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

MD/ENV/396/120/16
Date: 29.09.2016

Sub: Environment Statement of Khondbond Iron Mine, Tata Steel Ltd. for FY 2015-16

Dear Sir,

As required under "Environmental (Protection) Amendment Rules, 1992", we are submitting here with the Environmental Statement for our Khondbond Iron Mine for your kind perusal.

Thanking you,
Yours faithfully,

F: Tata Steel Limited

Head (Planning), OMQ

Encl: As above.

Copy to: Regional Officer, State Pollution Control Board, At: Baniapat, College Road, Dist: Keonjhar – 758001, Orissa.

TATA STEEL LIMITED
Mines Division Noamundi 833 217 India
Tel 91 9234301340 Fax 91 6596 290737
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Corporate Identity Number L27100MH1907PLC000260 Website www.tatasteel.com

ENVIRONMENT STATEMENT
2015-16

KHONDBOND IRON & MANGANESE MINE
TATA STEEL LIMITED

FORM - V
(See Rule -14)

ENVIRONMENT STATEMENT FOR THE FINANCIAL YEAR ENDING THE 31st MARCH, 2015
KHONDBOND IRON & MANGANESE MINE, TATA STEEL LIMITED

PART–A

1	Name and address of the owner/ occupier of the industry, operation or process	:	Khondbond Iron & manganese Mine, Tata Steel Limited, Joda, Dist.-Keonjhar , Odisha–758034
	Agent	:	Mr Anurag Dixit
	Nominated Owner	:	Mr T V Narendran, Managing Director, Tata Steel India & SEA, Jamshedpur-831001
2	Industry Category	:	Major
3	Production Capacity	:	2 MTPA Iron Ore & 0.1 MTPA Manganese Ore
4	Year of Establishment	:	1960
5	Date of last Environmental Statement submitted.	:	29th September, 2015

PART–B
Water and Raw Material Consumption

(i) Water Consumption:

Consumption Head:	**2014-15 (in cum/day) (Annual average)**	**2015-16 (in cum/day) (Annual average)**
Process	NA	NA
Spraying in mine pit , services	29.04	76.08
Domestic	37.23	50.36
Name of the product	**Process water consumption per product output (m3/MT)**	
	During the Previous financial Year (2014-15)	During the current financial Year (2015-16)
Iron 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.

There is no colony inside the lease area and water requirement is only for drinking, sanitation and canteen use during the day.

(ii) Raw Material Consumption

The following items have been consumed/ utilized:

Name of Raw materials	Consumption of Raw Material	
	During previous financial year (2014-15)	During current financial year (2014-15)
High Speed Diesel	167247 Litres	1257508 Litres
Lubricants	3011 Litres	40320 Litres
Grease	586 kg	4186 kg
Explosives of all types (Explosive, codex, detonator)	95542 kg	105000 kg
Electric Power:		
Consumed	965452 KWH	1565491 KWH
Generated	0 KWH	0 KWH
Gas	321 Cum	13334 Cum
Tyres	54 Nos	20 Nos
Drill rods	64 Nos	64 Nos

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

Water Pollution: The iron ore excavation is carried out on hill slopes and above the ground water table. There is no generation of any process water and no industrial effluent is discharged outside.

Air Pollution:

Average Air Quality of FY' 16:

Pollutants	Concentration of pollutants (µg/m³)	Standards (µg/m³)
Manganese Quarry		
1. PM_{10}	42.22	60
2. $PM_{2.5}$	25.00	40
3. SO_2	6.61	50
4. NO_x	9.80	40
Garden near Old Q-Ore body		
1. PM_{10}	44.72	60
2. $PM_{2.5}$	26.10	40
3. SO_2	6.21	50
4. NO_x	10.07	40
Labour Colony rest shed		
1. PM_{10}	50.22	60
2. $PM_{2.5}$	28.73	40
3. SO_2	6.15	50
4. NO_x	10.65	40
Near IM Section		
1. PM_{10}	45.97	60
2. $PM_{2.5}$	25.98	40
3. SO_2	5.86	50
4. NO_x	10.22	40

This is an opencast mine and does not have single point source of air pollutants. Hence, the quantity of air pollutants discharged in Kg/day cannot be ascertained. The above data shows the average ambient air quality during 2013-14.

