



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

Ref. No. : 691/EE/1/256
Date : 12/09/2022.

Respected Sir,


Sub : Environmental Statement of Rourkela Steel Plant &
Captive Power Plant#1 for the year 2021-22

Please find enclosed herewith the Environment Statement of Rourkela Steel Plant including Captive Power Plant for the year 2021-22 for your kind information and necessary action.

Thanking you sir,

With kind regards,

Yours faithfully,


(P C Dash) 12/09/2022

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, 2022**

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 Generation
Potential
- IV. **Year of Establishment** : 1959
- V. **Date of last Env. Statement submitted** : 16/09/2021.

Part – B

Water and Raw Material Consumption

1. Water & Consumption :

Year →	2021-22	2020-21
Water Consumption	45,664 m ³ /day	44,332 m ³ /day
Process	1,278 m ³ /day	1,125 m ³ /day
Cooling	28,990 m ³ /day	27,811 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 2021-22	During the previous financial year 2020-21
Crude Steel	3.14 m ³ /Tonne of Crude Steel	3.41 m ³ /Tonne of Crude Steel
Power Generation	3.47 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 2021-22	During the previous financial year 2020-21
Iron Ore	Crude Steel	1.923 T/TCS	1.850 T/TCS
Coal		0.973 T/TCS	0.839 T/TCS
Lime Stone		0.335 T/TCS	0.314 T/TCS
Dolomite		0.245 T/TCS	0.216 T/TCS
Boiler Coal	Steam generated from Captive Power Plant	0.010 T/T of Steam	0.032 T/T of Steam
Mixed Gas		75.58 Nm ³ / T of Steam	67.68 Nm ³ / T of Steam
Blast Furnace Gas		421.19 Nm ³ / T of Steam	380.56 Nm ³ / T of Steam
Furnace Oil		0.005 Kg/ T of Steam	0.167 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	335.532	16.5 mg/lit	100	-83.5 %
TDS	6563.350	304.6 mg/lit	2100	-85.49 %
BOD	237.021	11 mg/lit	30	-63.33 %
COD	790.791	36.7 mg/lit	250	-85.32 %
Oil & grease	45.249	2.1 mg/lit	10	-79 %
Iron	39.647	1.84 mg/lit	3	-38.66 %
Total Chromium	2.154	0.1 mg/lit	2	-95 %

(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)	6021.02	28.50 mg/Nm ³	<p style="text-align: center;">-42.98 %</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.

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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 2021-22	During the previous year 2020-21
1	Used/spent oil	47 Ton/Yr	30 Ton/Yr
4	Zinc Fines/ Dust/Ash/Skimmings	300 Ton/Yr	250 Ton/Yr
5	Acid Residues during pickling/ surface cleaning of coils in cold rolling mills	70 Ton/Yr	50 Ton/Yr
7	Spent bath/ sludge containing Sulphide, Cyanide and Toxic metals	Nil	Nil
9	Decanter Tank Tar Sludge	200 Ton/Yr	120 Ton/Yr
10	Process acidic residues, dusts or filter cakes	Nil	Nil
15	Sulphur Muck	Nil	Nil
16	Damaged Refractory lining & residue from furnace	15 Ton/Yr	15 Ton/Yr
18	Nickle compound	1 Ton/Yr	1 Ton/Yr
19	Waste Asbestos	Nil.	Nil.

b) From Pollution Control Facilities:

2	Wastes/ Residues containing oil	250 Ton/Yr	280 Ton/Yr
3	Tarry residues from coal chemical Dept	1 Ton/Yr	1 Ton/Yr
6	Tar storage tank residue generated from cold rolling mill	Nil	Nil
8	Tar storage tank residue generated from Coal Chemical Dept	10	10
11	Spent Catalyst	Nil	Nil
12	Spent Solvents	Nil	Nil
13	Spent Ion Exchange resin containing toxic metal	Nil	Nil
14	Chemical sludge from Waste Water Treatment	900 Ton/Yr	307 Ton/Yr
17	Rejected Sand	6 Ton/Yr	5 Ton/Yr
20	Flue gas cleaning residue	23,733 Ton/Yr	28,290 Ton/Yr
21	Gas Cleaning Plant(GCP) Sludge of LD Furnanace	71,755 Ton/Yr.	62,983 Ton/Yr.

