

To,

The Member Secretary
Chhattisgarh Environment Conservation Board
Paryavas Bhawan, North Block Sec 19
NAVA RAIPUR ATAL NAGAR (CG) – 492002
Email: hocecb@gmail.com

Sub: Submission of Environment Statement (Form V) for the financial year 2024-25

Dear Sir,

With reference to the above subject, please find enclosed herewith duly filled Environment Statement (Form-V) with all relevant documents for the financial year 2024-25 for following units of Jindal Steel Limited –

1. All units of JSL, Village - Patrapali (Raigarh)
2. Cement Plant, Village - Gejamuda (Raigarh)
3. Fabrication Plant, Village - Punjipathra (Raigarh)
4. Slag Crushing Plant, Village – Kerajhar (Raigarh)
5. Slag Crushing Plant, Village – Parsada (Raigarh)
6. Fly Ash Brick Plant, Village – Dhanagar (Raigarh)

We hope you will find it in order.

Thanking you

Sincerely Yours
For **Jindal Steel Limited**

A handwritten signature in black ink, appearing to be the name of the General Manager, written over a horizontal line.

Dy. General Manager
Environment Management Department

CC: Regional Officer, CECB Raigarh

Jindal Steel Limited

Work Office Jindal Steel Limited, PB # 16, Kharsia Road, Raigarh 496001 (CG)
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Registered Office: OP Jindal Marg, Hisar, 125 005, Haryana

FORM – V
Environmental Statement for the Financial Year ending 31st March
Jindal Steel Limited, Village - Patrapali, FY 2024-25

PART – A

i)	Name and address of the Owner/ Occupier of the industry operation or process	Sabyasachi Bandyopadhyay Executive Director Jindal Steel Limited PB # 16, Kharsia Road Raigarh – 496001 (Chhattisgarh)	
ii)	Industry category	Large scale	
iii)	Production capacity	Sponge Iron (DRI Kilns – 6x0.1 MTPA Capacity Kilns)	0.60 MTPA
		Sponge Iron (DRI Kilns – 4x0.18 MTPA Capacity Kilns)	0.72 MTPA
		Steel Slabs/ Billets/ Rounds/ Blooms/ Beams by EAF	1.10 MTPA
		Blast Furnace (Unit II)	2.25 MTPA
		Steel Melting Shop	1.25 MTPA
		Charge Chrome/ Ferro Chrome	0.03 MTPA
		Submerged Arc Furnace (Ferro Alloys)	0.03 MTPA
		Coke	0.80 MTPA
		Sinter Burden	2.85 MTPA
		MS Structure (Rail & Structure)	0.50 MTPA
		Rail & Steel Structure	0.25 MTPA
		Steel Plates and Strips/ Coils	1.0 MTPA
		Captive Power Generation	2 x 55 MW
		Captive Power Plant (WHRB 4 Nos. & 2x25 MW Turbines)	50 MW
		Power	
		a) Coke Oven Based WHRB	75 MW
		b) CFBC Boiler	24 MW
		Turbine based on Waste Heat gas from all 6 kilns)	40 MW
		Calcined Lime/ Dolime	0.40 MTPA
		Oxygen	22,200 Nm3/hr
		Oxygen	3200 Nm3/hr
		PGP (4 Nos. of PGP each capacity 3000 Nm3/hr)	12000 Nm3/hr
		Coal Washery	200 TPH
		Steel Melting Shop	1.25 MTPA
		Blast Furnace (Unit I)	0.8 MTPA
		Structure Mill	0.70 MTPA
		Oxygen Plant	26,600 Nm3/hr
		Producer Gas Plant	63000 Nm3/hr
		Oxygen Plant	200 TPD
		Oxygen Plant (Phase 2)	200 TPD

iv) Year of establishment	Sponge Iron Unit 1	1991
	Sponge Iron Unit 2	2005
	Steel Melting Shop	2005, 2006, 2010, 2016
	Blast Furnace (Unit I)	2002, 2010, 2016, 2021
	Blast Furnace (Unit II)	2006, 2016, 2021
	Submerged Arc Furnace	1991, 2002
	Coke	2006
	Sinter Burden	2006, 2016
	Rail & Structure Mill	2003
	Plate Mill	2007
	Power Plant (WHRB 40 MW)	1996
	Power Plant (AFBC 110 MW)	2004
	Power Plant (WHRB 50 MW)	2005
	Power Plant (WHRB 75 MW & CFBC 24 MW)	2006
	Calcined Lime/ Dolime	2006
	Oxygen Plants	2002, 2006, 2010, 2019, 2022
	PGP (12000 Nm3/hr)	2005
	Coal Washery	1992
	Producer Gas Plant (63000 Nm3/hr)	2008
	v) Date of the last environmental statement submitted	Letter No. JSPL/ EMD/ ES/ RGH, CEMENT, SCP/ 2024 dated 19.09.2024

PART – B

Water and Raw Material Consumption

(1) Water consumption m3 per day

Process	-	4116 m3
Cooling	-	40895 m3
Domestic	-	7181 m3

Name of product	Water consumption per unit of product output	
	During the previous financial year (2023-24)	During the current financial year (2024-25)
Sponge iron Units	1.16 m3/T	1.06 m3/T
Steel Melting Shops	1.05 m3/T	1.05 m3/T
Blast furnaces	0.69 m3/T	0.76 m3/T
Submerged Arc Furnace	1.51 m3/T	1.72 m3/T
Coke oven	0.39 m3/T	0.47 m3/T
Sinter plant	0.03 m3/T	0.03 m3/T
Power Plants	3.42 m3/MW	3.45 m3/MW
Rail & Structure Mill (RUBM)	0.56 m3/T	0.58 m3/T
Plate mill	0.49 m3/T	0.57 m3/T
Structure Mill (SPM)	0.44 m3/T	0.39 m3/T
PGP (12000 Nm3/hr)	0.0002 m3/Nm3	0.0002 m3/Nm3
PGP (63000 Nm3/hr)	0.001 m3/Nm3	0.001 m3/Nm3
Oxygen Plant	0.001 m3/Nm3	0.001 m3/Nm3

(2) Raw material consumption

Name of raw material	Name of product	Consumption of raw material per unit of output	
		During the previous financial year (2023-24)	During the current financial year (2024-25)
Iron ore/ Pellet	Sponge iron (DRI-I & DRI-II)	1.507 T/T	1.492 T/T
Coal		1.000 T/T	1.187 T/T
Dolomite		0.090 T/T	0.074 T/T
Char/ middling/ fine	Electric (AFBC & CFBC)	0.0012 T/kwh	0.0012 T/kwh
Sponge iron	Steel slab/ billets/ rounds/ blooms/ beams/ blanks	0.422 T/T	0.401 T/T
Silico manganese		0.014 T/T	0.015 T/T
Dolomite		0.011 T/T	0.011 T/T
Lime		0.086 T/T	0.10 T/T
Coke/ coal		0.007 T/T	0.007 T/T
Ferro manganese		0.003 T/T	0.003 T/T
Ferro silicon		0.001 T/T	0.001 T/T
Fluorspar		0.0004 T/T	0.0005 T/T
MS scrap		0.057 T/T	0.063 T/T
Pig iron/ hot metal		0.690 T/T	0.715 T/T
Graphite Electrode		0.001 T/T	0.001 T/T
Coke/ coal		0.599 T/T	0.603 T/T
Iron ore/ sinter		1.753 T/T	1.756 T/T
Quartz		0.024 T/T	0.023 T/T
Limestone	0.003 T/T	0.003 T/T	
Dolomite	0.0001 T/T	0.0001 T/T	
Scrap/ sponge iron	0.00009 T/T	0.00035 T/T	
Manganese ore	Ferro alloys	1.432 T/T	1.774 T/T
Mg. ore slag		0.607 T/T	0.622 T/T
Coke/ coal		0.229 T/T	0.380 T/T
Quartz		0.341 T/T	0.216 T/T
Coal	Coke	1.429 T/T	1.423 T/T
Dolomite fines	Sinter	0.047 T/T	0.057 T/T
Lime fines		0.223 T/T	0.224 T/T
Coal		0.047 T/T	0.047 T/T
Coke fines		0.071 T/T	0.071 T/T
Iron ore/ fines		0.856 T/T	0.870 T/T
Mill scale		0.016 T/T	0.015 T/T
Bloom/ beam/ blank	Rail & structural	1.104 T/T	1.092 T/T
Bloom/ beam/ blank	Steel plates/ coils	1.031 T/T	1.052 T/T
Bloom	Steel Structure	1.063 T/T	1.069 T/T
Coal	PGP (12000 Nm3/hr)	0.00049 T/Nm3	0.00062 T/Nm3
Coal	PGP (63000 Nm3/hr)	0.00047 T/Nm3	0.0006 T/Nm3
Limestone	Calcined lime	1.737 T/T	1.722 T/T
Dolo Stone		Nil	Nil
Coal		0.086 T/T	0.082 T/T
Raw coal	Coal Washery	1.565 T/T	2.354 T/T

