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**REPORT ON CHECK INSPECTION OF KIRIBURU IRON ORE MINES OF
SAIL IN WEST SINGHBHUM DISTRICT**

**Name and designation of inspecting officer: SHRI ANUPAM NANDI,
RCOM, IBM, RANCHI**

Date of Inspection : 27.02.2019

1. General information of the mine:

- i) Name of mine : KIRIBURU IRON ORE MINE
- ii) Owner : M/s Steel Authority of India Ltd
- iii) Nominated Owner : Shri H N Rai, Director(Tech), RM&L
- iv) Mining Engineer : Shri Manoj Kumar, DGM (Mining)
- v) Agent : Shri D K Barman, GM (Mines), KIOM
- vi) Mine Manager : Shri Ram Singh, DGM (Mines), KIOM
- vii) Lease Area : 2897.499 Hect. (all forest land)
- viii) Location : Vill.-Kiriburu, Dist.W Singhbhum,
State- Jharkhand
- ix) Lease Period : 30 years
- x) Date of Expiry : 31.04.2020
- xi) Date of approval of Mining Plan : 13/10/2015
- xii) Date of approval of scheme : 13/06/2018
- xiii) Period of Mining Plan/
Scheme of Mining : 01/04/2015 to 31.03.2020
- xiv) Production(2017-18) : 4195620 tonnes

2. Brief description of the mine:

a. A brief description of the mine covering location, geology, problems associated

with mining of the deposit etc. may be given.

Kiriburu Iron Ore lease is located in Singhbhum (West) district of Jharkhand state. The lease area is covered under Survey of India, Toposheet No. 73 F/8.

Koina and Karo are the two important streams which play an important role in the drainage system of the area. River Koina is on the western slope of the Kiriburu-Meghahataburu hill range and is fed by a number of tributary nallah like Sankoja, Gagirathi, Meghatu, Sasangda, Pardih, Rangring etc. River Karo is below the eastern slopes of the deposit and is like-wise fed by mainly Pachari and Rogar Nallahs. There is no human settlement in the near vicinity of the deposit. The deposit lies in the famous Saranda forests. There is no human settlement within 15 km of the lease boundary in Jharkhand state.

The period from July to September is characterized by heavy downpour and incessant rains, the average annual rainfall being 1500 mm. October and November are the pleasant months, while the peak winter months are December to February when the temperature falls down to 4.4⁰C. The summer months of March to June are quite hot and dry. The temperature rises to 45.5⁰C during these months.

The structural framework of the area is very complex. It has undergone three successive phases of tectonic deformations: D1, D2 and D3. The BIF and the host rock of the area displays numerous structural features including folds, minor faults, joint network (3 sets), fractures and pinch-swell structures.

Jones (1934) in his pioneering work on Singhbhum-Bonai region, first postulated that the Precambrian sedimentary iron ore bearing formation (Iron Ore Series.) is an asymmetrical overturned synclinorium plunging towards north. The Western limb of the synclinorium comprising of Bonai Iron Ore Range. (Sasongada-Kiriburu-Dandrahar) is overturned and dips at high angle (30⁰ to 70⁰). The regional strike of the area is NNE-SSW. While the Eastern limb composed of Noamundi-Joda-Khandabandh deposits are complicatedly folded and dipping toward west. This regional fold (well known as Horse shoe synclinorium in geological literature) assumes a horse shoe shape, opened to north and closed to Khandadhar-Malangtoli blocks. The Central area (Jamda-Koira valley) enclosed in the horse-shoe largely bear phyllite with the tuffs, lavas and cherts. The western portion of this structure is almost continuously comprised of BHQ/BHJ which forms the hanging wall of the main Bonai Iron Ore body.

