

## MCDR INSPECTION REPORT

### 1.0 GENERAL

SLN	PARTICULARS	DETAILS
1	File No.	CHG/BST/FE-2/30MPR02002
2	Name & Designation of the inspecting officer	Shri Arun Kumar, DCOM & OIC Shri Rudra N. Mishra, Senior Mining Geologist
3	Date of Inspection	09/12/2021 (MCDR)
4	Accompanying mine personnel	Shri Vinak Tiwari, General Manager, Geology, Shri Randhir Kumar, Dy. General Manager, B. Tech (Mining)
5	Date of Last Inspection & Officer	05/03/2021, Shri R.K. Das (Sr. ACOM)
6	Name of the Mine	<b>Bailadila Iron Ore Mines, Kirandul Complex, DEP-14NMZ ML</b>
7	Total Lease Area (Ha) with breakup of non-forest and forest land	Forest Land: 506.742 Ha Non-Forest Land: Nil Total Land: 506.742 Ha
8	Mine code	30MPR02002
9	IBM Registration Number under rule 45 of MCDR, 2017	IBM/270/2011
10	Name of the lessee, Address, phone, email and fax number	NMDC Ltd, 10-3-311/A, Castle hills, Masab tank, Hyderabad, Telangana Ph.no: 040-23538704 e-mail: nmdchyd@hd1.vsnl.net, <a href="mailto:dkmohanty123@nmdc.co.in">dkmohanty123@nmdc.co.in</a> fax: 040-23538705
	Village	Kirandul
	Taluka/Mandal	Bade Bacheli,
	District	Dantewada
	Pin code	Kirandul, 494556
	State	Chhattisgarh
	Post office	Kirandul
11	Nearest police station	Kirandul
12	Nearest Railway station	Kirandul
13	Date of Grant of Mining Lease	20/04/1965
14	Date of Execution	07/12/1965
15	Date of opening of Mine	In the year 1987
16	Date of first Renewal, if applicable and its period & expiry	07/12/1995, 20Years, Expiry-06/12/2015, Under Rule 3 (2) of Mineral (Mining by GOVT company) Rules, 2015 Lease Granted for 20 Years from 12.09.15 to 11.09.2035.

17	Date of submission of renewal application if Mining Operations are continuing under deemed extension	Form J submitted on 05-12-2013 for lease renewal
18	Name of the Nominated Owner with Address, phone, email, fax number and date of appointment	Shri D K Mohanty, Director (Production) NMDC Ltd, 10-3-311/A, Castle hills, Masab tank, Hyderabad Ph.no: 040-23538704 e-mail ID: <a href="mailto:dkmohanty123@nmdc.co.in">dkmohanty123@nmdc.co.in</a> fax:040-23538705 Date of appointment: 8.10.2021
19	Name of the Mine Agent with Address, phone, email, fax number and date of appointment	Shri R. Govindarajan, Executive Director, NMDC Ltd, Kirandul, B.I.O.M. Kirandul Complex, Dantewada PIN-494556, Chhattisgarh, Phone 07857-255222 Fax no: 07857-255227 e-mail: <a href="mailto:rgovindarajan@nmdc.co.in">rgovindarajan@nmdc.co.in</a> Date of appointment: 31.12.2019
20	Name of the Mines Manager with Address, phone, email, fax number and date of appointment in mines	Shri Vinay Kumar, Chief General Manager (Prod), NMDC Ltd, Kirandul, B.I.O.M. Kirandul Complex, Dantewada PIN-494556, Chhattisgarh, Ph.no: 07857 230223 e-mail: <a href="mailto:vinaykumar@nmdc.co.in">vinaykumar@nmdc.co.in</a> fax: 07857-255226 Date of appointment: 30.09.2018
21	Name of the Mining Engineer, Qualification and total experience with Address, phone, email, fax number and date of appointment in mine	Shri Randhir Kumar, Dy. General Manager, B. Tech (Mining), FCC (R), Experience: 25 Years Approximately NMDC Ltd, Kirandul, B.I.O.M. Kirandul Complex, Dantewada PIN-494556, Chhattisgarh, DOA:03/05/2017
22	Whether Geologist and Mining Engineer appointed in mines satisfy the rule 42 & carrying out their duties as per rule 43 & 44.	Yes, Shri Srikanth Basani, MSc Geology, 14years, AGM (Geo.), Deposit 14NMZ, B.I.O.M. Kirandul Complex, Ph.No. 9685720998, Email- <a href="mailto:srikanth_basani@nmdc.co.in">srikanth_basani@nmdc.co.in</a> , Date of appointment: 09.07.2029
23	Date of Approval of Mining Plan/Modified Mining Plan with five-year period and specific condition in approval letter, if any.	Vide Letter No: 314(3)/95 MCCM (c) /MP-6, Dated: 08.02.1996. Vide Letter No: 314(3)/2005 MCCM (cz) /MP-31, Dated: 01.04.2006. Vide Letter No: BST/FE/MPLN-434/NGP/2015/08-RAIPUR-II/265, Dated:05.08.2016. Vide Letter No : DANTEWADA/FE/MP-1216/2019-RAIPUR/547, 11.12.2019

