

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

MCDR INSPECTION REPORT

Nagpur regional office

Mine file No : MAH/BHD/KYA-22/NGP

Mine code : 33MSH05021

- (i) Name of the Inspecting : **M017**) **ASHISH MISHRA**
Officer and ID No.
- (ii) Designation : Sr. Asst. Contrl. Mines
- (iii) Accompanying mine : Shri Vinod Bhujade, Agent
Official with
Designation
- (iv) Date of Inspection : 14/01/2020
- (v) Prev.inspection date : 07/06/2016

PART-I : GENERAL INFORMATION

1. (a) **Mine Name** : **DIGORI KYANITE MINE**
- (b) **Registration NO.** : **IBM/7256/2012**
- (c) **Category** : B Manual
- (d) **Type of Working** : Opencast
- (e) **Postal address**
- State : MAHARASHTRA
- District : BHANDARA
- Village : DIGORI (MOTHI)
- Taluka : LAKHANDUR
- Post office : DIGORI (MOTHI)
- Pin Code :
- FAX No. :
- E-mail :
- Phone : (0712)-532200
- (f) **Police Station** :
- (g) **First opening date** : 27/11/2001
- (h) **Weekly day of rest** :
2. **Address for correspondance** : "GOKUL", BEHIND LABOUR COURT,
CIVIL LINES,
DISSTT.- NAGPUR-1, (M. S.)-440001
3. (a) **Lease Number** : MSH0226
- (b) **Lease area** : 3.96
- (c) **Period of lease** : 30
- (d) **Date of Expiry** :
4. **Mineral worked** : **KYANITE** Main

5. Name and Address of the

Lessee : PRADEEP M GOLCHHA
 "GOKUL", BEHIND LABOUR
 COURT, CIVIL LINES,
 DISSTT.-NAGPUR NAGPUR
 MAHARASHTRA
 Phone: (0712)-532200
 FAX :

Owner : SHRI PRADEEP M. GOLCHHA
 "GOKUL", BEHIND LABOUR
 COURT, CIVIL LINES,
 DISSTT.- NAGPUR-1, (M. S.)
 NAGPUR MAHARASHTRA
 Phone: (0712)-532200
 FAX :

6. Date of approval of Mining	:	Fresh under rule 22 MCR1960	04/10/2000
Plan/Scheme of Mining		Mining Scheme rule 12 MCDR1988	27/11/2006
		Mining Scheme rule 12 MCDR1988	23/07/2012
		Mining Scheme rule 12 MCDR1988	19/01/2017

PART - II : OBSERVATION/COMMENTS OF INSPECTING OFFICERS

Exploration :

Sl.No.	Item	Proposals	Actual work	Remarks
1a	Backlog of previous year	Nil	No drilling has been carried out. 1 trench of 10 m and 2 pits of approximate size 2 m X 2 m X 1 m each have been dug to ensure continuity of the ore zone within the working area. Approximate location of the pits and trench is at N1100 to N1200 & E100 to E200 (local grid).	The lease area of 14.33 ha was granted for the minerals Kyanite, Sillimanite, Quartzite, Pyrophyllite, and Corundum. The lease area is having mainly Sillimanite occurring in approximately 2.5 ha area whereas rest of the area is having Quartzite. No further exploration was proposed in the approved mining plan document as the area is established under G-1 axis for occurrence of Sillimanite.
1b	Exploration over lease area for geological axis 1 or 2	G-1	G-1 (for Sillimanite)	The area was extensively proved by DGM under prospecting stage prior to grant of ML. Lessee has also done exploration in form of pitting and trenching. In 2011-12 to 2015-16 period, lessee has drilled 3 inclined core bore holes to prove the occurrence of Sillimanite upto 244 mRL level (General RL is around 270 m).

