Steel Authority of India Limited
Rourkela Steel Plant
Rourkela – 769011
Fax : 0661-2510183

Ref. No. : 691/EE/1/116
Date : 20.09.2024

Respected Sir,

Sub : Environmental Statement of Rourkela Steel Plant,
Captive Power Plant#1 and Airport for the year 2023-24

Please find enclosed herewith the Environment Statement of Rourkela Steel Plant including Captive Power Plant and Airport for the year 2023-24 for your kind information and necessary action.

Thanking you sir,

With kind regards,

Yours faithfully,

(P C Dash)
GM I/c (Env. Engg. Department)

Encl : As above

To :

The Member Secretary,
State Pollution Control Board,
A/118, Nilakantha Nagar,
Unit-VIII,
Bhubaneswar – 1

FORM – V

Environmental Statement
for the financial year ending 31st March, 2024

Part – A

I.	Name and address of the owner/occupier of the industry operation or process	:	Sri S R Suryawanshi Executive Director (Works) M/s SAIL – Rourkela Steel Plant Rourkela.
II.	Industry Category	:	Primary & Secondary
III.	Production Capacity	:	4.2 MTPA Crude Steel & 100 MW Captive Power Gen. Potential Rourkela Air Port (Code 3C)
IV.	Year of Establishment	:	1959
V.	Date of last Env. Statement submitted	:	11/09/2023.

Part – B

Water and Raw Material Consumption

1. **Water & Consumption :**

Year →	2023-24	2022-23
Water Consumption	45,574 m3/day	45,882 m3/day
Process	760 m3/day	840 m3/day
Cooling	29,418 m3/day	29,646 m3/day
Domestic	15,396 m3/day	15,396 m3/day

Name of Product	Process water consumption per unit of product output (including cooling)	
	During the current financial year 2023-24	During the Previous financial year 2022-23
Crude Steel	3.01 m^3/Tonne of Crude Steel	3.12 m^3/Tonne of Crude Steel
Power Generation	3.30 m^3/Tonne of Steam	3.30 m^3/Tonne of Steam

2. **Raw Material Consumption :**

Name of Raw Material	Name of Product	Consumption of Raw Material per unit of output	
		During the current financial year 2023-24	During the Previous financial year 2022-23
Iron Ore	Crude Steel	1.790 T/TCS	1.844 T/TCS
Coal		0.772 T/TCS	0.828 T/TCS
Lime Stone		0.334 T/TCS	0.321 T/TCS
Dolomite		0.217 T/TCS	0.209 T/TCS
Boiler Coal	Steam generated from Captive Power Plant	0.009 T/T of Steam	0.005 T/T of Steam
Mixed Gas		33.61 Nm3/ T of Steam	68.48 Nm3/ T of Steam
Blast Furnace Gas		628.03 Nm3/ T of Steam	477.51 Nm3/ T of Steam
Furnace Oil		Nil	0.002 Kg/ T of Steam

Part – C

Pollution discharge to Environment/unit of output
(Parameter as specified in the consent order)

(a) Total Water pollution load discharged from Plant:

Parameter	Qty. of pollutant discharged (Kg/day)	Concentrations of pollutants in discharges (mass/volume)	Norm	% of variation from prescribed standards(-VE)
SS	359.04	16.7 mg/lit	100	-83.3 %
TDS	7094.74	330 mg/lit	2100	-84.28 %
BOD	232.19	10.8 mg/lit	30	-64 %
COD	765.37	35.6 mg/lit	250	-85.76 %
Oil & grease	60.20	2.8 mg/lit	10	-72 %
Iron	40.78	1.89 mg/lit	3	-36.76 %
Total Chromium	5.59	0.26 mg/lit	2	-87 %

(b) Total Air Pollution load discharged from all major stacks:

Parameter	Qty. of pollutant discharged (Kg/day)	Concentrations of pollutants in discharges (mass/volume)	% of variation from prescribed standards with reasons
Stack emission load (Particulate Matter)	6093.24 (from RSP's Pollution Load 2023-24 calculation sheet)	28.84 mg/Nm3	-42.30 % • The norms for stack emissions are different from different shops ranging from 50 mg/Nm3 (Coke Oven Stacks) to 150 mg/Nm3 (Sintering Plant stacks). • For calculation purpose the stringent norms i.e., 50 is considered.

