

REPORT ON CHECK UP INSPECTION OF DEPOSIT-14ML MINE OF M/s. NMDC LIMITED  
SITUATED IN VILLAGE KIRANDUL, TESHIL BACHELI DISTRICT DANTEWADA  
STATECHHATTISGARH.

1. GENERAL INFORMATION ABOUT THE MINE:

i)	File No:	CHG/BST/FE-1/NGP
ii)	Mine Code	30CHG03001
iii)	Name & Designation of the Inspecting Officer	Shri B.L. Gurjar , RCOM
iv)	Date of inspection	13.11.2017
v)	Mine Name	Deposit-14ML
vi)	Owner	M/s. NMDC LIMITED
vii)	Nominated owner	Shri P.K.Satpathy Director (Prodn.)
viii)	Mining Engineer	Anil Kumar, DGM (Mining)
ix)	Agent	Shri T.S.Cherian, General Manager
x)	Mines Manager	Shri A.K.Prajapati, Jt. General Manager (Production)
xi)	Lease area	322.368 HA
xii)	Location	Topo sheet -E44J2, E44J6
xiii)	Lease period	12.09.2015 to 31.03.2020
xiv)	Date of Expiry	31.03.2020
xv)	Date of approval of Mining Plan	Vide Letter No: 314(3)/95 MCCM (c) /MP-5, Dated: 01.02.1996. Vide Letter No: BST/FE/MPLN-435/NGP-15, Dated: 16.03.2016.
xvi)	Date of approval of Mining Scheme	Vide Letter No: 314(3)/2002 - MCCM (C) /MP-4, Dated:02.09.2003 Vide Letter No: 314(3)/2006 - MCCM (CZ) /S-5, Dated:27.03.2007 Vide Letter No: 314(3)/2010 - MCCM (CZ) /S-21/51, Dated:18.01.2011
xvii)	Period of Mining Scheme	Vide Letter No: BST/FE/MPLN-435/NGP-15, Dated: 16.03.2016. valid upto 2019-20
xviii)	Production (Last five years)	2012-13: 2978164 Tonne 2013-14: 4021066 Tonne 2014-15: 4320378 Tonne 2015-16: 3092970 Tonne 2016-17: 4132570 Tonne During the year 2017- 18 til oct 15.03 lakhs tones
xix)	EC limit	5 MTPA
xx)	Financial Assurance amount and validity	Rs 80,59,200/- + Rs8,86,51,200 total Rs 9,67,10,400/-

## 2. Brief Description of Mine:

i)	Method of Mining	<p>Fully mechanized Opencast Mine using shovel-dumper combination and various processes are - drilling, blasting, excavation, quality control, ore processing (crushing &amp; screening), loading of finished products, sub-grade stacking and waste disposal. Bench height 12 mtrs, Berm width 50mtrs (operation phase) are maintained in mine. The ore is extracted by open cast method of mining for which mining benches are prepared. Firstly holes (12' dia) are drilled on the benches covering entire height (12 m) of the bench at regular distance depending upon the ore type (hard/soft). After charging of the holes with explosives (using SME) this portion of the bench is blasted. The blasted material is known as ROM (run of mine) consists large boulders (&lt; 1 mtr size), fragments and fines along with other contaminants (shale, BHQ, Silica, Aluminous- Yellow ocher etc.) ROM is excavated through shovels/loaders and transported to Crushing Plant by dumpers where big boulders are crushed to below 150 mm sizes. This crushed ore is transported to Screening Plant through conveyor belts and screened in various vibrating screens for generating required size products as Baila ROM (+10mm to -150 mm), Baila Lump (-40mm to +10 mm) and Baila Fines (-10mm) and finally transported to Loading Yard for rake loading/dispatches through mechanical (deploying stacker &amp; Loader) means. Earlier wet screening was done for enrichment of fines quality by removing silica and alumina but there's dry screening beneficiation process has been adopted from July 2010 onward. The percentage of contamination (SiO<sub>2</sub> &amp; Al<sub>2</sub>O<sub>3</sub>/LOI &amp; P) is kept within the acceptable limits through judicious blending of high grade Vs low grade ore (under range 23 to 26% of feed). Dry screening method is adopted throughout the year even in monsoon season also, when Lateritic/Limonitic/Ocherous fine ore material become more sticky due to high moisture content and becomes difficult processing to pass through Mechanical plant. For maintaining smooth-flowability in Plant the feed is controlled by making zone wise advance production programme from different mine benches as per Mine plan and no contaminants, which are parts of ROM, are going to tailing pond. Subgrade stacking &amp; Waste disposal, Bench height 12 mtrs, Berm width 50 mtrs at operation phase are maintained in mine.</p>
ii)	Drilling & Blasting	<p>The holes are drilled in square, staggered pattern having 6.5m X 5.5m (spacing * burden) depending upon the different type of strata encountered for a bench height of 12 metres. Extra drilling, about 10 –15 % of Bench Height is kept as sub-grade. Drilling diameter (150mm / 250mm)</p> <p>Primary Blasting is conducted using Site Mix Explosives (SME) in conjunction with cast boosters and mostly cartridge explosives (83mm diameter) for secondary blasting. The initiation of primer charge is done using advanced technology NONEL system. We have four explosives magazines for storage and use of explosives in mines of BIOM, Kirandul Complex. These explosives magazines are common for all three lease of 14 MNZ , 14 MZ and 11 B lease.</p>

iii)	Excavation & Loading	The mining in deposit 14 ML area is continued by opencast working by using heavy earth moving machinery for drilling, excavation & haulage. 250/100mm dia drill , 8 and 8.87 CUM Bucket capacity hydraulic and Electric Shovel and 50/60 tonnes dumper.
iv)	Transportation	Ore transportation is done through interconnected closed conveyor system via transfer house from Crushing to Loading point.
v)	Beneficiation	Crushed Ore is screened into Lump Ore and Fine Ore for Customer requirements. Wet processing is not done.
vi)	Present working location and bottom RL	Topmost working bench is – 1157 MB Lowermost working bench is – 1029 MB. Present active benches – 1157,1147,1137,1125,1113,1101,1089,1077,1065,1053 MB