PART – C

Pollution discharge to environment per unit of output

Water - No discharge of wastewater

Air (Particulate matter)

Pollutants	Quantity of pollutants discharge (mass per day)	Concentration of pollutants in discharges (mass/ volume)	Percentage of variation from prescribed standards with reasons	
			Limit	Actual lower
Water	Zero discharge	Zero discharge	Zero discharge	
Air			Limit	Actual lower
Source emission				
Particulate Matter				
DRI 1 Stack 1	207.4 Kg/day	31.9 mg/Nm ³	50	36.2
DRI 1 Stack 2	173.9 Kg/day	32.4 mg/Nm ³	50	35.2
DRI 1 Stack 3	176.3 Kg/day	32.8 mg/Nm ³	50	34.5
AFBC 1&2	488.9 Kg/day	33.5 mg/Nm ³	50	33.0
AFBC 3&4	240.5 Kg/day	32.8 mg/Nm ³	50	34.4
DRI 2 Stack 1	197.9 Kg/day	29.4 mg/Nm ³	50	41.2
DRI 2 Stack 2	198.1 Kg/day	30.6 mg/Nm ³	50	38.8
Coke Oven WHRB 1&2	198.8 Kg/day	28.3 mg/Nm ³	50	43.5
Coke Oven WHRB 3&4	201.7 Kg/day	28.3 mg/Nm ³	50	43.5
Coke Oven WHRB 5&6	205.0 Kg/day	29.8 mg/Nm ³	50	40.5
Coke Oven WHRB 7&8	203.7 Kg/day	28.3 mg/Nm ³	50	43.3
CFBC	203.1 Kg/day	29.5 mg/Nm ³	50	41.1
Stoves (MBF)	103.1 Kg/day	27.4 mg/Nm ³	50	45.2
RMH Area (MBF)	36.7 Kg/day	32.0 mg/Nm ³	50	36.0
Cast House dedusting (BF I)	505.7 Kg/day	28.4 mg/Nm ³	50	43.2
Stove (BF II)	121.2 Kg/day	28.2 mg/Nm ³	50	43.7
Cast House dedusting (BF II)	434.6 Kg/day	28.8 mg/Nm ³	50	42.5
Stock House dedusting (BF II)	294.4 Kg/day	29.8 mg/Nm ³	50	40.5
DRI-I Coal dryer	25.7 kg/day	28.5 mg/Nm ³	50	43.0
DRI-II RMH	173.8 Kg/day	32.8 mg/Nm ³	50	34.3
DRI-II Product Hopper	148.7 Kg/day	29.8 mg/Nm ³	50	40.5
SMS-II LRF 1	37.8 Kg/day	28.7 mg/Nm ³	50	42.7
SMS-II LRF 2/3	68 Kg/day	30.4 mg/Nm ³	50	39.2
SMS-II EAF 1	877.1 Kg/day	29.0 mg/Nm ³	50	42.0
SMS-II EAF 2	938.0 Kg/day	29.9 mg/Nm ³	50	40.2
SMS-II RMH	105.5 Kg/day	30.6 mg/Nm ³	50	38.8
SMS-III EAF & LRF	794.4 Kg/day	33.5 mg/Nm ³	50	33.1
SAF	108.3 Kg/day	27.4 mg/Nm ³	50	45.3
LDP Limekiln 1	45.7 Kg/day	28.6 mg/Nm ³	50	42.8
LDP Limekiln 2	50.3 Kg/day	30.8 mg/Nm ³	50	38.5
LDP Limekiln 3	45.4 Kg/day	29.6 mg/Nm ³	50	40.7
LDP Storage de-dusting	41.8 Kg/day	29.8 mg/Nm ³	50	40.5
LDP Delivery de-dusting	50.5 Kg/day	29.3 mg/Nm ³	50	41.5
Sinter Plant	770.1 Kg/day	33.4 mg/Nm ³	50	33.3
Sinter Plant (RMH)	85.3 Kg/day	31.6 mg/Nm ³	50	36.8
Rail & Structure Mill	80.4 Kg/day	28.3 mg/Nm ³	50	43.5
Plate/ Coil Mill	90.0 Kg/day	31.6 mg/Nm ³	50	36.7
Structure Mill (SPM)	35.3 Kg/day	30.9 mg/Nm ³	50	38.2

Note – Close circuit effluent recycling system is installed. No wastewater is discharged outside factory premises.

PART – D
Hazardous Wastes

(As specified under Hazardous Wastes / Management and Handling Rules, 1989)

Hazardous waste (sold/ used in house)	Total quantity	
	During the current financial year (2023-24)	During the current financial year (2024-25)
Used oil/ spent oil (5.1)	8.86 MT	3.10 MT
Waste/ residue containing oil (5.2)	73.14 MT	88.58 MT
Decanted Tar & Sludge (13.4, 13.5)	6233 KL	0 KL
Cotton rags containing HW (33.2)	3735 kg	4011 kg

Hazardous waste management practice at JSL involves only collection, storage and disposal of used oil and oily sludge (Category 5.1 & 5.2), Tar (Category 13.4 & 13.5) and cotton rags containing oil (Category 33.2). After bulk collection, used oil and oily sludge are disposed-off to recyclers authorized by Ministry of Environment & Forests/ State Pollution Control Board. Tar is collected from PGP tar storage tank and reused/ disposed-off to registered recyclers. Cotton rags containing oil is collected in identified bins of concerned process areas and burnt in kiln/ furnace, where temperature is very high. There is central accounting done through Stores, hence the figures are common and repeated.

a)	From Process		
	Used oil/ spent oil (Used oil) (Category 5.1)	-	3.10 MT
	Waste/ residue containing oil (Oily sludge) (Category 5.2)	-	88.58 MT
	Decanted tar & sludge (Category 13.3 & 13.4)	-	Nil
	Waste/ residue containing oil (cotton) (Category 33.2)	-	4011 kg
b)	From pollution control facilities	-	Nil

PART – E
Solid Wastes

Solid waste	Total quantity (MT)	
	During the previous financial year (2023-24)	During the current financial year (2024-25)
a. From Process		
Char from DRI	324458 T	233167 T
Accretion from DRI	33105 T	62363 T
ABC dust from DRI	54880 T	51370 T
Slag from Blast Furnace	949233 T	962446 T
Slag from SMS	928874 T	912353 T
EAF Dust from SMS	36020 T	37354 T
Slag from SAF	51281 T	54408 T
Ash from PGP	78990 T	69888 T
Mill and Caster Scale	52620 T	53339 T
b. From Pollution Control Facility		
Bag filter dust (DRI)	102606 T	97456 T
Bag filter dust (BF Stock house)	2137 T	1139 T
Bag filter dust (BF Cast house)	4702 T	2767 T
Bag filter dust (SMS RMH)	4641 T	5273 T
Bag filter dust (SAF)	5131 T	5439 T
ESP dust (Sinter Plant)	21142 T	25634 T

Bag filter dust (Sinter Plant)	5872 T	4943 T
Bag filter dust (Limekiln)	7941 T	7516 T
ETP slurry from Blast Furnace	40257 T	40907 T
Dust catcher dust from Blast Furnace	24397 T	56869 T
Fly ash from AFBC & CFBC	384472 T	420702 T
WHRB Ash	245975 T	306281 T
c. 1. Quantity recycled or reutilized within the unit		
Char from DRI	324458 T	233167 T
Accretion from DRI	10640 T	22627 T
ABC dust from DRI	54880 T	51370 T
Slag from SMS	214001 T	411126 T
EAF Dust from SMS	36020 T	37354 T
Mill and Caster Scale	52620 T	53339 T
Bag filter dust (DRI)	102606 T	97456 T
Bag filter dust (BF Stock house)	2137 T	1139 T
Bag filter dust (BF Cast house)	4702 T	2767 T
Bag filter dust (SMS RMH)	4641 T	5273 T
ESP dust (Sinter Plant)	21142 T	25634 T
Bag filter dust (Sinter Plant)	5872 T	4943 T
Bag filter dust (Limekiln)	7941 T	7516 T
ETP slurry from Blast Furnace	40257 T	40907 T
Dust catcher dust from Blast Furnace	24397 T	56869 T
Fly ash from AFBC & CFBC	384472 T	420702 T
2. Sold		
Slag from Blast Furnace	949233 T	962446 T
3. Disposed		
Accretion from DRI	22465 T	39736 T
Slag from SMS	714873 T	501227 T
Slag from SAF	51281 T	54408 T
Ash from PGP	78990 T	69888 T
Bag filter dust (SAF)	5131 T	5439 T
WHRB Ash	2555599 T	306281 T

Solid Waste Management Practices –

Char is reused in AFBC power plant and rest is sold to other users. Bag filter dust is reused in brick making, accretion is reused in SAF and rest is sent to recurrent landfill. Other wastes are stored in identified area for further reuse. Most of the solid wastes like bag filter dusts, Mill and Caster scale are reused in Sinter Plant and Extrusion plant. SMS slag is utilized in slag ball manufacturing, engineered landfill and ash dyke construction. Blast furnace slag is sold to cement manufacturers and rest stored for sale in future. Blast furnace bag filter dust and slurry is reused in sinter plant. Fly ash generated from AFBC and CFBC is used in brick making (own and other users), landfill and cement making (own and other users). WHRB ash is disposed in ash pond.

