

**INDIAN BUREAU OF MINES
MINES CONTROL AND CONSERVATION OF MINERAL DIVISION**

MCDR INSPECTION REPORT

Bhubaneshwar regional office

Mine file No : ORI/IRON/KJR/MCDR-67/BBS

Mine code : 30ORI08081

- (i) Name of the Inspecting : **S024**) **DR. M K SOMANI**
Officer and ID No.
- (ii) Designation : Senior Mining Geologist
- (iii) Accompanying mine : Sh. V.K.S.Rathore, Agent, Mines,
Official with
Designation
- (iv) Date of Inspection : 30/06/2014
- (v) Prev.inspection date : 10/02/2013

PART-I : GENERAL INFORMATION

1. (a) **Mine Name** : **THAKURANI BLOCK-B**
- (b) Category : A Fully Mechanised
- (c) Type of Working : Opencast
- (d) Postal address
- State : ORISSA
- District : KEONJHAR
- Village : SAYABALI
- Taluka : BARBIL
- Post office : BARBIL
- Pin Code : 758035
- FAX No. : 06767-75624
- E-mail : slmlbarbil@hotmail.com
- Phone : 06767-262032/33/34
- (e) Police Station :
- (f) First opening date : 27/08/2001
2. Address for : THAKURANI IRON ORE MINES BLOCK - B
correspondance VILL-SOYABALI, BALITA &-THAKURANI R F
PO-BARBIL, DIST-KEONJHAR, ORISSA
3. (a) Lease Number : ORI0688
- (b) Lease area : 2340.2
- (c) Period of lease : 30
- (d) Date of Expiry :
4. Mineral worked : IRON ORE Main

5. Name and Address of the

Lessee : M/S SARDA MINES (P) LTD
 KEONJHAR ORISSA
 Phone:
 FAX :

Owner : SHRI ARJUN SARASWAT, NOMINATED OWNER
 THAKURANI IRON MINE (B
 BLOCK) m/S SARDA MINES (P)
 LTD. PO BOX -85 BARBIL,
 DIST KEONJHAR ORISSA
 KEONJHAR ORISSA
 Phone: 06767-245003
 FAX : 06767-245017

Agent : D.N.PARIDA
 THAKURANI IRON ORE MINES
 BLOCK - B M/S S.L.SARDA &
 M.L.SARDA KEONJHAR ORISSA
 Phone: 06767-2620312/33/34
 FAX : 06767-275624

Mining Engineer

Name : S K SINGH, Full Time
 Qualification : BE , FCC
 Appointment/ : 27/06/2011
 Termination date

Manager

Name : H.N.SINGH
 Qualification : B E MINING, 1ST CLASS MANAGERS CERTIFICAT
 Appointment/ : 15/12/2001
 Termination date

6. Date of approval of Mining :
 Plan/Scheme of Mining**PART - II : TECHNICAL DETAILS/COMMENTS**

1. Details about Average employment :

Maximum number of persons employed on any day during the year

Employment category	No.of employment	Av. yearly working days
DIRECT		
Supervisory	32	357
Ministrial	19	357
Managerial	54	357
Workers	151	357
Plant	51	357
CONTRACT		
Plant	373	357
Ministrial	13	357
Supervisory	25	357
Managerial	2	357
Workers	389	357

2. Community Development Plan (in and around the mines) : Proposed action and expenditure towards socio-economic development.

Action during the year	Expenditure in Rs. Lakhs for				Remarks
	previous year		current year		
	Proposed	Incurred	Proposed	Incurred	
General					
Water supply	47.00	25.00	48.50	2.00	30000+
Health	58.00	60.00	28.80	2.40	500000+
Sanitation	1.00	15.00	1.30	0.20	10000+
Housing	5.00	5.00	5.00	0.00	2000+ BENEFICIER
Sub total	111.00	105.00	83.60	4.60	
Infrastructure					
Roads	736.00	219.20	300.00	137.00	100000+
Sub total	736.00	219.20	105.00	137.00	
Others	129.00	40.30	150.00	4.80	10000+
Employment	7.00	6.90	8.00	2.30	1000+
Recreation	3.00	3.80	6.00	0.00	100+
Training	23.00	23.60	5.00	0.06	1000+
Total	*****	377.40	574.00	148.76	

3. Status of compliance of MCDR, 1988, including therewith the rectification of the outstanding violation of rules.

NO VIOLATIONS WERE OBSERVED.

