# INDIAN BUREAU OF MINES MINERALS DEVELOPMENT AND REGULATION DIVISION

### MCDR INSPECTION REPORT

# Nagpur regional office

### Mine file No : MAH/BHD/FE-1/NGP

Designation

Mine code : 30MSH05001

(i)	Name of the Inspecting Officer and ID No.	:	MQ17 ) ASHISH MISHRA
(ii)	Designation	:	Sr. Asst. Contrl. Mines
(iii)	Accompaning mine Official with	:	Shri Kolvate, Manager

- (iv) Date of Inspection : 16/01/2020
- (v) Prev.inspection date : 28/08/2017

PART-I : GENERAL INFORMATION

#### 1 (a) Mine Name

• KHIRSTDAR

т.	(a)	Mille Malle	•	KIIOKSIFAK
	(b)	Registration NO.	:	IBM/5319/2011
	(c)	Category	:	B Manual
	(d) (e)	Type of Working Postal address	:	Opencast
		State	:	MAHARASHTRA
		District	:	GONDIA
		Village	:	KHURSIPAR
		Taluka	:	AMGAON
		Post office	:	CHIRCHARBANDH
		Pin Code	:	441809
		FAX No.	:	(0712)-234239
		E-mail	:	
		Phone	:	232775(M.D.),233101,233419
	(f)	Police Station	:	
	(g)	First opening date	:	19/01/1993
	(h)	Weekly day of rest	:	SAT
2.		ess for espondance	:	3RD FLOOR, UDYOG BHAVAN, CIVIL LINES, NAGPUR-440 001
3.	(a)	Lease Number	:	MSH0036
	(b)	Lease area	:	9.32
	(C)	Period of lease	:	50
	(d)	Date of Expiry	:	30/03/2034
4.	Mine	ral worked	:	IRON ORE Main

5.	Name and Address of the		
	Lessee :	MAHARASHTRA STATE MINING CORPN. LTD.	
		3RD FLOOR, UDYOG BHAVAN, OPP. VIKRIKAR BHAVAN, CIVIL LINES, NAGPUR NAGPUR MAHARASHTRA Phone:0712 2565051	
		FAX :0712 2565054	
	Owner :	M/S MAHARASHTRA STATE MINING CORPORATION LTD.	
		5, ABHYANKAR NAGAR NAGPUR - 10 NAGPUR MAHARASHTRA Phone: FAX :	
	Agent :	SHRI C. C. SARKAR 5, ABHYANKAR NAGAR, P. B. NO. 351, DISTT NAGPUR (M. S.). NAGPUR MAHARASHTRA Phone: 526419, 533101, 531849. FAX :	
	Manager		
	Name :	SHRI S. DAY	
	Qualification :	FOREMAN'S CERTIFICATE	
	Appointment/ : Termination date	31/01/2005	
C	Data of annual of Min		20/02/2002
ю.	Date of approval of Min	ing : Renewal under rule 22 MCR1960	20/03/2003

ь.	Date of approval of Mining	•	Renewal under rule 22 MCR1960	20/03/2003
	Plan/Scheme of Mining		FMCP under 23C(1)	04/11/2008
			Mining Scheme rule 12 MCDR1988	05/08/2009
			Modif.of approved Mining Plan	03/06/2016
			MP review under 17(1) MCR 2016	15/07/2019

