

**Rail Wheel Plant/Bela
(Ministry of Railways)
Govt. of India**



Office of the
Chief Administrative Officer,
Administrative Building,
Village- Bela, Block- Dariapur,
District- Saran(Chhapra), Bihar-841221

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ANNEXURE-I

Rail Wheel Plant/Bela (Indian Railways) Govt. of India		Office of the Chief Administrative Officer, Administrative Building, Village-Bela, Block- Dariapur, Saran (Chhapra), Bihar.
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Half Yearly Analysis of Ambient Air Quality Sample from April 2013 to September 2013.

- REF:** (i) Ministry of Environment and Forest (MoEF)/GOI environmental Clearance no. J-11011/527/2010-IA.II(I) dated 12.01.2012.
(ii) Bihar State Pollution Control Board (BSPCB) Discharge Consent Order Letter No. pt 2-116/11 t-17582, dated 22.11.12.
(iii) BSPCB Emission Consent Order letter No. PT(NOC)-628/09 T-17581, dated 22.11.12.
(Sampling & Analysis done by MoEF Recognized Environmental Laboratory, Shiva Test House, Patna, Bihar)

MONITORING & ANALYSIS OF AMBIENT AIR QUALITY

Month	Parameters	Limit (Max)	Near Main Gate	Near East Boundary (Store Yard)	Side Wall	Near Main Store 2	Near ADM Building (TTC)	Avg. Values
Average Concⁿ in µg/m³								
Apr.'13	PM ₁₀	100 µg/m ³	60.3	66.2		57.7	55.1	59.8
	PM _{2.5}	60 µg/m ³	31.1	34.6		29.7	24.9	30.0
	SO ₂	80 µg/m ³	23.2	24.9		20.9	22.2	22.8
	NO ₂	80 µg/m ³	33.7	35.3		29.4	30.6	32.2
May'13	PM ₁₀	100 µg/m ³	57.9	60.0		56.5	53.7	57.0
	PM _{2.5}	60 µg/m ³	27.5	29.3		25.9	22.8	26.4
	SO ₂	80 µg/m ³	21.1	23.5		17.9	19.4	20.5
	NO ₂	80 µg/m ³	32.6	34.0		27.5	30.0	31.0
Jun.'13	PM ₁₀	100 µg/m ³	54.6	46.3		49.2	51.4	50.4
	PM _{2.5}	60 µg/m ³	29.5	20.7		23.0	27.2	25.1
	SO ₂	80 µg/m ³	22.7	14.8		16.6	20.9	18.7
	NO ₂	80 µg/m ³	38.1	28.5		31.7	35.1	33.3
Jul.'13	PM ₁₀	100 µg/m ³	57.5	48.4		52.9	52.0	52.7
	PM _{2.5}	60 µg/m ³	31.1	22.2		26.5	25.5	26.3
	SO ₂	80 µg/m ³	26.5	22.9		21.3	24.0	23.7
	NO ₂	80 µg/m ³	37.1	32.1		30.8	34.0	33.5
Aug.'13	PM ₁₀	100 µg/m ³	62.7	51.6		59.3	48.5	55.5
	PM _{2.5}	60 µg/m ³	33.9	26.4		32.9	24.5	29.4
	SO ₂	80 µg/m ³	27.6	22.1		28.1	19.4	24.3
	NO ₂	80 µg/m ³	39.7	34.0		39.6	30.5	35.9
Sep.'13	PM ₁₀	100 µg/m ³	66.4	75.4		107.9	62.1	77.9
	PM _{2.5}	60 µg/m ³	39.1	49.8		65.8	39.2	48.5
	SO ₂	80 µg/m ³	27.8	32.9		36.6	31.0	32.1
	NO ₂	80 µg/m ³	42.8	48.4		50.6	43.6	46.3

Remark: All the above monitoring parameters are within the limit.

ANNEXURE-II

Rail Wheel Plant/Bela (Indian Railways) Govt. of India		Office of the Chief Administrative Officer, Administrative Building, Village-Bela, Block- Dariapur, Saran (Chhapra), Bihar.
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Half Yearly Analysis of Stack Emission Sample from April 2013 to September 2013.