PART – F

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

Characterization and disposal of wastes

1. Hazardous waste (used oil, oily sludge, cotton rags containing oil and PGP Tar)

Characterization – Analysis report of hazardous waste is enclosed as **Annexure – 1**

Disposal – Sold to authorize recycler.

2. Solid wastes

A. Physical Characterization – Please refer Annexure - 2

B. Chemical Characterization – Please refer Annexure – 2

PART – G

Impact of the pollution abatement measures taken on conservation of natural resources and on the cost of production

Capital & Operational Expenditure on Pollution Control Devices during 2024-25

SN	Description of Expenditure	Expenditure (Rs.)	
		Capital Expenditure	O&M Expenditure
DRI – I			
01	Material consumption: Bag house, Ash handling	00	3292900
02	Grease for lubrication of slip seal Kiln & Cooler	00	3803469
	TOTAL	00	7096369
DRI – II			
01	Grease for lubrication of slip seal Kiln & Cooler	00	3900335
02	Bag house and Ash handling system	00	6967047
	TOTAL	00	10867382
BLAST FURNACE – I			
01	Cast House Dedusting System	00	19335838
02	Dust Catcher	00	1606909
03	GCP	00	5838471
04	Stock House De-dusting System	00	17192336
	TOTAL	00	43973554
BLAST FURNACE – II			
01	Cast House dedusting	00	58741510
	Dust Catcher	00	3639205
02	Gas Cleaning Plant	00	8562329
04	Stock House Dedusting	00	39416000
	Total	00	110359044
STEEL MELTING SHOP II			
01	Water tanker charges	0	1071000
02	Garland drain	1932000	0
03	Wheel washing system	1589250	0
04	FES Work-ID Fan motor & ID Fan Motor repairing	0	2185000
05	Maintenance expenditures	0	14300000
	TOTAL	3521250	17556000
STEEL MELTING SHOP III			
01	Pulse valve	00	35000
02	Top cover	00	37000
03	Filter Bags for main bag house (Ground hopper)	00	307000
04	Pneumatic dust conveying for Launder FES	27600000	0
05	Filter bag replacement (Ground Hopper)	00	99000
06	Spare of transport (Ground Hopper)	00	39000
	TOTAL	27600000	517000

SINTER PLANT			
01	ESP rectification and upgradation	24000000	
02	Operation and maintenance of de-dusting ESP	35,779,707	3,599,733
03	Operation and maintenance of Bag Filter Unit		
	TOTAL	59,779,707	3,599,733
SUBMERGED ARC FURNACE			
01	Bag House, Ash Handling System, Compressors	00	18632626
04	Manpower Days	00	2052500
05	Dust Transportation Charges	00	630600
	TOTAL	00	21315726
LIME DOLIME PLANT			
01	Cages for bag filter	00	1057900
02	Cards and Casings for bag filter	00	407400
03	Filters	00	5590728
04	Valves & Other accessories	00	893927
	TOTAL	00	7849955
POWER PLANTS			
01	Material/ Consumables	00	2605314
02	Services	00	1480339
03	New ESP Installation	2076000	00
	TOTAL	2076000	4085653
PRODUCER GAS PLANTS			
01	N2 Gas consumption in ETP	00	3445159
03	Coal ash shift	00	2265069
05	Handling through Tanker (PGP to Coke oven)	00	39040
	TOTAL	00	5749268
OTHERS			
01	New Bag Filter in Extrusion Plant	11488500	00
	TOTAL	11488500	00

Energy Consumption in Pollution Control Devices during FY 2024-25

Unit	Pollution Control Device	Energy consumption in KWh
DRI-I	Product Hopper Bag Filter #1	281147
	Product Hopper Bag Filter #2	404903
	Product Hopper Bag Filter #3	494037
	Product Hopper Bag Filter #4 ID Fan#1	997732
	Product Hopper Bag Filter #4 ID Fan#2	1111758
	Truck Loading Bag Filter	488864
	Bag Filter attached to Kiln1&2	724337
	Bag Filter attached to Kiln 3&4	659513
	Bag Filter attached to Kiln 5&6	757127
	Packing Plant Bag Filter	17149
	Bag Filter G14 Belt Transfer Point	472606
	Kiln 1&2 M9 & 10 BF IF fan	75851
	Kiln 3&4 M9 & 10 BF IF fan	88107
	Kiln 5&6 M9 & 10 BF IF fan	69068
DRI-II	Bag Filter attached to Kiln 7& 8 ID Fan#1	2687000
	Bag Filter attached to Kiln 7& 8 ID Fan#2	2328400
	Bag Filter attached to Product Hopper ID Fan#1	2749000
	Bag Filter attached to Product Hopper ID Fan#2	2834000

POWER PLANT-I	Electrostatic Precipitator#1	327400
	Electrostatic Precipitator#2	294400
	Electrostatic Precipitator#3	109533
	Electrostatic Precipitator#4	111800
	Electrostatic Precipitator#5	90200
	Electrostatic Precipitator#6	318000
PP-II	Electrostatic Precipitator#10	475465
	Electrostatic Precipitator#11	425846
	Electrostatic Precipitator#12	209171
	Electrostatic Precipitator#13	318309
PP-II/ III	Electrostatic Precipitator#14	143300
	Electrostatic Precipitator#15	171900
	Electrostatic Precipitator#16	159500
	Electrostatic Precipitator#17	141200
Power Plant-III	Electrostatic Precipitator#18	130100
SAF 1	Bag Filter	2869000
	FDC	1220410
SAF 2	Bag Filter	5405310
	FDC	648351
SMS-II	Fumes Extraction System –(ID Fan-1)old	16911000
	(ID Fan-2)	0
	(ID Fan-3)	14831000
	EAF (ID Fan-1) New	22025
	(ID Fan -2) New	11394840
	(ID Fan -3) New	11243074
	LRF (ID Fan-1)	2514100
	(ID Fan-2)	1423600
	(ID Fan-3)	1423500
	Ground hopper(ID Fan-1)	4475000
	Raw Material Bag Filter - I	1386000
	Raw Material Bag Filter - II	2396000
SMS-III	ID Fan	23969000
BF-I	Dust Catcher & PCI (C-1)	364658
	Dust Catcher & PCI (C-2)	862510
	Stock House Dedusting system- ID Fan	4712000
	Stock House dedusting screw conveyer	2548
	Ground hopper Dedusting system	0
	Cast House Dedusting system- ID Fan 1	2209800
	Cast House Dedusting system- ID Fan 2	3260500
	Gas Cleaning Plant (C-1&C-2)	7588
	Gas Cleaning Plant (C-3 & C-4)	19239
BF-II	Gas Cleaning Plant&Dust Catcher	196660
	Cast House Bag Filter	3743000
		3898000
		3572500
	Stock House Bag Filter	3159600
		3546400
	Effluent Treatment Plant	587100

PGP-II	Electrostatic Tar Precipitator	7287
PGP-III	Electrostatic Tar Precipitator	9873
LDP	Waste Gas Filter 1	509055
	Waste Gas Filter 2	605953
	Waste Gas Filter 3	866051
Sinter Plant	Electrostatic Precipitator 1	1033500
	Electrostatic Precipitator 2	1775000
	Electrostatic Precipitator 3	71400
Utility	Water Treatment Plant I	6561
	Water Treatment Plant II	1226192
RUBM	Effluent Treatment Plant	70350
Plate Mill	Effluent Treatment Plant (Scale Pit 1&2)	280
	(DCW)	320
EMD	Sewage Treatment Plant - I	112246
	Sewage Treatment Plant - II	45011
	Sewage Treatment Plant - III	112881
	Effluent recycling system - I	254887
SPM	Scale Pit	1967000
	Sludge thickener	35883

PART – H

Additional measures / investment proposed for environmental protection including abatement of pollution, prevention of pollution

Please refer Annexure – 3

PART – I

Any other particulars for improving the quality of the environment

The JSL Raigarh is committed towards protecting the environment and the promotion of environmental policies that facilitates, conserve and optimally utilize resources to drive efficiency, performance and sustain economic growth. The organization focuses on developing environment-friendly processes production and projects. Please refer Annexure – 4.

