ENVIRONMENT STATEMENT

FOR THE FINANCIAL YEAR 2022-23

Submitted to SPCB under Rule 14 of The Environment (Protection) Rules 1986

TATA STEEL LIMITED

FERRO ALLOYS PLANT

BALASORE

ENVIRONMENTAL STATEMENT

OF

FERRO ALLOYS PLANT (TATA STEEL LIMITED)

BALASORE

FOR THE YEAR
2022-2023

PREPARED BY

THE DEPARTMENT OF SAFETY & ENVIRONMENT
FERRO ALLOYS PLANT
Z1 IDCO IID CENTER, SOMNATHPUR, BALASORE-756019

INTRODUCTION

Ferro Alloys plant, Balasore (Previously known as Stork Ferro & Mineral Industries Pvt. Ltd.) was installed in 2011(Acquired by TATA STEEL LTD. In JULY,2022) as a captive source of supply of High Carbon Ferro Manganese & High Carbon Silico Manganese Alloys to steel Works. The plant was set up in technical collaboration with GHALSASI SMELTING PRIVATE LIMITED, one of the world pioneers in smelting technology. The plant was set up with an installed capacity of 53,285 MT of FeMn, SiMn, FeCr, FeSi per year from two Furnaces of 33 MVA.

ABOUT THE PLANT

PLANT LOCATION AND ACCESSIBILITY

The site of the Ferro Alloys Plant is located at Plot No.- **Z1, IDCO IID CENTER, SOMNATHPUR, REMUNA, BALASORE, ODISHA, PIN-756019** and it is a part of Survey of India Topo Sheet No. 73-K/5 (F45014, F45015) bounded by the latitudes 21°29'57.8796" N and longitudes 86°51'18.60768"E and the plant site is at a distance of 3 KM from NH-5. The nearest Railway station is at a distance of 8 KM from plant, in East direction. The nearest airport is at Bhubaneswar at a distance of about 202 km in South-east direction. Nearest port is Paradeep at a distance of 220 km. The nearest township is Balasore which is 6 Km in East direction.

ENVIRONMENTAL STATEMENT FORM – V

(SEE RULE 14)

ENVIRONMENTAL STATEMENT FOR THE FINANCIAL YEAR ENDING ON 31ST MARCH 2023

1.	Name and address of the Owner/occupier of the industry, operation or process	:	Mr. T.V. Narendran MD, Tata Steel India & SEA AT/PO- 5c Road, Jamshedpur
2.	Name and address of the Factory Manager	:	Mr. Sarbeshwar Nayak Head, Ferro Alloys Plant, Balasore
3.	Industry Category	:	Large
4.	Production Capacity of Ferro Alloys.	:	53,285 MT
5.	Year of establishment	:	2011
6.	Date of submission of previous Environmental Statement	:	N/A

Water and Raw Material Consumption

A. Water consumption:

Consumption Head	2021-22 (in cu.m/Year)	2022-23 (in cu.m/Year)
Industrial Cooling	N/A	NA
Process	N/A	17720
Domestic	N/A	300
Name of the product(s)	**Process water consumption per unit of products**	
High Carbon SiMn	N/A	NA

B. Raw material Consumption: -

The raw material consumption for the production of FeMn is as follows:

Name of raw materials		Consumption of raw material	
		During the previous	During the current
	Unit	Financial Year (2021-2022)	Financial Year (2022-2023)
Manganese Ore	MT	NA	24887.49
Coke	MT	NA	10906.96
Dolomite	MT	NA	4102.48
Power Consumption	KWH	NA	41383320
High MnO Slag	MT	NA	3161.18
Quartzite	MT	NA	3912.05
Production (SiMn)	MT	NA	9412.24

PART-C

POLLUTION DISCHARGED TO ENVIRONMENT/ UNIT OF OUTPUT

(Parameters as specified in consent issued)

Brief description of the process producing SiMn:

For Si-Mn production in SAF, C (coke and coal) is used as a reducing agent while the heat is supplied by the electricity. An electric current is sent through the charge, and heat is created according to $P = I^2R$, where P is the effect i.e. the heat created, R is the charge resistance and I is the current density.

In a SAF the electrode tips are submerged in a porous charge mix, and electrical energy is liberated by micro-arcing to a slag rich coke bed floating on top of a molten alloy bath. The heat requirement is supplied as electrical energy and the coke acts both as a reducing agent and electrical resistance element. The reactions which are taking place during the production of Si-Mn are given below.