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Part – E

Solid Wastes

SN.	Solid Waste	Total Quantity Ton/Yr	
		During current year 2021-22	During previous year 2020-21
a	Generation from Process		
	Blast furnace slag	17,22,913	13,96,407
	SMS slag	6,01,317	5,27,865
	Mill scale	50,790	50,039
	Acetylene sludge	0	0
	Bottom Ash/Cinder	30,443.5	43,929
b	Generation from Pollution Control facility		
	SMS sludge	71,755	62,983
	Fly Ash	13,759.4	44,634
c	Quantity Recycled/Reutilized within the unit		
	Mill scale	50,790	50,039
	SMS slag	2,99,709	2,20,089
	SMS sludge	0	0
	Fly Ash	13,759.4	44,634
	Bottom Ash/Cinder	30,443.5	43,929
d	Quantity Sold		
	BF slag (granulated)	18,20,674	14,23,450
	Rejected bricks	2,359	2,638
	Acetylene sludge	0	0
	SMS sludge	44,720	40,645
	SMS slag	99,067	0
	Fly Ash (Given free of cost)	0	0
	Bottom Ash/Cinder	Nil	Nil
e	Disposed		
	BF slag (Air cooled)	Nil	Nil
	SMS slag	2,02,541	3,07,776
	Rejected bricks	0	0
	Fly Ash	Nil	Nil
	Bottom Ash/Cinder	Nil	Nil

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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	Tar Residue from Gas Trap & Scale	Not available	Given in Part- D a&b	Disposed in Hazardous waste pit .
2	Used Oil			Sold to outside agencies having registration with MOEF/SPCB
3	Oily Sludge/Waste contaminated with oil			Recycled/reused inside RSP/Kept in impervious pit
4	Zink Dross			Sold to outside agencies having registration with MOEF/SPCB
5	Pickling Tank Sludge			Disposed in Hazardous waste pit .
6	Tin Plating Line Sludge			Disposed in Hazardous waste pit .
7	Acid Tar			Disposed in Hazardous waste pit .
8	Decanter Tar Sludge			Recycled/Reused inside RSP
9	Catch Pit Sludge/Tarry waste			Disposed in Hazardous waste pit .
10	Acid Storage Tank Sludge			Disposed in Hazardous waste pit .
11	V2O5 Catalyst			Disposed in Hazardous waste pit .
12	Cleaning Solvent Sludge			Disposed in Hazardous waste pit .
13	DM Plant Neutralization Sludge			Disposed in Hazardous waste pit .
14	Chemical sludge from Waste Water Treatment			Disposed in Hazardous waste pit .
15	Sulphur Muck			Disposed in Hazardous waste pit .
16	Damaged Refractory lining & residue from furnace			Disposed in Hazardous waste pit .
17	Tin Ash			Disposed in Hazardous waste pit .
18	Dichromate Sludge			Disposed in Hazardous waste pit .
19	Non Ferrous Waste			Disposed in Hazardous waste pit .
20	Bag Filter Dust			Disposed in Hazardous waste pit .
21	Rejected Sand			Disposed in Hazardous waste pit .
22	Sand Blasting Bag filter Dust			Disposed in Hazardous waste pit .
23	Grinding Waste			Disposed in Hazardous waste pit .
24	Waste Asbestos			Disposed in Hazardous waste pit .
25	Flue gas residue			Recycle in Sinter Plant through OBBP

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II) Solid Waste :

SN.	Solid Waste	Quantity of Generation (Tons)	Composition	Disposal methodology
1)	BFc. Slag	17,22,913	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	6,01,317	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	50,790	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	71755	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	44,202.9	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.

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 ride on sweeping machine and deployment in HSM#2	Shop floor dust	Improvement in work zone dust levels	Completed	Rs. 4.47Lakh
Procurement of 2 no of MP101 analysers for online AAQMS stations	No continuous monitoring of MP101	Now continuous monitoring of PM10 in AAQMS stations	Completed	Rs. 16 Lakh
Procurement and installation of industrial graded HD IP Surveillance camera	No continuous surveillance of stacks emissions	Now continuous surveillance of stacks emissions	Completed	Rs. 7.9 Lakh
Procurement of Wind driven Turbo ventilator for different units of SSM	Poor Ventilation in shop floor of SSM	Improved ventilation	Completed	Rs. 15.56 Lakh

Part – H

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

- For maintenance of slurry ponds and to control overflow of slurry in SMS#2 for slurry ponds dyke height has been raised.

PART – I

Any other particulars for improving the quality of the environment.

Tree Plantation :

Description	2021-22	2020-21
Tree plantation in and around Rourkela Steel Plant	8,806	51,299