

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

MCDR INSPECTION REPORT

Bhubaneshwar regional office

Mine file No : ORI/IRON/SNG/MCDR-1/BBS

Mine code : 30ORI13001

- (i) Name of the Inspecting : **25**) **SHRI IBRAHIM SARIF**
Officer and ID No.
- (ii) Designation : Assistant Controller Mine
- (iii) Accompanying mine : Sri R. Nigam, Mines Manager, Sri B.K. Soren, DGM,
Official with
Designation
- (iv) Date of Inspection : 15/10/2015
- (v) Prev.inspection date : 21/01/2014

PART-I : GENERAL INFORMATION

1. (a) **Mine Name** : **BARSUA**
- (b) Category : A Mechanised
- (c) Type of Working : Opencast
- (d) Postal address
- State : ORISSA
- District : SUNDARGARH
- Village : BARSUA
- Taluka : BONAI
- Post office : TENSA
- Pin Code : 770042
- FAX No. : 06625-236031
- E-mail :
- Phone : 06625-236026
- (e) Police Station :
- (f) First opening date : 06/01/1960
2. Address for : BARSUA IRON MINE OF SAIL
correspondance AT/PO-BARSUA
DIST-SUNDERGARH
3. (a) Lease Number : ORI0155
- (b) Lease area : 77.94
- (c) Period of lease : 20
- (d) Date of Expiry : 28/04/0200
4. Mineral worked : IRON ORE Main

5. Name and Address of the

Lessee : STEEL AUTHORITY OF INDIA LIMITED
 PURNAPANI LIMESTONE MINE
 SUNDERGARH DISTRICT -770
 ORISSA SUNDARGARH ORISSA
 Phone:0661-728121
 FAX :

Owner : SHRI KALYAN MAITY
 ISPAT BHAWAN, LODHI ROAD
 M/S SAIL LTD, NEW DELHI
 SUNDARGARH ORISSA
 Phone:
 FAX :

Agent : H BARA
 BARSUA SAIL SUNDARGARH
 SUNDARGARH ORISSA
 Phone:
 FAX :

Mining Engineer

Name : B. K. SOREN, Full Time
 Qualification : BSC (MINING)
 Appointment/ : 03/06/2009
 Termination date

Geologist

Name : J. CHATTOPADHYAY, Full Time
 Qualification : M. TECH APPLIED GEOLOGY
 Appointment/ : 28/10/2006
 Termination date

Manager

Name : R NIGAM
 Qualification : B TECH MINING
 Appointment/ : 28/05/2011
 Termination date

6. Date of approval of Mining : 28/07/2008
 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		
Managerial	64	307
Supervisory	63	307
Workers	162	307
Others	32	307
Plant	49	307
Ministrial	20	307
CONTRACT		

Others

343

307

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					
Health	4.50	4.75	7.08	7.94	
Sub total	4.50	4.75	7.08	7.94	
Infrastructure					
Public transport	2.00	0.00	1.35		
Sub total	2.00	0.00	4.75		
Training	25.50	24.00	25.45	36.30	
Employment	17.29	14.88	15.78	15.78	
Others	9.12	10.99	8.49	32.98	
Environment management	0.00	0.00	47.31	191.28	
Total	58.41	56.95	103.13	284.28	

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

During current inspection violation of rule 13(1), 16(1) and 45(7) of MCDR, 1988 was pointed out and communicated to the party vide this office show cause notice dated 03.03.2016.

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, 1988, if recommended.

Not at present

5. Scientific Mining

Items	Proposal	Actual work done	Remarks
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B. Working (Rule 13)

a.Number and size of each pit (LxWxH)	3E 350m x 200m x 100m 3W 300m x 200m x 70m A5 230m x 140m x 30m	Quarry-1 188m x 138m x 32m Quarry-2 724m x 421m x 117.9m 3E 350m x 200m x 100m 3W 300m x 200m x 70m Quarry-4 180m x 100 A5 230m x 140m x 30m Quarry-6 392m x 186m x 40m	
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b.Bench size(LxWxH)length can be defined as regular/irregular	: Bench Height 2-9 meters Bench Width 5-15 meters	Bench Height 2-9 meters Bench Width 5-15 meters	
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d.Total area covered under excavation/pits		169.28Ha	
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C. Waste disposal (Rule 13)

b.Method of dumping whether advancing/retreat	: Advancing	Advancing	
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c.Total area covered under waste dump.	: 27.92	12.14 Ha	
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e.Yearly generation of waste quantity.	: 2.50 MT	2.99 MT (including Subgrade of 1.51MT)	
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d.No.and size of each waste dump with No of steps/lift/bench		S G Dump No. Size(Area) No. of bench	
		1 88000 sq.m on slope	
		2 73920 sq.m on slope	
		3 6430 sq.m on slope	
		4 3610 sq.m on slope	
		5 2900 sq.m	
		1 7	
		38500 sq.m	
		1	
		8	

