

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

MCDR INSPECTION REPORT

Nagpur regional office

Mine code : 40MSH05001

- (i) Name of the Inspecting : **K013**) **kewal krishan**
Officer and ID No.
- (ii) Designation : Sr.Mining Geologist
- (iii) Accompanying mine : Shri Rajesh Bhattacharya, Agent, Shri Chauksey, Mines
Official with
Designation
- (iv) Date of Inspection : 21/8/17
- (v) Prev.inspection date : 08/04/2010

PART-I : GENERAL INFORMATION

1. (a) **Mine Name** : **CHIKLA**
- (b) **Registration NO.** :
- (c) Category : A Other than Fully Mech.
- (d) Type of Working : Underground
- (e) Postal address
State : MAHARASHTRA
District : BHANDARA
Village : SITASAONGI
Taluka : TUMSAR
Post office : SITASAUNGI
Pin Code :
FAX No. :
E-mail :
Phone : 07183 - 220231
- (f) Police Station :
- (g) First opening date : 01/07/1962
- (h) Weekly day of rest : FRI
2. Address for : AT - SITASAONGI,
correspondance TAH.: TUMSAR
DISTT.: BHANDARA (MS) - 441 920
3. (a) Lease Number : MSH0062
(b) Lease area : 150.64
(c) Period of lease : 20
(d) Date of Expiry : 30/06/2022
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 : C P KUNDARGI
 MOIL BHAWAN, KATOL ROAD
 NAGPUR NAGPUR MAHARASHTRA
 Phone:
 FAX :

Agent : C B ATULKAR
 CHIKLA MINE PO - SITASAONGI
 BHANDARA MAHARASHTRA
 Phone:
 FAX :

Mining Engineer

Name : R.K.SAH, Full Time
 Qualification :
 Appointment/ :
 Termination date

Geologist

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

6. Date of approval of Mining	:	Renewal under rule 22 MCR1960	30/05/2003
Plan/Scheme of Mining		Mining Scheme rule 12 MCDR1988	22/07/2008
		Mining Scheme rule 12 MCDR1988	02/05/2013
		MP review under 17(1) MCR 2016	30/06/2017

PART - II : OBSERVATION/COMMENTS OF INSPECTING OFFICERS

Exploration :

Sl.No.	Item	Proposals	Actual work	Remarks
1a	Backlog of previous year	Nil	2 Boreholes drilled in 2016-17 and exploration work is still continuing.	Total 17 boreholes were proposed to be drilled during 2012-13 to 2016-17 Scheme period with total meterage of 4730 m. Against the proposals, total 22 boreholes were drilled with total meterage of approximately 3700 m.
1b	Exploration over lease area for geological axis 1 or 2	G 1 and G2	G1 and G2 level	Total G1 resources are 2609251 T Total G2 resources are 2376116 T
1c	Exploration Agencies and Expenditure in lakh rupees during the year	Proposed exploration to be done by M/s MOIL Ltd. (lessee itself).	Exploration done by M/s MOIL Ltd. with an expenditure of Rs 8800/- per meter drilled. In 2016-17 approximately 475 m drilling has been done, therefore, expenditure is approximately Rupees 41.8 lakh.	
1d	Balance area to be explored to bring Geological axis in 1 or 2	Nil	Not applicable	Total lease area is divided into various categories as per the level of exploration as follows: G1- 13.185 ha G2- 13.505 ha Non Mineralized area- 123.96 ha Total- 150.65 ha (As per approved Mining Plan)
1e	Balance reserve as on 01/04/20	Balance reserves/ resources as on 01/04/2017 are given in the next column:	111- 2444203 T 121 & 122- 444331 T Mineral Reserves: 2888534 T 211- 165048 T 222- 1847785 T 332- 84000 T Remaining Resources: 2096833 T Total mineral Resources: 4985367 T Grade: 10% Mn to 38% Mn	The resources reported are inclusive of Saleable grade (Average Grade 37.50 % Mn), Low Grade High Silica (LGHS) (Average Grade 30% Mn), Fines (Average Grade 26% Mn) and Mineral Rejects (Average Grade below 20% Mn)

