

JSPL/ EMD/ ES/ RGH, SSD, CEMENT, SCP/ 2024

19.09.2024

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 for the financial year 2023-24

Dear Sir,

With reference to the above subject, please find enclosed herewith 'duly filled Form-V with all relevant documents for Environment Statement for the financial year 2023-24 for following units of Jindal Steel & Power Limited –

1. All units of JSPL, Village - Patrapali (Raigarh)
2. JSPL 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)

We hope you will find it in order.

Thanking you

Sincerely Yours
For Jindal Steel & Power Limited


Ateet Namdeo
Head – Environment Management

CC: Regional Officer, CECB Raigarh

Jindal Steel & Power Limited

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Registered Office O. P. Jindal Marg, Hisar, 125 005, Haryana

FORM – V
Environmental Statement for the Financial Year ending 31st March
JSPL, Village - Patrapali, FY 2023-24

PART – A

i)	Name and address of the Owner/ Occupier of the industry operation or process	Biju Nair Executive Director Jindal Steel & Power 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 Nm ³ /hr
		Oxygen	3200 Nm ³ /hr
		PGP (4 Nos. of PGP each capacity 3000 Nm ³ /hr)	12000 Nm ³ /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 Nm ³ /hr
		Producer Gas Plant	63000 Nm ³ /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
v)	Date of the last environmental statement submitted	Coal Washery	1992
		Producer Gas Plant (63000 Nm3/hr)	2008

PART – B
Water and Raw Material Consumption

(1) Water consumption m3 per day

Process	-	3541 m3
Cooling	-	41129 m3
Domestic	-	7203 m3

Name of product	Water consumption per unit of product output	
	During the previous financial year (2022-23)	During the current financial year (2023-24)
Sponge iron Units	1.20 m3/T	1.16 m3/T
Steel Melting Shops	1.16 m3/T	1.05 m3/T
Blast furnaces	0.81 m3/T	0.69 m3/T
Submerged Arc Furnace	1.24 m3/T	1.51 m3/T
Coke oven	0.38 m3/T	0.39 m3/T
Sinter plant	0.03 m3/T	0.03 m3/T
Power Plants	3.48 m3/MW	3.42 m3/MW
Rail & Structure Mill (RUBM)	0.55 m3/T	0.56 m3/T
Plate mill	0.66 m3/T	0.49 m3/T
Structure Mill (MLSM)	0.67 m3/T	0.44 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 (2022-23)	During the current financial year (2023-24)
Iron ore/ Pellet	Sponge iron (DRI-I & DRI-II)	1.452 T/T	1.507
Coal		0.989 T/T	1.000
Dolomite		0.107 T/T	0.090
Char/ middling/ fine	Electric (AFBC & CFBC)	0.0011 T/kwh	0.0012 T/kwh
Sponge iron	Steel slab/ billets/ rounds/ blooms/ beams/ blanks	0.411 T/T	0.422 T/T
Silico manganese		0.015 T/T	0.014 T/T
Dolomite		0.012 T/T	0.011 T/T
Lime		0.095 T/T	0.086 T/T
Coke/ coal		0.008 T/T	0.007 T/T
Ferro manganese		0.002 T/T	0.003 T/T
Ferro silicon		0.001 T/T	0.001 T/T
Fluorspar		0.0004 T/T	0.0004 T/T
MS scrap		0.060 T/T	0.057 T/T
Pig iron/ hot metal		0.701 T/T	0.690 T/T
Graphite Electrode		0.001	0.001 T/T
Coke/ coal	Hot metal / pig iron	0.595 T/T	0.599 T/T
Iron ore/ sinter		1.729 T/T	1.753 T/T
Quartz		0.026 T/T	0.024 T/T
Limestone		0.008 T/T	0.003 T/T
Dolomite		0.0001 T/T	0.0001 T/T
Scrap/ sponge iron		0.0002 T/T	0.00009 T/T
Manganese ore	Ferro alloys	1.504 T/T	1.432 T/T
Mg. ore slag		0.622 T/T	0.607 T/T
Coke/ coal		0.665 T/T	0.229 T/T
Quartz		0.275 T/T	0.341 T/T
Coal	Coke	1.430 T/T	1.429 T/T
Dolomite fines	Sinter	0.064 T/T	0.047 T/T
Lime fines		0.190 T/T	0.223 T/T
Coal		0.043 T/T	0.047 T/T
Coke fines		0.073 T/T	0.071 T/T
Iron ore/ fines		0.872 T/T	0.856 T/T
Mill scale		0.019 T/T	0.016 T/T
Bloom/ beam/ blank	Rail & structural	1.078 T/T	1.104 T/T
Bloom/ beam/ blank	Steel plates/ coils	1.035 T/T	1.031 T/T
Bloom	Steel Structure	1.064 T/T	1.063 T/T
Coal	PGP (12000 Nm3/hr)	0.48 T/T	0.00049 T/Nm3
Coal	PGP (63000 Nm3/hr)	0.49 T/T	0.00047 T/Nm3
Limestone	Calcined lime	1.736 T/T	1.737 T/T
Dolo Stone		Nil	Nil
Coal		0.081 T/T	0.086 T/T
Raw coal	Coal Washery	Nil	1.565 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	
Water	Zero discharge	Zero discharge	Zero discharge	
Air			Limit	Actual lower
Source emission				
Particulate Matter				
DRI 1 Stack 1	203.9 Kg/day	29.8 mg/Nm3	50	40.3
DRI 1 Stack 2	149.9 Kg/day	29.8 mg/Nm3	50	40.5
DRI 1 Stack 3	158.7 Kg/day	29.6 mg/Nm3	50	40.8
AFBC 1&2	456.5 Kg/day	32.3 mg/Nm3	50	35.5
AFBC 3&4	298.6 Kg/day	31.3 mg/Nm3	50	37.5
DRI 2 Stack 1	189.9 Kg/day	28.6 mg/Nm3	50	42.8
DRI 2 Stack 2	203.0 Kg/day	29.3 mg/Nm3	50	41.3
Coke Oven WHRB 1&2	192.8 Kg/day	27.3 mg/Nm3	50	45.3
Coke Oven WHRB 3&4	202.6 Kg/day	28.5 mg/Nm3	50	43.0
Coke Oven WHRB 5&6	202.0 Kg/day	28.4 mg/Nm3	50	43.2
Coke Oven WHRB 7&8	104.8 Kg/day	27.8 mg/Nm3	50	44.5
CFBC	188.3 Kg/day	27.3 mg/Nm3	50	45.4
Stoves (MBF)	115.0 Kg/day	27.1 mg/Nm3	50	45.8
RMH Area (MBF)	34.7 Kg/day	30.4 mg/Nm3	50	39.2
Stove (BF II)	25.5 Kg/day	27.8 mg/Nm3	50	44.4
Cast House dedusting (BF II)	436.3 Kg/day	29.3 mg/Nm3	50	41.4
Stock House dedusting (BF II)	290.9 Kg/day	29.3 mg/Nm3	50	41.4
DRI-I Coal dryer	25.6 kg/day	28.0 mg/Nm3	50	44.0
DRI-II RMH	152.6 Kg/day	28.7 mg/Nm3	50	42.7
DRI-II Product Hopper	148.9 Kg/day	29.3 mg/Nm3	50	41.4
SMS-II LRF 1	37.4 Kg/day	28.9 mg/Nm3	50	42.2
SMS-II LRF 2/3	938.4 Kg/day	29.7 mg/Nm3	50	40.7
SMS-II EAF 1	66.7 Kg/day	29.8 mg/Nm3	50	40.3
SMS-II EAF 2	860.9 Kg/day	29.0 mg/Nm3	50	42.0
SMS-II RMH	100.9 Kg/day	29.3 mg/Nm3	50	41.3
SMS-III EAF & LRF	809.7 Kg/day	30.3 mg/Nm3	50	39.4
SAF	155.3 Kg/day	28.9 mg/Nm3	50	42.2
LDP Limekiln 1	45.7 Kg/day	29.1 mg/Nm3	50	41.8
LDP Limekiln 2	52.9 Kg/day	32.3 mg/Nm3	50	35.3
LDP Limekiln 3	48.1 Kg/day	29.5 mg/Nm3	50	41.0
LDP Storage de-dusting	38.0 Kg/day	28.0 mg/Nm3	50	44.0
LDP Delivery de-dusting	49.4 Kg/day	28.3 mg/Nm3	50	43.3
Sinter Plant	802.8 Kg/day	32.8 mg/Nm3	50	34.4
Sinter Plant (RMH)	90.8 Kg/day	30.2 mg/Nm3	50	39.6
RUBM	81.2 Kg/day	27.8 mg/Nm3	50	44.4
Plate Mill	90.1 Kg/day	29.2 mg/Nm3	50	41.6
MLSM	33.3 Kg/day	29.9 mg/Nm3	50	40.2



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 (2022-23)	During the current financial year (2023-24)
Used oil/ spent oil (5.1)	16.84 MT	8.86 MT
Waste/ residue containing oil (5.2)	61.00 MT	73.14 MT
Decanted Tar & Sludge (13.4, 13.5)	3815 KL	6233 KL
Cotton rags containing HW (33.2)	3647 kg	3735 kg

Hazardous waste management practice at JSPL 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) | - 8.86 MT |
| Waste/ residue containing oil (Oily sludge) (Category 5.2) | - 73.14 MT |
| Decanted tar & sludge (Category 13.3 & 13.4) | - 6233 MT |
| Waste/ residue containing oil (cotton) (Category 33.2) | - 3735 kg |
- b) From pollution control facilities
- | | |
|--|-------|
| | - Nil |
|--|-------|