Part – D

Hazardous Waste : As specified under Hazardous Waste (Management & Handling) Rules, 1989 and amendment thereof in 2008.

a) From Process :

SN. as per HW Authorization order	Hazardous Waste	Total Quantity (Ton/Year)	
		During the current year 2023-24	During the current year 2022-23
1	Used/spent oil	60 Ton/Yr	60 Ton/Yr
3	Zinc Fines/Dust/Ash/Skimmings	560 Ton/Yr	344 Ton/Yr
4	Damaged Refractory from pickling area	10 Ton/Yr	15 Ton/Yr
5	Pickling Tank sludge from CRM and SSM	30 Ton/Yr	40 Ton/Yr
7	Decanter Tank Tar Sludge from CCD	100 Ton/Yr	100 Ton/Yr
11	Flue gas cleaning residue from Blast furnace.	26,031 Ton/Yr	28,726 Ton/Yr
16	Sulphur Muck from CCD	150 Ton/Yr	120 Ton/Yr

b) From Pollution Control Facilities:

2	Wastes/Residues containing oil	300 Ton/Yr	275 Ton/Yr
6	ETP neutralization sludge from CRM , SSM,HSM	452 Ton/Yr	292 Ton/Yr
8	Catch pit sludge from coal chemical Dept	10 Ton/Yr	10 Ton/Yr
9	Drain cleaning sludge from coal chemical Dept	15 Ton/Yr	5 Ton/Yr
10	BOD plant sludge from coal chemical Dept.	9 Ton/Yr	8 Ton/Yr
12	Blast furnace Sludge	600 Ton/Yr	600 Ton/Yr
13	LD Sludge from SMS	75,125 Ton/Yr	72,702 Ton/Yr
14	Sand blasting bag filter dust from Special Plate Plant	1 Ton/Yr	1 Ton/Yr
15	Spent Ion Exchange resin	Nil	Nil

Part – E

Solid Wastes

SN.	Solid Waste	Total Quantity Ton/Yr	
		During current year 2023-24	During previous year 2022-23
a	Generation from Process		
	Blast furnace slag	17,44,619	16,71,887
	SMS slag	6,27,693	6,09,253
	Mill scale	42,070	45,552
	Acetylene sludge	0	0
	Bottom Ash/Cinder	2,344	2,180
	Rejected Bricks	692	1,545
b	Generation from Pollution Control facility		
	Fly Ash	9,931	5,291
c	Quantity Recycled/Reutilized within the unit		
	Mill scale	42,070	45,552
	SMS slag	1,71,591	2,75,591
	Fly Ash	9,931	5,291
	Bottom Ash/Cinder	2,344	2,180
d	Quantity Sold		
	BF slag (granulated)	18,87,949	19,31,498
	Rejected bricks	692	1,545
	Acetylene sludge	0	0
	SMS slag	5,64,800	2,35,403
	Fly Ash (Given free of cost)	0	0
	Bottom Ash/Cinder	Nil	Nil
e	Disposed		
	BF slag (Air cooled)	Nil	Nil
	SMS slag	Nil	98,259
	Rejected bricks	0	0
	Fly Ash	Nil	Nil
	Bottom Ash/Cinder	Nil	Nil

Part –F

Please specify the characterizations (in terms of composition of quantum) of hazardous as well as solid wastes and indicated disposal practice adopted for both these categories of wastes.