24	Date of Approval of Scheme of Mining/Modified Scheme of Mining with five-year period and specific condition in approval letter, if any.	Vide Letter No: 314(3)/2002 - MCCM (C) /MP-5, Dated:02.09.2003 Vide Letter No: 314(3)/2006 - MCCM (CZ) /MP-6, Dated:27.03.2007 Vide Letter No: 314(3)/2010 - MCCM (CZ) /S-22/51, Dated:18.01.2011
25	Mineral(s) granted in lease and proved for mining	Hematite
26	Method of Mining (Opencast, Underground)	Opencast
27	Category (Fully Mechanized, Others or Manual)	Fully Mechanized
28	Captive/Non-Captive	Non-Captive
29	EC for ROM Prod: Date of Issue:	5.50 million tonnes,
30	FA amount Rs Valid up to:	Rs. 152022600.00 @ Rs 3.00lakh per Hect. 31/03/2025

Scientific Mining: Compliance of proposals of approved mining plan/scheme of mining. –

### **1.0 EXPLORATION**

SN	ITEM	PROPOSALS (2020-21)	ACTUAL WORK (2020-21)	REMARKS
1a	Backlog of previous year	26BH/1850 Mts,	12BH/947 Mts	Violation pointed out for deviating the exploratory bore holes proposal.
1b	Exploration over lease area for Geological axis 1 or 2.	G1& G2	G1-115.02 Ha. G2-8.53 Ha G3 – 42.54 Ha G4 – 39.46 Ha	205.55 Ha is mineralized & 301.192 Ha Non mineralized area as per approved plan
1c	Exploration Agency & Expenditure in lakh Rupees during the year	Exploration proposed by GEC Raipur (In house) , no expected expenditure given	Exploration carried out in House (GEC Raipur)	
1d	Balance area to be explored to bring Geological axis in 1 or 2	26 BH's proposed to convert G2 into G1	8.53 Ha needs to be explored but only 2.48 ha converted in G1 area in the reporting year	12 BH drilled in G1 area
1e	Balance reserves as 01.04.2021	Nil	Mineral Reserves (111):215.039 million tonnes, Mineral Reserves (122): 7.777 million tonnes with average quality of Lump: 66.39 % Fe & Fines: 64.32%	As per AR submitted for the year 2020-21.