FORM – V
Environmental Statement for the Financial Year ending 31st March
JSL Cement Plant, Village – Gejamuda, FY 2024-25

PART – A

- | | | |
|------|--|--|
| i) | Name and address of the Owner/
Occupier of the industry operation or
process | Sabyasachi Bandyopadhyay
Executive Director
Jindal Steel Limited
PB # 16, Kharsia Road
Raigarh – 496001 (Chhattisgarh) |
| ii) | Industry category | Large scale |
| iii) | Production capacity | 1.0 Million Ton per Annum |
| iv) | Year of establishment | 2010 |
| v) | Date of the last environmental
statement submitted | Letter No. JSPL/ EMD/ ES/ RGH, CEMENT, SCP/ 2024 dated
19.09.2024 |

PART – B

Water and Raw Material Consumption

(1) Water consumption m³ per day

Process	-	146 m ³ per day
Cooling	-	5 m ³ per day
Domestic	-	26 m ³ per day

Name of product	Water consumption per unit of product output	
	During the current financial year (2023-24)	During the current financial year (2024-25)
Cement Products	Process – 0.071 m ³ /T Cooling – 0.0024 m ³ /T	Process – 0.064 m ³ /T Cooling – 0.0022 m ³ /T

(2) Raw material consumption

Name of raw material	Name of product	Consumption of raw material per unit of output	
		During the current financial year (2023-24)	During the current financial year (2024-25)
Clinker	Cement Products	0.396 T/T	0.343 T/T
Slag		0.496 T/T	0.474 T/T
Gypsum		0.030 T/T	0.027 T/T
Fly Ash		0.209 T/T	0.191 T/T

PART – C
Pollution discharge to environment per unit of output

Water - No discharge of waste water

Air (Particulate matter)

Pollutants	Quantity of pollutants discharge (mass per day)	Concentration of pollutants in discharges (mass/ volume)	Percentage of variation from prescribed standards with reasons	
			Limit	Actual lower
Water	Not applicable	Not applicable	Not applicable	
Air Source emission Particulate matter - Cement Plant	76.7 kg per day	29.4 mg/Nm ³	50	41.2 %

Note – 100% effluent is treated and recycled back. Hence there is no discharge of effluent to the environment.

PART – D
Hazardous Wastes
(As specified under Hazardous Wastes / Management and Handling Rules, 1989)

Hazardous waste (Sold/ Reused)	Total quantity	
	During the previous financial year (2023-24)	During the current financial year (2024-25)
Used oil	0.62 MT	3.0 MT
Waste/ residue containing oil (Oily sludge)	Nil	Nil
Contaminated cotton rags	324 kg	37 kg

Hazardous waste management practice at JSL involves only collection, storage and disposal of used oil and oily sludge (Category 5.1 & 5.2), and cotton waste containing oil (Category 5.2). After bulk collection, used oil and oily sludge are disposed-off to recyclers which are authorized by Ministry of Environment & Forests/ CECB. Cotton waste containing oil is collected in identified bins of concerned process areas and burnt in kiln/ furnace, where temperature is very high.

- a) From Process
- Used oil/ spent oil (Used oil) (Category 5.1) - 3.0 MT
 - Waste/ residue containing oil (Oily sludge) (Category 5.2) - Nil
 - Contaminated cotton rags containing (Category 33.2) - 37 kg
- b) From pollution control facilities - Nil

PART – E
Solid Wastes

Note: - Solid waste generated from cement plant is fully reutilized in the process.

PART – F

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

Characterization and disposal of wastes

1. Hazardous waste (used oil)

Characterization – Analysis report of hazardous waste is enclosed as **Annexure – 1**.

Disposal – Disposed by sale to recycler authorized by MoEF.

PART – G

Impact of the pollution abatement measures taken on conservation of natural resources and on the cost of production

Energy Consumption in Pollution Control Devices

Pollution Control Device	Energy consumption in KWh
BF FAN TT6(011SP2)	52277
BF FAN STEEL SILO#1(012DWP1)	12216
BF FAN STEEL SILO#2(012CFN2)	60153
PACKING PLANT (013EFN1)	65072
MILL BUILDING (012AFN2)	137650
COAL MILL(017CFN2)	29061
ROTO PACKER (013RTP-BF)	191829
PROCESS BAG FILTER FAN 012BFN1	6177300
BF FAN AT DAY BIN HOPPER	18028
BF FAN AT RCC SILO TOP	89574
BF FAN AT RCC SILO COLLECTING BIN	56524
BF FAN AT PRODUCT CONVEYING CIRCUIT	22641
BF FAN AT CLINKER SILO (011AFN1)	25614
BF FAN AT CLINKER SILO (011AFN2)	7107
BF FAN AT RTP- 2 (018BFN1)	118916
BF FAN AT RTP- 2 (018BFN2)	17507
BF FAN AT TRUCK TIPPLER (011AFN5)	95078
BF FAN AT FLY ASH SILO (019AFN1)	38107

Expenditure on operation/ maintenance of Pollution Control Equipment

SN	Description of Expenditure	Expenditure (Rs.) during FY 2024-25 on pollution control/ Resource conservation	
		Capital Expenditure	Recurring expenditure (O&M)
1	KIT,PN:FV113-827 F/VALVE,WPE35347	0	28800
2	KIT;F/VALVE,WPE35350	0	52820
3	MOTOR;415V,22KW,1500RPM,PN:2H18L483	0	50558
4	MOTOR,SQ CG,30KW,1475RPM,FR:SC200L	0	69800
5	MOTOR,GEAR,415VAC,0.75KW,20RPM,NZ290B/6	0	50950
6	FILTER BAG MIXED FELT,149X4565MM	0	530000
7	FILTER BAG MIXED FELT,149X4565MM	0	265000
8	BEARING BLOCK,DES:FC-212J	0	7157
9	BEARING,PLM BLK;Dsgn:UCFL 212	0	6056
10	PACKING;NBR,U	0	3230
11	FILTER,BAG;158.8MM,1000MM,130° C	0	44800
	Total (Rs)	0	1109170

PART – H

Additional measures / investment proposed for environmental protection including abatement of pollution, prevention of pollution

Please refer Annexure 3

PART – I

Any other particulars for improving the quality of the environment

Please refer Annexure 4

FORM – V**Environmental Statement for the Financial Year ending 31st March
Pre-Fabrication Plant, Village – Punjipathra, FY 2024-25****PART – A**

- i) Name and address of the Owner/
Occupier of the industry operation or
process Sabyasachi Bandyopadhyay
Executive Director
Jindal Steel Limited
PB # 16, Kharsia Road
Raigarh – 496001 (Chhattisgarh)
- ii) Industry category Small scale
- iii) Production capacity 2,50,000 TPA
- iv) Year of establishment 2009
- v) Date of the last environmental
statement submitted Letter No. JSPL/ EMD/ ES/ RGH, CEMENT, SCP/ 2024
dated 19.09.2024

PART – B**Water and Raw Material Consumption****(1) Water consumption m3 per day**

Process	-	Nil
Cooling	-	Nil
Domestic	-	87 M3 per day

Name of product	Water consumption per unit of product output*	
	During the previous financial year (2023-24)	During the current financial year (2024-25)
Fabrication Unit	--	--

* Not applicable as process/ cooling water is not used in operation.

(2) Raw material consumption

Name of raw material	Name of product	Consumption of raw material per unit of output	
		During the current financial year (2023-24)	During the current financial year (2024-25)
Plate, beam, column, angle, channel	Fabricated structure	1.11 T/T	1.11 T/T

PART – C
Pollution discharge to environment per unit of output

- Air - No discharge of air pollutants
Water - There is no effluent generation from the plant.

PART – D
Hazardous Wastes

(As specified under Hazardous Wastes / Management and Handling Rules, 1989)

Hazardous waste (sold/ used in house)	Total quantity	
	During the current financial year (2023-24)	During the current financial year (2024-25)
Used oil/ spent oil (5.1)	Nil	Nil
Waste/ residue containing oil (5.2)	0.25 MT	Nil
Cotton rags containing HW (33.2)	33 kg	30 kg

Hazardous waste management practice at JSL involves only collection, storage and disposal of used oil and oily sludge (Category 5.1 & 5.2), cotton rags containing oil (Category 33.2). After bulk collection, used oil and oily sludge are used in house in brick mold as lubricant. Cotton rags containing oil is collected in identified bins of concerned process areas and burnt in kiln/ furnace, where temperature is very high.

