The Member Secretary,
Odisha State Pollution Control Board,
A/118, Nilakanthanagar, Unit-VIII,
Bhubaneswar – 751 012, Odisha.

TSK/Env/C-05I **53** */2024*
Sept 25, 2024

Dear Sir,

Sub: Environmental Statement for the Year 2023-24 for Integrated Steel Plant at Kalinganagar Industrial Complex, Tata Steel Limited.

We are enclosing the "Environmental Statement" duly filled in Form V, for the year 2023-2024 for Integrated Steel Plant at Kalinganagar Industrial Complex by Tata Steel for your kind consideration.

We trust that you will find the above in order.

Thanking you.

Yours faithfully,

For **Tata Steel Limited**

Head, Environment
Tata Steel Kalinganagar.

Encl: a/a.

Copy to: Regional Officer, OSPCB, Kalinganagar

ENVIRONMENTAL STATEMENT
FOR THE YEAR 2023-24

For

INTEGRATED STEEL PLANT OF TATA STEEL AT

KLAINGANAGAR INDUSTRIAL COMPLEX, ODISHA

ENVIRONMENTAL DEPARTMENT
TATA STEEL KALINGANAGAR
Kalinga Nagar Industrial Complex,
Duburi- 755026, Dist- Jajpur, Odisha

ENVIRONMENTAL STATEMENT FORM-V
(See rule 14)

Environmental Statement for the financial year 2023-24 ending with 31st March

Tata Steel Limited
8.0 MTPA Steel Plant at Kalinganagar Industrial Complex, Odisha
PART-A

i)	Name and address of the owner/ occupier of the industry, operation or process	:	Rajiv Kumar VP, Operations Tata Steel Limited, Block-2, General Admin office Kalinga Nagar Industrial Complex Duburi-755026 Orissa
ii)	Industry Category Primary/(STC code) Secondary (STC code)	:	Large Metallurgical Industry —
iii)	Production Capacity	:	8.0 MTPA Crude Steel
iv)	Year of Establishment	:	2016
v)	Date of Last Environmental /Audit Report submitted	:	20.09.2023

PART-B

WATER AND RAW MATERIAL CONSUMPTION

i) **Water Consumption in m^3/day**

Process : 20352
Cooling : 17323
Domestic : 5776

Name of the products	**Process water consumption per unit of products**	
	During the previous Financial Year 2022-2023	**During the Current Financial Year 2023-2024**
Crude Steel	3.32 cum/MT	2.87 cum/MT

ii) Raw material consumption:

Name of Raw Material	Name of the Products	Consumption of raw material per unit of output (MT/ TCS)	
		During the previous Financial Year 2022-2023	**During the Current Financial Year 2023-2024**
Coal	Crude Steel	0.62	0.61
Iron Ore		1.39	2.07
Limestone		0.38	0.38
Dolomite		0.02	0.02
Metal & Ferro Alloys		0.02	0.01

PART-C

POLLUTION DISCHARGED TO ENVIRONMENT/ UNIT OF OUTPUT (PARAMETERS AS SPECIFIED IN THE CONSENT ISSUED)

