

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

MCDR INSPECTION REPORT

Goa regional office

Mine file No : GOA/Bx/6-Vol.II

Mine code : 07GOA02001

- (i) Name of the Inspecting : **J003**) **JANGID G K**
Officer and ID No.
- (ii) Designation : Deputy Controller Mines
- (iii) Accompanying mine : Shri Umesh Mahto, Mines Manager
Official with
Designation
- (iv) Date of Inspection : 14/03/2016
- (v) Prev.inspection date : 10/03/2014

PART-I : GENERAL INFORMATION

1. (a) **Mine Name** : **SHAKTI ML-4**
- (b) **Registration NO.** : **IBM/120/2011**
- (c) **Category** : **A Mechanised**
- (d) **Type of Working** : **Opencast**
- (e) **Postal address**
- State : **GOA**
- District : **SOUTH GOA**
- Village : **BETUL**
- Taluka : **QUEPEM**
- Post office : **BETUL**
- Pin Code :
- FAX No. : **0832-2733728**
- E-mail : **gosaliagroup@bsnl.in**
- Phone : **0832-2733606, 2733607**
- (f) **Police Station** : **BETUL**
- (g) **First opening date** : **01/01/1969**
- (h) **Weekly day of rest** : **SUN**
2. **Address for correspondance** : **GARDEN VIEW, PHASE-II, OPPOSITE MUNCIPAL GARDEN
THIRD FLOOR, MARGAO, Tq. - Salcete,
Dist.South Goa, Goa**
3. (a) **Lease Number** : **GOA0397**
- (b) **Lease area** : **826.16**
- (c) **Period of lease** : **30**
- (d) **Date of Expiry** : **13/12/1998**
4. **Mineral worked** : **BAUXITE** **Main**

5. Name and Address of the

Lessee : Pravinkumar Shantilal Gosalia
 Garden View, Phase II, 3rd
 Floor, P O Box No.305
 Margao, Goa-403 601 SOUTH
 GOA GOA
 Phone:0834-733606, 733607
 FAX :0834-733728

Owner : PRAVIN KUMAR SHANTILAL GOSALIA
 Garden View, Phase II,
 Third Floor, Margao, SOUTH
 GOA GOA
 Phone: 0832-2733606, 2
 FAX : 0832-2733728

Mining Engineer

Name : UMESH KUMAR MAHTO, Full Time
 Qualification : AMIE
 Appointment/ : 01/04/2009
 Termination date

6. Date of approval of Mining	:	Renewal under rule 22 MCR1960	07/03/2000
Plan/Scheme of Mining		Modif.of approved Mining Plan	09/06/2003
		Mining Scheme rule 12 MCDR1988	23/07/2004
		Modif.approved Mining Scheme	19/03/2008
		Mining Scheme rule 12 MCDR1988	02/11/2010
		FMCP under 23C(1)	20/03/2015
		MP modif under MCR 1960	07/07/2015

PART - II : OBSERVATION/COMMENTS OF INSPECTING OFFICERS

Exploration :

Sl.No.	Item	Proposals	Actual work	Remarks
1a	Backlog of previous year	80 boreholes were proposed in previous approved scheme period upto 2013-14 and 10 holes were proposed during 2014-15.	Additional exploration is not carried out during last six years. Lease was initially granted for 30 years and first renewal of 20 years period will expire on 12 Dec 2018 and lease will expire on 31.03.2020 as per MMDR amended Act 2015.	
1b	Exploration over lease area for geological axis 1 or 2	Additional exploration was proposed to convert 333 into 111 on remaining part of virgin lease area irrespective to surface evidences.	Working pit is over 40ha area and additional 50 ha have been explored by core drilling in south side of road.	
1c	Exploration Agencies and Expenditure in lakh rupees during the year	10 boreholes were proposed from outside agency. Cost detail is not given. Trial pits were also planned in lieu of shallow depth of bauxite.	No exploration was carried out.	
1d	Balance area to be explored to bring Geological axis in 1 or 2	Total lease area is 667.27ha and almost 50% area is having lateritic soil cover along both side of river and remaining 50% area is promising for bauxite mining.	No exploration was carried out. Exploration over 90ha area has been completed and almost 350ha area is having river, villages, roads, temple, church, hutments, lateritic soil cover. Further, exploration over 200ha will enhance bauxite reserves.	

