

**EXECUTIVE SUMMARY**

on

**PROPOSED 0.1 MTPA CAPACITY INDUCTION METLTING**

**&**

**RE-HEATING FURNACE**

at

**PERIAPULIYUR VILLAGE, POOVALAMBEDU POST**

**GUMMIDIPOONDI TALUK**

**THIRUVALLUR DISTRICT.**

from

**J.R. METAL CHENNAI LTD.  
CHENNAI**

**Consultant:**

**GURU ENVIRO UDYOG,  
CHENNAI-56**

**JUNE 2009**

## 1.0 INTRODUCTION

### 1.1 preamble

**M/S J.R. METAL CHENNAL LIMITED** proposed to establish an induction melting and steel re-rolling unit at periyapuliyur village, Gumidipoondi Taluk, Thiruvallure district, Tamilnadu state. The proposed units and their capacities are mentioned below.

| S.NO | Division                   | Capacity     |
|------|----------------------------|--------------|
| 1.   | Induction Melting Furnace  | 2 x 25 Ton   |
| 2.   | Continuous casting Machine | -            |
| 3.   | Re-Heating Furnace         | 1,00,000 TPA |

#### 1.1.1 Scope of the REIA study

J.R. Metal Chennai Limited is a part of INDO Group and is a continuously performing company with more than a decade of experience in the field of steel manufacturing and marketing. The group intends to further invest for its backward and forward integration so as to consolidate its core business activity and insulate it from market volatility. The group has successfully executed three steel plants at North Chennai within the short span of 6 years.

JRM has retained GURU ENVIRO UDYOG as an Environmental consultants for carrying out a Rapid Environmental impact Assessment study for the proposed steel making plant. A detailed presentation was made before the **Expert Appraisal committee** of the Ministry of Environment & Forests (MOEF) held on 14<sup>th</sup> – 16<sup>th</sup> April, 2009. MOEF have provided the TOR vide their letter no. **F.NO. J-11.11/956/2008-IA-II(I)** dt. 5.5.2009 for the preparation of EIA / EMP report on the following aspects and incorporated in the report.

- Present land use of study area based on satellite imagery for 5 Km radius should be included.
- Details of location of wildlife sanctuary and national parks within 10 Km radius of the plant and plan for conservation and protection of the same should be included.
- Site-specific micro-meteorological data including inversion height and mixing height.
- Details of the industries in surrounding area along with their products.
- Collection of baseline data on air, water, soil, noise, flora, fauna etc. for one season other than monsoon.
- Ambient air quality monitoring modeling for furnaces and re-rolling mills.
- Sources of secondary emissions, its control and monitoring as per the CPCB guidelines.
- Details of the raw material along with their sources and transportation arrangements.
- Technical details of the packed bed scrubbing system.
- Membership of TSDF for disposal of hazardous wastes.
- Copy of land allotment/purchase letter along with khasra nos., Name of the village indicating the site.
- Layout plan of the plant with location of various furnaces
- Details of the arrangements for control of fugitive emissions.
- A write up on disposal of hazardous and other wastes and arrangements for onsite storage.
- Chemical characterization of RSPM and incorporation of RSPM data. Location of one AAQM station in downwind direction.

- Water balance cycle including quantity of effluent to be generated, treated, recycled and reused and discharged.
- Permission for drawl of 10 KLD ground water. A chapter on hydrology study by the state Govt. may be included. Ground water monitoring minimum at 6 locations.
- Action plan for surface as well as roof top rainwater harvesting and ground water recharge.
- Occupational health of the workers.
- Green belt (33%) development plan as per CPCB guidelines. EMP should include a clear map for plantation/ green belt.
- Socio-economic development activities.
- Details Environment management plan (EMP) with specific reference to details of air pollution control system, water & wastewater management plan for mitigation measure should be provided.
- EMP should include the concept of waste-minimisation, recycle/reuse/ recover techniques, Energy conservation, and natural resource conservation.
- Any litigation pending against the project/land of the project and / or any direction / order passed by any court of Law against the project, if so, details thereof should be provided.
- A tabulation chart of the issues raised during public hearing and addressed by the project authority should be provided with EIA/EMP report.

**The REIA report has been prepared strictly as per the approved Terms of Reference issued by MOEF.**

## **1.2 Resources Availability**

### **1.2.1 Raw materials:**

| <b>S.NO.</b> | <b>Raw materials</b> | <b>Source</b>             |
|--------------|----------------------|---------------------------|
| 1.           | Furnace oil          | Domestic market /imported |
| 2.           | Sponge Iron          | Domestic market /imported |
| 3.           | MS scrap             | Domestic market /imported |
| 4.           | Silico Manganese     | Local Market              |
| 5.           | Ferro Silicon        | Local Market              |

### **1.2.2 Land**

A total land of 39 acres(15.78Hectares) at Periyapuliyur village, Poovalambedu post, Gummidipoondi Taluk is already acquired for the development of the proposed project.

