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

TSK/Env/C-05/24/2021
Sept' 29, 2021

Sub: Environmental Statement for the Year 2020-21 for Integrated Steel Plant at Kalinganagar Industrial Complex, Tata Steel Limited.

Dear Sir,

We are enclosing the "Environmental Statement" duly filled in Form V, for the year 2020-2021 for Integrated Steel Plant of Tata Steel at Kalinganagar Industrial Complex for your kind consideration.

We trust that you will find the above in order.

Thanking you and assuring you of our best attention.

Yours faithfully,

For **Tata Steel Limited**

Sr. Manager, Environment
Tata Steel Kalinganagar.

Encl: a/a.

Copy to: Regional Officer, OSPCB, KNIC

ENVIRONMENTAL STATEMENT
FOR THE YEAR 2020-21

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 2020-21 ending with 31st March

Tata Steel Limited
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 (Integrated Iron & Steel Industry) —
iii)	Production Capacity	:	8.0 MTPA Crude Steel
iv)	Year of Establishment	:	2016
v)	Date of Last Environmental /Audit Report submitted	:	28.09.2020

PART-B

WATER AND RAW MATERIAL CONSUMPTION

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

Process : 26473
Cooling : 12422
Domestic : 3762

Name of the products	**Process water consumption per unit of products**	
	During the previous Financial Year 2019-2020	**During the Current Financial Year 2020-2021**
Crude Steel	4.15 cum/tcs	4.14 cum/tcs

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 2019-2020	**During the Current Financial Year 2020-2021**
Coal	Crude Steel	0.68	0.69
Iron Ore		1.57	1.73
Limestone		0.34	0.39
Dolomite		0.05	0.03

Metal & Ferro Alloys		0.01	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 waste water. CETP is in operation.		
b) Air			
1	Coke Oven Battery No.1		
PM	239.33	32.6	-34.77
2	Coke Oven Battery No. 1 De-dusting Chimney		
PM	46.47	6.9	-86.11
3	Coke Oven Battery No. 2		
PM	255.47	34.6	-30.83
4	Coke Oven Battery No. 2 De-dusting Chimney		
PM	50.70	7.6	-84.86
5	CPP Boiler-1		
PM	91.05	6.1	-87.77
SO_2	1529.98	102.7	-82.88
NOx	443.14	29.8	-90.08
6	CPP Boiler-2		
PM	84.71	5.5	-89.07
SO_2	1107.75	71.5	-88.08
NOx	243.37	15.7	-94.76
7	BF Cast House-1		
PM	582.07	29.9	-40.13
8	BF Cast House-2		
PM	494.82	25.9	-48.24
9	BF Stock House		
PM	647.10	31.3	-37.35
10	Blast Furnace Stove		
PM	123.91	6.6	-86.78
11	Lime Calcination Kiln-1		
PM	36.40	10.8	-92.80
12	Lime Calcination Kiln-2		
PM	41.01	11.1	-92.59
13	Sinter Plant Waste gas Chimney		
PM	2179.26	42.7	-14.59
14	Sinter Plant De-dusting		
PM	570.82	29.9	-40.27
15	Stack attached to CDQ		
PM	98.08	18.5	-62.93
16	Stack attached to HSM Recuperator 1		
PM	90.97	14.0	-86.01
17	Stack attached to HSM Recuperator 2		

PM	103.56	15.7	-84.30
18	SMS		
PM	1351.41	23.3	-53.32

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 2019-2020	During the Current Financial Year 2020-2021
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)	54310	50050
Wastes / Residues containing oil (Schedules-I Stream-5.2)	48230	87180
Used grease / Greased sludge (Schedules-I Stream-5.2)	41320	41280
Oil soaked jute / cotton (Schedules-I Stream-5.2)	~ 10 MT (by Volume)	~ 10 MT (by Volume)
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)	206000	200000
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)	# 675 Nos	490 Kgs.
2. From Pollution Control Facilities		
Oil and grease skimming residue Schedules-I Stream-35.4	Nil	Nil
Waste cartridge from CETP, WWTP Schedules-I Stream-36.2	Nil	Nil
sludge from waste water treatment (Schedules-I Stream-35.3)	316590	289780