# PART - II : OBSERVATION/COMMENTS OF INSPECTING OFFICERS

# Exploration :

Sl.No.	Item	Proposals	Actual work	Remarks
la	Backlog of previous year	11 Boreholes (7 in 2016-17 & 4 in 2017- 18) No proposals for 2018-19.	Nil	Violation for non- compliance of the proposals was issued on 02/07/2019 which has been complied on 21/02/2020. Backlog of the proposed exploration is proposed to be covered in the approved mining plan period 2019- 20 to 2023-24. Original lease area was 9.32 ha out of which 4.95 ha was forest land. As per the MMDR Amendment Act 2015, lease was extended for 4.37 ha non-forest land only. Proposed boreholes were mainly planned to prove the reserves in forest land which were subjected to clearance.
1b	Exploration over lease area for geological axis 1 or 2	G-1, G-2 & G- 3	G-1: 0.1659 ha G-2: 1.1206 ha G-3: 0.1234 ha Unexplored area: 2 ha	.9601
lc	Exploration Agencies and Expenditure in lakh rupees during the year	No proposals for 2018-19. For 2016-17 & 2017-18, exploration was proposed to be carried out by MSMC Ltd.	No exploration car out, hence the information is Nil	item la
1d	Balance area to be explored to bring Geological axis in 1 or 2	3.0835 ha area was remaining to be explored under G-1 & G-2 category.	No exploration cou carried out in the 2016-17 to 2018-19 Further proposals boreholes is given the proposal perio 2019-20 to 2023-24 exploring the bala area.	years of 8 in d for

The ore zone in the area vary in thickness from about 12 m to nearly 16 m. It strikes in a general; NE-SW direction in the north to N-S in the central to a nearly NE-SW swing in the south. It dips at steep angle of 70 to 80

degrees due west/North-West. More thrust is needed towards exploration for systematic

development of the deposit as around 3 ha area is required to be covered under detailed

exploration (G-1

level).

le	Balance reserve as on 01/04/20	Balance reserves as on 01.04.2019 is given under actual work details:	
lf	General remarks of inspecting officers on geology, exploration etc		

Development :

Sl.No.	Item	Propasals	Actual work	Remarks
2a	Location of development w.r.t.lease area	Location of development for 2018-19 was around N850 to N925 & E480 to E520 at approximate RLs 339 m to 345 m	Development carried out as per the proposed location.	

2b	Separate benches in topsoil, overburden and minerals (Rule 15)	Yes, separate beches are proposed in top soil, OB and mineral wherever possible. Further, as the area is having float ore, there is no top soil in the proposed working area and due to steeply dipping orebody (70 to 80 degrees due west/North- West), it is not always possible to keep separate benches in OB and mineral. Sub-soil is considered to be around 2% of the float ore working	As per the proposals	
2c	Stripping ratio or ore to OB ratio	2018-19- 1:0.2	2018-19- 1:1.39 (ROM:6958.26 T, Waste: 9550 cum)	Development was more due to occurrence of one dike of clay. Production remained lower due to less demand. this has caused incremental increase in the stripping ratio.
2d	Quantity of topsoil generation in m3		Nil for top soil. Meagre Sub-soil generated from the workings were utilized in plantation work simultaneously.	
2e	Quantity of overburden generation in m3	2018-19: 4121.66 cum	2018-19: 9550 cum	

2f General remarks of inspecting officers on development of pit w.r.t. type of deposit etc

The ore zone in the area vary in thickness from about 12 m to nearly 16 m. It strikes in a general; NE-SW direction in the north to N-S in the central to a nearly NE-SW swing in the south. It dips at steep angle of 70 to 80 degrees due west/North-West. Deposit is being worked through manual means as the ore zone needs to be clearly identified and separately extracted. Further, flaot ore working also require manual sorting of ore.

### Exploitation:

Sl.No.	Item	Propasals	Actual work	Remarks
3a	Number of pit proposed for production	Two Pits	2 Pits: One at N750 to N950 & E500 to E600, One at N450 to N600 & E350 to E500	
3b	Quantity of ROM mineral production proposed	2018-19: 35540 T	2018-19: 6958.26 T	
3c	sailable/usable	in-situ ore	Actual recover was 100% as production being quite low due to low demand. Entire fines and sub-grade was saleable. Further, no working could be done in the float ore zone.	
3d	Quantity of mineral reject generation	2018-19: 3554 T	2018-19: Nil	