237900 sq.m
3
9 118600 sq.m
1

D. Production

b. Year wise : 2014-15: 248317 MT Production could not be carried out due to suspension of beneficiation plant operation by the order of Hon'ble Supreme court of India.
production of last five year.

D. Reserve

a. Reserve position as : Proved : 62.86 million
per latest MP/MS and tonnes
at the time of Possible : 80.38 million
inspection. tonnes

RESERVE POSITION AS ON 01/04/2015

IRON ORE		
Category	Quantity in Tonnes	Grade
Proved	62860000	+60% Fe
Probable	0	
Possible	80380000	+60% Fe
Total	143240000	+60% Fe

PRODUCTION FOR THE PREVIOUS YEAR 2014 - 2015

Mineral	Production	Unit
IRON ORE	248317	TON

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

- Efforts for improving low grade and sub grade mineral. : Air pulsated jig of 250 TPH has been installed to improve the quality of low grade and sub grade fines. Installation of a slime beneficiation plant in pilot scale is in progress.
- Efforts for improving percentage of recovery of ore. : Blending of low grade ore with high grade ore.

Mineral Rule 15

Percentage of recovery of ore : 95%
pitwise w.r.t. ROM and total material

Number of benches in ore and waste.	: AREA ORE BENCHES WASTE BENCHES	
	3E 6 nos.	4 nos.
	3W 5 nos.	2 nos.
	A5 3 nos.	2 nos.

Sub/grd mineral/fines (Rule16)

Qty of yearly generation and total qty available during inspection with grade : Quantity generated (Tonnes) in 2014-15 : 15,10,000
Quantity generated (Tonnes) in 2015-16 (till date of inspection) : 6,05,000
Quantity consumed (Tonnes) : NIL
Cum. as on date of inspection(Tonnes) : 21,15,000

Number and size of each stack : 4 No.
1. Size of Area 3 Stockpile - 6170 M2
2. Size of OCT Stockpile - 4680 M2
3. Size of Area 2 & 4 Stockpile - 9000 M2
4. Size of Dump 8 237900 M2 (Dump-8)

Location of stacking. : At Area 3 Stockpile (S535.25/ E242.225, S 512.451/E 309.055, S 602.955/ E 315.754, S 624.115/ E 248.015) & OCT stockpile (S 1575.555/ W 92.015, S 1612.014/ W 88.159, S 1554.345/ E 27.095, S 1515.00/ E 15.351) and at Area 2 & 4 (S-1950 to S-2100/E-40 to E-100) Dump 8 (W100-E130; S700-S1250)

Separate stacking from waste : Earlier dumps considered as waste have now are sub grade dumps as per revised threshold value for Iron Ore.
Presently sub grade ore has been found mixed with waste material. in this regard violation was pointed out to the party.

