# INDIAN BUREAU OF MINES MINERALS DEVELOPMENT AND REGULATION DIVISION

#### MCDR INSPECTION REPORT

#### Bhubaneshwar regional office

Mine file No : ORI/IRON/SNG/MCDR-7/BBS Mine code : 300RI13028

(i) Name of the Inspecting: **U11** ) **DAYANAND UPADHYAY** 

Officer and ID No.

(ii) Designation : Sr. Asst. Contrl. Mines

(iii) Accompaning mine : Y Nagendra, Agent(Mines)

Official with Designation

(iv) Date of Inspection : 10/09/2017
(v) Prev.inspection date : 08/07/2017

PART-I : GENERAL INFORMATION

1. (a) Mine Name : TANTRA, RAIKELA & BANDHAL

(b) Registration NO. : IBM/4355/2011

(c) Category : A Mechanised

(d) Type of Working : Opencast

(e) Postal address

State : ORISSA

District : SUNDARGARH
Village : TANTRA
Taluka : BONAI
Post office : TENSA
Pin Code : 770042

FAX No. : 95-6625-236023

E-mail : trbmine@jindalsteel.net
Phone : 95-6625-236023,236024

(f) Police Station : Lahunipara
(g) First opening date : 17/02/1990

(h) Weekly day of rest : SUN

2. Address for : T.R.B IRON MINES

correspondance PO-TENSA

DIST-SUNDERGARH

3. (a) Lease Number : ORIO652 (b) Lease area : 297.85 (c) Period of lease : 50

(d) Date of Expiry : 24/05/2035

4. Mineral worked : IRON ORE Main

5. Name and Address of the

Lessee : m/s Jindal Steel and Power Ltd

TRB Iron Ore Mines At P.O.Tensa SUNDARGARH

ORISSA

Phone: 06625 - 82023, 82024

FAX :

Owner : Jindal steel & power ltd

Barbil KEONJHAR ORISSA

Phone: 06767 30158

FAX :

Agent : Shri Y Nagendra

TRB Iron Ore Mines  $\mathrm{M/s}$ 

JSPL, Post-Tensa Sundargarh

SUNDARGARH ORISSA

Phone: FAX:

Mining Engineer

Name : B D SAHOO, Full Time Qualification : BE-MINING AND FCC

Appointment/ : 17/09/2014

Termination date

Geologist

Name : R K CHATURVEDI, Full Time
Qualification : M TECH IN APPLIED GEOLOGY

Appointment/ : 17/09/2014

Termination date

Manager

Name : PANCHANAN SINGH
Qualification : BE-MINING AND FCC

Appointment/ : 26/12/2016

Termination date

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

: Mining Scheme rule 12 MCDR1988 25/08/2000 Renewal under rule 22 MCR1960 09/10/2003 Modif.of approved Mining Plan 19/12/2007 Mining Scheme rule 12 MCDR1988 22/03/2010 FMCP under 23C(1) 29/07/2010 Modif.approved Mining Scheme 11/08/2010 Modif.approved Mining Scheme 23/04/2012 Mining Scheme rule 12 MCDR1988 27/03/2015 MP modif under MCR 1960 27/03/2015

PAGE : 3

PART - II : OBSERVATION/COMMENTS OF INSPECTING OFFICERS

## Exploration :

Sl.No.	Item	Proposals	Actual work	Remarks
1a	Backlog of previous year	No of boreholes planned to be drilled in 2016-17 was 12 Nos.	Actual, in 2016-17, only 09 Nos of boreholes have been drilled. Back log of 3 nos of boreholes of 2016-17 have been drilled by lessee in 2017-18.	of boreholes from 2016-17. based on
1b	Exploration over lease area for geological axis or 2	L	176.735 Ha has been explored under G1/G2 limit of exploration as per UNFC.	
1c	Exploration Agencies and Expenditure in lakh rupees during the year		Exploration Agency: Delvcore Mining & Machinary Pvt. Ltd, Expenditure Incurred in 2016-17 is Rs. 2191627.00.	Actual, in 2016- 17, only 09 Nos of boreholes have been drilled. Back log of 3 nos of boreholes of 2016-17 have been drilled by lessee in 2017-18.
1d	Balance area to be explored to bring Geological axis in 1 or 2		29.346 Ha area explored under G3 limit of UNFC has to be converted into G1/G2 limit of UNFC	explored under G3
1e	Balance reserve as on 01/04/20		Reserve as on 01.04.2017 (as per annual return for the year 2016-17) Proved Mineral Reserve (111) is 5.87 million tonnes Probable Mineral reserve (121) is 3.27 million tonnes Total Mineral Reserve is 9.14 million tonnes	Remaining Resources as on 01.04.2017 is 13.87 million tonnes

1f General remarks of inspecting officers on geology, exploration etc

Around 85% of the lease area has been explored under G1/G2 limit of exploration as per UNFC. Actual, in 2016-17, only 09 Nos of boreholes have been drilled. Back log of 3 nos of boreholes of 2016-17 have been drilled by lessee in 2017-18.