- a) From Process
- | | | |
|--|---|-------|
| Used oil/ spent oil (Used oil) (Category 5.1) | - | Nil |
| Waste/ residue containing oil (Oily sludge) (Category 5.2) | - | Nil |
| Waste/ residue containing oil (cotton) (Category 33.2) | - | 30 kg |
- b) From pollution control facilities - Nil

PART – E
Solid Wastes

Solid waste	Total quantity	
	During the current financial year (2023-24)	During the current financial year (2024-25)
a. From process (Scrap)	5962 T	6625 T
b. From pollution control facility	--	--
c. 1. Quantity recycled or reutilized within the unit	5962 T	6625 T
2. Sold	--	--
3. Disposed*	--	--

Note: - Solid waste generated from prefabrication plant is fully reutilized in our Steel Plant.

PART – F

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

Characterization and disposal of wastes

1. Hazardous waste (used oil, oily sludge, cotton waste containing oil)

Characterization – Analysis report of hazardous waste is enclosed as **Annexure – 1**.

Disposal – Sold to authorize recycler.

PART – G

Impact of the pollution abatement measures taken on conservation of natural resources and on the cost of production

1)	EMD monitoring & STP at OPJIP	-	Rs.18.30 Lakhs
2)	Garden maintenance & Horticulture activities	-	Rs. 25.4 Lakhs
3)	Hiring Water tanker for G.M. & Horticulture	-	Rs. 3.67 Lakhs

PART – H

Additional measures / investment proposed for environmental protection including abatement of pollution, prevention of pollution

Please refer Annexure 3

PART – I

Any other particulars for improving the quality of the environment

Please refer Annexure 4

FORM – V
Environmental Statement for the Financial Year ending 31st March
JSL, Slag Crushing Plant, Village – Kerajhar, FY 2024-25

PART – A

- | | | |
|------|--|--|
| i) | Name and address of the Owner/
Occupier of the industry operation or
process | Sabyasachi Bandyopadhyay
Executive Director
Jindal Steel Limited
PB # 16, Kharsia Road
Raigarh – 496001 (Chhattisgarh) |
| ii) | Industry category | Orange Category |
| iii) | Production capacity | Crushed Slag - 2 x 200 TPH |
| iv) | Year of establishment | 2015 |
| v) | Date of the last environmental
statement submitted | Letter No. JSPL/ EMD/ ES/ RGH, CEMENT, SCP/ 2024
dated 19.09.2024 |

PART – B

Water and Raw Material Consumption

- (1) Water consumption m3 per day
- | | | |
|--------------------------|---|------------|
| Dust suppression Process | - | 48 KL/ Day |
| Domestic | - | 2 KL/ Day |

Name of product	Water consumption per unit of product output	
	During the current financial year (2023-24)	During the current financial year (2024-25)
Crushed slag	Nil	Nil

Water is used only for dust suppression and domestic purpose.

(2) Raw material consumption

Solid waste (Slag generated from SMS) is crushed and used for landfill, Road making, PS balls making etc.

PART – C

Pollution discharge to environment per unit of output

- | | | |
|-------|---|----------------------------|
| Water | - | No discharge of wastewater |
| Air | | Particulate matter - NA |

Pollutants	Quantity of pollutants discharge (mass per day)	Concentration of pollutants in discharges (mass/ volume)	Percentage of variation from prescribed standards with reasons
Water	No discharge	--	--
Air Source emission	NA	NA	NA

Water is used only for dust suppression and domestic purpose. There is no discharge of effluent.

PART – D

Hazardous Wastes

(As specified under Hazardous Wastes / Management and Handling Rules, 1989)

Hazardous waste (sold)	Total quantity	
	During the current financial year (2023-24)	During the current financial year (2024-25)
--	--	--

No hazardous waste is generated from crushing process.

PART – E

Solid Wastes

Solid waste	Total quantity	
	During the current financial year (2023-24)	During the current financial year (2024-25)
a. From process	--	--
b. From pollution control facility	--	--
c. 1. Quantity recycled or reutilized within the unit	--	--
2. Sold	--	--
3. Disposed	--	--

PART – F

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

Characterization and disposal of wastes

1. Hazardous waste

NA

2. Solid wastes

NA

PART – G

Impact of the pollution abatement measures taken on conservation of natural resources and on the cost of production

Water sprinkling system is provided in various dust generating points. Tree plantation is done around the plant periphery.

PART – H

Additional measures / investment proposed for environmental protection including abatement of pollution, prevention of pollution

None

PART – I

Any other particulars for improving the quality of the environment

None

Pollutants	Quantity of pollutants discharge (mass per day)	Concentration of pollutants in discharges (mass/ volume)	Percentage of variation from prescribed standards with reasons
Water	No discharge	--	--
Air Source emission	NA	NA	NA

Water is used only for dust suppression and domestic purpose. There is no discharge of effluent.

PART – D

Hazardous Wastes

(As specified under Hazardous Wastes / Management and Handling Rules, 1989)

Hazardous waste (sold)	Total quantity	
	During the previous financial year (2023-24)	During the current financial year (2024-25)
No hazardous waste generated during the period	--	--

No hazardous waste is generated from crushing process.

PART – E

Solid Wastes

Solid waste	Total quantity	
	During the previous financial year (2023-24)	During the current financial year (2024-25)
a. From process	--	--
b. From pollution control facility	--	--
c. 1. Quantity recycled or reutilized within the unit	--	--
2. Sold	--	--
3. Disposed	--	--

Note: The slag crushing plant itself a waste utilization plant

PART – F

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

Characterization and disposal of wastes

1. Hazardous waste

NA

2. Solid wastes

NA

PART – G

Impact of the pollution abatement measures taken on conservation of natural resources and on the cost of production

Water sprinkling system is provided in various dust generating points. Tree plantation is done around the plant periphery.

PART – H

Additional measures / investment proposed for environmental protection including abatement of pollution, prevention of pollution

None

PART – I

Any other particulars for improving the quality of the environment

None

FORM – V
Environmental Statement for the Financial Year ending 31st March
JSL, Fly Ash Brick Plant, FY 2024-25

PART – A

- | | |
|---|--|
| i) Name and address of the Owner/
Occupier of the industry operation or
process | Sabyasachi Bandyopadhyay
Executive Director
Jindal Steel Limited
PB # 16, Kharsia Road
Raigarh – 496001 (Chhattisgarh) |
| ii) Industry category | Green Category |
| iii) Production capacity | Fly ash bricks -3 Lakh Nos./ Day |
| iv) Year of establishment | 2012 |
| v) Date of the last environmental
statement submitted | First Submission |

PART – B

Water and Raw Material Consumption

(1) Water consumption m3 per day

Industrial Process	-	50 KL/ Day
Domestic	-	5 KL/ Day

Name of product	Water consumption per unit of product output	
	During the previous financial year (2023-24)	During the current financial year (2024-25)
Fly ash bricks	0.606 Liter/ brick	0.605 Liter/ brick

(2) Raw material consumption

Name of raw material	Name of product	Consumption of raw material per unit of output	
		During the current financial year (2023-24)	During the current financial year (2024-25)
Fly ash bottom ash	Fly ash bricks	1.905 kg/bricks	1.907 kg/bricks
FES dust		0.252 kg/bricks	0.259 kg/bricks
Granulated slag		1.153 kg/bricks	1.158 kg/bricks
PCC Cement		0.237 kg/bricks	0.233 kg/bricks
Wastes & agregate		0.043 kg/bricks	0.043 kg/bricks

PART – C

Pollution discharge to environment per unit of output

Water - No discharge of wastewater

Air Particulate matter - NA

Pollutants	Quantity of pollutants discharge (mass per day)	Concentration of pollutants in discharges (mass/ volume)	Percentage of variation from prescribed standards with reasons
Water	No discharge	--	--
Air Source emission	NA	NA	NA

PART – D

Hazardous Wastes

(As specified under Hazardous Wastes / Management and Handling Rules, 1989)

Hazardous waste (sold)	Total quantity	
	During the previous financial year (2023-24)	During the current financial year (2024-25)
No hazardous waste generated during the period	--	--

No hazardous waste is generated from brick making process.

