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**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-2023 to March-2024)**

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 was 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 12<sup>th</sup> January 2012. The installed production capacity is 100000 numbers of cast steel rail wheels (62235 tons/annum steel casting).


Metal scrap and ferroalloys is smelted in Electric Arc Furnace. 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 waster 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 to Go Green Mechanism PVT. LTD, Dayal Estate, National Highway No. 8, Opp, APMC Market Gate -1, Jetalpur Ahmadabad. NABL Accredited Laboratory to carry out the monitoring of ambient air quality, noise, stack emissions, wastewater and groundwater.

  
Dy CME PLG/ (Cum Factory Manager)  
Rail Wheel Plant, Bela  
Dy. Chief Mechanical Engineer/PLG  
Rail Wheel Plant/Bela



**PART – A**

I	Name and address of the Owner/ Occupier of the Industry	<b>Rakesh Gautam</b> Rail Wheel Plant/Bela Administrative Building, Village-Bela, Block – Dariarpur 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) (62235 Tons/annum - Licensed)
Iv	Year of establishment	01-08-2014
V	Date of last environmental statement	29.09.2023

**PART – B****Water & Raw Material Consumption****Water Consumption M<sup>3</sup> / day (2023-2024)**Cooling & Process :- 138 M<sup>3</sup> /dayDomestic: - 65 M<sup>3</sup> /dayTotal :- 203 M<sup>3</sup>/day

Name of product	Financial year	Wheel Casted	Total Water Consumption in cooling process (M <sup>3</sup> )	Water consumption / Wheel (M <sup>3</sup> )
Rail Cast Steel Wheel	2022-2023	39762	49275	1.004
	2023-2024	66207	39313	0.59

**Raw Material Consumption:**

Financial year	Wheel casted	Total raw material consumption ( MT)	Raw material consumption/ Wheel (MT)
2022-2023	49083	40726.50 MT	0.8297 MT
2023-2024	66207	49312.28 MT	0.745 MT





**Details of major raw materials consumed in 2022-2023 & 2023-2024**

Name of the Raw Material		During the Financial Year 2022-2023 (Metric Tons)	During the Financial Year 2023-2024 (Metric Tons)
1	HMS	24565.08	6579.62
2	LMS	5498.09	37637.68
3	Ferro Silicon	344.10	490.20
4	Ferro Manganese	190.58	307.80
5	Silicon Manganese	129.425	215.67
6	Carbon	--	--
	a).Graphite Granules/powder	466.463	726.80
	b).Graphite Electrode	203.095	336.38
7	Lime	1625.96	2869.43
8	Turning & boring scrap	71	148.70
	<b>Total</b>	<b>33093.793</b>	<b>49312.28</b>

**Others Material Consumption**

Name of the Raw Material	During the Financial Year 2022-23	During the Financial Year 2023-2024 (Metric Tons)
HSD	53211 Liters	93918 Liters
LPG	1900.31 MT	2146.77 MT
LOX	1150.78 MT	1872.58 MT
BMCG	-----	27113 KG

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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	0.7228kg/day	30 mg/l	13.9 mg/l	No deviation from prescribed standard.
TSS	2.184 kg/day	100 mg/l	42 mg/l	No deviation from prescribed standard
Oil & Grease	0.091 kg/day	10 mg/l	1.76mg/l	No deviation from prescribed standard

Domestic water consumption: 65 KL/day

Domestic wastewater generation @80% of 65 KL/day=52 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 <sup>3</sup> )	Percentage of variation from prescribed standards with reasons
PM	33.65	36.4	No deviation from prescribed standard of 150 mg/Nm <sup>3</sup>

Stack dia, 2 m. Stack exit velocity (average) 10.07 m/s, stack exit temperature- 92°C

**(II) Normalizing Furnace Stack**

Pollutants	Quantity of pollutants discharged (kg/day)	Concentration of pollutants in discharges (mg/Nm <sup>3</sup> )	Percentage of variation from prescribed standards with reasons
PM	30.40	37.34	No deviation from prescribed standard of 150 mg/Nm <sup>3</sup> .

