes would be opened and closed by mechanized device.

Casting and Dispatch:

Arrangement would be provided for casting liquid Ferro-alloys in to a casting bed. Weighing facilities would be provided in the casting bay cranes for weighment of liquid metal. Cast Ferro-alloys would be allowed to cool, cleaned from any slag sticking to it, and then transferred to the product storage area. This movement of finished product would be done by crane, loaders and dumpers. In the product storage area the Ferro-alloys would be broken, screened and stacked for dispatch by road vehicles. Weighing facilities would be provided for weighment before dispatch.

REQUIREMENTS FOR THE PROJECT

Land: Around 420865.2 sq.m. (104 acres) of private land is taken on leased for the proposed project.

Water: Total water requirement of the proposed project is 70 m³/hr which shall be met from mine quarry pit at Nandini mines. In case of any emergency or breakdown of existing system, an option of ground water using Bore wells and surface water from Tandula canal will be used. Permission of both will be taken from competent authority.

Electrical Energy: The estimated power requirement for the proposed project would be 90 MVA. Power supply for the proposed project will be sourced from 400/220 KV grid sub-station at Khemdara of CSEB, located approximately 20 km from the plant site, through a double circuit 220 KV overhead lines. During emergency or power failure approximate capacity of DG set for requirement will be one no. having rating of 2500 KVA.

Fuel: For the proposed Ferro Alloys plant 300 lit/hr Diesel will be required to run stand by D. G. Set. Diesel will source from the nearest petrol pump.

Manpower: The proposed Ferro Alloy plant will have a great employment potential, It will provide direct employment to approximately 180 persons.

SOURCES OF POLLUTION AND CONTROL MEASURES

The particulate emissions are among the most significant impacts of Ferro Alloy Preparation.

Air environment:

1. Sources of Air Pollution

Process Emission: (Particulate Matters): There will be emission over the plant area and beyond its boundaries gets polluted with gases, fumes and dust particles emanating from the chimneys, transfer points of conveying and handling equipments.

Utility Emission: One D. G. set of 2000 KVA shall be utilizing to fulfill power requirement, in case of power failure. Emission from these sources will not be continuous as the D. G. sets will be used during emergency or in case of power failure.

Fugitive Emission: The fugitive dust emissions from the proposed plant would be significant and the sources will be as under:

1. Loading unloading section
2. Material Handling Section and Transfer Points
3. Roads
4. Transportation of vehicles
5. Storage

2. Air Pollution Control Measures

PROCESS EMISSION CONTROL MEASURES

S. NO.	LOCATION / SHOP	AIR POLLUTION CONTROL FACILITIES
1.	Screen house	Dual fluid based dust suppression system comprising of nozzles, pumps compressors, piping, network, etc
2.	Submerged Furnace Arc	Dust extraction system comprising of pulse jet type bag filter, suction hood, duct work, stack etc.
3.	Storage yard	Dust Suppression system comprising spray nozzles , piping net work, valves, pumps, instruments & control electrics, water works etc.

UTILITY EMISSION CONTROL MEASURES

NO. OF STACK	STACK ATTACHED TO	NAME & QUANTITY OF FUEL USED	POLLUTION CONTROL EQUIPMENT	STACK HEIGHT & DIAMETER
1.	D.G. set of 2000 KVA capacity	Diesel 300 Lit./hr	Acoustic Enclosure	As per CPCB guidelines

Fugitive Emission Control measures:

To control fugitive emissions, the following measures are proposed.

- Raw materials loading and unloading will be done in the covered area.
- Raw materials will be stored in the covered structure.
- All the conveyors will be provided with conveyor cover.
- The sprinkling of water will be done along the internal roads in the plant in order to control the dust.
- All the workers and officers working inside the plant will be provided with disposable dust masks.
- Green belt will be developed around the plant to arrest the fugitive emissions.
- Maintenance of air pollution control equipments will be done regularly.

