

**INDIAN BUREAU OF MINES
MINERALS DEVELOPEMMENT AND REGULATION DIVISION**

Review and updation of Mining Plan REPORT

Jabalpur regional office

Mine file No : MP/JABALPUR/IRON ORE-

Mine code : 30MPR18020

- (i) Name of the Inspecting : **G005**) **SANJAY M. GIRHE**
Officer and ID No.
- (ii) Designation : Regional Mining Geologist
- (iii) Accompanying mine :
Official with
Designation
- (iv) Date of Inspection : 21-MAY-21
- (v) Prev.inspection date :

PART-I : GENERAL INFORMATION

1. (a) **Mine Name** : **AGARIYA(20.234HA.) MINE**
- (b) **Registration NO.** : **IBM/766/2011**
- (c) Category : A Mechanised
- (d) Type of Working : Opencast
- (e) Postal address
- State : MADHYA PRADESH
- District : JABALPUR
- Village : AGARIYA
- Taluka : SIHORA
- Post office : TIKARIYA
- Pin Code : 483334
- FAX No. :
- E-mail :
- Phone :
- (f) Police Station :
- (g) First opening date :
- (h) Weekly day of rest :
2. Address for :
correspondance
3. (a) Lease Number :
- (b) Lease area :
- (c) Period of lease :
- (d) Date of Expiry :
4. Mineral worked : IRON ORE Main

5. Name and Address of the

Lessee : ANAND MINING CORPN. LTD.
PATHAK WARD KATNI MADHYA
PRADESH
Phone:N. A.
FAX :N. A.

Owner : ANAND MINING CORPN. LTD.
PATHAK WARD KATNI MADHYA
PRADESH
Phone: N. A.
FAX : N. A.

6. Date of approval of Mining Plan/Scheme of Mining : MP modif under MCR 1960

31-AUG-16

PART - II : OBSERVATION/COMMENTS OF INSPECTING OFFICERS

Exploration :

Sl.No.	Item	Proposals	Actual work	Remarks
1a	Backlog of previous year	During the approved plan period from 2016-17 to 2020-21 total 30 DTH & 20 Nos. of core boreholes were proposed	Against to these proposals 30 DTH and 33 core boreholes drilled during the plan period from 2016-17 to 2020-21	33 DTH boreholes were drilled in 2016-17 to 2018-19 & 33 Core boreholes in 2020-21
1b	Exploration over lease area for geological axis 1 or 2	During the approved plan period from 2016-17 to 2020-21 total 30 DTH & 20 Nos. of core boreholes were proposed	Against to these proposals 30 DTH and 33 core boreholes drilled during the plan period from 2016-17 to 2020-21	33 DTH boreholes were drilled in 2016-17 to 2018-19 & 33 Core boreholes in 2020-21
1c	Exploration Agencies and Expenditure in lakh rupees during the year	During the approved plan period from 2016-17 to 2020-21 total 30 DTH & 20 Nos. of core boreholes were proposed for G1 level	Against to these proposals 30 DTH and 33 core boreholes drilled during the plan period from 2016-17 to 2020-21	About 70 Lakhs expenditure incurred on exploration. Exploration agency-M/s Synergy GeoTech Pvt. Ltd
1d	Balance area to be explored to bring Geological axis in 1 or 2	During the approved plan period from 2016-17 to 2020-21 total 30 DTH & 20 Nos. of core boreholes were proposed for G1 level	About 17.08 Ha area explored in G2 by working pits and exploration carried out in ML area. Unexplored area-3.154Ha	By working pits and drilled boreholes, depth of iron ore mineralisation proved up to 50m in quarry-1
1e	Balance reserve as on 01/04/20	Reserves in Tonnes Probable (122) - 1668597 Resources in tonnes Pre-Feasibility (222): 289011 The balance reserves as on 1/4/2016 as per MMP approved on 31/08/2016	Reserves in Tonnes Proved (122) - 7589424 Resources in Tonnes Pre-Feasibility (222): 197505 The balance reserves as on 1/4/2021 as per approved Review of Mining Plan dtd 18.06.2021	Additional reserves have been reported based on the 30 DTH and 33 Core boreholes drilling carried out approved plan period from 2016-17 to 2020-21.

