

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

MCDR INSPECTION REPORT

Goa regional office

Mine file No : GOA/FEMN/255/1

Mine code : 30GOA01235

- (i) Name of the Inspecting Officer and ID No. : J003) JANGID G K
- (ii) Designation : Deputy Controller Mines
- (iii) Accompanying mine Official with Designation : Shri S. U. Nair, Mines Manager
- (iv) Date of Inspection : 27/05/2016
- (v) Prev.inspection date :

PART-I : GENERAL INFORMATION

1. (a) **Mine Name** : MARDANDO E BARCATI 83/52
- (b) **Registration NO.** : IBM/162/2011
- (c) **Category** : A Fully Mechanised
- (d) **Type of Working** : Opencast
- (e) **Postal address**
- State : GOA
- District : NORTH GOA
- Village :
- Taluka :
- Post office :
- Pin Code :
- FAX No. : 0832-2523813
- E-mail : vmsbgoa@vmsalgaocar.com
- Phone : 0832-2512111
- (f) **Police Station** : PALE
- (g) **First opening date** : 26/09/1952
- (h) **Weekly day of rest** : SUN
2. **Address for correspondance** : VILLAGE: VELGUEM-SURLA, TQ: BICHOLIM
DIST: NORTH GOA
GOA
3. (a) **Lease Number** : GOA0195
- (b) **Lease area** : 94.6
- (c) **Period of lease** :
- (d) **Date of Expiry** : 21/11/2027
4. **Mineral worked** : IRON ORE Main

5. Name and Address of the

Lessee : V.M. SALGAOCAR & BROTHERS LIMITED
 Salgoacar House, P.B.No.
 14 Fr. Gomes Road, Vasco-
 da-gama SOUTH GOA GOA
 Phone:0832-2512111, 2513808
 FAX :0832-2513813

Owner : SHIVANAND V. SALGAOCAR
 V.M.Salgaocar&BroPvtLtd.,
 Salgaocar House,Francisco
 Luis Gomes Rd.,VascodaGam
 SOUTH GOA GOA
 Phone: 512111(Off.) 51
 FAX : 0832-513813

Agent : G. SHRISH
 Salgaocar House,Off
 Francisco Luis Gomes Road,
 Mormugao VASCO DA GAMA
 SOUTH GOA GOA
 Phone: 0832-2512111
 FAX : 0832-2523813

Mining Engineer

Name : SHRI S.SREENIVAS REDDY,Full Time
 Qualification : B.E (MINING)
 Appointment/ : 20/09/2006
 Termination date

Geologist

Name : KAPIL U TALAIKER,Full Time
 Qualification : M.Sc. Geology
 Appointment/ : 12/10/2015
 Termination date

Manager

Name : B. Unnikrishnan Nair
 Qualification : Diploma in Mining with FCC
 Appointment/ : 11/12/2009
 Termination date

6. Date of approval of Mining Plan/Scheme of Mining : Renewal under rule 24 MCR1960 22/06/2007
 Mining Scheme rule 12 MCDR1988 04/08/2015

PART - II : OBSERVATION/COMMENTS OF INSPECTING OFFICERS

Exploration :

Sl.No.	Item	Proposals	Actual work	Remarks
1a	Backlog of previous year	Nil, Mining operations were temporary closed as per Supreme Court Order in WP 435/2012.	Nil	
1b	Exploration over lease area for geological axis 1 or 2	Additional exploration was not proposed in scheme of mining for the year 2015-16.	Additional exploration is not carried out after re-commencement of mining operations in December 2015. Area explored under G-1 category. Total 263 boreholes were drilled with 16637m drilling at 50m X 50m grid interval.	
1c	Exploration Agencies and Expenditure in lakh rupees during the year	There is no proposal for 2015-16.	Lessee carried out the exploration through contract drill rigs in the past.	
1d	Balance area to be explored to bring Geological axis in 1 or 2	No proposal for 2015-16.	Total lease area is explored at 50m x 50m grid interval.	
1e	Balance reserve as on 01/04/20	Reserves as on 01.04.2015 were 2.925 million tonnes under 111, 3.283 million tonnes under 121 category and 0.64 million tonnes in 222 category.	Reserves as on 01.04.2015 were 2.925 million tonnes under 111, 3.283 million tonnes under 121, 0.64 million tonnes in 222 category as per scheme of mining dated 04.08.2015.	
1f	General remarks of inspecting officers on geology, exploration etc	Nil	Nil, Siliceous ore is mined out from upper benches and hametite ore from lower benches during the year 2015-16.	