## Development :

Sl.No.	Item	Propasals	Actual work	Remarks
2a	Location of development w.r.t.lease area	- 733N / 1460E- 1990E,655m bottom RL Patch 2: 84N - 370N / 1990E - 2300E,655m	Patch 3B:638N - 960N / 458 E - 922E, 750m bottom RL	Development carried out within the area limit approved in the scheme of mining for the period 2015-16 to 2019-20.
2b	Separate benches in topsoil, overburden and minerals (Rule 15)	=14 / Ore=8 Patch 2: OB= 4		Separate benches in OB and Ore maintained.
2c	Stripping ratio or ore to OB ratio	1:0.631	1:0.314	Stripping ratio for Ore to OB. OB generation was more than proposed for the year 2016-17.

2d	Quantity of topsoil generation in m3	Generation of top soil proposed for the year 2016- 17 was 40300 cum	Actual top soil generation in 2016-17 is 22.32 cum	Earmarked area for Top soil - 1.346
2e	Quantity of overburden generation in m3	1499160 Cum	4334698.5 CuM	Earmarked area for overburden dump - 29.233 Ha. OB more excavted due rto encounter of intercalated BHJ.
2f	General remarks of inspecting officers on development of pit w.r.t. type of deposit etc			The development of the benches have been done within the area limit approved in the scheme of mining for the period 2015-16 to 2019-20. Number of pits in operation was 3 as per scheme of mining for the year 2016-17. Generation of top soil was less than proposed for the year 2016-17 while the OB generation was more than proposed for 2016-17. Scientific method of mining is practiced.

# Exploitation:

Sl.No.	Item	Propasals	Actual work	Remarks
3a	Number of pit proposed for production	proposed for production in	, , , , , , , , , , , , , , , , , , , ,	Number of pits put for production is as per approved scheme of mining.

3b	Quantity of ROM mineral production proposed	ROM Production proposed in 2016-17 was 3109302MT	ROM produced in 2016-17 is 2722384MT	EC has been obtained for annual production capacity of 3.11 MT of ROM iron ore by opencast mechanized method.
3c	Recovery of sailable/usable mineral from ROM production	e mineral from ROM proposed	Actual recovery of saleable/usable mineral was 100% as the mineral rejects generated has been blended with high grade ROM.	Actual recovery of saleable/usable mineral was 100% as the mineral rejects generated has been blended with high grade ROM.
3d	Quantity of mineral reject generation	Generation proposed for	Quantity of Mineral Reject Generation for the year 2016-17 is nil as the mineral rejects generated has been blended with high grade ROM.	
3e	Grade of mineral rejects generation and threshold value declared.	Grade of mineral rejects between 45%Fe to 58%Fe, Threhold value declared is 45% Fe.	Grade of mineral rejects between 45%Fe to 58%Fe, Threhold value declared is 45% Fe.	
3f	Quantity of sub grade mineral generation.	Not Proposed	Production of subgrade mineral is nil.	The mineral rejects generated has been blended with high grade ROM.
3g	Grade of sub grade mineral generation	Not Proposed	Production of subgrade mineral is nil.	The mineral rejects generated has been blended with high grade ROM.
3h	Manual / Mechanised method adopted for segregating from ROM	Mechanised method	Mechanised method	

3i Any analysis or beneficiation study proposed and carried out installed and for sub grade mineral and rejects.

plant is proposed to be commence from 2018-19.

Beneficiation Beneficiation plant is yet to be installed.

3 ј Provision of drilling and blasting in mineral benches firing is in

Controlled Deep hole drilling and blasting with blasting (100 mm dia. 'V' pattern staggered pattern) followed. ANFO (Ammonium practice which Nitrate), Class-2 explosive and nonis much safe electric shock tube fragmentation initiation system with delay detonator is used.

and is good and throw is within control. Sequential blasting is done by using electric delay detonator or NONEL system of initiation is in use to reduce vibration and fly rock and the same has been proposed to be continued during the scheme period. Rock breaker is in use to avoid secondary blasting.