PART – E
Solid Wastes

Solid waste	Total quantity (MT)	
	During the previous financial year (2022-23)	During the current financial year (2023-24)
a. From Process		
Char from DRI	264421 T	324458 T
Accretion from DRI	32962 T	33105 T
ABC dust from DRI	62798 T	54880 T
Slag from Blast Furnace	984948 T	949233 T
Slag from SMS	867769 T	928874 T
EAF Dust from SMS	33022 T	36020 T
Slag from SAF	40487 T	51281 T
Ash from PGP	77454 T	78990 T
Mill and Caster Scale	54231 T	52620 T
b. From Pollution Control Facility		
Bag filter dust (DRI)	93573 T	102606 T
Bag filter dust (BF Stock house)	2438 T	2137 T
Bag filter dust (BF Cast house)	3280 T	4702 T
Bag filter dust (SMS RMH)	4665 T	4641 T
Bag filter dust (SAF)	7431 T	5131 T



ESP dust (Sinter Plant)	15013 T	21142 T
Bag filter dust (Sinter Plant)	4955 T	5872 T
Bag filter dust (Limekiln)	7688 T	7941 T
ETP slurry from Blast Furnace	30191 T	40257 T
Dust catcher dust from Blast Furnace	20063 T	24397 T
Fly ash from AFBC & CFBC	361371 T	384472 T
WHRB Ash	2555543 T	2555599 T
c. 1. Quantity recycled or reutilized within the unit		
Char from DRI	264421 T	324458 T
Accretion from DRI	3108 T	10640 T
ABC dust from DRI	62798 T	54880 T
Slag from SMS	336759 T	214001 T
EAF Dust from SMS	33022 T	36020 T
Mill and Caster Scale	54231 T	52620 T
Bag filter dust (DRI)	93573 T	102606 T
Bag filter dust (BF Stock house)	2438 T	2137 T
Bag filter dust (BF Cast house)	3280 T	4702 T
Bag filter dust (SMS RMH)	4665 T	4641 T
ESP dust (Sinter Plant)	15013 T	21142 T
Bag filter dust (Sinter Plant)	4955 T	5872 T
Bag filter dust (Limekiln)	7688 T	7941 T
ETP slurry from Blast Furnace	30191 T	40257 T
Dust catcher dust from Blast Furnace	20063 T	24397 T
Fly ash from AFBC & CFBC	361371 T	384472 T
2. Sold		
Slag from Blast Furnace	573096 T	949233 T
3. Disposed		
Accretion from DRI	29854 T	22465 T
Slag from SMS	531010 T	714873 T
Slag from SAF	40487 T	51281 T
Ash from PGP	77454 T	78990 T
Bag filter dust (SAF)	7431 T	5131 T
WHRB Ash	2555543 T	2555599 T

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 2023-24

SN	Description of Expenditure	Expenditure (Rs.)	
		Capital Expenditure	O&M Expenditure
DRI – I			
01	Material consumption: Bag house, Ash handling	0	1102130
02	Grease for lubrication of slip seal Kiln & Cooler	0	2575800
	TOTAL	0	3677930
DRI – II			
01	Grease for lubrication of slip seal Kiln & Cooler	0	873363
02	Bag house and Ash handling system	0	3861901
	TOTAL	0	4735264
BLAST FURNACE – I			
01	Cast House Dedusting System	3776000	22619339
02	Dust Catcher	0	2859414.7
03	GCP	0	20451888
04	Flare Stack	0	2454394.9
05	Stock House De-dusting System	4720000	24698100
	TOTAL	8496000	73083136.6
BLAST FURNACE – II			
01	Gas Cleaning Plant /ETP	0	3858310
	Dedusting System (Cast house + Stock house)	0	117578392
02	Dust Catcher	0	1821530
04	Flare Stack	0	3188632
	Total		126446864
STEEL MELTING SHOP II			
01	Operation and maintenance of Pollution control devices (Material Procurement)	0	9806792
02	Operation and maintenance of Pollution control devices (Services)	0	5069301
	TOTAL	0	14876094
STEEL MELTING SHOP III			
01	Cleaning of mill scale f/scale pit (Service)	0	387000
02	Valves	0	1236000
03	Inflatable seals	0	835000
04	Repair Kit,MM:K-5004	0	905000
05	Filter Bags for main bag house (SMS3)	0	2650000
06	Cage for main bag house (SMS3)	0	1550000
07	Replacement of filter bags (Service)	0	513000
08	FES Dust cleaning	0	188000

09	EAF Canopy sheet	0	1283000
10	Existing filter bag house service+ssd mat	11000000	0
11	Steel plate and ISMC+ISA	10400000	0
12	Grating	825000	0
13	Existing filter bag house civil	970000	0
14	Combustion chamber panel	0	4247000
15	Pneumatic dust conveying system 1.5 TPH	0	2114000
16	Bag house Hopper lower part	0	329000
	TOTAL	23195000	16237000
SINTER PLANT			
01	Operation and maintenance of waste gas ESP	0	7984193
02	Operation and maintenance of de-dusting ESP	4950250	2332741
03	Operation and maintenance of Bag Filter Unit	0	49000
04	New Parallel ESP	0	508200
	TOTAL	4950250	10874135
SUBMERGED ARC FURNACE			
01	BAG HOUSE	0	4807550
02	ASH HANDLING SYSTEM	0	2000000
03	COMPRESSORS	0	2729395
04	MANPOWER DAYS	0	635000
05	DUST TRANSPORTATION CHARGES	0	1000000
06	ID Fan	0	162700
	TOTAL	0	11334645
LIME DOLIME PLANT			
01	VALVE,PULSE,SOL,2W,AL,110VAC,3/4IN BSPF	0	88950
02	DIAPHRAGM;WPG353A043,0.35-8.5BAR,25MM	0	36600
03	CARD,MM:BFC-10RLY-PL,24VAC	0	49500
04	CARD,MM:BFC-6RLY-SL,24VAC	0	65450
05	VALVE,SOL,110VAC,1.5IN BSP,WPE 35347	0	114560
06	DIAPHRAGM;F/VALVE,WPG353A047	0	309000
07	VALVE,SOL,110VAC,1.5IN BSP,WPE 35347	0	171840
08	VALVE;ALUMINUM,2-8BAR,PN:PV06B	0	166207.22
09	BIDDING,RBR,SI,160-180DEG F/FILTER BAG	0	310000
10	FILTER,BAG;HIGH TEMP,150NB,3660MM	0	3729760
11	JOINT,EXPANSION,NON-METALLIC,1125X300MM		9000
	TOTAL	0	5050867.22
POWER PLANTS			
	Operation and maintenance of ESPs		
01	WHRB 1 – 6 (40 MW)	48458860	5709335
02	AFBC (110 MW)	0	15944695
03	WHRB 7 – 10 (50 MW)	0	11390011
04	Coke Oven WHRB & CFBC (75 + 24 MW)	0	12314723
	TOTAL	48458860	45358765
PRODUCER GAS PLANTS			
01	N2 Gas consumption in ETP	0	12837286
03	Coal ash shift	0	1528281
05	Handling through Tanker (PGP to Coke oven)	0	936600
	TOTAL	0	15302168

Energy Consumption in Pollution Control Devices during FY 2023-24

Unit	Pollution Control Device	Energy consumption in KWh
DRI-I	Product Hopper Bag Filter #1	329249
	Product Hopper Bag Filter #2	408419
	Product Hopper Bag Filter #3	499846
	Product Hopper Bag Filter #4 ID Fan#1	1005684
	Product Hopper Bag Filter #4 ID Fan#2	1108054
	Truck Loading Bag Filter	485871
	Bag Filter attached to Kiln1&2	784248
	Bag Filter attached to Kiln 3&4	675062
	Bag Filter attached to Kiln 5&6	732408
	Packing Plant Bag Filter	43067
	Bag Filter G14 Belt Transfer Point	471119
	Kiln 1&2 M9 & 10 BF IF fan	63929
	Kiln 3&4 M9 & 10 BF IF fan	67785
	Kiln 5&6 M9 & 10 BF IF fan	67803
DRI-II	Bag Filter attached to Kiln 7& 8 ID Fan#1	2637000
	Bag Filter attached to Kiln 7& 8 ID Fan#2	2508700
	Bag Filter attached to Product Hopper ID Fan#1	2756000
	Bag Filter attached to Product Hopper ID Fan#2	3106000
POWER PLANT-I	Electrostatic Precipitator#1	332400
	Electrostatic Precipitator#2	409800
	Electrostatic Precipitator#3	76926
	Electrostatic Precipitator#4	167800
	Electrostatic Precipitator#5	125600
	Electrostatic Precipitator#6	366600
PP-II	Electrostatic Precipitator#10	470602
	Electrostatic Precipitator#11	322620
	Electrostatic Precipitator#12	329807
	Electrostatic Precipitator#13	420251
PP-II/ III	Electrostatic Precipitator#14	131000
	Electrostatic Precipitator#15	182900
	Electrostatic Precipitator#16	150900
	Electrostatic Precipitator#17	161000
Power Plant-III	Electrostatic Precipitator#18	219700
SAF 1	Bag Filter	4202000
	FDC	1381070
SAF 2	Bag Filter	1353464
	FDC	158907
SMS-II	Fumes Extraction System –(ID Fan-1)old	14976000
	(ID Fan-2)	4231000
	(ID Fan-3)	12702000
	EAF (ID Fan-1) New	0
	(ID Fan -2) New	7349498
	(ID Fan -3) New	14162954

