The Member Secretary
Jharkhand State Pollution Control Board
T A Division Building,
HEC Campus, Dhurwa
Ranchi – 834004

MD/ ENV/ 226 /120 / 2021
Date: 22nd September 2021

Sub: Environmental Statement of Noamundi Iron Mine, M/s Tata Steel Limited for 2020-21.

Dear Sir

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

Thanking you,

Yours faithfully
f: Tata Steel Limited

Chief (Mine Planning Projects), OMQ

Encl: As above

Copy to: The Regional Officer, Jharkhand State Pollution Control Board, MB/12 New Housing Colony, Adityapur, Jamshedpur - 831013, Jharkhand

TATA STEEL LIMITED
Mines Division Noamundi 833 217 India
Tel 91 9234301340 Fax 91 6596 290737
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
Year - 2020-21

Rain water harvesting pond Noamundi

First feet – shoe recycling facility at Noamundi

NOAMUNDI IRON MINE

TATA STEEL LIMITED

September - 2021

FORM - V
(See Rule -14)

ENVIRONMENT STATEMENT FOR THE FINANCIAL YEAR ENDING THE 31st MARCH, 2021

NOAMUNDI IRON MINE, M/S TATA STEEL LIMITED

PART–A

1	Name and address of the owner/ occupier of the industry, operation or process	:	Mr. Shirish Shekhar, Chief (Noamundi) Noamundi Iron Mine, Tata Steel Limited PO.: Noamundi, Dist.-West Singhbhum Jharkhand – 833217 Mr. Sanjit Kumar Adhya, Mines Manager Noamundi Iron Mine, Tata Steel Limited PO.: Noamundi, Dist.-West Singhbhum Jharkhand – 833217
	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 Mining Industry (Major)
3	Production Capacity	:	Mine: 19 MTPA Iron Ore, Ore Processing & Dispatch: 27 MTPA
4	Year of Establishment	:	1926
5	Date of last Environmental Statement submitted.	:	15th September 2020, vide letter no. MD/ENV/810/120/2020 for the year 2019-20

PART–B
Water and Raw Material Consumption

(i) Water Consumption:

Consumption Head:	**2019-20 (in cu.m/day) (Annual Average)**	**2020-21 (in cu.m/day) (Annual Average)**
Process	3084.08	2609.89
Spraying in mine pit , services	208.89	264.20
Domestic	2092.78	2236.23
Name of the product	**Process water consumption per product output (m3/MT)**	
Iron Ore	0.12	0.10

ii) Raw Material Consumption

The following items have been consumed/ utilized:

Name of Raw Materials	Name of Product	Consumption of Raw Material	
		During current financial year (2019-20)	During current financial year (2020-21)
High Speed Diesel	Iron Ore of steel grade	6872209 Ltrs	6616841 Ltrs
Petrol		102793 Ltrs	92606 Ltrs
Lubricants		246749 Ltrs	49510 Ltrs
Grease		24156 kg	4804 kg
Explosive of all types (Explosive, codex, detonator)		3177380 kg	3206250 kg
Gas		10402 cum	441 cum
Tyres		121 nos.	30 nos.
Drill rods		713 nos.	217 nos.
Electric Power in KWH			
Consumed	Iron Ore of steel grade	55031902	995874
Generated (From 3 MW Solar Plant)		4473261	4286362

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 Noamundi Iron Mine with the processing plant is a 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. Two sewage treatment plant (STP) of capacity 50 KLD each are installed & in operation and entire treated water is recycled & reused for plantation and gardening purpose. Two Effluent treatment plants (ETP) of capacity 10 KLD each are installed & operational in Hospital area & Bottom Bin and entire treated water is used in green park. All the water quality results of ETP & STP are attached herewith in annexure-1.		
b) Air	The Noamundi Iron 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.		

Pollutants	Quantity of Pollutants discharged (mass / day)	Concentration of Pollutants discharges (mass / day)	Percentage of variation from prescribed standards with reasons
	There are two stationary point sources such as stack of dust extractor from crushing point & DG set used for emergency powers. Both are designed as per standards and regular monitoring is been done. Two 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. 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 (2019-20)	During current financial year (2019-20)
i) From Process • Used Oil • Waste containing Oil (Jute etc.) • Lead Bering residues (Batteries etc) • Empty barrels / discarded containers etc	 87870 Ltrs Nil 164 nos. Nil	 122065 Ltrs Nil 235 nos. 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 Noamundi Iron 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.

Sources	During previous financial year (2019-20)	During current financial year (2020-21)
a) From Process • From mining as Overburden • From OB Plant as Tailing	 2389191 Tonne 592282 Tonne	 3044284 Tonne 458658 Tonne

Sources	During previous financial year (2019-20)	During current financial year (2020-21)
b) From Pollution Control Facility Ash from Hospital Incinerator	17.7kg	88.63 kg
c) i. Quantity recycled or reutilized within the unit • Slime / Tailings	Slime beneficiation process being explored	Slime beneficiation process being explored
iii. Quantity disposed • Mining overburden	2389191 Tonne	3044284 Tonne

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 Noamundi Iron 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 mining 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, sub-grade mineral and slime/tailings are stocked in designated place.

PART-G

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

- Noamundi Iron Mine is continuously a five-star rated iron mine as per Sustainable Development Framework (SDF) has declared by Indian Bureau of Mines, Ministry of Mines, Govt. of India from las successive several years.
- For mineral conservation techniques are installed and operated by unit, 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 & all process water is recycled – reuse 100% back which reduces the fresh water consumption and withdrawal.
- For ground water augmentation, various rain water harvesting structures are made, which harvest ~ 2.5 million m3 per year. Which is ~1.3 times of the water consumed by mine through various RWH structures.
- A 3MW Solar Power Plant is also been installed and operated at Noamundi area from May 2017.