1f	General remarks of inspecting officers on geology, exploration etc	Exploration is being done continuously as per the geology of the area and in the last 5 years proposal period, total 22 bore holes with total meterage of approximately 3700 m have been drilled. In the next 5 years period, i.e., 2017-18 to 2021-22, total 8 boreholes are proposed to be drilled to prove upto -770 mRL level.
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Development :

Sl.No.	Item	Proposals	Actual work	Remarks
2a	Location of development w.r.t.lease area	Three types of Developments were proposed in the approved SOM: Underground Development: Chikla Main, Chikla A and Chikla B Opencast development: Chikla Main Dump working: Chikla Main	Underground Development: Chikla Main, Chikla A and Chikla B Opencast development: No working done due to clearance awaited from MoEF for Opencast Workings Dump working: Chikla Main	In Chikla Main and Chikla A: Developments were restricted to levels -70'L, -170'L and -270'L In Chikla B: 160'L, 60'L and -70'L while exploration in this zone is being done for -270'L in Chikla Main for Dump Working: Two black dumps were worked.
2b	Separate benches in topsoil, overburden and minerals (Rule 15)	No such proposals as the working is for underground and dump mining only	Only dump mining for recovery of mineral from the mineralised dumps available in the area and underground mining is being carried out in the area. For opencast workings, MoEF clearance is not yet granted.	
2c	Stripping ratio or ore to OB ratio	Not applicable for Underground Mine workings	Not applicable.	

2d	Quantity of topsoil generation in m3	Nil	No top soil generation as method of working is underground.	
2e	Quantity of overburden generation in m3	No overburden. Development proposed for the year 2016-17 from the underground is 985 RMT (Running Meters Underground) and Waste generated is 7153.92 cuM from underground workings.	Actual Development is 1200 RMT and is as per the proposals and quantum of waste generated from the underground is 8786 cuM.	
2f	General remarks of inspecting officers on development of pit w.r.t. type of deposit etc			Presently the workings are limited to Underground and dump workings only and for underground, exploration for deeper level is also being proposed and carried out. Adjacent to this lease area, M/s MOIL Ltd. has been granted additional area which is under prospecting and after grant of ML, the area can be well developed for the entire orezone. Opencast developments and working of blocked ore in the underground at upper levels can be done only after grant of necessary clearances by MoEF.

Exploitation:

Sl.No.	Item	Propasals	Actual work	Remarks
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3a Number of pit proposed for production	Opencast working proposed in Chikla Main to develop one pit for extraction of blocked ore in the Underground Workings at 208' L, 100' L & 40' L barriers. For underground, mainly three levels -70'L, -170'L & -270' L are proposed for exploitation. Apart from these, two black dumps are proposed for exploitation.	No Opencast working. For underground, mainly three levels -70'L, -170'L & -270' L are worked for exploitation. Apart from these, two black dumps are proposed for exploitation.
3b Quantity of ROM mineral production proposed	ROM proposed for Underground (2016-17): 216055 T ROM proposed for Opencast (2016-17): 25025 T Total ROM Proposed: 241080 T	Actual ROM production from Underground during 2016-17: 129515 T Opencast: Nil
3c Recovery of sailable/usable mineral from ROM production	70% recovery is proposed from the underground workings rest 30% being sub-grade.	Actual production of ROM for 2016-17 is 129515 T and sub-grade is 7625 T.
3d Quantity of mineral reject generation	Proposed quantum of Mineral Rejects for 2016-17: Nil	Actual Mineral Rejects generated during 2016-17: Nil
3e Grade of mineral rejects generation and threshold value declared.	Not Applicable	Grade of Mineral Rejects is 10-20% Mn wherein threshold value for Mn is +10% (Actually sub-grade reflected in Mineral rejects as per MCDR'17)

