

1 SUMMARY AND CONCLUSION

1. INTRODUCTION

M/s Dina Iron and Steel Limited is an existing steel based industrial unit was established as a Limited company in 1992 vide CIN No. L27101BR1992PTC004967, having its Registered Office at Abdul Rehmanpur Road, Didarganj, Patna City, Bihar. The Company owns a total land of 7.46 Ha. (18.44 Acre / 220.84 Kattha) private owned land. The existing plant is having production capacity of 24,240 TPA of ingots. The furnace capacity is planned to modify to a single furnace of 12 TPH and its final output capacity will be 34,560 TPA. The existing production capacity of the rolling mill is 24,240 TPA and the proposed production capacity is 1,05,800 TPA.

2 PROJECT DESCRIPTION

The proposed project planning needs “Environmental Clearance” from the MoEF&CC, as per the EIA Notification, 2006. The project is classified under Category B due to note in “General Conditions” (secondary metallurgical processing industrial units, those projects involving operation of furnace such as induction furnace having capacity of more than 30,000 TPA) as Metallurgical Industries (secondary metallurgical processing), listed as Item 3(a) of the schedule of the EIA Notification.

The brief description of the project is given below:

- **Identification of project:** Project falls under Metallurgical Industries (secondary metallurgical Processing) Item 3(a)
- **Brief description of nature of the project:** The existing plant is having production capacity of 24,240 TPA of ingots. The furnace capacity is planned to modify to a single furnace of 12 TPH and its final output capacity will be 34,560 TPA. The existing production capacity of the rolling mill is 24,240 TPA and the proposed production capacity is 1,05,800 TPA.
- **Proposed plant capacity:** 96 MT/Day productions (34560 MT/Annum).
- **Total Plot Area:** 7.46 Hectares.
- **Location:** Abdul Rehmanpur Road, Didarganj, Patna City, Bihar.
- **Water requirement:** Water for construction and domestic purpose will be drawn from Bore well 5 KLD water will be used during operational phase for domestic purpose.
- **Wastewater:** Domestic waste water generated will be sent to septic tank followed by soak pit, hence no generation of sewage. Rest of water quantity shall be recirculate for cooling purpose in project activity. The water makes up water used for cooling purposes in coils shall be used after softening.
- **Man Power:** Around 100 people.
- **Electricity/Power requirement:** Total Power loads 12,355 KVA to run the additional plant & machinery during Construction and Operational Phase. In case of Power failure 2 DG set of 125 KVA Capacity would be used.
- **Project cost:** The estimated cost of the Project is approximately Rs. 610.0 Lacks.

2.1 Technology and Process Description

M.S. Billets are manufactured by melting of Sponge Iron and M.S scraps in induction Furnaces and casted in cast iron moulds to get Billets. The raw materials required for the manufacture of M.S Billets are M.S scrap obtained from the open market. Required quantities of M.S scraps from the stock yard are transported through trucks into the furnace yard by the electro magnet and crane fed into furnace. A minimum manual shoveling is required.

2.2 Solid Waste

Solid waste will include;

- Slag @~39 MT/day – reusable as building material (especially in road construction).
- Mill scale @6 MT/day – the waste has commercial worth and will be sold.

Hazardous waste

Hazardous waste will include;

- Sludges from air pollution control devices @800 kg/day (Category 35.1 of Schedule-I) – the waste will be stored on-site in HDPE bags, inside a lined and covered room before being disposed through the State's common hazardous waste disposal facility.
- Waste/used oil/lubricant @400 kg/annum (Category 5.1 of Schedule-I) – the waste will be stored on-site in a covered room before being disposed through authorized recyclers.

3 DESCRIPTION OF ENVIRONMENT

Environmental Baseline Data Collection: Baseline data for the proposed project was collected during Winter Season (December 2020 to February 2021) to assess the present scenario of the area.

3.1 Soil Environment

Four locations in the study area were selected for soil sampling.

The interpretation of field data, physical and chemical data it can be concluded that:

As per the physical data soils are coarse to fine texture, imperatively moderate water holding capacity, and moderate to slow permeability. As per physical characters soils are rated as moderately good for agriculture.

