Ref. No. TSL/FAMD/FAPJ/FY27/4523 Dated: 30/09/2026.

The Member Secretary
State Pollution Control Board, Odisha
Paribesh Bhavan
A/118, Nilakantha Nagar, Unit-VIII
Bhubaneswar-751012

Sub: Submission of Environmental Statement of Ferro Manganese Plant, Joda for the period of 2025-26.

Dear Sir,

We are hereby submitting the Annual Environmental Statement in "FORM-V" prescribed under the above referenced statute, for the year ending 31st March 2026 in respect of Ferro Manganese plant, Joda of Tata Steel Limited for your kind consideration.

This is for your kind information and perusal please. We look forward to further your guidance which shall certainly help us in endeavoring further improvements in our Environmental Management Practices.

Thanking you,

Yours faithfully,
For: TATA STEEL LTD.



Head & Factory Manager
Ferro Manganese Plant,
Joda

Encl: as above.

Copy to - Regional Officer, OPCB, At-Baniapatt, College Road, Keonjhar - with enclosure.

TATA STEEL LTD.
Ferro Alloys & Minerals Division
Ferro Manganese Plant, Joda
Joda – 758034, Odisha, India
Tel: 09238100945, e-mail –head.office@tatasteel.com
Regd. Office: Bombay House, 24 Homi Mody Street, Mumbai – 400 001



ENVIRONMENT STATEMENT

FOR THE FINANCIAL YEAR 2025-26

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

TATA STEEL LIMITED
FERRO MANGANESE PLANT
JODA, KEONJHAR

ENVIRONMENTAL STATEMENT

OF

FERRO MANGANESE PLANT
(TATA STEEL LIMITED)
JODA, KEONJHAR

FOR THE YEAR 2025-2026

PREPARED BY
THE DEPARTMENT OF ENVIRONMENT

FERRO MANGANESE PLANT
TATA STEEL LIMITED
JODA, DIST. KEONJHAR

INTRODUCTION

Ferro Manganese plant, Joda was installed in 1958 as a captive source of supply of Manganese Alloys to steel Works, Jamshedpur with a capital investment of 1.58 Crores. The plant was set up in technical collaboration with M/s. ELKEM, Norway, one of the world pioneers in smelting technology. JODA Valley was selected as the plant site because of its close proximity to the Mn Mines of TSL from where major raw materials were to be procured. The plant was set up with an installed capacity of 30,000 MT of Fe-Mn per year from two Furnaces of 9 MVA.

Considering the changed market scenario, one of the two furnaces was modified in the year 1989 to increase the capacity from 9 MVA to 15 MVA. In the year 1995, further modification was carried out in the furnace configuration as well as pit side facilities.

M/S Tata Steel Limited (hereinafter termed as TSL) is presently operating with two submerged arc furnaces to produce a total of 0.06 MTPA Fe-Mn with same two furnaces further configuring to 12MVA and 15MVA capacity respectively.

ABOUT THE PLANT

Plant Location and Accessibility

The site of the Ferro Manganese Plant is located at Joda, Tehsil- Barbil, District-Keonjhar, State-Odisha and it is a part of Survey of India Topo Sheet No. 73-F/8 bounded by the latitudes 220 01’ 01.181” N to 220 01’ 25.922” N and longitudes 850 25’ 48.671”E and to 850 25’ 48.671” E and the plant site is at a distance of 1.95 km from NH-215. The nearest Southeastern Railway line is at a distance of 1.0 km from plant, in East direction. The nearest airport is at Bhubaneswar at a distance of about 196 km in South-east direction. Nearest port is Paradeep at a distance of 232 km. The nearest township is Barbil which is 10.2 Km in North-West direction.