Pollutants	Quantity of pollutants discharged (mass/day)	Concentrations of pollutants in discharges (mass/volume)	Percentage of variation from prescribed standards with reasons*
	Kg/day	mg/Nm^3	
a) Water	No discharge of Process wastewater. CETP is in operation.		
b) Air			
1	Coke Oven Battery No.1		
PM	251.68	34.3	-31.40
2	Coke Oven Battery No. 1 De-dusting Chimney		
PM	51.02	7.6	-84.75
3	Coke Oven Battery No. 2		
PM	271.72	36.8	-26.43
4	Coke Oven Battery No. 2 De-dusting Chimney		
PM	50.91	7.6	-84.80
5	CPP Boiler-1		
PM	103.14	6.9	-86.15
SO_2	480.81	32.3	-94.62
NOx	442.64	29.7	-90.09
6	CPP Boiler-2		
PM	123.05	7.9	-84.12
SO_2	632.61	40.8	-93.20
NOx	343.80	22.2	-92.60
7	BF Cast House-1		
PM	667.42	34.3	-31.35
8	BF Cast House-2		
PM	663.64	34.7	-30.58
9	BF Stock House		
PM	612.81	29.7	-40.67
10	Blast Furnace Stove		
PM	145.78	7.8	-84.45
11	Lime Calcination Kiln-1		
PM	28.92	8.6	-94.28
12	Lime Calcination Kiln-2		
PM	33.28	9.0	-93.99
13	Sinter Plant Waste Gas Chimney		
PM	2206.17	43.2	-13.53
14	Sinter Plant De-dusting		
PM	521.91	27.3	-45.38
15	Stack attached to CDQ		
PM	153.55	29.0	-41.97
16	Stack attached to HSM Recuperator 1		
PM	47.02	7.2	-92.77
17	Stack attached to HSM Recuperator 2		
PM	55.13	8.4	-91.64
18	SMS		
PM	1881.21	32.5	-35.02

PART-D

HAZARDOUS WASTES

(**AS SPECIFIED UNDER HAZARDOUS WASTES (MANAGEMENT, HANDLING AND TRANS BOUNDARY MOVEMENT RULES, 2016)**

Hazardous Wastes	Total Quantity (Kg)	
	During the previous Financial Year 2022-2023	During the Current Financial Year 2023-2024
1. From Process		
Sludge and filters Contaminated with Oil (*Schedules-I Stream-3.3)*	Nil	Nil
Used or spent oil *(Schedules-I Stream-5.1)*	169960	89440
Wastes / Residues containing oil (Schedules-I Stream-5.2)	76240	186650
Used grease / Greased sludge *(Schedules-I Stream-5.2)*	119040	90540
Oil-soaked jute / cotton *(Schedules-I Stream-5.2)*	~ 10 MT (by Volume)	160.99
Acid from used Batteries *(Schedules-I Stream-9.3)*	Nil	Nil
Acid & Alkaline residues, spent acid and Alkali *(Schedules-I Stream-12.1 & 12.2)*	Nil	Nil
Coal Tar sludge (*Schedules-I Stream-13.4)*	305000	306260
Tar tank, Storage sludge / residues *(Schedules-I Stream-13.5)*	Nil	Nil
CO gas pipeline waste & residue from CO gas tap *(Schedules-I Stream-13.6)*	Nil	Nil
Cleaning solvent sludge *(Schedules-I Stream-20.4)*	Nil	Nil
Empty containers of hazardous chemical *(Schedules-I Stream-33.1)*	100	100
Exhaust air or gas cleaning residue *(Schedules-I Stream-35.1)*	Nil	Nil
Spent lon exchange resins *(Schedules-I Stream-35.2)*	Nil	Nil
Sludge from wastewater treatment *(Schedules-I Stream-35.3)*	360350	444210
Oil and grease skimming residue *Schedules-I Stream-35.4*	Nil	Nil
Waste cartridge from CETP, WWTP *Schedules-I Stream-36.2*	Nil	Nil
Evaporation residue from CETP *(Schedules-I Stream-37.3)*	Nil	Nil
Insulation Material *(Schedules-II Class-C)*	68250	65940

[#] Containers of oil/ grease - were used for storage of same material and the hazardous wastes (used oil/used grease/ waste oil etc.) were sold to authorised recyclers along with the containers.