As per chemical characters soil reaction (pH) soils are slightly alkaline and normal for crop growth. Organic carbon is more than sufficient. Macro nutrient like nitrogen is less and phosphorus is very less to very low potassium. Base saturation is very high.

3.2 Water Environment

3.2.1 Surface Water

Surface water samples were collected from 03 locations during the study period of December 2020 to February 2021 and analyzed for a number of physico-chemical parameters.

Interpretation of Surface Water Quality

- In the Surface water quality, the pH is found in the range between 7.70 to 7.9, which is more within the specified standard of 6.5 to 8.5. The minimum pH of 7.70 was observed at Baba Sahab Gurudwara and the maximum pH of 7.9 was observed at Kacchidargha.
- Total hardness was observed in the range of 145.7 to 315.2 mg/l. The minimum hardness (145.7mg/l) was recorded at Begumpur and the maximum hardness (315.2 mg/l) was

recorded at Kacchidargha.

- Total Alkalinity was observed in the range of 150.8 to 227.2 mg/l. The minimum Alkalinity (150.8 mg/l) was recorded at Baba Sahab Gurudwara and the maximum Alkalinity (227.2 mg/l) is found at Kacchidargha.
- Chlorides were found in the range of 72.5 to 110.5 mg/l, the minimum concentration of chlorides (72.5 mg/l) was observed at Baba Sahab Gurudwara whereas the maximum value of chlorides (110.5 mg/l) was observed at Kacchidargha.
- Sulphates were found in the range of 31.7 to 52.3 mg/l. The minimum value of Sulphates (31.7 mg/l) observed at Baba Sahab Gurudwara, whereas the maximum value of Sulphates (52.3 mg/l) observed at Kacchidargha.
- The Total Dissolved Solids (TDS) concentrations were found to be ranging in between 269.4 to 456.3 mg/l. The minimum TDS observed at Begumpur and maximum concentration of TDS observed at Kacchidargha.
- DO is found in between 5.5 to 6.0 mg/l. The minimum DO observe at Begumpur and maximum concentration of DO observed at Baba Sahab Gurudwara & Kacchidargha.
- BOD₃ is found in between 3.0 to 5.2 mg/l. The minimum BOD₃ observed at Narmada Baba Sahab Gurudwara and maximum concentration of BOD₃ observed at Kacchidargha.
- COD is found in between 19.0 to 23.0 mg/l. The minimum COD observed at Baba Sahab Gurudwara and maximum concentration of COD observed at Kacchidargha.

3.2.2 Ground Water

Ground water samples were collected from 03 locations during the study period of December 2020 to February 2021.

Interpretation of Ground Water Quality

- In the Ground water quality, the pH is found in the range between 7.45 to 7.61, which is well within the specified standard of 6.5 to 8.5. The minimum pH of 7.45 was observed at Sabalpur and the maximum pH of 7.61 was observed at Project Site.
- Total hardness was observed in the range of 132.8 to 161.4 mg/l. The minimum hardness (132.8 mg/l) was recorded at Project Site and the maximum hardness (161.4 mg/l) was recorded at Sabalpur.
- Total Alkalinity was observed in the range of 155.0 to 170.0 mg/l. The minimum Alkalinity (155.0 mg/l) was recorded Project Site and the maximum Alkalinity (170.0 mg/l) is found at Sabalpur.
- Chlorides were found in the range of 67.0 to 85.0 mg/l, the minimum concentration of chlorides (67.0 mg/l) was observed at Sabalpur, whereas the maximum value of chlorides (85.0 mg/l) was observed at Project Site.

- Sulphate was found in the range of 29.6 to 36.0 mg/l. The minimum value of Sulphates (29.6 mg/l) observed at Sabalpur, whereas the maximum value of Sulphates (36.0 mg/l) observed at Marufganj.
- Nitrate was found in the range of 0.45 to 0.65 mg/l. The minimum value of Nitrate (0.45 mg/l) observed at Sabalpur, whereas the maximum value of Nitrate (0.65 mg/l) observed at Project Site.
- The Total Dissolved Solids (TDS) concentrations were found to be ranging in between 349.0 to 388.0 mg/l. The minimum TDS observed at Project Site and maximum concentration of TDS observed at Marufganj.
- Iron is found in between 0.12 to 0.14 mg/l. The minimum Iron observed at Sabalpur and maximum concentration of Iron observed at Project Site & Marufganj.

