# EXECUTIVE SUMMARY FOR PUBLIC HEARING

## Production Enhancement of Mild Steel Ingots/Billets and/or MS Structural Bar, Angle & Channels (Products) from 800 MTD to 1800 MTD

## Location – Plot No: C-7, 8, 9, 10/2, 10/3 & 11, Addl. MIDC, Phase– I, Jalna, Maharashtra, India

## Schedule as per EIA Notification: 3(a), Category: B1

**Project Proponent**

**M/S KALIKA STEEL ALLOYS PVT. LTD.**

**Environmental Consultant**

**M/S ENVIRO RESOURCES**
**(NABET Approved vide MOM for IA-222nd Meeting: July 20, 2018)**
**E-604 Crystal Plaza, New Link Road, Andheri West, Mumbai, Maharashtra, India, 400053, E-mail: info@enviroresources.in**

**Laboratory For Baseline Data**

**M/S S A ENCON PVT. LTD.**
**(NABL Cert No.: T-3769 & T-3861)**
**Gat No.1373/1, Shirke Colony, Near Govt. Hospital, Shirwal, Tal - Khandala, Dist - Satara, Maharashtra, India 412801**

**Baseline Period**

**October, 2017 to December, 2018**

**Report No.: ER/EIA/KSAPL/D/01/00/2018**
**August, 2018**

# EXECUTIVE SUMMARY

## 1.0 INTRODUCTION

**M/s Kalika Steel Alloys Pvt. Ltd.** herein after referred to as **"KSAPL"** is proposing production capacity expansion of their existing steel manufacturing capacity of M.S. Billets and/or MS Structural Bar, Angle & Channels from 800 TPD up to 1800 TPD. The project is located in the Addl. MIDC, Phase I, Jalna, Maharashtra. The proposed expansion is falling under Schedule 3(a) as per Environmental Impact Assessment (EIA) Notification, 2006 and its further amendments.

For proposed expansion, company has procured additional plot form MIDC. The total plot area of the unit will be 65,055 sq.m., which will be sufficient for proposed activity of the unit.

## 2.0 PROJECT BACKGROUND

KSAPL is owned by Mr. Ghanshyam C. Goyal. Company has over 25 years of experience in steel trading and manufacturing. Through the implementation of efficient management practices and cutting-edge technology, Kalika Steel has grown fourfold over the span of 12 years.

Company had obtained Environmental Clearance for establishment of their unit in 2008 at Addl. MIDC Jalna vide letter no: J- 11011/1030/2007-IA II (I) dated 5th November 2008. In the meantime, company had gone for expansion of their existing unit in year 2014 for total production capacity to 800 TPD vide letter no: SEAC-2014/CR 32/TC-2 dated 30th September, 2014.

Now, considering the current market demand of Steel (M.S. Billets and/or MS Structural Bar, Angle & Channels), KSAPL wishes to go for further expansion of their existing unit at same location. However considering the paucity of land for proposed expansion, company has purchased three additional plots namely C-10/2, C-10/3 and C-11 with sum plot area of 19,160 $m^2$ (additional plot area for expansion).

**Table 1: Salient Features of the Project**

| SN | Particulars | Existing | Proposed | Total (After expansion) |
|---|---|---|---|---|
| 1 | Product Type | Steel Products (M.S. Billets and/or MS Structural Bar, Angle & Channels) | | |
| 2 | Project Type | Expansion | | |
| 3 | Schedule as per EIA Notification, 2006 | 3(a) | | |
| 4 | Category | 'B1' | | |
| 5 | Product Details in TPD (Ton/Day) | | | |
| i. | M.S. Billets and/or MS Structural Bars, Angle & Channels | 800 | 1000 | 1800 |

