



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

Ref. No. : 691/EE/1/
Date : 17/09/2018.

Respected Sir,

**Sub : Environmental Statement of Rourkela Steel Plant &
Captive Power Plant#1 for the year 2017-18.**

Please find enclosed herewith the Environment Statement of Rourkela Steel Plant including Captive Power Plant for the year 2017-18 for your kind information and necessary action.

Thanking you sir,

With kind regards,

Yours faithfully,

(S.N Xess)

DGM (Env. Engg. Department)

Encl : As above

To :

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

Copy to :

The Chief Conservator of Forests,
Eastern Regional Office,
Ministry of Environment & Forests,
A/3, Chandrasekharpur,
Bhubaneswar. – 751023.

FORM – V

**Environmental Statement
for the financial year ending 31st March, 2018**

Part – A

- | | | |
|-------------|--|---|
| I. | Name and address of the owner/occupier :
of the industry operation or process | Sri S Das
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 Generations |
| IV. | Year of Establishment | : 1959 |
| V. | Date of last Env. Statement submitted | : 20/09/2017. |

Part – B

Water and Raw Material Consumption

1. Water & Consumption :

Year →	2017-18	2016-17
Water Consumption	45243 m ³ /day	43983 m ³ /day
Process	1008 m ³ /day	1055 m ³ /day
Cooling	28479 m ³ /day	27177 m ³ /day
Domestic	15756 m ³ /day	15751 m ³ /day

Name of Product	Process water consumption per unit of product output (including cooling)	
	During the previous financial year 2017-18	During the current financial year 2016-17
Crude Steel	3.72 m ³ /Tonne of Crude Steel	3.89 m ³ /Tonne of Crude Steel
Power Generation	7.07 m ³ /Tonne of Steam	4.97 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 2017-18	During the previous financial year 2016-17
Iron Ore	Crude Steel	T/TCS	1.75 T/TCS
Coal		0.898 T/TCS	1.01 T/TCS
Lime Stone		0.256 T/TCS	0.255 T/TCS
Dolomite		0.266 T/TCS	0.254 T/TCS
Boiler Coal	Steam generated from Captive Power Plant	0.067 T/T of Steam	0.093 T/T of Steam
Mixed Gas		48.58 Nm ³ / T of Steam	32.19 Nm ³ / T of Steam
Blast Furnace Gas		345.77 Nm ³ / T of Steam	382.37 Nm ³ / T of Steam
Furnace Oil		0.104 Kg/ T of Steam	0.38 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	586.67	29 mg/lit	100	-71.0%
TDS	4288.73	212 mg/lit	2100	-89.90%
BOD	242.76	12 mg/lit	30	-60%
COD	768.73	38 mg/lit	250	-84.80%
Oil & grease	78.90	3.9 mg/lit	10	-61%
Iron	54.62	2.7mg/lit	3.0	-10%
Total Chromium	0.06	0.0028 mg/lit	2.0	-99.86%

(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)	7984.55	37.35 mg/Nm ³	<p style="text-align: center;">-25.3%</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 2017-18	During the previous year 2016-17
1	Tar Residue from Gas Trap & Scale	1.0 Ton/Yr	1 Ton/Yr
2	Used Oil	40.0 Ton/Yr	40 Ton/Yr
4	Zink Dross	484.0Ton/Yr	350 Ton/Yr
5	Pickling Tank Sludge	40.0Ton/Yr	40 Ton/Yr
6	Tin Plating Line Sludge	1.0 Ton/Yr	1 Ton/Yr
7	Acid Tar	1.0 Ton/Yr	1 Ton/Yr
8	Decanter Tar Sludge	60.0 Ton/Yr	60 Ton/Yr
10	Acid Storage Tank Sludge	1.0 Ton/Yr	1 Ton/Yr
11	V2O5 Catalyst	Nil	2 Ton/Yr
12	Cleaning Solvent Sludge	0.50 Ton/Yr	0.5 Ton/Yr
15	Sulphur Muck	Nil	200 Ton/Yr
16	Damaged Refractory lining & residue from furnace	Nil	20 Ton/Yr
17	Tin Ash	Nil	0
18	Dichromate Sludge	Nil	0
19	Non Ferrous Waste	0.50 Ton/Yr	0.5 Ton/Yr
23	Grinding Waste	0.10 Ton/Yr	0.1 Ton/Yr
24	Waste Asbestos	100 kg/Yr.	100 kg/Yr.
26	GCP sludge of LD Furnaces	57,926 T/Yr.	52,784 T/Yr.

b) From Pollution Control Facilities:

3	Oily Sludge/Waste contaminated with oil	Ton/Yr	400 Ton/Yr
9	Catch Pit Sludge/Tarry waste	60.0 Ton/Yr	60 Ton/Yr
13	DM Plant Neutralization Sludge	5.0 Ton/Yr	5 Ton/Yr
14	Chemical sludge from Waste Water Treatment	100.0 Ton/Yr	100 Ton/Yr
20	Bag Filter Dust	1.50 Ton/Yr	1.5 Ton/Yr
21	Rejected Sand	15.0 Ton/Yr	15 Ton/Yr
22	Sand Blasting Bag filter Dust	1.0 Ton/Yr	1 Ton/Yr
25	Flue gas residue	22,017 Ton/Yr	17,780 Ton/Yr

Part – E

Solid Wastes

SN.	Solid Waste	Total Quantity Ton/Yr	
		During current year 2017-18	During previous year 2016-17
Generation from Process			
a	Blast furnace slag	10,97,086	12,14,238
	SMS slag	5,27,547	4,81,532
	Mill scale	51,565	52,784
	Acetylene sludge	249	625
	Bottom Ash/Cinder	53,764	50,633
	Generation from Pollution Control facility		
b	SMS sludge	57,926	52,784
	Fly Ash	59,204	60,878
Quantity Recycled/Reutilized within the unit			
c	Mill scale	51,625	53,600
	SMS slag	1,08,398	2,44,788
	SMS sludge	6,290	0
	Fly Ash	57,915	58,717
	Bottom Ash/Cinder	53,764	50,633
Quantity Sold			
d	BF slag (granulated)	10,97,086	12,08,836
	Rejected bricks	2,357	4,359
	Acetylene sludge	249	625
	SMS sludge	12,808	23,844
	SMS slag	1,246	3,811
	Fly Ash (Given free of cost)	1289	2,161
	Bottom Ash/Cinder	Nil	Nil
Disposed			
e	BF slag (Air cooled)	Nil	Nil
	SMS slag	4,17,903	2,36,744
	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	10,97,086	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	5,27,547	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	51,625	FeO - ~ 98%	Recycled back to steel making process
4)	Acetylene Sludge	249	CaO ~ 65%	Sold to external agencies for use for white washing.
5)	SMS Sludge	57,926	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	1,12,968	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		
Installation of wind driven turbine ventilators in Silicon Steel Mill	No facility earlier	Saving electric power	Commissioned successfully	4.66
Development of 3 no. of Rain Water Harvesting Systems in Steel Township	No facility earlier	Saving water	Commissioned successfully	11.96

Part – H

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

- Setting up of organic waste converter for treatment of Bio degradable waste
- Installation of 16 no. of Rain water harvesting systems in Steel Township.
- Installation of roof top solar power generation systems for Rourkela House.

PART – I

Any other particulars for improving the quality of the environment.

Tree Plantation :

Description	2017-18	2016-17
Tree plantation in and around Rourkela Steel Plant	61,285	50,000
Free distribution of saplings in Educational institutions and peripheral villages	1 lakhs	1 lakhs