The results of ground water samples were compared with Indian Standard Specification of drinking water IS: 10500:2012. Some of analysed parameters in ground water samples meet acceptable limit however all the analysed parameters are meeting permissible limit in the absence of alternate source as per Indian Standard Specification of drinking water IS: 10500:2012. The ground water resources in the study area were found fit for drinking purpose.

3.3 AIR ENVIRONMENT

Wind speed and direction: The prominent seasonal wind direction is from North towards South contributing more than/approximately 11.57% of the total. The Wind speed is 2.43 m/s.

08 AAQM stations were selected during the study period of December 2020 to February 2021.

Observation of Ambient Air Quality

Particulate Matter (PM₁₀)

The maximum and minimum concentrations for PM₁₀ were recorded as 304.2 µg/m³ and 150.6µg/m³, respectively. The maximum concentration of PM₁₀ was recorded at the (AQ4) Ranipur Milki and minimum concentration was observed at (AQ8) Jethuli. The mean concentrations range between 193.1µg/m³ to 238.9µg/m³. 98th percentile values for PM₁₀ during study period range between 265.16 to 300.51 µg/m³.

Fine Particulate Matter (PM_{2.5})

The maximum and minimum concentrations for PM_{2.5} were recorded as 177.4 µg/m³ and 68.8 µg/m³, respectively. The maximum concentration was recorded at (AQ4) Ranipur Milki and the minimum concentration was recorded at (AQ8) Jethuli. The mean concentrations range between 101.3 to 126.6 µg/m³. 98th percentile values for PM_{2.5} during study period range between 140.58 to 169.68 µg/m³.

Sulphur Dioxide (SO₂)

The maximum and minimum SO₂ concentrations were recorded as 15.3 µg/m³ and 9.4 µg/m³. The maximum concentration was recorded at (AQ1) Project Site and the minimum concentration was recorded at (AQ2) Deedarganj. The mean values were observed from 11.5 µg/m³ to 12.8 µg/m³. 98th percentile values for SO₂ during study period range between 13.47 to 14.93 µg/m³.

Nitrogen Oxide (NO₂)

The maximum and minimum NO₂ concentrations were recorded as 28.6 µg/m³ and 10.3 µg/m³. The maximum concentration was recorded at (AQ1) Project Site and the minimum concentration was recorded at (AQ2) Deedarganj. The mean values for NO₂ were observed in the range between 21.5 to 24.0 µg/m³. 98th percentile values for NO₂ during study period range between 23.72 to 28.14 µg/m³.

Carbon Monoxide (CO)

The maximum and minimum CO concentrations were recorded as 2.95 mg/m³ and 0.68 mg/m³. The maximum concentration was recorded at (AQ8) Jethuli and the minimum concentration was recorded at (AQ5) Nagla. The mean values for CO were observed in the range between 1.44 to 2.07 mg/m³. 98th percentile values for CO during study period range between 2.51 to 2.94 mg/m³.

3.4 Noise Environment: Noise samples were collected from 6 locations during the study period of December 2020 to February 2021

Observations

- The maximum and minimum concentrations for Noise were recorded as 53.2 dB (A) and 49.9 dB (A) respectively in day. The maximum concentration was recorded at Begumpur and the minimum concentration was recorded at Sabalpur.
- The maximum and minimum concentrations for Noise were recorded as 41.6 dB (A) and 38.4 dB (A) respectively in Night. The maximum concentration was recorded at Begumpur and the minimum concentration was recorded at Sabalpur.

3.5 Ecology & Biodiversity

Primary data collection was carried out in the immediate project area from December 2020 to February 2021 representing the winter season.

There are no wildlife sanctuaries/parks within 10 km of the project site. The area does not record the presence of any critically threatened species. The records of Botanical Survey of India also do not indicate presence of any endemic or vulnerable species in this area.

Tree species present in and around the construction site such as Amrud, Aanar, Ashok, Babool, Bargad, Bair, Mango, Imli, Neem etc.

