INDIAN BUREAU OF MINES
MINERALS DEVELOPMEMT AND REGULATION DIVISION

MCDR inspection REPORT

Nagpur regional office

Mine file No : MP/BGT/MN-191/NGP **Mine code : 40MPR01017**

(i) Name of the Inspecting Officer and ID No. : **SQ32) SANDEEP KUMAR SINGH**

(ii) Designation : Deputy Controller Mines

(iii) Accompaning mine Official with Designation :

(iv) Date of Inspection : 06-AUG-21

(v) Prev.inspection date : 10-DEC-20

PART-I : GENERAL INFORMATION

1. (a) **Mine Name** : **TIRODI**

(b) Registration NO. : **IBM/5711/2011**

(c) Category : A Mechanised

(d) Type of Working : Opencast

(e) Postal address

State : MADHYA PRADESH
District : BALAGHAT
Village : TIRODI
Taluka : KATANGI
Post office : TIRODI
Pin Code :
FAX No. :
E-mail :
Phone : 76735

(f) Police Station :

(g) First opening date : 22-JUL-62

(h) Weekly day of rest : MON

2. Address for correspondance : M/S MANGANESE ORE INDIA LTD.
P.O. -TIRODI, DISTT. BALAGHAT
PIN - 481 449

3. (a) Lease Number : MPR0573
(b) Lease area : 254.59
(c) Period of lease : 50
(d) Date of Expiry : 30-JUN-22

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.N.PATHAK 3, MOUNT ROAD EXTN. POST BOX NO. 34 NAGPUR NAGPUR MAHARASHTRA Phone: 0712 - 2545703 FAX : 0712 - 2524996
Agent	:	M.D.SORTHIA BHANDARA MAHARASHTRA Phone: FAX :

Mining Engineer

Name	:	P.KARAIYA,Full Time
Qualification	:	
Appointment/ Termination date	:	

Mining Engineer

Name	:	MANOJ SINGH,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 Plan/Scheme of Mining :

Renewal under rule 22 MCR1960	12-NOV-03
Mining Scheme rule 12 MCDR1988	22-SEP-05
Mining Scheme rule 12 MCDR1988	22-SEP-05
Mining Scheme rule 12 MCDR1988	03-MAR-06
Mining Scheme rule 12 MCDR1988	05-FEB-08
Mining Scheme rule 12 MCDR1988	07-MAR-12
Mining Scheme rule 12 MCDR1988	21-JAN-13
Modif.of approved Mining Plan	23-DEC-15

PART – II : OBSERVATION/COMMENTS OF INSPECTING OFFICERS

Exploration :

Sl.No.	Item	Proposals	Actual work	Remarks
1a	Backlog of previous year	NIL	NIL	
1b	Exploration over lease area for geological axis 1 or 2	15 Nos.	11	Nil
1c	Exploration Agencies and Expenditure in lakh rupees during the year	NIL	NIL	NIL
1d	Balance area to be explored to bring Geological axis in 1 or 2		G-2=34.8 Ha.,G1=.52,G3=5.33	214 Non-mineralized/depth persistence is also being explored.
1e	Balance reserve as on 01/04/20		493401 T.(111-16500, 122-296410)	as on 1.04.21
1f	General remarks of inspecting officers on geology, exploration etc		In Tirodi Mine the entire lease area is around the ore body is pocket in nature. There is no continuous deposit. The strike length of entire Tirodi deposits around 6.5 km which extends from Pauniya to Jamrapani village including non-mineralized zone as the ore body is not continuous in nature.	The Manganese ore found in small pockets whose thickness varies from South section to North section, i.e. 5 mtr. To 40 mtr respectively. These pockets are extended along NNE to SSW. The major varieties of Ore minerals are Braunite, Psilomelane, Hausmanite, Rhodonite, Rhodochrosite, etc. Nature of the ore body is fine grained hard and compact in nature. Hardness of the ore body varies as per the geology of Manganese ore type.

Development :

Sl.No.	Item	Propasals	Actual work	Remarks
2a	Location of development w.r.t.lease area	Pit No. 6, Pit no. 4 , South Bed, Pit-7,8	pit 6 pit ,7,8	
2b	Separate benches in topsoil, overburden and minerals (Rule 15)	Yes	Yes	
2c	Stripping ratio or ore to OB ratio	1:10	1:9	
2d	Quantity of topsoil generation in m3	No top soil	No top soil	
2e	Quantity of overburden generation in m3	4,76000 M3	452350 M3	
2f	General remarks of inspecting officers on development of pit w.r.t. type of deposit etc			Development is slightly less. Working is done in many pits and dumps in lease hold.