Development :

Sl.No.	Item	Proposals	Actual work	Remarks
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2a	Location of development w.r.t.lease area	Proposal was to develop existing centre pit in north direction on common boundary with TC 19/58.	The working was observed as per proposal and additional development and production was achieved against target.
2b	Separate benches in topsoil, overburden and minerals (Rule 15)	Topsoil is not present in area. Separate benches in waste and ore are planned in main central pit.	Topsoil is not present in area. Separate benches in waste and ore are developed in main central pit along with face/bench cleaning in south side of pit.
2c	Stripping ratio or ore to OB ratio	Planned Ore to OB ratio is 0.74.	Actual Ore to OB ratio is 0.72.
2d	Quantity of topsoil generation in m3	Nil	Nil
2e	Quantity of overburden generation in m3	Waste generation of 1.616 lacs m3 was planned.	Waste generation of 1.98 lacs m3 was achieved.
2f	General remarks of inspecting officers on development of pit w.r.t. type of deposit etc	Proposal was to develop the central working pit by advancing benches from section line 700 to 1000 and from 104mRL to 48mRL level during 2015-16 for target of 106,186m3 ROM and 161,600m3 waste/OB.	The depth-wise working had not gone beyond 65mRL as against initial bottom level of 67mRL as on 01.04.2015 due to siliceous ore found on upper benches.

Exploitation:

Sl.No.	Item	Proposals	Actual work	Remarks
3a	Number of pit proposed for production	Development and production in central pit was proposed.	Development and production in central pit is carried out.	

3b	Quantity of ROM mineral production proposed	The total target of ROM production was 298000 tonnes during 2015-16 as per distribution from lessee on capping on Environment clearance quantity.	Total 355594 tonnes of ROM production was reported during the year. It is 19.2% excess as per target.
3c	Recovery of sailable/usable mineral from ROM production	The recovery of ore from ROM was planned 100% after screening.	ROM production of 355594 tonnes was not despatched for grade-wise production during the year and it is closing stock. Therefore, recovery of grade-wise ore from ROM is not applicable.
3d	Quantity of mineral reject generation	No proposal for 2015-16.	Mineral reject is not reported in monthly return and ROM ore was not passed through dry screen for grade-wise production.
3e	Grade of mineral rejects generation and threshold value declared.	Nil	Nil
3f	Quantity of sub grade mineral generation.	Nil	Nil
3g	Grade of sub grade mineral generation	Nil	Nil
3h	Manual / Mechanised method adopted for segregating from ROM	Dry screening was proposed for grade-wise production. Processing plant is located at Centralised processing plant at Vagus complex, which is around 7-8 kms from lease.	Electric operated mechanical screen plants are in use for grade wise production of iron ore in lumps and fines at Vagus complex from April 2016 onwards.

3i	Any analysis or beneficiation study proposed and carried out for sub grade mineral and rejects.	Nil	Nil
3j	Provision of drilling and blasting in mineral benches	Drilling and blasting was not proposed.	Drilling and blasting is not carried out and ripper dozer is used for excavation.
3k	Provision of mining machineries in mineral benches	Yes, backhoe excavators were proposed for excavation of ROM material. Dozer with ripper attachment is used in hard strata.	Backhoe excavators of 2.1m ³ bucket capacity are used for excavation of ROM material. Development in waste is also without drilling & blasting with the use of dozers. There are two dozers of 350hp, 6 backhoe of 2.1m ³ , 13 wheel loaders of 2.7m ³ , 30 dumpers of 430 tonnes. All these machineries are common for Velguem Surla mine.
3l	Whether height of benches in overburden and mineral suitable for method of mining proposed in MP/SOM	Bench height of 7m was proposed in waste and Ore.	Yes, maximum bench height is upto 6-7m. There are 8 benches in waste/OB and 5 benches in ore of which few are common due to trend of mineralisation. Working Pit top RL is 175m and bottom RL is 35.5m.
3m	Total area covered under excavation/pits	It is within existing pit and total 49.366ha area was proposed under pit.	Total 49.366ha area is put in use under pit and additional area is not reported for degradation under pit.
3n	Ore to OB ratio for the pit/mine during the year.	Planned Ore to OB ratio is 0.74.	Actual Ore to OB ratio is 0.72.
3o	Total area put in use under different heads at the end of year	Area under pit- 49.366ha, area under dump-18.43ha, infrastructure - 10.69ha, roads - 4.33ha.	Area under pit- 49.366ha, area under dump-18.43ha, plants 10.69ha, mineral stacks -0.0ha and roads - 4.33ha at the end of 2015-16.