ENVIRONMENTAL STATEMENT FORM – V
(See rule 14)

ENVIRONMENTAL STATEMENT FOR THE FINANCIAL YEAR ENDING ON 31ST MARCH 2025

FERRO MANGANESE PLANT, TATA STEEL LIMITED, JODA

PART – A

1	Name and Address of the Owner/Occupier of the Industry, operation or process	Mr. Somnath Lahiri Head, Ferro Manganese Plant, Tata Steel Limited, AT/PO-Joda, Keonjhar
	Nominated Owner	Mr T V Narendran, Managing Director & CEO, Tata Steel Limited, PO: Jamshedpur, Dist.: East Singhbhum, Jharkhand-831001
2	Industry category	Ferrous and Nonferrous Metal Extraction
3	Production Capacity	60,000 Tonnes/Annum
4	Year of Establishment	1958
5	Date of Submission of previous Environment statement	26th Sept 2025

PART – B

Water and Raw Material Consumption

A. Water consumption:

Consumption Head	2024-25 (in cu.m/Year)	2025-26 (in cu.m/Year)
Industrial Cooling	373662	246427
Process	-	-
Domestic	2555	2793
Name of the product(s)	**Process water consumption per unit of products**	
High Carbon FeMn	7.65	5.02

*The colony of FAP Joda is situated outside the plant area.

B. Raw material Consumption: -

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

Name of raw materials	Name of Products	Consumption of raw material per unit of Output (KG/ MT or (MWH)	
		During the previous Financial Year (2023-2024) (in KG)	During the current Financial Year (2024-2025) (in KG)
Manganese Ore	Fe-Mn	2547.941 KG/tFeMn	2614.609 KG/tFeMn
Coke	Fe-Mn	494.07 KG/tFeMn	509.761 KG/tFeMn
Dolomite	Fe-Mn	295.47 KG/tFeMn	205.0963 KG/tFeMn
Slag	Fe-Mn	Nil	707.62 KG/tFeMn
Quartzite	Fe-Mn	112KG/tFeMn	NIL

PART-C

POLLUTION DISCHARGED TO ENVIRONMENT/ UNIT OF OUTPUT (Parameters as specified in consent issued)

Basically, the plant produces air pollution, and the causes can be attributed to the process which has been briefed as follows:

Brief description of the process producing FeMn:

During the smelting process, oxides of Iron, Manganese, Silicon, Sulphur and Phosphorous are reduced and the reactions involved in the above process are as follows: -

$$Mn_3O_4 + 4C = 3Mn + 4CO$$
$$Mn_3O_4 + C = 3MnO + CO$$
$$Fe_2O_3 + CO = 2FeO + CO_2$$
$$FeO + C = Fe + CO$$
$$SiO_2 + 2C = Si + 2CO$$
$$P_2O_5 + 5C = 2P + 5CO$$

The Sulphur goes into the Slag and also escapes to the atmosphere through the stack as SO2.

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)

SI No.	Stack details	Pollutants	Quantity of Pollutants discharged (mass/day) (KG/day)	Concentration of Pollutants discharged (mass/volume) (mg/Nm^3)	Percentage of variation from prescribed standard with reasons
1	Furnace 1	**PM (mg/Nm^3)**	2.12	33.05	-33.9%
2	Furnace 2		2.30	32.37	-34.7%

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 WASTES	TOTAL QUANTITY GENERATED	
	DURING THE PREVIOUS YEAR (2024-2025)	DURING THE CURRENT YEAR (2025-2026)
I) FROM PROCESS		
a. Used transformer oil	4.368 KL	3.718 KL
b. Waste oil	0.720 T	Nil
c. Waste batteries	Nil	Nil
II) FROM POLLUTION CONTROL FACILITY		
Flue gas cleaning residue (GCP sludge)	~5052.94MT	~3258.1 MT

PART – E
SOLID WASTES

Solid wastes from FAP Joda have been categories in two parts i.e., Fe-Mn Slag which is generated during smelting operations and Sludge generated from Wet scrubber of Gas cleaning plant. Slags are processed in slag crusher & sold to Si-Mn plant and/or some percentage reused as raw material in the process. GCP sludge is stocked in designated place inside the plant premises for making briquette. However, other solid waste (such as scrap material, used conveyor belts etc.) is also being generated.

