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

MD/ ENV/ 817 / 120 / 2020
Date: 21st September 2020

Sub: Environmental Statement of Khondbond Iron & Manganese Mine, M/s Tata Steel Limited for 2019-20.

Dear Sir

Kindly find attach herewith the Environmental Statement in the prescribed format (Form V) as per "Environmental (Protection) Amendment Rules 1992" of our Khondbond Iron & Manganese Mine for your kind perusal.

Thanking you,

Yours faithfully
f: Tata Steel Limited

Head (Planning), OMQ

Encl: As above

Copy to: The Regional Officer,
State Pollution Control Board, At: Baniapata, College Road
Keonjhar - 758001, Odisha

TATA STEEL LIMITED
Mines Division Joda Keonjhar Odisha 758 034 India
Tel 91 7440037036
Registered Office Bombay House 24 Homi Mody Street Fort Mumbai 400 001
Tel 91 22 66658282 Fax 91 22 66657724
Corporate Identity Number L27100MH1907PLC000260 Website www.tatasteel.com

ENVIRONMENT STATEMENT
2019-20

Khondbond Iron & Manganese Mine

KHONDBOND IRON & MANGANESE MINE

TATA STEEL LIMITED

September 2020

FORM - V
(See Rule -14)

ENVIRONMENT STATEMENT FOR THE FINANCIAL YEAR ENDING THE 31st MARCH, 2018

KHONDBOND IRON & MANGANESE MINE, TATA STEEL LIMITED

PART–A

1	Name and address of the owner/ occupier of the industry, operation or process	:	Mr Shirish Sekhar, Chief (Khondbond) Khondbond Iron & Manganese Mine TATA Steel Limited, Joda, Dist.- Keonjhar, Odisha – 758034 Mr Manish Kumar, Mines Manager (Khondbond) Khondbond Iron & Manganese Mine TATA Steel Limited, Joda, Dist.- Keonjhar, Odisha – 758034
	Nominated Owner	:	Mr. Atul Bhatnagar, General Manager, OMQ division, Administrative Building, Noamundi Iron Mine, TATA Steel Limited PO.: Noamundi, Dist.-West Singhbhum Jharkhand – 833217 Mr T V Narendran, Managing Director & CEO, Tata Steel Ltd, PO: Jamshedpur, Dist.: East Singhbhum, Jharkhand-831001
2	Industry Category	:	Opencast Iron & Manganese Mining & Processing & Dispatch Industry (Major)
3	Production Capacity*	:	Mine: 08 MTPA Iron Ore & Manganese :0.1MTPA Beneficiation & Dispatch: 08 MTPA Iron Ore
4	Year of Establishment	:	Date of Lease Execution 27.10.1984
5	Date of last Environmental Statement submitted.	:	25th September 2019, vide letter no. MD/ENV/347/120/2019 for the year 2018-19

*As per Environmental Clearance

PART–B
Water and Raw Material Consumption

(i) Water Consumption:

Consumption Head:	**2018-19 (in cu.m/day) (Annual Average)**	**2019-20 (in cu.m/day) (Annual Average)**
Process	NA	NA
Spraying in mine pit, services	122.56	139.01
Domestic	99.39	74.16
Name of the product	**Process water consumption per product output (m3/MT)**	
Iron Ore	NA	NA
Manganese Ore	NA	NA

This is a mechanised mine producing iron ore. The iron ore processing is dry crushing and screening only. Dust suppression at C&S plant is carried out through a scientific way using dry fog system, thus reducing the requirement of water to very minimum level.

ii) Raw Material Consumption

The following items have been consumed/ utilized:

Name of Raw Materials	Consumption of Raw Material	
	During current financial year (2018-19)	During current financial year (2019-20)
High Speed Diesel	2281550 Litre	2579794 Litre
Lubricants	43531 Litre	Nil
Grease	5421 kg	Nil
Explosive of all types (Explosive, codex, detonator)	1087585 kg	1508425 kg
Gas	13334 cum	Nil
Tyres	63 nos.	Nil
Drill rods	67 nos.	272 nos.
Electricity Consumed	1775988 kwh	3490407 kwh
Electricity Generated	NIL	NIL

PART–C
POLLUTION DISCHARGED TO ENVIROMENT/ UNIT OF OUTPUT
(Parameters as specified in the consent issued)

