

**SUMMARY ON
ENVIRONMENTAL IMPACT ASSESSMENT
REPORT**

OF

NR TMT (INDIA) PVT. LTD.

[Expansion of Steel Plant (Category –B Project)

**[Up-gradation of existing Induction Furnaces from 3 x 7 T to 3 x 12 T,
establishment of New 2 x 12 T Induction Furnaces and Up-gradation of
existing Rolling Mill from 55,000 TPA to 1,57,500 TPA]**

at

**PLOT No.: 211, 212 (PART) & 213 (PART), SECTOR – L, O.P. JINDAL INDUSTRIAL PARK,
VILLAGE PUNJIPATHRA, TEHSIL GHARGHODA, DISTRICT RAIGARH, CHHATTISGARH**

Submitted to

CHHATTISGARH ENVIRONMENT CONSERVATION BOARD

Chhattisgarh

1.0 PROJECT DESCRIPTION

NR TMT (India) Private Limited has obtained Environmental Clearance from Honourable SEIAA, Chhattisgarh vide order no. 390 / SEIAA / Rolling / Raigarh / 576 Naya Raipur dt. 03.08.2017 for establishment of 3 x 7 T Induction Furnaces for manufacturing 56,700 TPA of Hot metal & Rolling Mill to manufacture 55,000 TPA of Rolled products at Plot No.: 211, 213 (Part) & 212 (Part), Sector – L, O.P. Jindal Industrial Park, Village Punjipathra, Tehsil Gharghoda, District Raigarh, Chhattisgarh.

- upgrade existing 3 x 7 T capacity Induction furnaces to 3 x 12 T Induction furnaces.
- install new 2 x 12 T Induction Furnaces.
- upgrade the existing Rolling Mill capacity from 55,000 TPA to 1,57,500 TPA [Hot Charging]

The total land available is 10.5 Acres and is taken on lease from M/s. Jindal Steel & Power Limited. The project cost envisaged for the proposed expansion is Rs. 24 Crores.

As per the Ministry of Environment, Forest & Climate Change (MOEF&CC), New Delhi notification, dated 14th September, 2006 and its subsequent amendments, all the non – toxic secondary metallurgical processing industries are falling under Sl. No. 3 (a), classified as Category ‘B’ for the grant of Environmental Clearance at State Level. SEIAA, Chhattisgarh has accorded Terms of Reference (TOR) for the proposed expansion project vide letter no. **362/ SEAC-CG /RO and IND /RAIPUR/764** dated **10th May, 2019**. The EIA Report has been prepared considering the TOR issued by SEIAA, Chhattisgarh.

Pioneer Enviro Laboratories & Consultants Private Limited, Hyderabad, which is accredited by NABET, Quality Council of India, vide certificate No. NABET/ EIA/ 1922/ RA 149, for preparing EIA report for Metallurgical Unit, have prepared Environmental Impact Assessment (EIA) report for the proposed expansion project by incorporating the TOR approved by SEIAA, Chhattisgarh. The report contains detailed description of the following:

- Characterization of status of environment within 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 expansion 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 (pertaining to site)	The plant is situated in Industrial Park developed by O.P. Jindal Group. The expansion project will be taken up in the existing plant premises only.
2.	Type of Land (pertaining to Study Area)	As per LULC the land use within 10 Km. radius is as follows: Settlements –2.9 %; Industrial Area- 7.6 %; Water Bodies – 6.8 %; Scrub Forest & Dense Forest area – 34.4%; Single crop land –17.4 %; Double Crop Land – 5.2%; Plantation -1.1%; Land with scrub – 17.6 %; Land without scrub – 5.2 % & Gullied land – 1.8 %.
3.	National Park/ Wild life sanctuary / Biosphere reserve / Tiger Reserve / Elephant Corridor / migratory routes for Birds	There are no notified National Park/ Wild life sanctuary / Biosphere reserve / Tiger Reserve/ migratory route for Birds with in 10 Km. radius of the plant. However, movement of Elephants is observed within 10 Kms. radius of the plant, as per the secondary source. Conservation plan has been prepared.
4.	Historical places / Places of Tourist importance / Archeological sites	BanjariMata temple is situated at a distance of 3.7 Kms. from the plant.
5.	Industrial areas / cluster as per MoEF&CC Office Memorandum dated 13 th January 2010 and its subsequent amendments and NGT order vide dt. 10 th July 2019	Nil
6.	Defence Installations	Nil
7.	Nearest village	Tumidih village is the Nearest habitation - 0.3 Kms.
8.	No. of Villages in the Study Area	46 Nos.
9.	Nearest Hospital	PHC is near to the Industrial Park
10.	Reserved Forests / Protected Forests	Taraimal RF (0.3 Kms.), Samaruma RF (3.5 Kms), Suhai RF (5.8 Kms.), Rabo RF (6.4 Kms), Urdana RF (6.0 Kms.) Punjipathra PF (0.7 Kms.), Pajhar PF (4.5 Kms.), Maghat P.F. (5.3), Kharidungri PF (9.0 Kms.), Lakha PF's (8.0 Kms.) exist within 10 Km. radius of the plant site.
11.	Water body	Kelo river (6.5 Kms.), Kurket River (7.0 Kms.), Rabo Dam back water (7.0 Kms.) & Few seasonal nalas, ponds exist

S.No.	Salient Features / Environmental features	Distance w.r.t. site / Remarks
		within 10 Km. radius of the plant site.
12.	Crops in the Study Area	Major Crops - Paddy, Arhar, Mung, Groundnut Minor crops - Wheat, Maize, gram, Masur, Urad etc. Horticulture crops – Lemons, Papaya, Banana, Leechie, Potato, Mango, Tomato, Onion, Cabbage, Chilly, Ginger etc.
13.	Nearest Railway station	Nil (Bhupdeopur R.S. – 11.0 Kms.)
14.	Nearest Highway	Raigarh – Ambikapur State Highway –1.9 Kms.
15.	Nearest Port facility	Nil
16.	Nearest Airport	Nil (Jindal Air strip – 13 Kms.)
17.	Nearest Interstate Boundary	No interstate boundary within 10 Km radius of the plant site.
18.	Seismic zone as per IS-1893	Seismic zone – II
19.	R & R	There is no rehabilitation and resettlement issue, as the proposed expansion will be taken up in existing Industrial land of 10.5 acres.

1.2 Plant Configuration and Production Capacity

The proposed Steel Plant envisages manufacturing of the following products:

S.No.	Unit (Product)	Existing (In operation)	Proposed Expansion	After Proposed Expansion
1.	Induction Furnace (Hot Billets / MS Ingots / MS Billets)	3 x 7 T (56,700 TPA)	Modernisation of existing Induction Furnaces 3 x 7 T to 3 x 12 T (97,200 TPA) & New Induction Furnaces 2 x 12 T (64,800 TPA) Total = 1,62,000 TPA	Modernisation of existing Induction Furnaces 3 x 7 T to 3 x 12 T (97,200 TPA) & New Induction Furnaces 2 x 12 T (64,800 TPA) Total = 1,62,000 TPA
2.	Rolling Mill (Rolled Products)	55,000 TPA	Modernization of existing Rolling Mill from 55,000 TPA to 1,57,500 TPA [Through Hot Charging]	Modernization of existing Rolling Mill from 55,000 TPA to 1,57,500 TPA [Through Hot Charging]

1.3 Raw Materials

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

S.No.	Raw Material	Quantity	Sources	Mode of Transport
1	For Induction Furnace (Hot Metal / MS Ingots / Billets) - 1,62,000 TPA (including existing)			
a)	Sponge Iron	1,35,000 TPA	Chhattisgarh & Orissa	By Road (through covered trucks)
b)	Scrap	58,000 TPA	Chhattisgarh & Orissa	By road

				(through covered trucks)
c)	Ferro Alloys	2,430 TPA	Chhattisgarh & Orissa	By road (through covered trucks)
2	For Rolling Mill (Rolled Products) – 1,57,000 TPA (including existing)			
a)	Hot Billets	1,62,000 TPA	Own generation	Conveyers

1.4 Manufacturing Process

Manufacturing of Hot Metal / M.S.Ingots / M.S. Billets through Induction Furnace

In Steel Melting Shop (SMS) consisting of 3x7 T existing Induction Furnaces (to be upgraded to 3x12 T) & proposed 2x12 T Induction Furnaces.