1f	General remarks of inspecting officers on geology, exploration etc	NA	NA	General level exploration carried out in ML area and mostly area is explored by way of working pit up to 50m and remaining area yet to be explored in G1 level. Below 55% Fe content iron ore mostly encountered in ML area.
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Development :

Sl.No.	Item	Propasals	Actual work	Remarks
2a	Location of development w.r.t.lease area	It was proposed to extend quarry-1 towards north-eastern part between E412700 to E41350 and from N2585030 to N2585600 up to 411mRL	Mine working carried out as per the proposed locations.	Violation u/r 11(1) of MCDR,2017 pointed out not carrying out garland drains as proposed.
2b	Separate benches in topsoil, overburden and minerals (Rule 15)	No separate bench proposed for top soil/OB proposed during the year. Separate benches in ore were proposed.	No separate benches observed for OB. Bench height of 5 to 6m maintained in iron ore for systematic mining.	Most of the working lease is devoid of top soil. Sufficient development work carried out by removing top OB/lateritic soil.
2c	Stripping ratio or ore to OB ratio	1:0.08 tonne/CuM	1:0.022 tonne/CuM	22825 CuM OB generated during the year 2020-21
2d	Quantity of topsoil generation in m3	Not Proposed	Nil	Area mostly devoid of top soil
2e	Quantity of overburden generation in m3	27622M3 Proposed during the year 2020-21	22825 CuM overburden generated during the year 2020-21	OB generation is slightly on lower side

2f	General remarks of inspecting officers on development of pit w.r.t. type of deposit etc	NA	NA	There are two quarries and its dimensions are Quarry-1 (340-400) m x (130-255) m x (30-50)m, Quarry-2: 200m x (28-75) m x 18m. Iron ore mineralisation very well exposed/seen in working pits.
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Exploitation:

Sl.No.	Item	Proposals	Actual work	Remarks
3a	Number of pit proposed for production	During the year 2020-21 working was proposed in Quarry/Pit-1 up to 411mRL	Working carried out as per the proposals	Excavation of hard and fines iron ore proposed from the pit-1 during the year
3b	Quantity of ROM mineral production proposed	Iron ore (Lumps)- 145350 & Iron Ore (Fines)- 855000 MT	Total 999898 MT (Lumps & Fines) iron ore production achieved during the year 2020-21	Iron ore fines production of 145367.58MT & 854530.70 MT of fines iron ore production carried out in 2020-21
3c	Recovery of sailable/usable mineral from ROM production	95% recovery of Iron ore from ROM proposed	About 95% recovery of Iron ore from ROM achieved from ROM	About 5% mining losses considered in calculation.
3d	Quantity of mineral reject generation	No Proposals	Nil	No mineral reject generation proposed during the year 2020-21
3e	Grade of mineral rejects generation and threshold value declared.	No Proposals	Nil	Nil
3f	Quantity of sub grade mineral generation.	No Proposals	Nil	No sub-grade generation proposed during the year 2020-21
3g	Grade of sub grade mineral generation	No Proposals	Nil	No sub-grade generation proposed during the year 2020-21

3h	Manual / Mechanised method adopted for segregating from ROM	Mechanised method proposed	Mechanised method adopted for segregating from ROM	
3i	Any analysis or beneficiation study proposed and carried out for sub grade mineral and rejects.	No beneficiation proposed in mining lease area.	No beneficiation carried out. Screening and sizing carried out by 300 TPH screening plan	Feed size of about 100mm & output sizes of 0-5mm, 5mm-20mm, 10-40mm and 40mm -100mm proposed
3j	Provision of drilling and blasting in mineral benches	No Proposals	Nil	Iron ore formation of mining lease is soft & friable in nature hence drilling & blating was not proposed
3k	Provision of mining machineries in mineral benches	Back Hoe Ex- 210-02 Nos 1.2CuM, PC- 300, Dumpers 27 T capacity-62 Nos Water Tanker- 5KL Mobile Screening Unit	Back Hoe Ex-210-02 Nos 1.2CuM, PC-300, Dumpers 27 T capacity-62 Nos Water Tanker-5KL Mobile Screening Unit	HEMM deployment proposed as per the capacity & targeted production.
3l	Whether height of benches in overburden and mineral suitable for method of mining proposed in MP/SOM	No OB bench height is proposed bench height of 6m proposed in iron ore	Mostly the benches heights in ore are maintained	Proposed bench height is suitable as per the deposit
3m	Total area covered under excavation/pits	7.88 Ha area was proposed in approved MMP period i.e. 2016-17 to 2020-21	8.76 Ha as on 01.04.2021as per Annual Return, 2020-21	More lateral excavation carried out during the year
3n	Ore to OB ratio for the pit/mine during the year.	Proposed as 1:0.08 tonne/CuM	1:0.022 tonne/CuM	Less overburden generated during the RY

