

**SUMMARY ON
ENVIRONMENTAL IMPACT ASSESSMENT
REPORT**

OF

AGARWAL SPONGE AND ENERGY PVT. LTD.

Expansion of Steel Plant
at
Kudathini Village, Bellary (T & D), Karnataka

Submitted to

KARNATAKA STATE POLLUTION CONTROL BOARD

1.0 PROJECT DESCRIPTION

AGARWAL SPONGE AND ENERGY PVT. LTD. is operating 3 x 100 TPD Sponge Iron plant & 12 MW power plant at Kudathini Village, Bellary (T & D), Karnataka. Environment Clearance has been issued for existing plant by MOEF vide no. **J-11011/908/2007-1AII (I)** vide dated **11th December 2008**. All units as per EC accorded are in operation. CTO has issued by KSPCB vide Consent No. AW-303798, which is valid upto 27.09.2017 to 30.06.2022

Now as a part of expansion, company is planning to go for expansion of Expansion of existing Sponge Iron & Power Plant by installation of 1x350 TPD DRI kiln to produce 1,05,000 TPA of Sponge iron with 8 MW WHRB facility, Induction Furnaces of 4x30 T to produce 4,18,630 TPA of Billets & Narrow Hot Strip Mill of 4,00,000 TPA of H.R. Coils/Strips in the existing land premises over an extent of 20 Acres (8.09 Ha.) & also in additional land is 24.09 acres (9.74 Ha). The Survey numbers involved in the total land 44.09 Acres (17.84 Ha.) are 899/A, 899/B, 900, 902/B, 907/A, 907/B. The total project cost of the proposed expansion project will be **Rs.400 Crores**.

As per the Ministry of Environment, Forests & Climate Change, New Delhi notification, dated 14th September, 2006 and its subsequent amendments, all Primary metallurgical processing industries are classified under Category 'A'. The Ministry of Environment, Forests & Climate Change, New Delhi has accorded Terms of Reference (TOR) for the proposed project vide letter no. **J-11011/908/2007-IA II (I)** dated **11th February 2020**. The EIA Report has been prepared by incorporating the TOR stipulated by the Hon'ble EAC.

Pioneer Enviro Laboratories & Consultants Private Limited, Hyderabad, which is accredited by NABET, Quality Council of India, vide certificate No. **NABET/ EIA/ 1922/ RA 0149**, for preparing EIA report for Metallurgical Unit, have prepared Draft Environmental Impact Assessment (EIA) report for the proposed expansion project by incorporating the TOR approved by Ministry of Environment, Forests & Climate Change, New Delhi. The report contains detailed description of the following:

- Characterization of status of environment with in an area of 10 km radius from the plant for major environmental components including air, water, noise, soil, flora, fauna and socio-economic environment.

- Assessment of air emissions, liquid waste and solid waste from the proposed expansion project along with the noise level assessment.
- Environmental Management Plan comprising of emission control measures proposed to be adopted in the proposed project, solid waste management, Greenbelt development.
- Post Project Environmental Monitoring & Budget for Environmental Protection Measures.

1.1 ENVIRONMENTAL SETTING WITHIN 10 Km. RADIUS OF THE PLANT SITE

The following is the environmental setting within the 10 Km. radius of the Plant site:

S.No.	Salient Features / Environmental features	Distance w.r.t. site / Remarks
1.	Type of Land	Existing Plant (Industrial land) & additional land proposed is Dry agricultural land and will be converted to Industrial.
2.	Type of Land (Study Area)	As per LULC the land use within 10 Km. is as follows: Settlements – 2.2 %; Industrial Area – 5.4 %; Scrub forest – 8.7; Tank / River/ Major canal/Reservoir – 3.4 %; Single crop – 53.3%; Double crop – 6.9 %; Plantation – 1.1 %; Land with scrub – 12.3 %; Land without scrub – 2.5 %; Sheet rock area – 1.1 %; Mining area – 3.1 %.
3.	National Park/ Wild life sanctuary / Biosphere reserve / Tiger Reserve / Elephant Corridor / migratory routes for Birds	Nil
4.	Historical places / Places of Tourist importance / Archeological sites	Nil
5.	Critically polluted area as per MoEF&CC Office Memorandum dated 13 th January 2010	None And also the Plant area does not fall in the areas given in Hon'ble NGT order issued vide dated 10 th July 2019.
6.	Defence Installations	Nil
7.	Nearest village	Venivirapur (2.8 kms.) & Kudatini (2.9 Kms.)
8.	No. of Villages in the Study Area	10 nos.
9.	Forests	Chikkantapur RF (SW) - 6.0 kms; Toranagallu RF (NWW) -7.5 Kms; Bellary RF (S) – 7.5 Kms.
10.	Water body	Tungabhadra High level Canal (N)- 5.8 Kms.