3k Provision of mining machineries in mineral benches It has been proposed to develop the mine in order to produce iron ore by adopting opencast method of mining alongwith HEMM for different purposes, as is being adopted now, at deeper level in dip direction of ore body to exploit maximum quantum of ore in a scientific method. Machines proposed to be deployed are Drill Machine IBH 10, 3.5 CuM, 2.8 CuM and 2.4 capacity

The mine develop in order to produce iron ore by adopting opencast method of mining alongwith deployment of HEMM for different purposes, Machines deployed are Drill Machine IBH 10, 3.5 CuM, 2.8 CuM and 2.4 capacity shovels, 35 tonne and 31 deployment of tonner dumper, motor grader 24" blade Loader, Excavator, Dumper and Dozer etc. Mine development and production of ore is aiming to mine done with the help of Excavator and Dumper combination.

31 Whether height of benches in overburden and for method of mining proposed in MP/SOM

Height and width of the m and 12 m respectiveley.

shovels, 35 tonne and 31 tonner dumper, motor grader 24" blade Loader, Excavator, Dumper and Dozer etc.

Height and width of the mining benches of 9 m mining benches and 12 m is suitable for mineral suitable proposed is 9 mining method proposed in scheme of mining.

3m	Total area covered under excavation/pits	109.207ha	101.220 ha	
3n	Ore to OB ratio for the pit/mine during the year.	1:0.631	1:0.314	
30	Total area put in use under different heads at the end of year	Total area: 207.787 Ha. 1.Covered under current (O-C) Workings- 109.207 Ha, 2. Used for waste disposal- 29.233Ha. 3. Occupied by plant, buildings, residential, welfare buildings and roads- 26.204Ha. 4. Used for any other purpose-43.143 Ha.	Total area: 207.787 Ha 1.Covered under current (O-C) Workings-101.220 Ha, 2. Reclaimed- rehabilitated-6.6Ha, 3. Used for waste disposal-29.233Ha. 4. Occupied by plant, buildings, residential, welfare buildings and roads-26.204Ha. 5. Used for any other purpose-44.530 Ha.	
3p	Production of ROM mineral during the last five year period as applicable	2011-12 3107724 2012-13 3102974 2013-14 3107398 2014-15 3106446 2015-16 3104906	2011-12: 2539160 2012-13: 2486877 2013-14: 1842582 2014-15: 2593294 2015-16: 2922599	Excavation has been carried out as per proposal. ROM produced is 2.72 MT with the EC limit of 3.11 MT. The Mineral reject generated during the year has been blended with high grade ROM. Scientific method of mining is practiced.

3q General remarks
 of inspecting
 officers on
 method of mining
 etc.

Three nos of pits put for production as per proposal for 2016-17. ROM generated was 2722384MT in 2016-17. Mineral rejects generated has been blended with high grade ROM.

# Solid Waste Management - Dumping:

Sl.No.	Item	Propasals	Actual work	Remarks
4a	Separate dumping of topsoil, OB and mineral rejects (Rule 32,33)	1.346 Ha have been allocated for stacking of topsoil,29.233 ha area for	Dumping has been done over the allocated area approved in the scheme of mining. An area over 1.346 Ha have been allocated for stacking of topsoil,29.233 ha area for Overburden.	
4b	Location of topsoil, OB and mineral reject dumps	to 1160N,1120E to 1460E	MR Dump: 1019 N/1116 N to 1452 E to 1616 E	
4c	Number of dumps within lease area and outside of lease area	OB dump-	One number of OB Dump - 400N/1100N to 900E/1600E (Inside lease area)	One Number of Overburden dump over an area of 29.233Ha develops and maintained properly.
4d	Location of dumps w.r.t. ultimate pit limit (Rule 16)	Beyond ultimate pit limit	Location of dump is beyond UPL.	

10	and alive dumps.		dump	
4f	Number of dead dumps.	Nil.	Nil.	
4g	Number of dumps established.	Nil.	Nil.	
4h	Whether Retaining wall or garland drain all along dumps are there.	the dump	Retaining wall and garland drain have been constructed all along dump.	
4i	Length of Retaining wall or garland drain all along dumps	and garland	The proposal for construction of retaining wall and garland drain in 2016-17 has been completed in previous year. The cummulative length of retaining wall and garland drain are 1042.3m and 11710m respectively.	
<b>4</b> j	Number of settling ponds	Nil. Only desilting of settling pond have been proposed.	Check dam no.2 has been constructed during the year 2016-17.	Cummulatively there are seven nos. of check dams. Check Dam No-2 constructed in the year 2016-17.