### **1.2.3 Water requirement**

The total water requirement will be about 10 KLD. The water requirement can be met from local bore wells after getting clearance from the concerned local authorities.

The unit will be using about 5 KLD of water for domestic purposed and balance 5 KLD for Industrial purposed to make- up the evaporation loss of the coolant water and scrubbing liquids from the APC systems proposed, which will be kept under complete re-circulation in a closed circuit.

## 1.2.4 Power

Power requirement in various units of industries:

| Description   | Total power(KVA) |
|---|------------------|
| Induction Melting Furnace   | 9000             |
| Billet casting  | 1000             |
| Rolling mill  | 2000             |
| Pollution control equipment, Sms<br>Auxiliaries, Rolling mill auxiliaries | 1000             |
| <b>Total</b>  | <b>13000 KVA</b> |

## 1.25. Man power

| S.NO. | Category               | Total |
|-------|------------------------|-------|
| 1.    | Commercial             | 12    |
| 2.    | Technical& supervisory | 28    |
| 3.    | Others                 | 60    |
|       | Total                  | 100   |

## 2.0 PROJECT DESCRIPTION

Pre- tested MS scrap of different varieties will be charged into the Induction Furnace Crucible with the help of charged Electro Magnet Bucket. These crucibles are already lined with Refractory Ramming Mass and the scrap will be melted by Induction heating into a liquid form. The induction heating is aided by the flow of Medium Frequency current in the coil which is supplied by the use of static Frequency converter, DC chock, capacitor Bank and water cooled power cables.

The liquid metal will be tested in the laboratory for carbon content etc.,, and necessary ingredients such as Sponge iron, Silico Manganese and Ferro silicon shall be added after the removal of slag at a temperature of 1640°C. The slag removing process is called Slag-off. The liquid steel thus obtained is then cast into required Billet sizes through Continuous Casting Machines proposed.

Billets from the Continuous Casting Machines will be rolled in a rolling mill to required sizes to meet customers needs.

## 3.0 BASELINE ENVIRONMENT

Monitoring was carried out during February' 09 – April' 09.

- **Meteorology:** The predominant wind direction was from NW. The maximum wind velocity observed was 12.6 KMPH. Wind velocity readings ranging from <1.0 to 12.6 KMPH. Temperature values were ranging from 22°C – 34°C. The mean relative humidity values were in the range of 60% to 87%. Sky was clear during the study period.
- **Ambient air quality:** Ambient air quality taken showed the non RSPM, RSPM, total SPM, SO<sub>2</sub> and NO<sub>x</sub> were very well within the NAAQ standards prescribed for rural and residential areas.

- **Noise level** monitored was also found to be well within the prescribed limits.
- **Water samples** collected within study area showed compliance of all parameters with the prescribed standards.
- **Soil sample** were also analysed as per the specifications and found moderate.
- **Socio-economic** status of the study area is found to be moderate.
- **The flora diversity** as well as abundance showed wide variation depending upon physiography and land use. No endangered plant species have been identified. As such, conservation plan is not needed.

#### **4.0 IDENTIFICATION OF IMPACTS**

- **Environmental impacts** of the proposed project during construction phases, regular operation and commissioning have been studied..
- No major negative impact on water resources.
- No major negative impacts on flora and fauna
- No major impact on Noise environment
- No major impact on Soil environment
- No major impact on Air environment
- Water Environment: NO significant impact is expected on water quality.
- Noise Environment: NO significant impact on noise environment. The predicted noise level will be within the limits as prescribed by CPCB both in construction and operational phase of the industry.
- Land Environment : NO significant impact on land environment
- Biological Environment : No significant impact
- Socio-Economic Environment: The project will have positive impact in terms of employment to locals, Green Belt Development, Infrastructural facilities and enhancement of per capita income in the near by region.

#### **6.0 ENVIRONMENTAL MANAGEMENT PLAN**

##### **6.1 Air pollution control**

The flue gas from the proposed Induction Melting Furnace as well as from the Re-Heating Furnace shall be sucked through Separate Sucker Hood arrangements proposed and provided with swivel joints for rotation of the same during charging of the Raw materials.

The flue gas sucked through the Sucker Hood cum Ducting system shall be let into the Atmosphere through proposed Stack of 30m height after scrubbing the SPM and SO<sub>2</sub> with the help of Packed Bed Scrubber to be fitted with 150 HP capacity Centrifugal Blower proposed.

The above system will be proposed to Induction Melting and Re-Heating Furnace Separately.