S.No.	Salient Features / Environmental features	Distance w.r.t. site / Remarks
		Allipur Kere Reservoir-6.1 Kms. Kanigana Halla (SW) -7.8 Kms. Urumundra Halla (E) – 0.12 Kms. Bankan Halla (E) – 0.45 Kms. & Few other Streams & ponds are present within 15 Km. radius of the plant.
11.	Nearest Highway	NH # 63 (Bellary to Hubli) – 1.7 Kms.
12.	Nearest Railway Station	Kudatini R.S. -- 4.5 Kms.
13.	Nearest Port facility	Nil
14.	Nearest Airport	Nearest Airstrip is Bellary @ 9.5 Kms.
15.	Nearest Interstate Boundary	Karnataka – Andhra Pradesh Interstate border - 7.85 Kms.
16.	Seismic zoneas per IS-1893	Seismic zone – II
17.	R & R	Not applicable as there are no habitations in the additional land proposed for expansion.
18.	Litigation / court case is pending against the proposed project / proposed site and or any direction passed by the court of law against the project	Nil

1.2 Plant Configuration and Production Capacity

Following is plant configuration and production capacity proposed now

S. No.	Details	Total Capacity as per the EC issued vide dated 11.12.2008	Implementation Status	Present Proposal	Production capacities After Present Proposal
1.	DRI Kiln for Production of Sponge Iron	90,000 TPA (3x100 TPD)	90,000 TPA (In operation)	1,05,000 TPA (1x350 TPD)	1,95,000 TPA (3x100 TPD & 1x350 TPD)
2.	Induction furnace with CCM & LRF to produce billets / hot Metal	----	----	4,18,630 TPA (4x30 T)	4,18,630 TPA (4x30 T)
3.	Rolling Mill to produce Hot Strips / Coils	----	----	4,00,000 TPA	4,00,000 TPA
4.	Power generation through WHRB	6 MW	6 MW (in operation)	8 MW	14 MW
5.	Power Plant through FBC Boiler	6 MW	6 MW (in operation)	2 MW*	8 MW*

* As per the Specific ToR # 2 AFBC power plant of additional 3 MW is proposed to consume entire dolochar generated from proposed DRI kilns.

The proposed Steel Plant will produce the following products:

Unit	Description
DRI Kiln	: Manufacturing of Sponge Iron using Iron Ore, Dolomite, Limestone and Coal as raw materials
Induction Furnace	: Manufacturing of MS Billets / Hot Metal using Sponge Iron, MS Scrap, Ferro Alloys as raw materials
Rolling Mill	: Manufacturing of Rolled Product using MS Ingots / Steel Billets. By utilizing Pulverized coal / Furnace oil as fuel.
Power generation	: By utilizing hot waste flue gases from DRI kilns in WHRB. By utilizing Coal / Dolochar in FBC boiler as fuel.

1.3 Raw Materials (For Expansion project)

The following will be the raw material requirement for the proposed expansion project:

S.No.	Raw Material	Quantity	Source	Mode of Transport
For manufacturing Sponge Iron) of 1,05,000 TPA				
1	Iron Ore (OR) Iron Ore Pellets	2,31,000 TPA (OR) 1,57,000 TPA	Bellary	By road (through covered trucks)
2	Coal	1,36,500 TPA	Open Market	By road (through covered trucks)
	Imported Coal	87,360 TPA	Indonesia / South Africa / Australia	Through sea route, Rail & Road
3	Dolomite	10,500 TPA	Local Area	By road (through covered trucks)
For manufacturing MS Billets) – 4,18,630 TPA				
1	Sponge Iron	1,95,000 TPA	Own generation	----
2	Sponge Iron	1,71,000 TPA	Nearby plants in Bellary	By road (through covered trucks)
3	Scrap	90,000 TPA	(Purchased from Local Area + in-house)	By road (through covered trucks)
4	Pig Iron	44,000 TPA	Local Area	By road (through covered trucks)
For manufacturing HR coils & Strips – 4,00,000 TPA				
1	MS Billets	4,18,630 TPA	Own generation	By Conveyor
2	LDO / LSHS	8320 KL	Local Market	By road (through covered trucks)
For Power Generation (2 MW) through AFBC Boiler				
1	Coal (Imported)	2,240 TPA	Own generation	By Conveyor
2	Dolochar	7,700 TPA	Indonesia / South Africa / Australia	Through sea route, Rail & Road

1.4 Manufacturing Process

1.4.1 Manufacturing of Sponge Iron (DRI)

Refractory lined rotary kilns will be used for reduction of iron ore in solid state. A central Burner located at the discharge end will be used for initial heating of the kiln.

Iron ore will be continuously fed into the kiln along with coal which has dual role of fuel as well as reductant. Dolomite will be added to scavenge the sulphur from the coal. A number of air tubes will be provided along the length of the kiln. The desired temperature profile will be maintained by controlling the volume of the combustion air through these tubes. The Carbon monoxide generated due to the combustion of coal, reduces the iron ore and converts it into sponge iron. The rotary kiln is primarily divided into two zones viz. the pre heating zone and the reduction zone. The preheating zone extends over 30 to 50 % of the length of the kiln and in this the moisture in the charge will be driven off and the volatile matter in the coal will be burnt with the combustion air supplied through the air tubes. Heat from the combustion raises the temperature of the lining and the bed surface. As the kiln rotates, the lining transfers the heat to the charge. Charge material, pre-heated to about 1000⁰C enters the reduction zone. Temperature of the order of 1050⁰C will be maintained in the reduction zone, which is the appropriate temperature for solid state reduction of iron oxide to metallic iron.

This hot material will be transferred to Heat exchanger. In Heat exchanger the material will be cooled to 160⁰C. The cooler discharge material consists of sponge iron lumps, sponge iron fines and char. Magnetic and non-magnetic material will be separated through magnetic separators and stored in separate bins. The hot flue gases will be taken to a Waste Heat Recovery Boilers and after heat recovery they will be treated in high efficiency ESP and discharged into the atmosphere through stack whose height will be in accordance with CPCB norms.

1.4.2 Steel Melting Shop

In Steel Melting Shop (SMS), Sponge Iron will be melted along with melting scrap and fluxes to make pure liquid steel and then to mould it in required size billets. The SMS will consist of Induction furnace, Ladles, Cranes & Continuous Casting Machine (CCM). 4 nos. of

Induction Furnaces are proposed to install in the SMS plant as part of expansion, each of 30 T capacities to produce 4,18,630 TPA of M.S. Billets / M.s. Ingots / Hot Metal. The Hot Metal produced from LRF will be directly sent to Rolling Mill without using Re-heating Furnace through Hot charging method (OR) Hot metal will be sent to CCM and thereby M.S. Billets / M.s. Ingots will be produced.

1.4.3 Manufacturing of Rolled products through Rolling Mill

The Hot Metal produced in Induction Furnace will be directly sent to Rolling Mill to produce Rolled Products (OR) if M.S. Billets / M.s. Ingots produced in Induction Furnace will be sent to 100 TPH reheating furnace for the heating and will be sent to Rolling Mill. Furnace will be heated with Furnace oil. A bar and round mill will be installed in the plant to produce 4,00,000 TPA of TMT Bars / Structural Steels / Rolled Products.

1.4.4 Power Generation

Through WHRB Boiler

The hot flue gases from proposed DRI kiln (1x350 TPD) will pass through waste heat recovery Boiler to recover the heat and to generate 1x8 MW electricity. The gases after heat recovery will pass through ESP and then discharged through chimneys into the atmosphere for effective dispersion of emissions into the atmosphere.