	LRF (ID Fan-1)	2310000
	(ID Fan-2)	1183770
	(ID Fan-3)	1309000
	Ground hopper(ID Fan-1)	4305000
	Raw Material Bag Filter - I	1495000
	Raw Material Bag Filter - II	2053000
SMS-III	ID Fan	22593000
BF-I	Dust Catcher & PCI (C-1)	2387
	Dust Catcher & PCI (C-2)	3150
	Stock House Dedusting system- ID Fan	6447000
	Stock House dedusting sytem- screw conveyer	2288
	Ground hopper Dedusting system	0
	Cast House Dedusting system- ID Fan 1	2752900
	Cast House Dedusting system- ID Fan 2	3555800
	Gas Cleaning Plant (C-1&C-2)	7915
	Gas Cleaning Plant (C-3 & C-4)	7780
BF-II	Gas Cleaning Plant&Dust Catcher	203470
	Cast House Bag Filter	4012000
		4206998
		3871500
	Stock House Bag Filter	3359800
		3559924
	Effluent Treatment Plant	544000
PGP-II	Electrostatic Tar Precipitator	6948
PGP-III	Electrostatic Tar Precipitator	13786
LDP	Waste Gas Filter 1	744321
	Waste Gas Filter 2	627968
	Waste Gas Filter 3	628476
Sinter Plant	Electrostatic Precipitator 1	840500
	Electrostatic Precipitator 2	1968200
	Electrostatic Precipitator 3	86900
Utility	Water Treatment Plant I	12910
	Water Treatment Plant II	1316559
RUBM	Effluent Treatment Plant	24900
Plate Mill	Effluent Treatment Plant (Scale Pit 1&2)	360
	(DCW)	240
EMD	Sewage Treatment Plant - I	140819
	Sewage Treatment Plant - II	68129
	Sewage Treatment Plant - III	94109
	Effluent recycling system - I	183427
MLSM	Scale Pit	1819880
	Sludge thickener	33159

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 JSPL 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
JSPL Cement Plant, Village – Gejamuda, FY 2023-24

PART – A

- | | | |
|------|--|---|
| i) | Name and address of the Owner/
Occupier of the industry operation or
process | Amresh Pandey
Deputy General Manager - Cement Plant
Jindal Steel & Power 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, SSD, CEMENT, SCP/ 2023
dated 21.09.2023 |

PART – B

Water and Raw Material Consumption

(1) Water consumption m³ per day

Process	-	167.7 m ³ per day
Cooling	-	5.8 m ³ per day
Domestic	-	27.8 m ³ per day

Name of product	Water consumption per unit of product output	
	During the previous financial year (2022-23)	During the current financial year (2023-24)
Cement Products	Process – 0.065 m ³ /T Cooling – 0.0022 m ³ /T	Process – 0.071 m ³ /T Cooling – 0.0024 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 (2022-23)	During the current financial year (2023-24)
Clinker	Cement Products	0.353 T/T	0.396 T/T
Slag		0.476 T/T	0.496 T/T
Gypsum		0.025 T/T	0.030 T/T
Fly Ash		0.187 T/T	0.209 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	
Water	Not applicable	Not applicable	Not applicable	
Air Source emission <u>Particulate matter -</u> Cement Plant	75 kg per day	26.8 mg/Nm ³	Limit 50	Actual lower 46.4 %

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 (2022-23)	During the current financial year (2023-24)
Used oil	Nil	0.62 MT
Waste/ residue containing oil (Oily sludge)	Nil	Nil
Contaminated cotton rags	324 kg	324 kg

Hazardous waste management practice at JSPL 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) | - | 0.62 MT |
| Waste/ residue containing oil (Oily sludge) (Category 5.2) | - | Nil |
| Contaminated cotton rags containing (Category 33.2) | - | 324 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)	70109
BF FAN STEEL SILO#1(012DWP1)	18623
BF FAN STEEL SILO#2(012CFN2)	61714
PACKING PLANT (013EFN1)	74145
MILL BUILDING (012AFN2)	163567
COAL MILL(017CFN2)	34339
ROTO PACKER (013RTP-BF)	210610
PROCESS BAG FILTER FAN 012BFN1	6323800
BF FAN AT DAY BIN HOPPER	19110
BF FAN AT RCC SILO TOP	97271
BF FAN AT RCC SILO COLLECTING BIN	49556
BF FAN AT PRODUCT CONVEYING CIRCUIT	43052
BF FAN AT CLINKER SILO (011AFN1)	49582
BF FAN AT CLINKER SILO (011AFN2)	25848
BF FAN AT RTP- 2 (018BFN1)	124249
BF FAN AT RTP- 2 (018BFN2)	13977
BF FAN AT TRUCK TIPPLER (011AFN5)	113707
BF FAN AT FLY ASH SILO (019AFN1)	44380
BF FAN AT FLY ASH AIR SLIDE (019AFN2)	0
BF FAN AT FLY ASH COLLECTING BIN (019AFN3)	5634



Expenditure on operation/ maintenance of Pollution Control Equipment

SN	Description of Expenditure	Expenditure (Rs.) during FY 2022-23 on pollution control/ Resource conservation	
		Capital Expenditure	Recurring expenditure (O&M)
1	CAGE;148X3630MM F/BAG FILTER	0	64000
2	BAG,160X3660MM F/BAG FILTER	0	139100
3	BEARING BLOCK,DES:SN-515#	0	4050
4	BEARING,ROLLER,22215ESKC3#	0	4700
5	VALVE;RTRY AIR;DW:A02202571010,ITEM:21	0	139050
6	BEARING BLOCK,DES:FC-212J	0	6140
7	BEARING,PLM BLK;Dsgn:UCFL 212	0	5400
8	FILTER BAG MIXED FELT,149X4565MM	0	861000
9	PACKING;NBR,U	0	56270
10	BAG,160X3660MM F/BAG FILTER	0	250436
11	REPLACEMENT OF BAGS F/PROCESS BAG FILTER	0	133100
12	TRANSMITTER,DP,0-100MBAR	0	68000
13	KIT;F/VALVE,WPE35350	0	73948
14	MODULE,SEQ TIMER,MM:MBFC10RLY-SNBR	0	42750
15	MODULE,SEQ TIMER,MM:MBFC15RLY-SNBR	0	28357
16	INJECTOR;PN:E383300000	0	449100
17	ENGINE;WIRING,NEF,4CYL,T3 PN-E05W300000	0	160713
18	IVECO;V/IRING HARNESS,PN:4160046BLH	0	85050
19	SENSOR;PN:D6505X0000,F/DULEVO 5000	0	26550
20	SENSOR;PN:D6506X0000,F/DULEVO 5000	0	26550
21	REGULATOR;PN:D768L00000,F/DULEVO 5000	0	89662
22	SENSOR;NEF 4 RAIL,PN-D767W00000	0	73800
23	PUMP;FEED,PN:D6501B0000,F/DULEVO 5000	0	68040
24	IVECO GASOLINE HOSE;PN:D768U00000	0	23625
25	IVECO GASOLINE HOSE;PN:D768S00000	0	8471
26	IVECO GASOLINE HOSE;PN:D768R00000	0	10856
27	IVECO GASOLINE HOSE;PN:D768P00000	0	8831
28	IVECO GASOLINE HOSE;PN:D767B00000	0	13500
29	BALL,VALVE;PN:D612400000,F/ROAD SWIPING	0	7304
30	HOSE;PN:T0475,F/ROAD SWIPING VEHICLE	0	4594
31	RADIATOR;WATER 5010S-00,PN:6360046AAQ	0	209925
Total (Rs)		0	3142875

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



Name & Address Of The Customer To, M/s Jindal Steel & Power Limited, PO Box. No. 16, Kharsia Road, Raigarh - 496001		REPORT NO	UES/TR/22-23/3554	
		LAB REF NO	UES/22-23/MISC/8838	
		DATE OF SAMPLING	01/10/2022	
		DATE OF RECEIPT	03/10/2022	
		DATE OF REPORT	07/10/2022	
		DATE OF ANALYSIS	Start: 03/10/2022	End: 07/10/2022
SAMPLE DETAILS				
CUSTOMER SAMPLE ID	USED-OIL	CUSTOMER REF. NO. & DATE	4511523145. Dated 05.09.2022	
SAMPLE TYPE	HAZARDOUS WASTE	SAMPLE CONDITION AT RECEIPT	OK	
PACKING OF SAMPLE	PLASTIC BOTTLE	SAMPLE COLLECTED BY	CUSTOMER	
OTHER DETAILS	SEALED	QUANTITY RECEIVED	APPROX 1 KG.	

REPORT NO.3554

TEST REPORT

SR. NO.	PARAMETER	UNIT	METHOD OF TEST	LIMIT	RESULT
Class-A					
1	Arsenic (as As)	mg/l	USEPA METHOD 1311	5	N.D.
2	Barium (as Ba)	mg/l		100	N.D.
3	Cadmium	mg/l		1	N.D.
4	Chromium & Chromium (III) Compound	mg/l		5	N.D.
5	Lead (as Pb)	mg/l		5	N.D.
6	Manganese (as Mn)	mg/l		10	N.D.
7	Mercury (as Hg)	mg/l		0.2	N.D.
8	Selenium	mg/l		1	N.D.
9	Silver	mg/l		5	N.D.
10	Ammonia	mg/l	TCLP/STLC procedure in distilled water	50	N.D.
11	Cyanide	mg/l	TCLP/STLC procedure in distilled water	20	N.D.
12	Nitrate (as nitrate nitrogen)	mg/l	USEPA METHOD 1311	1000	N.D.
13	Sulphate (as H ₂ S)	mg/l		5.0	N.D.
14	1,1-Dichloroethylene	mg/l		0.7	N.D.
15	1,2-Dichloroethane	mg/l	USEPA METHOD 1311	0.5	N.D.
16	1,4-Dichlorobenzene	mg/l		7.5	N.D.
17	2,4,5-Trichlorophenol	mg/l		400	N.D.
18	2,4,6-Trichlorophenol	mg/l		2	N.D.
19	2,4-Dinitrotoluene	mg/l		0.13	N.D.
20	Benzene	mg/l		0.5	N.D.
21	Benzo (a) Pyrene	mg/l		0.07	N.D.