The Scrubber is a vertically placed cylindrical vessel of suitable size 2750mmx 5500mm ht. having dish end top and conical bottom. Stainless Steel Borings of suitable height will be used as a packing medium to distribute the incoming flue gas into the scrubbing system for efficient scrubbing. Water shall be sprayed in the counter-current direction to that of the flue gas with the help of 2 Hp pump proposed.

The scrubbing liquid shall be then sand filtered in semi-rapid sand Filters of suitable sizes and collection in a sump/catch pit from where it shall be re-cycled back to the System in a closed piping circuit proposed.

Scrubbing liquids as seldom discharged and will be recycled back to the scrubbing system with the help of closed circuit proposed.

The flue gas after treatment from the scrubber that meets the standards set by the TNPCB shall be let into the atmosphere through the proposed Stack of ht. 30m.

## **6.2 Water pollution control**

These measures include conservation of water by Rainwater harvesting and waste water treatment, recycling and reuse.

### **1. Conservation of water**

- Rain water harvesting in the open area as well as in the covered area
- Design of units for optimum amount of water and recycling of water to the maximum.

### **2. Waste water treatment, recycling and reuse**

**No Trade Effluent will be generated from any of the process operations.** Sewage from the Toilets shall be treated in a proposed septic tanks followed by soak pits.

## **6.3 Noise pollution control**

- The Equipment are designed and will be erected for less noise generation
- Dynamic balancing and vibration damping pads with suitable mounting mechanism and proper grouting of foundation bolts etc.,
- Use of ear plugs in very high noise prone areas
- Green belt development all around units
- Road side tree plantation

## 6.4 Solid waste Management

It is proposed to dispose of / reuse solid wastes as per plan given below

| Description   | Solid waste   | Suggested Disposal   |
|---|---|--|
| Steel melting shop  | SMS slag – 5500 TPA   | Cooled and will be land filled within the premises. Solid wastes storage Area earmarked. |
| Continuous casting machines, Rolling mills                      | Mill Scales – 100 TPA   | Will be Land filled within the premises, earmarked .                                     |
| Rolling Mills   | Misrolls -3000 TPA  | Will be recycled back to Induction Melting for melting and further recycling             |
| Rolling Mills   | End Bits-1450 TPA   | ”  |
| Sludge from Packed Bed scrubbing system<br>A. from Rolling Mill | Sludge from the sand filters proposed to filter the scrubbing liquid for recycling- ( Lime 30+ sludge 45) = 75TPA | Will be land filled within the premises  |
| B. from Induction Melting                                       | Sludge from sand filters- 45 TPA  | Will be land filled within the premises.   |

## 6.5 Energy conservation measures

- Propose to use Furnace oil (10,000 kcal/kg) instead of Coal (5500 kgcals/kg)
- Adoption of “ power saved is power produced” principle
- By installing fuel efficient burners for Re-heating furnace.

## 6.6 Green belt development

- All along the plant boundary
- All around the proposed site( existing no. of. trees 24084 nos eucalyptus)
- Around office and other buildings

**There is a Green Belt of 15 Acres which is 38.46 % of Total land area which is also more than (33%) recommended by the CPCB guidelines for Green Development Programme.**

## 6.7 Cost implication for pollution control Measures

The capital cost of environmental control measures is Rs. 0.5 crores. Its break-up is given below:

| Operation & Maintenance Expenditures                        | Capital investments<br>Value in Rs. Crores |
|---|--|
| 1. Air pollution control system                             | 0.35                                       |
| 2. Water pollution control system                           |  |
| 3. Solid waste management system                            |  |
| 4. Environmental Monitoring Equipments                      | 0.05                                       |
| 5. Occupational Health & safety                             | 0.1  |
|   | -----                                      |
| Total   | 0.5 Crores                                 |
|   | -----                                      |
| <b>Annual Recurring costs for pollution control (crore)</b> |  |
| <b>Operation cost of pollution control Equipment</b>        | : Rs. 0.01                                 |
| Environmental monitoring                                    | : Rs. 0.01                                 |
| Maintenance of Green Belt and Landscaping                   | : Rs. 0.01                                 |
| Total   | Rs. 0.03                                   |

## 7.0 CONCLUSION

M/S.J.R. metal Chennai Limited (JRM) will successfully implement a well – designed environmental management plan in all the stages viz.

1. EMP at construction stage
2. EMP at operational stage to meet all the local legal requirement norms and Environmental clearance that will be issued by MoEF.

With commitment, dedication and implementation, JRM will commission the proposed steel making plant by adopting latest technology and Modern Equipment JRM also will undertake various community welfare measures like Encouraging entrepreneurship among locals, construction of bus shelters, Street Lights etc., in consultation with the Local Panchayat President.

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