Fauna in study area are such as Rat, Squirrel, Cow, Cat, Dog, Goat, Common Indian toad, Indian bull frog, Mangur, Dumra or Dhambra, Bhangana or Bata, House lizard, Garden lizard etc.

3.6 Socio-Economic Environment

Patna ranks 1st in terms of population (58,38,465) and 9th in terms of area (3,202 sq.km.) in the state of Bihar. In terms of population per sq.km. Patna is the 2nd densely populated district in the state with 1,823 persons per sq.km as against the state's 1,106. Patna ranks 32th in terms of sex-ratio (897) against the state's 918. Patna ranks 37th in terms of child sex-ratio (909) against state's 935. There are 124 uninhabited villages (out of 1,388 total villages) in the district of Patna. The Total Population of study area is 24,79,280 individuals and 4,27,682 numbers of households. A comparative assessment has been made for the respective demographic aspects, based on the year 2011 data, which has been discussed in the following sections.

The total population of study area is 2479280 the percentages of male & female population are 53.01 % & 46.99 % respectively. The total literate's population of study area is 1730429 in which 971893 is male literate population and 758536 is female literate population. In 2011, about 10.28 % of the total population belonged to Scheduled Castes (SC) and 0.25% of the total population belonged to Scheduled Tribes (ST). The literacy rate is in study area 51.67% of the total population in 2011. The male literacy rate was 69.79 % (of total male population), whereas corresponding figures for the female literacy rate was 65.10 % (of total female population) in 2011.

4 ANTICIPATED ENVIRONMENTAL IMPACTS & MITIGATION MEASURES

The impact identification and prediction process aims to:

- Identify potential source or cause of impact throughout the life of project
- Characterize the potential impacts affecting the social, economic and environmental attributes
- Assess the potential of negative environmental impact due to the project and its mitigation through Environmental Management Plan (EMP)
- Prediction of the impacts due to the development, construction and functional activities encompass the developmental processes to be undertaken during construction and functional phases.

4.1 Impacts on Land Environment

During Construction Phase: Minor site excavation will be envisaged during modification construction of the units. The activities causing no potential impact during construction phase on land use include leveling of site, construction of related structures and installation of equipment and movement of heavy machineries and vehicle.

During Operation Phase: During operation phase, the activities of proposed plant will not change the soil quality. The waste generated from the plant is generally of use on another sites like slag are used

in land fill depressed sites, the iron powder generated due to scratch is generally sold to cement factories.

Mitigation measures: Excavated soil during construction phase will be suitably used for land filling in low lying areas. The top soil will be preserved and used for landscaping purposes and whatever solid wastes get generated will be disposed of as either in recovery of iron or used as sand in road construction or recovery of precious/more valuable metals. Other solid waste is sold to market as low value products.

4.2 Impact on Air environment

During Construction Phase: During the construction phase, dust (particulate matter) is expected to be emitted due to movement of vehicle on the haul roads and material handling. Vehicular emission of SO₂, NO₂, CO will add onto the air pollution. Operation of DG sets will generate air pollutants like SO₂, NO₂, CO.

During operation phase: During the operation phase, there are four major categories of sources of air pollutants, they are:

- ❖ Emissions from manufacturing processes/furnace
- ❖ Fugitive emissions from material handling
- ❖ Emissions (NO_x, CO and PM) from vehicular movement
- ❖ Emissions (NO_x, CO and PM) from Diesel Generator Set

Mitigation measure:

- Proper maintenance of vehicles and construction equipment will help in controlling the gaseous emissions.
- Water sprinkling on roads and construction site will prevent fugitive dust.
- Over loading of the trucks will be avoided.
- Haulage roads, which are used for transportation of material, will be paved.
- People working in and around the dust generating area, will be provided with Personal Protective Equipment (PPE) like dust mask to prevent inhalation of dust particles, and use of the same will be strictly enforced during working hours.
- Adequate greenbelt development along the road side and in the plant premises will help in providing dust suppression.
- While the major source of emission will be from induction furnace area so an air pollution control equipment will be installed.
- A bag filter along with the spark arrestor used to install to control the air pollution emitted from plant.

