

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

MCDR INSPECTION REPORT

Nagpur regional office

Mine file No : MAH/NAG/MN-137/NGP

Mine code : 40MSH14010

- (i) Name of the Inspecting : **219**) **Rajesh M Khadse**
Officer and ID No.
- (ii) Designation : Assistant Mining Engineer
- (iii) Accompanying mine : Shri R.K.Sah Mining Engineer
Official with
Designation
- (iv) Date of Inspection : 19-Jan-22
- (v) Prev.inspection date : 22-Dec-21

PART-I : GENERAL INFORMATION

1. (a) **Mine Name** : **MUNSAR**
- (b) **Registration NO.** : **IBM/5711/2011**
- (c) Category : A Manual
- (d) Type of Working : Underground
- (e) Postal address :
State : MAHARASHTRA
District : NAGPUR
Village : MANSAR
Taluka : RAMTEK
Post office : KHAIRI BIJEWADA
Pin Code : 441106
FAX No. :
E-mail :
Phone :
- (f) Police Station :
- (g) First opening date : 01-Jul-62
- (h) Weekly day of rest : MON
2. Address for :
correspondance
3. (a) Lease Number : MSH0071
- (b) Lease area : 108.63
- (c) Period of lease : 60
- (d) Date of Expiry : 30-Jun-22

MSH0097
.97
51
31-Mar-20

MSH0085
25.15
50
13-May-32

4. Mineral worked : MANGANESE ORE Main

5. Name and Address of the

Lessee : M/S MANGANESE ORE (INDIA) LTD.
3, MOUNT ROAD EXTENSION
POST BOX NO. 34, NAGPUR
(MP) NAGPUR MAHARASHTRA
Phone:
FAX :

Owner : DEEPANKAR SHOME
1-A, MOIL BHAVAN KATOL ROAD
NAGPUR NAGPUR MAHARASHTRA
Phone:
FAX :

Agent : A. V. MASADE
MUNSAR MINE RAMTEK NAGPUR
NAGPUR MAHARASHTRA
Phone:
FAX :

Mining Engineer

Name : SACHIN RAMTEKE, Full Time
Qualification :
Appointment/ : 01-Jul-17
Termination date

Geologist

Name : DEBONATH MOHANTA, Full Time
Qualification :
Appointment/ : 01-Jul-18
Termination date

6. Date of approval of Mining	:	Renewal under rule 22 MCR1960	06-May-03
Plan/Scheme of Mining	:	Renewal under rule 22 MCR1960	06-May-03
	:	Mining Scheme rule 12 MCDR1988	14-Dec-10
	:	Mining Scheme rule 12 MCDR1988	16-Apr-13
	:	MP review under 17(1) MCR 2016	30-May-17

PART - II : OBSERVATION/COMMENTS OF INSPECTING OFFICERS

Exploration :

Sl.No.	Item	Proposals	Actual work	Remarks
1a	Backlog of previous year	Borehole proposal for five years of scheme period was for 52 boreholes as per following: 2017-18: 32 BH 2018-19: NIL 2019-20: 20 BH 2020-21: NIL 2021-22: NIL	A total of 16 BHs were drilled in 2017-18 to 2018-19 out of 32 BHs proposed in 2017-18. Form -I of all BHs drilled have been submitted by lessee. Upon violation issued for the slippage from proposal on exploration drilling of remaining 16 BHs from this office, further proposal at compliance report has been given by MOIL to complete the remaining BHs in 2020-21 and 2021-22. Till date, exploration drilling of 3 BHs is completed out of this back log 16 BHs and Form-I have been submitted to this off	During inspection, Lessee produced proof of floating tenders for exploration drilling by outsourced agencies to complete the backlog of exploration proposed for the scheme period. Further, in-house SANDVIK Core Drilling machine is found in operation in adjacent Parsoda Lease which would be deployed to Munsar upon completion of exploration at Parsoda in 2021-22.

