INDIAN BUREAU OF MINES
MINERALS DEVELOPMEMT AND REGULATION DIVISION

MCDR INSPECTION REPORT

Bhubaneshwar regional office

Mine file No : ORI/MN/KJR/MCDR-2/BBS **Mine code : 40ORI08003**

(i) Name of the Inspecting Officer and ID No. : **127**) **Jitendriya Pradhan**

(ii) Designation : Assistant Mining Engineer

(iii) Accompaning mine Official with Designation : Prana Krushna Mahanta,Mines Manager

(iv) Date of Inspection : 20/10/2021

(v) Prev.inspection date : 08/07/2020

PART-I : GENERAL INFORMATION

1. (a) **Mine Name** : **BAMEBARI**

(b) Registration NO. : **IBM / 4376 / 2011**

(c) Category : A Manual

(d) Type of Working : Opencast

(e) Postal address

State : ORISSA

District : KEONJHAR

Village : BAMEBARI

Taluka : CHAMPUA

Post office : BAMEBARI

Pin Code :

FAX No. : 06767-272027,272246

E-mail : bmm.mnmines@tatasteel.com

Phone : 06767-279208

(f) Police Station : Joda

(g) First opening date : 01/03/1939

(h) Weekly day of rest : SUN

2. Address for correspondance : BAMEBARI MN MINES
VIL/PO-BAMEBARI
DIST-KEONJHAR,ORISSA-758034

3. (a) Lease Number : ORI0187

(b) Lease area : 464

(c) Period of lease : 20

(d) Date of Expiry : 31/03/2000

4. Mineral worked : MANGANESE ORE Main

5. Name and Address of the

Lessee	:	TATA IRON & STEEL CO. LTD. TATA IRON & STEEL CO. OMQ, NUAMUNDI JHARKHAND SINGHBHUM (WEST) JHARKHAND Phone: FAX :
Owner	:	Sri T.V. Narendran Managing Director, M/s TATA Steel Jamshedpur, Dist-East Singhbhum Jharkhand-831001 KEONJHAR ORISSA Phone: 0657-2423298 FAX : 0657-2431818
Agent	:	AMIT KUMAR DUBEY KEONJHAR ORISSA Phone: 9238101140 FAX :

Mining Engineer

Name	:	Sri Maruti Nandan Suman,Full Time
Qualification	:	B. Tech (Mining) & FCC
Appointment/ Termination date	:	19/01/2015

Geologist

Name	:	Sri Joydeep Bhattacharjee,Full Time
Qualification	:	M.Sc. (Applied Geology)
Appointment/ Termination date	:	16/10/2017

Manager

Name	:	Sri Rimlal Joshi
Qualification	:	AMIE (Mining) & FCC
Appointment/ Termination date	:	18/06/2014

6. Date of approval of Mining Plan/Scheme of Mining :

Modif.approved Mining Scheme	24/03/2005
Mining Scheme rule 12 MCDR1988	05/12/2007
Mining Scheme rule 12 MCDR1988	09/06/2010
FMCP under 23C(1)	20/01/2015
Mining Scheme rule 12 MCDR1988	26/03/2015
Modif.approved Mining Scheme	04/05/2018
MP review under 17(1) MCR 2016	03/08/2020

PART - II : OBSERVATION/COMMENTS OF INSPECTING OFFICERS

Exploration :

Sl.No.	Item	Proposals	Actual work	Remarks
1a	Backlog of previous year	Core - 190 Nos., 9500 m RC - 248 Nos., 12400 m Total - 438 Nos., 21900m	Core - NIL RC - 10 Nos., 483 m Total-10 Nos, 483 m	Due to un-availability of statutory clearances, proposed exploration could not be completed.
1b	Exploration over lease area for geological axis 1 or 2	Not Specified	5.22 Ha (G1+G2)	Total Lease Status as on 01-04-2021 is G1: 109.36 G2: 90.47
1c	Exploration Agencies and Expenditure in lakh rupees during the year	Not Specified	Core - NIL RC - Rs. 14.49 Lakhs	
1d	Balance area to be explored to bring Geological axis in 1 or 2	Not Specified	264.17 Ha	
1e	Balance reserve as on 01/04/20	Not Specified	2.833 million tonnes	+10% Mn
1f	General remarks of inspecting officers on geology, exploration etc			Balance reserves as on 01.04.2021 (Iron Ore) - 0.756 million tonnes - +45% Fe Balance reserves as on 01.04.2021 (Mn Ore) - 2.833 million tonnes - +10% Mn