PART-H

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

- The material dispatched mainly from closed conveyor belts. Various toe wall, garland drains are made as per progressive mine plan. For mineral conservation measures, slime (processed waste) from pond is been stocked at designated place for future use. The slime stock is been covered with geo-green blanket for adequate stability.
- For ground water augmentations, during last four years 30 water ponds are developed with 0.10million m^3 water holding capacity in surrounding villages in CSR by ~1 Cr rupees.
- Bio-gas plant for adequate disposal of canteen waste & reduction of LPG are installed.
- Approx Rs. 1 Crore shall be spent towards buying scientific equipment and strengthening the environmental laboratory
- For biodiversity conservation, a niche -nesting project implemented at Noamundi. Which provides artificial wooden nest boxes for birds in reclaimed area for enhancing their population naturally. Nursery of 1 Lakh sapling developed in area and only local trees are planted.
- In addition to the above Tata Steel Rural Development Society (TSRDS) is engaged in peripheral developmental activities in villages around the mine like various civil amenities projects, digging ponds in support to provision of irrigation water and for other domestic use irrigation and agricultural extensions and in recharging groundwater by arresting the flow of rainwater in downstream, plantation programmes, medi-care and health, education, rural sports and skill development, rural cultural promotion activities taken up in these villages.

PART-I

ANY OTHER PARTICULARS FOR IMPROVING THE QUALITY OF THE ENVIRONMENT

Noamundi Iron Mine of TATA Steel Ltd. is a captive mine and is certified for the Integrated Management System (ISO-9001:2015, ISO-14001:2015 & ISO-45001:2018 and SA:8000) from last two decades. The unit has obtained various prestigious accolades and is the only a five star rated mine of Jharkhand State.

The unit is having a full-fledged Environmental Management department with well qualified personnel from environmental background to take care of all aspects relating to mines and processing plant of unit. Various parameters are measured in Env lab, which is recommended from State Pollution Control Board. The lab in future is under expansion and shall be accredited for NABL.

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.

The mine has established a dense plantation in mine out area of 126 ha known as Hill 1 & 2 which makes the mine very unique. For conservation of biodiversity of the area, various initiatives such as niche nesting – an artificial nesting box for bird are placed in area, Butterfly Park, Medicinal Park, Green Park, Dorabji Park, Nakshatra Park etc. developed in area. The mines has performed various examples of mineral conservation, upgradation of low grade mineral by various unique techniques, strengthening the social progress by various skill development and job orientation of programmes for stakeholders.

All above efforts make the mine clean – green and sustainable. In the year 2020-21, Rs 19.47 Cr are spent on various environmental activities from Noamundi Iron Mine.

Manager (Environment), OMQ

WATER QUALITY DATA 2020-21
Noamundi Iron Mine
(Annual Average)

Parameters	SURFACE WATER		SEWAGE TREATMENT PLANT				EFFLUENT TREATMENT PLANT		Standard
	New Town Ship STP 50 KLD		Central Camp STP 50 KLD		Bottom Bin ETP 10 KLD		Hospital ETP 10 KLD		
	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet	
pH*	6.46	7.16	6.66	6.88	6.34	7.16	6.50	6.83	5.5–9.0
TSS (mg/l)	189.10	7.16	76.88	6.88	158.50	7.16	107.50	6.83	**100**
BOD 5 days (mg/l)	74.99	26.00	37.17	20.88	70.52	24.60	42.10	24.50	**30**
COD (mg/l)	233.62	14.11	117.19	7.56	220.77	11.74	135.79	8.23	**250**
Oil & Grease (mg/l)	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	**10**
Iron (mg/l)	0.28	0.19	0.31	0.22	0.25	0.13	0.32	0.22	**3.0**
Faecal Coliform	161.30	85.60	164.63	73.63	154.70	74.80	140.30	63.60	-

Note: BDL – Below detection limit.

WATER QUALITY DATA 2020-21
Noamundi Iron Mine
(Annual Average)

Parameters	SURFACE WATER		Standard
	Balijharan Nalla Upstream	Balijharan Nalla Downstream	
pH*	7.43	7.46	**5.5–9.0**
TSS (mg/l)	BDL (DL-10)	BDL (DL-10)	**100**
BOD 5 days (mg/l)	3.76	5.02	**30**
COD (mg/l)	14.04	17.63	**250**
Iron (mg/l)	0.13	0.16	**0.5**
Total Coliform	<2	<2	**5000**

Note: BDL – Below detection limit.

Annexure - 2

AIR QUALITY DATA 2020-21
Annual Average Air quality of Noamundi Iron Mine of FY'21

Pollutants	Concentration of pollutants ($\mu g/m^3$)	Standards ($\mu g/m^3$)
MRSS Building		
1. PM_{10}	57.44	100
2. $PM_{2.5}$	25.83	60
3. SO_2	7.66	80
4. NO_x	16.82	80
5. CO	0.327	4*
Bottom Bin area		
1. PM_{10}	59.91	100
2. $PM_{2.5}$	28.06	60
3. SO_2	8.17	80
4. NO_x	17.31	80
5. CO	0.328	4*
Near WTP		
1. PM_{10}	56.07	100
2. $PM_{2.5}$	25.28	60
3. SO_2	7.61	80
4. NO_x	16.49	80
5. CO	0.315	4*
Near Hospital		
1. PM_{10}	56.87	100
2. $PM_{2.5}$	24.42	60
3. SO_2	7.32	80
4. NO_x	17.02	80
5. CO	0.329	4*

*Unit of CO is mg/m^3