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

MD/ ENV/ 304 /120 / 2022
Date: 23rd September 2022

Sub: Environmental Statement of Noamundi Iron Mine, M/s Tata Steel Limited for 2021-22.

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

Pinky Kumar
Head (Planning), OMQ

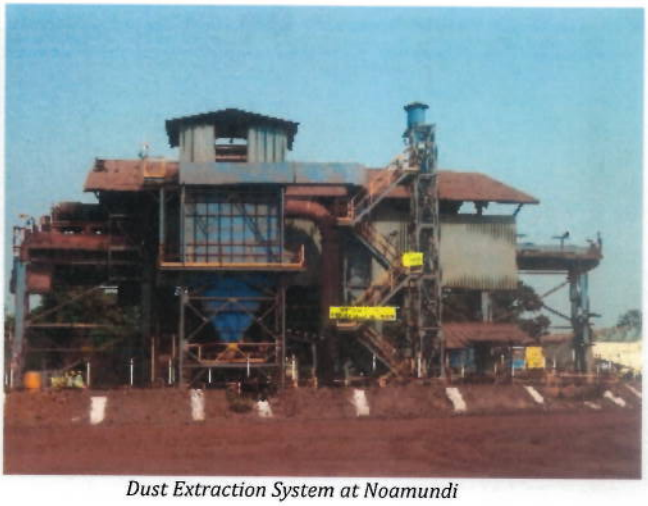
Encl: As above

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 India
Tel 91 22 66658282 Fax 91 22 66657724
Corporate Identity Number L27100MH1907PLC000260 Website www.tatasteel.com

ENVIRONMENT STATEMENT
Year - 2021-22

Rain water harvesting pond Noamundi



Dust Extraction System at Noamundi

NOAMUNDI IRON MINE

TATA STEEL LIMITED

September - 2022

FORM - V
(See Rule -14)

ENVIRONMENT STATEMENT FOR THE FINANCIAL YEAR ENDING THE 31st MARCH, 2022

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, CEO & Managing Director, Tata Steel Ltd, Bombay House, 24 Homi Mody Street, Fort, Mumbai 400 001
2	Industry Category	:	Opencast Iron Mining Industry (Major)
3	Production Capacity	:	Mine: 19 MTPA Iron Ore ROM Processing: 27 MTPA (Feed to plant) **Production details in FY22:** ROM (Ore + Subgrade): 11,382,350.365 T Subgrade: 658,818 T Throughput (Feed to plant): 10,766,408 T OB waste: 4,315,550 T Tailings: 521396 T
4	Year of Establishment	:	1926
5	Date of last Environmental Statement submitted.	:	22nd September 2021, vide letter no. MD/ENV/226/120/2021 for the year 2020-21

PART–B
Water and Raw Material Consumption

(i) Water Consumption:

Consumption Head:	**2020-21 (in cu.m/day) (Annual Average)**	**2021-22 (in cu.m/day) (Annual Average)**
Process	2609.89	2949.87
Spraying in mine pit , services	264.20	177.55
Domestic	2236.23	2431.43
Name of the product	**Process water consumption per product output (m3/MT)**	
Iron Ore	0.10	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 previous financial year (2020-21)	During current financial year (2021-22)
High Speed Diesel	Iron Ore of steel grade	6616841 Ltrs	7732227 Ltrs
Petrol		92606 Ltrs	0
Lubricants		49510 Ltrs	169908 Ltrs
Grease		4804 kg	9956 kg
Explosive of all types (Explosive, codex, detonator)		3206250 kg	3597007 kg
Gas		441 cum	0
Tyres		30 nos.	24 nos.
Drill rods		217 nos.	315 nos.
Electric Power in KWH			
Consumed	Iron Ore of steel grade	50020200	51401650
Generated (From 3 MW Solar Plant)		4286362	4090921