Grade of mineral ~15% Fe, In the mining plan 3e The grade of ore Threshold occuurring in the area approved for 2019rejects generation and value for is around 50-54% Fe. 20 to 2023-24, no threshold value Magnetite ore Mineral rejects/submineral rejects declared. is +15% Fe grade are proposed to be are proposed to be generated in form of generated as per fines mainly which are the observations proposed to be blended made in the last as per the requirements. approved mining plan period. 3f Quantity of sub Nil Nil grade mineral generation. Grade of sub Nil Nil 3g grade mineral generation Manual / 3h Manual sorting Manual sorting of ROM Mechanised of ROM method adopted for segregating from ROM 3i Any analysis or No such No such proposals, beneficiation proposals however, a study was study proposed carried out through Ore Dressing Division of and carried out for sub grade Indian bureau of Mines mineral and for recovery of Titanium rejects. from Magnetite fines. Provision of No drilling and blasting Зj No drilling drilling and carried out as the and blasting strata is soft in nature blasting in is proposed mineral benches 3k Provision of NΟ Ore body is proposed for mining mechanization digging, manual sorting machineries in is proposed & transportation by small trucks/tractor mineral benches trolley 31 Whether height Bench height Bench height is kept as of benches in proposed is 3 1 m to 3 m and is as per overburden and m (maximum) the method of working mineral suitable forming subproposed in the area. for method of benches of 1mining proposed 1.5 m in MP/SOM 3m Total area Total area Total area covered under covered under proposed to be excavation/pits is 1.66 excavation/pits covered under ha excavation as on 31.03.2019 is 2.135 ha

Development was

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for the pit/mine (ROM:6958.26 T, Waste: more due to during the year. 9550 cum) occurrence of one dike of clay. Production remained lower due to less demand. this has caused incremental increase in the stripping ratio. Total area put Area under: 30 Total area put Excavation/Pits- 1.66 ha in use under to use under different heads various heads Waste Dump- 0.2 ha at the end of as on Mineral Storage- 0.243 31.03.2019 is ha year furnished in Infrastructure- 0.003 ha actual work Roads- 0.09 ha Green belt- 0.67 ha details: Production of 2017-18: 35459 2017-18: 7150.42 T 3p Lessee has ROM mineral 2016-17: 5502.49 T submitted mining т during the last 2016-17: 35600 2015-16: 6262.90 T plan for the area five year period T 2014-15: 8058.34 T of 9.45 ha in as applicable 2015-16: 35600 2013-14: 8222.72 T 2013-14, however, that was withdrawn т 2014-15: in Aug'15 as the Lapsed period executed leases 2013-14: deed was available for 4.37 ha area Lapsed period only and no clarification was received from state government over the matter. Further, after receiving the order for extension of lease period for 4.37 ha, the plan was modified and

Ore to OB ratio 2018-19- 1:0.2 2018-19- 1:1.39

3n

submitted for 4.37 ha in Oct'15 which was approved in June'16. Thus 2013-14 & 2014-15 period were lapsed. 3q General remarks of inspecting officers on method of mining etc. Method of mining is manual with no drilling and blasting required as the strata is loose & can be digged manually. Ore zone in the area is in form of float ore occurring at ~1 m depth from surface and in-situ orebody which is steeply dipping. Both zones require manual intervension for identification and separate exploitation of mineral alongwith sorting.

Solid Waste Management - Dumping:

Sl.No.	Item	Propasals	Actual work	Remarks
4a	Separate dumping of topsoil, OB and mineral rejects (Rule 32,33)	top soil in the proposed working area. Sub-soil, proposed as 2% of the float ore workings which is proposed to be stacked	•	

4b	Location of topsoil, OB and mineral reject dumps			
4c	Number of dumps within lease area and outside of lease area	Soil: One stack OB/Waste Dump: 2 dumps Mineral rejects: One stack All within the lease area.	2 OB/Waste dumps are within the lease area.	
4d	Location of dumps w.r.t. ultimate pit limit (Rule 16)	Dumps are proposed outside the pit limits	Dumps are located outside the pit limits. As the working is manual, small dumps are made near the working area which are shifted to main dumps located outside pit limits.	
4e	Number of active and alive dumps.		2 waste dumps are active and alive dumps	
4f	Number of dead dumps.	No such proposals	Nil	At conceptual stage, it is proposed to partially backfill the pit bottom with generated waste and part of pit above backfilled area will be left for water storage and upper benches will be planted with local species of trees.
4g	Number of dumps	No such	Nil	