Lateritic ore

Geothitic ore

Hard Laminated ore

Soft Laminated Ore

Blue Dust

2.b) DETAILS OF MINING MACHINERY DEPLOYED IN THE MINE DURING 2017-18

SL. NO.	NAME OF THE MACHINERY	NAME OF MANUFACTURER (WITH COUNTRY)	NO OF UNITS	ENGINE H.P OF EACH UNIT	IDLE HOURS DURING 2017-18	AV HOURS WORKED DURING 2017-18	UT HOURS DURING 2017-18	UT%
SHOVEL								
EX-21	EXAVATOR	HYUNDAI	1	1.62 CuM	5921	7178	1257	18
BE-16	EXAVATOR	BEML	1	4.5 CuM	0			0
TH-17	EXAVATOR	TELCOM	1	5.9 CuM				0
BE-18	EXAVATOR	BEML	1	4.5 CuM	337	995.5	658.5	66
EX-20	EXAVATOR	KOMATSU	1	9.5 CuM	3270	5297	2027.0	38
EX-22	EXAVATOR	KOMATSU	1	9.5 CuM	2964	7139	4175.0	58
EX-23	EXAVATOR	KOMATSU	1	9.5 CuM	2259	6918	4659.0	67
DUMPER								
82	DUMPER	BEML	1	50 Te				0
84	DUMPER	BEML	1	50 Te				0
85	DUMPER	BEML	1	50 Te				0
86	DUMPER	BEML	1	50 Te				0
87	DUMPER	BEML	1	85 Te	269	1217	948	78
88	DUMPER	KOMATSU	1	100 Te	1434.5	3709.5	2275	61
89	DUMPER	KOMATSU	1	100 Te	2365.5	5868.5	3503	60
91	DUMPER	CAT	1	100 Te	4509.5	6597	2087.5	32
92	DUMPER	CAT	1	100 Te	1698	2742	1044	38
93	DUMPER	BEML	1	100 Te	4670.5	6605.5	1935	29
94	DUMPER	BEML	1	100 Te	3126	4920	1794	36
95	DUMPER	BEML	1	100 Te	4107	6730.5	2623	39
DRILL								
DM-17	DRILL	IR-ROTACOL	1	160 MM	1241	2001.0	760	38
DM-18	DRILL	IR-ROTACOL	1	160 MM	1289.5	2512.5	1223	49
DM-19	DRILL	IR-ROTACOL	1	160 MM				0
DM-20	DRILL	IR-ROTACOL	1	160 MM	1961	4939.0	2978	60
DOZER								
DOZ-27	DOZER	BEML	1	410 HP	1899.5	3010.5	1111	37
DOZ-28	DOZER	BEML	1	410 HP	1268.5	1539.5	271	18
DOZ-29	DOZER	BEML	1	410 HP				0
DOZ-30	DOZER	BEML	1	410 HP	3145	4799.5	1654.5	34
DOZ-31	DOZER	BEML	1	410 HP	3095	4698	1603	34
DOZ-32	DOZER	BEML	1	410 HP	1819	3369.5	1550.5	46
DOZ-33	DOZER	BEML	1	410 HP	1425	2671	1245	47
PAYLOADER								
FEL-4	PAYLOADER	KOMATSU	1	2.9 CuM	1282	1963	681	35
MOTOR GRADER								
MG-7	GRADER	BEML	1	280HP				0
MG-8	GRADER	BEML	1	280 HP	1050.5	1454	403.5	28
WATER SPRINKLER								
WT-79	WATER TANKER	BEML	1	50 T				0
WT-83	WATER TANKER	BEML	1	WS 28	3827.5	4860.5	1033	21
WT-90	WATER TANKER	BEML	1	WS 28.2	3973.5	5021	1047.5	21