4. A note on the justification in case of suspension of mining operation under rule 13(2) or prohibition of deployment of any person under rule 56 of MCDR, 19888, if recommended.

Not applicable

5. Scientific Mining

Items	Proposal	Actual work done	Remarks
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A. Exploration (Rule 13)

a.Type of prospecting : and exploration i.e. pitting, drilling	Core Drilling: Proposal was to drill 121 nos. of exploration core drill holes outside the existing broken up area.	Core Drilling : 38 nos. exploration drill holes were drilled inside the broken up area only. DTH Drilling: 91 nos of DTH were drilled for confirmation of quality parameters.	
b.Total area covered	: 178.36 Ha. of Non broken Forest Area	Drill holes drilled in between already explored area at closer grid intervals. Therefore no new area was added.	

B. Working (Rule 13)

a.Number and size of each pit (LxWxH)	(a) Block-05: Bottom R.L. - 681mts (b) Block-08: Bottom R.L. - 627mts	(a) Block-05: Bottom R.L. - 681mts (b) Block-08: Bottom R.L. - 627mts	
b.Bench size(LxWxH)length can be defined as regular/irregular	(a) Block-05:- Height - 9mts Width - 18mts (b) Block-08:- Height - 9mts Width - 18mts	(a) Block-05:- Length - Irregular Height - 9mts Width - 18mts (b) Block-08:- Length - Irregular Height - 9mts Width - 18mts	
c.Ore to waste ratio pit wise if possible otherwise for mine	: 1 : 0.04 (for the Mine)	1 : 0.05 (for the Mine)	
d.Total area covered under excavation/pits	: 163.159 Ha	163.159 Ha	

C. Waste disposal (Rule 13)

a.Location of dumps	: Stabilized Dump; Waste Dump No.-1 BL-08 SW side Active Dump ; Waste Dump No.- 2 BL-05 South Side	Stabilized Dump; Waste Dump No.-1 BL-08 SW side Active Dump ; Waste Dump No.- 3 BL-07 back filled area	
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(Active)

e. Yearly generation of waste quantity.	: 446800 CuM	393386 CuM
b. Method of dumping whether advancing/retreat	: Retreating Method	Retreating Method
c. Total area covered under waste dump.	: Stabilized Dump; Waste Dump No.-1 11.993 ha	Stabilized Dump; Waste Dump No.-1 11.993 ha
	: Active Dump ; Waste Dump No.- 2 10.04 Ha (South Side of BL-05)	: Active Dump ; Waste Dump No.- 3 Backfilling Area of BL-07 - 4.600 Ha
d. No. and size of each waste dump with No of steps/lift/bench	: Stabilized Dump; Waste Dump No.-1 468 m X 224 m Three steps terracing	: Stabilized Dump; Waste Dump No.-1 468 m X 224 m Three steps terracing
	: Active Dump ; Waste Dump No.- 2 500m X 210 m One steps terracing	: Active Dump ; Waste Dump No.- 3 Backfilling Area of BL-07 170 m X 95 m Two steps terracing

D. Production

b. Year wise production of last five year.	: Approved mining plan/ scheme	5104695
	2008-09 12000000	7524080
	2009-10 15000000	5995200
	2010-11 15000000	7415110
	2011-12 7500000	(6736110 + 679000 DW*)
	2012-13 8999709	7593585
	2013-14 11999620	(6770435 + 823150 SG)
		7029110
		(6732220 MT Saleable Ore + 296890 Subgrade Ore)

D. Reserve

a. Reserve position as per latest MP/MS and at the time of inspection.	: CODE QUANTITY (Mill. Tons) GRADE
	--- 289.682 45% Fe & above
	111 96.523 55% Fe & above
	121 Not applicable -do-
	122 105.193 50% Fe & above
	211 5.398 45 % Fe to 55%

Fe
 221 Not applicable -do-
 222 7.131 45 % Fe &
 above
 331 Nil -do-
 332 Nil -do-
 333 75.437 -do-
 334 Nil -do-

RESERVE POSITION AS ON 01/04/2014

IRON ORE		
Category	Quantity in Tonnes	Grade
Proved	96523000	55% Fe & above
Probable	105193000	55% Fe & above
Possible	87966000	45 % Fe & above
Total	289682000	45 % Fe & above

