

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

MCDR INSPECTION REPORT

Nagpur regional office

Mine file No : MAH/NAG/MN--79/NGP

Mine code : 40MSH14006

- (i) Name of the Inspecting : **M017**) **ASHISH MISHRA**
Officer and ID No.
- (ii) Designation : Sr. Asst. Contrl. Mines
- (iii) Accompanying mine : **SHRI A. R. GULADHE, MINE MANAGER**
Official with
Designation
- (iv) Date of Inspection : 12/03/2019
- (v) Prev.inspection date : 13/10/2018

PART-I : GENERAL INFORMATION

1. (a) **Mine Name** : **GUMGAON**
- (b) **Registration NO.** : **IBM/5711/2011**
- (c) Category : A Other than Fully Mech.
- (d) Type of Working : Underground
- (e) Postal address :
State : MAHARASHTRA
District : NAGPUR
Village : GUMGAON
Taluka : SAONER
Post office : KHAPA
Pin Code : 441101
FAX No. :
E-mail :
Phone : 07113--86123
- (f) Police Station :
- (g) First opening date : 01/07/1962
- (h) Weekly day of rest : SUN
2. Address for :
correspondance :
3. (a) Lease Number : MSH0319
- (b) Lease area : 35.97
- (c) Period of lease : 50
- (d) Date of Expiry : 29/06/2050

MSH0086
48.6
60
30/06/2022

MSH0098
1.33
53
31/03/2020

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 : Shri R.U.Singh
Mansar Manganese Mines,
Village- Mansar, Tehsil -
Ramtek, Nagpur Dis Mansar
NAGPUR MAHARASHTRA
Phone:
FAX :

Mining Engineer

Name : Shri Kishore Chandrakar, Full Time
Qualification : B.E. Mining
Appointment/ :
Termination date

Geologist

Name : Shri I.A.Siddiqui, Full Time
Qualification : M.Sc. (Geology)
Appointment/ :
Termination date

6. Date of approval of Mining Plan/Scheme of Mining	:	Renewal under rule 22 MCR1960	01/04/2003
		Modif.of approved Mining Plan	03/06/2005
		Mining Scheme rule 12 MCDR1988	22/07/2008
		Mining Scheme rule 12 MCDR1988	09/07/2013
		MP review under 17(1) MCR 2016	07/06/2017
		MP review under 17(1) MCR 2016	20/06/2017

PART - II : OBSERVATION/COMMENTS OF INSPECTING OFFICERS

Exploration :

Sl.No.	Item	Proposals	Actual work	Remarks
1a	Backlog of previous year	36 Boreholes were proposed to be drilled in the 35.97 ha lease area in the year 2017-18 to 2019-20 at 50 m X 100m grid interval and with a total meterage of around 10800m to 18000m (each hole is proposed to have 300-500m depth). Apart from this, no exploration is proposed till 2017-18 in the mine having 3 leases i.e. 48.596 ha, 35.97 ha and 1.33 ha.	In 2017-18, 3 Boreholes are drilled as per the proposals at 50 m X 50 m grid interval with 771 m of meterage.	
1b	Exploration over lease area for geological axis 1 or 2	G-1 and G-2 (G-2 for 48.596 ha area only where spacing of borehole is more)	Entire area has been covered under G-1 level. Being an underground mine, present exploration is being carried out to explore the ore zone at deeper levels through surface boreholes as well as exploratory mining.	
1c	Exploration Agencies and Expenditure in lakh rupees during the year	Exploration is proposed to be carried out by MOIL Ltd. (lessee itself) and proposed cost of exploration is around Rs 6500/- per m of drilling.	Exploration was carried out by MOIL Ltd. with an expenditure of around Rs 50 Lakh.	