1b	Exploration over lease area for geological axis 1 or 2	G-1, G-2, G3 and G-4	Present Mining scheme was approved for the area on 30.05.2017 and as per approved document reserves/resources were considered under G-1, G2, G3 and G-4 axis of UNFC. Total Mineralized area is 20.80 ha and non-mineralized area is 119.99 ha. 10.25 ha mineralized area is explored in G1 category till date. 10.55 ha area is proposed to be explored in 2022-23 covering all backlog exploration proposal. Further, exploration is being proposed for proving vertical lay, disposition and continuity of lenso	During inspection, exploration data of about 105 BHs drilled in the lease has been checked. Strike continuity within the mineralized zone is established by the lessee. Development phases at 2nd, 3rd and 4th levels are checked along with stope blocks under exploitation at 2nd level. Further Specific exploration drilling is needed in the area to locate the exact orientation of the lensoid deposits at places within the underground.
1c	Exploration Agencies and Expenditure in lakh rupees during the year	MOIL	3 BH (meterage: 500)	All three are Core BHs. No ore body is encountered in all these three BHs. No updation required for reserve/resource established.
1d	Balance area to be explored to bring Geological axis in 1 or 2	Out of 108.63 ha lease area, total mineralized area is 20.80 ha and non-mineralized area is 119.99 ha.	10.25 hamineralized area is explored in G1 category. 10.55 ha area is proposed to be explored in 2022-23 covering all backlog	Proposal for further exploration needs to be furnished in next review of

1e	Balance reserve as on 01/04/20	Balance reserves/resources as on 01.04.2021 is given under actual work details	Category Reserves (ton) 111 1964009 121 205625 Total 21,69,634 Category Resources (ton) 211 407015 222 1554973 332 801955 333 281190 Total 30,45,133	NA
1f	General remarks of inspecting officers on geology, exploration etc	<p>The Manganese ore horizon in the area is of composite nature characterised by inter banding of manganiferous quartzite, gondite and Manganese ore. The ore horizon occurs at stratigraphic contact with quartz-mica schists on the hanging wall side and muscovite sillimanite schist on the footwall side. It is continuous orebody with rock patch intrusions in between that is used as support in underground.</p>	<p>The Mn-ore in Munsar mine area is finely crystalline to massive in nature. The ore forming minerals are Braunite with Psilomelane and little Pyrolusite. Though the area has been proved for lateral extent, for proving further depth continuity, exploration drilling and exploratory mining should be proposed accordingly in next scheme renewal of the lease.</p>	

Development :

Sl.No.	Item	Propasals	Actual work	Remarks
2a	Location of development w.r.t.lease area	Development was proposed as per following at 30' L, -130' L & -230'L. Horizontal development: 1008 RMT Vertical development: 224 RMT dumps are proposed for recovery of minerals Apart from this, mineralized	Ore drive - 250 RMT X-Cut - 62 RMT Winze - 88 RMT Stope preparation - 210 RMT	522 RMT horizontal developments achieved against proposed 1008 RMT in 2020-21. And Vertical development was achieved 88 RMT against proposed 224 RMT. Excess 105 RMT vertical developments was achieved in 2019-20. Horizontal development is in lower side due to rock intrusions in the stopes and work hampered on account of COVID situations.
2b	Separate benches in topsoil, overburden and minerals (Rule 15)	Underground ROM: 50000 T Dump Working: 45000 T	Underground ROM: 40726 T Dump Working: NIL	Dump workings mainly contribute towards LGHS (Low Grade High Silica) Mn ore and due to low demand, and higher thrust towards in-situ developments and covid situation in the year, dump production was nil. Lessee has operated the mine through underground exploitation only in 2020-21.

2c	Stripping ratio or ore to OB ratio	Saleable Mineral recovery: 60% of the ROM, Out of rest 40%, 20% shall be intercalated waste that will be used for backfilling and 20% shall be the mineral rejects that will be stacked separately for future usage.	Recovery in 2020-21: 40557 T (99%)	Mineral in the working area was found to be below 25% and 25% to below35% grade Mn (in- situ blended grade) which was readily saleable and hence, generation of mineral rejects stood as 169 T only which has been used as backfilling in the void stopes.
2d	Quantity of topsoil generation in m3	2020-21: 20000 T	2020-21: 169 T	Mineral in the working area was found to be below 25% and 25% tobelow35% grade Mn (in- situ blended grade) which was readily saleable and hence, generation of mineral rejects stood as 169 T only which has been used as backfilling in the void stopes.
2e	Quantity of overburden generation in m3	Threshold Value: Min 10% Mn, Mineral Rejects Grade: 15% Mn (average)	<10%	
2f	General remarks of inspecting officers on development of pit w.r.t. type of deposit etc	Notapplicable	NIL	