3. Implementation of Mining Plan or scheme of Mining: 2017-18

Sl.No			
1.	CONSERVATION OF MINERALS	Proposal in the approved Mining Plan or Scheme of mining (Period from 01.04.2015 to 31.03.2020.)	Observation regarding implementation of proposals given in approved Mining Plan Or Scheme of mining.
a)	Exploration:	12 Nos, 1200 Mts 100x100 interval (South block)	3 Nos, 30 Mts, 200x200 interval (North block)
b)	Utilization of sub grade mineral:	Sub grade material are blended with high grade material in the pre crusher stockpile and feed to hopper.	Sub grade material are blended with high grade material in the pre crusher stockpile and feed to hopper.
c)	Any other proposal for monitoring:	--	--
2.	SCIENTIFIC MINING		
a)	Mine Development and method of mining:	Open cast mechanized mines, dumper-shovel	Open cast mechanized mines, dumper-shovel
b)	Handling of Waste/sub grade material:	NA	Waste material dumped in waste dump & sub grade material are blended with high grade material in the pre crusher stockpile and feed to hopper.
c)	Area reclamation & restoration:	8.34 Ha for 2017-18	4.24 Ha in 2017-18
d)	Any other proposal for monitoring:	--	--
3.	PROTECTION OF ENVIRONMENT		
a)	Afforestation:	1000	1000, Sal, Sagwan, Mahaguni, & others

b)	Quality of Air:	Operatin/area	Control measures	Sl NO	Sampling Location	Date	Perm.Limit	SPM	RSPM	SO2	NO2	
		Drilling	Wet drilling	A	Industrial Area			700	350	5000	6000	
		Blasting	Use of stemming material	1	Mininig Field office	7/01/19	Actual	89	44	15	14	
		Haul Road	Water sprinkling	2	Hopper	9/01/19	Actual	91	43	14	13	
		Hill top crushing plant	Water spraying/fogging	B	Residential Area		Perm Limit	PM10 100	PM2.5 60	SO2 80	NO2 80	
		Waste dump	Stabilization of dump through affroestation	1	Hospital	15/1/19	Actual		17	BDL	BDL	
				2	Township Duty Room		Actual		19	BDL	BDL	
c)	Quality of Water:/Ground water	The water table will not be touched. However due to surface run offs there will be likely impact on the surface quality. The present set up of garland drains & retaining wall will divert the course of runoff water though series of check dams.		Sl No	Parameter	Norms	Value					
				1	ph	6.5 to 8.5	6.8					
				2	Turbidity(NTU)	<5	2.7					
				3	Dissolved Solids	500	1.7					
				4	Flouride	1	N/D					
				5	Hexavalent Chromium	0.05	N/D					
				6	Iron	0.3	0.1					
				7	Manganese	0.1	0.03					
d)	Noise level:	Noise level reduced by proper maintenance & use of protective equipment		Noise level reduced by proper maintenance & use of protective equipment								
e)	Vibration(due to blasting)	The blast indiced ground vibrations will be controlled through limiting the charge per delay by NONEL means of initiation		The blast indiced ground vibrations will be controlled through limiting the charge per delay by NONEL means of initiation								

4. History of Violations after approval of Mining Plan or Scheme of Mining:

Sl. No.	Date of Inspection	Name of Inspecting Officer	Violations of MCDR,88 observed and Pointed out	Rectification of Violations	Remarks
1	28/08/2018	Office Record	Rule -45 (5) & Rule-33	Compliance to violation on 13.09.2018	
2	17/12/2018	Sri B P Kerketta Sr ACOM	Rule-11(1) (A) Authenticated DGPS map by State Govt (B) Development as per Mining plan.	Compliance under process. Compliance under process.	

5. Socio-Economic Development Plan:

Sl. No.	Proposed Action Plan towards Socio-Economic Development	Expenditure Proposed (In Rs. Lakh)	Expenditure Incurred (In Rs. Lakh)	Remarks
1.	General Development in the area			
	i) Housing	0.38	--	
	ii) Water Supply			
	iii) Sanitation			
	iv) Health, Safety and Medical Facilities	23.35	27.24	
2.	Education and Training	56.64	40.39	
3.	Employment to local inhabitants	11.29	6.88	
4.	Public Transportation and communication			
5.	Recreation and other sports activities	57.57	51.02	
6.	Expenditure for environment management			
7.	Other	0.19	0.05	
	Total:	149.42	125.60	

(Anupam Nandi)
Regional Controller of Mines
& Inspecting Officer