PART–D
HAZARDOUS WASTES

As specified under the Hazardous Waste (Management, Handling and Transboundary) Rules, 2008 and amendment thereof

Hazardous Wastes	Total Quantity	
	During the Previous Financial Year (2014-15)	During the Current Financial Year (2015-16)
I) From Process: ▪ Used Oil ▪ Waste containing Oil ▪ Waste Battery	 8600 Litre Nil 20 Nos.	 10500 Litre Nil 31 Nos.
II) From Pollution Control Facility: ▪ Waste oil from oil & grease separation pit ▪ Sludge from oil and grease separation pit	Included in the Item I	Included in the Item I

PART–E
SOLID WASTES

Solid waste from this mine is generally of two categories i.e. Overburden/rejects removed during mining operations and slime generated in the process of iron ore washing.

Sources	TOTAL QUALITY	
	During the Previous Year (2014-15)	During the Current Year (2015-16)
a) From Process: ▪ From Mining as Overburden ▪ Rejects ▪ From OB plant as Tailing	 Nil 96919 MT Not Applicable	 1269983 MT 826350 MT Not Applicable
b) From Pollution Control Facility	Not Applicable	Not Applicable
c) i. Quantity recycled or reused within the unit	Study under Progress	Study under Progress
ii. Quantity sold ▪ General Office Waste	 Nil	 Nil
iii. Quantity disposed ▪ Mining overburden ▪ Rejects ▪ Canteen and colony waste	 Nil 96919 MT Organic wastes are disposed off in dumps	 Nil 1269983 MT Organic wastes are disposed off in dumps

PART-F

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 composition of hazardous wastes like used oil & waste containing oil are Gear oil: SP460, 320, 220 & 90; Hydraulic oil: 68, 10, 46, and 100; Mobil oil: 20W40, 30, 40; Transformer oil and Grease: Senogem EP2, KG 10. Solid waste generated as overburden, sub-grade mineral are consists of morum, shell and quartzite

DISPOSAL PRACTICE:-

a) SOLID WASTES:

The overburden is systematically and scientifically dumped on a geologically barren area and properly supported with hard material and the same is being reclaimed by plantation after being declared inactive.

The organic wastes from the canteen and other places are stored in individual different waste buckets and arrangement, which are later on disposed at defined place to enrich the nutrient content. This has been found to hasten the plant growth and the seeds contained in the vegetable waste have contributed to the green cover in the dumps.

b) HAZARDOUS WASTE:

Used Oil:

The waste oil generated at various sources is collected in leak proof barrels and then are kept under a covered roof and on concrete platforms (Capacity – 200 l) in the barrels very carefully and sealed properly to avoid any spillage or leakage. The storage area is properly fenced and caution board displayed.

During transfer of waste oil to barrels, a trey is placed underneath in order to prevent land contamination due to oil spillage. Then at a fixed interval, these barrels are disposed through auction to the authorized recycler after due intimation to State Pollution Control Board. After dispatch of same, intimation of auction along with copy of manifest is also being sent to State Pollution Control Board

Waste containing Oil:

Oil soaked jutes, filter and filter materials are produced during the schedule maintenance and repair of the vehicles from the workshop is stored in the HDPE lined waste bins. The HDPE enclosure prevents contamination of land and water bodies. Oil soaked sand/soil are stored in a pit made before the oil and grease separation system. Water is added to make the waste free from oil. The oil containing water is led to oil and grease separation system and the sand/soil is disposed off like filters and filter material mentioned above.