Exploitation:

Sl.No.	Item	Propasals	Actual work	Remarks
3a	Number of pit proposed for production	Not applicable as the working is Underground and Dump working only.	Not applicable	
3b	Quantity of ROM mineral production proposed	Underground ROM: 50000 T Dump Working: 45000 T	Underground ROM: 40726 T Dump Working: NIL	Dump workings mainly contribute towards LGHS (Low Grade High Silica) Mn ore and due to low demand, and higher thrust towards in-situ developments and covid situation in the year, dump production was nil. Lessee has operated the mine through underground exploitation only in 2020-21
3g	Grade of sub grade mineral generation	NOT APPLICABLE	NOT APPLICABLE	
3h	Manual / Mechanised method adopted for segregating from ROM	Manual sorting within the lease area	Manual sorting within the lease area	
3i	Any analysis or beneficiation study proposed and carried out for sub grade mineral and rejects.	No such proposals.	Nil	

3j	Provision of drilling and blasting in mineral benches	Not applicable NIL as the working is Underground and Dump working only	In underground, Drilling is being done by means of drills with 110 mm hole diameter. Existing blast practices involves use of detonating fuse initiation with cord relay delay detonators and NONEL's using mainly slurry explosive. The usual blast pattern is spacing at 2.5m and burden at 2.0 m with charge factor at 0.4 kg/m ³ for the ore body.
3k	Provision of mining machineries in mineral benches	Not applicable NIL as the working is Underground and Dump working only	Mine working involves Drilling and blasting by 110 mm diameter drills, then blasted muck is loaded into tubs and hoisted to the surface OCF. Front end Loader, Backhoe is deployed for dump workings. Water tanker and tippers are used at surface.
3l	Whether height of benches in overburden and mineral suitable for method of mining proposed in MP/SOM	Not applicable Nil as the working is Underground and Dump working only	Level intervals, size of pillars, support system etc. have been selected based on the occurrence of the orebody and in compliance to DGMS safety norms. Method of stoping as cut and fill is suitable for mining the ore zone.

3m	Total area covered under excavation/pits	9.0 ha	8.0 ha	8.0 ha pit area is under old pits
3n	Ore to OB ratio for the pit/mine during the year.	Not applicable as the working is Underground and Dump working only	NIL	
3o	Total area put in use under different heads at the end of year	Total Area put to use under different heads is given in the actual work details.	Area under: Pits- 8.0 ha Waste Dumps-16.20 ha Mineral Storage- 2.04 ha Mineral Separation Plant - 0.03 ha Township-6.886 ha Roads-2.15 ha Infrastructure-4.808 ha Others (Solar Plant)- 15.582 ha Total area put to use - 55.696 ha	Out of the total 108.63 ha lease area, 42.95 ha area has been reclaimed through plantation, 2.44ha area has been reclaimed by conversion of pit into water reservoir (KL Pit).
3p	Production of ROM mineral during the last five year period as applicable	2020-21: 50000 T 2019-20: 50000 T 2018-19: 50000 T 2017-18: 50000 T 2016-17: 50000 T	2020-21: 40726 T 2019-20: 49966 T 2018-19: 49744 T 2017-18: 49987 T 2016-17: 45488T	

3q General remarks
of inspecting
officers on
method of mining
etc.

Method of mining
is Category A as
average daily
number of persons
employed in the
mine is 349
(>175). Working is
semi-mechanised.
It is
an underground mine
where dump working
is also going on
for recovery of
minerals. Method
of stoping is cut
and fill. All
operations are
suitable as per
the occurrence of
orebody in the
area and capital
investments.