Development :

Sl.No.	Item	Propasals	Actual work	Remarks

2a	Location of development w.r.t.lease area	Bamebari - 2516N - 2716N & 3308E - 3536E from 548 mRL to 626 mRL Joribar - 11252N-11608N & 12322E-12677E from 508 mRL to 636 mRL Bonaikela - 4091N-4167N & 4822E-4922E from 540 mRL to 558 mRL.	Bamebari - No development carried out during the year. Joribar - 11252N-11608N & 12322E-12677E from 514 mRL to 636 mRL Bonaikela - No development carried out during the year.	No development in Bamebari due to less requirement of Ore. No development in Bonaikela due to want of Forest Clearance.
2b	Separate benches in topsoil, overburden and minerals (Rule 15)	Separate benches for OB and Ore maintained wherever possible due to pocket deposit nature of manganese ore. Bench height: 6-8 mtrs	Separate benches in OB and mineral are being maintained wherever possible.	
2c	Stripping ratio or ore to OB ratio	(In-situ CuM : CuM) Bamebari - 1 : 13.45 Joribar - 1 : 1.55 Bonaikela - 1 : 6.80 Avg. 1 : 2.03 (Ore includes Mn. Ore & Iron Ore Mineral Rejects)	(In-situ CuM : CuM) Bamebari - Nil Joribar - 1 : 5.36 Bonaikela - Nil Avg. 1 : 5.36 (Ore includes Mn. Ore & Iron Ore Mineral Rejects)	
2d	Quantity of topsoil generation in m3	Nil	Nil	No exploitation in virgin area.

2e	Quantity of overburden generation in m3	Bamebari - 63522 CuM Joribar - 219613 CuM Bonaikela - 18744 CuM Total - 301879 CuM	Bamebari - Nil Joribar - 217412 CuM Bonaikela - Nil Total - 217412 CuM

Exploitation:

Sl.No.	Item	Propasals	Actual work	Remarks
3a	Number of pit proposed for production	Bamebari - 1 Pit Joribar - 1 Pit & Bonaikela - 1 Pit	Bamebari - No Development Joribar - 1 Pit & Bonaikela - No Development	No development in Bamebari due to less requirement of Ore. No development in Bonaikela due to want of Forest Clearance.
3b	Quantity of ROM mineral production proposed	Bamebari - 1392 Tonnes Joribar - 93149 Tonnes Bonaikela - 1859 Tonnes Total - 96400 Tonnes	Bamebari - Nil Joribar - 89839 Tonnes Bonaikela - Nil Total - 89839 Tonnes	No development in Bamebari due to less requirement of Ore. No development in Bonaikela due to want of Forest Clearance.
3c	Recovery of sailable/usable mineral from ROM production	100%	100%	

3d	Quantity of mineral reject generation	Bamebari - 242 Tonnes Joribar - 12199 Tonnes Fe- Bamebari - 11435 Tonnes Joribar - 283146 Tonnes Bonaikela - 5420 Tonnes Total - 300000 Tonnes Bonaikela - 759 Tonnes Total - 13200 Tonnes	Bamebari - Nil Joribar - 10095 Tonnes Bonaikela - Nil Total - 10095 Tonnes Fe Bamebari - Nil Joribar - 11261 Tonnes Bonaikela - Nil Total - 11261 Tonnes	In-situ excavation concurrent to development of Mn. Ore Pits
3e	Grade of mineral rejects generation and threshold value declared.	Threshold Value -Mn. Ore - Mn>10% Iron Ore - Fe>45% Generation - Mn. Ore - Mn- 16.39% Iron Ore - Fe- 53.96%	Threshold Value -Mn. Ore - Mn>10% Iron Ore - Fe>45% Generation - Mn. Ore - Mn-21.05% Iron Ore - Fe- 45.47%	
3f	Quantity of sub grade mineral generation.	Included in Mineral Reject.	Included in Mineral Reject.	Generated from ROM and considered as product in the category of below 25% Mn.
3g	Grade of sub grade mineral generation	Mn >10% & < 25% Included in Mineral Reject.	Mn >10% & < 25% Included in Mineral Reject.	Generated from ROM and considered as product in the category of below 25% Mn
3h	Manual / Mechanised method adopted for segregating from ROM	Manual	Manual	