PART – E

Solid Wastes

Solid waste	Total quantity	
	During the previous financial year (2023-24)	During the current financial year (2024-25)
a. From process	--	--
b. From pollution control facility	--	--
c. 1. Quantity recycled or reutilized within the unit	--	--
2. Sold	--	--
3. Disposed	--	--

Note: The bricks plant itself is a waste utilization plant

PART – F

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

Characterization and disposal of wastes

1. **Hazardous waste**
NA
2. **Solid wastes**
NA

PART – G

Impact of the pollution abatement measures taken on conservation of natural resources and on the cost of production

Water sprinkling system is provided in various dust generating points. Tree plantation is done around the plant periphery.

PART – H

Additional measures / investment proposed for environmental protection including abatement of pollution, prevention of pollution

None

PART – I

Any other particulars for improving the quality of the environment

None

							nt		t	t	nt	nt	nt
A34	Nitrobenzene	mg/l	2	Absent	Absent	Absent	Abse nt	Absent	Absen t	Absen t	Abse nt	Abse nt	Abse nt
A35	Pentachlorophenol	mg/l	100	Absent	Absent	Absent	Abse nt	Absent	Absen t	Absen t	Abse nt	Abse nt	Abse nt
A36	Pyridine	mg/l	5	Absent	Absent	Absent	Abse nt	Absent	Absen t	Absen t	Abse nt	Abse nt	Abse nt
A37	Tetrachloroethylene	mg/l	0.7	Absent	Absent	Absent	Abse nt	Absent	Absen t	Absen t	Abse nt	Abse nt	Abse nt
A38	Trichloroethylene	mg/l	0.5	Absent	Absent	Absent	Abse nt	Absent	Absen t	Absen t	Abse nt	Abse nt	Abse nt
A39	Vinyl chloride	mg/l	0.2	Absent	Absent	Absent	Abse nt	Absent	Absen t	Absen t	Abse nt	Abse nt	Abse nt
A40	2,4,5-TP (Silvex)	mg/l	1	Absent	Absent	Absent	Abse nt	Absent	Absen t	Absen t	Abse nt	Abse nt	Abse nt
A41	2,4-Dichloro- phenoxyacetic acid (2,4-D)	mg/l	10	Absent	Absent	Absent	Abse nt	Absent	Absen t	Absen t	Abse nt	Abse nt	Abse nt
A42	Alachlor	mg/l	2.0	Absent	Absent	Absent	Abse nt	Absent	Absen t	Absen t	Abse nt	Abse nt	Abse nt
A43	Alpha HCH	mg/l	0.001	Absent	Absent	Absent	Abse nt	Absent	Absen t	Absen t	Abse nt	Abse nt	Abse nt
A44	Atrazine	mg/l	0.2	Absent	Absent	Absent	Abse nt	Absent	Absen t	Absen t	Abse nt	Abse nt	Abse nt
A45	Beta HCH	mg/l	0.004	Absent	Absent	Absent	Abse nt	Absent	Absen t	Absen t	Abse nt	Abse nt	Abse nt
A46	Butachlor	mg/l	12.5	Absent	Absent	Absent	Abse nt	Absent	Absen t	Absen t	Abse nt	Abse nt	Abse nt
A47	Chlordane	mg/l	0.03	Absent	Absent	Absent	Abse nt	Absent	Absen t	Absen t	Abse nt	Abse nt	Abse nt
A48	Chlorpyriphos	mg/l	9.0	Absent	Absent	Absent	Abse nt	Absent	Absen t	Absen t	Abse nt	Abse nt	Abse nt
A49	Delta HCH	mg/l	0.004	Absent	Absent	Absent	Abse nt	Absent	Absen t	Absen t	Abse nt	Abse nt	Abse nt
A50	Endosulfan (alpha+ beta+ sulphate)	mg/l	0.04	Absent	Absent	Absent	Abse nt	Absent	Absen t	Absen t	Abse nt	Abse nt	Abse nt
A51	Endrin	mg/l	0.02	Absent	Absent	Absent	Abse nt	Absent	Absen t	Absen t	Abse nt	Abse nt	Abse nt
A52	Ethion	mg/l	0.3	Absent	Absent	Absent	Abse nt	Absent	Absen t	Absen t	Abse nt	Abse nt	Abse nt
A53	Heptachlor (& its Epoxide)	mg/l	0.008	Absent	Absent	Absent	Abse nt	Absent	Absen t	Absen t	Abse nt	Abse nt	Abse nt
A54	Isoproturon	mg/l	0.9	Absent	Absent	Absent	Abse nt	Absent	Absen t	Absen t	Abse nt	Abse nt	Abse nt
A55	Lindane	mg/l	0.4	Absent	Absent	Absent	Abse nt	Absent	Absen t	Absen t	Abse nt	Abse nt	Abse nt
A56	Malathion	mg/l	19	Absent	Absent	Absent	Abse nt	Absent	Absen t	Absen t	Abse nt	Abse nt	Abse nt
A57	Methoxychlor	mg/l	10	Absent	Absent	Absent	Abse nt	Absent	Absen t	Absen t	Abse nt	Abse nt	Abse nt
A58	Methyl parathion	mg/l	0.7	Absent	Absent	Absent	Abse nt	Absent	Absen t	Absen t	Abse nt	Abse nt	Abse nt
A59	Monocrotophos	mg/l	0.1	Absent	Absent	Absent	Abse nt	Absent	Absen t	Absen t	Abse nt	Abse nt	Abse nt
A60	Phorate	mg/l	0.2	Absent	Absent	Absent	Abse nt	Absent	Absen t	Absen t	Abse nt	Abse nt	Abse nt
A61	Toxaphene	mg/l	0.5	Absent	Absent	Absent	Abse nt	Absent	Absen t	Absen t	Abse nt	Abse nt	Abse nt
A62	Antimony	mg/l	15	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent
A63	Beryllium	mg/l	0.75	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent
A64	Chromium (VI)	mg/l	5.0	0.02	0.003	0.02	0.02	0.02	0.004	0.04	0.014	0.02	0.014
A65	Cobalt	mg/l	80.0	0.03	0.023	0.04	0.03	0.03	0.06	0.02	0.043	0.03	0.02
A66	Copper	mg/l	25.0	0.02	0.03	0.02	0.05	0.03	0.04	0.04	0.04	0.04	0.02
A67	Molybdenum	mg/l	350	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent
A68	Nickel	mg/l	20.0	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent
A69	Thallium	mg/l	7.0	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent
A70	Vanadium	mg/l	24.0	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent
A71	Zinc	mg/l	250	0.08	0.21	0.11	0.09	0.80	0.17	0.08	0.12	0.18	0.14
A72	Fluoride	mg/l	180.0	2.25	2.26	2.28	2.27	2.26	2.27	2.27	2.28	2.28	2.26
A73	Aldrin	mg/l	0.14	Absent	Absent	Absent	Abse	Absent	Absen	Absen	Abse	Abse	Abse