REPORT NO.3554

TEST REPORT

SR. NO.	PARAMETER	UNIT	METHOD OF TEST	LIMIT	RESULT
22	Bromodichloromethane	mg/l	USEPA METHOD 1311	6.0	N.D.
23	Bromoform	mg/l		10.0	N.D.
24	Carbon tetrachloride	mg/l		0.5	N.D.
25	Chlorobenzene	mg/l		100.0	N.D.
26	Chloroform	mg/l		6.0	N.D.
27	Cresol (ortho+meta+para)	mg/l		200.0	N.D.
28	Dibromochloromethane	mg/l		10.0	N.D.
29	Hexachlorobenzene	mg/l		0.13	N.D.
30	Hexachlorobutadiene	mg/l		0.5	N.D.
31	Hexachloroethane	mg/l		3	N.D.
32	Methyl ethyl ketone	mg/l		200.0	N.D.
33	Naphthalene	mg/l		5.0	N.D.
34	Nitrobenzene	mg/l		2	N.D.
35	Pentachlorophenol	mg/l		100	N.D.
36	Pyridine	mg/l		5	N.D.
37	Tetrachloroethylene	mg/l		0.7	N.D.
38	Trichlorethylene	mg/l		0.5	N.D.
39	Vinyl Chloride	mg/l		0.2	N.D.
40	2,4,5-TP (Silvex)	mg/l		1	N.D.
41	2,4,5-Dichlorophenoxyacetic acid (2,4-D)	mg/l		10	N.D.
42	Alachlor	mg/l	USEPA METHOD 1311	2.0	N.D.
43	Alpha HCH	mg/l		0.001	N.D.
44	Atrazine	mg/l		0.2	N.D.
45	Beta HCH	mg/l		0.004	N.D.
46	Butachlor	mg/l		12.5	N.D.
47	Chlordane	mg/l		0.03	N.D.
48	Chlorpyrifos	mg/l		9.0	N.D.
49	Delta HCH	mg/l		0.004	N.D.
50	Endosulfan (alpha+beta+Sulphate)	mg/l		0.04	N.D.
51	Endrin	mg/l		0.02	N.D.
52	Ethion	mg/l		0.3	N.D.
53	Heptachlor (& its Epoxide)	mg/l		0.008	N.D.
54	Isoproturon	mg/l		0.9	N.D.
55	Lindane	mg/l		0.4	N.D.
56	Malathion	mg/l		19	N.D.
57	Methoxychlor	mg/l		10	N.D.

REPORT NO.3554

TEST REPORT

TEST REPORT						
SR. NO.	PARAMETER	UNIT	METHOD OF TEST	LIMIT	RESULT	
58	Methyl parathion	mg/l		0.7	N.D.	
59	Monocrotophos	mg/l		0.1	N.D.	
60	Phorate	mg/l		0.2	N.D.	
61	Toxaphene	mg/l		0.5	N.D.	
62	Antimony	mg/l	Appendix II of Section 66261 of Title 22 of CCR	15	N.D.	
63	Beryllium	mg/l	Appendix II of Section 66261 of Title 22 of CCR	0.75	N.D.	
64	Chromium (VI)	mg/l	TCLP/STLC procedure in distilled water	5.0	N.D.	
65	Cobalt	mg/l		80.0	N.D.	
66	Copper	mg/l		25.0	N.D.	
67	Molybdenum	mg/l		350	N.D.	
68	Nickel	mg/l		20.0	N.D.	
69	Thallium	mg/l		7.0	N.D.	
70	Vanadium	mg/l		24.0	N.D.	
71	Zinc	mg/l		250	0.51	
72	Fluoride	mg/l		180.0	0.29	
73	Aldrin	mg/l		0.14	N.D.	
74	Dichlorodiphenyltrichloro ethane (DDT), Dichlorodiphenyldichloro ethylene (DDE), Dichlorodiphenyldichloro ethane (DDD)	mg/l		Appendix II of Section 66261 of Title 22 of CCR	0.1	N.D.
75	Dieldrin	mg/l		0.8	N.D.	
76	Kepone	mg/l		2.1	N.D.	
77	Mirex	mg/l		2.1	N.D.	
78	Polychlorinated biphenyls	mg/l		5.0	N.D.	
79	Dioxin (2,3,7,8-TCDD)	mg/l		0.001	N.D.	
Class B						
B1	Asbestos	mg/kg	TTLC	10000	N.D.	
B2	Total Petroleum Hydrocarbons (TPH) (C5-C36)	mg/kg	-	5,000	N.D.	
Class C						
1.	Acid Amides	mg/l	GCMS/MS	Absent	N.D.	
2.	Acid anhydrides	mg/l		Absent	N.D.	
3	Amines	mg/l		Absent	N.D.	

REPORT NO.3554

TEST REPORT

SR. NO.	PARAMETER	UNIT	METHOD OF TEST	LIMIT	RESULT
4	Anthracene	mg/l	GCMS/MS	Absent	N.D.
5	Aromatic compound other than those listed in Class A	mg/l	GCMS/MS	Absent	N.D.
6	Bromates, (hypo-Bromites)	mg/l	IC	Absent	N.D.
7	Chlorates (hypo-chlorites)	mg/l	IC	Absent	N.D.
8	Carbonyl	mg/l	EPA	Absent	N.D.
9	Ferro-silicate and alloys	mg/l		Absent	N.D.
10	Halogen-Containing compounds which produce acidic vapours on contact with humid air or water e.g., silicon tetrachloride, titanium tetrachloride	mg/l		Absent	N.D.
11	Halogen-silanes	mg/l	GCMS/MS	Absent	N.D.
12	Halogenated Aliphatic Compound Hydrazine (s)	mg/l		Absent	N.D.
13	Hydrazine(s)	mg/l		Absent	N.D.
14	Hydrides	mg/l	EPA	Absent	N.D.
15	Inorganic Acids	mg/l		Absent	N.D.
16	Inorganic Peroxide	mg/l		Absent	N.D.
17	Inorganic Tin Compound	mg/l		Absent	N.D.
18	Iodates	mg/l		Absent	N.D.
19	(Iso- and thio-) Cyanates	mg/l		Absent	N.D.
20	Manganese-silicate	mg/l	By Calculation	Absent	N.D.
21	Mercaptans	mg/l	EPA	Absent	N.D.
22	Metal Carbonyls	mg/l	By Calculation	Absent	N.D.
23	Metal hydrogen sulphate	mg/l	EPA	Absent	N.D.
24	Nitrides	mg/l	EPA	Absent	N.D.
25	Nitriles	mg/l	EPA	Absent	N.D.
26	Organic azo and azoxy Compounds	mg/l	GCMS/MS	Absent	N.D.
27	Organic Peroxide	mg/l	GCMS/MS	Absent	N.D.
28	Organic Oxygen Compounds	mg/l	EPA	Absent	N.D.
29	Organic Sulphur Compounds	mg/l		Absent	N.D.
30	Organic-Tin Compounds	mg/l		Absent	N.D.
31	Organic nitro- and nitroso compounds	mg/l	GCMS/MS	Absent	N.D.
32	Oxides and hydroxide	mg/l	EPA	Absent	N.D.

REPORT NO.3554

TEST REPORT

SR. NO.	PARAMETER	UNIT	METHOD OF TEST	LIMIT	RESULT
	Except those of hydrogen, carbon silicon, iron, aluminum, Titanium, Manganese, magnesium, calcium				
33	Phenanthrene	mg/l	GCMS/MS	Absent	N.D.
34	Phenolic Compounds	mg/l		Absent	N.D.
35	Phosphate compound except those of hydrogen, carbon, silicon, iron, aluminum, titanium, manganese, Magnesium, calcium	mg/l	EPA	Absent	N.D.
36	Salts of pre-acids	mg/l		Absent	N.D.
37	Total Sulphur	mg/l		Absent	N.D.
38	Tungsten Compounds	mg/l		Absent	N.D.
39	Tellurium and tellurium compounds	mg/l		Absent	N.D.
40	White and Red Phosphorus	mg/l		Absent	N.D.
41	2-Acetylaminofluorene	mg/l		Absent	N.D.
42	4-Aminodiphenyl	mg/l	GCMS/MS	Absent	N.D.
43	Benzidine and its salts	mg/l	EPA	Absent	N.D.
44	Bis (Chloromethyl) ether	mg/l	EPA	Absent	N.D.
45	Methyl Chloromethyl ether	mg/l		Absent	N.D.
46	1,2-Dibromo-03-chloropropane	mg/l		Absent	N.D.
47	3,3'-Dichlorobenzidine and salts	mg/l	GCMS/MS	Absent	N.D.
48	4-Dimethylaminoazobenzene	mg/l		Absent	N.D.
49	4-Nitrobiphenyl	mg/l		Absent	N.D.
50	Beta-Propiolactone	mg/l		Absent	N.D.