4.3 Impact of the Transportation and Mitigation Measures

Impact on Air Environment

- ✓ The movement of heavy vehicles due to transportation of raw material causes re- suspension of loose dust particles in air
- ✓ Increase in PM₁₀, SO₂, CO and NO₂ levels due to burning of fossil fuels.

Mitigation Measures:

- ✓ Sprinkling of water to reduce fugitive particulate matter concentration.
- ✓ Vehicle shall be thoroughly covered so as to prevent release of fine particulate in case of accidental leakage.
- ✓ Vehicle used for transportation shall comply with environmental standards and only vehicles having Pollution under Control certificate will be put into use.

Impact on Land Environment:

During accidental leakage due to puncture of carry bags, containers, deposition of material on top soil, land is possibility.

Mitigation Measure:

- ✓ Vehicles shall be covered to prevent accidental leakage.
- ✓ The area got contaminated shall be remediated through scrapping or the measures.

Impact and Mitigation on Traffic Density:

- ✓ The movement of vehicles will increase traffic density of the area.
- ✓ However, the proximity of major road will alleviate possible congestion problems.

4.4 Impacts on Noise and Vibration

Operation of machineries like conveyor, rotating machines during operation and DG sets will result in generation of noise and vibration. Movement of vehicles will also contribute to noise though the generated noise will be insignificant.

Mitigation Measures

- Heavy machineries and DG sets will be operated during day time only.
- The machineries to be used will be serviced and maintained to control generation of noise and vibration.
- Vehicles used for transportation will be serviced regularly and maintained properly to avoid any generation of unwanted noise.
- Employees working in noisy environment will be made mandatory to wear ear muffs/ear plugs.

4.5 Impacts on Water Environment

During Construction Phase

Total 17 KLD water will be used, in which 15 KLD will be used for the industrial purpose and rest 2 KLD water will be used as daily fresh water for domestic purposes.

Domestic waste water will be generated and send to septic tank followed by soak pit.

Impacts during Operation Phase

Total water requirement for the project during its full-fledged operational phase is estimated to be 5 KLD for domestic purposes. Less water will be used during production process and the spent.

Mitigation Measures

The sewage generated during the construction and operation phases will not be drained outside the premises but to be collected in a settling tank and recycled. The water used for cooling the kilns will be collected in tank and passed through cooling tower and will be reused for green belt development.

4.6 Impacts on Biological Environment

Construction activities at the site involving human and vehicular movement will disturb aril and wild animals in the area. The impact on terrestrial ecology may be due to gaseous pollutants likely to emit i.e. particulate matter, Sulphur dioxide (SO₂), Oxides of nitrogen (NO_x), etc.

Mitigation measures:

- Vehicular movement during night will be restricted to avoid adverse sound related impacts to birds and wild animals in the region.
- Plantation is carried out to attenuate the dust pollution in the area. Green belt and greenery will be developed in the premise covering more than 33% of area.
- The project activities are restricted to the project site except the transportation of raw material and products.
- There is no discharge of solid or liquid wastes to the environment.

4.7 Impact on Socio-Economic Environment

Positive Impact:

- No Rehabilitation
- Increase in Job Opportunities
- No burden in the existing Infrastructure Facilities
- Improvement in Infrastructure

Adverse Impacts:

- Impacts on Human Health
- Impacts on Agriculture

Mitigation Measures of Socio-Economic Environment

- Periodic health checkup camps, blood donation camps shall be organized by project authority for villagers, contract laborers, employees and their family in nearby villages.
- Awareness programs shall be arranged on health, hygiene and sanitation.
- Apart from the normal health check-up, emphasis shall also be given to prevent specific diseases originating due to emission of different pollutants such as respiratory ailments, skin problems, water borne diseases, hearing abilities etc.
- Job oriented training courses will be organized through industrial/technical training

institutions for educated youth like electrical, tailoring, plumbing, type writing, shorthand and machine repairing, welding fabrication, and other skill developing trades.

