INDIAN BUREAU OF MINES
MINERALS DEVELOPMEMT AND REGULATION DIVISION

MCDR INSPECTION REPORT

Bhubaneshwar regional office

Mine file No : ORI/IRON/KJR/MCDR-35/BBS **Mine code : 30ORI08059**

(i) Name of the Inspecting Officer and ID No. : **RAM) RAMKISHAN R**

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

(iii) Accompaning mine Official with Designation : Shri Shirish Shekar, Agent, Shri rajeev Kumar, Manage

(iv) Date of Inspection : 19/07/2017

(v) Prev.inspection date : 10/06/2015

PART-I : GENERAL INFORMATION

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

(b) Registration NO. : **4376/30ORI08059**

(c) Category : A Mechanised

(d) Type of Working : Opencast

(e) Postal address

State : ORISSA
District : KEONJHAR
Village : KHONDBOND
Taluka : CHAMPUA
Post office : BICHAKUNDI
Pin Code :
FAX No. : 0676772239
E-mail : md.office@tatasteel.com
Phone : 06767 72239

(f) Police Station : Bamebari

(g) First opening date : 17/01/1983

(h) Weekly day of rest : SUN

2. Address for correspondance : VILL:KHANDBOND& GURDA
PO:BICHAKUNDI
P.S.JODA,DIST:KEONJHAR,ORISSA,PIN:758034

3. (a) Lease Number : ORI0108
(b) Lease area : 978
(c) Period of lease : 20
(d) Date of Expiry : 16/01/2003

4. Mineral worked : MANGANESE ORE Associated
IRON ORE Main

5. Name and Address of the

Lessee : TISCO
Bombay House 24, Homy Mody Street Mumbai MUMBAI
(SUBURBAN) MAHARASHTRA
Phone:
FAX :

Owner : T V NARENDRAN
TATA STEEL LIMITED
JAMSHEDPUR, POST-BISTUPUR
SINGBHUM EAST, JHARKHAND
SINGHBHUM (EAST) JHARKHAND
Phone: 06572431818
FAX : 0657-2431818

Agent : SHIRISH SHEKHAR
KHONDBOND IRON AND MN MINES
KEONJHAR ODISHA KEONJHAR
ORISSA
Phone: 7209003547
FAX : 0676772239

Mining Engineer
Name : RAJEEV KUMAR,Full Time
Qualification : B TECH (MINING)
Appointment/ Termination date : 01/07/2014

Geologist
Name : KANISHKA DATTA,Full Time
Qualification : MSC TECH (APPLIED GEOLOGY)
Appointment/ Termination date : 01/07/2013

Manager
Name : RAJEEV KUMAR
Qualification : B. TECH (MINING)
Appointment/ Termination date : 07/07/2014

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

Renewal under rule 22 MCR1960	11/12/2001
Modif.of approved Mining Plan	11/06/2004
FMCP under 23C(1)	09/03/2009
Modif.of approved Mining Plan	09/03/2009
Mining Scheme rule 12 MCDR1988	31/03/2009
Mining Scheme rule 12 MCDR1988	19/06/2013
Modif.approved Mining Scheme	19/01/2016
Modif.approved Mining Scheme	24/08/2016

PART - II : OBSERVATION/COMMENTS OF INSPECTING OFFICERS

Exploration :