REMARKS: RESULTS ARE AS ABOVE

Terms & conditions

- > The report for publication, arbitration or as legal evidence is forbidden.
- > Test sample will be retained for 07 days after test report unless otherwise agreed with customer.
- > This is for information as the party has asked for above test only

R. B. Mehta
07/10/2022
REVIEWED BY



For ULTIMATE ENVIROLYTICAL SOLUTIONS

Subhajeet
07/10/2022
AUTHORIZED SIGNATORY

-----End of the test report-----

Name & Address Of The Customer To, M/s Jindal Steel & Power Limited, PO Box. No. 16, Kharsia Road, Raigarh - 496001		REPORT NO	UES/TR/22-23/3553	
		LAB REF NO	UES/22-23/MISC/8837	
		DATE OF SAMPLING	01/10/2022	
		DATE OF RECEIPT	03/10/2022	
		DATE OF REPORT	07/10/2022	
		DATE OF ANALYSIS	Start: 03/10/2022	End: 07/10/2022
SAMPLE DETAILS				
CUSTOMER SAMPLE ID	OILY-SLUDGE	CUSTOMER REF. NO. & DATE	4511523145. Dated 05.09.2022	
SAMPLE TYPE	HAZARDOUS WASTE	SAMPLE CONDITION AT RECEIPT	OK	
PACKING OF SAMPLE	PLASTIC BOTTLE	SAMPLE COLLECTED BY	CUSTOMER	
OTHER DETAILS	SEALED	QUANTITY RECEIVED	APPROX 1 KG.	

REPORT NO. 3553

TEST REPORT

SR. NO.	PARAMETER	UNIT	METHOD OF TEST	LIMIT	RESULT
Class-A					
1	Arsenic (as As)	mg/l	USEPA METHOD 1311	5	N.D.
2	Barium (as Ba)	mg/l		100	N.D.
3	Cadmium	mg/l		1	N.D.
4	Chromium & Chromium (III) Compound	mg/l		5	N.D.
5	Lead (as Pb)	mg/l		5	N.D.
6	Manganese (as Mn)	mg/l		10	N.D.
7	Mercury (as Hg)	mg/l		0.2	N.D.
8	Selenium	mg/l		1	N.D.
9	Silver	mg/l		5	N.D.
10	Ammonia	mg/l	TCLP/STLC procedure in distilled water	50	N.D.
11	Cyanide	mg/l	TCLP/STLC procedure in distilled water	20	N.D.
12	Nitrate (as nitrate nitrogen)	mg/l	USEPA METHOD 1311	1000	N.D.
13	Sulphate (as H ₂ S)	mg/l		5.0	N.D.
14	1,1-Dichloroethylene	mg/l		0.7	N.D.
15	1,2-Dichloroethane	mg/l		0.5	N.D.
16	1,4-Dichlorobenzene	mg/l	USEPA METHOD 1311	7.5	N.D.
17	2,4,5-Trichlorophenol	mg/l		400	N.D.
18	2,4,6-Trichlorophenol	mg/l		2	N.D.
19	2,4-Dinitrotoluene	mg/l		0.13	N.D.
20	Benzene	mg/l		0.5	N.D.
21	Benzo (a) Pyrene	mg/l		0.07	N.D.
22	Bromodichloromethane	mg/l		6.0	N.D.

REPORT NO. 3553

TEST REPORT

SR. NO.	PARAMETER	UNIT	METHOD OF TEST	LIMIT	RESULT
23	Bromoform	mg/l	USEPA METHOD 1311	10.0	N.D.
24	Carbon tetrachloride	mg/l		0.5	N.D.
25	Chlorobenzene	mg/l		100.0	N.D.
26	Chloroform	mg/l		6.0	N.D.
27	Cresol (ortho+meta+para)	mg/l		200.0	N.D.
28	Dibromochloromethane	mg/l		10.0	N.D.
29	Hexachlorobenzene	mg/l		0.13	N.D.
30	Hexachlorobutadiene	mg/l		0.5	N.D.
31	Hexachloroethane	mg/l		3	N.D.
32	Methyl ethyl ketone	mg/l		200.0	N.D.
33	Naphthalene	mg/l		5.0	N.D.
34	Nitrobenzene	mg/l		2	N.D.
35	Pentachlorophenol	mg/l		100	N.D.
36	Pyridine	mg/l		5	N.D.
37	Tetrachloroethylene	mg/l		0.7	N.D.
38	Trichlorethylene	mg/l		0.5	N.D.
39	Vinyl Chloride	mg/l		0.2	N.D.
40	2,4,5-TP (Silvex)	mg/l		1	N.D.
41	2,4,5-Dichlorophenoxyacetic acid (2,4-D)	mg/l		10	N.D.
42	Alachlor	mg/l	USEPA METHOD 1311	2.0	N.D.
43	Alpha HCH	mg/l		0.001	N.D.
44	Atrazine	mg/l		0.2	N.D.
45	Beta HCH	mg/l		0.004	N.D.
46	Butachlor	mg/l		12.5	N.D.
47	Chlordane	mg/l		0.03	N.D.
48	Chlorpyriphos	mg/l		9.0	N.D.
49	Delta HCH	mg/l		0.004	N.D.
50	Endosulfan (alpha+beta+Sulphate)	mg/l		0.04	N.D.
51	Endrin	mg/l		0.02	N.D.
52	Ethion	mg/l		0.3	N.D.
53	Heptachlor (&its Epoxide)	mg/l		0.008	N.D.
54	Isoproturon	mg/l		0.9	N.D.
55	Lindane	mg/l		0.4	N.D.
56	Malathion	mg/l		19	N.D.
57	Methoxychlor	mg/l		10	N.D.
58	Methyl parathion	mg/l		0.7	N.D.
59	Monocrotophos	mg/l		0.1	N.D.

REPORT NO. 3553

TEST REPORT

SR. NO.	PARAMETER	UNIT	METHOD OF TEST	LIMIT	RESULT
60	Phorate	mg/l		0.2	N.D.
61	Toxaphene	mg/l		0.5	N.D.
62	Antimony	mg/l	Appendix II of Section 66261 of Title 22 of CCR	15	N.D.
63	Beryllium	mg/l	Appendix II of Section 66261 of Title 22 of CCR	0.75	N.D.
64	Chromium (VI)	mg/l	TCLP/STLC procedure in distilled water	5.0	N.D.
65	Cobalt	mg/l		80.0	N.D.
66	Copper	mg/l		25.0	N.D.
67	Molybdenum	mg/l		350	N.D.
68	Nickel	mg/l		20.0	N.D.
69	Thallium	mg/l		7.0	N.D.
70	Vanadium	mg/l		24.0	N.D.
71	Zinc	mg/l		250	0.40
72	Fluoride	mg/l		180.0	0.27
73	Aldrin	mg/l		0.14	N.D.
74	Dichlorodiphenyltrichloro ethane (DDT), Dichlorodiphenyldichloro ethylene (DDE), Dichlorodiphenyldichloro ethane (DDD)	mg/l		Appendix II of Section 66261 of Title 22 of CCR	0.1
75	Dieldrin	mg/l		0.8	N.D.
76	Kepone	mg/l		2.1	N.D.
77	Mirex	mg/l		2.1	N.D.
78	Polychlorinated biphenyls	mg/l		5.0	N.D.
79	Dioxin (2,3,7,8-TCDD)	mg/l		0.001	N.D.
Class B					
B1	Asbestos	mg/kg	TTLC	10000	N.D.
B2	Total Petroleum Hydrocarbons (TPH) (C5-C36)	mg/kg	-	5,000	N.D.
Class C					
1.	Acid Amides	mg/l	GCMS/MS	Absent	N.D.
2.	Acid anhydrides	mg/l		Absent	N.D.
3	Amines	mg/l		Absent	N.D.
4	Anthracene	mg/l	GCMS/MS	Absent	N.D.
5	Aromatic compound other than those listed in	mg/l	GCMS/MS	Absent	N.D.

REPORT NO. 3553

TEST REPORT

SR. NO.	PARAMETER	UNIT	METHOD OF TEST	LIMIT	RESULT
	Class A				
6	Bromates, (hypo-Bromites)	mg/l	IC	Absent	N.D.
7	Chlorates (hypo-chlorites)	mg/l	IC	Absent	N.D.
8	Carbonyl	mg/l	EPA	Absent	N.D.
9	Ferro-silicate and alloys	mg/l		Absent	N.D.
10	Halogen-Containing compounds which produce acidic vapours on contact with humid air or water e.g., silicon tetrachloride, titanium tetrachloride	mg/l		Absent	N.D.
11	Halogen-silanes	mg/l	GCMS/MS	Absent	N.D.
12	Halogenated Aliphatic Compound Hydrazine (s)	mg/l		Absent	N.D.
13	Hydrazine(s)	mg/l		Absent	N.D.
14	Hydrides	mg/l	EPA	Absent	N.D.
15	Inorganic Acids	mg/l		Absent	N.D.
16	Inorganic Peroxide	mg/l		Absent	N.D.
17	Inorganic Tin Compound	mg/l		Absent	N.D.
18	Iodates	mg/l		Absent	N.D.
19	(Iso- and thio-) Cyanates	mg/l		Absent	N.D.
20	Manganese-silicate	mg/l	By Calculation	Absent	N.D.
21	Mercaptans	mg/l	EPA	Absent	N.D.
22	Metal Carbonyls	mg/l	By Calculation	Absent	N.D.
23	Metal hydrogen sulphate	mg/l	EPA	Absent	N.D.
24	Nitrides	mg/l	EPA	Absent	N.D.
25	Nitriles	mg/l	EPA	Absent	N.D.
26	Organic azo and azoxy Compounds	mg/l	GCMS/MS	Absent	N.D.
27	Organic Peroxide	mg/l	GCMS/MS	Absent	N.D.
28	Organic Oxygen Compounds	mg/l	EPA	Absent	N.D.
29	Organic Sulphur Compounds	mg/l		Absent	N.D.
30	Organic-Tin Compounds	mg/l		Absent	N.D.
31	Organic nitro- and nitroso compounds	mg/l	GCMS/MS	Absent	N.D.
32	Oxides and hydroxide Except those of hydrogen, carbon silicon, iron, aluminum,	mg/l	EPA	Absent	N.D.