PRODUCTION FOR THE PREVIOUS YEAR 2013 - 2014

Mineral	Production	Unit
IRON ORE	7029110	TON

6. Conservation of Mineral - both quantitative and qualitative**Beneficiation (Rule 20 and 26)**

- Efforts for improving low grade and sub grade mineral. : The low grade processed ore after crushing are being beneficiated in the 11.25 MTPA throughput capacity Washing & Beneficiation plant. This is being done on job contract basis.
- Efforts for improving percentage of recovery of ore. : The low grade processed ore after crushing are being beneficiated in the 11.25 MTPA throughput capacity Washing & Beneficiation plant. This is being done on job contract basis.
Low grade ore is subjected to beneficiation process for improvement of ore recovery.

Mineral Rule 15

- Percentage of recovery of ore : 95 % Avg. for the mines
pitwise w.r.t. ROM and total material
- Number of benches in ore and waste. : (a) No Benches in ore and waste-
(a) Block-05:- 12 in ore & O.B.- nil
Length-1600mts, width- 400mts, Depth-108mts
Top-R. L.-771mts, Bottom R.L.-663mts
(b) Block-08:- 10 in ore & O.B.- nil
Length-730mts, width- 280mts, Depth-89mts
Top-R. L.-716mts, Bottom R.L.-627mts

Sub/grd mineral/fines (Rule16)

- Qty of yearly generation and total qty available during inspection with grade : YearOpening StockMT/Quantity generated MT/Quantity consumedMT/Quantity stacked MT (Closing Stock)
2013-14 823449.210 296890.00
299.210 1120040.00
- Number and size of each stack : Two stacks ;
Stack No.1- Length - 171 m ; Width - 69 m ; Height - 28 m ; Three Step Terracing
Stack No.2- Length - 232 m ; Width - 18 m ; Height - 9-26 m ; Three Step Terracing
- Location of stacking. : East side of BL-03
- Separate stacking from waste : Being stacked separately
- Total area covered for stacking : 2.079 Ha

Exploration data as on 31/03/ 2014

No. of Boreholes

No. of Pits

No. of Trenches

840

OVERBURDEN HANDLED DURING PREVIOUS YEAR 2013 - 2014

Overbuden/waste removed (in m3) : 3946000

Utilisation of Sub Grade Mineral and Mineral Rejects

<u>Generated</u>	<u>Utilised</u>	<u>Stacked</u>	(In Ton.)
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7. Environment Management - both quantitative and qualitativ

A. Land environment

- a. Landscape. : For land environment number of local plant species has been planted inside the mines as well as outside the mining lease area. 14 numbers of Check dams have been constructed for protection of silt & solid wash off. 4 numbers of siltation ponds have been construed at the quarry bottoms to accumulated wash off from mining pits. 670 mts of Garland drains & 1300 mts of boulder walls have been made available at all dump bottoms.
- b. Aesthetic environment : All dumps have been properly terraced and stabilized through plantation. Mined out areas are being back filled and then later stabilized. A new method of plantation named Miyawaki Plantation has been adopted to stabilize back filled areas. Beautiful gardens have been developed inside the Colony area and mines area. Avenue plantation made near all infrastructures
- c. Soil and land use pattern : No change in soil quality and land use pattern.
- d. Agriculture : Not applicable.
- e. Forest (flora and fauna) : (e) Forest (flora & fauna)- High LUX torch lights to ward of elephants have been distributed to the forest guards, Numerous Game tanks have been provided to carter drinking water of wild animals, Salt bags have been kept at various locations inside the forest area to facilitate fauna growth. Solar Fencing at BL-05 top has been commissioned for protection against wild animals. Bio-Fencing with plantation of local dry thorny twig species has been CARRIED OUT AT QUARRY TOP.
- f. Vegetation : (f) Vegetation - A number of wetlands have been created in the core and buffer zones for ground water recharge. As a result approx. 4.15 % increase in agricultural land area from last year was recorded.
- h. Public building, places and monuments (protected, historical), place of worship and places of tourist : (g) Public building, places and monuments (protected monument and historical monument), places of worship and places of tourist interest. - Special funds have been allocated and electrification done in the nearby historical Murga Mahadev Temple.