Pollutants	Quantity of Pollutants discharged (mass / day)	Concentration of Pollutants discharges (mass / day)	Percentage of variation from prescribed standards with reasons
a) Water	The Khondbond Iron & Manganese Mine with the processing plant, the iron and manganese mine pits are separately been operated. The processing plant is under construction and shall be of zero effluent discharge unit; all the effluent generated from the processing of iron ore is collected from slime pond and recycled & reused by 100% in various activities including dust suppression and iron ore processing. One sewage treatment plant (STP) of 10 KLD is installed & is operated and entire treated water is recycled & reused for plantation and gardening purpose. The HEMM cleaning & washing unit passed through oil separation pit and water is recycled back. All the water quality results of STP are attached herewith in annexure-1.		
b) Air	The Khondbond Iron & Manganese Mine is an opencast iron mine with processing plant & dispatch unit. The air quality in the form of fugitive, dust fall, ambient, respirable is been measured and monitored regularly and is well within limits. All the dust generating points such as loading -unloading devices are equipped with dust arresting system such as dry fog, fixed & mobile water sprinklers, mist spray, dust extractors -bag filters, water scrubbers etc. Three continuous ambient air quality monitoring stations with PM_{10}, $PM_{2.5}$, SOx, NOx, (NO2 & NO) & CO parameters are continuously been monitored with online data connectivity at state Pollution Control Board server.		

Pollutants	Quantity of Pollutants discharged (mass / day)	Concentration of Pollutants discharges (mass / day)	Percentage of variation from prescribed standards with reasons
	A thick & dense vegetation is also placed in all surrounding the area which significantly reduced the pollution load. **The results of air quality monitoring is attached as annexure-2.**		

PART–D
HAZARDOUS WASTES

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

Hazardous Wastes	Total Quantity	
	During current financial year (2018-19)	During current financial year (2019-20)
(a)From Process • Used Oil • Waste containing Oil • Waste Used Batteries	14170 litre 0.5MT 52 nos (1.56MT)	29800 litre 0.5MT Nil
ii) From Pollution Control Facility • Waste oil from oil & grease separation pit • Sludge from oil and grease separation pit	Nil (Included in process) All the Hazardous waste generated is disposed as per law.	

PART–E
SOLID WASTES

Solid wastes from Khondbond Iron & Manganese Mine is been categories in two parts i.e. Overburden/rejects removed during mining operations and slime/tailings generated from beneficiation / processing of Iron Ore. All the materials overburden and tailings are stocked in designated place inside the mine. However, other solid waste is also being generated from mining and processing / beneficiation activity. Currently no slime/tailings generated as the process plant is under construction.

Sources	Total Quantity	
	During current financial year (2018-19)	During current financial year (2019-20)
a) From Process		
• From mining as Overburden	973570 Tonne	1615959 Tonne
• Rejects	644791 Tonne	399313 Tonne
• From OB Plant as Tailing	Not Applicable	Not Applicable
b) From Pollution Control Facility	Not Applicable	Not Applicable
c) i. Quantity recycled or reutilized within the unit	413877 Tonne	1315782 Tonne
ii. Quantity sold		
• General Office waste	Nil	Nil
iii. Quantity disposed		
• Mining overburden	559693 tonne	893663 tonne
• Rejects	Nil	Nil

PART-F

PLEASE SPECIFY THE CHARACTERISTICS (IN TERMS OF COMPOSITION AND QUANTUM) OF HAZARDOUS AS WELL AS SOLID WASTES AND INDICATE DISPOSAL PRACTICE ADOPTED FOR BOTH THESE CATEGORIES OF WASTES

The Khondbond Iron & Manganese Mine and processing / beneficiation generate hazardous waste mainly in the form of used oil. The used oil is being generated from HEMM maintenance, which are used in manning operations. The used oil is disposed to authorized agency for recycling and reuse. During handling and maintenance of HEMM, the oil-soaked materials (jute etc) is been kept and disposed in impervious pit. The hazardous waste such as used batteries is sold to authorized agency.

The other solid waste in the form of overburden and sub-grade mineral are stocked in designated place.

PART-G

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

- Khondbond Iron & Manganese Mine is a star rated iron mine as per Sustainable Development Framework (SDF) as declared by Indian Bureau of Mines, Ministry of Mines, Govt. of India and has adopted various mineral conservation techniques such as blending of waste / subgrade materials, use of low-grade ore etc as per customer quality requirements.
- For conservation of natural resources, high efficiency HEMM are used with adequate maintenance so as to reduce the fuel consumption. Zero effluent discharge is been maintained.
- For ground water augmentation, four numbers of pond and two numbers of recharge structures have been constructed for rain water harvesting , the recharge potential capacity of the structures is ~ 93200 m^3/yr .
- Digital Piezometer has been installed for continuous ground water monitoring.
- New Fleet Management System (FMS) for better and efficient working of the HEMM was introduced in the mines which significantly reduced diesel consumption.