Sl.No.	Item	Proposals	Actual work	Remarks
1a	Backlog of previous year	70 Boreholes were proposed in 2015-16,	57 boreholes were only drilled	due to want of forest clearnace rest exploration not carried out.
1b	Exploration over lease area for geological axis 1 or 2	30 boreholes are propsed for the year 2016-17	30 boreholes are drilled	exploration is carried out as per the proposal.
1c	Exploration Agencies and Expenditure in lakh rupees during the year	Rs. 65 lakh proposed	Rs. 60.6 lakh	due to difference in the meterage drilled.
1d	Balance area to be explored to bring Geological axis in 1 or 2	339.06 ha is to be explored to bought under G1 and G2 level.	exploration proposal given in the scheme of mining for drilling of boreholes.	Exploration proposal given in scheme of mining.
1e	Balance reserve as on 01/04/20	As per the approved mining plan dated 24/08/2016, the reserves of Iron ore: 162.78 million tonnes, resources 48.18 million tonnes, the reserves of Mn ore 0.522 million tonnes, resources of 0.378 million tonnes as on 01.08.2015	After depletion and addition of reserves / resources over the period, 96.55 Million tonnes of iron ore , resources are 83.17 million tonnes. 0.459 milion tonnes of manganese ore as on 01.04.2017, resources are 1.69 million tonnes are as on 01.04.2017	Total reserves / resources of iron ore are 179.72 million tonnes and manganese ore are 2.149 million tonnes.
1f	General remarks of inspecting officers on geology, exploration etc	339.06 ha is to be explored to bought under G1 and G2 level.	339.06 ha is to be explored to bought under G1 and G2 level.	339.06 ha is to be explored to bought under G1 and G2 level.

Development :

Sl.No.	Item	Propasals	Actual work	Remarks
2a	Location of development w.r.t.lease area	Opencast mine development is in Pit-7, P,N,P5, Ar-13 for iron ore and pit OZ-X, for manganese ore	Opencast mine development carreied out in Pit-7, P,N, for iron ore and pit OZ-X, for manganese ore	Pit-5, Ar-13 development couldn't be started due to want of forest clearance
2b	Separate benches in topsoil, overburden and minerals (Rule 15)	No generation of top soil. seperate becnhes are proposed in overburden and mineral	No generation of top soil. seperate becnhes are maintained in overburden and mineral	No top soil is generated. Seperate benches for OB and mineral are maintained.
2c	Stripping ratio or ore to OB ratio	1:1.01 (Iron) for 2016-17 1:12.6 (Manganese)	1:1.8 (Iron) 1:8.5 (Mn)	variation is due to the irregular nature of ore deposit.
2d	Quantity of topsoil generation in m3	Nil	Nil	No top soil is generated.
2e	Quantity of overburden generation in m3	1246000 cu.m (Iron) for the year 2016-17 323345 cu.m (Manganese)	1074441 cu.m. (Iron) 301531 cu.m. (Manganese)	Variation in generation of over burden is due to less dvelopement.
2f	General remarks of inspecting officers on development of pit w.r.t. type of deposit etc	Due to delay in getting statuotory clerances some part of the proposed area to be developed couldn't be carried out. it is a captive mine so production varies as per the deman and supply of captive steel plant.	Due to delay in getting statuotory clerances some part of the proposed area to be developed couldn't be carried out. it is a captive mine so production varies as per the deman and supply of captive steel plant.	Due to delay in getting statuotory clerances some part of the proposed area to be developed couldn't be carried out. it is a captive mine so production varies as per the deman and supply of captive steel plant.

Exploitation:

Sl.No.	Item	Propasals	Actual work	Remarks

3a	Number of pit proposed for production	5 pits in Iron ore such as Pit-7, P,N,P5 and Ar-13 1 pit in Managnese ore such as pit OZ-X	3 pits in iron ore such as Pit-7, P,N 1 pit in Manganese ore such as OZ-X	2 pits in Iron ore couldn't be developed due to want of Forest clearance.
3b	Quantity of ROM mineral production proposed	8.285 million tonnes of Iron ore 64000 tonnes of Manganese ore	1.861 milion tonnes of Iron ore 57669.069 tonnes of managnese ore	Variation of production is due to less demand from captive steel plant and also want of statutory clearances. violation issued letter no: ORI/IRON/KJR/MCDR-35/BBS/VOL-IV/929 date: 26/07/2017
3c	Recovery of sailable/usable mineral from ROM production	for iron ore 95% Mn ore 85%	for iron ore 95% for Mn ore 95%	Managanese recovery is more.
3d	Quantity of mineral reject generation	2.568 million tonnes of iron ore 9600 tonnes of manganese ore	0.589 million tonnes of iron ore 5729 tonnes of manganese ore	production is also couldnot be achieved due to less demand from captive steel plant and also less developemtn due to want of staturoy clerances.
3e	Grade of mineral rejects generation and threshold value declared.	+45-58% fe for Iron ore +10-25% mn for managnese ore	+45-58% fe for Iron ore +10-25% mn for managnese ore	No variation in the grade of sub grade material.
3f	Quantity of sub grade mineral generation.	2.568 million tonnes of iron ore 9600 tonnes of manganese ore	0.589 million tonnes of iron ore 5729 tonnes of manganese ore	production is also couldnot be achieved due to less demand from captive steel plant and also less developemtn due to want of staturoy clerances.