B Water environment.

- a. Surface water : (a) Surface water -No impact on surface runoff water, as 13 numbers of check dams have been constructed at low lying area to arrest silt & solid wash off and four nos. of large siltation have been made at bottom floor of the pits i.e. BL- 02, BL-5 , BL-07 & Bl-08.
- b. Ground water : (b) Ground water- A few quantity of ground water have been used for drinking purposes only. 9 numbers of rain water harvesting structures have been created in

the lease area to recharge ground water. Water table has risen by 0.6 mtr over an area of 43941.21 Ha. in the buffer zone.

- c. Quality of water : (c) Quality of water - No change in Quality of water and it is within the permissible limit.

C. Air environment

- a. Noise : Adequate measures are being taken for control of noise levels below 85 dBA in the work environment. Workers engaged in blasting and drilling operations, operations of Mining Machineries & Equipments etc. have been provided with ear plugs/muffs. Workers in Noise generating areas and engaged with noise generating machinery are subjected to audiometric tests annually. There are Regular noise checks by Decibel Meters to check for excessive noise in machineries.
- b. Air : For the dust suppression in and around the mines 5.1 km stretch of haul road has been facilitated with fixed water sprinklers. Another 3.3 Km stationery sprinklers is under commissioning. The frequency of sprinkling is once in 40 mins. Apart from these 8 nos of mobile water sprinklers varying in capacity from 10 to 28 kl are deployed. These water tankers run throughout the day on all haul roads, transportation roads and quarry benches. Wet drilling method is practiced.
- c. Climatic condition : (c) Climatic condition- An automatic weather monitoring system has been commissioned to keep a track of changes in climatic conditions. No change in climatic condition has been marked.

D. Socio economic environment

- a. Social and demographic profile. : The total population of the study area is 343397 (as per census 2001). Out of the total population 60%, (20737) belongs to Scheduled Castes and Schedule tribe i.e. 10% SC and 50% ST. The area is tribal dominated. The sex ratio (nos. of female per thousand males) is 942. The literacy rate is 43.37% (overall), 27.8% (males) and 15.5% (females).
- b. Recommending health and safety. : (b) Recommending health and safety - As the company has a dispensary, where free medicine, free treatment, mobile health camp etc. provided to the surrounding nearby villagers. Sometimes referral cases are providing free ambulance facilities. The company is taking special care for safety regarding.
- c. Human settlement : Not applicable
- d. Recreational facility. : (d) Recreational facility- The company has provided a fully equipped club house with Swimming pool, Billiards room, Movie Show, Table Tennis, Badminton, Gymnasium, etc.

7.1 Comments on the steps taken by the lessee towards maintaining environment and monitoring of environmental parameters to ensure the qualitative improvement in the environment and ecology.

<u>Water Management</u>					
Season	Station type	Station name	Parameter	Value	
				Actual	Excess

<u>Air data for excess parameters</u>					
Season	Station name	Type of area	Parameter	Value	
				Actual	Excess

<u>PLANTATION DURING THE PREVIOUS YEAR</u>		<u>2013 - 2014</u>	Area in Hect.
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<u>TOP SOIL MANAGEMENT</u>	
Quantity as on 31/03/2014	

8. Scrutiny of annual returns on cost of production, reserve, production, pit mouth value, stock, land use pattern and fixed assets.

(1) Cost of operation- Rs. 963.72/Tone (Un Audited)

(2) Production- 7029110 MT (6732220 MT Saleable Ore + 296890 Subgrade Ore)

(3) Pit's Mouth Value- Rs. 1647.88/ Tone.

A LETTER HAS BEEN SENT TO COM(CZ) FOR SCRUTINY OF RETURN.

PART - III : PERFORMANCE OF MINE OWNER

(In case of lease expiring within 2 years - as per guidelines)

PART - IV : PROPOSALS FOR FURTHER ACTION FOR :

Indian Bureau of Mines (any issue related to CGPB, SGPB, Assistance, Consultancy, Annual Programme and studies, etc.)

NONE

State Government (Illegal mining, mining dispute, infrastructure, Mineral based industry, Mineral policy, etc.)

NONE

The Central Government (Infrastructure, Development, Mineral policy and Legislation, Mineral based industry, etc.)

NONE

Date :

(DR. M K SOMANI)

Indian Bureau of Mines