Exploitation:

Sl.No.	Item	Propasals	Actual work	Remarks
3a	Number of pit proposed for production	04	04	
3b	Quantity of ROM mineral production proposed	31000+78000	30750(bed) + 76248(dump)	Produced from dump also
3c	Recovery of sailable/usable mineral from ROM production	Yes	Yes	
3d	Quantity of mineral reject generation	20600 T	20,000 T	From dump

3e	Grade of mineral rejects generation and threshold value declared.	15%mn av	12 % av Mn
3f	Quantity of sub grade mineral generation.	NIL	NIL
3g	Grade of sub grade mineral generation	NA	NA
3h	Manual / Mechanised method adopted for segregating from ROM	Manual	Manual
3i	Any analysis or beneficiation study proposed and carried out for sub grade mineral and rejects.	Not Proposed	Not done
3j	Provision of drilling and blasting in mineral benches	Proposed	Being done
3k	Provision of mining machineries in mineral benches	Yes	Yes
3l	Whether height of benches in overburden and mineral suitable for method of mining proposed in MP/SOM	Yes 7.5 Mtr. - 7.5 Mtr.	Suitable
3m	Total area covered under excavation/pits	62.00 Ha	60.585
3n	Ore to OB ratio for the pit/mine during the year.	1:10	1:9
3o	Total area put in use under different heads at the end of year	146.92	144.62

3p	Production of ROM mineral during the last five year period as applicable	2017-18-105500 2018-19-107000 2019-20-109000 2020-21-109000	16-17:104900 17-18:106900 18-19:108801 19-20:106998	
3q	General remarks of inspecting officers on method of mining etc.			The Mine was worked from year 1962. Mine is developed in many pits. Mechanised is done using Pc-470, Tata Hitachi 450(1.8 m3) and 35 tonner dumpers. Pocket/lenses type of ore deposite are found.mechanised mining is done in many pits and recovery from dumps is made.

Solid Waste Management - Dumping:

Sl.No.	Item	Propasals	Actual work	Remarks
4a	Separate dumping of topsoil, OB and mineral rejects (Rule 32,33)	For OB and mineral reject	OB and mineral reject	

4b	Location of topsoil, OB and mineral reject dumps	ND-1 21°41?37.6" 79°43'23.8" ND-2 21°41?41.67" 79°43'26.33" ND-3 21°41?39.84" 79°43'39.46" ND-4 21°41?48.93" 79°43'45.74" ND-5 21°42?03.24" 79°43'50.44" South Dump 21°40?46.79" 79°43'42.97"	ND-1 21°41?37.6" 79°43'23.8" ND-2 21°41?41.67" 79°43'26.33" ND-3 21°41?39.84" 79°43'39.46" ND-4 21°41?48.93" 79°43'45.74" ND-5 21°42?03.24" 79°43'50.44" South Dump 21°40?46.79" 79°43'42.97"	sepererate reject yard is maintained.
4c	Number of dumps within lease area and outside of lease area	07 No dump outside lease area	07 No dump outside lease area	
4d	Location of dumps w.r.t. ultimate pit limit (Rule 16)	Outside UPL pit	Outside UPL pit	As per plan
4e	Number of active and alive dumps.	04	04	
4f	Number of dead dumps.	-	-	
4g	Number of dumps established.	07	07	
4h	Whether Retaining wall or garland drain all along dumps are there.	Yes-2000mtr drain	drain-2500 mtr reatining wall 500 mtr(approx)	wall and drain observed.
4i	Length of Retaining wall or garland drain all along dumps		Garland drain- 2500 mtr Retaining wall- 500	
4j	Number of settling ponds	1	1	

4k	Specific comments of inspecting officer on waste dump management		The dump has garland drain and retaining wall.dumps are also worked for mineral recovery.

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.	Full	Full	
5b	Area under backfilling of mined out area	-	0.33 Ha.	
5c	Concurrent use of topsoil for restoration or rehabilitation of mineral out area (Rule 32)	NA	NA	No Top Soil present
5d	Total area fully reclaimed and rehabilitated	nil	nil	0.33 ha area under backfilling.20000m 3 volume of waste was backfilled.
5e	General remarks of inspecting officers on backfilling and reclamation etc.			backfilling is done in old worked out pit area chainage 20 to chainage 32.

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).	-	Report Submitted.	

6b	Area available for rehabilitation (ha) .	no proposal for worked out benches	nil	
6c	afforestation done (ha).	no proposal for mined or worked out benches	NA	
6d	No. of saplings planted during the year	no proposal for mined or worked out benches	NA	
6e	Cumulative no .of plants	no proposal for mined or worked out benches	NA	
6f	Any other method of rehabilitation	no proposal for mined or worked out benches	NA	Back filling is in process
6g	Cost incurred on watch and care during the year		Rs. 250.00 per Plant (2020-21) (Including maintenance, labor coast and fencing,)	
6h	Compliance on reclamation and rehabilitation by backfilling (i) Voids available for backfilling (Lx B x D	20000 m3	25000 m3	large pit area available
6i	Compliance on reclamation and rehabilitation by backfilling (ii) Voids filled by waste / tailings	20000m3	25000m3	
6j	Compliance on reclamation and rehabilitation by backfilling (iii)Afforestation on backfilled area	no proposal	NA	