- Whenever necessary, collaboration between project authority and local bodies will be done on regular basis with an objective to build and maintain a good relationship which is necessary for smooth functioning of the project as well as progress and welfare of the people in the study area
- Awareness programs will be taken to make people aware about the environmental protection, need of water conservation etc.
- At the work place, first aid facilities shall be maintained at a readily accessible place with necessary appliances including sterilized cotton wool etc. Ambulance facility shall also be provided during emergency
- Sufficient supply of water fit for drinking shall be provided at suitable places.
- Sanitary facilities shall be provided at accessible place within the work zone and kept in a good condition.

4.8 Rain Water Harvesting

The number of drainage outfall and extent of open drains etc. will be designed so as to discharge the water to the rainwater harvesting pond for reuse in dust suppression & greenbelt development. Total 15 nos. rainwater harvesting ponds are proposed.

5 ENVIRONMENT MONITORING PLAN

The following will be monitored on a regular basis during operation phase to ensure that a high level of environmental performance is maintained:

- Ambient air monitoring of PM2.5, PM10, SO₂, NO_x, CO will be carried out during the operational phase within site premises and nearby villages, location of downwind direction, and once every season.
- Groundwater sample from site or nearby location once every season.
- Post project sampling and effect on baseline data generated during construction and operation;
- The general effectiveness of pollution control measures shall also be monitored.

Environmental Monitoring Plan during Construction Phase

| Attribute | Location & Frequency | Parameter |
|--------------|----------------------------------------------------------------------------------|--------------------------------------------------|
| Air | At major construction sites (total 2 stations); Monthly | PM10, PM2.5, SO ₂ and NO _x |
| Noise | At major construction site and near generator set; Monthly | Equivalent noise level |
| Ground Water | Three locations –within plant area and nearest well outside plant area; Seasonal | Parameters as per CPCB standards |

Environmental Monitoring Plan during Operation Phase

| Attribute | Location & Frequency | Parameter |
|---------------------|------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| Air | Ambient air at work zone area and at entrance (total 2stations); Monthly | PM10, PM2.5, SO ₂ and NO _x |
| | Stack monitoring | SPM & RSPM |
| Noise | At work zone area and at entrance (total 2stations); Monthly | Equivalent noise level |
| GroundWater | Three locations –within plant area and nearest well outside plant area; Seasonally | Parameters as per CPCB standards |
| Soil | Three locations - one location within plant area and two locations around the project site within 200 m distance from the unit; Annually | pH, moisture content, texture, organic matter, chloride, SAR, CEC, nitrogen, phosphorous, fluoride, sulphur |
| Storm Water | One location per season – Once in monsoon | Parameters as per CPCB standards |
| Occupational Health | Half yearly | General and respiratory andliver ailments check up |

6 ADDITIONAL STUDIES

The public consultation will be conducted once the draft EIA Report is submitted to BSPCB. The detail as will be updated after obtaining proceedings of PH.

6.1 Risk Assessment

The objectives of environmental risk assessment are governed by the following which excludes for measure.

- Identifying the potentially hazardous areas so that adequate design safety measures can be adopted to reduce the likelihood of accidental events.
- Identifying the stakeholders and evaluating their risk along with proposing adequate control techniques.
- Identifying the probable areas of environmental disaster which can be prevented by appropriate design of the installation and its controlled operation.
- Managing and emergency situation or a disastrous event if any, during the plant operation.

Hazard Identification of the Steel Plant

| Group | Item | Nature of hazard | Hazard of Potential | Remarks |
|--------------------------|---------------------------|------------------|---------------------|---------------|
| Raw materials Management | Water treatment chemicals | Toxic | Major | Bio-corrosive |