Oily waste in solid form are being collected and kept in an impervious pit. It is then regularly handed over to authorised parties for incineration as advised by OSPCB.

c) **WASTE BATTERIES :**

The used lead acid batteries with diluted acid and caps intact are kept under a shed having impervious floor. Then at a fixed interval, these batteries are disposed through auction to the authorized recycler after due intimation to State Pollution Control Board. After dispatch of same, intimation of auction along with copy of manifest is also being sent to State Pollution Control Board.

PART-G

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

- Specific electrical energy consumption has been reduced by absorption of new technologies and various circuit modifications. As a result, around 1 MWH annual saving is achieved.
- With improvement in reliability of grid power supply, diesel consumption has also been reduced significantly.
- Similarly leakages in HEMMs have been arrested to nullify wastage of oils and new energy efficient equipment has been added to fleet which resulted in improvement in specific diesel consumption.
- RENTAR fuel catalysts have been introduced in HEMMs which has reduced specific diesel consumption by 5-10% over the year 2015-16. This also reduces emissions like CO, NOx, SOx etc.
- Introduced EX 1200 Shovel along with HD 785 Dumper & enhanced TPH, which resulted in reduced specific HSD consumption (HSD per ton of material handling) by almost 30%.
- To reduce the dust generation at equipment maintenance area an amount of ₹ 8 lakhs was spent for extending the existing concrete working bay.
- Efforts were made to reduce the consumption of lubricant oil used in Heavy Mining Equipment, by arresting leakages in time and by eliminating spillages.
- An amount of ₹ 9.94 lakhs was spent towards monitoring of various environmental parameters.
- An amount of ₹ 0.25 lakhs was spent towards the maintenance of electronic boards at KIMM during 2015-16.
- To generate awareness among the employees and their families about environment, World Environment Day was celebrated at Joda. During 2015-16 an amount of ₹ 3.00 lakh was spent on this account.
- Annual Flower and Vegetable Show was conducted in the month of January 2016 to make the public appreciate the importance of greening efforts. An amount of ₹ 1.00 lakh was spent for the show.
- Water spraying on mine haul ways by water tankers has reduced the dust levels in the ambient air. The cost of operation and maintenance of water sprinklers during 2015-16 was ₹ 3.17 lakhs
- Operating cost for Dry Fog Dust suppression at dumper hopper and at strategic points in the crushing & screening plant during 2015-16 was ₹ 23.00 lakhs.
- A 10 KLD STP plant was constructed and commissioned at an expenditure of about ₹ 24.50 lakhs during FY' 16
- An amount of ₹ 4 lakhs was incurred towards conducting Ground vibration studies by CMRI, Dhanbad.
- An amount of ₹ 8 lakhs was incurred towards coir matting of fines stock in the year 2015-16.
- An amount of ~ ₹ 7.63 lakh was incurred towards Horticultural development for plantation during 2015-16.

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, SELF HELP GROUPS, civic amenities development, medical care and health education, rural sports and skill development, rural cultural promotion, etc.

PART-H

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

- Fully automated weather monitoring station will be commissioned at KIMM with a budgetary provision of about ₹ 7 Lakhs
- During monsoon 2016, 10000 saplings will be planted in available sites inside the lease area with a budgetary provision of about ₹ 15.00 lakhs.
- A new covered shed with increased capacity for storing the hazardous waste will be constructed at KIMM with a budgetary provision of about ₹ 5 Lakhs

PART-I

ANY OTHER PARTICULARS FOR IMPROVING THE QUALITY OF THE ENVIRONMENT

- 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.
- The mine is developing its environmental monitoring and laboratory capability to monitor ambient air quality as required under new National Ambient Air Quality Standard.
- Dump rehabilitation and plantation at vacant areas have been planned to be carried.
- The mine has adopted Integrated Management System (ISO 9001, ISO 14001 & OHSAS 18001) and has been certified since 1st August 2008.

Head (Planning), OMQ