1f	General remarks of inspecting officer on geology, exploration etc.	<p>Deposit-14NMZ is located extreme southern end to the eastern ridge of Bailadila range. The total strike length of the mineral body is 2000 Mtr between CS3 to CS23 trending almost N-S</p> <p>The Iron ore of Bilabial range belong to the Bilabial series which are associated with slightly metamorphosed iron ore bearing sedimentary rocks of pre-cambrian age. These hill ranges comprise shale, banded hematite quartzite and conglomerates containing pebbles of quartzite and shale.</p> <p>BHQ is occurring as mother rock, usually parallel bands along the strike direction. Iron ore is formed due to enrichment of iron by leaching of silica from BHQ by supergene enrichment occurring as a main ore type” Hematite” in soft (as Blue Dust) and homogeneous, massive and hard and compact steel grey and hard to medium hard blue hematite form. Mineral deposit is meta-sedimentary stratiform deposit. VL pointed out. Not bore hole drilled as per proposal</p>
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## **2.0 DEVELOPMENT**

SN	ITEM	PROPOSALS (2020-21)	ACTUAL WORK (2020-21)	REMARKS
2a	Location of development w.r.t. lease area	525360E -524861 E 2060728 N- 2059409N	525424E -524942 E 2060768 N- 2059476N	
2b	Separate benches in topsoil, overburden and mineral (Rule 15)	Separate benches proposed in overburden and mineral	Separate benches maintained in overburden and mineral	Overburden-12  Mineral-12
2c	Stripping ratio of ore to OB ratio (t / t)	1:0.28	1:0.19	
2d	Quantity of topsoil generation in m <sup>3</sup>	No proposal	Nil	No generation of top soil
2e	Quantity of overburden generation in m <sup>3</sup>	1560,000 Tons	877546 Tons	Bulk Density t/m <sup>3</sup> : Ore: 3.5(avg) OB: 2.7(avg)
2f	General remarks of inspecting officer on development of pit wrt. type of deposit etc.	Mining carried out by fully mechanized open cast bench mining method with deployment of HEMM and in conjunction with deep hole drilling & blasting. Production activity is scheduled in three shifts in rotation.		

## **3.0 EXPLOITATION**

S.N.	ITEM	PROPOSAL (2020-21)	ACTUAL WORK (2020-21)	REMARK
3a	Number of pits proposed for production	1pit proposed	Working in one pit only	.

3b	Quantity of Iron Ore production proposed	5500000 Tonne	4583943 Tonne	Within the proposed limit
3c	Recovery of saleable/usable mineral from Iron Ore production	100%	100%	No change
3d	Quantity of mineral reject generation	30000 Tonne	30000 Tonne	As per AR submitted for the year 2020-21.
3e	Grade of mineral reject generation and threshold value declared	45-55 Fe %	50 Fe %	As per AR submitted for the year 2020-21.
3f	Quantity of sub-grade mineral generation	No proposal	Nil	Subgrade blended with Saleable ore
3g	Grade of sub-grade mineral generation	No proposal	Nil	
3h	Manual / Mechanised method adopted for segregating from ROM	Mechanized method proposed for segregating from ROM	Mechanized method adopted for segregating from ROM	Dry Crushing (7.0 MTPA) & Screening (2000Tph)
3i	Any analysis or beneficiation study proposed & carried out for sub-grade mineral and reject	No study Proposed	No such study carried out	Nil
3j	Provision of drilling & blasting in mineral benches	Provision of Drilling and blasting is made in Mineral benches for hard strata	Drilling and blasting carried out by combination of slurry and Nonel Detonators	Drill m/c of 254mm dia. & 101.60mm dia. with spacing -7.0 – 6.0mts, burden 5.5 -4.5 mts & depth of 12 mts
3k	Provision of mining machineries in mineral benches	Hydraulic excavators and Dumper combination Proposed	Mining is carried out by using Hydraulic excavators and 60 Tonner Dumper.	Drill Machine: 06 No, Dumpers: 09 Nos. (100 Tonner: 2 Dumpers & 7 dumpers 85.00 tonner), Front End Loader:01 No., Dozers:05 Nos, Water Tankers:04 Nos
3l	Whether height of benches in overburden and mineral suitable for method of mining proposed in MP/SOM	Bench height of 12 m and width of 40-50 m proposed	Average Bench height of 12 m and bench width of 40-45 m maintained	
3m	Total area covered under excavation/pits	132.488 Ha at the end of plan period	80.250 Ha at the end of reporting year	Nil
3n	Stripping ratio of ore to OB ratio (tonnes /tonnes)	1:0.28	1:0.19	Nil