In Steel Melting Shop (SMS), Sponge Iron will be melted along with melting scrap and fluxes to make liquid steel which is then refined in Ladle Refining furnace and then poured into CCM to get billets. The SMS will consist of Induction furnace, Ladles, Cranes & Continuous Casting Machine (CCM). Hot billets are fed to rolling mill.

Manufacturing of Rolled products through Rolling Mill

The Hot Billets produced in CCM will be directly sent to Rolling Mill through Hot charging method to produce Rolled Products (OR) In case of break down in rolling mill the cooled MS billets will be sent to re heating furnace & then fed to rolling mill. Re-heating Furnace will be heated with LDO /LSHS. A bar and round mill will be installed in the plant to produce TMT Bars / Structural Steels / Rolled Products.

1.5 Water Requirement

Water requirement for proposed expansion project will be 123 KLD and same will be sourced from Ground water. Water drawl permission will be obtained from CGWA for additional quantity. Water requirement for the existing plant is 80 KLD. Water drawl permission has been obtained from CGWA for existing plant. Total water requirement after expansion will be 203 KLD. The following is the break-up of the water requirement during operation of expansion project.

Break-up of Water requirement

S.No.	Unit	Quantity in KLD		
		Existing Plant	Proposed Expansion	Total after Expansion
1.	Induction Furnaces	48	80	128
2.	Rolling Mill	25	40	65
3.	Domestic	7	3	10
	Total	80	123	203

1.6 Waste Water Generation

In the existing project, the wastewater generated from the proposed unit is being sent to Settling pond and is recycled again as closed circuit cooling system is provided. The same will be followed after proposed expansion project. Sanitary waste water generation from existing & expansion projects will be **8 KLD** and will be treated in STP. The treated sewage will be utilized for Greenbelt development after ensuring compliance with the norms.

1.7 Wastewater Characteristics

PARAMETER	Sanitary waste water untreated
pH	7.0 – 8.5
BOD (mg/l)	200 – 250
COD (mg/l)	300 – 400
TDS (mg/l)	800 – 900

2.0 DESCRIPTION OF ENVIRONMENT

Base line data has been collected on ambient air quality, water quality, noise levels, soil quality, 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 **1stDecember 2019 to 29th February 2020**. The following are the concentrations of various parameters at the monitoring stations:

Parameter		Concentration
PM _{2.5}	:	27.3 to 49.8 µg/m ³
PM ₁₀	:	46.2 to 85.8µg/m ³
SO ₂	:	7.7 to 24.9µg/m ³
NO _x	:	7.9 to 33.6 µg/m ³
CO	:	475 to 1571 µg/m ³

2.2 Water Quality

2.2.1 Surface Water Quality

Three (3) nos. of Surface water samples have been collected, 1 no. of surface water sample have been collected each from Kelo river (6.5 Kms.), Kurket River (7.0 Kms.) & from Tumidih Pond (1.1 Kms.) to assess surface water quality. The analysis of samples shows that all the parameters are in accordance with BIS-2296 specifications.

2.2.2 Ground Water Quality

8 No. 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 **43.95 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 expansion project are PM₁₀, 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 proposed expansion project will be 0.42 µg/m³ at a distance of 500 m from the stack in the down wind direction over the baseline concentrations.

The predicted incremental rise in Particulate Matter concentration due to the Vehicular emission will be 0.20 µg/m³.