3i	Any analysis or beneficiation study proposed and carried out for sub grade mineral and rejects.	1. Study on Mechanized processing of Manganese Ore 2. study for beneficiation of Low/ Sub Grade Manganese Ore and Fines carried out	Study done.	
3j	Provision of drilling and blasting in mineral benches	Deep hole Drilling blasting Depth of hole = 6 m +10% subgrade =8.8m Spacing= 3m Burden= 2.5 m Volume= 60 CuM Specific Gravity=2.5 Tonnage/Hole= 150 Tonnes Powder factor= 6.0 kg/Tonne	Deep hole Drilling blasting Depth of hole = 8 m +10% subgrade =8.8m Spacing= 3m Burden= 2.5 m Volume= 60 CuM Specific Gravity=2.5 Tonnage/Hole= 150 Tonnes Powder factor= 6.0 kg/Tonne	
3k	Provision of mining machineries in mineral benches	Shovel - 4 Nos. Dumper- 12 Nos. Drill- 2 Nos. Dozer - 3 Nos. FE Loader - 2 Nos.	Shovel - 3 Nos. Dumper- 25 Nos. Drill- 1 Nos. Dozer - 1 Nos. FE Loader - 2 Nos.	Dumper fleet kept doubled due to disposal of OB at Bamebari Block from Joribar Block having lead distance of 5 Km instead of 2 Km as calculated.
3l	Whether height of benches in overburden and mineral suitable for method of mining proposed in MP/SOM	Bench Height: 6-8 m Bench Width: 8-10 m	Height - 8 m Width- 8 m	
3m	Total area covered under excavation/pits	101.138 ha (at the end of 31.03.2025)	87.213 ha.	No working at Baneikala due to forest issue

3n	Ore to OB ratio for the pit/mine during the year.	(In-situ CuM : CuM) Bamebari - 1 : 13.45 Joribar - 1 : 1.55 Bonaikela - 1 : 6.80 Avg. 1 : 2.03 (Ore includes Mn. Ore & Iron Ore Mineral Rejects)	(In-situ CuM : CuM) Bamebari - Nil Joribar - 1 : 5.36 Bonaikela - Nil Avg. 1 : 5.36 (Ore includes Mn. Ore & Iron Ore Mineral Rejects)	Only Joribar quarry was operated and less excavation of in-situ Iron Ore.
3o	Total area put in use under different heads at the end of year	At the end of 31.03.2025 : Area Excavated: 101.138 ha Storage of top soil: 0.450 ha Waste Dump: 57.166 ha Mineral Storage: 14.708 ha Infrastructure (Workshop, Magazine etc.): 5.451 ha Roads: 11.420 ha Railways: 0 ha Greenbelt: 17.150 ha Tailing Pond: 0 ha ETP: 0 ha Mineral Separation Plant: 0 ha Township Area: 24.35 ha Total - 231.833 ha.	As on 01.04.2021 : Area Excavated: 87.213 ha Storage of top soil: 0.000 ha Waste Dump: 46.884 ha Mineral Storage: 8.016 ha Infrastructure (Workshop, Magazine etc.): 4.086 ha Roads: 10.42 ha Railways: 0 ha Greenbelt: 21.044 ha Tailing Pond: 0 ha ETP: 0 ha Mineral Separation Plant: 0 ha Township Area: 24.350 ha Total - 202.013 ha.	
3p	Production of ROM mineral during the last five year period as applicable	2016-17: 97885 2017-18: 97883 2018-19: 97882 2019-20: 97882 2020-21: 96400	2016-17: 83146 2017-18: 78406 2018-19: 79619 2019-20: 92223 2020-21: 89839	Manganese Ore in Tonnes