1e	Balance reserve as on 01/04/20	Category 111-8392050t, 122-1650190t, 222, 1439822t and 333-28264200t as per approved modified plan.	Balance reserves are category 111-8392050t, 122-1650190t, 222, 1439822t and 333-28264200t as on 01.04.2015.
1f	General remarks of inspecting officers on geology, exploration etc	Nil	Bauxite if having 35-45% Al ₂ O ₃ with silica more than 8% and not suitable for Indian Alumina industry. The thickness of bauxite is 5-6m. Additional exploration by means of trial pits will also convert the resources into reserves.

Development :

Sl.No.	Item	Proposals	Actual work	Remarks
2a	Location of development w.r.t.lease area	Proposal was to develop at three locations inside and by advancing the existing pit.	Ripper dozer is used for excavation and complete depth of bauxite is not mined out inside the pit.	
2b	Separate benches in topsoil, overburden and minerals (Rule 15)	Thin laterite capping is OB and included as ROM.	Separate benches are not required due to no topsoil and OB.	
2c	Stripping ratio or ore to OB ratio	OB generation was not anticipated & planned.	Ore to OB ratio is not applicable due to no OB.	
2d	Quantity of topsoil generation in m3	Nil	Nil	
2e	Quantity of overburden generation in m3	Laterite thin capping/pockets are there and it is included in ROM production.	OB generation was nil during 2014-15.	

2f	General remarks of inspecting officers on development of pit w.r.t. type of deposit etc	Nil	Nil
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Exploitation:

Sl.No.	Item	Propasals	Actual work	Remarks
3a	Number of pit proposed for production	Working in three sides of the pit was proposed for insitu ROM production.	South-western face and North-eastern face of Pit is being advanced and working inside the with the use of ripper dozer for excavating ROM from pit bottom during 2014-15 and 2015-16.	
3b	Quantity of ROM mineral production proposed	ROM production of 399999 tonnes was proposed.	ROM production of 101500 tonnes was reported. The mine was kept suspended under rule 13(1) of MCDR upto 12th August 2015 during the year.	
3c	Recovery of sailable/usable mineral from ROM production	The recovery of ore from ROM was planned 100% after crushing.	The recovery of ore from ROM was 100% after crushing. The graded ore is being sold to own arm's length company M/s Shakti Mines Pvt. Ltd. for export to China.	
3d	Quantity of mineral reject generation	Nil	Nil	
3e	Grade of mineral rejects generation and threshold value declared.	NA	NA	
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	Electric operated mechanical crusher & screen plant was proposed. Electricity is generated by DG set power house.	Electric operated mechanical crusher plant is in use for grade wise production of bauxite. Alumina grade of +41 to -45% % Al ₂ O ₃ and cement grade of ore are produced.
3i	Any analysis or beneficiation study proposed and carried out for sub grade mineral and rejects.	Analysis of mineral reject and beneficiation study was not proposed.	Analysis is being carried out regularly for maintaining the salable ore grade; being sold at mine head to the own arm's length company M/s Shakti Mines Pvt. Ltd. for export to China & Gulf countries.
3j	Provision of drilling and blasting in mineral benches	Yes, provision for 100m dia deep hole drilling & blasting is kept in emergency. Ripper is proposed for excavation of ROM from faces.	100m dia deep hole drilling & blasting is not in use and two ripper dozers are in use.
3k	Provision of mining machineries in mineral benches	Yes, backhoe Excavators, loaders, ripper dozers and dumpers were proposed for loading of ripped material.	Two backhoe excavators of 0.9m ³ bucket capacity, two loaders of 3.0m ³ & 2.5m ³ were used for excavation of ripped ore. 25t dumpers 4 numbers are used for handling of ore upto crusher.
3l	Whether height of benches in overburden and mineral suitable for method of mining proposed in MP/SOM	Yes, it is shallow depth mining with maximum height upto 5-6m and dozer is used for ripping of ore.	Yes, it is shallow depth mining maximum upto 5-6m with no over burden. Ripper dozer is ripping maximum 0.30m at a time and thereafter dozing it in heaps. Even boulders above 0.5m in dimension are broken by running dozer's track.
3m	Total area covered under excavation/pits	Total area proposed under pit was 40.58ha as per modified MP.	Total area under pits was 40.58ha as on 01.04.2015 i.e. end of the year. Mining operations were recommenced in August 2015.