Through AFBC Boiler

To utilize the entire Dolochar generated from proposed DRI kiln 8 TPH of AFBC Boiler will be installed. Dolochar along with Coal (Imported / Indian) will be used as fuel in AFBC Boiler to generate 2 MW electricity. The flue-gases will be treated in high efficiency ESP and then discharged through stack into the atmosphere.

1.5 Water Requirement

Water required for the proposed expansion project will be **1565 KLD** and same will also be sourced from Groundwater. This includes Make-up water for DRI Kiln, Induction Furnace, Rolling Mill, Power Plant & for Domestic requirement. Air cooled condensers will be provided for power plant to reduce the water requirement. It is proposed to utilize the Treated sewage from the Sewage Treatment Plant (STP) of Govt. of Karnataka, Bellary. The

members of Karnataka Sponge Iron Manufacturers Associations of Bellary region have made an application to the Chief Engineer, Karnataka Urban Water Supply and Sewage Board, Bengaluru for obtaining the tertiary treated municipal wastewater for industrial purposes. In case treated Sewage is not available on technical ground from the Municipal corporation then the Groundwater shall be utilized after obtaining the permission from concerned authorities.

Water for drinking purpose will be met from Bellary Town. The following is the break-up of the water requirement for proposed expansion project.

BREAK-UP OF WATER REQUIREMENT

S.No	Plant Unit	Existing (in KLD)	For Expansion (in KLD)	Total After expansion (KLD)
1.	Sponge Iron Plant	130	150	280
2.	Power Plant (12 MW +10 MW)	140	125	265
3.	Steel Melt Shop	--	635	635
4.	Hot Strip Mill	---	640	640
5.	Domestic	30	15	45
	Total	300	1565	1865

1.6 Waste Water Generation

Closed loop cooling water system will be adopted in DRI, SMS, and Rolling Mill units. The effluent generated from Rolling Mill will be sent to settling tank & clear water will be recycled through closed circuit cooling system. Effluent from power plant will be treated and after ensuring compliance with SPCB norms, it will be utilized for dust suppression, ash conditioning and for greenbelt development. Sanitary waste water will be treated in STP. There will not be any effluent discharge outside the premises. ZLD will be followed. The following will be the total wastewater & its break-up.

BREAKUP OF WASTE WATER GENERATION

S.No.	Source	Generation (KLD)		
		Existing Plant	Present Proposal	Total after present proposal
1.	Sponge Iron	Nil	Nil	Nil
2.	Induction Furnace	---	Nil	Nil
3.	Rolling Mill	---	Nil	Nil
4.	Power Plant			
	a) Cooling Tower blowdown	24	20	44
	b) Boilers blowdown	15	12	27

	c) D.M. plant regeneration water	25	20	45
5.	Sanitary Wastewater	24	12	36
	Total	88	64	152

1.7 Wastewater Characteristics

The following are the Characteristics of waste water

PARAMETER	CONCENTRATION			
	DM plant regeneration	Boiler blowdown	Cooling Tower blowdown	Sanitary waste water
pH	4 – 10	9.5 – 10.5	7.0 – 8.0	7.0 – 8.5
BOD (mg/l)	--	--	--	200 – 250
COD (mg/l)	--	--	--	300 – 400
TDS (mg/l)	5000 -6000	1000	1000	800 – 900
Oil & Grease (mg/l)	--	10	--	--

2.0 DESCRIPTION OF ENVIRONMENT

Base line data has been collected on ambient air quality, water quality, noise levels, flora and fauna and socio economic details of people within 10 km radius of the plant.

2.1 Ambient air quality

Ambient air quality was monitored for PM_{2.5}, PM₁₀, SO₂, NO_x & CO at 8 stations including project site during 1st October 2019 to 31st December 2019. The following are the concentrations of various parameters at the monitoring stations:

Parameter		Concentration
PM _{2.5}	:	20.6 to 37.5 µg/m ³
PM ₁₀	:	35.2 to 66.5 µg/m ³
SO ₂	:	6.1 to 17.4 µg/m ³
NO _x	:	6.3 to 18.8 µg/m ³
CO	:	306 to 1215 µg/m ³

2.2 Water Quality

2.2.1 Surface Water Quality

There are no major river present within 10 km. radius. However surface water samples have been collected from Tungabhadra High level Canal (5.8 Kms.) & Allipur Kere Reservoir (6.1 Kms.). No other surface water samples have been collected as there is no water available during study period. The analysis of samples shows that all the parameters are in accordance with BIS-2296 specifications.