Solid Waste Management - Dumping:

Sl.No.	Item	Propasals	Actual work	Remarks
4a	Separate dumping of topsoil, OB and mineral rejects (Rule 32,33)	Separate Dumps for topsoil, OB and mineral reject has been proposed.	Separate dumps for top soil, OB, mineral reject are being maintained.	Top soil generated earlier was used immediately for gardening and plantation purpose

4b	Location of topsoil, OB and mineral reject dumps	Top Soil - Area earmarked. OB - Bamebari - Back filling of quarry within the extent of 2182N - 2730N & 3047E - 3543E from 558 mRL to 580 mRL Joribar - Due to dirth of space, disposal proposed at Bamebari Block back filling site within the extent of 2182N - 2730N & 3047E - 3543E from 558 mRL to 580 mRL Bonaikela Block - New Waste dump will be developed from 2020-21 within the extent of 4395N - 4606N & 4890E - 5180E from 556 mRL to 560 mRL Mineral Reject - Bamebari Block - Mn. Ore - 2503N -	Top Soil - No generation of Top soil. OB - Bamebari - No overburden was generated due to no development during the year. Joribar - Overburden generated from Joribar Block disposed at Bamebari Block back filling site within the extent of 2182N - 2460N & 3054E - 3430E from 558 mRL to 578 mRL Bonaikela Block - No dump developed due to no development during the year. Bamebari Block - No development work during the year. Joribar Block - Mn. Ore - 11504 N-11585N & 12585E- 12596E Iron Ore -	
4c	Number of dumps within lease area and outside of lease area	7 Nos & 1 Back Filling Site	1 Back filling site at Bamebari Block	No dumps are outside the lease area.

4d	Location of dumps w.r.t. ultimate pit limit (Rule 16)	Top Soil - Area earmarked. OB - Bamebari - Back filling of quarry within the extent of 2182N - 2730N & 3047E - 3543E from 558 mRL to 580 mRL Joribar - Due to dirth of space, disposal proposed at Bamebari Block back filling site within the extent of 2182N - 2730N & 3047E - 3543E from 558 mRL to 580 mRL Bonaikela Block - New Waste dump will be developed from 2020-21 within the extent of 4395N - 4606N & 4890E - 5180E from 556 mRL to 560 mRL Mineral Reject - Bamebari Block - Mn. Ore - 2503N -	Top Soil - No generation of Top soil. OB - Bamebari - No overburden was generated due to no development during the year. Joribar - Overburden generated from Joribar Block disposed at Bamebari Block back filling site within the extent of 2182N - 2460N & 3054E - 3430E from 558 mRL to 578 mRL Bonaikela Block - No dump developed due to no development during the year. Bamebari Block - No development work during the year. Joribar Block - Mn. Ore - 11504 N-11585N & 12585E- 12596E Iron Ore -
4e	Number of active and alive dumps.	OB of Bamebari and Joribar: Proposed for backfill in Bamebari Pit	As per proposal

4f	Number of dead dumps.	Bamebari:3 Joribar: 1	Bamebari:3 Joribar: 1	
4g	Number of dumps established.	Not proposed during the year	Bamebari: Three fully rehabilitated and stabilized by plantation. Joribar: -Two partially rehabilitated and stabilized by plantation	
4h	Whether Retaining wall or garland drain all along dumps are there.	Not proposed during the year	Nil	Not proposed due to no fresh land degradation.
4i	Length of Retaining wall or garland drain all along dumps	Not proposed during the year	Nil	Not proposed due to no fresh land degradation.
4j	Number of settling ponds	Not proposed during the year	Nil	Not proposed due to no fresh land degradation.