| | | | | |
|---|---|---|---|---|
| 6 | Cost of Project | 69.89 Cr | 150.00 Cr | 219.89 Cr |
| 7 | Area Statement in Square Meters | | | |
| i. | Total Plot Area | 65,055 | | |
| ii. | Built-up area | 28,905 | | |
| iii. | Ground coverage area | 35,204 | | |
| iv. | Parking area | 7855 | | |
| v. | Greenbelt area | 21468.15 | | |
| vi | Open Area | 576.25 | | |
| 8 | Man power requirement | 300 Nos | 600 Nos | 900 Nos |
| 9 | Utility Requirement | | | |
| i. | Induction Furnace | 2 X 30 MT | 2 X 40 MT | 2 X 30 MT & 2 X 40 MT |
| ii. | D.G.Set | 1500 KVA X 1 Nos | 200 KVA X 1 Nos<br>500 KVA X 1 Nos | 1500 KVA X 1 Nos<br>200 KVA X 1 Nos<br>500 KVA X 1 Nos |
| 10 | HSD (Fuel Requirement for DG Set) | 300 Liters/ Hr ( at 100% working of DG capacity)<br>Actual : 160 Lit/D | 140 Liters/ Hr ( at 100% working of DG capacity) | 440 Liters/ Hr ( at 100% working of DG capacity) |
| 11 | Electricity Requirement | 26,600 KVA | 33,250 KVA | 59,850 KVA |
| 12 | Stack Details | | | |
| i. | Furnace Stack | 35 m as per ToR | 45 m as per TOR | Two stacks of 35m & 45 m each |
| ii. | D.G. Stack | 1500 KVA :<br>5 m above roof | 200 KVA :<br>2.8 m above roof<br>500 KVA :<br>4.5 m above roof | 1500 KVA :<br>5 m above roof<br>200 KVA :<br>2.8 m above roof<br>500 KVA :<br>4.5 m above roof |
| 13 | Water Requirement in CMD | | | |
| i. | Domestic | 14 | 27 | 41 |
| ii. | Cooling System | 110 | 90 | 200 |
| iii. | Scrubbing | 20 | 20 | 40 |
| iv. | Greenbelt | 20 | 25 | 45 |
| v. | Total | 164 | 162 | 326 |
| 14 | Effluent generation details in CMD | | | |
| i. | Domestic | 11 | 22 | 33 |
| ii. | Cooling System | 0 | 0 | 0 |
| iii. | Scrubber | 18 | 18 | 36 |
| iv. | Greenbelt | 0 | 0 | 0 |

| | | | | |
|---|---|---|---|---|
| v. | Total | 29 | 40 | 69 |
| 15 | STP Details | 25 KLD | 15 KLD | 40 KLD |
| 16 | STP Technology | Screening, Biological Treatment & Tertiary Treatment | | |

## 3.0 PROCESS DESCRIPTION

Steel production using Induction Furnace is basically low pollution process as no fuel, except electricity, is used in the process.

Molten steel is poured in ladle, where necessary treatment to adjust the quality is carried out. The ladle is taken to the billet caster for casting billets. These hot billets are transferred to the rolling mill for rolled to round or desired products.

The block diagram of the manufacturing process is as provided in **Figure 1**.