3o	Total area put in use under different heads at the end of year	Area Under Pit: 132.488 ha, Waste dump- 12.387 Ha, Infrastructure- 358.870 Ha at the end of plan period	Covered under working pit-80.250 Ha, occupied by plant, building residential, welfare building and roads:159.377 ha at the end of reporting year	Nil
3p	Production of Iron Ore during last Five -year period, as applicable	2016-17- 5500000 Tons	2016-17- 4963875 Tons	Actual production within the proposed limits
		2017-18- 5500000 Tons	2017-18- 4672228 Tons	
		2018-19- 5500000 Tons	2018-19- 4439491 Tons	
		2019-20- 5500000 Tons	2019-20- 4375680 Tons	
		2020-21- 5500000 Tons	2020-21- 4583943 Tons	
3q	General remarks of inspecting officer on method of mining etc.	Method of mining is Open cast mechanized mining with shovel dumper combination. Subgrade mineral blended with Saleable ore.		

#### **4.0 SOLID WASTE MANAGEMENT-DUMPING**

SN	ITEM	PROPOSALS (2020-21)	ACTUAL WORK (2020-21)	REMARKS
4a	Separate dumping of topsoil, OB & mineral reject (Rule 32, 33)	Separate dumping for OB proposed	Separate dump of OB maintained	Nil
b	Location of topsoil, OB & mineral reject dumps	524475 E- 524933E 2059263N- 2059564N	525112 E- 525300E 2059348N- 2059450N	Waste is being dump at earmarked place as per approved documents.
4c	Number of dumps within lease area and outside lease area	Within lease area-1 Nos. Outside lease area- Nil	Within lease area-1 Nos Outside lease area- Nil	
4d	Location of dumps w.r.t. ultimate pit limit (Rule 16)	Outside ultimate pit	Outside ultimate pit	
4e	Number of active & alive dumps	1 dump proposed	1	
4f	Number of dead dumps	1	1	
4g	Number of dumps stabilized	1	1	Stabilized partially by coir matting & plantation

4h	Whether Retaining wall or garland drain all along dumps are there	No Proposal	Nil	
4i	Length of Retaining wall or garland drain all along dump	No Proposal	Nil	
4j	Number of settling ponds	No Proposal	Nil	Nil
4k	Specific comments of inspecting officer	No top soil encountered at this stage. Waste is being dump at earmarked place as per approved documents.		

#### **5.0 SOLID WASTE MANAGEMENT-BACKFILLING**

SN	ITEM	PROPOSALS (2020-21)	ACTUAL WORK (2020-21)	REMARKS
5a	Status on part or full extraction of mineral from mined out area before starting backfilling	No Proposal	Nil	Area is not matured for backfilling
5b	Area under backfilling of mined out area	No Proposal	Nil	
5c	Concurrent use of topsoil for restoration or rehabilitation of mined out area (Rule 32)	No Proposal	Nil	
5d	Total area fully reclaimed & rehabilitated	No Proposal	Nil	
5e	General remarks of inspecting officer on backfilling, reclamation etc	The Mineral is not exhausted and the area is not matured for backfilling.		

#### **6.0 PROGRESSIVE MINE CLOSURE PLAN**

SN	ITEM	PROPOSALS (2020-21)	ACTUAL WORK (2020-21)	REMARKS
6a	Whether Annual report on PMCP submitted on time and correctly - Rule 23E (2). Details should be given in the format as given in Annexure-20.	PMCP report to be submitted by 1 <sup>st</sup> of July every year.	PMCP report submitted.	
6b	Management of worked/mined out benches i) Area available for rehabilitation (ha) ii) Afforestation done (ha) iii) No. of saplings planted during the year iv) Cumulative no. of plants v) Any other specific method of rehabilitation vi) Cost incurred on watch & care during the year	No Proposal	Nil	