Solid Waste Management - Dumping:

Sl.No.	Item	Proposals	Actual work	Remarks
4a	Separate dumping of topsoil, OB and mineral rejects (Rule 32,33)	Not applicable as the working is Underground and Dump working only	Waste and Mineral rejects generated are being dumped/stacked separately and no intermixing is allowed. Part of waste is being used for underground filling of voids. Top soil is not excavated and earlier excavated top soil has been utilized for plantation. During the year 2020-21, mineral reject generation was 169 Tonne only.	

4b	Location of topsoil, OB and mineral reject dumps	Top Soil-No dumps Waste Dump: Details given in actual work done Mineralized dump: Details given in actual work done	Inactive Waste Dump 239400 0.760 15 Inactive Waste Dump 104328 0.994 5 Inactive Waste Dump 35280 0.420 4 Stabilized Waste Dump 201600 1.600 6 Inactive Waste Dump 1139250 2.170 25 Inactive Waste Dump 100800 0.480 10	
4c	Number of dumps within lease area and outside of lease area	All dumps within lease area	All dumps within lease area	
4d	Location of dumps w.r.t. ultimate pit limit (Rule 16)	Not applicable as the working is Underground and Dump working only	Not applicable	
4e	Number of active and alive dumps.	Details as per point 4b above	Details as per point 4b above	
4f	Number of dead dumps.	Details as per point 4b above	Details as per point 4b above	Progressing Reclamation work is under process but no dump has been completely stabilized yet.

4g	Number of dumps established.	<p>472.50 meter length retaining wall has been constructed in the areas of near vertical shaft and from CH3600 to CH4600. No further proposal of retaining wall construction has been considered in the ensuing plan period from 2022-23 to retaining wall construction will be considered at next plan period at suitable locations where needed.</p> <p>1805 meter of garland drain has been constructed in the lease area from CH3600 to CH6800 up to the main road connecting Munsar and Ra2026-27. Proposal for further</p>	<p>472.50 meter length retaining wall has been constructed in the areas of near vertical shaft and from CH3600 to CH4600. No further proposal of retaining wall construction has been considered in the ensuing plan period from 2022-23 to 2026-27. Proposal for further retaining wall construction will be considered at next plan period at suitable locations where needed.</p> <p>1805 meter of garland drain has been constructed in the lease area from CH3600 to CH6800 up to the main road connecting Munsar and Ra</p>	<p>As per Actualshas been reclaimed through plantation, 2.44 ha area has been reclaimed by conversion of pit into water reservoir (KL Pit</p>
4h	Whether Retaining wall or garland drain all along dumps are there.	Length of Retaining wall or garland drain all along dump	Details as per point 4h above	
4i	Length of Retaining wall or garland drain all along dumps	Details as per point 4h above	Details as per point 4h above	

4j	Number of settling ponds	Number of settling ponds	No such proposals	
4k	Specific comments of inspecting officer on waste dump management	Specific comments of inspecting officer on waste dump management		Out of the total 108.63 ha lease area, 42.95 ha area has been reclaimed through plantation, 2.44 ha area has been reclaimed by conversion of pit into water reservoir (KL Pit)

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.	After exhaustion of mineral from the opencast pits/old exhausted pits, generated waste is backfilled to restore its topography. Also, after exhaustion of mineral in underground stopes, waste is used along with sand for backfilling the voids	As per the proposals, backfilling of underground voids is being done with waste generated underground. Waste brought at surface (generated in shaft sinking) up to 2019-20 was being utilized in backfilling of old exhausted pits- 135' L Pit at the eastern side of the lease area.	

5b	Area under backfilling of mined out area	133000 cum waste to be generated is proposed to backfill approximately 1.0 ha area of 135'L pit in the 5 years proposal period of 2017-18 to 2021-22.	Around 1.575ha area has been backfilled till 2018-19. (refer PMCP_2020-21)	As per PMCP document
5c	Concurrent use of topsoil for restoration or rehabilitation of mineral out area (Rule 32)	Not applicable as the working is Underground and Dump working only. Backfilled area shall be rehabilitated by plantation after getting clearances from MoEFCC for opencast workings and after completion of backfilling work.	Nil	
5d	Total area fully reclaimed and rehabilitated	Clear Proposals for total area under reclamation and rehabilitation are not available.	Out of the total 108.63 ha lease area, 42.95 ha area has been reclaimed through plantation, 2.44 ha area has been reclaimed by conversion of pit into water reservoir (KL Pit).	