Spent Ion exchange resins (Schedules-I Stream-35.2)	Nil	Nil
Exhaust air or gas cleaning residue (Schedules-I Stream-35.1)	Nil	Nil
Evaporation residue from CETP (Schedules-I Stream-37.3)	Nil	Nil

[#] 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 2019-20	During the current financial year 2020-21
a.	From process	1296766 MT of BF slag 463383 MT of LD Slag	1310602 MT of BF Slag 5640565 MT of LD Slag
b.	From Pollution Control facilities	31628 MT of Flue dust	32929 MT of Flue dust
c.	1)Quantity recycled/reutilised within the unit	32894 MT of Flue Dust 394933 MT of LD Slag	34497 MT of Flue Dust Utilised inhouse 480751 MT of LD Slag
	2) Sold	11,73,038 MT of BF slag 75483 MT of LD Slag	12,85,974 MT of BF slag 90737 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
Waste Water 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; Fe2O3-32.95; SiO2-10.44; MgO-2.09; P2O5-1.95; MnO-1.20; TiO2-	• Metal recovery

	1.09; Al2O3-.73; Cr2O3-0.17; V2O5-0.16; SO3-0.13; SrO-0.03; Nb2O5-0.02; K2O-0.02; Na2O- 0.02	• 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 are effective and efficiently operated at all units.
- By-product gases generated in Coke plant, Blast Furnace and Steel melting shop are recovered and clean gas is used as fuel in power generation and other units, thus reducing coal consumption.
- For collection of surface runs off during monsoon through different drains and recovery of water through pumps, a reservoir of 39,000 m^3 capacity has been constructed.
- Centralised effluent treatment Plant (CETP) in operation to maximize reuse and recovery of treated wastewater from different plant units.
- 2 Nos. of Mechanised road sweeping machine are deployed to maintain housekeeping of plant roads.
- To suppress fugitive dusts on roads and other areas, truck mounted water tankers are used for water sprinkling.
- Tree plantation is being undertaken in & around site. Till Financial Year 2020-21, 4.85 Lakh of trees planted in and around the site
- Investment of more than Rs. 1500 Crores has been made for pollution control equipment and other environmental protection measures
- ISO 14001:2015 and ISO 45001:2018 certification obtained in Sept'2020.

PART-H

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

- Environmental Laboratory facilities being upgraded.
- Investment for remote calibration system of OCEMS for gaseous pollutants
- Greenery development programme will continue in the year 2021.

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	2015-16:	78730
2010-11:	1130	2016-17:	77335
2011-12:	4800	2017-18:	100701
2012-13:	12622	2018-19:	28072
2013-14:	29888	2019-20:	103212
2014-15:	35437	2020-21:	12415

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 AAQM stations commissioned along with Environmental Display Board and data linkage provided for continuous display of data.
- 18 nos. of CEMS and 2 nos. of WQMS have been installed and connected to the server of the OSPC Board.
- Consent to Operate (CTO) for integrated steel plant granted by OSPCB on 19.03.2021, which is valid till 31.03.2022.
- About 1500 Sq. meter of Garden has been developed in FY21.
- 1.37 Lakh sq. meter of garden landscape are being maintained in & around KLNR
- In FY21, 0.43 MT of e- wastes were collected and deposited to authorised e-waste collection centre of M/s Sani clean Pvt ltd., Bhubaneswar.

- In FY21, 33.97 Kg 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 FY21, 0.49 Tons of chemically contaminated bottles were disposed through M/s Eco resource