3g	Grade of sub grade mineral generation	+45-58% fe for Iron ore +10-25% mn for managnese ore	+45-58% fe for iron ore +10-25% mn for managnese ore	No variation in the grade of sub grade material.
3h	Manual / Mechanised method adopted for segregating from ROM	Mechanised for Iron ore manual for manganese ore	Mechanised for Iron ore manual for manganese ore	As per proposal.
3i	Any analysis or beneficiation study proposed and carried out for sub grade mineral and rejects.	No proposal	Nil	No proposal.
3j	Provision of drilling and blasting in mineral benches	Drilling of 100 mm and 150 mm dia holes with hole length of 6.5 m and blasting is carried out with slurry and SME explosives with initiation of electrci delay detonators and NONEL.	Drilling of 100 mm and 150 mm dia holes with hole length of 6.5 m and blasting is carried out with slurry and SME explosives with initiation of electrci delay detonators and NONEL.	As per the proposal.
3k	Provision of mining machineries in mineral benches	Mining machineries are proposed for exccavation like excavators and dumpers. shovel: 5.7 cu.m. dumper: 60 tonnes, dozer: 395 hp.	Mining machineries are proposed for exccavation like excavators and dumpers. shovel: 5.7 cu.m. dumper: 60 tonnes, dozer: 395 hp.	the machinery deployed in the mine are adequate.
3l	Whether height of benches in overburden and mineral suitable for method of mining proposed in MP/SOM	height of benches proposed in mineral and OB are 6 m.	height of benches proposed in mineral and OB are 6 m.	maintained.

3m	Total area covered under excavation/pits	242.45 ha for the year 2016-17	206.17 ha for the year 2016-17	are covered under excvation of pit is 206.17 ha.
3n	Ore to OB ratio for the pit/mine during the year.	1:1.01 (Iron) 1:12.6 (Mn)	1:1.8 (Iron) 1:8.5 (Mn)	variation is due to irregular nature of ore deposit.
3o	Total area put in use under different heads at the end of year	464.3 ha, excavation: 242.45 ha, waste disposal: 127.44, plant, buidings, infrastructure : 48.34, others: 46.070 ha	274.22 ha, excavation: 206.17 ha, waste disposal: 25.396, plant, buidings, infrastructure: 25.699, others: 16.955 ha	Total area put in use is 274.22 ha

3p	Production of ROM mineral during the last five year period as applicable	2012-13: 8.31 million tonnes of iron ore ,106000 tonnes of manganese ore 2013-14: 8.78 million tonnes of iron ore, 70600 tonnes of manganese ore 2014-15: 9.28 million tonnes of iron ore, 82400 tonnes of maganese ore 2015-16: 6.098 million tonnes of iron ore, 52000 tonnes of manganese ore 2016-17: 8.285 million tonnes of iron ore, 64000 tonnes of manganese ore 2014-15 11.76 million tonnes of iron ore, 2015-16 2014-15: 2014-15:	2012-13: 0.779 million tonnes of iron ore, 46002 tonnes of manganese ore 2013-14: 0.787 million tonnes of iron ore, 70553 tonnes of manganese ore 2014-15: 0.111 milion tonnes of iron ore, 4877 tonnes of manganese ore 2015-16: 0.935 million tonnes of iron ore, 4877 tonnes of manganese ore 2016-17: 1.861 million tonnes of iron ore and 57669.0969 tonnes of manganese ore	Variation in production is due to less demand from captive steel plant and want of statutory clearances.
3q	General remarks of inspecting officers on method of mining etc.	opencast mining is proposed in 5 pits of iron ore and 1 pit of Manganese ore	mining carried out in 3 pits of iron ore and 1 pit of manganese ore.	opencast mining is practiced as proposed in the said development locations.