SL No	SOURCES	TOTAL QUANTITY	
		DURING THE PREVIOUS FINANCIAL YEAR (2024-2025)	DURING THE CURRENT YEAR (2025 - 2026)
a	From Process	35744.17 MT High MnO Slag	34733.54 MT High MnO Slag
b	From Pollution Control Facility.	~5052.94MT GCP Sludge	~3258.1 MT GCP Sludge
c	1. Quantity recycled or Reused within the unit a. FeMn Slag b. GCP Sludge c. Used Oil	 a. 0 b. 4921.6 MT c. 708 L	 a. 4325.63 MT b. 2654.34 MT c. 3.718 MT
	2. Quantity sold (High MnO Slag)	35744.17 MT	31585.2 MT
	3. Quantity disposed	Inhouse utilization for roads	Nil

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
FeMn Slag	MnO = 26% to 35% SiO2 = 20% to 30% R2O3* = 18% to 21% CaO = 6 % to 10% MgO = 4 % to 8%	During smelting operation High MnO slag generated as a by - product, which is partly used in Fe-Mn Process and partly sold to Si-Mn Plant.
GCP Sludge	MnO = 46% to 48% C = 3% to 4% R2O3 = 10% to 12% CaO = 3% to 5% MgO = 6% to 7.5%	The sludge after being conveyed to the sludge drying beds from the thickener is allowed to dry sufficiently and the dry sludge is then transported to the earmarked sludge dumping site (a Co's low-lying leasehold area) for making briquette. In order to prevent the sludge getting into the water body flowing in proximity, a retaining wall of size 250Mtrs x 2.5 Mtrs x 0.5 Mtr as well as a garland drain encircling the total sludge dumping site and a 2-stage settling pit have been constructed around the dumping site adjoining the water body as pollution prevention measures.
Used Transformer Oil	Hydrocarbons	Sold to authorized recycler.
Waste batteries	lead and used acids.	Buy back to supplier

PART - G

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

M/s Ferro Manganese Plant, Joda 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. Annual maintenance of all the four GCPs including power consumption and sludge transportation is Rs. 94 Lacs (Approx.)
ii. Annual maintenance of High velocity mobile type rotary water sprinkler including diesel consumption which incurred cost of Rs. 3.89 Lacs.
iii. Annual Maintenance of Fume Extraction System including power consumption is Rs. 2.33 Lacs
iv. Plantation in and around the Plant: Annual expenditure of approx. Rs. 10 Lacs was incurred.
v. Environmental monitoring and annual maintenance cost incurred was 7.5 Lacs (approx.)
vi. Cost of Rs. 0.4 Lacs incurred in maintenance of fixed sprinklers installed on internal roads.
vii. Annual maintenance of DFDS system Rs. 0.9 Lacs (Approx.)

viii. Mist Cannon O&M cost Rs. 1.57 Lacs.
ix. ETP and STP operation and maintenance cost of Rs. 33.8 Lacs per annum.
x. Cost of ETP Tank construction Rs. 25 Lacs (Approx)
xi. Cost of restoration of sludge pit Rs. 7 Lacs.

PART – H

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

- Operation of 30 m3/hr ETP started to treat the effluent water & reuse. Approx. 180 KL treated water generated everyday which is reused in processes like cooling, solid liquid separation plant, water sprinkling etc.
- Gas Cleaning Plant overhauling done.
- Sludge Briquette Plant to utilize GCP Sludge in Briquette form as a raw material to Furnace.
- Sapling plantation is under progress inside and outside FAP Premises.
- Extension of fixed water sprinkling project is under progress One more ground water recharge structure made which is to collect water from furnace building roof and recharge to ground.
- Piezometer with telemetry system installed to monitor the real time ground water level.

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.