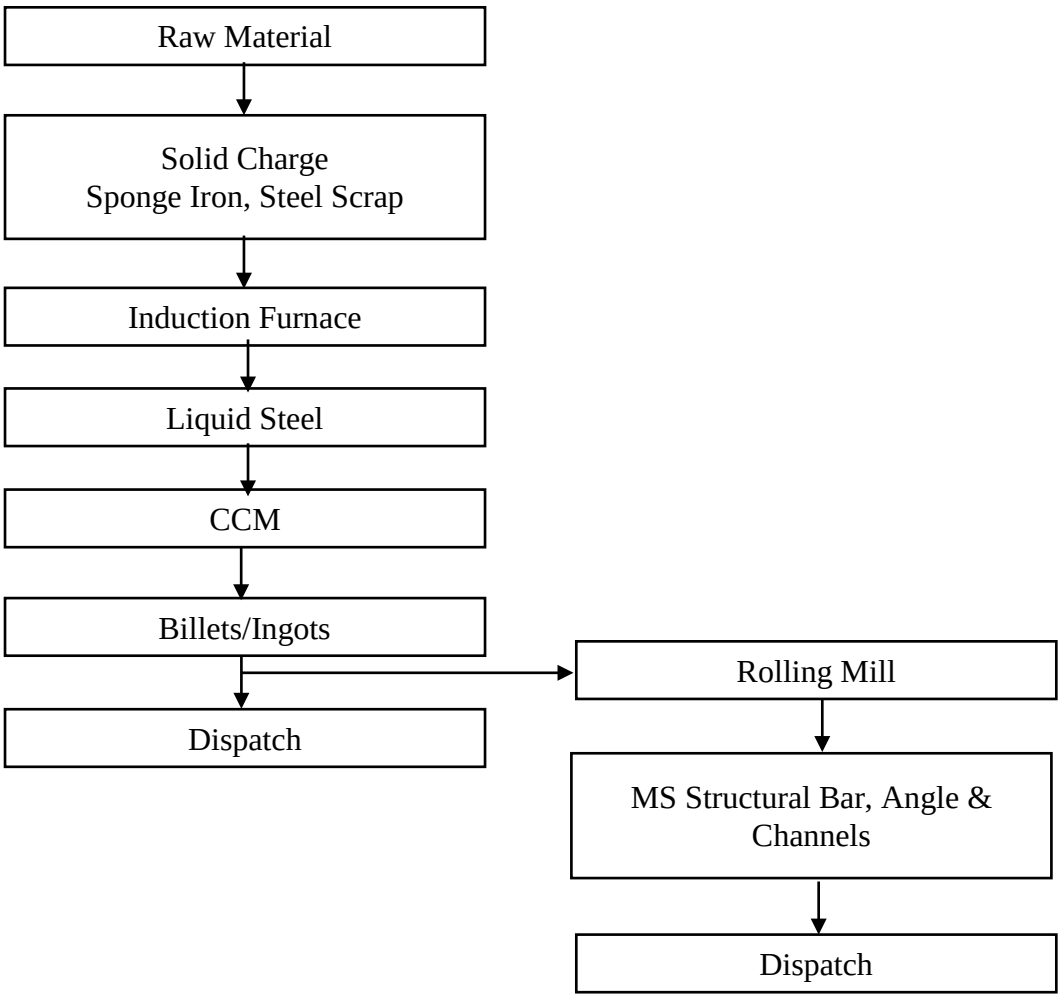


**Figure 1: Process Flow Diagram**

The methodology adopted for manufacturing of steel doesn't require any fuel; however emissions from melting process like Particulate matters will be subjected to Venturi Scrubber followed by cyclone separator.

Similarly, It will be ZLD unit; waste water comes from scrubber will be settled for separation of slurry and supernatant will be recycled back to the scrubber. Apart from this, sewage from domestic activity will be subjected to STP of 40 CMD capacity & treated sewage water will be used for gardening.

Solid hazardous waste generated from overall activity of the project, will be handled and disposed as per Hazardous Waste Rule, 2016.

## 4.0 BASELINE ENVIRONMENTAL STUDIES

### *4.1 Soil Environment*

Soil samples were also analyzed for heavy metals such as Chromium (Cr), Zinc (Zn), Lead (Pb), Nickel (Ni), Cadmium (Cd), Cobalt (Co), Manganese (Mn), Iron (Fe) and Copper (Cu) .The presence of heavy metals at proper pH enhances the microbial activity. The concentration of heavy metals found in the study area is normal.