PART-E
SOLID WASTE

Sl. No.	Solid waste	Total Quantity (Kg)	
		During the previous financial year 2022-23	During the current financial year 2023-24
a.	From process	1432297 MT of BF Slag 670678 MT of LD Slag	1428081 MT of BF Slag 696554 MT of LD Slag
b.	From Pollution Control facilities	26441 MT of Flue Dust	33119 MT of Flue Dust
c.	1) Quantity recycled/reutilised within the unit	**Utilised Inhouse** 28354 MT of Flue Dust 519135 MT of LD Slag 58842 MT of BF Slag	**Utilised Inhouse** 30583 MT of Flue Dust 466585 MT of LD Slag 170643 MT of BF Slag
	2) Sold	1390645 MT of BF Slag 152775 MT of LD Slag	1292510 MT of BF Slag 234299 MT of LD Slag
	3) Disposed	Nil	Nil

PART-F

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

Hazardous/ Solid Wastes	Characteristics	Method of disposal
Wastewater Sludge / Filter cake from CETP	Cr(T)- 99.69; Pb (T)- 10.44, Ni (T)-60.20; Zn(T)- 46.59, Cu(T)- 29.38 *(unit- mg/Kg)*	Disposed through CHWTSDF Sukinda
Coal Tar sludge	C-90-95; Moisture- 1.3, S- 0.3-0.7; CV-8800 Kcal/Kg, Sp. Gr. – 1.2, Ash- 0.04-0.05	Mixed with coal and used in coke plant.
LD Slag	CaO- 49.00; Fe_2O_3-32.95; SiO_2-10.44; MgO-2.09; P_2O_5-1.95; MnO-1.20; TiO_2-1.09; Al_2O_3-.73; Cr_2O_3-0.17; V_2O_5-0.16; SO_3-0.13; SrO-0.03; Nb_2O_5-0.02; K_2O-0.02; Na_2O- 0.02	• Metal recovery • Utilised in Sinter plant. • Non-metallic portion used in construction and low-lying area filling inside premises.

BF Slag (Solid Waste)	SiO2-33.71; CaO-25.09; Fe2O3- 5.06; Al2O3-14.84; MgO-6.60; TiO2-1.18; K2O-1.02; SO3-0.79; MnO-0.75; Na2O-0.33; Cr2O3-0.17; BaO-0.15; P2O5-0.11; ZrO2-0.07; SrO-0.06; ZnO-0.02; PbO-0.01; Cl-0.01; Y2O3-0.01; NiO-0.01; Nb2O5-0.01; Rb2O-0.01; CuO-0.01	Sold to Cement industries
Mill Scale (Solid Waste)	Fe(T)- 72-75; MnO- <0.5, SiO2- < 0.5; Al_2O_3 - <0.5; MgO- 0.1; Oil- 10-12	Used in Sinter Plant
Lime Fines (Solid Waste)	CaO- 66.5; Al2O3- 0.26, SiO2- 1.53; MgO-5.68	Used in Sinter Plant

PART-G

Impact of the pollution control measures taken on conservation of natural resources and consequently on the cost of production.

- Pollution control equipment is effective and efficiently operated at all units.
- By recovering by-product gases from the Coke plant, Blast Furnace, and Steel Melting Shop, clean gas is used as fuel in power generation and other units. This significantly reduces coal consumption.
- Zero Effluent Discharge (ZED) maintained.
- The Centralized Effluent Treatment Plant (CETP) has been upgraded from its existing capacity of 660 m3/hr to 830 m3/hr. This upgrade enables the plant to maximize reuse and recovery of treated wastewater from various plant units.
- Two mechanized road sweeping machines are deployed to maintain the cleanliness of plant roads.
- To suppress fugitive dusts on roads and other areas, truck mounted water tankers are used for water sprinkling.
- TSK has achieved 33% Greenbelt & planted 8.01 lakh plantations in more than 415 ha in & around TSK.
- Investment of more than Rs. 1999.43 Crores has been made for pollution control equipment and other environmental protection measures.
- ISO 14001:2015 and ISO 45001: 2018 certification obtained in Sep’2020 and valid till August 2026.
- Four no’s tyre washing facilities are operational at the Ore & Flux yard, MRP area near the entrance of the plant gates, inside the Transport Park, and at the SMS filter press area.

PART-H

Additional measures/investment proposal for environmental protection including abatement of pollution.