4g Number of dumps No such Nil established. proposals

4h	Whether Retaining wall or garland drain all along dumps are there.	to cover the toe side of the dumps with	As the adjacent area is forest land for which no clearance is obtained, garland drains and stone pitched walls have been constructed on the outer edge of the waste dumps while inner edge being available for active dumping.	
4i	Length of Retaining wall or garland drain all along dumps	Around 50 m	As per the proposals, around 50 m of garland drains and retaining wall in form of stone pitching has been constructed.	
4j	Number of settling ponds	No suc proposals	Nil	
4k	Specific comments of inspecting officer on waste dump management	_ <b>-</b>		Waste dump management aspect is satisfactory for the area. generated waste is quite low in comparison to the production except for the area having dyke of clay. Waste dumps are small and are proposed to be backfilled at conceptual stage. Garland drains and retaining wall is available to avoid any wash off and subsequent degradation of adjacent forest land.

# 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 such proposals	Nil	
5b	Area under backfilling of mined out area	No such proposals	Nil	

5c	Concurrent use of topsoil for restoration or rehabilitation of mineral out area (Rule 32)	No such proposals	Nil
5d	Total area fully reclaimed and rehabilitated	No such proposals	Nil
5e	General remarks of inspecting officers on backfilling and reclamation etc.		

At conceptual stage, it is proposed to partially backfill the pit bottom with generated waste and part of pit above backfilled area will be left for water storage and upper benches will be planted with local species of trees.

Progressive Mine Clousre Plan:

Sl.No.	Item	Propasals	Actual work	Remarks
ба	Whether Annual report on PMCP submitted on time and correctly. Rule 23 E(2).	To be submitted on or before 30th June every year depicting work done under PMCP in the preceding year	No such report was submitted	The report was obtained at the time of site inspection
6b	Area available for rehabilitation (ha) .	Non- mineralized zone near the office & 7.5 m non mining zone only is available for plantation work. Approximately the area is 1.0 ha	The lease area is divided into two non- contiguous blocks. Due to this, apart from 7.5 m non-mining zone, due to limitations of area in both the blocks, no area is presently available for reclamation and rehabilitation. Thus, plantation is being carried out over 7.5 m non-mining zone and near the office building only.	Plantation has also been carried out outside the lease area along the road.

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6c	afforestation done (ha).	2018-19: 0.1 ha with 300 saplings	2018-19: 0.05 ha with 140 saplings (60 saplings within lease area and 80 saplings adjacent to the lease boundary)	From 2009-10 to 2013-14, total 250 saplings were proposed to be planted over 0.1 ha against which, overall 0.515 ha area was reclaimed with 975 saplings (with 30% survival due to non- availability of soil, sustained plantation was around 325 Nos.). Afterwards, in- filling plantation was carried out and thus, presently, availability of area for plantation is scarce.
6d	No. of saplings planted during the year	2018-18: 300 Nos.	2018-19: 140 Nos. (60 saplings within lease area and 80 saplings adjacent to the lease boundary)	Reasons elaborated under item 6c
бе	Cumulative no .of plants	Upto 2018-19: 1150 Nos.	Upto 2018-19: 1515 Nos.	Approximately 770 Nos. of trees are surviving as on date. Alongwith this, plantation outside the lease area along the road has also been carried out.
6f	Any other method of rehabilitation	No such proposals	Nil	
ရေ	Cost incurred on watch and care during the year	over	Approximately Rs 40000/- over environment monitoring, plantation and maintenance & repair of garland drains	
6h	Compliance on reclamation and rehabilitation by backfilling (i) Voids available for backfilling ( Lx B x D	No such proposals	Nil	

6i	<u>.</u>	Compliance on reclamation and rehabilitation by backfilling (ii) Voids filled by waste / tailings	No such proposals	Nil
6j	j	Compliance on reclamation and rehabilitation by backfilling (iii)Afforestati on on backfilled area	No such proposals	Nil
6k	2	Compliance on reclamation and rehabilitation by backfilling (iv) Rehabilitation by making water reservoir	No such proposals	Nil
61	_	Compliance on reclamation and rehabilitation by backfilling (v)any other specific means.	No such proposals	Nil
6π	a	Compliance of rehabilitation of waste land within lease (i)afforestation	of waste land in form of non-	As per the proposals.
6n	1	Compliance of rehabilitation of waste land within lease (ii)Area rehabilitation (ha)	Upto 2018-19, around 0.55 ha area was	Upto 2018-19, around 0.67 ha has been covered under green belt plantation. To overcome low survival, lessee has planted more number of trees.
60	)	Compliance of rehabilitation of waste land within lease (iii)Method of rehabilitation	Green belt plantation	Green belt plantation