PART-H

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

- Coir matting was done on fine stocks to prevent any erosion that can lead to pollution. Various toe wall, garland drains are made as per progressive mine plan & mine closure plan. Bio Toilets were also installed in area.
- Bio-gas plant for adequate disposal of canteen waste & reduction of LPG are installed.
- The two settling pits and one check dam have been constructed in FY20 for runoff check.
- Awareness programme such as World environment day, Biodiversity day, Swachhata pakhwada, Earth day was organised for creating awareness of people regarding conservation of Natural resources in year 2019-2020.
- Plantation of 8000 Saplings have been done on the dump slopes in FY 20. Saplings act as a barrier which prevent soil erosion by air and water.
- The above abatement measures have resulted in improvement of air and water quality, reduction in noise levels, and improvement greenery within the lease. In addition, Tata Steel Rural Development Society (TSRDS) is engaged in peripheral developmental activities in villages around the mine. The projects of the Society include irrigation and agricultural extension projects, plantation programmes, creation of SAVE FOREST groups, civic amenities development, medical care and health education, rural sports and skill development, rural cultural promotion, etc.

PART-I

ANY OTHER PARTICULARS FOR IMPROVING THE QUALITY OF THE ENVIRONMENT

- Khondbond Iron & Manganese Mine of TATA Steel Ltd. is a captive mine and is certified for the Integrated Management System (ISO-9001:2015, ISO-14001:2015 & ISO-45001 and SA:8000) from last two decades.

- The Company is having a full-fledged Environmental Management Department with personnel from different backgrounds to take care of all environmental aspects relating to mines of Tata Steel. This department has in house capabilities for monitoring various environmental parameters and suggesting to the management necessary abatement measures.

- Various awareness programs throughout the year conducted in the area which included celebration of World Environment Day, World Water Day, Mine Environment & Mineral Conservation Week, Word Bio-diversity Week, Annual Flower & Vegetable Show etc. In which environment conservation models, current & future proposals are made, environment messages through Nukkad natak, poems, slogans, swachhata drive is been done every year.

Manager (Environment), Khondbond

Manager (Environment)
Khondbond Iron Mine

WATER QUALITY DATA 2019-20
Khondbond Iron & Manganese Mine
(Annual Average)

Parameters	SURFACE WATER		SEWAGE TREATMENT PLANT		Standard
	Sona river Upstream	Sona river Downstream	Inlet WW1	Inlet WW1	
pH*	7.53	7.66	6.54	7.28	**5.5–9.0**
TSS (mg/l)	36.00	41.00	110.66	22.00	**100**
BOD 5 days (mg/l)	4.10	5.26	56.78	13.25	**30**
COD (mg/l)	20.25	24.00	248.43	39.76	**250**
Oil & Grease (mg/l)	--	--	3.48	BDL	**10.0**
Iron (mg/l)	0.37	0.44	0.90	0.24	**3.0**
Faecal Coliform	247.50	345.00	174.74	<1.8	**MPN/100 ml**

Note: BDL – Below detection limit.

AIR QUALITY DATA 2019-20
Annual Average Air quality of Khondbond Iron & Manganese Mine of FY'20

Pollutants	Concentration of pollutants ($\mu g/m^3$)	Standards ($\mu g/m^3$)
Near Helipad		
1. PM_{10}	65.59	100
2. $PM_{2.5}$	40.60	60
3. SO_2	10.50	80
4. NO_x	19.73	80
5. CO	0.50	
Near Manganese Mine		
1. PM_{10}	57.03	100
2. $PM_{2.5}$	34.85	60
3. SO_2	7.38	80
4. NO_x	16.68	80
5. CO	0.38	
Near 16-D		
1. PM_{10}	68.83	100
2. $PM_{2.5}$	39.72	60
3. SO_2	8.76	80
4. NO_x	15.76	80
5. CO	0.41	
Near Labour Colony		
1. PM_{10}	69.88	100
2. $PM_{2.5}$	40.35	60
3. SO_2	9.62	80
4. NO_x	12.57	80
5. CO	0.44	