3o	Total area put in use under different heads at the end of year	As per the previous approved MMP Pits-7.82 Ha Waste Dumps-1.57Ha Mineral Storage-1.23Ha Infrastructure -1.0Ha Road-0.50Ha As on 01.04.2016	Pits-8.76 Ha Waste Dumps-2.98 Ha Infrastructure-0.42Ha Road-0.50Ha As per Review of Mining approved on 18.06.21	Details of mining lease area utilization furnished as per updated survey
3p	Production of ROM mineral during the last five year period as applicable	2015-16-:NA 2016-17-:Nil 2017-18-: 242250MT 2018-19-: 957600MT 2019-20-: 1000350 MT 2020-21-: 1000350 MT Proposals as previous approved documents	2015-16-:NA 2016-17-:Nil 2017-18-: 241914.09MT 2018-19-: 956953.99MT 2019-20-: 993421.47 MT 2020-21-: 999898MT As per online annual returns submitted from the year 2017-18 to 2020-21	Production details as per annual returns from 2017-18 to 2020-21
3q	General remarks of inspecting officers on method of mining etc.	NA	NA	Open cast fully mechanised working proposed by using Excavator & dumper combination without drilling & blasting. Two working pits are located eastern & western side. Mineralisation proved up to depth of 50mts. by working pits.

Solid Waste Management - Dumping:

Sl.No.	Item	Propasals	Actual work	Remarks
4a	Separate dumping of topsoil, OB and mineral rejects (Rule 32,33)	OB waste generated proposed to be stacked in south-east part of ML area. Some OB proposed for backfilling also.	OB/Inter-burden generated dumped at earmarked locations & utilized as per the proposals.	Lateritic soil in the form of inter-burden was proposed.

4b	Location of topsoil, OB and mineral reject dumps	OB waste generated proposed to be stacked in south-east part of ML area. Some OB proposed for backfilling also.	OB/Inter-burden generated dumped at earmarked locations & utilized as per the proposals.	Dumping done at proposed locations during the year
4c	Number of dumps within lease area and outside of lease area	Two OB dumps within lease area located toward South-eastern side	Two OB dumps within lease area located toward South-eastern side	No dumping outside ML observed during inspection
4d	Location of dumps w.r.t. ultimate pit limit (Rule 16)	OB/waste proposed outside ultimate pit limits	Existing OB dumps outside the UPL	Dumps locations duly marked on surface/working plan
4e	Number of active and alive dumps.	At Present two small size OB in the lease area towards south-western part of ML	At Present two small size OB in the lease area towards south-western part of ML	OB dumps positions marked on the surface & other relevant plans
4f	Number of dead dumps.	No Proposals	Nil	Nil
4g	Number of dumps established.	No Proposals	Nil	Nil
4h	Whether Retaining wall or garland drain all along dumps are there.	Garland drains and bunds preparations were proposed	Garland drains and bunds preparations were proposed	Violation under Rule 11(1) of MCDR,2017 pointed out & issued to the lessee.
4i	Length of Retaining wall or garland drain all along dumps	Garland drains and bunds preparations were proposed	Garland drains and bunds preparations were proposed	Violation under Rule 11(1) of MCDR,2017 pointed out & issued to the lessee.
4j	Number of settling ponds	No Proposals	Nil	Nil
4k	Specific comments of inspecting officer on waste dump management	NA	NA	The mine waste is in the form of lateritic soil in south-western part of ML area. These mine waste proposed for backfilling purpose on 7.5m barrier zone also.

Solid Waste Management - Backfilling:

Sl.No.	Item	Propasals	Actual work	Remarks
5a	Status of part or full extraction of mineral from mined out area before starting backfilling.	No Proposals	None of the quarry area is fully ore exhausted. Hence, scope doesn't exist.	Backfilling proposed on 7.5m barrier zone
5b	Area under backfilling of mined out area	No Proposals	No working pit area backfilled so far now	7.5m barrier zone area backfilled at some locations
5c	Concurrent use of topsoil for restoration or rehabilitation of mineral out area (Rule 32)			
5d	Total area fully reclaimed and rehabilitated	No Proposals	Details not provided in document	
5e	General remarks of inspecting officers on backfilling and reclamation etc.	NA	NA	Presently no working pits have been matured for backfilling however worked out area in 7.5m was backfilled with OB material as proposed.