| | | | | |
|------------------------------|------------------------------------------------------|--------------|----------|-----------------------------------|
| | like acids/alkalis | | | |
| | Lube oils/greases | Fire | Moderate | Flammable |
| Production units | | | | |
| Agglomeration | Dusts | Respiratory | Moderate | Air pollution |
| Iron making in BF | Release of untreated wastewater | Toxic | Major | Severe pollution of surface water |
| | BFG handling | Fire | Major | Fire hazard |
| | Hot metal & slag Handling | Heath | Major | Fire hazard |
| Steel making in LD shops | Release of untreated wastewater | Toxic | Major | Severe pollution of surface water |
| | LD gas handling | Fire | Major | Fire & CO hazard |
| | Hot liquid steel & slag handling | Heath | Major | Fire hazard |
| Rolling Mills | Gas firing | Fire | Major | Fire hazard |
| | Release of untreated Waste water | Toxic | Major | Severe pollution of surface water |
| Captive Power Plant | | Fire | Major | Fire hazard |
| Utilities | | | | |
| Fuel gas | Gas leaks | Fire & Toxic | Major | Fire & CO hazard |
| Electric Power supply | Short circuit | Fire | Major | Fire hazard |
| Liquid fuel | Fuel handling & storage area | Fire & Toxic | Major | Fire & CO hazard |
| Hydraulic oil and lubricants | Accidental discharge of hydraulic oil under pressure | Fire & Toxic | Moderate | Fire & personal injury |

Hazard Identification and Precautionary Measures

| Sr. No | Operation process Equipment /areas | Possible Hazardous | Precautionary measures | Measures to be taken if any hazard occurs |
|--------|------------------------------------|-------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1. | Electrical Panel | Electrical Shock possible due to short-circuit. | Earth leakage circuit breaker is installed | In an event of electric leakage main supply should be immediately shut off. |
| 2. | Furnaces | Fire hazards caused by flames | 1. Emergency kit is kept readily available in store and working place. 2. Fire-fighting equipment powder/Foam type | Fire Extinguisher & Hydrant at suitable location |

| | | | | |
|----|-----------------------------------------|---------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| | | | <p>extinguishers are kept readily available.</p> <p>3. Hydrant system provided at conspicuous place.</p> <p>4. Fire-fighting trained man is employed.</p> <p>5. Periodic inspection done to avoid accident of any kind.</p> | |
| 3. | Electrical transformer | Electrical power | Shock proof insulated PCC Platform. | Immediate Cut off the power supply, treat the injured for electrical shock |
| | | Fire 1 | <p>Firefighting equipment:</p> <p>I. Sand buckets.</p> <p>II. Fire extinguisher.</p> | Immediately fight fire with available resources, summon outside help if necessary |
| 4. | Diesel Oil/Transformer Oil etc.storage. | Fire hazard may be possible if directly comes in contact. | Fire proof system made available and fighting equipment like Foam, extinguishers and hydrant system, etc., are kept | Proper care is to be taken while storing and keeping the oil drums. |
| 5. | Chemicals Storage area | In case of bottle breakage, causes burns and damage to respirator systems due to inhalation | <p>1. Proper care should be taken while handling the chemicals.</p> <p>2. First Aid Box should be available at Site with all necessary and required medicines.</p> <p>3. Firefighting equipment like Extinguishers, sand buckets should be available always</p> | Instruction Boards to be displaced for knowledge of other workers to take care of the situation in the event of occurrence. |

Summary of Recommended Personal Protective Equipment According to Hazard

| | Workplace Hazards | Suggested PPE |
|-------------------------|------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|
| Eye and face protection | Flying particles, molten metal, gases or vapors, light radiation | Safety glasses with side-shields, protective shades, etc. |
| Head protection | Falling objects, inadequate height clearance, and overhead power cords | Hard plastic helmets for top and side impact protection |
| Hearing protection | Noisy Areas | Hearing protectors (ear plugs or earmuffs) |
| Foot protection | Falling or rolling objects, points objects. Corrosive or hot liquids | Safety shoes and boots for protection against moving and falling objects, liquids and chemicals |
| Hand protection | Hazardous materials, cuts or lacerations, vibrations, extreme | Gloves made of rubber or synthetic material (Neoprene), leather, steel, insulation materials, etc. |

| | | |
|------------------------|--------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | temperatures | |
| Respiratory protection | Dust, fogs, fumes, mists, gases, smokes, vapors | Facemasks with appropriate filters for dust removal and air purification (chemical, mists, vapors and gases). •Single or multi-gas personal monitors, if available |
| | Oxygen deficiency | Portable or supplied air (fixed lines). Onsite rescue equipment |
| Body / leg protection | Extreme temperatures, hazardous materials, biological agents, cutting and laceration | Insulating clothing, body suits, aprons etc. of appropriate materials |

Occupational Health & Safety

M/s Dina Iron & Steel Limited believes in Safety First and is concerned with protecting safety, health & welfare of the people engaged in work or employment.