Water Environment:

Waste water generation and mitigation measure

The domestic wastewater will be generated of 108 KL/Day. The concept of extensive recycling of water has been adopted in the design of plant water systems. Quality of circulating water will be maintained through dosing of conditioning chemical.

Regeneration waste from water chemical treatment and soft water plant will be neutralized before discharged from the plant. Blow down from plant water recirculation will be considered for cascaded reuse in the plant water system as far as practicable and maintain minimum plant effluent discharge.

Through cascaded re-use of blow-down, the water scheme ensures practically zero discharge from the industrial water circuit.

Faecal Sewage Disposal:

Faecal Sewage from toilets and other services units would be collected through a sewer network, treated and disposed off through septic tanks and soak pits. Area wise common septic tanks and soak pits would be provided for this purpose The sewer would be of SWG pipe or CI pipe. The septic tanks and soak pits would be of RCC or brickwork construction.

Noise environment:

The noise levels near the sources such as raw material mill, will be higher during the operational phase but general noise levels within plant are expected to remain below 75 dB (A). In order to mitigate the noise levels during the operational phase, a green belt will be developed around the periphery of the plant.

Land environment:

Solid waste generation and its disposal method

Solid wastes will be used/spent oil and discarded drums and bags. The sources of solid wastes, generation and its management are as given in the following table.

PRODUCTION OF SOLID WASTE AND ITS MANAGEMENT

SR. NO.	TYPE OF HAZARDOUS WASTE	SOURCE	QUANTITY MT/ YEAR	DISPOSAL METHOD
1.	Used/spent Oil	Prime Movers	1000 ltrs	Collected in HDPE Drums and reuse in plant for lubrication Purpose Or Sold to authorized recyclers.
2.	Ferro-manganese slag,	Furnace	26,000	The tapping bay shall be suitably designed to accommodate the casting of molten slag in sand beds. After solidification, the slag cakes will be transported by EOT crane and dumper for crushing & screening to enable its use in Silico-Manganese operations. It will be sent to raw material yard.
3.	Silico-manganese slag	Furnace	71,000	Used for leveling; construction purpose or dumped at a slag yard.
4.	Dust from Bag filters	Pollution control equipment	-	Used in fly ash brick manufacturing.

BASELINE ENVIRONMENTAL STATUS

The baseline environmental quality of Air, water, soil, noise, socioeconomic status and ecology has been assessed in the winter season (December, 2009 to February, 2010) in a study area of 10 km radial distance from the project site.

Air Environment:

The ambient air samples were collected from eight locations and analyzed for PM₁₀, PM_{2.5}, SO₂ and NO_x, for identification, prediction, evaluation and assessment of potential impact on ambient air environment. Design of network for ambient air quality monitoring location was based on guidelines provided by CPCB. The arithmetic mean values of PM₁₀, PM_{2.5}, SO₂ and NO_x are found within permissible limit at all the locations.

Water Environment:

To assess water quality, surface water and ground water samples were collected from different locations. Results of all the water parameters were found within permissible limit.

Noise Environment:

Ambient noise level monitoring of background & transportation was done at same locations where ambient air monitoring was carried out. The noise levels of the study are found low and within the stipulated standards of CPCB for the respective designated areas.

Soil Environment:

The general Topography of the study area varies from its plains. Soil samples were collected from eight different locations and physio-chemicals properties were analyzed. All the parameters are found within limit.

Socioeconomic Environment:

Baseline information of socio-economic data has been collected from EIC and Census handbook for the four major indicators viz. demography, civic amenities, economy and social culture, literacy, occupational structure.

Ecology:

Keeping in view, the importance of biological component of total environment due to the proposed project, biological characterization of terrestrial and aquatic environments, changes in species diversity of flora and fauna in terrestrial as well as aquatic systems were studied for impact analysis due to proposed project activity. The details of flora / fauna species and the wildlife habitat in the area covering 10 km radius have been collected to determine the existence of rare and/or endangered species. There is no reserved forest, national park or sanctuary, place of archeological/ historical/ religious/ tourist interest within 10 km radius of the plant.