Solid Waste Management - Dumping:

Sl.No.	Item	Propasals	Actual work	Remarks

4a	Separate dumping of topsoil, OB and mineral rejects (Rule 32,33)	no generation of top soil. the OB/ waste and mineral rejects generated are dumped in the designated areas.	no generation of top soil. the OB/ waste and mineral rejects generated are dumped in the designated areas.	No generation of top solil.
4b	Location of topsoil, OB and mineral reject dumps	Iron dump 1A: 9600E-9750E, 10800N-11050N, Iron dump2A: 9600E- 9950E, 11050N-11420N, Iron dump3: 9850E-10175E, 12450N-12650N, Iron dump5B: 9500E-10000E, 110500N-12000N, Iron dumpA: 8600E-8900E, 12900N-13400N, Iron dump5A: 9600E-9750E, 12100N-12600N, Mn dump2: 14352 N-14573N, 9002E-9272E, Mn dump3: 14078N-14324N, 8736E-9095E	Iron dump 1A: 9600E-9750E, 10800N-11050N, Iron dump2A: 9600E-9950E, 11050N-11420N, Iron dump3: 9850E-10175E, 12450N-12650N, Iron dump5B: 9500E-10000E, 110500N-12000N, Iron dumpA: 8600E-8900E, 12900N-13400N, Iron dump5A: 9600E-9750E, 12100N-12600N, Mn dump2: 14352 N-14573N, 9002E-9272E, Mn dump3: 14078N-14324N, 8736E-9095E	material is dumped in the desginated areas.

4c	Number of dumps within lease area and outside of lease area	8, Iron dump 1A: 9600E-9750E, 10800N-11050N, Iron dump2A: 9600E-9950E, 11050N-11420N, Iron dump3: 9850E-10175E, 12450N-12650N, Iron dump5B: 9500E-10000E, 110500N-12000N, Iron dumpA: 8600E-8900E, 12900N-13400N, Iron dump5A: 9600E-9750E, 12100N-12600N, Mn dump2: 14352 N-14573N, 9002E-9272E, Mn dump3: 14078N-14324N, 8736E-9095E	8, Iron dump 1A: 9600E-9750E, 10800N-11050N, Iron dump2A: 9600E-9950E, 11050N-11420N, Iron dump3: 9850E-10175E, 12450N-12650N, Iron dump5B: 9500E-10000E, 110500N-12000N, Iron dumpA: 8600E-8900E, 12900N-13400N, Iron dump5A: 9600E-9750E, 12100N-12600N, Mn dump2: 14352 N-14573N, 9002E-9272E, Mn dump3: 14078N-14324N, 8736E-9095E	dumps are within lease area.
4d	Location of dumps w.r.t. ultimate pit limit (Rule 16)	Location of waste dumps doesnt fall under ultimate pit limit.	Location of waste dumps doesnt fall under ultimate pit limit.	As per proposal.
4e	Number of active and alive dumps.	6, Iron dump 1A: 9600E-9750E, 10800N-11050N, Iron dump2A: 9600E-9950E, 11050N-11420N, Iron dump3: 9850E-10175E, 12450N-12650N, Iron dump5B: 9500E-10000E, 110500N-12000N, Iron dumpA: 8600E-8900E, 12900N-13400N, Iron dump5A: 9600E-9750E, 12100N-12600N,	6, Iron dump 1A: 9600E-9750E, 10800N-11050N, Iron dump2A: 9600E-9950E, 11050N-11420N, Iron dump3: 9850E-10175E, 12450N-12650N, Iron dump5B: 9500E-10000E, 110500N-12000N, Iron dumpA: 8600E-8900E, 12900N-13400N, Iron dump5A: 9600E-9750E, 12100N-12600N.	waste and mineral reject dumped in the desginated dumps.