The following safety measures for the employees shall be implemented:

- Safety training is provided to the employees.
- Manual call bell in case of emergency is provided.
- Fire alarms are provided.
- First aid facility and trainings are provided.
- Personal protective gears and equipment's are provided to the employees.
- Health checkups are organized at regular intervals and records are maintained.
- Fire Protection System by means of providing Fire hydrants, Fire Extinguisher at vulnerable points within the plant has been envisaged.
- Cleanliness facilities, rest room, plenty Plant Lightning is also envisaged for the proposed project

7 PROJECT BENEFITS

- Physical Infrastructure
- Employment Opportunities
- Indirect employment
- Social Infrastructure

8 ENVIRONMENTAL MANAGEMENT PLAN

- Pollution control/mitigation measures for abatement of the undesirable impacts caused during the construction and operation phase.
- Details of management plans (Greenbelt development plan, Waste management plan etc.)
- Institutional set up identified/recommended for implementation of the EMP.
- Post project environmental monitoring programme to be undertaken.
- Pursuing for funds allocation and expending the same for EMP.

Environmental Monitoring Cost

| S. No | Title | Capital Cost Rs. Lacs | Recurring Cost Rs. Lacs (Annum) |
|-------|----------------------------------------------------------------------------------------|-----------------------|---------------------------------|
| 1 | Air Pollution Control | 40.0 | 4.0 |
| 2. | Water Pollution Control/ sewage Treatment Plant | 2.0 | 1.0 |
| 3. | Noise Pollution Control (Including cost of Landscaping, Green Belt) | 5.0 | 1.0 |
| 4. | Solid Waste Management | 10.0 | 1.0 |
| 5. | Environment Monitoring and Management (Including Establishment of Laboratory) | 2.0 | 0.5 |
| 6. | RWH | 3.0 | 00 |
| 7. | Miscellaneous (Appointment of Consultants, occupational health & safety measure) | 3.0 | 1.0 |
| | Total | 66.00 | 8.5 |

Conclusion

Certain levels of impacts are predicted in the proposed project. These impacts are reduced by mitigative measures implemented in the project area. Apart from these impacts' certain beneficial effects in terms of providing employment opportunities and development of surrounding plant area is foreseen. This will produce multiple effects on the life and economy of the local people.

The project activities involved in the construction and operation phase are identified. For identification of impacts, the interaction between the project activities and different components of environment were detailed and are classified phase wise.

In the constructional phase, the transportation of construction material could have an impact, especially on air, noise, vibration. However, since the proposed project is surrounded with industries and well-maintained infrastructure facilities, even this impact is minimal and temporary. The noxious emission arising out of the various systems will be taken care by a bag filters and waste water generated if any will be recycled in the manufacturing process.

During the operational phase, there could be minor change in air quality. Transportation of raw material, storage and handling of material and the production process could cause a disturbance to environment variables which will be prevented with the proposed mitigation measures. The noxious emission arising out of the various systems will be taken care by APCD system and waste water generated if any will be recycled in the manufacturing process. The evolved gases with dust from the Induction Furnaces will be cleaned in high efficiency Pulse jet type bag filters and the collected dust will again be used for recovery of Zinc before finally disposing of to the TSDF. Similarly, metal will be extracted from the slag generated before sending the slag for filling low lying areas or using the

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same as sand in road metaling or pebbles making. There is no waste water/ liquid discharges and the plant will follow ZLD.

With respect to occupational health, minimal impacts are anticipated on the health of the employees during operation phase. The project site is already established there are no issues related to Resettlement and Rehabilitation. The company has proposed to create green belt inside the project area premises along with development of rainwater harvesting system inside the plant premises.

The project will generate employment opportunities among the local peoples which will provide a handsome support in improving the living standard.

Thus, it can be concluded that with the judicious and proper implementation of the pollution control and mitigation measures, and it is very pertinent that with the judicious implementation of the Environment Management Plan the proposed project will be beneficial to the society and will help reduce the demand-supply gap of steel and will contribute to the economic development of the region in particular and country in general.