Rail Wheel Plant/Bela
(Indian Railways) Govt. of India
Village-Bela, Block – Dariyapur **District: Saran (Chhapra) Bihar**
Pin Code- 841221

Environmental Statement for the Financial Year (April-2022 to March-2023)

Rail Wheel Plant, Ministry of Railways, Govt of India is located at Bela in Dariyapur block, Chhapra district, (Saran), Bihar. It produces Cast Rail Wheels for Indian Railways. Production of rail wheels started on 01-08-2014. The project cost is Rs.1666.94 Crores. The plant is located in an area 295 acres (aprox) . Environmental Clearance from the Ministry of Environment, Forests & Climate Change, Govt of India was obtained vide letter No. J-11011/527/2010-IA-II (I) dated 12th January 2012. The installed production capacity is 100000 numbers of cast steel rail wheels (62235 tons/annum steel casting).

Metal scrap and ferroalloys are melted in Electric Arc Furnace (EAF). The electric arc furnace is provided with Fume Extraction Hood, Bag House to control the air emissions. Slag is skimmed off from the slag door of the furnace. The molten steel from EAF is poured in ladles and placed to JMP for casting. Heat treatment activities of wheels are being carried out at Normalizing Furnace and Draw Furnace to achieve desired properties of the wheel.

DG sets are installed to meet the electricity requirement during load shedding. Water is required for cooling purpose. Cooling is done in closed circuit using cooling towers. Domestic water is required for drinking, canteen, toilets, wash-rooms and gardening purpose. Sewage Treatment Plant of 500 KLD capacities is available. Four number of pound is also available for collection of rain water and recharge of ground water. Solid wastes generated from the plant are slag, skull and refractory bricks.

Greenbelt development in 33% plant area is under progress. Concrete roads have been made inside the plant premises. Good housekeeping practice is followed inside the work areas to keep it clean. Workers are subjected to routine health check-up and all safety systems has been maintained. Personnel Protection Equipment like dust mask, ear plugs, face shield, goggles and helmets, safety shoes are given to workers.

Emission & Discharge Consent from Bihar State Pollution Control under Water Act and Air Act has been obtained. Environmental Statement (Form V) are submitted regularly to MOEF&CC and BSPCB.

Rail Wheel Plant/Bela has entrusted for environment monitoring work of ambient air quality, noise, stack emissions, wastewater and groundwater to M/s Go Green Mechanism PVT. LTD, Dayal Estate, National Highway No. 8, Opp, APMC Market Gate -1,Jetalpur Ahmadabad. and M/s EMTRC Consultants Private Limited , Tower 5, Flat102 , common Wealth Games Village , East Delhi (Recognized by Ministry of Environment Forest & Climate Change , Govt. of India.

29/09/23

Dy. CME/PLG Cum Factory Manager
Rail Wheel Plant, Bela
उप मुख्य यांत्रिक अभियंता / योजना
रेल पहिया कारखाना / बेला
Dy Chief Mechanical Engineer/PLG
Rail Wheel Plant/Bela

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PART – A

I	Name and address of the Owner/ Occupier of the Industry	Rakesh Gautam Rail Wheel Plant/Bela Administrative Building, Village-Bela, Block – Dariyapur P.O ;- Arvind Nagar Dist ;- Saran (Chhapra) Bihar, Pin Code- 841221
ii	Industry Category	Secondary Metallurgical Industry
iii	Product (Rail Cast Steel Wheel)	Rail Cast Steel Wheel
iii	Production capacity	100000 Nos/Annum (Cast Steel Rail Wheel)
Iv	Year of establishment	01-08-2014
V	Date of last environmental statement	30/09/2022

PART – B

Water & Raw Material Consumption

Water Consumption M^3 / day (2022-2023)

Cooling & Process :- 135 M^3 /day

Domestic: - 62 M^3 /day

Total :- 197 M^3/day

Name of product	Financial year	Wheel Casted	Total Water Consumption in cooling process (M^3)	Water consumption / Wheel (M^3)
Rail Cast Steel Wheel	2021-2022	39762	39,920	1.004
	2022-2023	49083	49275	1.004

Raw Material Consumption:

Financial year	Wheel casted	Total raw material consumption (MT)	Raw material consumption/ Wheel (MT)
2021-2022	39762	33093.793 MT	0.8329
2022-2023	49083	40726.50MT	0.8297

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Details of major raw materials consumed in 2021-2022 & 2022-2023

Name of the Raw Material		During the Financial Year 2021-2022 (Metric Tons)	During the Financial Year 2022-2023 (Metric Tons)
1	HMS	24565.08	31480.50
2	LMS	5498.09	4980.78
3	Ferro Silicon	344.10	416.00
4	Ferro Manganese	190.58	241.1
5	Silicon Manganese	129.425	191.3
6	Carbon	---	--
	a).Graphite Granules/powder	466.463	576.625
	b).Graphite Electrode	203.095	291.405
7	Lime	1625.96	2390.29
8	Turning & boring scrap	71	158.5
	Total	**33093.793**	**40726.50**

Others Material Consumption

Name of the Raw Material	During the Financial Year 2021-22	During the Financial Year 2022-2023 (Metric Tons)
HSD	53211 Liters	66372 Liters
LPG	1900.31 MT	2010.28 MT
LOX	1150.78 MT	1585.79 MT

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PART – C
Pollution discharge to environment / unit of output
(Parameter as specified in the consent issued)

A. Water

Pollutants	Quantity of pollutants discharged (mass/day)	Concentration of pollutants in discharges (standard) (mass/volume)	Concentration pollutants in discharges (Average Result) (mass/volume)	Percentage of variation from prescribed standards with reasons
BOD	0.751kg/day	30 mg/l	15.15 mg/l	No deviation from prescribed standard.
TSS	2.516 kg/day	100 mg/l	50.73mg/l	No deviation from prescribed standard
Oil & Grease	0.087kg/day	10 mg/l	1.77mg/l	No deviation from prescribed standard

Domestic water consumption: 62 KL/day

Domestic wastewater generation @80% of 62 KL/day=49.6 KL/day

No wastewater is discharged from cooling and process.

