



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

Ref. No. : 691/EE/1/10293

Date : 11/09/2023.

Respected Sir,

**Sub : Environmental Statement of Rourkela Steel Plant,
Captive Power Plant#1 and Rourkela Airport for the year 2022-23**

Please find enclosed herewith the Environment Statement of Rourkela Steel Plant including Captive Power Plant and Rourkela Airport for the year 2022-23 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, 2023**

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 | : | 12/09/2022. |

Part – B

Water and Raw Material Consumption

1. Water & Consumption :

Year →	2022-23	2021-22
Water Consumption	45,882 m ³ /day	45,664 m ³ /day
Process	840 m ³ /day	1,278 m ³ /day
Cooling	29,646 m ³ /day	28,990 m ³ /day
Domestic	15,396 m ³ /day	15,396 m ³ /day

Name of Product	Process water consumption per unit of product output (including cooling)	
	During the current financial year 2022-23	During the previous financial year 2021-22
Crude Steel	3.12 m ³ /Tonne of Crude Steel	3.14 m ³ /Tonne of Crude Steel
Power Generation	3.30 m ³ /Tonne of Steam	3.47 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 2022-23	During the previous financial year 2021-22
Iron Ore	Crude Steel	1.844 T/TCS	1.923 T/TCS
Coal		0.828 T/TCS	0.973 T/TCS
Lime Stone		0.321 T/TCS	0.335 T/TCS
Dolomite		0.209 T/TCS	0.245 T/TCS
Boiler Coal	Steam generated from Captive Power Plant	0.005 T/T of Steam	0.010 T/T of Steam
Mixed Gas		68.48 Nm ³ / T of Steam	75.58 Nm ³ / T of Steam
Blast Furnace Gas		477.51 Nm ³ / T of Steam	421.19 Nm ³ / T of Steam
Furnace Oil		0.002 Kg/ T of Steam	0.005 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	360.36	16.5 mg/lit	100	-83.5 %
TDS	6726.86	308.0 mg/lit	2100	-85.33 %
BOD	240.24	11.0 mg/lit	30	-63.33 %
COD	803.72	36.8 mg/lit	250	-85.28 %
Oil & grease	50.23	2.3 mg/lit	10	-77 %
Iron	39.53	1.81 mg/lit	3	-39.66 %
Total Chromium	3.49	0.16 mg/lit	2	-92 %

(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)	5971.14	28.270 mg/Nm3	<p style="text-align: center;">-43.46 %</p> <ul style="list-style-type: none"> • 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 2022-23	During the previous year 2021-22
1	Used/spent oil	60 Ton/Yr	47 Ton/Yr
3	Zinc dross	344 Ton/Yr	300 Ton/Yr
4	Damaged Refractory from pickling area	15 Ton/Yr	15 Ton/Yr
5	Pickling Tank Sludge from CRM	20 Ton/Yr	70 Ton/Yr
7	Pickling Tank Sludge from SSM	20 Ton/Yr	20 Ton/Yr
9	Decanter Tank Tar Sludge from CCD	100 Ton/Yr	200 Ton/Yr
12	Pipe line cleaning sludge from coal chemical Dept.	10 Ton/Yr	10 Ton/Yr
14	Flue gas cleaning residue from Blast furnace.	28,726 Ton/Yr	23,733 Ton/Yr

b) From Pollution Control Facilities:

2	Wastes/ Residues containing oil/Oily sludge	275 Ton/Yr	250 Ton/Yr
6	ETP neutralization sludge from CRM	150 Ton/Yr	150 Ton/Yr
8	ETP clarifier sludge from SSM	142 Ton/Yr	145 Ton/Yr
10	Catch pit sludge from coal chemical Dept	10 Ton/Yr	10 Ton/Yr
11	Drain cleaning sludge from coal chemical Dept	5 Ton/Yr	5 Ton/Yr
13	BOD plant sludge from coal chemical Dept.	8 Ton/Yr	7 Ton/Yr
15	Blast furnace Sludge	600 Ton/Yr	600 Ton/Yr
16	LD Sludge from SMS	72,702 Ton/Yr	71,755 Ton/Yr
17	Sand blasting bag filter dust from Special Plate Plant	1 Ton/Yr	1 Ton/Yr
18	Spent Ion Exchange resin	Nil	Nil