Total area covered for stacking : 25.77 Ha

Exploration data as on 31/03/ 2015

No. of Boreholes

No. of Pits

No. of Trenches

OVERBURDEN HANDLED DURING PREVIOUS YEAR 2014 - 2015

Overburden/waste removed (in m3) : 1475065

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. : The topography is highly rugged and traversed by a number of streams. The area in general slopes towards West and North West and the elevation varies for 220m above Mean Sea level to 898m above Mean Sea level.
- b. Aesthetic environment : Area is full of small hills, valleys and streams. Area is mostly covered by forest growth that looks green.
- c. Soil and land use pattern : Based on mode of origin and occurrence, chemical and physical characteristics, soils of the area can be broadly classified as Alfisols. The alficols consist of red sandy and loamy soils, mixed red and black soils and alluvial soils. Land use is as below.
Area under excavation: 169.28Ha.
Subgrade stack / Retaining wall and Garland Drain: 68.71 Ha.
Roads: 11.48 Ha. Green Belt: 49.44 Ha,
Infrastructure: 12.19 Ha.
Total: 311.10 Ha.
- d. Agriculture : No agricultural land exist within lease area.
- e. Forest(flora and fauna) : The dominant tree specie of the area is Sal (Shorea Robusta), followed by Kusum, Kadumba, Palas etc
- f. Vegetation : The area abounds in forests. Sal (Shorea robusta) is the most common tree having sometimes considerable height and girth. In certain parts bamboo forests also occur. Other trees in the forests are Asan, Dhanra, Karan, Piasar, Bamhar, Shisu, Kendu, Harra, Behera, Simul, Kusum, Palas, Bel, Solga, Kuchila etc.
- h. Public building, places and monuments (protected, historical), placec of worship and places of tourist : There is no place of archeological or religious importance within 50 km. of the lease area. The area has a tribal predominant population. Hence, this is not unexpected. There are no temples of religious importance beyond immediate surrounding villages. There are no public buildings of any importance.
However, there are a few places of scenic beauty. The main is Khandadhar Water Fall, which is within buffer zone.

B Water environment.

- a. Surface water : The stream identified for the Barsua mine for use of surface water resources along with catchment areas are given below.
- | Sl. No. | Mining Area | Identified Stream/river | Purpose | Catchment area(sq. km) |
|---------|-------------|-------------------------|-----------------------|------------------------|
| 1. | Barsua | Kurhadi River | Industrial & Drinking | 82.25 |

There is no major irrigation project existing on Kurhadi River. However, water from the river is being utilized for existing industries, domestic requirements and for limited irrigation.

- b. Ground water : Mining operations has not intersect the ground water table.
- c. Quality of water : potable

C. Air environment

- c. Climatic condition : The climate of the area is sub-tropical. The Barsua mine has been maintaining daily record of rainfall, temperature and humidity since, 1967. Only meteorological parameter not recorded in wind velocity and wind direction.

The area is hilly terrain and quite dense forest has been existing in the area. Hence, climate is milder and cooler than surrounding plains.

D. Socio economic environment

- a. Social and demographic profile. : There are only none villages with population of more than 1000, six of above has population of less than 2000, Only 23 villages has population between 500 and 1000, while remaining 70 villages are more than 68.5% has population of less than 500. Thus, population is very thinly spread. The ST population is 62.2%. Thus, the area is tribal area. The SC population is only 7.0%, very low, which is usually a feature of tribal areas. The overall literacy% at43%. The male litracy is 53% and Female is 43

- c. Human settlement : There is only one village Tanta, within the core zone that is lease area M.L. 130, located on eastern flank in non forest part of the lease area namely Taldih block. The village is also part of non forest land in the lease. The village has majority, 95%, tribal population.

There are 102 villages in 10 km. radius buffer zone, including two census towns out of which 98 are located in state of Orissa and four, including one census town in the state of Jarkhand.

- d. Recreational facility. : Social centre and Club, Celebration of mines safety week and MEMC week every year.

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>2014 - 2015</u>	Area in Hect.
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Within lease area			Outside lease area		
Area	Trees planted	Survival rate	Area	Trees planted	Survival rate
10	16000	68	1.8	2400	55

TOP SOIL MANAGEMENT
Quantity as on 31/03/2015

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. 4349.58 per Tonnes

(2) Reserve - as on 01.04.2015

Classification	Code	Quantity	Grade
Proved Mineral Reserve	111	62860000.000	at 57% Cut off
Prefeasibility Mineral Resource	221 and 222	80380000.000	at 45% Fe Cut off

(3) Production - 0.248 MT

(4) Pit's Mouth Value - Rs. 4349.58 for Lumps

Rs. 6207.04 for Fines

(5) Stock - 16973.86 T (Lump), 261139.54 T (Fines)

(6) Land use pattern (Current):

Area under excavation: 169.28Ha.

Subgrade stack / Retaining wall and Garland

Drain: 68.71 Ha.

Roads: 11.48 Ha.

Green Belt: 49.44 Ha.

Infrastructure: 12.19 Ha.

Total: 311.10 Ha.

(7) Fixed assets:

Land: Rs. 65,96,19,220

Building: Rs. 2,46,26,420

Plant and Machinery: Rs. 31,51,32,680

Total: Rs. 99,93,78,320

Violation was pointed out to the party for discrepancies in Annual return submitted for the year 2014-15.

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 :

(SHRI IBRAHIM SARIF)

Indian Bureau of Mines