1d	Balance area to be explored to bring Geological axis in 1 or 2	Nil	Nil	Exploration program with close-spaced drilling (50 m X 50 m) is ongoing to facilitate underground workings at deeper levels and clear demarcation of orebody for better planning.
1e	Balance reserve as on 01/04/20	Balance reserves as on 01.04.2018 (as per the approved Mining Plan document) are given in actual work details:	Balance reserves/resources as on 01.04.2018: 111-2691221 T 221- 2720362 T	
1f	General remarks of inspecting officers on geology, exploration etc		Ore zone in the lease area is displayed in anticlinal form with a strike east west and dip due south with moderate to high angle. The limb of ore also plunges due west with low angle. The deposit is faulted with a vertical fault trending in north east - south west direction, dislocating the eastern block to south. This deposit has been explored to the depth of -900'L with 75 boreholes. The avg. thickness available for mining within the area ranges from 3 m to 50 m.	The area is one of the three leases of Gumgaon mine having total area 85.90 ha (L-1: 48.596 ha, L-2: 35.97 ha & L-3: 1.33 ha). As 1.33 ha area lease is PWD road, entire exploration is proposed in other 2 leases. 75 boreholes were drilled in the composite area to prove the mineral reserves/resources available in the potentially mineralized zone and further exploration is proposed in this lease with 20 boreholes from 2018-19 to 2021-22 period. 3 boreholes have been completed in the year 2017-18.

Development :

Sl.No.	Item	Propasals	Actual work	Remarks
2a	Location of development w.r.t.lease area	For 2017-18: HZ Dev.: at - 100' L, -200' L, -300' L and -400' L Vertical dev.: at -100' L, - 200' L, -300' L and -400' L	As per the proposals	
2b	Separate benches in topsoil, overburden and minerals (Rule 15)	Not applicable as method of working is underground.	Not applicable as method of working is underground.	
2c	Stripping ratio or ore to OB ratio	Not applicable as method of working is underground.	Not applicable as method of working is underground.	
2d	Quantity of topsoil generation in m3	Not applicable as method of working is underground.	Not applicable as method of working is underground.	
2e	Quantity of overburden generation in m3	Not applicable as method of working is underground.	Not applicable as method of working is underground.	
2f	General remarks of inspecting officers on development of pit w.r.t. type of deposit etc			Development is adequately proposed and achieved in the mine to keep the operation in a sequence. Development is being kept well in advance to prepare stopes ready for exploitation as per the proposals made in the approved Mining Plan documents. Against HZ development proposals of 778 RMT, actual achievement is 707.83 RMT and against Vertical development proposals for 241 RMT, actual achievements are 140.4 RMT.

Exploitation:

Sl.No.	Item	Propasals	Actual work	Remarks
3a	Number of pit proposed for production	Not applicable as method of working is underground.	Not applicable as method of working is underground.	Presently development and production is being carried out at 4 underground levels i.e., -100'L, -200'L, -300'L & -400'L.
3b	Quantity of ROM mineral production proposed	2017-18: 86423 T (entire mine)	2017-18: 83662 T (entire mine)	
3c	Recovery of sailable/usable mineral from ROM production	80% of the ROM is considered as clean ore with 10% as rejects and 10% as subgrade	Approximately 92% of the ROM is cleaned graded ore (ROM 83662T, Mineral Rejects 6788T)	
3d	Quantity of mineral reject generation	2017-18: 8683 T	2017-18: 6788 T	
3e	Grade of mineral rejects generation and threshold value declared.	10% Mn to 22% Mn, threshold value is +10% Mn	+10% Mn	
3f	Quantity of sub grade mineral generation.	Not applicable in present context and quantity has already been mentioned under mineral rejects.	Nil	
3g	Grade of sub grade mineral generation	Not applicable	Not applicable	
3h	Manual / Mechanised method adopted for segregating from ROM	Manual sorting of ROM after mechanical crushing and screening at pit head.	Manual sorting of ROM after mechanical crushing and screening at pit head.	
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 method of working is underground.	Drilling and blasting in underground is proposed and being carried out. Drilling is being done with 33 mm dia jackhammer drill machines. Blasting is proposed and carried out with 25 mm small dia explosives (Nitrobased) with electric detonation.
3k	Provision of mining machineries in mineral benches	Not applicable Nil as method of working is underground.	In underground, Locomotive, SDL, drills are being used in form of mechanization.
3l	Whether height of benches in overburden and mineral suitable for method of mining proposed in MP/SOM	Not applicable Nil as method of working is underground.	Level interval is being kept at 100' (around 30 m) that is suitable as per the method of mining.
3m	Total area covered under excavation/pits	Not applicable Nil as method of working is underground.	
3n	Ore to OB ratio for the pit/mine during the year.	Not applicable as method of working is underground.	Not applicable as method of working is underground.
3o	Total area put in use under different heads at the end of year	Total area put to use as on 31.03.2018 is furnished in actual work details:	For the composite mine having 3 leases, Area under: Excavation/pits- 7.766 ha Mineral Storage- 1.28 ha OB/ Waste Dumps- 7.2 ha Infrastructure- 4.43 ha Roads- 1.515 ha Township- 8.05 ha Total-30.241 ha Waste dump area reclaimed is 11.23 ha