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Annexure-1

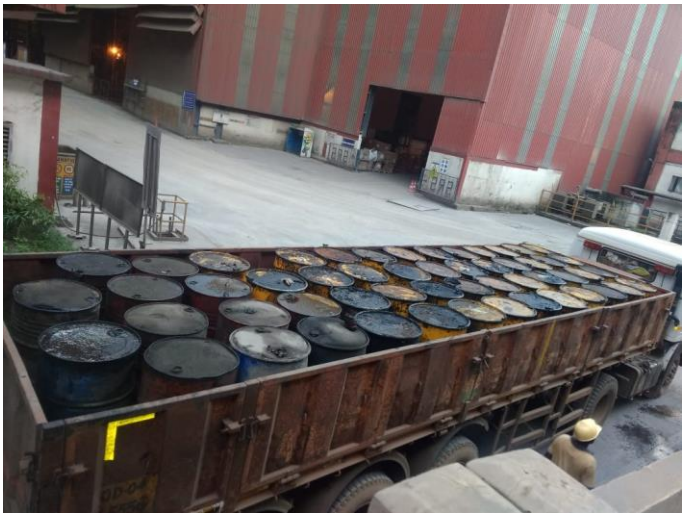
Ambient Air Quality Monitoring report

Location	PM10 (or size <10 µm) µg/m3	PM2.5 (or size <2.5µm) µg/m3	SO2 (µg/m3)	NOx (µg/m3)	CO (mg/m3)	Ozone (O_3) µg/m^3	Lead (Pb) µg/m^3	Ammonia (NH_3) µg/m^3	Benzene (C_6H_6)	Benzo (a) Pyrene ng /m^3	Arsenic (As) ng /m^3	Nickel (Ni) ng/m^3
Gate No. 1	72.43	34.74	8.72	23.76	0.543	<10	<0.01	<20	< 2.0	BDL	< 2.0	< 2.0
Coke Plant	77.71	38.15	10.71	24.67	0.71	<10	<0.01	<20	< 2.0	BDL	< 2.0	< 2.0
SMS	76.07	38.65	9.39	21.91	0.55	<10	<0.01	<20	< 2.0	BDL	< 2.0	< 2.0
HSM	75.72	38.17	10.53	22.51	0.57	<10	<0.01	<20	< 2.0	BDL	< 2.0	< 2.0
Gate No. 4	73.13	33.88	9.85	20.73	0.46	<10	<0.01	<20	< 2.0	BDL	< 2.0	< 2.0
Power Plant	68.4	32.9	16.4	18.8	0.38	<10	<0.01	<20	< 2.0	BDL	< 2.0	< 2.0
CDQ Area	78.1	38.6	18.7	23.6	0.47	<10	<0.01	<20	< 2.0	BDL	< 2.0	< 2.0
Standard	**≤ 100**	**≤ 60**	**≤ 80**	**≤ 80**	**≤ 4.0**	**≤100**	**<1.0**	**<100**	**< 5.0**	**< 1.0**	**< 6.0**	**< 20.0**

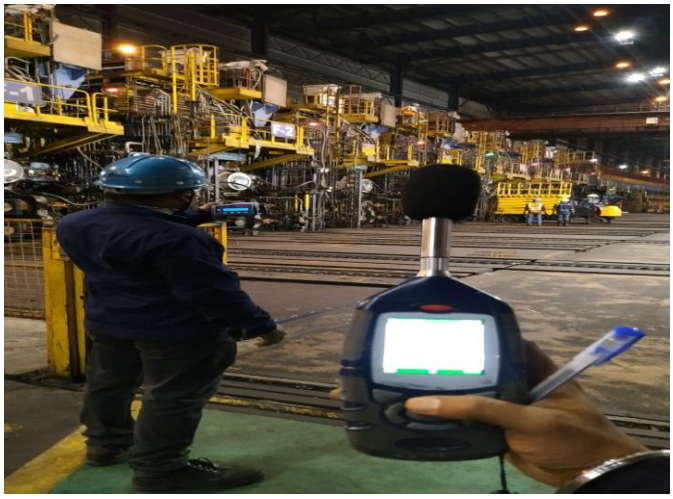
TREATED EFFLUENT QUALITY									
	Frequency:	Daily Average							
Outlet No.	Description of Outlet	pH	TSS (mg/l)	Phenol (mg/l)	BOD (mg/l)	COD (mg/l)	Cyanide (mg/l)	Ammoniacal Nitrogen (mg/l)	O&G (mg/l)
OSPCB Standard		**6.0-8.0**	**100**	**1**	**30**	**250**	**0.2**	**50**	**10**
1	BOD Plant Outlet	7.4	37.1	0.42	15.4	163.7	0.15	11.2	2.6