REPORT NO. 3553

TEST REPORT

SR. NO.	PARAMETER	UNIT	METHOD OF TEST	LIMIT	RESULT
	Titanium, Manganese, magnesium, calcium				
33	Phenanthrene	mg/l	GCMS/MS	Absent	N.D.
34	Phenolic Compounds	mg/l		Absent	N.D.
35	Phosphate compound except those of hydrogen, carbon, silicon, iron, aluminum, titanium, manganese, Magnesium, calcium	mg/l	EPA	Absent	N.D.
36	Salts of pre-acids	mg/l		Absent	N.D.
37	Total Sulphur	mg/l		Absent	N.D.
38	Tungsten Compounds	mg/l		Absent	N.D.
39	Tellurium and tellurium compounds	mg/l		Absent	N.D.
40	White and Red Phosphorus	mg/l		Absent	N.D.
41	2-Acetylaminofluorene	mg/l		Absent	N.D.
42	4-Aminodiphenyl	mg/l	GCMS/MS	Absent	N.D.
43	Benzidine and its salts	mg/l	EPA	Absent	N.D.
44	Bis (Chloromethyl) ether	mg/l	EPA	Absent	N.D.
45	Methyl Chloromethyl ether	mg/l	GCMS/MS	Absent	N.D.
46	1,2-Dibromo-03-chloropropane	mg/l		Absent	N.D.
47	3,3'-Dichlorobenzidine and salts	mg/l		Absent	N.D.
48	4-Dimethylaminoazobenzene	mg/l		Absent	N.D.
49	4-Nitrobiphenyl	mg/l		Absent	N.D.
50	Beta-Propiolactone	mg/l		Absent	N.D.

REMARKS: RESULTS ARE AS ABOVE

Terms & conditions

- > The report for publication, arbitration or as legal dispute is forbidden.
- > Test sample will be retained for 07 days after issue of test report unless otherwise agreed with customer.
- > This is for information as the party has asked for (s) only

 07/10/2022 REVIEWED BY		For ULTIMATE ENVIROLYTICAL SOLUTIONS  07/10/2022 AUTHORIZED SIGNATORY
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-----End of the test report-----

Recognized by Ministry of Environment Forest and Climate Change under EP act 1996

Name & Address Of The Customer TO, M/s Jindal Steel & Power Limited, PO Box. No. 16, Kharsia Road, Raigarh - 496001		REPORT NO		UES/TR/22-23/3552	
		LAB REF NO		UES/22-23/MISC/8836	
		DATE OF SAMPLING		01/10/2022	
		DATE OF RECEIPT		03/10/2022	
		DATE OF REPORT		07/10/2022	
		DATE OF ANALYSIS		Start: 03/10/2022	End: 07/10/2022
SAMPLE DETAILS					
CUSTOMER SAMPLE ID	PGP-TAR	CUSTOMER REF. NO. & DATE		4511523145. Dated 05.09.2022	
SAMPLE TYPE	HAZARDOUS WASTE	SAMPLE CONDITION AT RECEIPT		OK	
PACKING OF SAMPLE	PLASTIC BOTTLE	SAMPLE COLLECTED BY		CUSTOMER	
OTHER DETAILS	SEALED	QUANTITY RECEIVED		APPROX 1 KG.	

REPORT NO. 3552

TEST REPORT

SR. NO.	PARAMETER	UNIT	METHOD OF TEST	LIMIT	RESULT
Class-A					
1	Arsenic (as As)	mg/l	USEPA METHOD 1311	5	N.D.
2	Barium (as Ba)	mg/l		100	N.D.
3	Cadmium	mg/l		1	N.D.
4	Chromium & Chromium (III) Compound	mg/l		5	N.D.
5	Lead (as Pb)	mg/l		5	N.D.
6	Manganese (as Mn)	mg/l		10	N.D.
7	Mercury (as Hg)	mg/l		0.2	N.D.
8	Selenium	mg/l		1	N.D.
9	Silver	mg/l		5	N.D.
10	Ammonia	mg/l	TCLP/STLC procedure in distilled water	50	N.D.
11	Cyanide	mg/l	TCLP/STLC procedure in distilled water	20	N.D.
12	Nitrate (as nitrate nitrogen)	mg/l	USEPA METHOD 1311	1000	N.D.
13	Sulphate (as H ₂ S)	mg/l		5.0	N.D.
14	1,1-Dichloroethylene	mg/l		0.7	N.D.
15	1,2-Dichloroethane	mg/l	USEPA METHOD 1311	0.5	N.D.
16	1,4-Dichlorobenzene	mg/l		7.5	N.D.
17	2,4,5-Trichlorophenol	mg/l		400	N.D.
18	2,4,6-Trichlorophenol	mg/l		2	N.D.
19	2,4-Dinitrotoluene	mg/l		0.13	N.D.
20	Benzene	mg/l		0.5	N.D.
21	Benzo (a) Pyrene	mg/l		0.07	N.D.
22	Bromodichloromethane	mg/l		6.0	N.D.
23	Bromoform	mg/l		10.0	N.D.
24	Carbon tetrachloride	mg/l		0.5	N.D.

REPORT NO. 3552

TEST REPORT

SR. NO.	PARAMETER	UNIT	METHOD OF TEST	LIMIT	RESULT
25	Chlorobenzene	mg/l	USEPA METHOD 1311	100.0	N.D.
26	Chloroform	mg/l		6.0	N.D.
27	Cresol (ortho+meta+para)	mg/l		200.0	N.D.
28	Dibromochloromethane	mg/l		10.0	N.D.
29	Hexachlorobenzene	mg/l		0.13	N.D.
30	Hexachlorobutadiene	mg/l		0.5	N.D.
31	Hexachloroethane	mg/l		3	N.D.
32	Methyl ethyl ketone	mg/l		200.0	N.D.
33	Naphthalene	mg/l		5.0	N.D.
34	Nitrobenzene	mg/l		2	N.D.
35	Pentachlorophenol	mg/l		100	N.D.
36	Pyridine	mg/l		5	N.D.
37	Tetrachloroethylene	mg/l		0.7	N.D.
38	Trichlorethylene	mg/l		0.5	N.D.
39	Vinyl Chloride	mg/l		0.2	N.D.
40	2,4,5-TP (Silvex)	mg/l		1	N.D.
41	2,4,5-Dichlorophenoxyacetic acid (2,4-D)	mg/l		10	N.D.
42	Alachlor	mg/l	USEPA METHOD 1311	2.0	N.D.
43	Alpha HCH	mg/l		0.001	N.D.
44	Atrazine	mg/l		0.2	N.D.
45	Beta HCH	mg/l		0.004	N.D.
46	Butachlor	mg/l		12.5	N.D.
47	Chlordane	mg/l		0.03	N.D.
48	Chlorpyrifos	mg/l		9.0	N.D.
49	Delta HCH	mg/l		0.004	N.D.
50	Endosulfan (alpha+beta+Sulphate)	mg/l		0.04	N.D.
51	Endrin	mg/l		0.02	N.D.
52	Ethion	mg/l		0.3	N.D.
53	Heptachlor (&its Epoxide)	mg/l		0.008	N.D.
54	Isoproturon	mg/l		0.9	N.D.
55	Lindane	mg/l		0.4	N.D.
56	Malathion	mg/l		19	N.D.
57	Methoxychlor	mg/l		10	N.D.
58	Methyl parathion	mg/l		0.7	N.D.
59	Monocrotophos	mg/l		0.1	N.D.
60	Phorate	mg/l		0.2	N.D.
61	Toxaphene	mg/l		0.5	N.D.
62	Antimony	mg/l	Appendix II of Section 66261 of Title 22 of CCR	15	N.D.