Part – E

Solid Wastes

SN.	Solid Waste	Total Quantity Ton/Yr	
		During current year 2022-23	During previous year 2021-22
a	Generation from Process		
	Blast furnace slag	16,71,887	17,22,913
	SMS slag	6,09,253	6,01,317
	Mill scale	45,552	50,790
	Acetylene sludge	0	0
	Bottom Ash/Cinder	2,180	30,443.5
b	Generation from Pollution Control facility		
	SMS sludge	72,702	71,755
	Fly Ash	5,291	13,759.4
c	Quantity Recycled/Reutilized within the unit		
	Mill scale	45,552	50,790
	SMS slag	2,75,591	2,99,709
	SMS sludge	0	0
	Fly Ash	5,291	13,759.4
	Bottom Ash/Cinder	2,180	30,443.5
d	Quantity Sold		
	BF slag (granulated)	19,31,498	18,20,674
	Rejected bricks	1,545	2,359
	Acetylene sludge	0	0
	SMS sludge	80,892	44,720
	SMS slag	2,35,403	99,067
	Fly Ash (Given free of cost)	0	0
	Bottom Ash/Cinder	Nil	Nil
e	Disposed		
	BF slag (Air cooled)	Nil	Nil
	SMS slag	98,259	2,02,541
	Rejected bricks	0	0
	Fly Ash	Nil	Nil
	Bottom Ash/Cinder	Nil	Nil

Part -F

I) 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			Own SLF
6	ETP neutralization sludge from CRM			Own SLF
7	Pickling Tank Sludge from SSM			Own SLF
8	ETP clarifier sludge from SSM			Own SLF
9	Decanter Tank Tar Sludge			Recycled/Reused inside RSP premises
10	Catch pit sludge from coal chemical Dept			Recycled/Reused inside RSP premises
11	Drain cleaning sludge from coal chemical Dept			Recycled/Reused inside RSP premises
12	Pipe line cleaning sludge from coal chemical Dept			Recycled/Reused inside RSP premises
13	BOD plant sludge from coal chemical Dept			Recycled/Reused inside RSP premises
14	Flue gas cleaning residue from Blast furnace			Sold to actual users authorized by SPCB.
15	Blast furnace Sludge			Sold to actual users authorized by SPCB.
16	LD Sludge from SMS			Sold to actual users authorized by SPCB.
17	Sand blasting bag filter dust from Special pipe plant			Own SLF
18	Spent Ion Exchange resin			-

II) Solid Waste :

SN.	Solid Waste	Quantity of Generation (Tons)	Composition	Disposal methodology
1)	BFc. Slag	16,71,887	SiO ₂ – 17.8%; Si ₂ O ₃ – 34.6%; CaO – 9.7%; MgO – 0.58%; FeO – 0.12%, MnO ₅ – 0.49%	Sold to cement manufacturers.
2)	SMS Slag	6,09,253	FeO - 23.2% SiO ₂ – 11.7% CaO – 46.3% MnO – 0.7% Al ₂ O ₃ – 1.4% P ₂ O ₅ – 5.7% TiO ₂ – 2.6%	Recycled back to process for steel making, used as pavement material, rail ballast etc.
3)	Mill Scale	45,552	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	72,702	Total Iron – 66% SiO ₂ – 6.1% Al ₂ O ₃ – 0.6% CaO – 18% P ₂ O ₅ – 6% MnO – 0.26% TiO ₂ – 0.8%	Sold to external agencies for making pellets.
6)	Fly Ash, Bottom Ash & cinder	7,471	SiO ₂ : 60 – 64% Al ₂ O ₃ : 12 – 23% TiO ₂ : 1.5% Fe ₂ O ₃ : 8 – 19% Na ₂ O : 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		
Procurement of and installed of central server	No central server	Statutory compliance.	Completed	3.50
Procurement and installation of LED digital display board at main gate.	No continuous display.	Statutory compliance. Connected to central server of EED and Continuously displaying Environment parameters.	Completed	4.90
Procurement and installation 3 no of industrial graded HD IP Surveillance camera	No continuous surveillance of stacks emissions	Now continuous surveillance of stacks emissions	Completed	11
Development of drain pots and pumping and evacuation system for treatment of seal pot effluent	Water was directly discharged to drains.	Waste water treatment.	Completed	40.00

Part – H

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

- New Sewage Treatment Plant for treatment of RSP sewage has been installed with an investment of Rs 14.91 Cr. The Quantity of water saved is around 160 m³/hour.
- BOD Plant has been modernized with MBR technology with an investment of Rs 33.96 Cr. The Quantity of water saved is around 150 m³/hour.

PART – I

Any other particulars for improving the quality of the environment.

Tree Plantation :

Description	2022-23	2021-22
Tree plantation in and around Rourkela Steel Plant	47,140	8,806