1c	Exploration Agencies and Expenditure in lakh rupees during the year	No such proposals	Exploration expenditures incurred in pitting and trenching for Sillimanite and drilling for Quartzite are maintained jointly so no bifurcation for expenditure over the exploration for major/minor mineral could be made and combined figures are given in the AR.	In the cost of mining table given in the Annual Return for the year 2018-19, exploration cost of around Rs 100/- per T is given, which pertains to the exploration carried out in the entire area (for Sillimanite and Quartzite both).
1d	Balance area to be explored to bring Geological axis in 1 or 2	Nil	Nil	
1e	Balance reserve as on 01/04/20	Balance reserves/resources for Sillimanite as on 01.04.2019 are given in the 'Actual Work' details.	111- 27744 T 121- 10192 T Total- 37936 T	
1f	General remarks of inspecting officers on geology, exploration etc			Sillimanite Band occurring in the area is limited to northern part of the lease area and mainly working for quartzite is going on. The band has been explored through extensive pitting and trenching alongwith 3 inclined core boreholes drilled in the year 2015-16.

Development :

Sl.No.	Item	Propasals	Actual work	Remarks
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2a	Location of development w.r.t.lease area	Working was proposed within the grid N1075 to N1150 & E200 to E300 (local grid)	Working was carried out as per the location proposed.	
2b	Separate benches in topsoil, overburden and minerals (Rule 15)	There is no top soil in the area. Separate benches in overburden and minerals is not possible as orebody has a steep dip of 65 to 70 degrees towards west.	Mineral and waste/overburden are occurring in the same bench which are being seggregated after excavation.	
2c	Stripping ratio or ore to OB ratio	Approximately 1:1.4 (ROM=2016 cum, Waste=2940 cum)	Around 1:7.14 (ROM=263 T, Waste=1830 cum)	The variation is due to lag in the actual production. In the year 2016-17, waste was proposed as 16366 cum and mineral production proposed was 2016 cum. However, actual production was around 110 T and actual waste removal was only 1100 cum. Further, in the last approved proposal period also, overall stripping ratio observed was 1:12 which was supposed to be increased with depth.
2d	Quantity of topsoil generation in m3	Nil	Nil	The area is having only lateritic soil (Murrum) & no fertile top soil is occurring in the proposed working area.
2e	Quantity of overburden generation in m3	2018-19: 2940 cum	2018-19: 1800 cum	

2f	General remarks of inspecting officers on development of pit w.r.t. type of deposit etc	The deposit is steeply dipping in the area that require huge development for exploitation of mineral. Also, the shape of the lease area has restrictions for working in the hangwall or footwall directions. Due to low demand, the exploitation has been on lower side which has created a lag in development of the deposit due to which, higher waste removal is required to exploit the mineral occurring in the area.
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Exploitation:

Sl.No.	Item	Propasals	Actual work	Remarks
3a	Number of pit proposed for production	For major mineral occuring in the area (Sillimanite), there are 4 small existing pits. In the 5 years proposal period, working is proposed in 3 pits located in the noethern part and in the year 2018-19, working is proposed in second pit at location N1075 to N1150 & E200 to E300 (local grid).	Working has been carried out as per the proposed location.	Presently, working is limited only to two pits in the northern part of the lease area due to lag in the actual production.

3b	Quantity of ROM mineral production proposed	2018-19: 4757 T (Sillimanite)	2018-19: 263 T (Sillimanite)
3c	Recovery of sailable/usable mineral from ROM production	70% mineral recovery is proposed from ROM (ROM=2016 cum, Cleaned Ore=1411 cum)	Actual recovery is around 69% (ROM=263 T, Graded Ore Production=183 T)
3d	Quantity of mineral reject generation	2018-19: 1089 T	2018-19: 79 T
3e	Grade of mineral rejects generation and threshold value declared.	Grade of the Mineral rejects is below 35% of Alumina, threshold value is +30% Alumina	As per the proposals
3f	Quantity of sub grade mineral generation.	Nil	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	Manual sorting of the excavated ROM
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	Drilling is carried out by jack hammer drills with 1.5 m hole depth and 34 mm dia. Blasting is carried out by outsourcing to a government authorized vendor.	As per the proposals.

