



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

Ref. No. : 691/EE/1/388

Date : 16/09/2021.

Respected Sir,

**Sub : Environmental Statement of Rourkela Steel Plant &  
Captive Power Plant#1 for the year 2020-21**

Please find enclosed herewith the Environment Statement of Rourkela Steel Plant including Captive Power Plant for the year 2020-21 for your kind information and necessary action.

Thanking you sir,

With kind regards,

Yours faithfully,

(P C Dash) 16/09/21

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 31<sup>st</sup> March, 2021**

**Part – A**

- |   |   |
|---|---|
| <b>I. Name and address of the owner/occupier :<br/>of the industry operation or process</b> | <b>Sri S R Suryawanshi<br/>Executive Director (Works)<br/>M/s SAIL – Rourkela Steel Plant<br/>Rourkela.</b> |
| <b>II. Industry Category</b>  | <b>: Primary &amp; Secondary</b>  |
| <b>III. Production Capacity</b>   | <b>: 4.2 MTPA Crude Steel &amp;<br/>100 MW Captive Power Generation<br/>Potential</b>                       |
| <b>IV. Year of Establishment</b>  | <b>: 1959</b>   |
| <b>V. Date of last Env. Statement submitted</b>   | <b>: 22/09/2020.</b>  |

**Part – B**

**Water and Raw Material Consumption**

**1. Water & Consumption :**

Year →	2020-21	2019-20
Water Consumption	44,332 m <sup>3</sup> /day	48,759 m <sup>3</sup> /day
Process	1,125 m <sup>3</sup> /day	1,066 m <sup>3</sup> /day
Cooling	27,811 m <sup>3</sup> /day	32,257 m <sup>3</sup> /day
Domestic	15,396 m <sup>3</sup> /day	15,436 m <sup>3</sup> /day

Name of Product	Process water consumption per unit of product output (including cooling)	
	During the current financial year 2020-21	During the previous financial year 2019-20
Crude Steel	3.41 m <sup>3</sup> /Tonne of Crude Steel	3.81 m <sup>3</sup> /Tonne of Crude Steel
Power Generation	3.47 m <sup>3</sup> /Tonne of Steam	3.27 m <sup>3</sup> /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 2020-21	During the previous financial year 2019-20
Iron Ore	Crude Steel	1.850 T/TCS	1.752 T/TCS
Coal		0.749 T/TCS	0.845 T/TCS
Lime Stone		0.314 T/TCS	0.337 T/TCS
Dolomite		0.216 T/TCS	0.230 T/TCS
Boiler Coal	Steam generated from Captive Power Plant	0.032 T/T of Steam	0.072 T/T of Steam
Mixed Gas		67.68 Nm <sup>3</sup> / T of Steam	64.11 Nm <sup>3</sup> / T of Steam
Blast Furnace Gas		380.56 Nm <sup>3</sup> / T of Steam	226.80 Nm <sup>3</sup> / T of Steam
Furnace Oil		0.167 Kg/ T of Steam	0.084 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	255.675	12.5 mg/lit	100	-87.5 %
TDS	7383.894	361 mg/lit	2100	-82.80 %
BOD	198.4038	9.7 mg/lit	30	-67.66 %
COD	605.4384	29.6 mg/lit	250	-88.16 %
Oil & grease	32.7264	1.6 mg/lit	10	-84 %
Iron	17.18136	0.84 mg/lit	3	-72 %
Total Chromium	2.86356	0.14 mg/lit	2	-93 %

**(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)	5578.10	26.41 mg/Nm <sup>3</sup>	<p style="text-align: center;">-47.18 %</p> <ul style="list-style-type: none"> <li>• The norms for stack emissions are different from different shops ranging from 50 mg/Nm<sup>3</sup> (Coke Oven Stacks) to 150 mg/Nm<sup>3</sup> (Sintering Plant stacks).</li> <li>• For calculation purpose the stringent norms i.e., 50 is considered.</li> </ul>

**Rourkela Steel Plant & Captive Power Plant#1  
Environment Statement :: 2020-21**

**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 2020-21	During the previous year 2019-20
1	Used/spent oil	30 Ton/Yr	34.6 Ton/Yr
4	Zinc Fines/ Dust/Ash/Skimmings	250 Ton/Yr	489.5 Ton/Yr
5	Acid Residues during pickling/ surface cleaning of coils in cold rolling mills	50 Ton/Yr	50 Ton/Yr
7	Spent bath/ sludge containing Sulphide, Cyanide and Toxic metals	Nil	Nil
9	Decanter Tank Tar Sludge	120 Ton/Yr	60 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	280 Ton/Yr	300 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	307 Ton/Yr	273 Ton/Yr
17	Rejected Sand	5 Ton/Yr	5 Ton/Yr
20	Flue gas cleaning residue	28,290 Ton/Yr	22,521 Ton/Yr
21	Gas Cleaning Plant(GCP) Sludge of LD Furnance	62,983 Ton/Yr.	62,569 Ton/Yr.