2	Surface runoff at Plant outlet	7.2	28.3	0.31	8.3	104.2	0.12	6.7	1.8

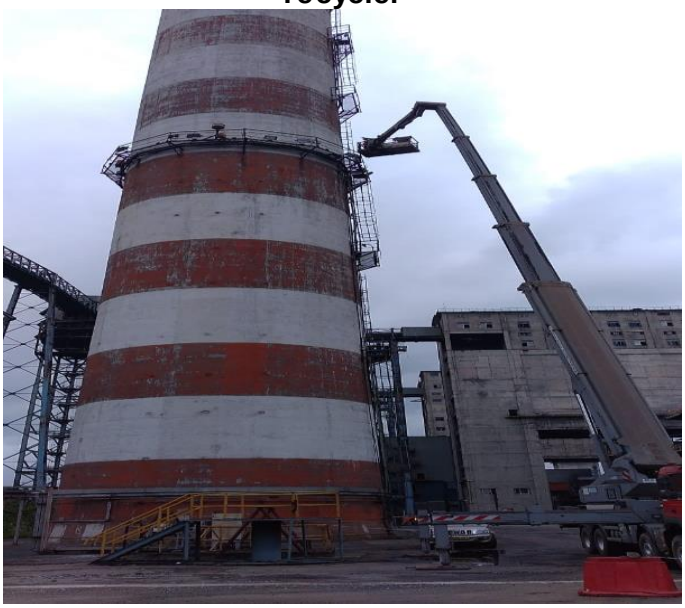
Some Photographs of Tata Steel Kalinganagar



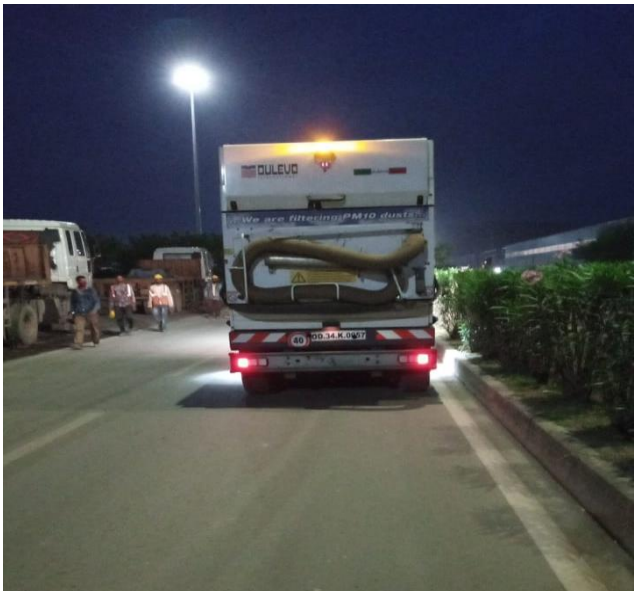
Hazardous Waste Disposal to authorised recycler



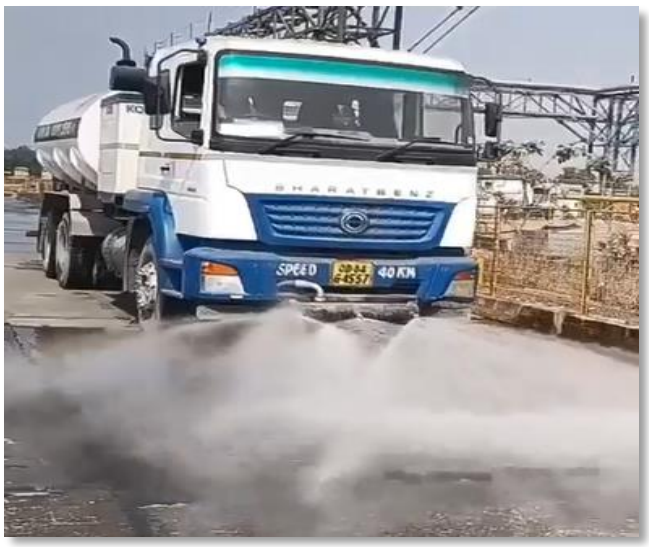
Work Zone Noise and Dust Monitoring



Stack Monitoring



Mechanised road dust sweeping



Mist type water sprinkler

Mini Forest with Miyawaki Method

--X--