(B) Air Pollution Load

(I) **Electric Arc Furnace Stack**

(Control Equipment- Gas Conditioning & Bag House)

Pollutants	Quantity of pollutants discharged (kg/day)	Concentration of pollutants in discharges (mg/Nm^3)	Percentage of variation from prescribed standards with reasons
PM	36.92	45.14	No deviation from prescribed standard of 150 mg/Nm^3

Stack dia, 2 m. Stack exit velocity (average) 10.76 m/s, stack exit temperature(average) - 95°C

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(II) Normalizing Furnace Stack

Pollutants	Quantity of pollutants discharged (kg/day)	Concentration of pollutants in discharges (mg/Nm^3)	Percentage of variation from prescribed standards with reasons
PM	29.17	41.31	No deviation from prescribed standard of 150 mg/Nm^3.

Stack dia, 1.64 m Stack exit velocity (average) 10.82 m/s, stack exit temperature (average) – 107 ^{0}C

(III) Draw Furnace Stack

Pollutants	**Quantity of pollutants discharged (kg/day)**	**Concentration of pollutants in discharges (mg/Nm^3)**	**Percentage of variation from prescribed standards with reasons**
PM	1.20	35.02	No deviation from prescribed standard of 150 mg/Nm^3

Stack dia, 0.4 meter Stack exit velocity 8.21 m/s, stack exit temperature- 48.85°c (average)

(IV) DG -Stack

Pollutants	Quantity of pollutants discharged (kg/day)	Concentration of pollutants in discharges (mg/Nm^3)	Percentage of variation from prescribed standards with reasons
PM	1.76	65	No deviation from prescribed standard of <150 mg/Nm^3.

Stack dia, 1 m Stack exit velocity 23.15 m/s, stack exit temperature- 192.° C

DG Set is operated for approx. 5.0 hours/month (only during load shedding by SEB)

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PART – D

Hazardous Wastes

As specified under Hazardous Waste / Management and Handling Rules 1989

(Amended on 2000 and 2003)

Hazardous Waste (a) From Process	Total Quantity	
	During the Previous Financial Year 2021-2022	During the Current Financial Year 2022-23
Used oil	10,080 Liter	6100Liter
Discard asbestos gasket	4000 kg	6500 kg
Oil soaked cotton	50Kg	50Kg

PART – E

Solid Wastes

Solid waste		Total Quantity (Metric Tons)	
		During the Previous year Financial year (2021-22)	During the current Financial Year (2022 – 2023)
a. From Process (Generated)	Slag	1434 MT	1882 MT
	Skull	2453 MT	4951.71 MT
	Refractory Brick	190.75 MT	190.75 MT
b. From (Pollution Control Facilities)	Dust from Bag House of EAF	260MT	300 MT
c. Quantity recycled / re-utilized in process	Slag	00	00
	Skull	00	00
	Refractory Brick	00	00
d. Sold	Slag	800 MT	1232.00 MT

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	Skull	2247.12 MT	2679.03 MT
	Graphite electrodes	00	00
	Refractory Brick	00	190.75
e. Disposed	Slag	00	00
	Skull	00	00
	Refractory Brick	150	00

Note: used Refractory bricks and Dust collected from bag house are disposed as landfill materials.

PART – F

Please specify the characterization (in terms of composition and quantum) of hazardous as well as solid wastes and indicate disposal practice adopted for both these categories of wastes.

Solid Waste	Quantity Metric Tons	Characteristics	Remarks
a). Slag	1232.00 MT	Mostly Iron, CaO, MnO_2, SiO_2	Sold
b). Skull	2679.03 MT	Mostly Iron, Ca, MnO	Sold
c). Refractory Bricks	190.75 MT	Mostly Silica, Alumina	sold
d) Used Oil	6.10 KL	Spent oil	It will be handed over to authorized agency
e) Asbestos	6.5T	Burnt Asbestos	It will be handed over to authorized agency

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PART-G

Impact of pollution ambient measures taken on natural resources and on cost of production

1. The ambient air quality (12 parameters) is being monitored to meet arithmetic mean for minimum 104 measurements in a year .
2. Stack monitoring of EAF, Normalizing Furnace and Draw Furnace as well as DG Sets are monitored on monthly basis. The results are well within the prescribed standards
3. Noise level is monitored at Plant Boundary and inside work environment. The noise levels are found to be well within the prescribed standards
4. Groundwater of bore wells located inside the plant premises are analyzed every month. The results are well within the prescribed limits for drinking.

PART – H

Additional measure / investment proposals for environment protection and abatement of pollution / prevention of pollution

1. For improving the stack emission quality from Electric Arc Furnace one time comprehensive repair and overhauling of fume extraction system has been done and maintained .
2. 1 MW solar system has been installed at RWP/Bela premises
3. For treatment of domestic waste water 500 M^3 /day capacity STP plant has been Installed .

PART – I

Any Other Particulars for Improving the Quality of the Environment

1. Aprox 10000 Plant has been planted in peripheral of Rail Wheel plant /Bela for Greenbelt development .
2. All roads is being cleaned regularly for dust separation.
3. Rainwater is being harvested in ponds inside the plant premises.

29/09/23

Dy.CME/PLG Cum Factory Manager
Rail Wheel Plant, Bela
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