2.2.2 Ground Water Quality

8 Nos. of ground water samples from open wells / bore wells were collected from the nearby villages to assess ground water quality impacts and analyzed for various Physico-Chemical parameters. The analysis of samples shows that all the parameters are in accordance with BIS: 10500 specifications.

2.3 Noise Levels

Noise levels were measured at 8 locations during day time & Night time. The noise levels at the monitoring stations are ranging from **43.98 dBA to 62.95 dBA**.

3.0 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

3.1 Prediction of impacts on air quality

The likely emissions from the proposed project are PM₁₀, SO₂, NO_x & CO. The predictions of Ground level concentrations have been carried out using Industrial Source Complex (ISC-3) model. Meteorological data such as wind direction, wind speed, max. and min. temperatures collected at the site have been used as input data to run the model.

The predicted max. Incremental PM₁₀ concentrations (24 hourly) due to the emissions from operation of proposed expansion project will be **2.2 µg/m³** at a distance of 1300 m from the stack in the down wind direction over the baseline concentrations.

The predicted incremental rise in PM concentration due to the Vehicular emission will be **0.7 µg/m³**.

The predicted max incremental SO₂ concentrations (24 hourly) due to the emissions from operation of proposed expansion project will be **12.5 µg/m³** at a distance of 1300 m from the stack in the down wind direction over the baseline concentrations.

The predicted max incremental NO_x concentrations (24 hourly) due to the emissions from operation of proposed expansion project will be **10.9 µg/m³** at a distance of 1300 m from the stack in the down wind direction over the baseline concentrations.

The predicted incremental rise in NO_x concentration due to the Vehicular emission will be **4.8 µg/m³**.

The predicted incremental rise in CO concentration due to the Vehicular emission will be **2.8 µg/m³**.

NET RESULTANT MAXIMUM CONCENTRATIONS DUE TO PROPOSED EXPANSION

Item	PM ₁₀ (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	CO (µg/m ³)
Maximum baseline conc. in the study area	66.5	18.8	17.4	1215
Maximum predicted incremental rise in concentration due to expansion project of ASEPL	2.2	12.5	10.9	--
Maximum predicted incremental rise in concentration due to Vehicular Emissions from the proposed project	0.7	---	4.8	2.8
Net resultant concentrations during operation of the plant	69.4	31.3	33.1	1217.8
National Ambient Air Quality Standards	100	80	80	2000

The net resultant Ground level concentrations during operation of the expansion project are within the NAAQS. Hence there will not be any adverse impact on air environment due to the proposed expansion project.

3.2 Prediction of impacts on Noise quality

The major sources of noise generation in the proposed project will be STG, boilers, compressors, DG set, etc. Acoustic enclosures will be provided to the STG. The ambient noise levels will be within the standards prescribed by MoEF vide notification dated 14-02-2000 under the Noise Pollution (Regulation & Control), Rules 2000 i.e. the noise levels will be less than 75 dBA during day time and less than 70 dBA during night time. **15.2 acres (6.07 Ha.)** of extensive greenbelt will be developed (inclusive of existing) to further attenuate the noise levels. Hence there will not be any adverse impact due to noise on population in surrounding areas due to the proposed expansion project.

3.3 Prediction of impacts on Water Environment

Closed loop cooling water system will be adopted in DRI, SMS, and Rolling Mill units. The effluent generated from Rolling Mill will be sent to settling tank & clear water will be recycled through closed circuit cooling system. Effluent from power plant will be treated

and after ensuring compliance with SPCB norms, it will be utilized for dust suppression, ash conditioning and for greenbelt development. Sanitary waste water will be treated in STP. There will not be any effluent discharge outside the premises. ZLD will be followed. Hence there will not be any adverse impact on environment due to the proposed project.