6c	Compliance on reclamation and rehabilitation by backfilling i) Voids available for backfilling (L X B X D) ii) Void filled by waste/tailings iii) Afforestation on the backfilled area iv) Rehabilitation by making water reservoir v) Any other specific means	No Proposal	Nil	
6d	Compliance of Rehabilitation of waste land within lease i) Afforestation ii) Area rehabilitated (ha) iii) Method of rehabilitation	No Proposal	Nil	
6e	Compliance of Environmental monitoring (core zone & buffer zone)	Proposed Environmental monitoring in core and Buffer Zone.	Environmental monitoring in core and Buffer Zone is carried out regularly.	Monitoring carried out by M/s Pragati Lab consultant Pvt.Ltd, Hyderabad. All the parameters were observed to be within the permissible limits.
6f	General remarks of inspecting officer on PMCP compliance & progressive	PMCP activities were carried out as per proposal.		

### **7.0 MINERAL CONSERVATION**

SN	ITEM	PROPOSALS (2020-21)	ACTUAL WORK (2020-21)	REMARKS
7a	ROM Mineral dispatch or grade-wise sorting within lease area	Grade-wise sorting proposed within the lease area	Grade-wise sorting done within the lease area	Subgrade mineral generated is blended simultaneously with high grade mineral during feeding to the crushing plant.



7b	Method of grade-wise mineral sorting i.e., manual or mechanical	Mechanical sorting proposed.	Mechanical method adopted for grade wise sorting.	
7c	Different grade of mineral sorted out at mines	Below 55 Fe%, 55 to 58 Fe%, 58 to 60 Fe%, 60 to 62 Fe%, 62 to 65 Fe% 65%and above	Below 55 Fe%, 55 to 58 Fe%, 58 to 60 Fe%, 60 to 62 Fe%, 62 to 65 Fe% 65%and above	
7d	Any beneficiation process at mines	No proposal	Nil	
7e	General remarks of inspecting officer on Mineral conservation & beneficiation issues	Crushing is being done for sizing of ore. Partially Mineral rejects are disposed onto Dynamic Stockpile and blended with high grade ore		

## **8.0 ENVIRONMENT**

<b>SN</b>	<b>ITEM</b>	<b>PROPOSALS (2020-21)</b>	<b>ACTUAL WORK (2020-21)</b>	<b>REMARKS</b>
8a	Separate removal and utilization of topsoil (Rule 32)	No proposal	Nil	No top soil generated
8b	Concurrent use or storage of topsoil	No proposal	Nil	
8c	Separate dumps for overburden, waste rock, rejects and fines (Rule 33)	Separate dumping for OB proposed	Separate dump for OB maintained	
8d	Use of overburden, waste rock, rejects and fines dump for restoring the land to its original use	No proposal	Nil	
8e	Phased restoration, reclamation and rehabilitation of lands affected by mining operations (Pits, dumps etc.)	No proposal	Nil	
8f	Baseline information on existence of plantation & additional plantation done (Rule 41)	2000 saplings proposed	1500 saplings planted	Plantation carried out in 7.5 Mts safety zone, Violation Pointed out
8g	Survival rate	No proposal	85% survival rate	Nil
8h	Water sprinkling on roads to control airborne dust	Water sprinkling on haul roads proposed to	Water Tankers were deployed to control the airborne dust on haul	4 nos of water tankers of 28000 lt

		control airborne dust.	roads and screening plants.	capacity deployed.
8i	General remarks of inspecting officer on aesthetic beauty in and around mines are	The aesthetic beauty in and around the mine is well maintained		