							nt		t	t	nt	nt	nt
A74	DDT, DDE, DDD	mg/l	0.1	Absent	Absent	Absent	Abse nt	Absent	Absen t	Absen t	Abse nt	Abse nt	Abse nt
A75	Dieldrin	mg/l	0.8	Absent	Absent	Absent	Abse nt	Absent	Absen t	Absen t	Abse nt	Abse nt	Abse nt
A76	Kepone	mg/l	2.1	Absent	Absent	Absent	Abse nt	Absent	Absen t	Absen t	Abse nt	Abse nt	Abse nt
A77	Mirex	mg/l	2.1	Absent	Absent	Absent	Abse nt	Absent	Absen t	Absen t	Abse nt	Abse nt	Abse nt
A78	Polychlorinated biphenyls	mg/l	5.0	Absent	Absent	Absent	Abse nt	Absent	Absen t	Absen t	Abse nt	Abse nt	Abse nt
A79	Dioxin (2,3,7,8-TCDD)	mg/l	0.001	Absent	Absent	Absent	Abse nt	Absent	Absen t	Absen t	Abse nt	Abse nt	Abse nt
	Class B							Absent	Absen t	Absen t	Abse nt	Abse nt	Abse nt
B1	Asbestos	mg/k g	10000	Absent	Absent	Absent	Abse nt	Absent	Absen t	Absen t	Abse nt	Abse nt	Abse nt
B2	Total Petroleum Hydrocarbons (TPH) (C5 - C36)	mg/k g	5,000	Absent	Absent	Absent	Abse nt	Absent	Absen t	Absen t	Abse nt	Abse nt	Abse nt
	Class C												
1	Acid Amides	mg/l	Absent	Absent	Absent	Absent	Abse nt	Absent	Absen t	Absen t	Abse nt	Abse nt	Abse nt
2	Acid anhydrides	mg/l	Absent	Absent	Absent	Absent	Abse nt	Absent	Absen t	Absen t	Abse nt	Abse nt	Abse nt
3	Amines	mg/l	Absent	Absent	Absent	Absent	Abse nt	Absent	Absen t	Absen t	Abse nt	Abse nt	Abse nt
4	Anthracene	mg/l	Absent	Absent	Absent	Absent	Abse nt	Absent	Absen t	Absen t	Abse nt	Abse nt	Abse nt
5	Aromatic compounds other than those listed in Class A	mg/l	Absent	Absent	Absent	Absent	Abse nt	Absent	Absen t	Absen t	Abse nt	Abse nt	Abse nt
6	Bromates, (hypo-bromites)	mg/l	Absent	Absent	Absent	Absent	Abse nt	Absent	Absen t	Absen t	Abse nt	Abse nt	Abse nt
7	Chlorates (hypo-chlorites)	mg/l	Absent	Absent	Absent	Absent	Abse nt	Absent		Absen t	Abse nt	Abse nt	Abse nt
8	Carbonyls	mg/l	Absent	Absent	Absent	Absent	Abse nt	Absent	Absen t	Absen t	Abse nt	Abse nt	Abse nt
9	Ferro-silicate and alloys	mg/l	Absent		Absent				Absen t				
10	Halogen- containing compounds which produce acidic vapours on contact with humid air or water e.g. silicon tetrachloride, aluminum chloride, titanium tetrachloride	mg/l	Absent	Absent		Absent	Abse nt	Absent		Absen t	Abse nt	Abse nt	Abse nt
11	Halogen- silanes	mg/l	Absent	Absent	Absent	Absent	Abse nt	Absent	Absen t	Absen t	Abse nt	Abse nt	Abse nt
12	Halogenated Aliphatic Compounds	mg/l	Absent	Absent	Absent	Absent	Abse nt	Absent	Absen t	Absen t	Abse nt	Abse nt	Abse nt
13	Hydrazine (s)	mg/l	Absent	Absent	Absent	Absent	Abse nt	Absent	Absen t	Absen t	Abse nt	Abse nt	Abse nt
14	Hydrides	mg/l	Absent	Absent	Absent	Absent	Abse nt	Absent	Absen t	Absen t	Abse nt	Abse nt	Abse nt
15	Inorganic Acids	mg/l	Absent	Absent	Absent	Absent	Abse nt	Absent	Absen t	Absen t	Abse nt	Abse nt	Abse nt
16	Inorganic Peroxides	mg/l	Absent	Absent	Absent	Absent	Abse nt	Absent	Absen t	Absen t	Abse nt	Abse nt	Abse nt
17	Inorganic Tin Compounds	mg/l	Absent	Absent	Absent	Absent	Abse nt	Absent	Absen t	Absen t	Abse nt	Abse nt	Abse nt
18	Iodates	mg/l	Absent	Absent	Absent	Absent	Abse nt	Absent	Absen t	Absen t	Abse nt	Abse nt	Abse nt
19	(Iso- and thio-) Cyanates	mg/l	Absent	Absent	Absent	Absent	Abse nt	Absent	Absen t	Absen t	Abse nt	Abse nt	Abse nt
20	Manganese-silicate	mg/l	Absent	Absent	Absent	Absent	Abse nt	Absent	Absen t	Absen t	Abse nt	Abse nt	Abse nt
21	Mercaptans	mg/l	Absent	Absent	Absent	Absent	Abse nt	Absent	Absen t	Absen t	Abse nt	Abse nt	Abse nt

A. Water Pollution Control Measures

At Jindal Steel Limited, water pollution is controlled by adopting a range of monitoring processes and treatment measures. Resource conservation through optimization of water use and their reuse after required treatment is an integral aspect of the company's environment management plan. Various conservation, treatment and reuse measures are implemented that includes –

- DRI: close circuit effluent recycling system is installed. Wastewater from cooling section is taken to hot water well, from where it is taken to cooling tower and then to cold water well and recycled back to cooling purpose.
- Power Plants: DM plant wastewater is treated in neutralization pit. After treatment it is reused for wet ash handling system.
- Coke Oven: The wastewater generated during coke quenching is taken to settling tanks. After settling, the water is reused for quenching.
- Sinter Plant: blow-down water is used in sinter nodulizing
- Blast Furnace: dust laden wastewater is treated in effluent treatment plant (ETP) and treated water is recycled back to the process.
- Submerged Arc Furnace: cooling wastewater is reused for slag cooling and dust suppression.
- Steel Melting Shop: the wastewater is taken to settling tank. Treated water is reused back.
- Rolling Mill & Plate Mill: Process wastewater is skimmed for oil and scale and separated water is recycled back to the plant.
- Garage & Compressor Houses: Oil-water separator is provided.
- Domestic: The sewage from township and office area are completely treated in 5 state of art Sewage treatment plants having a combined capacity of 4550KL/day and the treated sewage water is fully utilized for gardening and horticulture activities.



B. Air pollution control Measures –

JSL subscribes to growth through sustainable approaches and is committed to preserve a clean and green environment around its operational areas. Every aspect of pollution due to plant activities is monitored in detail and adequate steps are taken to minimize it. Control measures are implemented at all required locations. The major measures for abatement of pollution include electrostatic precipitators, bag filters, cyclones, venturi scrubbers, dry fog type dust suppression systems, fume extraction systems etc.



Major air pollution control measures include following -

- In DRI Kilns, the dust settling chambers and electrostatic precipitators are installed to control process emissions. Fugitive emission is controlled through multiple point suction hoods attached to bag filters. Dry fog dust suppression systems are provided at required locations.



- In Power plants the flue gas from boilers is passed through ESP and discharged through stack.
- In Coke Oven Plant, waste gases are burnt completely and the heat generated is used in the waste heat recovery boilers for steam and subsequent power generation.
- In Sinter Plant, Centralized de-dusting system containing electrostatic Precipitator and bag filter installed for dust control in raw material handling area. Additional high capacity ESP also exists to control process emissions.
- In Blast Furnace, the gas is cleaned through cyclone and two stage venturi scrubber (Gas Cleaning Plant), pulse jet type bag filters.
- In SAF the emission from furnace are drawn into high capacity dust extraction system where the particulates are trapped and treated gas is passed through stack.
- In SMS (EAF & Ladle Furnace) the gases are sucked through Fume Extraction System and then taken to After Combustion Chamber for converting CO to CO₂. Thereafter the gases are passed through cooling system, forced draft cooler, spark arrester to control coarse dust and subsequently through high efficiency bag filters to separate particulate matters.
- The fugitive emission caused through non process activities such as haul roads and stock yards are managed through good housekeeping practices and regular dust suppression through fixed and mobile sprinklers.

C. Non Hazardous Waste Management

Waste minimization and utilization with proper management is amongst the key focus of JSL. Organization has adopted 4 “R”s namely Reuse, Recycle, Reduce & Recover and efforts are made to convert waste into wealth. We have made systematic procedure to identify, segregate of solid waste and store in the specific destination for temporary basis. Later segregated solid waste is sent to Sinter Plant for further use in process. Some of the projects undertaken by JSL to utilize solid wastes are as below—

- Char generated from DRI is reused in power plant as fuel in AFBC, CFBC boilers.
- Blast furnace slag is 100% utilized for making cement.
- Tailor made Sinter plant to utilize 100% Mill scales and Flue dust generated in Mills and Blast furnace.



- A captive fly ash brick manufacturing plant of 3 lac bricks per day installed. All construction activities of company are done using fly ash bricks. Fly ash is also supplied to nearby brick manufacturers free of cost.
- A 3 TPD bio-methanation plant is installed under the supervision of bio technology division of BARC, Mumbai. The degradable wastes generated in the premises are usefully utilized for domestic
- A vermi-composting plant (capacity 24 T/ month) within the premises allows conversion of organic waste to manure by using earthworms. The resultant manure is used for the purpose of gardening.
- SMS slag is used for road making and landfill. For 100% utilization of SMS slag, Company has entered on a long term agreement with M/s **ECOMAISTER**, South Korea for preparation of PSB (Precious Slag Balls) through slag atomizing technology. The granules produced by this technology can be used as abrasive blast material, counter weight, bicycle road material, water treatment media, polymer concrete material, road pavement material, hume pipes, tetra-pods, concrete bricks, concrete pipes etc. This is a very advanced technique by which molten slag is pelletized and made usable (up to 70%).
- The company is exploring multiple options to utilize the steel slag in various applications, which include – Working with CSIRR (Central Road Research Institute to replace natural aggregates with slag in road construction, working with HARSCO environmental – to create slag sand which replaces natural sand, to utilize in cement and bricks making, to make various shapes like kerbs, stones ,paver blocks, to utilize in concrete making, to utilize as a slag fertilizer, to convert fine slag into briquettes to reuse etc.