бр	Compliance of environmental monitoring (core zone and buffer zone)	Environment monitoring carried out for air & water as per the guidelines. The reports of the environment monitoring were checked and found that all the parameters are within the permissible limits. Noise and ground vibration analysis not required as no drilling and blasting was carried out and the mine was operating with manual means only.	
бд	General remarks of inspecting officers on PMCP compliance and progressive closure operations etc.		PMCP operations are satisfactory in light of the limitations in the existing non- contiguous blocks of the lease which has been reduced from the previous approved proposals. Plantation has been carried out over the available waste land in the area. Though survival is low due to non- availability of top soil, this has been tried to overcome by planting more number of saplings. Environment monitoring has been carried out for air and water as per the category of the mine.

Mineral Conservation:

Sl.No.	Item	Propasals	Actual work	Remarks

7a	ROM Mineral dispatch or grade-wise sorting within lease area	Grade-wise sorting of ROM within the lease area and then dispatch.	Grade-wise sorting of ROM within the lease area and then dispatch.	
7b	Method of grade- wise mineral sorting i.e. manual or mechanical.	Manual sorting	Manual sorting	
7c	Different grade of mineral sorted out at mines.	Below 55% Fe (Lumps) & Below 55% Fe (Fines)	As proposed.	
7d	Any beneficiation process at mines	No such proposals	Nil	
7e	General remarks of inspecting officer on Mineral conservation and beneficiation issues			Entire ROM is graded and dispatched under below 55% Fe grade (Lumps & Fines). Thus, mineral conservational aspect is satisfactory. A study was carried out through Ore Dressing Division of Indian bureau of Mines for recovery of Titanium from Magnetite fines through which, it was concluded that separation of Titanium ore from the Fines isn't possible.

Environment:

Sl.No. Item

Propasals Actual work

Remarks

8a	Separate removal and utilization of topsoil (Rule 32)	not available	Not applicable for top soil however, sub-soil is proposed to be generated @2% of Float ore woorkings. Meagre quantum of soil was removed from the clay band which was utilized in simultaneous plantation.	
8b	Concurrent use or storage of topsoil	Top soil is not available in the proposed working area.	Not applicable for top soil however, sub-soil is proposed to be generated @2% of Float ore woorkings. Meagre quantum of soil was removed from the clay band which was utilized in simultaneous plantation.	
8c	Separate dumps for overburden, waste rock, rejects and fines (Rule 33)	of the float ore workings which is proposed to be stacked	Separate dumping of Soil, OB & mineral rejects was proposed however, no soil was generated due to no float ore working in the year 2018-19. Clay band working has generated meagre soil that was utilized in plantation. No mineral rejects were generated as entire ROM was graded and sold.	
8d	Use of overburden, waste rock, rejects and fines dumps for restoring the land to its original use	No such proposals	Nil	At conceptual stage, it is proposed to partially backfill the pit bottom with generated waste and part of pit above backfilled area will be left for water storage and upper benches will be planted with local species of trees.