3n	Ore to OB ratio for the pit/mine during the year.	Ore to OB ratio was nil due to no OB.	Ore to OB ratio was Nil during the year.
3o	Total area put in use under different heads at the end of year	Area under pit- 40.58ha, area under dump-0.0ha, roads-2.30ha.	Area under pit- 40.58ha, area under dump-0.0ha, old stack-0.20ha, road-2.30ha and plant 0.90ha at the end of 2014-15.
3p	Production of ROM mineral during the last five year period as applicable	Proposed production was 1000000t, 1000000t, 1000000t, 1000000t, 399999t from 2010-11 to 2014-15 respectively.	Actual production was 84700t, 104200t, 279135t, 175521t, 101500t from 2010-11 to 2014-15 respectively.
3q	General remarks of inspecting officers on method of mining etc.	Nil	Nil

Solid Waste Management - Dumping:

Sl.No.	Item	Propasals	Actual work	Remarks
4a	Separate dumping of topsoil, OB and mineral rejects (Rule 32,33)	Topsoil and OB dumps were not proposed.	Topsoil and OB dumps are not made.	
4b	Location of topsoil, OB and mineral reject dumps	Sub-grade and mineral reject generation & its stacking was not proposed.	Topsoil, OB, Sub-grade and mineral reject generation was nil during 2014-15.	
4c	Number of dumps within lease area and outside of lease area	Topsoil and OB dumps are not proposed within and outside the lease.	Topsoil and OB dumps are not made within and outside the lease. However, one old mineral stack is lying over 0.20ha area towards south side of the road.	
4d	Location of dumps w.r.t. ultimate pit limit (Rule 16)	NA	NA	
4e	Number of active and alive dumps.	Nil	Nil	
4f	Number of dead dumps.	Nil	Nil	

4g	Number of dumps established.	Nil	Nil
4h	Whether Retaining wall or garland drain all along dumps are there.	Retaining wall was not proposed.	Retaining wall was not made.
4i	Length of Retaining wall or garland drain all along dumps	Not applicable.	Not applicable.
4j	Number of settling ponds	Nil	One pond is made in Pit for storage of rainy water for water sprinkling by excavation in lithomarge clay; which retains water.
4k	Specific comments of inspecting officer on waste dump management	Nil	Nil

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.	Backfilled material is not available and not planned.	Backfilled material is not available and not made. Working pit is spread over 40.58ha area and bauxite is not fully mined out in depth due to use of ripper dozer as per grade of the ore.	
5b	Area under backfilling of mined out area	Nil	It is nil during 2014-15 and 2015-16. An area over 0.1ha was backfilled previously during manual operations in working pit near State road.	
5c	Concurrent use of topsoil for restoration or rehabilitation of mineral out area (Rule 32)	No topsoil is available in the area.	No topsoil is available in the area.	
5d	Total area fully reclaimed and rehabilitated	Nil	Nil	

5e	General remarks of inspecting officers on backfilling and reclamation etc.	Nil	Lessee has to mine the bauxite upto complete depth of bauxite inside the pit for progressive reclamation and afforestation of mined out area. There is more than 2lacs tonnes of ROM stock after ripping inside the pit along with finished salable grade stacks in different parts of the pit.
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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).	Proposed to submit by 1st July 2015.	Not submitted.	
6b	Area available for rehabilitation (ha) .	Nil	Nil. Lessee has to mine the bauxite upto complete depth of bauxite inside the pit for progressive reclamation and afforestation of mined out area. There is more than 2lacs tonnes of ROM stock after ripping inside the pit along with finished salable grade stacks in different parts of the pit.	
6c	afforestation done (ha).	10000 saplings were proposed over 1.0ha area all along the State road.	2050 saplings were planted over 1.0ha area all along the State road towards pit side.	
6d	No. of saplings planted during the year	10000 saplings were proposed over 1.0ha area all along the State road.	2050 saplings were planted over 1.0ha area all along the State road towards pit side.	
6e	Cumulative no .of plants	Total 45000 saplings are reported as on 2014-15.	Total 45000 saplings are reported as on 2014-15.	