Solid Waste Management - Backfilling:

Sl.No.	Item	Propasals	Actual work	Remarks
5a	Status of part or full extraction of mineral from mined out area before starting backfilling.	Proposal of Backfilling at Bamebari Pit within the extent of 2182N - 2730N & 3047E - 3543E	Back filling carried out within the extent of 2182N - 2460N & 3054E - 3430E	Less area due to no development at Bamebari Block.
5b	Area under backfilling of mined out area	2.565 ha. with 283135 CuM of Overburden	1.350 ha with 217412 CuM of Overburden.	Less area due to no development at Bamebari Block.
5c	Concurrent use of topsoil for restoration or rehabilitation of mineral out area (Rule 32)	No generation of Top Soil.	Not generated.	
5d	Total area fully reclaimed and rehabilitated	Not proposed during the year	Nil	

Progressive Mine Clousre Plan:

Sl.No.	Item	Propasals	Actual work	Remarks
6a	Whether Annual report on PMCP submitted on time and correctly. Rule 23 E(2).	Submission by 1st July every year	Submitted on 24.06.2021 vide letter no, MGM/P&E/284/21	
6b	Area available for rehabilitation (ha) .	1.000 ha	1.200 ha.	
6c	afforestation done (ha).	1.000 ha	1.200 ha.	
6d	No. of saplings planted during the year	2500 Nos.	2900Nos	
6e	Cumulative no .of plants	282939 Nos.	283339 Nos.	
6f	Any other method of rehabilitation	Trenching & Pitting	Trenching & Pitting. Vetiver grass is a new initiative which is being used for stabilization of dump.	
6g	Cost incurred on watch and care during the year	157500	1214500	
6h	Compliance on reclamation and rehabilitation by backfilling (i) Voids available for backfilling (Lx B x D	Back Filling - 2.565 ha Rehabilitation of Dump Slopes - 1 ha	Back filling - 1.35 ha. Rehabilitation of Dump Slopes - 1.200 ha	
6i	Compliance on reclamation and rehabilitation by backfilling (ii) Voids filled by waste / tailings	Backfilling proposed by waste/OB	Backfilling done by waste/OB	

6p	Compliance of environmental monitoring (core zone and buffer zone)	Air Quality: Twice a week Water Quality: Monthly	Air Quality: Twice a week Water Quality: Monthly Nosie Level Survey: Quarterly Blast Vibration: At the time of blasting. Ground Water Quality: Quarterly	

Mineral Conservation:

Sl.No.	Item	Propasals	Actual work	Remarks
7a	ROM Mineral dispatch or grade-wise sorting within lease area	Bamebari - 1392 Tonnes Joribar - 93149 Tonnes Bonaikela - 1859 Tonnes Total - 96400 Tonnes	Bamebari - Nil Joribar - 89839 Tonnes Bonaikela - Nil Total - 89839 Tonnes	
7b	Method of grade-wise mineral sorting i.e. manual or mechanical.	Manual	Manual	
7c	Different grade of mineral sorted out at mines.	Chemical Grade (Mn> 48% & Fe< 4%) High Grade (Mn>46%) Medium Grade (Mn>35% & Mn< 26%) Low Grade (Mn >25% & < 35%) Sub Grade (Mn> 10% & Mn < 25%)	Chemical Grade (Mn> 48% & Fe< 4%) High Grade (Mn>46%) Medium Grade (Mn>35% & Mn< 26%) Low Grade (Mn >25% & < 35%) Sub Grade (Mn> 10% & Mn < 25%)	

Environment:

Sl.No.	Item	Propasals	Actual work	Remarks

8a	Separate removal and utilization of topsoil (Rule 32)	0	0	Top soil generated is stored separately and is utilized completely.
8b	Concurrent use or storage of topsoil	100%	100%	Top soil will be utilized completely. The unutilized top soil is stacked in earmarked location.
8c	Separate dumps for overburden, waste rock, rejects and fines (Rule 33)	Separate Dumps for Overburden, subgrade and Mineral Rejects proposed	Separate dumps for Overburden, subgrade and Mineral Rejects	
8d	Use of overburden, waste rock, rejects and fines dumps for restoring the land to its original use	Backfilling of Bamebari Pit has been proposed - 2.565 ha	Backfilling of Bamebari Quarry done-1.350 ha	
8e	Phased restoration, reclamation and rehabilitation of lands affected by mining operations (Pits, dumps etc)	Backfilling of Bamebari Quarry - 2.565 ha Dump Plantation proposed: 2500 nos over 1 ha.	Backfilling of Bamebari Quarry - 1.350 ha Dump Plantation done: 2900 nos. over 1.200 ha.	
8f	Baseline information on existence of plantation and additional plantation done (Rule 41)	Nil	Nil	
8g	Survival rate	85%	89%	