The predicted max incremental SO₂ concentrations (24 hourly) due to the proposed expansion project will be 4.36 µg/m³ at a distance of 500 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 proposed expansion project will be 2.71 µg/m³ at a distance of 500 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 emissions will be 1.69 µg/m³.

The predicted incremental rise in CO concentration due to the Vehicular emission will be $1.0 \mu\text{g}/\text{m}^3$.

The net resultant concentrations (Maximum baseline conc. + predicted incremental rise in conc.) of PM, NO_x & CO are shown in Table below by considering the emissions from other industries in the area will be well within the National Ambient Air Quality Standards (NAAQS) when the expansion project commences the operation. Hence there will not be any adverse impact on air environment due to the proposed expansion.

Net Resultant maximum concentrations due to the proposed expansion project

Item	PM ₁₀ ($\mu\text{g}/\text{m}^3$)	SO ₂ ($\mu\text{g}/\text{m}^3$)	NO _x ($\mu\text{g}/\text{m}^3$)	CO ($\mu\text{g}/\text{m}^3$)
Maximum baseline conc. in the study area	85.8	24.9	33.6	1571
Maximum predicted incremental rise in concentration due to proposed expansion project (Point Sources)	0.42	4.36	2.71	--
Maximum predicted incremental rise in concentration due to proposed expansion project (Vehicular emissions)	0.20	--	1.69	1.00
Net resultant concentrations during operation of the expansion project	86.42	29.26	38.00	1572
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 noise generating sources are Furnaces & DG set. Silencer will be provided to the DG Set. The ambient noise levels will be within the standards prescribed by MoEF&CC i.e. the noise levels will be less than 75 dBA during day time and less than 70 dBA during night time. **3.5 acres** of extensive greenbelt development covering more than 1/3rd of the total area helps in further attenuating 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

In the existing project, The wastewater generated from the proposed unit is being sent to Settling pond and is recycled again as closed circuit cooling system is provided. The same

will be followed after proposed expansion project. Zero liquid effluent discharge system will be followed in expansion project also. Sanitary waste water generation due to existing & expansion units will be 8 KLD and will be treated in STP. The treated sewage will be utilized for Greenbelt development & Dust suppression.

3.4 Prediction of Impacts on Land Environment

Zero effluent discharge will be adopted. All the required air pollution control systems will be provided to comply with CPCB / CECB norms. All solid wastes will be disposed / utilized as per CPCB / SPCB norms. 3.5 Acres of greenbelt has been /will be developed as per guidelines. Hence there will not be any adverse impact on land environment due to the proposed expansion project.

3.5 Prediction of Impacts on Biological Environment

- There are no National Parks, Wild life Sanctuaries and Bird Sanctuaries within 10 Km. radius of the plant site. The area is known to have Elephant movement. **Conservation plan has been prepared and budget of Rs. 40 Lakhs is allocated for implementation of Conservation plan.**
- Taraimal RF (0.3 Kms.), Samaruma RF (3.5 Kms), Suhai RF (5.8 Kms.), Rabo RF (6.4 Kms), Urdana RF (6.0 Kms.) Punjipathra PF (0.7 Kms.), Pajhar PF (4.5 Kms.), Maghat P.F. (5.3), Kharidungri PF (9.0 Kms.), Lakha PF's (8.0 Kms.) exist within 10 Km. radius of the plant site.
- All the required Air emissions control systems in the expansion project will be installed and operated to comply with MOEF/CPCB/CECB norms.
- Zero liquid effluent discharge is followed in the existing plant and similar practice will be continued after expansion also.
- All solid waste disposal will be in accordance with the norms.
- Extensive Greenbelt of 3.5 acres in the plant premises.

When all norms are complied and with proper implementation of Environment Management Plan, there will not be any adverse impact on flora & Fauna due to the proposed expansion.

3.6 Socio - Economic Environment

There will be lot of opportunities in employment to local people during construction as well as in operation phase. There will be further upliftment in Socio Economic status of the people in the area. Socioeconomic developmental activities will be taken up as part of CER in consultation with the village panchayat. Hence there will be further development of the area due to the proposed expansion project.