6f	Any other method of rehabilitation	Nil	Nil
6g	Cost incurred on watch and care during the year	Rs. 20000/- was proposed.	Around Rs. 10000/- was spent on watch and care.
6h	Compliance on reclamation and rehabilitation by backfilling (i) Voids available for backfilling (Lx B x D	Nil	Backfilling is not carried out during 2014-15. Topsoil, OB generation is not there.
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	Water reservoir is made in Pit to store rainy water.
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	An area over 1.00ha has proposed along the state road.	Plantation within pit, along the haul road and surrounding pit is carried out.
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.
6q	General remarks of inspecting officers on PMCP compliance and progressive closure operations etc.	Nil	Lessee has to mine the bauxite upto complete depth of bauxite inside the pit for progressive reclamation and afforestation of mined out area.

Mineral Conservation:

Sl.No.	Item	Propasals	Actual work	Remarks
7a	ROM Mineral dispatch or grade-wise sorting within lease area	Grade-wise sorting of ore is proposed within lease area.	Grade-wise sorting of ore is carried out within lease area during crushing & screening operations. Three sloping steel bars grizlly are made on pit face for gravity screening and separating fines i.e. cement grade bauxite.	
7b	Method of grade-wise mineral sorting i.e. manual or mechanical.	It is manual and ROM is directly unloaded by dumpers and oversized and fines separated out manually in different heaps.	Three sloping steel bars grizlly are made on pit face for gravity screening and separating fines i.e. cement grade bauxite. It is manual and ROM is directly unloaded by dumpers and oversized and fines separated out manually in different heaps.	

7c	Different grade of mineral sorted out at mines.	The grades of bauxite estimated in the mining plan are +35-40% Al ₂ O ₃ , +40-45% Al ₂ O ₃ and cement grade.	The grades of bauxite reported in the annual return of 2014-15 are +40-45% Al ₂ O ₃ and Cement grade Bauxite.
7d	Any beneficiation process at mines .	No	No
7e	General remarks of inspecting officer on Mineral conservation and beneficiation issues	Nil	The silica content is more than 8% and not found suitable to Indian Alumina plants i.e. Hindalco Industries Ltd. and Vedanta Limited. China is consuming high silica bauxite and it is being exported.

Environment:

Sl.No.	Item	Propasals	Actual work	Remarks
8a	Separate removal and utilization of topsoil (Rule 32)	Nil	Nil	
8b	Concurrent use or storage of topsoil	Nil	Nil	
8c	Separate dumps for overburden, waste rock, rejects and fines (Rule 33)	Topsoil, OB, mineral reject and fines dumps were not proposed.	Topsoil, OB, mineral reject and fines dumps are not made.	
8d	Use of overburden, waste rock, rejects and fines dumps for restoring the land to its original use	Nil	Nil	

8e	Phased restoration, reclamation and rehabilitation of lands affected by mining operations (Pits, dumps etc)	Nil	Nil
8f	Baseline information on existence of plantation and additional plantation done (Rule 41)	Proposals of 2250 saplings were made during last five-year scheme and 10000 saplings each were proposed during 2014-15 and 2015-16 .	The extent of lease is large and part area surrendered/acquired by GIDC/Forest deptt. Existence afforestation along river area and slopes of the hillock is more than flat lateritic area. Total 45000 saplings were planted over 5.65ha area as on date.
8g	Survival rate	Survival rate was planned as 80%.	Achieved survival rate is 75%.
8h	Water sprinkling on roads to control airborne dust	Use of water tankers for water sprinkling was proposed.	Water tanker is being used to control the dust on haul roads.
8i	General remarks of inspecting officer on aesthetic beauty in and around mines area	Nil	There is more greenary within lease area compared to adjoining surrounding flat area; which is having lateritic capping.