3f	Quantity of sub grade mineral generation.	Proposed quantum of Sub-grade Mineral for 2016-17: 64816 T	Actual Sub-grade Mineral generated during 2016-17: 7625 T	
3g	Grade of sub grade mineral generation	Average Grade of the Subgrade Mineral is 17-18%Mn	Grade is in the range 10-20% Mn	
3h	Manual / Mechanised method adopted for segregating from ROM	Crushing and Screen Plant installed. ROM is crushed and screened for various size and grades (Chikla-'A'). For Dump Working, Manual Sorting is being done (Chikla-'B').	As per the proposals. Through crushing and screening, ROM is sorted to various sizes- Chikla 'A'-Crushing and Screening +25-75mm (Recovery 50%, Mn 37.50%) +10-25mm (Recovery 25%, Mn 37.50%) +6-10mm (Recovery 10%, Mn 35%) Fines (Recovery 15%, Mn 26%) Chikla 'B' +25-75mm (Recovery 45%, Mn 25-30%) +10-25mm (Recovery 7%, Mn 25-30%) +3-10mm (Recovery 13%, Mn 25-30%) -3mm (Recovery 5%, Mn 27%) Rejects (Recovery 30%, Mn 10-20%)	
3i	Any analysis or beneficiation study proposed and carried out for sub grade mineral and rejects.	No	Not done.	Sub-grade and fines shall be sold on requirement basis or if required, shall be blended but no beneficiation is proposed.
3j	Provision of drilling and blasting in mineral benches	Yes, drilling and blasting is proposed in the Underground Levels for ore extraction	As per the proposals	

3k	Provision of mining machineries in mineral benches	For underground workings, 16 cft and 24 cft tubs are there which shall be loaded manually with the blasted muck. These tubs shall be hauled through Loco and hoisted through cage winding system at the mine.	As per the proposals.
3l	Whether height of benches in overburden and mineral suitable for method of mining proposed in MP/SOM	Not applicable due to Underground Mining method. Openings and size of workings underground are suitable to method of working that is cut and fill.	As above.
3m	Total area covered under excavation/pits	Additional area requirements for excavation/pit was proposed to be 2.91 ha for five years period 2011-12 to 2016-17.	No additional area excavated as clearance from MoEF was not granted till date for opencast workings.
3n	Ore to OB ratio for the pit/mine during the year.	Stripping ratio for opencast workings as proposed for 2016-17 was 1:9.17	Stripping ratio not applicable for underground mining method.

3o	Total area put in use under different heads at the end of year	Area to be excavated/pits : 11.22 ha Overburden Dumps: 24.90 ha Mineral Storage: 10.31 ha Infrastructure : 3.0 ha Roads: 3.50 ha Township Area: 2.73 ha Total: 55.66 ha At the end of 2016-17	Area to be excavated/pits: 3.45 ha Overburden Dumps: 2.80 ha Mineral Storage: 3.6045 ha Infrastructure: 3.0 ha Roads: 3.50 ha Township Area: 2.23 ha Total: 18.5845 ha At the end of 2016-17	Actual area is quite less due to the fact that proposals included opencast working proposals and pit area/ waste dumping area etc. due to opencast also but due to the clearance not granted by MoEF for opencast working, these operations could not take place.
3p	Production of ROM mineral during the last five year period as applicable	2012-13: 199952 T 2013-14: 240587 T 2014-15: 262574 T 2015-16: 242552 T 2016-17: 241080 T	2012-13: 115816 T 2013-14: 95142 T 2014-15: 105069 T 2015-16: 115683 T 2016-17: 129515 T	Proposals include opencast ROM proposals also and actual is for underground only as working is limited to underground mining and dump working.
3q	General remarks of inspecting officers on method of mining etc.			Method of mining is underground by cut and fill method and dump workings for exploitation of ore. For ore locked at upper levels while underground workings, and also for working of surficial deposit occurring at Chikla Main, opencast working proposals were made by mechanised method deploying dumper shovel combination but the same could not be done as clearance could not be obtained from MoEF for opencast workings.