ENVIRONMENTAL IMPACT ASSESSMENT

Air Environment: As discussed earlier air monitoring was done in winter season and collected data was used for air dispersion modeling as per the guidelines provided by CPCB. And it is concluded that proposed project activity will not adversely affect air quality.

Water environment: As the proposed project is Ferro Alloy Plant. There is no industrial waste water shall be generated but only domestic waste water 108 KL/Day shall be generated which will be mechanically and biologically treated in common sewage treatment plant and the treated effluent will be reused in the plant. Rain water harvesting shall be carried out to recharge ground water which can improve water environment of the area. So no adverse impact of proposed activities, on water quality is envisaged.

Land environment: No hazardous waste shall be generated from the proposed project. Other solid waste generated from the proposed project activities shall be properly disposed as environmental friendly so there will be no significant impact on land environment.

Noise environment: The main sources of noise pollution in the plant would be crusher, diesel generator and vehicular movement. Adequate noise control measures such as mufflers, silencers at the air inlet/outlet, anti vibration pad for equipment with high vibration, earmuff and earplugs to the operators etc. will be provided. However, the proposed green belt will help to reduce noise level. The adverse impact on occupationally exposed workers will not envisaged, as noise protection devices will be provided.

ENVIRONMENTAL MANAGEMENT PLAN

An Environmental Management Plan (EMP) has been prepared for the proposed Ferro Alloy Plant to minimize negative impacts and is formed on the basis of prevailing environmental conditions and likely impacts of this project on various environmental parameters. This plan will also facilitate monitoring of environmental parameters.

EMP includes scheme for proper and scientific treatment and disposal mechanism for air, liquid and solid hazardous pollutants. Apart from this, green belt development, safety aspect of the workers, noise control, fire protection etc. are also included in it.

Following measures are proposed to mitigate negative impact of operation phase of the project on the surrounding air environment:

- All transfer points will have bag filter attached to them to control and capture dust emission.
- Height of all the stacks will be as per statutory requirement. All the stacks will have stack monitoring facility (SMF) consisting of sampling port-hole, platform and access ladder.
- Adequate spares of critical components of dust collection systems will be kept to ensure trouble – free operations and continuous compliance to emission norms.
- A comprehensive plan for fugitive emission control based on CPCB guidelines is prepared.
- All stacks will be provided with on-line CPM (continuous particulate measurement) analyzers and interlocking system with production plant will be provided which will automatically shut-off production activities when the emission concentration exceeds the set limit.

Precautionary measures will also be adopted to control the noise level within the stipulated limits.

The plantation at the proposed project site will be carried-out after interaction with local experts and various species will be selected as per CPCB guidelines.

About 33% land area of total land will be allocated for green belt / green cover development at the proposed project site. Proper budgetary provision considering expenses incurred on saplings, soil handling, manuring, after care and maintenance will be made.

ENVIRONMENT MANAGEMENT CELL

In addition to preparing an EMP, it is also necessary to have a permanent organizational set up to ensure its effective implementation. Hence, SAIL & MOIL Ferro Alloys Pvt. Ltd. will create a team consisting of officers from various departments to co-ordinate the activities concerned with management and implementation of the environmental control measures. This team will undertake the activity of monitoring the stack emissions, ambient air quality, noise level etc. either departmentally or by appointing external agencies wherever necessary. Regular monitoring of environmental parameters will be carried - out to find out any deterioration in environmental quality and also to take corrective steps, if required, through respective internal departments.

ENVIRONMENT MONITORING PROGRAM

A regular monitoring of environmental parameters like air, water, noise and soil as well as performance of pollution control facilities and safety measures in the plant are important for proper environmental management of any project. Therefore, the environment and safety cell will handle monitoring of air and water pollutants as well as the solid wastes generation as per the requirements of SPCB and CPCB.