3.4 Prediction of Impacts on Land Environment

The effluent will be treated to achieve SPCB standards. Zero effluent discharge will be adopted. All the required air pollution control systems will be provided to comply with CPCB / SPCB norms. All solid wastes will be disposed / utilized as per CPCB / SPCB norms. **15.2 acres (6.07 Ha.)** of extensive greenbelt will be developed (inclusive of existing) as per guidelines. Hence, there will not be any adverse impact on land environment due to the proposed expansion project.

3.5 Socio - Economic Environment

There will be further upliftment in Socio Economic status of the people in the area. Hence, there will be further development of the area due to the proposed expansion project. Due to this the economic conditions, the educational and medical standards of the people living in the study area will certainly move upwards which will result in overall economic development, improvement in general aesthetic environment and increase in business opportunities.

4.0 ENVIRONMENTAL MONITORING PROGRAMME

Post project monitoring will be conducted as per the guidelines of SPCB and MoEF&CC are tabulated below:

MONITORING SCHEDULE FOR ENVIRONMENTAL PARAMETERS

S.No.	Particulars	Frequency of Monitoring	Duration of sampling	Parameters required to be monitored
1. Water & Waste water quality				
A.	Water quality in the area	Once in a month except for heavy metals which will be monitored on quarterly basis	Composite sampling (24 hourly)	As per IS: 10500
B.	Effluent at the outlet of the ETP	Twice in a month	Grab sampling (24 hourly)	As per EPA Rules, 1996
C.	STP inlet & outlet	Twice in a month	Grab sampling (24 hourly)	As per EPA Rules 1996
2. Air Quality				

S.No.	Particulars	Frequency of Monitoring	Duration of sampling	Parameters required to be monitored
A.	Stack Monitoring	Online monitors (WHRB & FBC boiler stacks) Once in a month	---	PM PM, SO ₂ & NO _x
B.	Ambient Air quality (CAAQMS)	Continuous	Continuous	PM _{2.5} , PM ₁₀ , SO ₂ NO _x & CO
C.	Fugitive emissions	Once in a Month	8 hours	PM
3. Meteorological Data				
A.	Meteorological data to be monitored at the plant.	Daily	Continuous monitoring	Temperature, Relative Humidity, rainfall, wind direction & wind speed.
4. Noise level monitoring				
A.	Ambient Noise levels	Twice in a year	Continuous for 24 hours with 1 hour interval	Noise levels

5.0 ADDITIONAL STUDIES

No Rehabilitation and Resettlement is involved in the proposed project as there are no habitations in the additional land proposed for expansion. Hence no R & R study has been carried out.

6.0 PROJECT BENEFITS

With the establishment of the proposed project employment potential will increase. Land prices in the area will increase. The economic status of the people in the area will improve due to the proposed project. Periodic medical checkups will be carried out. Top priority will be given to locals in employment. A separate budget will be allocated for Social welfare development activities.

7.0 ENVIRONMENT MANAGEMENT PLAN

7.1 Air Environment

The following are air emission control systems proposed in the proposed project:

S.No.	Source	Stack height (in M)	Control Equipment	Particulate emission at the outlet
1.	DRI kilns with WHRB's	84	Electro Static Precipitators (ESP)	< 30 mg/Nm ³
2.	Induction Furnaces with CCM	45 (2 nos. of combined stacks)	Fume Extraction system with bag filters	< 30 mg/Nm ³
3.	Re-heating furnace attached to Rolling Mill	57	Stack	---

S.No.	Source	Stack height (in M)	Control Equipment	Particulate emission at the outlet
4.	FBC Boiler	38	Electro Static Precipitator for control of PM	PM - 30 mg/Nm ³ SOx - 100 mg/Nm ³ NOx - 100 mg/Nm ³

Note : Apart from the above Fume extraction system with bagfilters, dust suppression system, covered conveyers etc. will also be installed.

- All conveyors will be completely covered with G.I. sheets to control fugitive dust.
- All bins will be totally packed and covered so that there will not be any chance for dust leakage.
- All the dust prone points material handling systems will be connected with de-dusting system with bag filters.
- All discharge points and feed points, wherever the possibility of dust generation is there a de-dusting suction point will be provided to collect the dust.