Recognized by Ministry of Environment Forest and Climate Change under EP act 1996

REPORT NO. 3552

TEST REPORT

SR. NO.	PARAMETER	UNIT	METHOD OF TEST	LIMIT	RESULT
63	Beryllium	mg/l	Appendix II of Section 66261 of Title 22 of CCR	0.75	N.D.
64	Chromium (VI)	mg/l	TCLP/STLC procedure in distilled water	5.0	N.D.
65	Cobalt	mg/l		80.0	N.D.
66	Copper	mg/l		25.0	0.056
67	Molybdenum	mg/l		350	N.D.
68	Nickel	mg/l		20.0	N.D.
69	Thallium	mg/l		7.0	N.D.
70	Vanadium	mg/l		24.0	N.D.
71	Zinc	mg/l		250	0.452
72	Fluoride	mg/l		180.0	0.84
73	Aldrin	mg/l		0.14	N.D.
74	Dichlorodiphenyltrichloro ethane (DDT), Dichlorodiphenyldichloro ethylene (DDE), Dichlorodiphenyldichloro ethane (DDD)	mg/l		Appendix II of Section 66261 of Title 22 of CCR	0.1
75	Dieldrin	mg/l		0.8	N.D.
76	Kepone	mg/l		2.1	N.D.
77	Mirex	mg/l		2.1	N.D.
78	Polychlorinated biphenyls	mg/l		5.0	N.D.
79	Dioxin (2,3,7,8-TCDD)	mg/l		0.001	N.D.
Class B					
B1	Asbestos	mg/kg	TTLC	10000	N.D.
B2	Total Petroleum Hydrocarbons (TPH) (C5-C36)	mg/kg	-	5,000	N.D.
Class C					
1.	Acid Amides	mg/l	GCMS/MS	Absent	N.D.
2.	Acid anhydrides	mg/l		Absent	N.D.
3	Amines	mg/l		Absent	N.D.
4	Anthracene	mg/l	GCMS/MS	Absent	N.D.
5	Aromatic compound other than those listed in Class A	mg/l	GCMS/MS	Absent	N.D.
6	Bromates, (hypo-Bromites)	mg/l	IC	Absent	N.D.
7	Chlorates (hypo-chlorites)	mg/l	IC	Absent	N.D.
8	Carbonyl	mg/l	EPA	Absent	N.D.
9	Ferro-silicate and alloys	mg/l		Absent	N.D.
10	Halogen-Containing	mg/l		Absent	N.D.

Recognized by Ministry of Environment Forest and Climate Change under EP act 1996

REPORT NO. 3552

TEST REPORT

SR. NO.	PARAMETER	UNIT	METHOD OF TEST	LIMIT	RESULT
	compounds which produce acidic vapours on contact with humid air or water e.g., silicon tetrachloride, titanium tetrachloride		EPA		
11	Halogen-silanes	mg/l		Absent	N.D.
12	Halogenated Aliphatic Compound Hydrazine (s)	mg/l	GCMS/MS	Absent	N.D.
13	Hydrazine(s)	mg/l		Absent	N.D.
14	Hydrides	mg/l		Absent	N.D.
15	Inorganic Acids	mg/l		Absent	N.D.
16	Inorganic Peroxide	mg/l	EPA	Absent	N.D.
17	Inorganic Tin Compound	mg/l		Absent	N.D.
18	Iodates	mg/l		Absent	N.D.
19	(Iso- and thio-) Cyanates	mg/l		Absent	N.D.
20	Manganese-silicate	mg/l	By Calculation	Absent	N.D.
21	Mercaptans	mg/l	EPA	Absent	N.D.
22	Metal Carbonyls	mg/l	By Calculation	Absent	N.D.
23	Metal hydrogen sulphate	mg/l	EPA	Absent	N.D.
24	Nitrides	mg/l	EPA	Absent	N.D.
25	Nitriles	mg/l	EPA	Absent	N.D.
26	Organic azo and azoxy Compounds	mg/l	GCMS/MS	Absent	N.D.
27	Organic Peroxide	mg/l	GCMS/MS	Absent	N.D.
28	Organic Oxygen Compounds	mg/l		Absent	N.D.
29	Organic Sulphur Compounds	mg/l	EPA	Absent	N.D.
30	Organic-Tin Compounds	mg/l		Absent	N.D.
31	Organic nitro- and nitroso compounds	mg/l	GCMS/MS	Absent	N.D.
32	Oxides and hydroxide Except those of hydrogen, carbon silicon, iron, aluminum, Titanium, Manganese, magnesium, calcium	mg/l	EPA	Absent	N.D.
33	Phenanthrene	mg/l	GCMS/MS	Absent	N.D.
34	Phenolic Compounds	mg/l		Absent	N.D.
35	Phosphate compound except those of hydrogen, carbon, silicon, iron, aluminum, titanium, manganese, Magnesium, calcium	mg/l	EPA	Absent	N.D.

Recognized by Ministry of Environment Forest and Climate Change under EP act 1996

REPORT NO. 3552

TEST REPORT

SR. NO.	PARAMETER	UNIT	METHOD OF TEST	LIMIT	RESULT
36	Salts of pre-acids	mg/l	EPA	Absent	N.D.
37	Total Sulphur	mg/l		Absent	N.D.
38	Tungsten Compounds	mg/l		Absent	N.D.
39	Tellurium and tellurium compounds	mg/l		Absent	N.D.
40	White and Red Phosphorus	mg/l		Absent	N.D.
41	2-Acetylaminofluorene	mg/l	GCMS/MS	Absent	N.D.
42	4-Aminodiphenyl	mg/l		Absent	N.D.
43	Benzidine and its salts	mg/l		Absent	N.D.
44	Bis (Chloromethyl) ether	mg/l		Absent	N.D.
45	Methyl Chloromethyl ether	mg/l		Absent	N.D.
46	1,2-Dibromo-03-chloropropane	mg/l	GCMS/MS	Absent	N.D.
47	3,3'-Dichlorobenzidine and salts	mg/l		Absent	N.D.
48	4-Dimethylaminoazobenzene	mg/l		Absent	N.D.
49	4-Nitrobiphenyl	mg/l		Absent	N.D.
50	Beta-Propiolactone	mg/l		Absent	N.D.

REMARKS: RESULTS ARE AS ABOVE

Terms & conditions

- > The report for publication, arbitration or as legal dispute is forbidden.
- > Test sample will be retained for 07 days after issue of test report unless otherwise agreed with customer.
- > This is for information as the party has asked for above test(s) only

R. D. S.
07/10/2022

REVIEWED BY



For ULTIMATE ENVIROLYTICAL SOLUTIONS

Subhajeet
07/10/2022

AUTHORIZED SIGNATORY

-----End of the test report-----

Name & Address Of The Customer To, M/s Jindal Steel & Power Limited, PO Box. No. 16, Kharsia Road, Raigarh - 496001		REPORT NO	UES/TR/22-23/3555	
		LAB REF NO	UES/22-23/MISC/8839	
		DATE OF SAMPLING	01/10/2022	
		DATE OF RECEIPT	03/10/2022	
		DATE OF REPORT	07/10/2022	
		DATE OF ANALYSIS	Start: 03/10/2022	End: 07/10/2022
SAMPLE DETAILS				
CUSTOMER SAMPLE ID	COTTON RAGS	CUSTOMER REF. NO. & DATE	4511523145. Dated 05.09.2022	
SAMPLE TYPE	HAZARDOUS WASTE	SAMPLE CONDITION AT RECEIPT	OK	
PACKING OF SAMPLE	PLASTIC BOTTLE	SAMPLE COLLECTED BY	CUSTOMER	
OTHER DETAILS	SEALED	QUANTITY RECEIVED	APPROX 1 KG.	

REPORT NO.3555

TEST REPORT

SR. NO.	PARAMETER	UNIT	METHOD OF TEST	LIMIT	RESULT
Class-A					
1	Arsenic (as As)	mg/l	USEPA METHOD 1311	5	N.D.
2	Barium (as Ba)	mg/l		100	N.D.
3	Cadmium	mg/l		1	N.D.
4	Chromium & Chromium (III) Compound	mg/l		5	N.D.
5	Lead (as Pb)	mg/l		5	N.D.
6	Manganese (as Mn)	mg/l		10	N.D.
7	Mercury (as Hg)	mg/l		0.2	N.D.
8	Selenium	mg/l		1	N.D.
9	Silver	mg/l		5	N.D.
10	Ammonia	mg/l	TCLP/STLC procedure in distilled water	50	N.D.
11	Cyanide	mg/l	TCLP/STLC procedure in distilled water	20	N.D.
12	Nitrate (as nitrate nitrogen)	mg/l	USEPA METHOD 1311	1000	N.D.
13	Sulphate (as H ₂ S)	mg/l		5.0	N.D.
14	1,1-Dichloroethylene	mg/l		0.7	N.D.
15	1,2-Dichloroethane	mg/l		0.5	N.D.
16	1,4-Dichlorobenzene	mg/l	USEPA METHOD 1311	7.5	N.D.
17	2,4,5-Trichlorophenol	mg/l		400	N.D.
18	2,4,6-Trichlorophenol	mg/l		2	N.D.
19	2,4-Dinitrotoluene	mg/l		0.13	N.D.
20	Benzene	mg/l		0.5	N.D.
21	Benzo (a) Pyrene	mg/l		0.07	N.D.
22	Bromodichloromethane	mg/l		6.0	N.D.
23	Bromoform	mg/l		10.0	N.D.