Number of active One No. of One No. of active OB

4e

4k Specific comments of inspecting officer on waste dump management

There is one number of active OB dump. Protective measures such as retaining wall and garland drain are there all along dump. Dumps are located within the proposed location of dumps as per approved scheme of mining. Cummulativeley there are seven nos of check dams constructed.

## 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.	Not Proposed	Not Applicable	
5b	Area under backfilling of mined out area	Not Proposed	Not Applicable	
5c	Concurrent use of topsoil for restoration or rehabilitation of mineral out area (Rule 32)	1.346 Ha have been allocated for stacking	Tot soil is being used for plantation as per requirement.	
5d	Total area fully reclaimed and rehabilitated	Not Proposed	Not Applicable	

5e General remarks There is no of inspecting backfilling officers on proposal for the backfilling and year 2016-17. reclamation etc. Already 6.6 Ha areas have been backfilled and solid waste management is as per proposal.

## 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).		Submitted on date- 29.05.2017	
6b	Area available for rehabilitation (ha) .	Not proposed	Not Applicable	
6c	afforestation done (ha).	Not proposed	Not Applicable	
6d	No. of saplings planted during the year	Not proposed	Cummulative 6633 Nos of saplings planted during the year 2016-17.	
бе	Cumulative no .of plants		Cummulative 6633 Nos of saplings planted during the year 2016-17.	
6f	Any other method of rehabilitation	Not propose.	Not applicable.	
6g	Cost incurred on watch and care during the year		Cost incurred in environment management is Rs 3.09 lakh.	
6h	Compliance on reclamation and rehabilitation by backfilling (i) Voids available for backfilling ( Lx B x D	Not proposed	Not applicable	

6i	Compliance on reclamation and rehabilitation by backfilling (ii) Voids filled by waste / tailings	Not proposed	d Not applicable
6j	Compliance on reclamation and rehabilitation by backfilling (iii)Afforestati on on backfilled area	Not proposed	d Not applicable
6k	Compliance on reclamation and rehabilitation by backfilling (iv) Rehabilitation by making water reservoir	Not proposed	d Not applicable
61	Compliance on reclamation and rehabilitation by backfilling (v)any other specific means.	Not proposed	d Not applicable
6m	Compliance of rehabilitation of waste land within lease (i)afforestation	Not proposed	d Not applicable
6n	Compliance of rehabilitation of waste land within lease (ii)Area rehabilitation (ha)	Not proposed	d Not applicable
60	Compliance of rehabilitation of waste land within lease (iii)Method of rehabilitation	Not proposed	d Not applicable

бр	Compliance of environmental monitoring (core zone and buffer zone)	YES	YES	
6q	General remarks of inspecting officers on PMCP compliance and progressive closure operations etc.			Environmental Parameters in core and buffer zone is within the prescribed limit. Paramaters of PMCP have been complied.

## Mineral Conservation:

Sl.No.	Item	Propasals	Actual work	Remarks
7a	ROM Mineral dispatch or grade-wise sorting within lease area	Gradewise sorting.	Dispatch: Lumps-383116.030MT, 58% and above. Fines-1825929.115MT, 55% and above.	
7b	Method of grade- wise mineral sorting i.e. manual or mechanical.	Mechanised	Mechanised	
7c	Different grade of mineral sorted out at mines.	Gradewise sorting.	Dispatch: Lumps-383116.030MT, 58% and above. Fines-1825929.115MT, 55% and above.	
7d	Any beneficiation process at mines .	plant is	Beneficiation plant is yet to be installed.	

7e General remarks
of inspecting
officer on
Mineral
conservation and
beneficiation
issues

Gradewise sorting is carried out by mechanised means. It is being practiced to blended the minerla reject with high grade. Benefication plant is proposed to be installed and commence from 2018-19.

#### Environment:

Sl.No.	Item	Propasals	Actual work	Remarks
8a	Separate removal and utilization of topsoil (Rule 32)	1.346 Ha have	An area over 1.346 Ha have been allocated for stacking of topsoil and top soil is used for plantation purpose.	
8b	Concurrent use or storage of topsoil	Top soil shall be used for plantation purpose.	22.32 CuM of Top soil used in 2016-17 for Plantation purpose.	
8c	Separate dumps for overburden, waste rock, rejects and fines (Rule 33)	OB Dump :450 N/800 N to 1300 E to 1600 E, MR Dump: 1019 N/1116 N to 1452 E to 1616 E	OB Dump :450 N/800 N to 1300 E to 1600 E, MR Dump: 1019 N/1116 N to 1452 E to 1616 E	
8d	Use of overburden, waste rock, rejects and fines dumps for restoring the land to its original use	Not Proposed	Not Applicable	