3p	Production of ROM mineral during the last five year period as applicable	2016-17: 116000 T 2015-16: 107000 T 2014-15: 111500 T 2013-14: 92000 T 2012-13: 75000 T	2016-17: 85942 T 2015-16: 73742 T 2014-15: 58500 T 2013-14: 55541 T 2012-13: 48635 T
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3q	General remarks of inspecting officers on method of mining etc.	Method of mining is underground and method of stoping is cut and fill. The method selected is suitable as per the occurrence of orebody in the area, geology of the area and capital investments.
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Solid Waste Management - Dumping:

Sl.No.	Item	Propasals	Actual work	Remarks
4a	Separate dumping of topsoil, OB and mineral rejects (Rule 32,33)	No top soil or OB is present in the working area being an underground mine. Mineral rejects generated from the underground are proposed to be kept separately for future considerations	No top soil or OB is present in the working area being an underground mine.	
4b	Location of topsoil, OB and mineral reject dumps	As per the mining plan between Ch 06 to Ch 10 and between Ch 50 to Ch 54.	As per the proposals.	

4c	Number of dumps within lease area and outside of lease area	Top soil dump: As per the proposals. Nil OB/Waste Dump: 1 Existing Dump at N1850 to N1950 & E1650 to E1700, 2 Dumps proposed at N1800 to N2000 & E1100 to E1500 for the sinking of 2nd shaft. Mineral rejects: One stack All within the lease area.		
4d	Location of dumps w.r.t. ultimate pit limit (Rule 16)	Not applicable as method of working is underground.	Not applicable as method of working is underground.	
4e	Number of active and alive dumps.	02 Waste dumps are active and alive	02 Waste dumps.	
4f	Number of dead dumps.	06 Waste dumps are dead (for entire mine)	06 Waste dumps are dead (for entire mine)	
4g	Number of dumps established.	06 dumps are already reclaimed through plantation (entire mine)	06 dumps are already reclaimed through plantation (entire mine)	Total Waste dumps reclaimed area is 11.23 ha.
4h	Whether Retaining wall or garland drain all along dumps are there.	Yes	Yes	
4i	Length of Retaining wall or garland drain all along dumps	Approximately 1500 m garland drains and retaining walls are available all along the dumps.	As per the proposals.	The garland drains and retaining walls are already constructed in the past. Only maintenance work is being carried out as and when required.
4j	Number of settling ponds	No such proposals	Nil	

4k	Specific comments of inspecting officer on waste dump management	Major waste dumps that are available over 11.23 ha area in the Northwestern part of the lease area are already reclaimed and rehabilitated through plantation. Garland drains and retaining walls are available at the toe of the dumps in form of protective measures. Thus waste dump management aspect is satisfactory at mine level.
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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.	Not applicable as method of working is underground.	Not applicable as method of working is underground.	
5b	Area under backfilling of mined out area	Not applicable as method of working is underground.	Not applicable as method of working is underground.	
5c	Concurrent use of topsoil for restoration or rehabilitation of mineral out area (Rule 32)	Not applicable as method of working is underground.	Not applicable as method of working is underground.	
5d	Total area fully reclaimed and rehabilitated	Not applicable as method of working is underground.	Not applicable as method of working is underground.	