3k	Provision of mining machineries in mineral benches	Mining is done by Manual means and no mechanization is there except Jack hammer drill & compressor, pumps for dewatering and tractor mounted water tanker (outsourced).	As per the proposals, there is no mechanization and after blasting, all the activities are carried out by manual means.	
3l	Whether height of benches in overburden and mineral suitable for method of mining proposed in MP/SOM	Method of mining proposed is manual and bench height proposed is 1.5-3 m (as per the occurrence of mineral deposit).	Bench height is as per the proposals. Average bench height is ~2 m which is suitable for working through manual means.	
3m	Total area covered under excavation/pits	As per the last approved SOM, Existing area under pits: 1.15 ha, Additional requirement: 0.20 ha, Total: 1.35 ha (proposal period 2016-17 to 2020-21)	As on 31.03.2019, Actual area under pits: 1.175 ha	
3n	Ore to OB ratio for the pit/mine during the year.	Approximately 1:1.4 (ROM=2016 cum, Waste=2940 cum)	Around 1:7.14 (ROM=263 T, Waste=1830 cum)	As per the comments given under item 2c.
3o	Total area put in use under different heads at the end of year	Total area put to use under various heads as on 31.03.2020 is furnished under actual work details.	Area under, Pits: 1.175 ha Waste Disposal: 0.698 ha Infrastructure: 0.08 ha Other Purpose (minerals storage, roads, green belt): 0.60 ha Total: 2.553 ha	

3p	Production of ROM mineral during the last five year period as applicable	2017-18: 4757 T 2016-17: 4757 T 2015-16: 3920 T 2014-15: 3920 T 2013-14: 3920 T	2017-18: 361 T 2016-17: 110 T 2015-16: 120 T 2014-15: 306 T 2013-14: 450 T
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3q General remarks of inspecting officers on method of mining etc.

Method of mining is manual which is as per the proposals. Production and development were on the lower side due to low demand.

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 is available in the proposed working area. Separate dumping of overburden/waste and mineral rejects is proposed.	Separate dumping of waste/OB and mineral rejects is being carried out as per the proposals.	

4b	Location of topsoil, OB and mineral reject dumps	Waste/OB: 9 dumps, 1 main dump at N1200 to N1300 & E100 to E200, 1 dump at N975 to N1050 & E175 to E200, 2 dumps at N800 to N950 & E200 to E300, 1 Dump at N700 to N800 & E150 to E200, 3 small dumps at N450 to N600 & E200 to E300, 1 dump at N100 to N 250 & E200 to E300 (last 4 dumps for Minor mineral working) Mineral Rejects: 1 stack at N900 to N950 & E200 to E300 (all local grids)	As per the proposals
4c	Number of dumps within lease area and outside of lease area	9 Waste/OB dumps and 1 mineral rejects stack, all are within the lease area.	All dumps/stacks are within the lease area.
4d	Location of dumps w.r.t. ultimate pit limit (Rule 16)	Main dump located in northern part of the lease area is outside pit limits. Other dumps (for major mineral) are within the ultimate pit limits.	As per the proposals. As the orebody is steeply dipping and manual working is proposed, old small dumps are lying within the ultimate pit limit. Presently dumping is being carried out at main dump only which is outside the pit limits.

4e	Number of active and alive dumps.	One main dump located at northern part is active and alive dump for major mineral. 4 Minor mineral dumps are active.	As per the proposals.	
4f	Number of dead dumps.	4 dumps for major mineral (except the main dump located in northern part) are inactive and dead dumps. These dumps are old dumps.	As per the proposals.	
4g	Number of dumps established.	Nil	Nil	No dumps have been stabilized as one dump is main dump for major mineral where active dumping is being carried out. rest of the dump shall be re-handled as per the future requirements.
4h	Whether Retaining wall or garland drain all along dumps are there.	Yes.	Garland drains and retaining walls were constructed all along the toe of the main dump. Other dumps are within the pit limits, thus, instead of retaining walls, bunds have not been constructed, but garland drain have been made all along the dumps.	
4i	Length of Retaining wall or garland drain all along dumps	No specific proposals.	Around 200 m of retaining wall and 500 m of garland drain was seen during the site inspection. Retaining wall and garland drains were formed all along the main dump. Apart from this, there were bunds along the other small dumps having around 50-60 m length.	
4j	Number of settling ponds	No such proposals	Nil	