### *4.2 Air Environment*

- **Particulate Matter (PM10)**
  The average maximum 24 hourly concentration for $PM_{10}$ was found to be 68.73µg/$m^3$at AAQ2 location while minimum concentration was recorded 40.12 µg/$m^3$at AAQ 4 location.
- **Particulate Matter ($PM_{2.5}$)**
  The average maximum 24 hourly concentration for $PM_{2.5}$ was found to be 39.96 µg/$m^3$ at the AAQ5 while minimum concentration was recorded 12.68µg/$m^3$ at AAQ2.
- **Sulphur Dioxide (SO2)**
  The average maximum 24 hourly concentration for $SO_2$ was found to be 31.04 µg/$m^3$at
  AAQ5 while minimum concentration was recorded 16.35µg/$m^3$at AAQ3
- **Oxides of Nitrogen (NOx**)
  The average maximum 24 hourly concentration was found to be 29.45 µg/$m^3$ at AAQ3 while minimum concentration was recorded 12.40 µg/$m^3$ at AAQ6.
- **Carbon Monoxide (CO)**
  The average maximum 1 hourly concentration for CO was 2.12 mg/$m^3$ at AAQ4 site, while minimum concentration was recorded 0.13 mg/$m^3$ at AAQ2 site.

### *4.3 Noise Environment*

Ambient noise levels during day time and night time of all 8 locations were observed within the Standard limits as specified by CPCB.

### *4.4 Water Environment*

Surface water samples were collected once during the study period at seven locations to assess the baseline water quality in the study area. The samples were compared with the CPCB's

surface water classification. Some of the important parameters are summarized in the below table;

| Parameter | Value |
|---|---|
| pH | 7.12-7.91 |
| Biochemical Oxygen Demand mg/l | 2-12 |
| Total Dissolved Solids mg/l | 79-966 |
| Total Hardness as CaCO3 mg/l | 17.14-525.05 |
| Alkalinity | 46.2-335.45 |
| Fluoride as F mg/l | 0.28-1.52 |
| Nitrate as $NO_3$ mg/l | BDL-1.61 |

Ground water samples were collected from eight locations to assess the existing groundwater quality of the study area during the study period. The physico-chemical characteristics of Ground water are compared to permissible limits of drinking water standards, prescribed in IS: 10500 (Test Characteristics for Drinking Water) and suitable for consumption. Some of the important parameters are summarized in the below table;

| Parameter | Value |
|---|---|
| pH | 7.05-7.65 |
| Turbidity NTU | 1.0-4.0 |
| Total Dissolved Solids mg/l | 129-425 |
| Total Hardness as CaCO3 mg/l | 125.30-238.42 |
| Alkalinity | 46.2-259.0 |
| Fluoride as F mg/l | BDL-1.42 |
| Nitrate as $NO_3$ mg/l | BDL-1.35 |

### *4.5 Biological Environment*

The ecological study of the area has been conducted within 10 km radius of the project site in order to understand the existing status of flora and fauna.

***Flora:*** 17 species of Trees, 10 species of Shrubs and 8 species of Herbs were identified.

***Fauna:*** 23 species of birds, 41 species of Butterflies were identified.

***Avifauna:*** 21 species were identified within the Study Area.

None of the identified species within the study area are Schedule I species of the Indian Wildlife Protection Act, 1972 or listed in IUCN Red List of Threatened Species. There are no legally protected areas such as National Parks or Wildlife Sanctuaries within 10 km of the Project Site.

### *4.6 Social Environment*

The study area is spread over Jalna district. There are total 33 villages in the study area. The study area is essentially rural in nature with moderate inhabitation. The nearest town is Jalna from the Project Site, towards east. The socio economics of study area is studied through primary and secondary survey. The socio-economic aspects of the study area is summarised in the table given below;

| Parameters | Study area (10 km) |
|---|---|
| Total No. of Villages | 33 |
| Total no. of Households | 14545 |
| Total Population | 74205 |
| Sex ratio | 905 |
| SC/ST population | 18.3% (SC) & 1.5% (ST) |
| Literacy Rate | 61.05% |

The primary survey revealed that Study Area is having education facilities primarily in the form of Anganwadi and Primary Schools. Colleges and other diploma courses are available at Jalna city about 5-6 km away from the project site. There are only six healthcare facilities available in the study area. In some of the villages, primary health sub centers were available. The main water supply in the surveyed villages is through well, tap water, hand pump, and tube well. Water supply for Jalna city is from Ghanewadi Lake which is about 6.45 km in North direction from project site. All villages are availing electricity facility for all purpose.