8h	Water sprinkling on roads to control airborne dust	Mentioned in Mine Plan	" Dust suppression systems (water jets) have been provided in drill machine. " Haul roads are regularly sprinkled with the help of mobile water sprinklers. " Dumping and screening are regularly sprinkled with the help of mobile water sprinklers.	

Compliance of Rule 45:

Sl.No.	Item	Propasals	Actual work	Remarks
9a	Status of submission of Monthly and Annual returns	Monthly Return (F2): To be submitted by 10th of every month Annual Return (H2): To be submitted by 30th June every year	Monthly Return submitted on 09.10.2021 for the month of Sep'21 Annual Return submitted on 30.06.2021 for the year 2002-21	
9b	Scrutiny of Annual return for information on Mining Engineer, Geologist and Manager		Mines Manager: Prana Krushna Mahanta Mining Engineer: Saptharsi Datta Geologist: Ashish Mohanty	

9c	Scrutiny of Annual return on land use pattern for area under pits, reclaimed area, dumps etc.	At the end of 31.03.2025 : Area Excavated: 101.138 ha Storage of top soil: 0.450 ha Waste Dump: 57.166 ha Mineral Storage: 14.708 ha Infrastructure (Workshop, Magazine etc.): 5.451 ha Roads: 11.420 ha Railways: 0 ha Greenbelt: 17.150 ha Tailing Pond: 0 ha ETP: 0 ha Mineral Separation Plant: 0 ha Township Area: 24.35 ha Total - 231.833 ha.	As on 01.04.2021 : Area Excavated: 87.213 ha Storage of top soil: 0.000 ha Waste Dump: 46.884 ha Mineral Storage: 8.016 ha Infrastructure (Workshop, Magazine etc.): 4.086 ha Roads: 10.42 ha Railways: 0 ha Greenbelt: 21.044 ha Tailing Pond: 0 ha ETP: 0 ha Mineral Separation Plant: 0 ha Township Area: 24.350 ha Total - 202.013 ha.	
9d	Scrutiny of Annual return on afforestation	2500 Nos. of saplings	2900 Nos/ f saplings	Survival rate- 88.97%
9e	Scrutiny of Annual return on mineral reject generation (Grade and quantity)	Mn. Ore - 13200 Tonnes Iron Ore - 300000 Tonnes	Mn. Ore - 13200 Tonnes Iron Ore - 11261Tonnes	Iron Ore Mineral Reject is In-situ excavation concurrent to development of Mn. Ore Pits

9f	Scrutiny of Annual return on ROM stock and/or graded ore	Production - Mn. Dioxide - NIL 46% & Above - 28235.114 Tonnes 35% & above but below 46% - 21897.896 Tonnes 25% & above but below 35%- 29610.834 Tonnes Below 25% - 10095.156 Tonnes Total - 89839 Tonnes
9g	Scrutiny of Annual return on sale value, Ex. Mine price and production cost	Production Cost- Rs. 4401.10/Ton
9h	Scrutiny of Annual return on fixed assets	Rs. 18,08,30,681
9k	Scrutiny of Annual return on mining machineries	Shovel - 3 Nos. Dumper- 25 Nos. Drill- 1 Nos. Dozer - 1 Nos. FE Loader - 2 Nos.

Details of violations observed during current inspection and compliance position of violation pointed out

Violation observed			Show couse position		
Rule NO.	Issued on	Compliance on	Rule NO.	Issued on	Compliance on

Date :

(**Jitendriya Pradhan**)

Indian Bureau of Mines