3p	Production of ROM mineral during the last five year period as applicable	Proposed production was 0t, 0t, 0t, 0t, 298000t from 2011-12 to 2015-16 respectively.	Actual production was 633352t, 298777t, 0t, 0t, 355594t from 2011-12 to 2015-16 respectively. Production achieved during 2011-12 and 2012-13 was without any target from the lease.
3q	General remarks of inspecting officers on method of mining etc.	Nil	Combined online return for the Velguem Surla mine covering four leases using minocode 30GOA01084 without indicating lease wise production details was submitted and it is difficult to co-relate the actual working with target as per approved scheme of mining.

Solid Waste Management - Dumping:

Sl.No.	Item	Proposals	Actual work	Remarks
4a	Separate dumping of topsoil, OB and mineral rejects (Rule 32,33)	Separate backfilling of waste inside the central pit was proposed in continuation to existing backfilled area.	Separate backfilling of waste inside the central pit is carried out during the year 2015-16 and it is advancing towards west.	
4b	Location of topsoil, OB and mineral reject dumps	Topsoil and mineral reject generation was not planned and anticipated. Separate backfilling of waste inside the central pit was proposed in continuation to existing backfilled area.	Separate backfilling of waste inside the central pit is carried out during the year 2015-16. It started from east side and advancing towards west direction.	

4c	Number of dumps within lease area and outside of lease area	There were two dumps within lease area and one dump outside the lease area in the past. However, backfilling in western part of central main pit was proposed during 2015-16.	There were two dumps within lease area and one dump outside the lease area in the past. Both the dumps have been matured and established by plantation. Backfilling in western part of central main pit is carried out during 2015-16.
4d	Location of dumps w.r.t. ultimate pit limit (Rule 16)	External dumping was not proposed and backfilling was proposed over mined out area.	External dumping is not carried out and backfilling in western part of central main pit is carried out over mined out area.
4e	Number of active and alive dumps.	No proposal. There is no active dump.	There is no active dump within lease area for waste dumping.
4f	Number of dead dumps.	There are two dead dumps within lease. One dump outside lease is also dead dump.	Two dead dumps are there within lease area.
4g	Number of dumps established.	Nil	Two dumps have been established.
4h	Whether Retaining wall or garland drain all along dumps are there.	No proposal for 2015-16 for external dumping. Garland drain was not proposed on different terraces of backfilled area.	Garland drain is not made on terraces of backfilled area.
4i	Length of Retaining wall or garland drain all along dumps	Nil	Nil
4j	Number of settling ponds	Nil	Nil

4k	Specific comments of inspecting officer on waste dump management	Nil	Old dumps are established. Backfilling is carried out from western face in main central pit.
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Solid Waste Management - Backfilling:

Sl.No.	Item	Proposals	Actual work	Remarks
5a	Status of part or full extraction of mineral from mined out area before starting backfilling.	Mineral is mined out from western part of main central pit and backfilling is proposed. Void available in this pit is 250m X 110m x 50m.	Backfilling is carried out in main pit from western end in two terraces from bottom. Total 494800 t waste was backfilled. It is over 150m X 100m area and advancing in west direction.	
5b	Area under backfilling of mined out area	Backfilling was proposed in two stages of 10m height over 210m X 110m.	Backfilling during 2015-16 is over 170m X 100m area and advancing in west direction.	
5c	Concurrent use of topsoil for restoration or rehabilitation of mineral out area (Rule 32)	Pit is already developed and topsoil generation is not planned.	Pit is already developed and topsoil generation is not there during 2015-16.	
5d	Total area fully reclaimed and rehabilitated	Proposal was to advance the existing backfilled area from west to east direction over 210m X 110m X 20m. No area is considered as reclaimed and rehabilitated.	Backfilling is in active stage and no area is considered as reclaimed and rehabilitated.	
5e	General remarks of inspecting officers on backfilling and reclamation etc.	Nil	The western part of lease area has been mined out and backfilling has been carried out. Almost 500m X 500m has been backfilled and plantation has been carried out there.	