## 5.0 PREDICTION OF IMPACTS & MITIGATION MEASURES

### *5.1 Air Environment*

The air pollution caused by this industry is mainly from dust as SPM and fumes. The dust is due to the composition and handling of raw material and fumes are from furnace level as well as from ladle and roof level.

Pollution Control Measures

The air pollution is caused mainly by particulate matter and fumes during charging operation. The dust and fumes are extracted swivel suction hood system and sent to scrubber before discharge to atmosphere by 35 and 45 m tall stack.

The air pollution control system shall have:

- Sucking hood (swivel type) 3 m dia. X 1.0 m deep
- Duct from hood to cyclone
- Venturi Scrubber
- Cyclone separator
- Centrifugal Blower with 300 HP/2880 RPM motor

- Stack dia 1.3 m at top x height 73m

Fugitive emission will be controlled by:

- Regular water sprinkling
- Rubber tired trolleys for material handling
- Adopting layout to minimize manual material movement
- Tree plantation

Ground level concentrations (GLCs) have been predicted using AERMOD Cloud software. The application incorporates popular U.S. EPA air dispersion models AERMOD and ISCST3 into one integrated graphical interface. The model follows rural dispersion and regulatory defaults options as per guidelines on air quality models (PROBES/70/1997-1998).

### *5.2 Water Environment*

Water is required for cooling water makeup and domestic purposes. Domestic wastewater is treated in STP with overflow, treated effluent being used for green belt.

Pollution Control Measures

There is no pollution of water, it is required for only cooling purpose. Only domestic wastewater will be generated in the project and it shall be treated in Sewage Treatment Plant. Overflow will be reused for landscaping after disinfection.

Mitigation Measures

As additional mitigation measures, it is proposed to take-up following:

- To spread awareness to the workers about the importance of water quantity measurements and resource conservation.
- Shop-floor supervisors are trained for good house-keeping by arranging lectures, and by conscious supervision.

### *5.3 Noise Environment*

Noise will generate due to operation of induction furnace, vehicular movement, DG sets, blowers used in plants etc.

Pollution Control Measures

PPEs will be provided to all workers, apart from this acoustic enclosures will be provided to all noise generating equipment's, Traffic management will be done to ensure minimum noise level.

### *5.4 Solid Waste*

The only solid waste produced by the induction furnace is about 90 MT slag per day. It will be used for road making and land leveling. In addition, office waste generated shall be disposed of to local authority.

Quantification in of the waste for the unit can be presented as follows:

**Table 2: Details of Hazardous & Non Hazardous waste**

| SN | Waste | Quantity | Disposal |
|---|---|---|---|
| 1 | Office waste | 284 kg/day | Dry waste mainly paper waste will be recycled through vendor |
| 2 | STP sludge | ~3 kg/day | Own garden |
| 3 | Packing Waste | Nominal | Sale, Recycle |
| 4 | Process Waste-Refractory, scrap | 15 MTD | Reuse |
| 5 | Slag | 90 MTD | Resale, Can be used for Building construction material, road making |
| 6 | Spent Oil | 15 Lit/Year | Sell to authorized recycler |

## 6.0 RISK ASSESSMENT

Following safety measures are proposed to maintain safe work environment:

- Limiting the vehicles speed within the premises to 15 km/hr.
- Raw materials other than scrap are brought in closed containers to minimize dust generation. No hooks shall be used for lifting bags. Cranes, tackles and forklift trucks shall be used for unloading and loading bags.
- Before storage all units are to be inspected for cleanliness and for damage.
- All bags are to be stacked on pallets.
- Use of PPE is mandatory for all floor personnel