8e	Phased restoration, reclamation and rehabilitation of lands affected by mining operations (Pits, dumps etc)	No such proposals	Nil	
8f	Baseline information on existence of plantation and additional plantation done (Rule 41)	Baseline information given in the mining plan. Additional plantation proposed upto 2018-19 was 1150 saplings.	Baseline information given in the mining plan. Additional plantation carried out upto 2018-19 is 1515 saplings out of which 770 are surviving.	
8g	Survival rate	70%	In earlier years, survival rate observed was 30%, however, with proper housekeeping and watering/fencing, the survival rate was enhanced to 80% in the year 2018-19.	Plantation has been carried out over the available waste land in the area. Though survival is low due to non- availability of top soil, this has been tried to overcome by planting more number of saplings. Thus, actual gap is only 35 saplings (1150 X 70%= 805 Nos. proposals & 770 actually surviving plants).
8h	Water sprinkling on roads to	Yes	Yes, water sprinkling is being done by small	

on roads to control airborne dust Yes, water sprinkling is being done by small tractor mounted tankers. 8i General remarks of inspecting officer on aesthetic beauty in and around mines area

Apart from normal degradations due to mining activities, aesthetic beauty in and around area is good. The area is surrounded by forsest land having dense trees. Also, lessee has carried out plantations over 0.67 ha area with around 770 saplings within the lease area and around 500 trees outside the lease area along the road. Being manual working, no specific environment issues were observed.

Compliance of Rule 45:

Sl.No.	Item	Propasals	Actual work	Remarks
9a	Status of submission of Monthly and Annual returns	are required to be submitted	AR for the lease area was submitted online upto 2018-19 MR for the lease area was submitted online upto Dec'19	
9b	Scrutiny of Annual return for information on Mining Engineer, Geologist and Manager	Mining Engineer: Nil Geologist: Shri P. S. Sonpipare Manager: Shri V. M. Kolvate	Being a category B mine, part time Mining Engineer has been appointed namely Shri J. R. Sahu.	It was advised to mention in the AR the name of the persons under part-time statutory employments.

9c As per the AR, Actual Area under: The return is Scrutiny of Annual return on Area covered Excavation/Pits- 1.66 ha under refer back land use pattern under current Waste Dump- 0.2 ha for the correction for area under O/C workings: Mineral Storage- 0.243 in the area pits, reclaimed 2.6 ha details as advised ha area, dumps etc. Used for Waste Infrastructure- 0.003 ha during the site disposal: 0.77 Roads- 0.09 ha inspection. ha Green belt- 0.67 ha Other (Mineral Storage): 1.0 ha 9d Scrutiny of Number of Complete and correct Annual return on trees lanted information has been afforestation during the qiven year: 60 within the lease area & 80 outside the lease area Survival: 80% for both, within and outside lease area plantation 9e Scrutiny of Correct information has Nil Annual return on been furnished as there mineral reject were no subgrade/mineral rejects generation stacks available at the (Grade and quantity) mine site 9f Scrutiny of ROM: Opening & Complete and correct Annual return on Closing information provided ROM stock and/or Stocks- Nil, graded ore Production-6958.26 T Graded Ore: (i) Lumps: (a) below 55% fe- Opening Stock-12780.747 T, Production-4504.9 Т, Dispatch-7389.05 T, Closing Stock-9896.597 T (ii) Fines: (a) below 55% fe- Opening Stock- Nil, Production-2453.36 Т, Dispatch-1975.05 T, Closing Stock-478.31 T

9g Scrutiny of Sale Value: Complete & correct Annual return on (i) Lumps: information has been provided. EMP reported Below 55% Fesale value, Ex. Rs 16847034/-Mine price and has been verified production cost (ii) Fines: through sale invoices. Below 55% Fe-Rs 839386/-EMP: (i) Lumps: Below 55% Fe-Rs 2280/- per Т (ii) Fines: Below 55% Fe-Rs 425/- per T Cost of production: Rs 2503.98/- per Т 9h Scrutiny of Value of fixed Complete and correct Annual return on assets: Rs information has been fixed assets 233207/provided Apart from this, value of land, machineries, plant and buildings etc. have been furnished alongwith depreciation. 9k Scrutiny of Complete and correct Details Annual return on provided for- information has been mining Air compressor provided. machineries (2 Nos.), Tipper Truck (3 Nos.), Jeep/tractor (1 Nos) & Pumps for dewatering (2 Nos.).

Details of violations observed during current inspection and compliance position of violation pointed out					
Violation observed			_	Show o	couse position
Rule NO.	Issued on	Compliance	on	Rule NO.	Issued on Compliance on

### Date :

# (ASHISH MISHRA)

Indian Bureau of Mines