- The Polycrack unit installed to process municipal waste and other carbonaceous waste separately, converting them into syngas and biochar.
- Environmental Laboratory facilities being upgraded.
- Greenery development programme will continue in the year 2025.
- Floating solar panel installation at raw water reservoir is in progress.

PART-I

MISCELLANEOUS:

Any other particulars in respect of environmental protection and abatement of pollution.

- Tree plantation is undertaken in and around the site. Details of tree saplings planted: -

FY	Plantation (Nos.)	FY	Plantation (Nos.)
2009-10:	792	2016-17:	77335
2010-11:	1130	2017-18:	100701
2011-12:	4800	2018-19:	28072
2012-13:	12622	2019-20:	103212
2013-14:	29888	2020-21:	12415
2014-15:	35437	2021-22:	203841
2015-16:	78730	2022-23:	82176
2023-24:	25006		

Avenue plantation is being taken up at Jajpur town, Kalinganagar and Bhubaneswar

- To maintain housekeeping of plant roads, mechanised road sweeping machines is operated.
- Regular Environmental Monitoring is carried out. Please refer to **Annexure-I.**
- Seven nos. of Online CAAQM stations commissioned and data linkage provided for continuous display of data. 31 nos. of CEMS, 2 nos. of CEQMS, 3 nos Surveillance IP Cameras connected to the server of the OSPCB and CPCB.
- Consent to Operate (CTO) for integrated steel plant granted by OSPCB which is valid till 31.03.2025.
- About 7100 Sq. meter of Garden has been developed in FY 24. 1.90 Lakh sq. meter of garden landscape are being maintained in & around Kalinganagar.

- Miyawaki plantation methodology has been adopted at 5 locations CETP, IBMD, Sinter plant and 2 locations at HSM to create denser plantation in short span of time.
- In FY 2024, 14.85 MT of e- wastes were collected and deposited to authorised e- waste collection centre of M/s Sani clean Pvt ltd., Bhubaneswar, M/s P U Steel & Electro Process Pvt. Ltd. and M/s Hulladek Recycling Pvt. Ltd.
- In CY 2023, 85.81 Kgs of Biomedical wastes generated in plant's First Aid centre were segregated, collected, and disposed through Authorised Biomedical waste disposal facility of M/s Sani clean Pvt Ltd, Bhubaneswar
- In FY 2024, 0.1 Ton of chemically contaminated bottles were disposed through authorised party M/s Eco resource.

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Annexure-1

Ambient Air Quality Monitoring at TSK

Location	PM10 (or size <10 µm) µg/m3	PM2.5 (or size <2.5µm) µg/m3	SO_2 (µg/m3)	NOx (µg/m3)	CO (mg/m3)
Gate No. 1	80.7	44.6	7.7	40.2	0.5
Coke Plant	81.5	43.9	8.2	40.1	0.6
SMS	75.5	42.5	7.2	35.4	0.5
HSM	74.3	40.3	7.1	35.5	0.4
Gate No. 4	80.4	44.3	7.9	39.8	0.6
Sinter Plant	82.5	43.4	7.4	37.9	0.5
BF Area	78.6	42.8	7.5	38.8	0.6
Standard	**≤ 100**	**≤ 60**	**≤ 80**	**≤ 80**	**≤ 4.0**

TREATED EFFLUENT QUALITY									
	Frequency:	Daily Average							
Outlet No.	Description of Outlet	pH	TSS (mg/l)	Phenol (mg/l)	BOD (mg/l)	COD (mg/l)	Cyanide (mg/l)	Ammoniacal Nitrogen (mg/l)	O&G (mg/l)
OSPCB Standard		**6.0-8.0**	**100**	**1**	**30**	**250**	**0.2**	**50**	**10**
1	BOD Plant Outlet	7.1	10.3	0.2	7.1	130.3	0.1	4.3	4.2

Some Photographs of Tata Steel Kalinganagar

MVR System at CETP

Polycrack unit

PV Solar Panel installed at HSM Roof top

Plantation inside Plant

Water Treatment Complex at TSK

Mechanised road dust sweeping

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