- REF:** (i) Ministry of Environment and Forest (MoEF)/GOI environmental Clearance no. J-11011/527/2010-IA.II(I) dated 12.01.2012.
 (ii) Bihar State Pollution Control Board (BSPCB) Discharge Consent Order Letter No. pt 2-116/11 t-17582, dated 22.11.12.
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(Sampling & Analysis done by MoEF Recognized Environmental Laboratory, Shiva Test House, Patna, Bihar)

STACK EMISSION MONITORING

Stack connected to Bag House attached with Electric Arc Furnace	Limit (Max)	Average Concentration for the Period Apr.'13 – Sep.'13
a. PM, mg / NM ³	75.00	35.4
b. SO ₂ , mg / NM ³	Not specified	25.5
c. NO ₂ , mg / NM ³	710.00	49.7
Stack connected to 2400 KVA DG Set (I)		
a. PM, mg / NM ³	75.00	50.8
b. SO ₂ , mg / NM ³	Not specified	57.3
c. NO ₂ , mg / NM ³	710.00	233.4
Stack connected to 2400 KVA DG Set (II)		
a. PM, mg / NM ³	75.00	47.3
b. SO ₂ , mg / NM ³	Not specified	54.1
c. NO ₂ , mg / NM ³	710.00	265.5

Remark: All the above monitoring parameters are within the limit.

ANNEXURE-III

Rail Wheel Plant/Bela (Indian Railways) Govt. of India		Office of the Chief Administrative Officer, Administrative Building, Village-Bela, Block- Dariapur, Saran (Chhapra), Bihar.
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Half Yearly Analysis of Ground Water Sample from April 2013 to September 2013.

REF: (i) Ministry of Environment and Forest (MoEF)/GOI environmental Clearance no. J-11011/527/2010-IA.II(I) dated 12.01.2012.

(ii) Bihar State Pollution Control Board (BSPCB) Discharge Consent Order Letter No. pt 2-116/11 t-17582, dated 22.11.12.

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(Sampling & Analysis done by MoEF Recognized Environmental Laboratory, Shiva Test House, Patna, Bihar)

ANALYSIS OF GROUND WATER SAMPLES OF

Ground Water sample from	UNIT	Limit as per IS10500:1991		Apr.'13	May'13	Jun.'13	Jul.'13	Aug.'13	Sep.'13
Borewell No.		Limit (Max) (mg/l) Desirable	Permissible limit in the absence of alternative source	1	3	1	1	1	1
Bore well No.									
Colour	Hazen	5.0	25	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00
pH	--	6.5 to 8.5	--	7.14	7.31	7.28	7.24	7.16	7.26
Turbidity on NTU	NTU	5.00	10.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Total Dissolved Solids (TDS)	mg/l.	500.00	2000.00	417.0	464.0	432.0	458.0	445.0	438.0
Total Hardness as CaCO ₃	mg/l.	300.00	600.00	284.0	288.0	264.0	280.0	252.0	284.0
Calcium as Ca	mg/l.	75.00	200.00	51.3	49.7	54.5	57.7	48.1	54.5
Magnesium as Mg	mg/l.	30.00	--	37.9	39.8	31.1	33.0	32.1	36.0
Iron as Fe	mg/l.	0.30	1.00	0.15	0.12	0.16	0.14	0.11	0.18
Total Alkalinity as CaCO ₃	mg/l.	200.00	600.00	316.0	308.0	296.0	304.0	284.0	316.0
Chloride as Cl	mg/l.	250.00	1000.00	48.0	44.0	48.0	52.0	56.0	38.0
Sulphate as SO ₄	mg/l.	200.00	400.00	19.2	19.2	21.6	22.4	18.9	18.4
Nitrate as NO ₃	mg/l.	45.00	100.00	3.2	2.1	1.9	3.5	2.8	3.6
Fluoride as F	mg/l.	1.00	1.50	0.14	0.21	0.19	0.14	0.23	0.12
Arsenic as As	mg/l.	0.05	No relaxation	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Coliform	MPN	10 in 100 ml	--	2	5	1	4	3	NIL
Ground Water sample from									
Borewell No.									
Colour	Hazen	5.0	25	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00
pH	--	6.5 to 8.5	--	7.19	7.22	7.26	7.17	7.21	7.18
Turbidity on NTU	NTU	5.00	10.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Total Dissolved Solids (TDS)	mg/l.	500.00	2000.00	487.0	372.0	412.0	398.0	387.0	408.0
Total Hardness as CaCO ₃	mg/l.	300.00	600.00	304.0	256.0	240.0	224.0	236.0	252.0
Calcium as Ca	mg/l.	75.00	200.00	62.5	36.8	41.6	36.8	40.0	48.1
Magnesium as Mg	mg/l.	30.00	--	36.0	39.8	33.0	32.1	33.0	32.1
Iron as Fe	mg/l.	0.30	1.00	0.18	0.17	0.12	0.16	0.13	0.17
Total Alkalinity as CaCO ₃	mg/l.	200.00	600.00	328.0	272.0	268.0	256.0	276.0	292.0
Chloride as Cl	mg/l.	250.00	1000.00	58.0	36.0	42.0	38.0	40.0	34.0
Sulphate as SO ₄	mg/l.	200.00	400.00	24.6	16.8	18.6	17.2	18.3	21.2
Nitrate as NO ₃	mg/l.	45.00	100.00	3.9	2.3	2.7	3.6	3.1	3.3
Fluoride as F	mg/l.	1.00	1.50	0.18	0.16	0.12	0.22	0.27	0.17
Arsenic as As	mg/l.	0.05	No relaxation	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Coliform	MPN	10 in 100 ml	--	NIL	1	2	2	3	NIL