E. Greenery Development

Jindal Steel Limited has initiated large scale bio-diversified afforestation and horticulture activities. JSL undertakes mass tree plantation every year. Company has done plantation not only in its complex of JSL, Industrial Estate and Captive Coalmine complex at Raigarh, but also in Raigarh city and villages. Company has actively participated in plantation programme “Operation O2” organized by Forest Department, CG Govt. Towards Raigarh, 100 to 150 meters wide green belt has been created. In plantation work, local unemployed people are involved. A big cactus house has been setup, which is point of attraction. When one enters into the plant, one finds greenery all around and wonders, whether garden is in plant or plant is in garden. A beautiful Nature Park has been developed where exotic birds and animals are reared.

Till now, we have planted more than 5.30 lakh trees in JSL Raigarh, 36132 trees in cement plant and 4.73 lakh trees in Industrial Estate, Punjipathra, which is verified by Govt. affiliated agency M/s SINDRA, Raipur. Nursery and gardens have also been developed in plant and residential areas.



F. Awareness building –

Jindal Steel Limited understands that for achieving sustainable development environmentally aware workforce plays a very important role. Hence various types of awareness programs are organized at various levels for employees as well as surrounding community. The employees are made conscious of their responsibilities towards protection of environment, green & clean surroundings through street-play, Nukkad, competitions for children, quiz for employees etc.

- World Environment Day celebrated every year involving the local community. This year, we have celebrated virtually due to pandemic.
- Periodic technical seminars by subject experts on issues related to environment.
- Awareness program for senior management on environmental legislation, Green Productivity
- Appreciation and wide publicity for individuals and best performing departments on environmental issues.

- Information dissemination through audio-visual program, brochures, leaflets and journals.
- Over 100 environmental hoardings at strategic locations inside plant/ colony to propagate awareness.
- Annual Horticulture cum Flower & Vegetable Show
- Regular articles and messages on environment through in-house magazines, environmental portal etc.
- Training program on best environmental management practices to local sponge iron units.
- Training to farmers on fly ash utilization in agriculture as soil conditioner



Annexure - 4

The Jindal Steel Limited Raigarh is committed towards protecting the environment and the promotion of environmental policies that facilitates, conserve and optimally utilize resources to drive efficiency, performance and sustain economic growth. The organization focuses on developing environment-friendly processes production and projects.

The organization is committed to comply with all statutory requirements, environmental regulation and quality standards in accordance with the guidelines published by the Ministry of Environment, Forest & Climate Change, Government of India from time to time. The Steel & power projects are equipped with devices for the control of pollutants to levels within required norms. The effluent and sewage water generated is treated recycled and reused within the plant boundaries for watering plantation, gardening, and for various non-critical applications, such as dust suppression systems. Impervious layer is built before solid waste dumping at waste disposal yards to prevent ground water contamination. Piezometers are practiced wherever required for monitoring of ground water contamination and leachate. Fly ash produced during power generation is supplied to cement manufacturing units and brick making units. Blast Furnace slag is sent to Grinding units for cement manufacturing process as a raw material for Portland Slag Cement.

The environment policy is implemented through an action plan which comprises identification, assessment and management of environment impact, integration of sound environment management practices, adoption of clean, energy efficient and environment-friendly technologies, promotion of efficient use of energy and natural resources, ensuring safe and proper storage, use and disposal of materials, enhancing awareness and skill of employees, contractors, suppliers and service providers for sound environment performance, increasing

greenery in and around plant premises, making project/business. Environment Management Department is responsible for the implementation of environmental laws and regulations, empowering the environment department responsible for environmental compliance. The periodic reporting to Board of directors is done at corporate on environmental, Energy and resource optimization along with CSR activities and its compliance from different functional heads.

Due to efforts taken to conserve environment, JSL bagged many prestigious awards like Greentech Environment Excellence Award, Srishti Green Cube Award for Good Green Governance, CII GreenCo Award (Gold Award) & FAME awards for best environment management practices.

In its drive towards a clean and green environment, the Company has institutionalized a fully-functional system to catalyze its 'Go Green' agenda. It takes following steps towards environment protection:-

1. Six Nos. of Sewage Treatment Plants (STP), five in JSL Raigarh premises and one at Punjipathra established for treatment of domestic waste water generated from offices and colonies. Round-the-clock operation of STP is ensured with fish pond for good treated water quality check and / survival test, ensuring the efficient operation of STP. Water is recycled and used for greening the campuses and less critical applications.
2. Char, middling and coal rejects are utilized to generate power
3. Country's largest captive brick plant (Capacity 3 lakh nos. fly ash based products per day) to utilize fly ash and slag. 100% construction activities are done using fly ash bricks.
4. Waste heat gas generated from sponge iron units and coke ovens is reused in WHRBs to generate power.
5. Nearly 95% of blast furnace gas is utilized as fuel in boilers and furnaces
6. Four continuous ambient air quality monitoring stations (AAQMS) are installed to monitor all applicable environmental parameters. The data of AAQMS is interfaced with CPCB and website.
7. A mobile monitoring van is also used for regular monitoring of ambient air quality inside the plant and in adjoining areas of the plant to check the existing ambient air quality scenario of the surrounding area and appropriate action is taken to maintain the prescribed standards.
8. Facility is developed for collection and safe & scientific storage of hazardous wastes (used oil/ oily sludge, batteries, e-wastes etc)
9. Additional bag filters installed in Cement Plant Packer Units
10. Third party environmental audit is conducted by reputed institutions like BSI etc.
11. Zero liquid discharge (ZLD) is ensured by adopting 4-R namely Reduce, Recycle, Reuse & Recover.
12. PUC check is done by EMD for all JSL vehicles of transporters and company.
13. Vermi-compost plant (capacity – 24 T per month) is installed to produce bio manure from organic waste. The manure is used as replacement for chemical fertilizers.
14. Bio-methanation plant (3 TPD) is installed for scientific disposal of bio-degradable kitchen waste and generation of renewable energy.
15. Special mechanized housekeeping drive is practiced through 5 "S" techniques. Drains are provided along the roads to carry runoff water.
16. A baling press has been installed to bundle the plastic and cardboard for further recycling through recyclers with ease of handling.
17. Environmental pollution control and Green belt management forestation as required is done to have effective green canopy with dust control/active Carbon sink and temperature and climate control.
18. The EMD reports to the top management and works, as a focal point for addressing all environmental issues, environmental compliances and improvement in environmental performance.
19. Environment Management Department is functional with experienced and qualified staffs to ensure proper operation, implementation and monitoring of environmental safeguards and other conditions stipulated by statutory authorities.

Achievements (FY 2024-25) –

1. CAAQMS: Out of total 4 old CAAQMS have been replaced by new ones.
2. CCTV installed for keeping surveillance on stack emission/ discharge.
3. Digital android-based dashboard developed for real time AQI of JSP through IT Department.
4. No single use plastic drive implemented by JSP. Distributed jute bags to replace single use plastic.
5. Zero downtime achieved in all operations (STP, ERS, BMP, RSP).
6. 100% treated water from STP was reused in Greenbelt/ Gardening.
7. 100% biogas (70 m3 per day) generated from BMP was used as an alternative to LPG.
8. Zero LTI, Accident achieved in operation.
9. No non-compliance w.r.t. CPCB/ CECB/ MoEFCC achieved
10. Installed sluice gate (09 Nos.) at different outlets to maintain zero liquid discharge
11. Procured new mobile fog canon machine to control fugitive emission, dust suppression and road washing.
12. 1100 trees plantation done in slag crushing plant (village Parsada) in mega tree plantation drive.
13. Miyawaki plantation initiated in brick plant
14. New bag filter installed in SMS III and increased efficiency by updating existing bag house, bag house in lounder car in SMS 3
15. Dry fog system installed in Raw Material Handling (RMH 1)
16. Dry fog system installed in Raw Material Handling (RMH 3)
17. Automatic Wheel Washing System installed in entry/ exit gate of plant premises
18. Upgradation done in slurry, dry ash conveying, ash silo system in Power Plant
19. Procured GHG and LCA Accounting software for CBAM compliance and GHG emission monitoring
20. Constructed pucca road in Transport Nagar (vehicle parking area in front of Blast Furnace)
21. Installed wind breaking shield in RMH 3 area to control fugitive emission.
22. Installed water sprinkling systems in RMH 1 yard and adjoined roads
23. Procured e-vehicle by EMD and CMC for green and clean transportation to reduce carbon emission