Sl.No.	Item	Propasals	Actual work	Remarks
4a	Separate dumping of topsoil, OB and mineral rejects (Rule 32,33)	Yes, separate dumps for waste and mineral rejects/sub-grade is proposed. As no top soil is proposed to be generated during the ensuing period, dumping for top soil is not commented upon.	Separate dumps for Waste and Mineral rejects/ Sub-grade is there at the site.	
4b	Location of topsoil, OB and mineral reject dumps	Waste dumping is proposed on WD-1 located in the Northern part and WD-2 located in southern part of the lease area. Sub-grade/ Mineral rejects are proposed to be dumped on the existing Mineralised dumps located in Chikla Main.	As per the proposals.	
4c	Number of dumps within lease area and outside of lease area	Total 17 Waste Dumps and 3 Black dumps all within lease area.	As per the proposals.	
4d	Location of dumps w.r.t. ultimate pit limit (Rule 16)	Dumps are within as well as outside pit limits (opencast).	All dumps are outside limits for underground workings. For opencast workings, dumps are within as well as outside the pit limits.	
4e	Number of active and alive dumps.	14 waste dumps active and all black dumps active	As above.	
4f	Number of dead dumps.	3 Dumps are inactive	3 dumps WD-1, WD-12 and WD-13 are inactive dumps.	

4g	Number of dumps established.	3 inactive dumps are stabilized through plantation prior to 2016-17.	As above, WD-1,12 & 13 are stabilized through plantation.	
4h	Whether Retaining wall or garland drain all along dumps are there.	Yes	Yes	Most of the small dumps are located within pit limits where no retaining wall is there but dumps located at / near the ML boundaries are surrounded by protective workings like garland drains and retaining walls.
4i	Length of Retaining wall or garland drain all along dumps	1050 m retaining wall construction was proposed to be built at the toe of the dumps.	As per the proposals, retaining wall constructed along WD-9.	
4j	Number of settling ponds	Nil	Nil	
4k	Specific comments of inspecting officer on waste dump management			Waste dump management is an aspect that is required to looked into for the mine. There are total 17 dumps within the lease area out of which 3 main dumps WD-1, 12 and 13 were stabilized through plantation. Dumps are located within pit limits for open cast that will be shifted upon commencement of opencast operations. Dumps located at the ML boundary such as WD-1,2,8,9 etc are equipped with protective structures like garland drains and retaining walls at the toe end.

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 for backfilling as opencast mining is not being done.	Underground waste is being filled underground itself for around 30% of total waste generation. Other than this no backfilling is proposed or being done at the mine.	
5b	Area under backfilling of mined out area	Nil	Nil	
5c	Concurrent use of topsoil for restoration or rehabilitation of mineral out area (Rule 32)	No top soil is excavated for the year and also no rehabilitation is proposed for any mined out area.	Not Applicable.	
5d	Total area fully reclaimed and rehabilitated	Nil	Nil	As on date total 17.30 ha has been reclaimed and rehabilitated (dump area).
5e	General remarks of inspecting officers on backfilling and reclamation etc.			Backfilling has not yet started as mineral is available in the ML area and opencast mining is yet to commence. Reclamation and rehabilitation works was done over the inactive dumps.

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).	Yes	Yes	

6b	Area available for rehabilitation (ha) .	Nil	Nil	Presently available dumps are either active or required to be shifted for opencast mining. therefore, no area is available for rehabilitation purposes.
6c	afforestation done (ha).	2000 saplings over 1.0 ha dump area for the year 2016-17	Nil	For the SOM period 2011-12 to 2016-17, 10000 saplings were proposed to be planted over 5.0 ha dump area which was already done prior to 2016-17 and plantation of 15000 saplings over 8.0 ha of waste dump area has been done.
6d	No. of saplings planted during the year	2000 saplings over 1.0 ha dump area for the year 2016-17	Nil	For the SOM period 2011-12 to 2016-17, 10000 saplings were proposed to be planted over 5.0 ha dump area which was already done prior to 2016-17 and plantation of 15000 saplings over 8.0 ha of waste dump area has been done.
6e	Cumulative no .of plants		336686 number of saplings are planted till date in the ML area.	
6f	Any other method of rehabilitation	No	No	
6g	Cost incurred on watch and care during the year	Rs 1.40 lakhs for 2016-17	Rs 5.578 Lakhs	For total SOM period Rs 7.0 lakhs were proposed to be spent on watch and care against which Rs 27.89 Lakhs were spent.