REPORT NO.3555

TEST REPORT

SR. NO.	PARAMETER	UNIT	METHOD OF TEST	LIMIT	RESULT
24	Carbon tetrachloride	mg/l	USEPA METHOD 1311	0.5	N.D.
25	Chlorobenzene	mg/l		100.0	N.D.
26	Chloroform	mg/l		6.0	N.D.
27	Cresol (ortho+meta+para)	mg/l		200.0	N.D.
28	Dibromochloromethane	mg/l		10.0	N.D.
29	Hexachlorobenzene	mg/l		0.13	N.D.
30	Hexachlorobutadiene	mg/l		0.5	N.D.
31	Hexachloroethane	mg/l		3	N.D.
32	Methyl ethyl ketone	mg/l		200.0	N.D.
33	Naphthalene	mg/l		5.0	N.D.
34	Nitrobenzene	mg/l		2	N.D.
35	Pentachlorophenol	mg/l		100	N.D.
36	Pyridine	mg/l		5	N.D.
37	Tetrachloroethylene	mg/l		0.7	N.D.
38	Trichlorethylene	mg/l		0.5	N.D.
39	Vinyl Chloride	mg/l		0.2	N.D.
40	2,4,5-TP (Silvex)	mg/l		1	N.D.
41	2,4,5-Dichlorophenoxyacetic acid (2,4-D)	mg/l		10	N.D.
42	Alachlor	mg/l	USEPA METHOD 1311	2.0	N.D.
43	Alpha HCH	mg/l		0.001	N.D.
44	Atrazine	mg/l		0.2	N.D.
45	Beta HCH	mg/l		0.004	N.D.
46	Butachlor	mg/l		12.5	N.D.
47	Chlordane	mg/l		0.03	N.D.
48	Chlorpyrifos	mg/l		9.0	N.D.
49	Delta HCH	mg/l		0.004	N.D.
50	Endosulfan (alpha+beta+Sulphate)	mg/l		0.04	N.D.
51	Endrin	mg/l		0.02	N.D.
52	Ethion	mg/l		0.3	N.D.
53	Heptachlor (&its Epoxide)	mg/l		0.008	N.D.
54	Isoproturon	mg/l		0.9	N.D.
55	Lindane	mg/l		0.4	N.D.
56	Malathion	mg/l		19	N.D.
57	Methoxychlor	mg/l		10	N.D.
58	Methyl parathion	mg/l		0.7	N.D.
59	Monocrotophos	mg/l		0.1	N.D.
60	Phorate	mg/l		0.2	N.D.
61	Toxaphene	mg/l		0.5	N.D.

REPORT NO.3555

TEST REPORT

SR. NO.	PARAMETER	UNIT	METHOD OF TEST	LIMIT	RESULT
62	Antimony	mg/l	Appendix II of Section 66261 of Title 22 of CCR	15	N.D.
63	Beryllium	mg/l	Appendix II of Section 66261 of Title 22 of CCR	0.75	N.D.
64	Chromium (VI)	mg/l	TCLP/STLC procedure in distilled water	5.0	N.D.
65	Cobalt	mg/l		80.0	N.D.
66	Copper	mg/l		25.0	N.D.
67	Molybdenum	mg/l		350	N.D.
68	Nickel	mg/l		20.0	N.D.
69	Thallium	mg/l		7.0	N.D.
70	Vanadium	mg/l		24.0	N.D.
71	Zinc	mg/l		250	0.41
72	Fluoride	mg/l		180.0	0.14
73	Aldrin	mg/l		0.14	N.D.
74	Dichlorodiphenyltrichloroethane (DDT), Dichlorodiphenyldichloroethylene (DDE), Dichlorodiphenyldichloroethane (DDD)	mg/l		Appendix II of Section 66261 of Title 22 of CCR	0.1
75	Dieldrin	mg/l		0.8	N.D.
76	Kepone	mg/l		2.1	N.D.
77	Mirex	mg/l		2.1	N.D.
78	Polychlorinated biphenyls	mg/l		5.0	N.D.
79	Dioxin (2,3,7,8-TCDD)	mg/l		0.001	N.D.
Class B					
B1	Asbestos	mg/kg	TTLC	10000	N.D.
B2	Total Petroleum Hydrocarbons (TPH) (C5-C36)	mg/kg	-	5,000	N.D.
Class C					
1.	Acid Amides	mg/l	GCMS/MS	Absent	N.D.
2.	Acid anhydrides	mg/l		Absent	N.D.
3	Amines	mg/l		Absent	N.D.
4	Anthracene	mg/l	GCMS/MS	Absent	N.D.
5	Aromatic compound other than those listed in Class A	mg/l	GCMS/MS	Absent	N.D.
6	Bromates, (hypo-Bromites)	mg/l	IC	Absent	N.D.
7	Chlorates (hypo-	mg/l	IC	Absent	N.D.

REPORT NO.3555

TEST REPORT

SR. NO.	PARAMETER	UNIT	METHOD OF TEST	LIMIT	RESULT
	chlorites)				
8	Carbonyl	mg/l	EPA	Absent	N.D.
9	Ferro-silicate and alloys	mg/l		Absent	N.D.
10	Halogen-Containing compounds which produce acidic vapours on contact with humid air or water e.g., silicon tetrachloride, titanium tetrachloride	mg/l		Absent	N.D.
11	Halogen-silanes	mg/l	GCMS/MS	Absent	N.D.
12	Halogenated Aliphatic Compound Hydrazine (s)	mg/l		Absent	N.D.
13	Hydrazine(s)	mg/l		Absent	N.D.
14	Hydrides	mg/l	EPA	Absent	N.D.
15	Inorganic Acids	mg/l		Absent	N.D.
16	Inorganic Peroxide	mg/l		Absent	N.D.
17	Inorganic Tin Compound	mg/l		Absent	N.D.
18	Iodates	mg/l		Absent	N.D.
19	(Iso- and thio-) Cyanates	mg/l		Absent	N.D.
20	Manganese-silicate	mg/l	By Calculation	Absent	N.D.
21	Mercaptans	mg/l	EPA	Absent	N.D.
22	Metal Carbonyls	mg/l	By Calculation	Absent	N.D.
23	Metal hydrogen sulphate	mg/l	EPA	Absent	N.D.
24	Nitrides	mg/l	EPA	Absent	N.D.
25	Nitriles	mg/l	EPA	Absent	N.D.
26	Organic azo and azoxy Compounds	mg/l	GCMS/MS	Absent	N.D.
27	Organic Peroxide	mg/l	GCMS/MS	Absent	N.D.
28	Organic Oxygen Compounds	mg/l	EPA	Absent	N.D.
29	Organic Sulphur Compounds	mg/l		Absent	N.D.
30	Organic-Tin Compounds	mg/l		Absent	N.D.
31	Organic nitro- and nitroso compounds	mg/l	GCMS/MS	Absent	N.D.
32	Oxides and hydroxide Except those of hydrogen, carbon silicon, iron, aluminum, Titanium, Manganese, magnesium, calcium	mg/l	EPA	Absent	N.D.
33	Phenanthrene	mg/l	GCMS/MS	Absent	N.D.
34	Phenolic Compounds	mg/l	EPA	Absent	N.D.

REPORT NO.3555

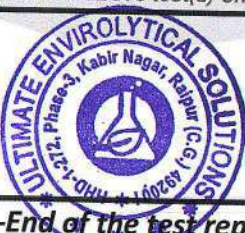
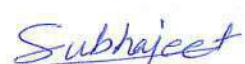
TEST REPORT

SR. NO.	PARAMETER	UNIT	METHOD OF TEST	LIMIT	RESULT
35	Phosphate compound except those of hydrogen, carbon, silicon, iron, aluminum, titanium, manganese, Magnesium, calcium	mg/l	EPA	Absent	N.D.
36	Salts of pre-acids	mg/l		Absent	N.D.
37	Total Sulphur	mg/l		Absent	N.D.
38	Tungsten Compounds	mg/l		Absent	N.D.
39	Tellurium and tellurium compounds	mg/l		Absent	N.D.
40	White and Red Phosphorus	mg/l		Absent	N.D.
41	2-Acetylaminofluorene	mg/l	GCMS/MS	Absent	N.D.
42	4-Aminodiphenyl	mg/l		Absent	N.D.
43	Benzidine and its salts	mg/l	EPA	Absent	N.D.
44	Bis (Chloromethyl) ether	mg/l	EPA	Absent	N.D.
45	Methyl Chloromethyl ether	mg/l	GCMS/MS	Absent	N.D.
46	1,2-Dibromo-03-chloropropane	mg/l		Absent	N.D.
47	3,3'-Dichlorobenzidine and salts	mg/l		Absent	N.D.
48	4-Dimethylaminoazobenzene	mg/l		Absent	N.D.
49	4-Nitrobiphenyl	mg/l		Absent	N.D.
50	Beta-Propiolactone	mg/l		Absent	N.D.

REMARKS: RESULTS ARE AS ABOVE

Terms & conditions

- > The report for publication, arbitration or as legal dispute is forbidden.
- > Test sample will be retained for 07 days after issue of test report unless otherwise agreed with customer.
- > This is for information as the party has asked for above test(s) only.

 07/10/2022 REVIEWED BY		For ULTIMATE ENVIROLYTICAL SOLUTIONS  AUTHORIZED SIGNATORY
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-----End of the test report-----

[illegible]

							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	Chlorpyrifos	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	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

[illegible]

A. Water Pollution Control Measures

At JSPL, 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 –

JSPL 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 JSPL. 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 JSPL 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%).



D. Hazardous Waste Management

Hazardous waste management practice at JSPL involves only collection, storage and disposal of used oil and oily sludge (Category 5.1 & 5.2), Tar (Category 13.3 & 13.4) and cotton rags containing oil (Category 33.2). After bulk collection, used oil and oily sludge are disposed-off to recyclers which are authorized by Ministry of Environment & Forests/ competent statutory bodies. Tar is collected from PGP tar storage tank and disposed-off to recyclers. Cotton rags/ wastes containing oil is collected in identified bins of concerned process areas and burnt in kiln/ furnace.

E. Greenery Development

JSPL has initiated large scale bio-diversified afforestation and horticulture activities. JSPL undertakes mass tree plantation every year. Company has done plantation not only in its complex of JSPL, 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 JSPL 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 –

JSPL 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 JSPL 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, JSPL 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 JSPL 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 JSPL 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 2023-24) –

1. CAAQMS: Out of total 4, 2 new CAAQMS have been replaced and remaining are being installed.
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