SN.	Hazardous Waste	Composition	Quantum	Disposal practices
1	Used/spent oil	Not available	Given in Part- D a& b	Sold to authorized actual users
2	Wastes/ Residues containing oil			Recycled/Reused inside RSP premises
3	Zinc Fines/Dust/Ash/Skimmings			Sold to actual users authorized by SPCB.
4	Damaged Refractory from pickling area			Own SLF
5	Pickling Tank sludge from CRM and SSM			Own SLF
6	ETP neutralization sludge from CRM , SSM,HSM			Own SLF
7	Decanter Tank Tar Sludge from CCD			Recycled/Reused inside RSP premises
8	Catch pit sludge from coal chemical Dept			Recycled/Reused inside RSP premises
9	Drain cleaning sludge from coal chemical Dept			Recycled/Reused inside RSP premises
10	BOD plant sludge from coal chemical Dept.			Own SLF
11	Flue gas cleaning residue from Blast furnace.			Sold to actual users authorized by SPCB.
12	Blast furnace Sludge			Sold to actual users authorized by SPCB.
13	LD Sludge from SMS			Sold to actual users authorized by SPCB.
14	Sand blasting bag filter dust from Special Plate Plant			Own SLF
15	Spent Ion Exchange resin			-
16	Sulphur Muck from CCD			Own SLF

II) Solid Waste :

SN.	Solid Waste	Quantity of Generation (Tons)	Composition	Disposal methodology
1)	BFc. Slag	17,44,619	SiO2 – 17.8%; Sl2O3 – 34.6%; CaO – 9.7%; MgO – 0.58%; FeO – 0.12%, MnO5 – 0.49%	Sold to cement manufacturers.
2)	SMS Slag	6,27,693	FeO - 23.2% SiO2 – 11.7% CaO – 46.3% MnO – 0.7% Al2O3 – 1.4% P2O5 – 5.7% TiO2 – 2.6%	Recycled back to process for steel making, used as pavement material, rail ballast etc.
3)	Mill Scale	42,070	FeO - ~ 98%	Recycled back to steel making process
4)	Acetylene Sludge	0	CaO ~ 65%	Sold to external agencies for use for white washing.
5)	SMS Sludge	74,902	Total Iron – 66% SiO2 – 6.1% Al2O3 – 0.6% CaO – 18% P2O5 – 6% MnO – 0.26% TiO2 – 0.8%	Sold to external agencies for making pellets.
6)	Fly Ash, Bottom Ash & cinder	12,275	SiO2 : 60 – 64% Al2O3 : 12 – 23% TiO2 : 1.5% Fe2O3 : 8 – 19% Na2O : 0.1 – 0.2% MgO : 1-3.5%	Given to fly ash brick manufactures free of cost, used for reclamation of low lying areas and used for making embankments.
7)	Garbage from Rourkela Air Port	0.100	-	Disposed along with municipal solid waste of township.

Part – G

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

Department / Measure	Level of Pollution		Remark	Cost (Rs. in Lakhs)
	Before	After		
Over hauling of DE system-1, Lime Plant	Under repair	Systems are working in good condition.	Completed	23.87
Procurement of 1 no. of Ride on battery operated sweeping machine for Roll Shop	Manually cleaning.	Automatic cleaning.	Completed	5.14
Ride on sweeping machine of SSM	Manually cleaning.	Automatic cleaning.	Completed	5.14
ZLD - Treatment System#1 – a fullfledged treatment facility established with an investment of Rs. 141.43 Cr. for treating the blow down water from different dedicated Waste Water Treatment Plants. The	Discharge of blow down water to Lagoon for treatment	Complete treatment of blow down water upto make up water quality and its recycling back to water distribution network, saving 1724 m3/hour water	Completed	14143

Part – H

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

- ZLD - Treatment System#2 – a full-fledged treatment facility of 1920 m3/hour capacity, with an investment of Rs. 193.91 Cr. is planned for treating the blow down water from different dedicated Waste Water Treatment Plants. The blow down water will be treated up to make up water quality and the treated water is recycled back for water distribution network.

PART – I

Any other particulars for improving the quality of the environment.

Tree Plantation :

Description	2023-24	2022-23
Tree plantation in and around Rourkela Steel Plant	**7,792**	**47,140**