6h	Compliance on reclamation and rehabilitation by backfilling (i) Voids available for backfilling (Lx B x D	Nil	Nil	
6i	Compliance on reclamation and rehabilitation by backfilling (ii) Voids filled by waste / tailings	Nil	Nil	
6j	Compliance on reclamation and rehabilitation by backfilling (iii)Afforestation on on backfilled area	Nil	Nil	
6k	Compliance on reclamation and rehabilitation by backfilling (iv) Rehabilitation by making water reservoir	Nil	Nil	
6l	Compliance on reclamation and rehabilitation by backfilling (v)any other specific means.	Nil	Nil	
6m	Compliance of rehabilitation of waste land within lease (i)afforestation	Nil	Nil	Rehabilitation by plantation has been done for dumps only.
6n	Compliance of rehabilitation of waste land within lease (ii)Area rehabilitation (ha)	Nil	Nil	
6o	Compliance of rehabilitation of waste land within lease (iii)Method of rehabilitation	Not Applicable	Not Applicable	

6p	Compliance of environmental monitoring (core zone and buffer zone)	Yes. Environment monitoring is being done in the core zone and buffer zone as per MoEF guidelines.	As per the proposals.
6q	General remarks of inspecting officers on PMCP compliance and progressive closure operations etc.		Progressive closure for available land/area is being done properly. Till permission for opencast workings is not obtained, mined out area may not be available for any backfilling and reclamataion activities. Environment monitoring is also being done properly as per the guidelines in this regard. Expenditure on watch and care is well above the proposals and is evident of the fact that progressive closure is being practiced in true spirits.

Mineral Conservation:

Sl.No.	Item	Propasals	Actual work	Remarks
7a	ROM Mineral dispatch or grade-wise sorting within lease area	Mineral is being dispatched after grade-wise sorting and ROM is not being dispatched from the lease area.	As above.	

7b	Method of grade-wise mineral sorting i.e. manual or mechanical.	Both manual and mechanical.	Crushing and screening is mechanical for ROM ore (Underground). For dump working, manual sorting is practiced.	
7c	Different grade of mineral sorted out at mines.	25-35% Mn and 35-46% Mn containing Mineral is being dispatched and 10-20% Mn is being stacked.	As per the proposals.	
7d	Any beneficiation process at mines .	Yes.	Crushing and screening plant for size-wise and grade-wise recovery of ROM.	
7e	General remarks of inspecting officer on Mineral conservation and beneficiation issues			Mineral is being extracted from underground and dump working. Sub-grade/Mineral rejects presently not saleable having 10-20% Mn is being stacked separately for future usage. Opencast proposals for extraction of blocked ore in the underground pillars is in line with full extraction of ore body and thus in coherence with the objectives of Mineral Conservation. Beneficiation is in form of crushing and screening only for grade-wise size-wise dispatch of mineral.

Environment:

Sl.No.	Item	Propasals	Actual work	Remarks
8a	Separate removal and utilization of topsoil (Rule 32)	No top soil removal is proposed.	Not done.	