4.0 ENVIRONMENTAL MONITORING PROGRAMME

Post project monitoring will be conducted as per the guidelines of CECB 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	Monitored on quarterly basis.	Grab sampling	As per IS: 10500
B.	STP inlet & Outlet	Once in a month	composite sampling	As per EPA Rules 1996
2. Air Quality				
A.	Stack Monitoring	Online monitors Once in a month		PM PM, SO ₂ & NO _x
B.	Ambient Air quality	Once in a month	24 hours continuously	PM _{2.5} , PM ₁₀ , NO _x & CO
C.	Fugitive emissions	Quarterly basis	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	Quarterly basis	Continuous for 24 hours with 1 hour interval	Noise levels

5.0 ADDITIONAL STUDIES

No rehabilitation and resettlement is required as the plant is located in O.P. Jindal Industrial Park.

6.0 PROJECT BENEFITS

With the establishment of the proposed expansion project, employment potential will increase. The economic status of the people in the area will further improve due to the

expansion project. Top priority will be given to locals in employment. A separate budget will be allocated for Social welfare activities which will be implemented in the village in consultation with village panchayat. These activities will help in contributing to the development of villages in the nearby areas.

7.0 ENVIRONMENT MANAGEMENT PLAN

7.1 Air Environment

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

S.No.	Stack attached to	No. of Stacks	Control Equipment	Particulate emission at the outlet
1.	3 x 12 T Induction Furnaces (after upgradation of existing Furnaces)	1 no. (tri flue)	Modification of existing Fume extraction system followed by Bag filters (3 nos.)	< 30 mg/Nm ³
2.	2 x 12 T Proposed Induction Furnaces	1 no. (twin flue)	Fume extraction system followed by Bag filters (2 nos.)	< 30 mg/Nm ³
3.	Rolling Mill with Hot charging	1 no.	Existing Stack is adequate	--

- 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 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

There will be no effluent generation from the expansion project for as closed circuit cooling system will be adopted. Sanitary waste water will be treated in STP. Treated sewage will be utilised for greenbelt development.

7.3 Noise Environment

The major sources of noise generation in the proposed expansion project will be Furnaces & DG set, etc. Silencer will be provided to D.G. set. 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. 3.5 acres of greenbelt developed in the plant premises will help in attenuating the noise levels further.

7.4 Land Environment

There will be no effluent generation from the manufacturing process as closed circuit cooling system will be adopted. Sanitary waste water will be treated in STP. Solid wastes will be disposed off as per norms. 3.5 acres of greenbelt development within the plant premises. Hence there will not be any impact due to the proposed expansion project.

Solid waste generation and disposal

following will be the solid waste generation & proposed method of disposal.

S.No.	WASTE	From Existing plant (TPD)	Proposed Expansion (TPD)	After Proposed Expansion (TPD)	METHOD OF DISPOSAL
Induction Furnace					
1	Slag	21	56	77	Slag from SMS will be crushed and iron will be recovered & remaining non-magnetic material being inert by nature will be used as sub base material in road construction / will be given to brick manufacturers / will be sent to common disposal yard within the Industrial Park
Rolling mill					
2	Mill scales	1.5	2.5	4.0	Mill scales will be given to nearby Ferro alloys manufacturing units or casting units in the O.P. Jindal Industrial Park.
3	End Cuttings	4.0	7.0	11.0	Recycled back as raw material in own induction Furnaces
4	STP sludge	---	0.2	0.2	Will be used as Manure for plantation.

7.5 Greenbelt Development

3.5 Acres of greenbelt developed (inclusive of existing) within the existing plant premises covering more than 1/3rd of the total area.

7.6 Cost for Environment Protection

Capital Cost for Environment Protection for proposed plant : Rs. 2.8 Crores

Recurring Cost per annum for Environmental protection : Rs.31.7 Lakhs