Compliance of Rule 45:

Sl.No.	Item	Propasals	Actual work	Remarks
9a	Status of submission of Monthly and Annual returns	2014-15 : Annual return was submitted in hard copy on 29.06.2015.	It is not submitted in online system. Hard copy is having lot of discrepancies w.r.t. opening stock, ROM production, grade-wise production & despatch etc with respect to twelve months monthly returns.	

- 9b Scrutiny of Annual return for information on Mining Engineer, Geologist and Manager
 Sh Umesh Mehto is working as Mines Manager, who is Diploma in mining with AMIE and FCC certificate. Appointment of Mining Engineer and Geologist is kept blank.
 Sh Umesh Mehto is working as Mines Manager and mining engineer, who is Diploma in mining with AMIE and FCC certificate. Appointment of Geologist is kept blank and Shri mandrekar Atul Ramakant joined as geologist in August 2015 and left the service in October 2015 as per Form-B maintained at mines. However, a letter dated 21.12.2015 was sent by mines owner for intimation of appointment; which is incorrect.
- 9c Scrutiny of Annual return on land use pattern for area under pits, reclaimed area, dumps etc.
 Land use pattern: Area under pit - 40.56ha, area under dump - 0.00ha, area under plant - 5.50ha.
 Information given looks correct.
- 9d Scrutiny of Annual return on afforestation
 Total 2500 number of saplings were planted.
 Yes, saplings were planted in the mined out area of Pit, where water reservoir is also there to store rainy water for water sprinkling.
- 9e Scrutiny of Annual return on mineral reject generation (Grade and quantity)
 Mineral reject generation was not reported.
 Mineral reject generation was not there, as fines was sold to cement plants.

9f	Scrutiny of Annual return on ROM stock and/or graded ore	ROM stock and production was : Opening stock - 19779.44 tonnes, Production - 470612.15 t and closing stock - 59044.24 t. Grade-wise opening stock of 42% Al2O3 - 0t, Production - 90000t and closing stock - 588.49t. Grade-wise opening stock of Cement grade - 229842.16t, Production - 341347.35t and closing stock - 61370.605t.	ROM and grade-wise production reported in A.R. is in order. Production of cement grade bauxite was more during 2014-15. The despatch figures given in Form F-3 for the months April 2015 to Feb 2016 and sold to Shakti Mines Pvt. Ltd. are not matching with Form-N for procurement of bauxite from Shakti Mines Pvt. Ltd. Grade-wise stacks are made within lease area and metal grade sold to Shakti Mines Pvt. Ltd. for export. Cement grade is directly sold by lessee.
9g	Scrutiny of Annual return on sale value, Ex. Mine price and production cost	Sale value of 42% Al2O3 is Rs. 410.00/- and cement grade is Rs. 185.00/-. Ex. mine price of 42% Al2O3 is Rs. 410.00/- and cement grade is Rs. 185.00/-. Production cost - Rs. 174.00/-.	Sale value and Ex. mine price are same; as bauxite is sold to own company M/s Shakti Mines Pvt. Ltd. before export to China. The FOB price given in Form-N submitted by M/s Shakti Mines Pvt. Ltd. is also Rs. 250/-, which is incorrect. It must state exact sale value at ship loading including transport, cess, demurrage, sampling charges etc.
9h	Scrutiny of Annual return on fixed assets	Fixed assests detail is not given.	All the fixed assests i.e.building & machineris belongs to lessee.
9k	Scrutiny of Annual return on mining machineris	Two hydraulic shovels of 0.9cum bucket, two loaders two dozers, four dumpers of 25t and one water tanker of 8000 ltrs are indicated.	Two hydraulic shovels of 0.9cum bucket, two loaders, two dozers, four dumpers of 25t and one water tanker of 8000 ltrs are in use.

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)	13/04/2016				
Rule 42(1)(C)(I)	13/04/2016				
Rule 45(1)	13/04/2016				
Rule 45(5)	13/04/2016				

Date :

(JANGID G K)

Indian Bureau of Mines