4f	Number of dead dumps.	2, Mn dump2: 14352 N-14573N, 9002E-9272E, Mn dump3: 14078N-14324N, 8736E-9095E	2, Mn dump2: 14352 N-14573N, 9002E-9272E, Mn dump3: 14078N-14324N, 8736E-9095E	dumps are within lease area.
4g	Number of dumps established.	2, Mn dump2: 14352 N-14573N, 9002E-9272E, Mn dump3: 14078N-14324N, 8736E-9095E	2, Mn dump2: 14352 N-14573N, 9002E-9272E, Mn dump3: 14078N-14324N, 8736E-9095E	2 dumps are stabilised.
4h	Whether Retaining wall or garland drain all along dumps are there.	Yes	yes provided.	retaining wall and garland drain are provided.
4j	Number of settling ponds	3	3	settling ponds are provided.
4k	Specific comments of inspecting officer on waste dump management	dumps are maintained as per the proposed mining plan.	dumps are mainatined as per the proposal in mining plan	As per proposal.

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.	No back filling proposal as full extraction of mineral not yet done.	No back filling as full extraction of mineral not yet done.	Temporary backfilling carried out in the manganese pit which will be re handled in future.
5b	Area under backfilling of mined out area	Nil	Nil	No proposal.
5c	Concurrent use of topsoil for restoration or rehabilitation of mineral out area (Rule 32)	Nil	Nil	No generation of top soil.

5d	Total area fully reclaimed and rehabilitated	Nil	Nil	No proposal.
5e	General remarks of inspecting officers on backfilling and reclamation etc.	No proposal	No proposal	No proposals on backfilling and reclamation.

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	Submitted	submitted within stipulated time.
6b	Area available for rehabilitation (ha) .	Nil	Nil	No area available for rehabilitation.
6c	afforestation done (ha).	2.5 ha	5.8 ha	Afforestation carried out.
6d	No. of saplings planted during the year	9225	21092	Plantation carried out.
6e	Cumulative no .of plants	318428	322920	cumultaive plants 322920
6f	Any other method of rehabilitation	Nil	Nil	No area available for re habiliation.
6g	Cost incurred on watch and care during the year	Rs. 166050	Rs. 669966	Expenditure of 30% inccured on saplings.
6h	Compliance on reclamation and rehabilitation by backfilling (i) Voids available for backfilling (Lx B x D	Nil	Nil	No proposal.

6i	Compliance on reclamation and rehabilitation by backfilling (ii) Voids filled by waste / tailings	Nil	Nil	No proposal.
6j	Compliance on reclamation and rehabilitation by backfilling (iii)Afforestation on backfilled area	Nil	Nil	No proposal.
6k	Compliance on reclamation and rehabilitation by backfilling (iv) Rehabilitation by making water reservoir	Nil	Nil	No proposal.
6m	Compliance of rehabilitation of waste land within lease (i)afforestation	Nil	Nil	Proposal.
6n	Compliance of rehabilitation of waste land within lease (ii)Area rehabilitation (ha)	Nil	Nil	No Proposal.
6o	Compliance of rehabilitation of waste land within lease (iii)Method of rehabilitation	Nil	Nil	No Proposal.
6p	Compliance of environmental monitoring (core zone and buffer zone)	Yes	carried out	Regular Environment Monitoring is carried out in the Core zone & buffer Zone of the mines.

6q	General remarks of inspecting officers on PMCP compliance and progressive closure operations etc.	Area not matured for reclamation and rehabiliation.	Area not matured for reclamation and rehabiliation.	Afforestation carried out. Regular environement monitoring carried out.

Mineral Conservation:

Sl.No.	Item	Propasals	Actual work	Remarks
7a	ROM Mineral dispatch or grade-wise sorting within lease area	Grade wise sorting carried out.	Grade wise sorting carried out.	As per proposal.
7b	Method of grade-wise mineral sorting i.e. manual or mechanical.	mechanical for Iron ore and Manual for Manganese ore.	mechanical for Iron ore and Manual for Manganese ore.	As per proposal.
7c	Different grade of mineral sorted out at mines.	Iron ore: +62%fe - -65%fe, manganese ore: +25%mn - -35%mn, +35%mn - 46%mn and 46% mn and above	Iron ore: +62%fe - -65%fe, manganese ore: +25%mn - -35%mn, +35%mn - 46%mn and 46% mn and above	As per proposal.
7d	Any beneficiation process at mines .	Nil	Nil	No beneficiation process, only crushing and screening is carried out.
7e	General remarks of inspecting officer on Mineral conservation and beneficiation issues	Crushing and screeeing is carried out.	Crushing and screeeing is carried out.	Sub grade material is blended with ROM production as and when required.