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 is having ore beneficiation and processing plant which are zero effluent discharge units; The beneficiation process does not use any chemicals and is provided with close circuit recycling system i.e. Zero Discharge Slime Ponds where the solids settle naturally & the overflow water is re-circulated back to the plant for ore washing. Around 4000m length Garland Drains along dumps have been constructed in last five years. Settling Pits (840cum) and Check Dams (650cum) are also present to check Surface run-offs during rain. The network of all these structures ensures that only clear water leaves the mine lease boundary. Three sewage treatment plants (STPs) having capacity of 200 KLD, 50 KLD and 50 KLD are installed at Noamundi colony. A 30 KLD CETP is installed along with Oil & grease pit with collection system at HEMM maintenance area (Workshop). Further, two ETP of 10 KLD each are also installed at Hospital and Dispatch area (Bottom Bin). All the treated water is re-used for horticultural purposes. 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 being measured and monitored regularly and is well within limits.		

Pollutants	Quantity of Pollutants discharged (mass / day)	Concentration of Pollutants discharges (mass / day)	Percentage of variation from prescribed standards with reasons
	Water jets with mist water spray is used for suppressing fugitive emission from various activities. Measures such as fixed water sprinkling, mobile water sprinkling etc. is done on haul roads to ensure fugitive emission under limits as specified in the guidelines. The measured values for fugitive emissions are found within the prescribed norms. All feed hoppers where ore is unloaded and all transfer chutes have been provided with dry-fog dust suppression system. Housekeeping is maintained in the plant area. Loading of processed ore for dispatch through rail is done through Rapid Loading System installed at our captive rail siding. Raw material (HSD, explosives, etc) are unloaded in covered area. The internal road within beneficiation plant complex and township are made with black top & concrete and maintained regularly. Dust extractor system is installed in primary crushing facility of the beneficiation plant. Two continuous ambient air quality monitoring stations have been established in the core zone for monitoring of PM_{10}, $PM_{2.5}$, SOx, NOx, (NO2 & NO) & CO parameters with online data connectivity with State Pollution Control Board server. The Ambient air quality is found within the prescribed standards. A thick & dense vegetation is also placed in all surrounding the area which significantly reduces the pollution load. **The results of air quality monitoring are 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 previous financial year (2020-21)	During current financial year (2021-22)
i) From Process		
• Used Oil	122065 Litres	128180 Litres
• Waste containing Oil (Jute etc.)	Nil	Nil
• Lead Bering residues (Batteries etc)	235 nos.	4.40 MT
• Waste Grease drums	Nil	6.98 MT
• Rejected & scrap copper cable	Nil	11.0 MT
• Rejected & used hose pipes	Nil	14.36 MT
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 categorised 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 (2020-21)	During current financial year (2021-22)
a) From Process		
• From mining as Overburden	3044284 Tonne	431550 Tonne
• From OB Plant as Tailing	458658 Tonne	521396 Tonne
b) From Pollution Control Facility Ash from Hospital Incinerator	88.63 Kg.	72.91 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	3044284 Tonne	431550 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 facility generate hazardous waste mainly in the form of used oil. The used oil is being generated during the maintenance of HEMMs which are used in mining operations. Used oil is collected and stored in concrete pits within the maintenance complex. 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) declared by Indian Bureau of Mines, Ministry of Mines, Govt. of India from last 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.
- Evaluation of water consumption is being carried out and suitable measures for reducing water consumption have been identified such as commissioning of paste thickener etc. There is zero waste-water discharge by the mine and it will be maintained in the future as well. Optimization of the water consumption will be done to reduce the specific water consumption year-on-year.
- Rainwater harvesting (RWH) ponds and ground water recharge structures have been constructed and approved by the Ground Water Directorate, Jharkhand, Ranchi. The capacity of RWH ponds is 19,785 cum. The catchment area of the RWH pond complex is approx. 117 Ha hence it has been calculated that the rainwater harvesting potential of the RWH pond structure is approx. 12,50,000 cum/annum.
- A 3MW Solar Power Plant has also been installed and operated at Noamundi since 2017.