8e	Phased restoration, reclamation and rehabilitation of lands affected by mining operations (Pits, dumps etc)	Not proposed	Not Applicable	
8f	Baseline information on existence of plantation and additional plantation done (Rule 41)		6633 No. of Saplings planted during the year	Cumulative 202621 No of plant has been planted.
8g	Survival rate		72%	
8h	Water sprinkling on roads to control airborne dust		YES	
8i	General remarks of inspecting officer on aesthetic beauty in and around mines area			Separate removal and utilization of topsoil is being practiced. Fixed water sprinkler and 28KL mobile water tanker is used for dust suppression. Separate dumps for overburden, waste rock, rejects and fines as per approved Scheme of Mining. Aesthetic beauty in and around mines has been maintained.

# Compliance of Rule 45:

Sl.No.	Item	Propasals	Actual	work	Remarks
9a	Status of submission of Monthly and Annual returns			Return for 2016- been submitted.	

Annual return Mining Engineer: 7; Diploma for information Engineer: 7; Mining Engineer: 5; on Mining Diploma Mining Geologist: 3, Engineer, Engineer: 5; Surveyor:1. Geologist and Geologist: 3, Manager Surveyor:1. 9c Scrutiny of Lease area Lease area (surface Annual return on (surface area) area) utilization as at land use pattern utilization as the end of year (Ha) for area under at the end of (i) Already exploited pits, reclaimed year (Ha) and abandoned by area, dumps etc. (i) Already opencast (O-C) mining: exploited and 6.6 abandoned by (ii) Covered under opencast (O-C) current (O-C) Workings mining: 6.6 :101.220 (ii) Covered (iii) Reclaimedunder current rehabilitated- 6.6 (O-C) Workings (iv) Used for waste :101.220 disposal- 29.233 (iii) (v) Occupied by plant, Reclaimedbuildings, residential, rehabilitated- welfare buildings and 6.6 roads- 26.204 (iv) Used for (vi) Used for any other waste purpose (specify) disposal-(Mineral Storage, Top 29.233 soil, Tailing Pond, Green Belt, Safety Zone (v) Occupied ) 42.824 1.70 by plant, buildings, residential, welfare buildings and roads- 26.204 (vi) Used for any other purpose (specify) (Mineral Storage, Top soil, Tailing Pond, Green Belt, Safety Zone ) 42.824

1.70

Graduate

Graduate Mining

9b

Scrutiny of

9d	Scrutiny of Annual return on afforestation	Number of trees planted during the year within lease area is 6633 Nos.	Number of trees planted during the year within lease area is 6633 Nos.
9e	Scrutiny of Annual return on mineral reject generation (Grade and quantity)		Mineral reject generated has been blended with high grade ROM.
9f	Scrutiny of Annual return on ROM stock and/or graded ore	Opening Stock of ROM: Nil; Production: 2722384.00 MT; Closing Stock of ROM: Nil Graded Ore: Lump closing stock between 58% Fe to below 60% is 342548.67 MT Lump closing stock between 62% Fe to below 65% is 1124.906 MT Lump closing stock above	Opening Stock of ROM: Nil; Production: 2722384.00 MT; Closing Stock of ROM: Nil Graded Ore: Lump closing stock between 58% Fe to below 60% is 342548.67 MT Lump closing stock between 62% Fe to below 65% is 1124.906 MT Lump closing stock above 65% is 1660.23 MT  Fines closing stock between 55% to below 58% is 16.28 MT Fines closing stock between 58% to below 60% is 515374.587 MT Fines closing stock between 62% to below 65% is 15.964 MT

MT

9g	Annual return on sale value, Ex.	for lump between 58% Fe to below 60% is Rs. 830.83	Ex-Mine Price for lump between 58% Fe to below 60% is Rs. 830.83 Ex-Mine Price for fines between 58% Fe to below 60% is Rs. 830.80
9h	Scrutiny of Annual return on fixed assets		Value of Fixed Assets - Rs. 652697389
9k	<del>-</del>	Shovel: 3 Nos; Wheel Loader:	Backhoe: 10No, Shovel: 3 Nos; Wheel Loader: 6 Nos; Dumper: 50 Nos; Dozer:4; Rock Drill: 1 No etc

PAGE: 21

Details of violations observed during current inspection and compliance position of violation pointed out					
Violat	ion observed	Show couse position			
Rule NO.	Issued on Compliance on	Rule NO.	Issued on Compliance on		

Date : (DAYANAND UPADHYAY)

Indian Bureau of Mines