5e	General remarks of inspecting officers on backfilling and reclamation etc.	Backfilling work is under process for 135'L pit as per the proposals. After getting approval from MoEFCC, opencast working shall be commenced in the area and generated top soil shall be used for plantation. In the last 5 years period of 2016-17 to 2020-21, waste generated from underground was approximately 16893 cuM out of which around 12293 cuM was utilized for underground void filling. KL pit, having area of 2.44 ha has been reclaimed by making water reservoir.
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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).	As per Rule 26(2) of MCDR'17, report on work carried out under PMCP is to be submitted by 1st July every year.	Yes, report has been submitted	

6b	Area available for rehabilitation (ha) .	<p>i) 133000 cum waste to be generated is proposed to backfill approximately 2 ha area of 135'L pit in the 5 years proposal period of 2017-18 to 2021-22. Apart from this, waste land reclamation through plantation is proposed for approximately 0.5 ha land with 1000 number of saplings during the 5 years proposal period with 200 saplings per year.</p> <p>ii) 0.1 ha plantation was proposed for the year 2018-19</p> <p>iii) 200 saplings were proposed to be planted in 2018-19.</p> <p>iv) Cumulative Number of Plants proposals</p>	<p>i) I) Backfilling carried out as on 01.04.2021, total backfilled area is 1.575 ha. Apart from this plantation work is being carried out on dumps (in-filling) with 1000 saplings and 0.75 ha waste land available in the area with 1500 saplings.</p> <p>ii) Ii) 0.75 ha of plantation over waste lands available near old OCF area and central part has been carried out alongwith in-filling</p>	<p>Afforestation data since beginning of mining operation has been submitted by lessee along with PMCP document</p>
6c	afforestation done (ha).	<p>i) Voids available for backfilling: Approximately 2 ha area under 135'L Pit</p>	<p>i) Backfilled area in 2020-21: 1.575 ha area has been backfilled</p>	<p>Afforestation data since beginning of mining operation has been submitted by lessee along with PMCP document</p>

6d	No. of saplings planted during the year	As per proposal	As per proposal	
6e	Cumulative no .of plants	As per proposal	As per proposal	
6f	Any other method of rehabilitation			PMCP compliance is up to date and efforts are being made by the lessee to restore the area to its actual topography. Plantation has been carried out over waste dumps for stabilization and Garland drains and retaining walls are there to arrest any slippage or washoff. Environment monitoring is also being done quarterly in the core and buffer zone as per MoEFCC guidelines.
6g	Cost incurred on watch and care during the year	-	-	-

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 lease area and dispatch	As per the proposals	
7b	Method of grade-wise mineral sorting i.e. manual or mechanical.	Manual sorting of ROM	Manual sorting of ROM	

7c	Different grade of mineral sorted out at mines.	(i) 25% to below 35% Mn and (ii) 35% to below 46% Mn and Mineral Rejects	(i) 25% to below 35% Mn and (ii) 35% to below 46% Mn	Apart from the above, less than 15% Mn containing material is being stacked separately as mineral rejects. However, complete mineral exploited was blended and sold and no mineral rejects were generated
7d	Any beneficiation process at mines	No such proposals	Nil	
7e	General remarks of inspecting officer on Mineral conservation and beneficiation issues			Mineral conservation aspect has been thoroughly covered as even 8% Mn containing Mineral rejects are being stacked though threshold value is 10% of Mn. Mineralised dumps are also being exploited for recovery of mineralised content

Environment:

Sl.No.	Item	Propasals	Actual work	Remarks
8a	Separate removal and utilization of topsoil (Rule 32)	Not applicable as the working is Underground and Dump working only	NIL	
8b	Concurrent use or storage of topsoil	Not applicable as the working is Underground and Dump working only	NIL	