Environment:

Sl.No.	Item	Propasals	Actual work	Remarks

8a	Separate removal and utilization of topsoil (Rule 32)	Nil	Nil	Nil
8b	Concurrent use or storage of topsoil	Nil	Nil	No generation of top soil
8c	Separate dumps for overburden, waste rock, rejects and fines (Rule 33)	Sepeare dumps for overburden, waste rock, rejects proposed.	Sepeare dumps for overburden, waste rock, rejects maintained.	6 dumps are used for dumping of waste.
8d	Use of overburden, waste rock, rejects and fines dumps for restoring the land to its original use	Nil	Nil	No proposal.
8e	Phased restoration, reclamation and rehabilitation of lands affected by mining operations (Pits, dumps etc)	Nil	Nil	No proposal.
8f	Baseline information on existence of plantation and additional plantation done (Rule 41)	cumulative of 322920 saplings planted cumulatively.	21092 saplings plnated in 2016-17.	322920 saplings planted cumulatively.
8g	Survival rate	85%	85% as informed by lessee	Survival rate is as proposed.
8h	Water sprinkling on roads to control airborne dust	water sprinkling for dust suppresion by fixed and water tankers.	water sprinkling for dust suppresion by fixed and water tankers carried out	sprinling of water is carried out to dust supression on haul roads.

Compliance of Rule 45:

Sl.No.	Item	Propasals	Actual work	Remarks
9a	Status of submission of Monthly and Annual returns	monthly and annual returns for the year 2016-17 submitted	monthly and annual returns for the year 2016-17 submitted.	submitted in the stipulated time.
9b	Scrutiny of Annual return for information on Mining Engineer, Geologist and Manager	mining neingeer -14, diploma mining engineer - 2, Geologist - 5, surveyor - 1	mining neingeer -14, diploma mining engineer - 2, Geologist - 5, surveyor - 1	Mining Engineer and Geologist are appointed.
9c	Scrutiny of Annual return on land use pattern for area under pits, reclaimed area, dumps etc.	OC workings: 206.17 ha, waste disposal: 25.396 ha, plant, roads etc: 25.699 ha, other: 16.955 ha	the land use pattern found to be in order.	Nil.
9e	Scrutiny of Annual return on mineral reject generation (Grade and quantity)	654855 tonnes of iron ore, 8651 tonnes of manganese ore grade iron: +45-58%fe, Manganese: +10-25% Mn	found to be in order.	
9f	Scrutiny of Annual return on ROM stock and/or graded ore	ROM production: 1861703.273 tonnes of Iron ore closing stock: 0 for the FY 2016-17, Manganese ore 57669.069 tonnes with closing stock of 0 tonnes	sub grade mineral generated not included in the ROM production.	Violation observed. letter: ORI/IRON/KJR/MCDR-35/BBS/VOL-IV/929 date: 26/07/2017.
9g	Scrutiny of Annual return on sale value, Ex. Mine price and production cost	production cost: Rs 1314.14	found to be in order.	satisfactory.
9h	Scrutiny of Annual return on fixed assets	fixed assests Rs 2433035192	fixed assests Rs 2433035192	combined information with Gomardih dolomite mine

9k	Scrutiny of Annual return on mining machineries	shovels - 2, dumpers - 4, blast hole drills - 4 grader - 1, dozer - 2, loader - 2	All mining machineries furnished in the AR are in order.	all the machinery are required since it is a fully mechanised mine.

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
MCDR17 Rule 11(1)	26/07/2017				
Rule 45(7)	26/07/2017				

Date :

(**RAMKISHAN R**)

Indian Bureau of Mines