Remark: All the above monitoring parameters are within the limit.

ANNEXURE-IV

Rail Wheel Plant/Bela (Indian Railways) Govt. of India		Office of the Chief Administrative Officer, Administrative Building, Village-Bela, Block- Dariapur, Saran (Chhapra), Bihar.
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Half Yearly Analysis of Ambient Noise Level Sample from April 2013 to September 2013.

- REF:** (i) Ministry of Environment and Forest (MoEF)/GOI environmental Clearance no. J-11011/527/2010-IA.II(I) dated 12.01.2012.
(ii) Bihar State Pollution Control Board (BSPCB) Discharge Consent Order Letter No. pt 2-116/11 t-17582, dated 22.11.12.
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(Sampling & Analysis done by MoEF Recognized Environmental Laboratory, Shiva Test House, Patna, Bihar)

AMBIENT NOISE LEVEL MONITORING

Monitoring Location	Unit	Limit(Max)	Apr.'13	May'13	Jun.'13	Jul.'13	Aug.'13	Sep.'13
1. Near Main Gate	dB(A)	Industrial area-75.0	61.9	62.3	58.9	53.8	58.2	65.1
2. Near ADM Building	dB(A)	Commercial area-65.0	56.2	57.8	55.4	51	49.1	56.5
3. Near Final Wheel Processing Sec.	dB(A)	Residential area-55.0	72.2	73.2	71.4	68.7	64.2	74.2
4. Near Furnace	dB(A)		74.6	71.1	73.6	71.2	67.8	77.6

Remark: All the above monitoring parameters are within the limit.

ANNEXURE-V

Rail Wheel Plant/Bela (Indian Railways) Govt. of India		Office of the Chief Administrative Officer, Administrative Building, Village-Bela, Block- Dariapur, Saran (Chhapra), Bihar.
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Half Yearly Analysis of Effluent Sample from April 2013 to September 2013.

- REF:** (i) Ministry of Environment and Forest (MoEF)/GOI environmental Clearance no. J-11011/527/2010-IA.II(I) dated 12.01.2012.
(ii) Bihar State Pollution Control Board (BSPCB) Discharge Consent Order Letter No. pt 2-116/11 t-17582, dated 22.11.12.
(iii) BSPCB Emission Consent Order letter No. PT(NOC)-628/09 T-17581, dated 22.11.12.
(Sampling & Analysis done by MoEF Recognized Environmental Laboratory, Shiva Test House, Patna, Bihar)

Effluent Analysis Report Of

Parameters	UNIT	Limit(Max) (mg/l) as per Board's Standard	Average Conc. for the period Apr.'13 to Sep.'13
1. pH	--	5.5-9.0	7.2
2. Suspended Solids	mg/l.	200.00	71.1
3. Total Dissolved Solids	mg/l.	2100.00	914.4
4. Oil & Grease	mg/l.	10.00	1.1
5. B.O.D.(3 days at 27 ⁰ C)	mg/l.	100.00	55.4
6. C.O.D.	mg/l.	Not specified	175.9
7. Sulphate as SO ₄	mg/l.	1000.00	52.9
8. Chloride as Cl	mg/l.	1000.00	125.3
9. Dissolved Phosphate as P	mg/l.	5.00	1.4
10. Ammonical Nitrogen as N	mg/l.	50.00	16.5
11. Total Kjeldahl Nitrogen as N	mg/l.	100.00	32.5

Remark: All the above monitoring parameters are within the limit.