8c	Separate dumps for overburden, waste rock, rejects and fines (Rule 33)	Separate stacking/dumping is proposed for waste and mineral rejects	As per proposal Alongwith this, backfilling through waste is also proposed
8d	Use of overburden, waste rock, rejects and fines dumps for restoring the land to its original use	Yes, Backfilling of mined out pit is proposed by utilizing the waste generated. Also approximately 30% of the waste material generated is being used for underground filling of voids	As per proposal
8e	Phased restoration, reclamation and rehabilitation of lands affected by mining operations (Pits, dumps etc)	Yes, proposals for backfilling of 135' L pit by waste generated from 2nd shaft development is proposed	Dumps are being reclaimed and stabilized through plantation. Mined out pit (135'L pit) is being backfilled as per the proposals.
8f	Baseline information on existence of plantation and additional plantation done (Rule 41)	Yes, baseline information on plantation has been carried out in EIA study. Additional plantation proposed was 200 saplings in the year 2020-21.	Additional plantation carried out in the year 2018-19 was 2500 saplings
8g	Survival rate	Survival rate proposed is approximately 75%	Actual survival rate is 77% overall. In the year 2020-21, survival rate was 76.8%.

8h	Water sprinkling on roads to control airborne dust	Yes.	6000 Ltr water tanker is deployed for sprinkling of water over OCF and working areas, haul roads	
8i	General remarks of inspecting officer on aesthetic beauty in and around mines area			Aesthetic beauty in and around the area is good. Lessee has done extensive plantation work and reclamation of old exhausted pits is underway. Also, one solar plant of 5MW capacity is proposed to be set up in the North-eastern part of the lease area to establish green energy source.

Compliance of Rule 45:

Sl.No.	Item	Proposals	Actual work	Remarks
9a	Status of submission of Monthly and Annual returns	M.R. Submitted upto February 2022 A.R. submitted upto 2020-21		
9b	Scrutiny of Annual return for information on Mining Engineer, Geologist and Manager	Mining Engineer: SHRI U Bothra Geologist: SHRI Debnath Mohanta Manager: SHRI U M Bhujade	Complete and correct information furnished.	

9c	Scrutiny of Annual return on land use pattern for area under pits, reclaimed area, dumps etc.	Area under: Pits- 8.5 ha Waste Dumps- 20.25 ha mineralised Dumps-10.40 ha Mineral Storage- 4.0 ha Township-6.886 ha Roads-2.15 ha Infrastructure -4.808 ha Others (U/g opening, OCF etc.)-1.2 ha Total area put to use - 49.794 ha	Area under: Pits- 8.0 ha Waste Dumps-16.20 ha Mineral Storage- 2.04 ha Mineral Separation Plant - 0.03 ha Township-6.886 ha Roads-2.15 ha Infrastructure-4.808 ha Others (Solar Plant)- 15.582 ha Total area put to use - 55.696 ha Excavated area reclaimed - 2.44 ha KL pit water reservoir	Furnished as per corrected surface plan.
9d	Scrutiny of Annual return on afforestation	Number of trees planted during the year: 3600	Correct information has been submitted Survival rate in percentage: 72%	
9e	Scrutiny of Annual return on mineral reject generation (Grade and quantity)	Mineral reject generation - 169 T Grade <15%	Correct information has been submitted	
9f	Scrutiny of Annual return on ROM stock and/or graded ore	As detailed above	Correct information furnished and it is matching with the opening stocks as furnished for the respective grades in the Monthly return filed for Apr'21.	
9g	Scrutiny of Annual return on sale value, Ex. Mine price and production cost	Referred AR 2020-21	Production cost is justified as mainly float ore and initial one working bench is excavated for production. Royalty, NMET, DMF are paid accordingly matching with dispatch, sale value and taxable amount.	

9h	Scrutiny of Annual return on fixed assets	Referred AR 2020-21	Complete and correct information furnished.
9k	Scrutiny of Annual return on mining machineries	As per proposal.	Complete and correct information furnished

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

Violation observed		Show cause position	
Rule NO.	Issued on Compliance on	Rule NO.	Issued on Compliance on

Date :

(Rajesh M Khadse)

Indian Bureau of Mines