8b	Concurrent use or storage of topsoil	Not applicable	Not applicable for underground working.	
8c	Separate dumps for overburden, waste rock, rejects and fines (Rule 33)	Yes.	Separate dumps for waste, mineral rejects/sub-grade and fines is there at the mine site.	
8d	Use of overburden, waste rock, rejects and fines dumps for restoring the land to its original use	Waste rock is being used for filling in underground itself.	Around 30% of the waste generated underground is being used for filling purposes in underground and rest 70% is brought to the surface for dumping. Other than this, no backfilling is proposed or practiced as opencast working operations are yet to commence.	
8e	Phased restoration, reclamation and rehabilitation of lands affected by mining operations (Pits, dumps etc)	2000 saplings plantation was proposed on 1.0 ha waste dump area.	Nil for the year.	Against 10000 saplings proposal over 5.0 ha area for the SOM period 2012-13 to 2016-17 period, total 15000 saplings over 8.0 ha waste dump area already done prior to 2016-17. Further 17.30 ha waste dump area has already been reclaimed and rehabilitated through plantation.
8f	Baseline information on existence of plantation and additional plantation done (Rule 41)	Yes	Yes	
8g	Survival rate	100%	Approximately 100%	
8h	Water sprinkling on roads to control airborne dust	Yes. For dump workings and for haulage roads, water sprinkling is being done.	As per the proposals.	

8i	General remarks of inspecting officer on aesthetic beauty in and around mines area	Apart from degradation of the land due to mining operations, aesthetic beauty of the area is satisfactory as total saplings planted by the lessee in the area are in good numbers (336686 Nos.). Degradation and environment issues are well under control as opencast mining operations are yet to commence in the lease area.
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Compliance of Rule 45:

Sl.No.	Item	Proposals	Actual work	Remarks
9a	Status of submission of Monthly and Annual returns		AR submitted online upto 2016-17 MR submitted online upto August'2017	MR for Sept'17 could not be filed online as MR for Aug'17 is under 'Referred Back' scrutiny by MMS Division. After it gets accepted, online return for subsequent months shall be filed.
9b	Scrutiny of Annual return for information on Mining Engineer, Geologist and Manager	Mining Engineer: Shri U. S. Bhati Geologist: Shri Vinayak Rahangdale Manager: Shri A. K. Chauksey	For 2016-17, the furnished information was correct but as on date: Mining Engineer: Shri Prashant Dakre Geologist: Shri Sudhansu Chauhan Manager: Shri A. K. Chauksey	Due to internal transfers, Mining Engineer and Geologist as reported in the Annual Returns for 2016-17 were changed. Notice for appointment for new Geologist is received in this office while Notice of appointment of Mining Engineer was under process at the time of inspection.

9c	Scrutiny of Annual return on land use pattern for area under pits, reclaimed area, dumps etc.	Correct information was furnished except for the area already exploited and abandoned.	Discussed with the mine officials regarding already exploited and abandoned area. It was informed that earlier opencast working was there in the area but now as MoEF clearance is not obtained, the area is devoid of any working by opencast mining method. hence the area has been mentioned under it.	Spot guidance given for revising the returns and deleting the area shown as abandoned.
9d	Scrutiny of Annual return on afforestation	Nil	Correct information is furnished.	Plantation as proposed in the SOM for the year has already been carried out in previous years. hence correct information has been furnished in the Annual returns.
9e	Scrutiny of Annual return on mineral reject generation (Grade and quantity)	7625 T of Mineral rejects are generated in 2016-17 with quality 10-20% Mn content	Correct information furnished.	
9f	Scrutiny of Annual return on ROM stock and/or graded ore	ROM: Opening and closing Stocks-Nil (as complete ROM has been graded) Graded Ore: 25-35% Mn: Opening Stock-29589 T/ Closing Stock-7039 T/ Production-84681 T/ Dispatches-107231 T 35-46% Mn: Opening Stock-12405 T/ Closing Stock-12596 T/ Production-87270 T/ Dispatches-87079 T	Correct information furnished.	

9g	Scrutiny of Annual return on sale value, Ex. Mine price and production cost	Ex Mine Price for 25-35% Mn is Rs 4137.20/- per T and for 35-46% Mn is Rs 10421.58/- per T Cost of production is Rs 3843.92/- per T Sale values given for domestic consumption is found correct.	Correct information furnished.
9h	Scrutiny of Annual return on fixed assets	Given for Land and Plant/Machinery.	correct information furnished.
9k	Scrutiny of Annual return on mining machineries	Correct information furnished	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 :

(Kewal Krishan)

Indian Bureau of Mines