7.2 Water Environment

Closed loop cooling water system will be adopted in DRI, SMS, and Rolling Mill units. The effluent generated from Rolling Mill will be sent to settling tank & clear water will be recycled through closed circuit cooling system. Effluent from power plant will be treated and after ensuring compliance with SPCB norms, it will be utilized for dust suppression, ash conditioning and for greenbelt development. Sanitary waste water will be treated in STP. There will not be any effluent discharge outside the premises. ZLD will be followed.

Effluent Treatment Plant:

pH of the boiler blowdown will be between 9.5 to 10.5. Hence, a neutralization tank will be constructed for neutralizing the boiler blow down. DM plant regeneration water will be neutralized in a neutralization tank. After neutralization these two effluent streams will be mixed with Cooling Tower blowdown in a Central Monitoring Basin (CMB). The treated effluent will be utilized for dust suppression, ash conditioning and for Green belt development. No effluent will be let out of the plant premises. Sanitary waste water will be treated in STP. There will not be any effluent discharge outside the premises. ZLD will be followed.

7.3 Noise Environment

The major sources of noise generation in the proposed project will be STG, boilers, compressors, DG set, etc. Acoustic enclosure will be provided. All the machinery will be manufactured in accordance with MoEF&CC norms on Noise levels. The employees working near the noise generating sources will be provided with earplugs. The extensive greenbelt development proposed within the plant premises will help in attenuating the noise levels further. Noise barriers in the form of trees are recommended to be grown around administrative block and other utility units.

7.4 Land Environment

The waste water generated from the proposed project will be treated in the Effluent Treatment Plant to comply with the SPCB standards and will be used for dust suppression, ash conditioning and for greenbelt development. All the required Air emission control systems will be installed and operated to comply with SPCB norms. Solid wastes will be disposed off as per norms. Extensive greenbelt will be developed in the plant premises. Desirable beautification and landscaping practices will be followed. Hence there will not be any impact due to the proposed expansion project.

Solid waste generation and disposal

S.No.	Waste	Quantity (TPA)		Method of disposal
		Existing	Proposed	
1	Ash from DRI	16,200 (54 TPD)	18,900 (63 TPD)	Is being / will be given to Cement plants & Brick manufacturers.
2	Dolochar	18,000 (60 TPD)	21,000 (70 TPD)	Partly will be utilized in captive AFBC boiler based power plant & remaining will be given to nearby FBC based power plants.
3	Kiln Accretion Slag	900 (3.0 TPD)	1,050 (3.5 TPD)	Will be given to brick manufacturers.
4	Wet Scraper Sludge	4,140 (15 TPD)	4,830 (17.5 TPD)	Will be given to brick manufacturers.
5	SMS Slag	---	41,863 (127 TPD)	Slag from SMS will be crushed and iron will be recovered & remaining non –magnetic inert material will be used in road construction /will be given to Road contractors.
6	Mill scales from Rolling Mill	---	8,000 (32 TPD)	Mill scales from Rolling Mill will be given to nearby Sinter Plants / Ferro Alloy units.

S.No.	Waste	Quantity (TPA)		Method of disposal
		Existing	Proposed	
7	Ash from captive power plant using Imported Coal+Dolochar	20,520 (68.4 TPD)	5070 (16.9 TPD)	Is being given to brick manufacturers
8	STP sludge	---	4.5 Kg/day	Will be used as manure for Greenbelt development

NOTE: Solid wastes such as dolochar, accretion slag, SMS slag will be stored in designated storage yard. Ash generated will be stored in silos only. There will not be any open storage of fly ash. All other storage yards will be on top of stable liner to avoid leaching of material to ground water.

7.5 Greenbelt Development

Greenbelt of **15 acres (6.07 Ha.)** of extensive greenbelt will be developed (inclusive of existing) in the plant premises. **10 to 55 m** wide greenbelt will be developed all around the plant.

7.6 Cost for Environment Protection

Capital Cost for Environment Protection for proposed plant : Rs. 20 Crores
Recurring Cost per annum for Environmental protection : Rs. 2.8 Crores

7.7 Implementation of CREP Recommendations

All the CREP recommendations will be strictly followed.