Progressive Mine Clousre Plan:

Sl.No.	Item	Propasals	Actual work	Remarks
6a	Whether Annual report on PMCP submitted on time and correctly. Rule 23 E(2).	To be submitted before 1st July of every year	Not submitted within time limit as per the provisions of Rule 26 of MCDR, 2018	Violation under Rule 26(2) of MCDR, 17 pointed out and issued to the lessee
6b	Area available for rehabilitation (ha) .	Not Proposals	Nil	Mining operations are continued & no benches matured so far rehabilitation purpose so far.
6c	afforestation done (ha).	Some worked out area in 7.5m barrier zone was proposed	Backfilling carried out as proposed over 7.5m barrier zone	Backfilled area marked on the relevant plans
6d	No. of saplings planted during the year	No Proposals	Total 280 nos of saplings planted	No plantation carried out outside the mining lease area.

6e	Cumulative no .of plants	No Proposals	Details not availble	Nil
6f	Any other method of rehabilitation	No Proposals	Nil	Scope of PMCP work is not very well existed in the lease area as none of the working pit fully ore exhausted. Backfilling was proposed at 7.5m barrier zone.
6g	Cost incurred on watch and care during the year	No Proposals	Nil	Details not provided anywhere in the approved document
6h	Compliance on reclamation and rehabilitation by backfilling (i) Voids available for backfilling (Lx B x D	Backfilling was proposed in 7.5m barrier zone	Backfilling carried out as proposed	Nil
6i	Compliance on reclamation and rehabilitation by backfilling (ii) Voids filled by waste / tailings	Backfilling was proposed in 7.5m barrier zone	Backfilling carried out as proposed	
6j	Compliance on reclamation and rehabilitation by backfilling (iii)Afforestation on backfilled area	No Proposals	Nil	
6k	Compliance on reclamation and rehabilitation by backfilling (iv) Rehabilitation by making water reservoir	No Proposals	Nil	None of the pits matured in terms of exhaustion of depth of mineralisation
6l	Compliance on reclamation and rehabilitation by backfilling (v)any other specific means.	No Proposals	Nil	Nil

6m	Compliance of rehabilitation of waste land within lease (i)afforestation	No Proposals	Nil	Nil
6n	Compliance of rehabilitation of waste land within lease (ii)Area rehabilitation (ha)	No Proposals	Nil	Nil
6o	Compliance of rehabilitation of waste land within lease (iii)Method of rehabilitation	No Proposals	Nil	Nil
6p	Compliance of environmental monitoring (core zone and buffer zone)	Regular environmental monitoring was proposed	Environmental monitoring carried out in ML area as proposed	Env. monitoring was entrusted to the outsourced BSS Laboratories.
6q	General remarks of inspecting officers on PMCP compliance and progressive closure operations etc.	NA	NA	Scope of backfilling/reclamation & rehabilitation doesn't exist presently as none of the pits area matured for the said purpose. Periodic monitoring is being carried out by outsourced consultant M/s. BSS Lab.

Mineral Conservation:

Sl.No.	Item	Proposals	Actual work	Remarks
7a	ROM Mineral dispatch or grade-wise sorting within lease area	1000350 tonnes proposed as total ROM production for despatch. No grade wise sorting proposed	145367.580 tonne lumps ore produced & 854530.700 fines ore production carried out & dispatched as <55% Fe content	Production of only <55% Fe content carried out during the year
7b	Method of grade-wise mineral sorting i.e. manual or mechanical.	Screening & sizing of Iron ore proposed	Screening & sizing of Iron ore proposed	300 TPH mobile screening plant deployed in ML area

7c	Different grade of mineral sorted out at mines.	Sponge grade iron ore, Cement grade & Beneficiable grade proposed	Sponge grade - Fe 58 to 60%, Cement grade - 48 to 50% & Beneficiable grade -45 to 52%	
7d	Any beneficiation process at mines .	No beneficiation proposed within ML area	Nil	Iron ore of ML supplied to beneficiation plant located at Hargarh, Sihora for upgradation
7e	General remarks of inspecting officer on Mineral conservation and beneficiation issues	NA	NA	Ore is being conserved by suitable screening & sizing. Iron ore being supplied to the beneficiation plant located Sihora for upgradation.