6k	Compliance on reclamation and rehabilitation by backfilling (iv) Rehabilitation by making water reservoir	no proposal	NA	
6l	Compliance on reclamation and rehabilitation by backfilling (v)any other specific means.	no proposal	NA	
6m	Compliance of rehabilitation of waste land within lease (i)afforestation	4000 plants on 4hect,filler plantataion and new plantataion	1000 nos.	
6n	Compliance of rehabilitation of waste land within lease (ii)Area rehabilitation (ha)	4 hectare	1 hectare	violation given for not doing required plantataion –less no. and less area covered.(filler planatation proposed)
6o	Compliance of rehabilitation of waste land within lease (iii)Method of rehabilitation	4 ha.	1 ha.	plantation
6p	Compliance of environmental monitoring (core zone and buffer zone)	Quarterly	Quarterly done	
6q	General remarks of inspecting officers on PMCP compliance and progressive closure operations etc.			Reclamation backfilling is done. Plantation was planned on dump/road side but was short in nos and area.violation is pointed out.(3000 nos short)

Mineral Conservation:

Sl.No.	Item	Propasals	Actual work	Remarks
7a	ROM Mineral dispatch or grade-wise sorting within lease area	Grade wise	Grade wise	
7b	Method of grade-wise mineral sorting i.e. manual or mechanical.	Manual	Manual	
7c	Different grade of mineral sorted out at mines.	1. Below 25% 2. 25%-35% 3. 35%-46%	1. Below 25% 2. 25%-35% 3. 35%-46%	
7d	Any beneficiation process at mines .	no	nil	
7e	General remarks of inspecting officer on Mineral conservation and beneficiation issues			Manual sizing & sorting

Environment:

Sl.No.	Item	Propasals	Actual work	Remarks
8a	Separate removal and utilization of topsoil (Rule 32)	no proposal	NA	No top soil present
8b	Concurrent use or storage of topsoil	no proposal	NA	No top soil present
8c	Separate dumps for overburden, waste rock, rejects and fines (Rule 33)	Yes	Yes Ch 24-26 many dumps are maintained.large mineral reject yard is maintained.	

8d	Use of overburden, waste rock, rejects and fines dumps for restoring the land to its original use	Backfilling in old pit	Backfilling	
8e	Phased restoration, reclamation and rehabilitation of lands affected by mining operations (Pits, dumps etc)	yes	backfilling is planned and done.	
8f	Baseline information on existence of plantation and additional plantation done (Rule 41)	no,addittional 4000	1000 nos.	
8g	Survival rate	70%	70%	
8h	Water sprinkling on roads to control airborne dust	Yes	Yes	
8i	General remarks of inspecting officer on aesthetic beauty in and around mines area			Plantation is done on Dump and old green belt area are observed.solar power plant is seen.there is shortfall in planatataion and violation for same is pointed out.

Compliance of Rule 45:

Sl.No.	Item	Propasals	Actual work	Remarks
9a	Status of submission of Monthly and Annual returns	Yes	submitted.delay in filing monthy returns	violation issued.

9b	Scrutiny of Annual return for information on Mining Engineer, Geologist and Manager	Shri D.V. Ratnaparkhi- mining enginer Shri Subhransu Pani-geologist	-	details provided.
9c	Scrutiny of Annual return on land use pattern for area under pits, reclaimed area, dumps etc.	details are given	-	
9d	Scrutiny of Annual return on afforestation	details provided.,1000 nos.	-	violation is pointed out for shortfall.filler plantation is not done as per plan .short fall 3000 nos.
9e	Scrutiny of Annual return on mineral reject generation (Grade and quantity)	grade of reject- Mn12%, Typical analysis of mineral reject(s) Constituent Grade % Mn 12.10 P 0.23 SiO2 64.51 Fe 5.00	provided.	it is stacked in big yard.
9f	Scrutiny of Annual return on ROM stock and/or graded ore	Below 25% Mn : 817.870 (b) 25% to below 35% Mn : 10648.290 (c) 35% to below 46% Mn: 394.270		stock qtn given,As on 01.04.2021

9g	Scrutiny of Annual return on sale value, Ex. Mine price and production cost	Cost of production: - 6238.49 Grade Ex-mine Price Below 25%- 2657 25%-35%- 5899.28 35%-46%- 11474.63	-	the data is provided.
9h	Scrutiny of Annual return on fixed assets	Value of Fixed Assets Rs: 357170925	-	given
9k	Scrutiny of Annual return on mining machineries	WHEEL LOADER 1.000 CUM 1 Non Electrical Opencast SHOVEL (HYDRAULIC) 2.200 CUM 2 Non Electrical Opencast SHOVEL (HYDRAULIC) 2.400 CUM 2 Non Electrical Opencast DUMPER 35.000 TONNE 10 Non Electrical Opencast SHOVEL (HYDRAULIC) 0.900 CUM 1 Non Electrical Opencast DOZER 385.000 HP 1 Non Electrical Opencast DOZER 230.000 HP 1 Non Electrical Opencast		Major machineries are Hydraulic Shovel, Dumper, Tipper, Dozer etc.

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

Violation observed				Show couse position			
	Rule NO.		Issued on Compliance on		Rule NO.	Issued on	Compliance on
MCDR17	Rule 11(1)		12-OCT-21				

Date :

(**SANDEEP KUMAR SINGH**)

Indian Bureau of Mines