### 9.0 COMPLIANCE OF RULE 45

S. N.	Item	Comments	Remarks
9a	Status of submission of monthly and Annual returns	M.R. Submitted upto–Nov -2021 A.R. submitted for the year 2020-21	AR Submitted on 30.06.2021
9b	Scrutiny of Annual return for information on Mining Engineer, Geologist and Manager	Mines Manager- Shri Vinay Kumar Mining Engineer- Shri Randhir Kumar Geologist-Shri. Srikanth Basani	Same Mining Engineer & Geologist were present during the course of inspection.
9c	Scrutiny of Annual return on land use pattern for area under pits, reclaimed area, dumps etc.	Covered under working pit-80.250 Ha, occupied by plant, building residential, welfare building and roads:159.377 ha at the end of reporting year	Appears to be correct
9d	Scrutiny of Annual return on afforestation	WML- 1500 saplings @85% Survival Rate, OML-Nil	Violation Pointed out
9e	Scrutiny of Annual return on mineral reject generation (Grade & Quantity)	Nil	Nil
9f	Scrutiny of Annual return on ROM stock and/or grade ore	ROM Stock: Opening Stock: 400719.00T Production: 4583943.00 T. Closing stock: 79689.00 T Dump working: OB, Production & CB- Nil	Appears to be correct
9g	Scrutiny of Annual return on sale value, Ex. Mine price & production costs	<b>Lumps</b> Ex Mine Price:60% to below 62%: Rs 2497.55/Ton Ex Mine Price:62% to below 65%: Rs 3062.83/Ton Ex Mine Price:65% and above: Rs 4979.48/Ton <b>Fines:</b> Ex Mine Price:58% to below 60%: Rs 3554.83/Ton Ex Mine Price:60% to below 62%: Rs 2674.62/Ton Ex Mine Price:62% to below 65%: Rs 3654.20/Ton	Violation Pointed out

		Ex Mine Price:65% and above: Rs 3907.16/Ton Cost of production: Rs.1402.08/Ton	
9i	Scrutiny of Annual return on Fixed assets	Value of Fixed Assets: Rs 6205841108 (As per reported in AR)	
9k	Scrutiny of Annual return on mining Machinerics	Drill Machine: 06 No, Dumpers: 09 Nos. (100 Tonner: 2 Dumpers & 7 dumpers 85.00 tonner), Front End Loader:01 No., Dozers:05 Nos, Water Tankers:04 Nos	

10- Details of violations observed during current inspection and compliance position of earlier violation pointed out: -Violations Pointed-out during Inspections below

नियम	उल्लंघन के प्रकार का विस्तृत ब्यौरा
Rule 11(1)	RMP along with PMCP was approved vide letter no. DNT/FE/MP-1216/2019-RAIPUR/547, 11.12.2019 for a period of <b>2020-21 to 2024-25</b> . The deviation observed in mining operation vis-a-vis approved document are given below 1) As per approved Mining Plan, 26 boreholes were proposed to be drilled till the year 2020-21, only 12 number of boreholes have been drilled. 2) Afforestation: There was a proposal given for plantation of 2000 nos. of plants during 2020-21. Whereas, only 1500 of the plants have been planted.
Rule - 19	Machinery and plant. -(1) Where heavy earth moving machinery is used in mines, the holder of a mining lease shall maintain log books duly authenticated by the manager or mining engineer of such mines in respect of each machine showing date-wise account of hours worked, hours not worked, reasons for non-working, consumption of fuel or energy and lubricants and output of the machine during the corresponding working hours. (2) The summary of operation of each machine shall be recorded in the log book at the end of each month bringing out the percentage availability and percentage utilization of the machine, average hourly performance and average fuel or energy consumption per hour. (3) The log books may be maintained in electronic form or in hard copy and shall be made available to the authorized officer on demand.  The Same was not produced for verification on demand.
Rule- 45 (5) (c)	Following deficiencies were observed in the Annual Returns submitted: 1) Cost of Production and Value of fixed assets of Deposit 11, Deposit 14ML and Deposit 14NMZ given same but the ex-mine price of lumps and fines of same grade were different in Annual Return submitted for the year 2020-21. 2) In part VI, under grade wise production & dispatch, Ex mine price of Iron ore Fine Grade Fe 60% to below 62% price Rs 2674.62 lower than 58% to below 60% of Fe price Rs 3554.83

Earlier violation pointed out have been complied. Five stars during self-appraisal. It's also validated after inspection.

Date: 11/01/2022

Shri Arun Kumar

DCOM & OIC