5e	General remarks of inspecting officers on backfilling and reclamation etc.	At conceptual stage, existing old pit is proposed to be converted into water reservoir and no backfilling is proposed. Generated waste is used for filling of underground voids, thus, available waste is quite less for backfilling of the old pit.
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Progressive Mine Closure Plan:

Sl.No.	Item	Proposals	Actual work	Remarks
6a	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	Yes	
6b	Area available for rehabilitation (ha) .	No such proposals	Nil	Area available for the matured dumps has already been reclaimed.
6c	afforestation done (ha).	No proposals for the year.	1000 saplings were planted in the infilling space at the waste dumps	
6d	No. of saplings planted during the year	No proposals for the year.	1000 saplings within lease area and 30000 saplings outside the lease area	
6e	Cumulative no .of plants	Not available	Cumulative number of plantes in Gumgaon Mine comprising of 3 leases is around 132930 out of which 94329 plants are surviving at ~71%.	
6f	Any other method of rehabilitation	No proposals for the year.	Nil	
6g	Cost incurred on watch and care during the year	No proposals except environment monitoring cost.	Rs 20.0 lakhs approximately including SDF	

6h	Compliance on reclamation and rehabilitation by backfilling (i) Voids available for backfilling (Lx B x D	Not applicable as method of working is underground.	Not applicable as method of working is underground.
6i	Compliance on reclamation and rehabilitation by backfilling (ii) Voids filled by waste / tailings	Not applicable as method of working is underground.	Not applicable as method of working is underground.
6j	Compliance on reclamation and rehabilitation by backfilling (iii)Afforestation on backfilled area	Not applicable as method of working is underground.	Not applicable as method of working is underground.
6k	Compliance on reclamation and rehabilitation by backfilling (iv) Rehabilitation by making water reservoir	Not applicable as method of working is underground.	Not applicable as method of working is underground.
6l	Compliance on reclamation and rehabilitation by backfilling (v)any other specific means.	Not applicable as method of working is underground.	Not applicable as method of working is underground.
6m	Compliance of rehabilitation of waste land within lease (i)afforestation	No such proposals	Nil
6n	Compliance of rehabilitation of waste land within lease (ii)Area rehabilitation (ha)	No such proposals	Nil
6o	Compliance of rehabilitation of waste land within lease (iii)Method of rehabilitation	No such proposals	Nil

6p	Compliance of environmental monitoring (core zone and buffer zone)	Environment monitoring is proposed to be carried out as per the guidelines of MOEFCC in this regard.	Environment monitoring was done for air, water, noise and ground vibrations in the core and buffer zone. Reports were seen during site inspection and all the parameters were within the permissible limits. Surface subsidence is also being monitored regularly.	
6q	General remarks of inspecting officers on PMCP compliance and progressive closure operations etc.			PMCP work done in the year is in form of in-filling plantation through 1000 saplings and Environment Monitoring. Dead dumps have already been stabilized and reclaimed. Apart from that plantation outside lease area in the nearby villages has been carried out.

Mineral Conservation:

Sl.No.	Item	Proposals	Actual work	Remarks
7a	ROM Mineral dispatch or grade-wise sorting within lease area	Dispatch of graded mineral after mechanical crushing, screening and manual sorting of ROM	Dispatch of graded mineral after mechanical crushing, screening and manual sorting of ROM	
7b	Method of grade-wise mineral sorting i.e. manual or mechanical.	Manual sorting of ROM after mechanical crushing and screening at pit head.	Manual sorting of ROM after mechanical crushing and screening at pit head.	
7c	Different grade of mineral sorted out at mines.	Mineral rejects, 25% Mn to below 35% Mn & 35% Mn to below 46% Mn grades	As per the proposals.	

7d	Any beneficiation process at mines	No such proposals	Nil	
7e	General remarks of inspecting officer on Mineral conservation and beneficiation issues			Mineral rejects part of the ROM having approximate grade 10-22% Mn is proposed for separate stacking and shall be used as per the requirements. Mineralized dumps are being exploited and mineral contents are being extracted from the dumps. Thus, mineral conservational aspect is satisfactory.

Environment :

Sl.No.	Item	Propasals	Actual work	Remarks
8a	Separate removal and utilization of topsoil (Rule 32)	Not applicable as method of working is underground.	Not applicable as method of working is underground.	
8b	Concurrent use or storage of topsoil	Not applicable as method of working is underground.	Not applicable as method of working is underground.	
8c	Separate dumps for overburden, waste rock, rejects and fines (Rule 33)	No top soil or OB is present in the working area being an underground mine. Mineral rejects generated from the underground are proposed to be kept separately for future considerations	No top soil or OB is present in the working area being an underground mine.	