Following scenario emerged during HAZOP and measures to make operations safe have been defined. Risk can be due to:


The use of process equipment, including machinery may result in accidents; some of these could be serious and fatal. The particular areas of concern include:

- Lack of guards or inadequate guards on machines that may lead to accidents caused by entanglement, sheering, crushing, trapping, etc.
- Insufficient strength of materials and improper design of machines,
- failure to provide the right information, instructions and training to operators using the equipment;

All power tools will be used with appropriate shields, guards and attachments and in accordance with the recommendations of the manufacturers.

Workers shall be trained in the use of power tools and safety requirements.

## 7.0 DISASTER MANAGEMENT PLAN

In view of handling of hazardous process in industry, Onsite and Offsite Emergency Plans are important hence, has been prepared for the industry. During operational phase, surrounding population shall be made aware of safety precautions to be taken in case of any emergency situation due to the overall project activity. On-site disaster management plan and Off-site emergency management plan, commands communication and controls will be established and maintained. Adequate provisions like emergency response, response organization, response plan, command and control, capabilities, transportation, medical facilities, mitigation measures, training, education, public awareness emergency plan review etc. to control any disaster situation will be made available.

## 8.0 OCCUPATIONAL HEALTH MEASURES

Company will strictly adhere to the rules of Factories Act 1948 & the Maharashtra Factories Rules, 1963 regarding the occupational health facilities to be provided to the workers of the company. The industry will provided decontamination facilities for the workers. The health records of the workers would be maintained. For the continuous and continual development, company will train & educate the operators and workers with the environment, health & safety rules & regulation, procedure and measures.

## 9.0 EMP BUDGET

Company proposed to spend 375 lacs INR for Environmental pollution control measures. The detailed break up of same with recurring cost is mentioned below.

**Table 3: EMP Budget**

| SN | Environmental Aspect | Capital Expenditure Rs in Lakh | Recurring Expenditure Rs in Lakh (PA) |
|---|---|---|---|
| 1 | Emission control Engineering | 280.00 | 12.00 |
| 2 | Water & Wastewater management | 35.00 | 7.20 |
| 3 | Greenbelt | 20.00 | 4.80 |
| 4 | Environmental Monitoring | -- | 2.64 |
| 5 | Environmental Cell & PR | 0.00 | 12.00 |
| 6 | Other aspects like Rain Water Harvesting, Safety, Security etc | 10.00 | 3.00 |
| 7 | Contingency | 30.00 | 3.00 |
| | **Total** | **375.00** | **44.64** |

## 10.0 POST PROJECT ENVIRONMENTAL MONITORING PLAN

Monitoring of environmental parameters will be done as per the guidelines provide by MoEF/CPCB/SPCB. The standard/ approved/recommended methods by MoEF/CPCB will be followed. The **Table 4** explains the approach for environmental monitoring program.

**Table 4: Post Clearance Monitoring Plan**

| SN | Environmental Monitoring | Parameters | Frequency | Location |
|---|---|---|---|---|
| 1 | Ambient Air quality | $PM_{10}$, $PM_{2.5}$, $SO_2$, $NO_X$, CO | Quarterly | Total 8 Stations around periphery of the site. |
| 2 | Noise Level | Equivalent noise level | Daily | Total 8 Stations around periphery of the site. |
| 3 | Exhaust from DG Set | SPM, $SO_2$, NOx | Quarterly | Stack of DG set. |
| 4 | Drinking Water | pH, Temperature, EC, Turbidity, Total dissolved solids, Calcium, Magnesium Total hardness, Chlorides, Sulphates, Nitrates, DO, COD, BOD, Iron, Zinc Manganese (Physico- chemical and bacteriological parameters as per the source and utilization of water) | Quarterly | Domestic water tank |