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).	There was no working in 2014-15 and PMCP report is submitted. It should be on or before 1st July every year.	PMCP report of 2015-16 is not became due as on date of report writing and it is not submitted for scrutiny. Previous approved document was valid upto 2012-13.	
6b	Area available for rehabilitation (ha) .	Proposal was to backfill in continuation of existing backfilled area over 210m x 110m x 20m.	Almost 500m x 500m area has been backfilled and it is advancing in east direction over mined out area.	
6c	afforestation done (ha).	No proposal for plantation during 2015-16.	Total 35000 saplings were planted during five-year period of mining plan over 3.14ha within lease and 5.20ha outside lease area.	
6d	No. of saplings planted during the year	No proposal for plantation during 2015-16.	Mining operations were re-commenced in December 2015 and 460 saplings were planted over 0.60ha area during 2015-16.	
6e	Cumulative no .of plants	Nil	Total 35000 saplings were planted during five-year period of mining plan over 3.14ha within lease and 5.20ha outside lease area.	
6f	Any other method of rehabilitation	Nil	Nil	
6g	Cost incurred on watch and care during the year	Rs 66000 was proposed for watch and ward during the year.	Rs 50000 was spent on watch and ward.	
6h	Compliance on reclamation and rehabilitation by backfilling (i) Voids available for backfilling (Lx B x D	Void available in the central main pit is more than 250m X 110m x 50m.	Backfilling over 160m X 110m X 12-15m ws carried out.	
6i	Compliance on reclamation and rehabilitation by backfilling (ii) Voids filled by waste / tailings	Tailing disposal in pit was not proposed.	Tailing disposal in pit not carried out in Velguem Surllla mine.	

6j	Compliance on reclamation and rehabilitation by backfilling (iii)Afforestation on on backfilled area	Afforestation on backfilled area was not proposed during 2015-16.	Total 12500 saplings were planted over backfilled area in western part of main pit.
6k	Compliance on reclamation and rehabilitation by backfilling (iv) Rehabilitation by making water reservoir	No proposal for water reservoir.	Part of the pit is used for water reservoir and water is used for plantation, water sprinkling on haul road.
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
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	Nil	Nil
6p	Compliance of environmental monitoring (core zone and buffer zone)	Quarterly environment monitoring is required and report has to be sent to IBM Regional office.	Quarterly environment monitoring is carried out through private agency i.e. Mineral Engineering Services.
6q	General remarks of inspecting officers on PMCP compliance and progressive closure operations etc.	Nil	The western part of the pit has been mined out systematically and backfilling was started in a scientific manner. Lessee is now doing backfilling over mined out area in the lease; which is final reclaimed and rehabilitated.

 Mineral Conservation:

Sl.No.	Item	Proposals	Actual work	Remarks
7a	ROM Mineral dispatch or grade-wise sorting within lease area	As per approved mining plan proposed ROM was classified as +60% Fe, +58-60% Fe, +55-58% Fe, +50-55% Fe, +45-50% Fe and below 54% Fe.	ROM ore produced during the year was 355594 tonnes and it is not processed for grade-wise production. Grade-wise facility is available outside the lease area at centralised location in vagus complex.	
7b	Method of grade-wise mineral sorting i.e. manual or mechanical.	Mechanical processing i.e. dry screening was proposed for grade-wise production. However, dry screening and wet processing facility is available at Vagus complex, outside lease area, having jetty also for transport to port.	The ROM ore was not dispatched to Vagus complex for dry screening and grade-wise production during the year 2015-16. Grade-wise production and despatch is started from April 2016.	
7c	Different grade of mineral sorted out at mines.	The grade-wise production of -54% Fe and +54% Fe was proposed in scheme of mining.	The ROM ore produced was not dispatched to Vagus complex for dry screening and grade-wise production during the year 2015-16. Grade-wise production and despatch is started from April 2016.	
7d	Any beneficiation process at mines .	No, it was proposed outside the lease area at Vagus complex.	No, It is located at Vagus complex at 6kms distance from lease area and having dry screening and wet process beneficiation plant for grade-wise production. Grade-wise production and despatch is started from April 2016.	

7e	General remarks of inspecting officer on Mineral conservation and beneficiation issues	Nil	Vagus complex is centralised location for processing of ROM ore from all leases of V M Salgaocar & Brothers Pvt Ltd in Goa. ROM production achieved during the year is having siliceous ore and hematite ore. Two stock yards are found during the inspection.
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Environment:

Sl.No.	Item	Proposals	Actual work	Remarks
8a	Separate removal and utilization of topsoil (Rule 32)	Nil, Topsoil generation is not planned from the area proposed for development.	Nil, Topsoil generation is not there. Development was proposed from lower benches and towards hill side in north direction; where topsoil is not available.	
8b	Concurrent use or storage of topsoil	No proposal.	Topsoil not generated.	
8c	Separate dumps for overburden, waste rock, rejects and fines (Rule 33)	Proposal was to backfill the waste inside the mined out western part of pit.	The backfilling of waste is carried out inside the mined out western part of pit. ROM ore is stacked at two locations i.e. south side of pit and SW side of pit.	
8d	Use of overburden, waste rock, rejects and fines dumps for restoring the land to its original use	Yes, waste has been proposed to backfill in mined out part of the pit for restoring the land to its original use.	Yes, waste has been backfilled in mined out western part of the pit for restoring the land to its original use.	
8e	Phased restoration, reclamation and rehabilitation of lands affected by mining operations (Pits, dumps etc)	Yes, backfilling was started in the year 2008 from western boundary of lease area and it is still continued to propose to advance the backfilling.	Dump located in southern side of pit is restored with plantation and backfilling is in progress in the western part of pit. The mining lease will remain in operation upto 2027.	