PART-H

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

- Ore is processed in the dry and wet plants where the material is handled through closed conveyor belts. Then the dry and wet processed ore are stored in closed silos separately. Loading of processed ore for dispatch through rail is done through Rapid Loading System installed at our captive rail siding.
- 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.
- For ground water augmentations, during last four years 30 water ponds are developed with 0.10million m^3 water holding capacity in surrounding villages.
- Bio-gas plant for adequate disposal of canteen waste & reduction of LPG are installed.
- Approx. Rs. 1 Crore has been spent towards upgradation of environmental laboratory including purchase of various scientific equipment.
- 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 and ISO 45001:2018) from last two decades. The unit has obtained various prestigious accolades and is the only 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 is under upgradation 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.

All above efforts make the mine clean – green and sustainable. In the year 2021-22, Rs 21.05 Cr have been spent on various environmental activities from Noamundi Iron Mine.

Pinaki Kumar
Head (Planning), OMQ

Annexure – I

WATER QUALITY DATA 2021-22
Noamundi Iron Mine
(Annual Average)

Parameters	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*	6.97	7.40	6.77	7.21	6.35	7.36	6.31	7.25	5.5–9.0
TSS (mg/l)	87.75	24.75	78.25	23.75	90.5	23.75	133.75	18.75	100
BOD 5 days (mg/l)	28.00	10.35	29.75	7.68	25.0	8.38	28.95	11.02	30
COD (mg/l)	80.50	28.97	93.38	22.30	71.13	25.13	87.9	28.43	250
Oil & Grease (mg/l)	BDL(DL-4)	BDL(DL-4)	BDL(DL-4)	BDL(DL-4)	BDL(DL-4)	BDL(DL-4)	BDL(DL-4)	BDL(DL-4)	10
Iron (mg/l)	0.73	0.62	0.69	0.53	0.63	0.63	0.64	0.94	3.0
Faecal Coliform	133.0	61.00	117.25	45.75	143.75	54.50	132.75	61.50	-

Note: BDL – Below detection limit.

WATER QUALITY DATA 2021-22
Noamundi Iron Mine
(Annual Average)

Parameters	SURFACE WATER		Standard
	Balijharan Nalla Upstream	Balijharan Nalla Downstream	
pH*	7.44	7.41	5.5–9.0
TSS (mg/l)	BDL (DL-10)	BDL (DL-10)	100
BOD 5 days (mg/l)	BDL(DL-2)	BDL(DL-2)	30
COD (mg/l)	BDL(DL-4)	BDL(DL-4)	250
Iron (mg/l)	0.12	0.27	0.5
Total Coliform	<2	<2	5000

Note: BDL – Below detection limit.

Annexure - 2

AIR QUALITY DATA 2021-22
Annual Average Air quality of Noamundi Iron Mine of FY'22

Pollutants	Concentration of pollutants ($\mu g/m^3$)	Standards ($\mu g/m^3$)
MRSS Building		
1. PM_{10}	54.47	100
2. $PM_{2.5}$	20.52	60
3. SO_2	8.43	80
4. NO_x	17.29	80
5. CO	0.23	4*
Bottom Bin area		
1. PM_{10}	53.27	100
2. $PM_{2.5}$	20.21	60
3. SO_2	7.90	80
4. NO_x	16.73	80
5. CO	0.21	4*
Near WTP		
1. PM_{10}	52.04	100
2. $PM_{2.5}$	29.16	60
3. SO_2	8.91	80
4. NO_x	17.35	80
5. CO	0.22	4*
Near Hospital		
1. PM_{10}	51.75	100
2. $PM_{2.5}$	18.08	60
3. SO_2	7.54	80
4. NO_x	17.08	80
5. CO	0.21	4*

*Unit of CO is mg/m^3