The reduction of Si and Mn in the production of Si-Mn is takes place by the following series of different reduction steps.

$$(SiO_2) + 2C = Si + 2CO\ (g)$$

$$(SiO_2) + 2SiC = 3Si + 2CO\ (g)$$

$$(MnO) + C = Mn + CO\ (g)$$

$$(SiO_2) + 2Mn = Si + 2(MnO)$$

$$(SiO_2) + Si = 2SiO\ (g)$$

$$Mn = Mn\ (g)$$

The main equilibrium reactions which control the distribution of Si and Mn between the slag and Si-Mn alloy are the following.

$$(MnO) + C = Mn + CO\ (g)$$

$$(SiO_2) + 2C = Si + 2CO\ (g)$$

A. Water Pollutants:

The water used for cooling several parts of the Furnaces as well as scrubbing the flue gas in the Gas Cleaning Plants is re-circulated to the system and is not discharged outside the Plant. However, during rainy season discharge of storm water is a natural process.

B. Air Pollutants: Due to the effective operation of Gas Cleaning Plant. (Avg. data of the Year)

Sl.No	Stack Details	Pollutants	Quantity of Pollutants discharged(mass/day)(Tons/day)	Concentration of Pollutants Discharged(mass/volume)(Mg/Nm3)	Percentage of variation from prescribed standard with reasons
1	ST-1	PM10(Mg/Nm3)	0.0047	39.68	-28.66

PART – D
HAZARDOUS WASTES
(AS SPECIFIED UNDER THE HAZARDOUS WASTES)

As specified under the Hazardous & Other Waste (Management & Trans boundary Movement) Rules, 2016 and amendment thereof)

Hazardous waste	Total Quantity Generated	
	During the Previous Year(2021-2022)	During the Current Year(2022-2023)
1.From Processes		
a. Used Transformer Oil	NA	12000ltrs
b. Waste Oil (Lubricants,etc)	NA	NA
c. Waste batteries	NA	3Tons
2. From Pollution Control Facility		
GCP Dust	NA	2000 ton

PART – E
SOLID WASTES

SL No	Sources	TOTAL QUANTITY	
		During the previous financial year (2021- 2022)	During the previous financial year (2022-2023)
a	From Process	NA	NA
b	From Pollution Control Facility.	NA	NA
	1. Quantity recycled or Reused within the unit (MnSi Slag)	NA	NA
	2.Quantity sold (MnSi Slag)	NA	NA
c	3.Quantity Disposed(MnSi Slag)	NA	NA

PART – F

Please specify the characteristics (in terms of concentration and quantum) of hazardous as well as solid wastes and indicate disposal practice adopted for both these categories of wastes.

Hazardous/ Solid Wastes	Characteristics	Method of disposal
MnSi Slag	SiO2,MnO,Al2O3,CaO,MgO	Used in plant road development project
GCP Dust	SiO2,MnO,Al2O3,CaO,MgO	25MT sent to R&D in house for briquette feasibility with the approval of regional pollution board
Used Batteries	Lead-Acid	Separate Storage provided suitable dealer is in search
Used Transformer Oil	Hydrocarbon	Separate Storage provided

PART - G

IMPACT OF THE POLLUTION ABATEMENT MEASURES TAKEN ON CONSERVATION OF NATURAL RESOURCES AND ON THE COST OF PRODUCTON:

M/s Ferro Alloy Plant, Balasore has spearheaded the pursuit for Environmental Protection by implementing an effective environmental management system. To this effect, the Plant has undertaken the following measures:

I. Plantation in and around the plant is in process alongwith construction of dedicated pathway.
II. Monthly basis environmental monitoring is being carried out.
III. Mobile water sprinklers is provided all round the clock.

PART – H

ADDITIONAL MEASURES/ INVESTMENT PROPOSAL FOR ENVIRONMENTAL PROTECTION INCLUDING ABATEMENT OF POLLUTION, PREVENTION OF POLLUTION

I. Revamping of fume extraction system is still in the pipeline.
II. Installation of dust analyser will be done by this October first week.
III. Tree plantation will continue in the year 2023-24.

PART – I
ANY OTHER PARTICULARS FOR IMPROVING THE QUALITY OF THE ENVIRONMENT

- Ferro Alloys Plant of TATA Steel Ltd. is certified for the Integrated Management System (ISO-9001:2015, ISO-14001:2015 & OHSAS-45001:2018 and SA:8000) from last two decades. The unit has obtained various prestigious accolades from various agencies.

- Various awareness programs throughout the year conducted in the area which included celebration of World Environment Day, Ozone Day, Earth Day, Sustainability Month etc. in which environment awareness programs, competitions are conducted every year.

- All above efforts make the plant clean - green and sustainable.