8f	Baseline information on existence of plantation and additional plantation done (Rule 41)	Mining lease is in operation since 1952 and baseline information is not available.	Additional plantation is not carried out during the year 2015-16. Total 12500 saplings were planted during previous five year period within lease area and 22500 saplings were planted outside the lease area.
8g	Survival rate	Nil	Actual survival is around 75% and plantation is carried out on dumps and backfilled area.
8h	Water sprinkling on roads to control airborne dust	Yes, it is proposed for waster sprinkling on haul roads.	There are five water tankers in Velguem Surla mine of 8000-9000 litres capacity. Water sprilknling on road is observed during the inspection.
8i	General remarks of inspecting officer on aesthetic beauty in and around mines area	Nil	Surrounding area beyond lease area is lush green and lessee has carried out plantation on dump, along road etc. Lease area is having 62.068ha forest land and surrounding area in North direction is having other leases of lessee and Sesa Resources Limited.

Compliance of Rule 45:

Sl.No.	Item	Propasals	Actual work	Remarks
9a	Status of submission of Monthly and Annual returns	Annual return of mine for year 2014-15 and Monthly returns are submitted in online system upto April 2016.	All the monthly returns and annual return are submitted online.	

9b	Scrutiny of Annual return for information on Mining Engineer, Geologist and Manager	The mine was closed during 2014-15 since last two years. Annual return of 2015-16 not yet became due and not received for scrutiny.	Shri S. Sreenivas is mining engineer since 20.09.2006. Shri Kapil U Talauikar is geologist since 12.10.2015 and Shri B. Unnikrishnan Nair. Previously Shri Leo Christy was geologist in mines as per AR 2014-15. All these appointment are for the Velguem Surla mine and not for individual lease of Barcati. There are four-leases in Velguem Surla mine.
9c	Scrutiny of Annual return on land use pattern for area under pits, reclaimed area, dumps etc.	Area under pit 49.36ha, area under dump 18.43ha and plant 15.081ha, mineral stacks 0.0ha.	Land use pattern as per approved modified mining plan. Area under pit 49.366ha, area under dump 18.43ha and plant 10.69ha and roads 4.33ha.
9d	Scrutiny of Annual return on afforestation	Common detail for Velguem Surla mine was indicated in AR 2014-15 and it was zero during the year. Monthly returns after recommencement of mining operations were sent combined for the mine.	Total 0 trees with ML and 0 outside ML were reported in AR 2014-15. Mine was temporary closed during 2014-15 and re-commenced in November 2015.
9e	Scrutiny of Annual return on mineral reject generation (Grade and quantity)	It was zero during the year 2014-15. Mineral reject generation was not anticipated in 2015-16.	Mine was temporary closed during 2014-15. Mineral reject generation is not reported during 2015-16.

9f	Scrutiny of Annual return on ROM stock and/or graded ore	ROM opening stock from opencast workings - 0t, Production - 355594t and closing stock - 0t and opening stock dump workings - 0t, Production - 0t and closing stock - 0t. Grade-wise opening stock, production, despatch and closing stock for all slabs of fines and lumps for the lease is not known for 2015-16.	All the old stocks were taken under possession of State Government for e-auction as per Supreme Court Order. Total 355594t ROM production was achieved from the lease.
9g	Scrutiny of Annual return on sale value, Ex. Mine price and production cost	AR of 2014-15 is not having Ex mine price of ROM ore; as gradewise details for lumps and fines were nil.	All the stocks were taken under possession of State Government for e-auction as per Supreme Court Order. Ex. mine price is not estimated for 2015-16, as grade-wise production was not carried out during the year. It started from April 2016.
9h	Scrutiny of Annual return on fixed assets	AR of 2014-15 is having Fixed assets detail is given for lands, industrial building and machineries and own capital as source of finance. It is common for Velguem Surla mine.	It is common for Velguem Surla mine and capital structure is common for V M Salgaocar Brothers Pvt Ltd.

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
Rule 13(1)	15/06/2016				
Rule 45(5)	15/06/2016				

Date :

(JANGID G K)

Indian Bureau of Mines