### 3. Description on deployed of mining machinery:

Sl.No	Machinery	Capacity of Each Unit	No. of Unit	H.P of each unit	Elect./Non Elect Unit	Used in O/C or U/G
Drill						
1	Blast Hole Drill	10'' Dia	3	450 HP	Electrical	Open Cast
2	THD	4'' Dia	1	300 HP	Diesel	Open Cast
3	Crawler Drill	4'' Dia	1	100 HP	Pneumatic	Open Cast
Shovel						
4	Electric Rope Shovel	5 cum	1	335 HP	Electrical	Open Cast
5	Electric Rope Shovel	8.0 cum	1	800 HP	Electrical	Open Cast
6	Hydraulic Excavator	8.87 cum	2	1039 Hp	Diesel	Open Cast
Dumper						
7	BEML BH60	60 tonnes	5	650 HP	Diesel	Open Cast
8	CAT 773D	60 tonnes	3	650 HP	Diesel	Open Cast
9	BEML BH50 M	50 tonnes	1	700 HP	Diesel	Open Cast
10	Water Sprinkler	28 KL	3	375 HP	Diesel	Open Cast
Dozer						
11	BEML BD355		1	416 HP	Diesel	Open Cast
12	D11T - CAT		1	850 HP	Diesel	Open Cast
13	Wheel Dozer G30D(BEML), WD600-Komatsu		1	485 HP	Diesel	Open Cast
14	GRADER BG825		2	280 HP	Diesel	Open Cast

Sl.No	Proposal in the approved MP/SOM	Observation regarding implementation of proposals given in Approved MP/SOM	Remarks
<b>4. Conservation of Minerals:</b>			
a)	Exploration	Proposed 16-17 – 5 BH / 500 Mtrs Actual 16-17 - 11 BH / 834 Mtrs.	
b)	Utilization of subgrade minerals	Subgrade Mineral is being stacked separately.	
c)	Any other proposal for monitoring	Both lease are having common lease boundary and having common working permission .It is suggested to amalgamate lease with 14NMZ and 11 B for better working and increasing efficiency of mines .	
<b>5. Scientific Mining:</b>			
a)	Mine development & method of mining	Mining operation are going on within the proposed extents and limits using open Cast Mining methods.	
b)	Handling of Waste / subgrade minerals	Waste and Subgrade are being stacked separately.	
c)	Area reclamation & restoration	No proposal in current Mining Plan period.	
d)	Any other proposal for monitoring	Both lease are having common lease boundary and having common working permission .It is suggested to amalgamate lease with 14NMZ and 11 B for better working and increasing efficiency of mines .	
<b>6. Protection of Environment:</b>			
a)	Afforestation	Afforestation is being carried out in safety zone / green belt and outside lease through Chhattisgarh Harihar Kosh	
b)	Quality of Air	Air survey is done and parameters are within ambient limits	
c)	Quality of Water	Within ambient limits and regularly monitored	
d)	Noise Level	Within ambient limits and regularly monitored	
e)	Vibration	Within ambient limits and regularly monitored	
f)	Any other proposal for monitoring		

#### 7. History of violations after approval of SOM:

Sl.No	Date of Inspection	Name of inspecting Officer	Violation of MCDR, 1988 Observed & pointed out	Rectification of violation	Remarks
a)	22.07.2017	S Kartikeya	Under MCDR 2017 – Rule 11(1),26(2),33.37(2) 47	Replied on 03.09.2017	Complied with

## 8. Socio Economic Development Plan:

Sl.No	Proposed action plan towards socio economic development	Expenditure proposed (in Lakh Rs.) for the FY 16-17	Expenditure incurred (in LakhRs.) for the FY 16-17	remarks
<b>1. General development in the area</b>				
	i) Housing			
	ii) Water supply	141.0	127.7	
	iii) Sanitation	195.76	195.76	
	iv) Health, Safety & medical facilities	21.97	22.10	
2.	Education & Training	735.51	735.51	
3.	Employment of local inhabitants	199.24	194.15	
4.	Public Transportation & communication	388.84	372.28	
5.	Recreation & other sports activities	77.43	65.07	
6.	Expenditure for environment	1565.2	1565.2	
7.	Others (religious activity)	--	--	
8.	Total	3324.95	3277.77	

9.0 Others - a) Excellent work on CSR part is carried out, free hospital facilities to nearby villages & tribal communities, running ITI, Poly technical college and free education to children of naxal affected families in name of Aastha , free nursing training to 40 nos tribal girls in Apollo Hyderabad. Education city is created at Gadam , Dantewara for tribals and near by villages.

b) Valid EC and production within limit of EC and Mining plan

c) Difference of Financial Assurance deposited.

d) Sample boundary pillars are checked and found erected.

e) Shortcoming on online monthly and annual return explained to mine managements for correction.

f) Amalgamation of three mining leases, deposit 14 MZ (322.368 ha) ,Deposit 14NMZ (506.742 ha and Deposit 11 (874.92 ha ) lease into single lease suggested.

g) Iron ore sample collected for complete radicals analysis particularly for Base metals, TIN, Gold , Silver . Cu etc.

B.L.Gurjar  
RCOM , Raipur