**Part – E**

**Solid Wastes**

SN.	Solid Waste	Total Quantity Ton/Yr	
		During current year 2020-21	During previous year 2019-20
a	<b>Generation from Process</b>		
	Blast furnace slag	13,96,407	13,75,999
	SMS slag	5,27,865	5,75,415
	Mill scale	50,039	52,905
	Acetylene sludge	0	0
	Bottom Ash/Cinder	43,929	46,768
b	<b>Generation from Pollution Control facility</b>		
	SMS sludge	62,983	62,569
	Fly Ash	44,634	1,02,350
c	<b>Quantity Recycled/Reutilized within the unit</b>		
	Mill scale	50,039	52,905
	SMS slag	2,20,089	1,41,555
	SMS sludge	0	797
	Fly Ash	44,634	1,02,350
	Bottom Ash/Cinder	43,929	46,768
d	<b>Quantity Sold</b>		
	BF slag (granulated)	14,23,450	13,75,999
	Rejected bricks	2,638	1,871
	Acetylene sludge	0	0
	SMS sludge	40,645	42,283
	SMS slag	0	184
	Fly Ash (Given free of cost)	0	19.6
	Bottom Ash/Cinder	Nil	Nil
e	<b>Disposed</b>		
	BF slag (Air cooled)	Nil	Nil
	SMS slag	3,07,776	4,33,860
	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	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

II) Solid Waste :

SN.	Solid Waste	Quantity of Generation (Tons)	Composition	Disposal methodology
1)	BFc. Slag	13,96,407	SiO <sub>2</sub> – 17.8%; Si <sub>2</sub> O <sub>3</sub> – 34.6%; CaO – 9.7%; MgO – 0.58%; FeO – 0.12%, MnO <sub>5</sub> – 0.49%	Sold to cement manufacturers.
2)	SMS Slag	5,27,865	FeO - 23.2% SiO <sub>2</sub> – 11.7% CaO – 46.3% MnO – 0.7% Al <sub>2</sub> O <sub>3</sub> – 1.4% P <sub>2</sub> O <sub>5</sub> – 5.7% TiO <sub>2</sub> – 2.6%	Recycled back to process for steel making, used as pavement material, rail ballast etc.
3)	Mill Scale	50,039	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	62,983	Total Iron – 66% SiO <sub>2</sub> – 6.1% Al <sub>2</sub> O <sub>3</sub> – 0.6% CaO – 18% P <sub>2</sub> O <sub>5</sub> – 6% MnO – 0.26% TiO <sub>2</sub> – 0.8%	Sold to external agencies for making pellets.
6)	Fly Ash, Bottom Ash & cinder	88,563	SiO <sub>2</sub> : 60 – 64% Al <sub>2</sub> O <sub>3</sub> : 12 – 23% TiO <sub>2</sub> : 1.5% Fe <sub>2</sub> O <sub>3</sub> : 8 – 19% Na <sub>2</sub> 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		
Revival of DE System in Lime Dolomite Brick Plant, Kiln No. 5	The old DE system outlived their life, resulting high stack emissions	Reduction of Stack emissions	Commissioned successfully	Rs. 19.58 Lakh
Revamping of underground sewage system in Steel township	Overflow of sewage	Diverting of sewage to Sewage Treatment Plant	Completed	Rs. 250 Lakh
Procurement of ride on sweeping machine and deployment in HSM#2	Shop floor dust	Improvement in work zone dust levels	Completed	Rs. 4.5 Lakh



**Part – H**

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

- Tree plantation inside the steel plant premises – 1 Lakh

**PART – I**

Any other particulars for improving the quality of the environment.

Tree Plantation :

Description	2020-21	2019-20
Tree plantation in and around Rourkela Steel Plant	51,299	1,16,397