Environment:

Sl.No.	Item	Propasals	Actual work	Remarks
8a	Separate removal and utilization of topsoil (Rule 32)	No top soil generation & utilization proposed	Nil	Top soil not encountered
8b	Concurrent use or storage of topsoil	No Proposals	Nil	No generation of top soil proposed during the year.
8c	Separate dumps for overburden, waste rock, rejects and fines (Rule 33)	OB generated proposed for dumping & some quantity for backfilling at 7.5m barrier zone .	Dumping & backfilling carried out as per the proposals	Backfilled area in 7.5m duly marked on the relevant plans
8d	Use of overburden, waste rock, rejects and fines dumps for restoring the land to its original use	Some quantity of overburden proposed for backfilling purpose at 7.5m barrier zone & rest for dumping purpose.	Dumping & backfilling carried out as per the proposals	None of the working pit fully ore exhausted, hence scope of backfilling doesn't exists presently

8e	Phased restoration, reclamation and rehabilitation of lands affected by mining operations (Pits, dumps etc)	No Proposals	Nil	Working pits not matured for the said purpose
8f	Baseline information on existence of plantation and additional plantation done (Rule 41)	No proposals	Total 258 nos of saplings planted during the year	Different species of plantation carried out
8g	Survival rate	Proposed 80%	Achieved about 80%	
8h	Water sprinkling on roads to control airborne dust	Water sprinkling is proposed by water tanker	Regular water sprinkling is done by water tanker	Water tanker of 5KL capacity is provided for the purpose
8i	General remarks of inspecting officer on aesthetic beauty in and around mines area	NA	NA	Aesthetic beauty in and around mine area is good as sufficient numbers of saplings have been planted.

Compliance of Rule 45:

Sl.No.	Item	Propasals	Actual work	Remarks
9a	Status of submission of Monthly and Annual returns	M.R. submitted upto- April- 2021 A.R. submitted upto- 2020-21	Annual Return for the year 2020-21 was submitted within time limit	
9b	Scrutiny of Annual return for information on Mining Engineer, Geologist and Manager	Given	Shri Bimal Pursty appointed as Mining Eng. & Mr Satish Rajak as Geologist	Violation u/r 46 of MCDR,2017 issued for not intimating about the appointments of Shri Satish Rajak as Geologist and Shri Bimal Kumar Prusty as Mining engineer.
9c	Scrutiny of Annual return on land use pattern for area under pits, reclaimed area, dumps etc.	Given	Pits-8.76 Ha Waste Dumps-2.98 Ha Infrastructure-0.42Ha Road-0.50Ha As per annual return 2020-21	

9d	Scrutiny of Annual return on afforestation	Given	Total 258 Saplings planted during the year with about 80% survival rate	
9e	Scrutiny of Annual return on mineral reject generation (Grade and quantity)	Given	No mineral rejects generated during the year	
9f	Scrutiny of Annual return on ROM stock and/or graded ore	Given	Lumps <55% Fe: O/S-Nil Despatch-145367.580 MT C/S-Nil Fines <55% Fe: O/S-77.44 MT Despatch-854608.14 MT C/S-Nil	Details as per the annual returns
9g	Scrutiny of Annual return on sale value, Ex. Mine price and production cost	Given	Lumps <55% Fe: Rs- 513.89/Tonne Fines <55% Fe: Rs- 487.87/Tonne	Nil
9h	Scrutiny of Annual return on fixed assets	Given	Nil	Nil
9k	Scrutiny of Annual return on mining machineries	Given	Nil	Nil

Details of violations observed during current inspection and compliance position of violation pointed out

Violation observed				Show couse position			
Rule NO.		Issued on	Compliance on	Rule NO.		Issued on	Compliance on
MCDR17	Rule 11(1)	16-JUN-21	16-OCT-21				
MCDR17	Rule 26(2)	16-JUN-21	16-OCT-21				
MCDR17	Rule 31(4)	16-JUN-21	16-OCT-21				
	Rule 46	16-JUN-21	16-OCT-21				
MCDR17	Rule 11(1)	16-JUN-21					
	Rule 26(2)	16-JUN-21					
MCDR17	Rule 31(4)	16-JUN-21					
	Rule 46	16-JUN-21					

Date :

(SANJAY M. GIRHE)

Indian Bureau of Mines