8d	Use of overburden, waste rock, rejects and fines dumps for restoring the land to its original use	Not applicable as method of working is underground.	Not applicable as method of working is underground.	
8e	Phased restoration, reclamation and rehabilitation of lands affected by mining operations (Pits, dumps etc)	Not applicable as method of working is underground.	Not applicable as method of working is underground.	Matured waste dumps covering 11.23 ha area have already been reclaimed through plantation.
8f	Baseline information on existence of plantation and additional plantation done (Rule 41)	Baseline information given in the mining plan. No additional plantation is proposed till the maturity of dumps.	Baseline information has been given in the mining plan for the area. Further, additional plantation has been carried out in Gumgaon Mine comprising of 3 leases is around 132930 out of which 94329 plants are surviving at ~71%.	
8g	Survival rate	~80%	~71%	As survival rate is low, it was overcome by planting more number of saplings.
8h	Water sprinkling on roads to control airborne dust	Yes	Over surface operations, water sprinkling was done through 6000 L capacity water tanker deployed in the mine.	

8i	General remarks of inspecting officer on aesthetic beauty in and around mines area	Mainly, working is through underground means in the area (apart from dump workings). Hence, apart from normal degradation due to mining, aesthetic beauty is satisfactory in the area. Lessee has done extensive plantation work over matured dumps in collaboration with NEERI which is remarkable.
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Compliance of Rule 45:

Sl.No.	Item	Propasals	Actual work	Remarks
9a	Status of submission of Monthly and Annual returns	Annual Returns are required to be submitted online before 1st July of every year for preceding year Monthly returns are required to be submitted online before 10th of every month for preceding month	AR submitted online upto 2017-18 MR submitted online upto Feb'19	
9b	Scrutiny of Annual return for information on Mining Engineer, Geologist and Manager	Mining Engineer: Shri V. M. Khedikar Geologist: Shri Arijit Mitra Manager: Shri A. R. Guladhe	Correct information furnished	

9c	Scrutiny of Annual return on land use pattern for area under pits, reclaimed area, dumps etc.	Complete information furnished on the land use	For the composite mine having 3 leases, Area under: Excavation/pits- 7.766 ha Mineral Storage- 1.28 ha OB/ Waste Dumps- 7.2 ha Infrastructure- 4.43 ha Roads- 1.515 ha Township- 8.05 ha Total-30.241 ha
9d	Scrutiny of Annual return on afforestation	Within lease: No. of saplings- 1000, Survival- 80% Outside Lease: No. of saplings- 30000, Survival- 80%	Correct information for within lease plantations. Outside lease plantation work could not be verified.
9e	Scrutiny of Annual return on mineral reject generation (Grade and quantity)	Mineral rejects: 6788 T Grade: +10% Mn	Complete information provided. These mineral rejects should also be reflected in the reported ROM under Part VI. Thus, necessary corrections were advised to be made.
9f	Scrutiny of Annual return on ROM stock and/or graded ore	ROM: Opening Stock and Closing Stocks- Nil, Production- 83662 T Graded Ore: Information furnished for 25% Mn to below 35% Mn and 35% Mn to below 46% Mn	Complete information furnished.

9g	Scrutiny of Annual return on sale value, Ex. Mine price and production cost	Sale value: Rs 885242709/-, Ex-mine price: for 25% Mn to below 35% Mn- Rs 6506.67/- per T & 35% Mn to below 46% Mn- Rs 13081.42/- per T Production cost- Rs 4097.09/- per T	Complete information furnished.	Nov'18 MR was scrutinized and observed that Ex-mine price of 25% to below 35% Mn was furnished as Rs 94040 per T which was reported incorrect . The matter was informed to M/s MOIL Ltd. (to Agent Shri A. V. Masade) for immediate corrections and the same was corrected as Rs 9404.56/- per T.
9h	Scrutiny of Annual return on fixed assets	Value of Fixed Assets (in Rs): 644718704/- Apart from this, depreciation for plant, buildings, machineries etc. has been furnished under Part-II A.	Complete information has been furnished.	
9k	Scrutiny of Annual return on mining machineries	Complete information given for mining machineries deployed at the mine.	Complete and correct information furnished as per the extent of mechanization.	

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 :

(ASHISH MISHRA)

Indian Bureau of Mines