Stack dia, 1.64 m Stack exit velocity 10.27 m/s, stack exit temperature- 103°C



**(III) Draw Furnace Stack**

Pollutants	Quantity of pollutants discharged (kg/day)	Concentration of pollutants in discharges (mg/Nm <sup>3</sup> )	Percentage of variation from prescribed standards with reasons
PM	1.782	33.88	No deviation from prescribed standard of 150 mg/Nm <sup>3</sup>

Stack dia, 0.4 meter Stack exit velocity 9.69 m/s, stack exit temperature- 80°C

**(IV) DG -Stack**

Pollutants	Quantity of pollutants discharged (kg/day)	Concentration of pollutants in discharges (mg/Nm <sup>3</sup> )	Percentage of variation from prescribed standards with reasons
PM	0.31	57.825	No deviation from prescribed standard of <150 mg/Nm <sup>3</sup> .

Stack dia, 1 m Stack exit velocity 14.68 m/s, stack exit temperature- 185°C

DG Set is operated for approx. 1.5 hours/month (only during load shedding by SEB)

**PART – D**

**Hazardous Wastes**

As specified under Hazardous Waste / Management and Handling Rules 1989

HazardousWaste(Generated )	Total Quantity	
	During the Previous Financial Year 2022-2023	During the Current Financial Year 2023-2024
(a) From Process		
Used oil	6100 Liter	3150 Liter
Discard asbestos gasket	6500 kg	5075 Kg
Oil soaked cotton	50 Kg	180 Kg

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## PART – E

### Solid Wastes

Solid waste		Total Quantity (Metric Tons)	
		During the Previous year Financial year 2022-23	During the current Financial Year (2023 – 2024)
a. From Process (Generated)	Slag	1882 MT	3720 MT
	Skull	4951.71 MT	4956.51 MT
	Refractory Brick	190.75 MT	0.00
b. From Pollution Control Facilities	Dust from Bag House of EAF	300 MT	350 MT
c. Quantity recycled / re-utilized in process	Slag	00	00
	Skull	00	00
	Refractory Brick	00	00
d. Sold	Slag	1232.00 MT	1521 MT
	Skull	2679.03 MT	4195.05 MT
	Graphite electrodes	00	00
	Refractory Brick	190.75	00
e. Disposed	Slag	00	00
	Skull	00	00
	Refractory Brick	00	00

Note: Dust collected from bag house are disposed as landfill materials.

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## 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	1521MT	Mostly Iron, CaO, MnO <sub>2</sub> , SiO <sub>2</sub>	Sold
b). Skull	4195.05 MT	Mostly Iron, Ca, MnO	Sold
c). Refractory Bricks	0.00 MT	Mostly Silica, Alumina	-----
d) Used Oil	3.150 KL	Spent oil	It will be handed over to authorized
e) Asbestos	5.075T	Burnt Asbestos	It will be handed over to authorized

## 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 once a year . 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. Fume Extraction system provided at stack emission of electric Arc furnace is being maintained properly .
2. 1 MW solar system has been installed at RWP/Bela premises
3. For treatment of domestic waste water a tender awarded for operation and maintenance of STP, Plant.





## PART – I

### Any Other Particulars for Improving the Quality of the Environment

1. Greenbelt development has been done (2900 sapling plant) planted in 2023-24)
2. All roads is being cleaned regularly for dust separation.
3. Periodical Medical Examination (PME) is being carried out as per Factory Act 1948 to ascertain the Occupational health of workers.
4. Rainwater is being harvested in ponds inside the plant premises.

*Handwritten signature* 28/09/24.  
Dy. CME PLG/ (Cum Factory Manager)  
Rail Wheel Plant, Bela  
रेल पहया कारखाना, बेला  
Dy. Chief Mechanical Engineer/PLG  
Rail Wheel Plant/Bela