4k	Specific comments of inspecting officer on waste dump management	Waste dump management aspect was found satisfactory in the lease area. Main dump located in the northern part has been properly secured with retaining wall and garland drains. Other dumps are also secured from garland drains as these dumps are very small and are lying within the pit limits.
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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.	No backfilling is proposed, instead, the area is proposed to be converted into water reservoir at conceptual stage.	Nil	
5b	Area under backfilling of mined out area	No such proposals	Nil	
5c	Concurrent use of topsoil for restoration or rehabilitation of mineral out area (Rule 32)	No top soil is occuring in the proposed working area and no backfilling is proposed.	Nil	
5d	Total area fully reclaimed and rehabilitated	No such proposals	Nil	

5e	General remarks of inspecting officers on backfilling and reclamation etc.	As the surrounding area is agricultural land, no backfilling is proposed. The area is proposed to be converted into water reservoir at conceptual stage.
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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).	To be submitted on or before 30th June every year depicting work done under PMCP in the preceeding year	Yes.	
6b	Area available for rehabilitation (ha) .	Nil	Nil as the area is under active mining for major mineral (Sillimanite) & Minor mineral (Quartzite) both.	
6c	afforestation done (ha).	Plantation is proposed over 0.54 ha upto the conceptual stage	Actual plantation carried out is approximately over 0.30 ha area (Green belt)	
6d	No. of saplings planted during the year	25 saplings	100 Saplings	As the survival is low (~50%), number of saplings planted were high.
6e	Cumulative no .of plants	250 saplings	800 saplings were planted with 50% survival rate. Thus, around 400 saplings are surviving as on date.	
6f	Any other method of rehabilitation	No such proposals	Nil	
6g	Cost incurred on watch and care during the year	Rs 25000/- over plantation, environment monitoring & protective measures.	As per the proposals.	

6h	Compliance on reclamation and rehabilitation by backfilling (i) Voids available for backfilling (Lx B x D	No such proposals	Nil	
6i	Compliance on reclamation and rehabilitation by backfilling (ii) Voids filled by waste / tailings	No such proposals	Nil	
6j	Compliance on reclamation and rehabilitation by backfilling (iii)Afforestation on on backfilled area	No such proposals	Nil	
6k	Compliance on reclamation and rehabilitation by backfilling (iv) Rehabilitation by making water reservoir	No such proposals	Nil	The area is proposed to be converted into water reservoir at conceptual stage.
6l	Compliance on reclamation and rehabilitation by backfilling (v)any other specific means.	No such proposals	Nil	
6m	Compliance of rehabilitation of waste land within lease (i)afforestation	Afforestation is proposed over 0.0225 ha area every year with 25 number of saplings for green belt building.	Actual plantation carried out is around 100 saplings over 0.05 ha area near the office.	
6n	Compliance of rehabilitation of waste land within lease (ii)Area rehabilitation (ha)	0.0225 ha	0.05 ha	

6o	Compliance of rehabilitation of waste land within lease (iii)Method of rehabilitation	Plantation	Plantation	
6p	Compliance of environmental monitoring (core zone and buffer zone)	Environment monitoring is proposed and carried out within the core zone as method of working is of manual category only.	As per the proposals, environment monitoring carried out for Air, Water and noise within the core zone as per MoEF guidelines.	
6q	General remarks of inspecting officers on PMCP compliance and progressive closure operations etc.			PMCP compliance in the area is satisfactory. Protective measures over the dump are constructed and plantation is carried out over around 0.30 ha of non-mineralized land near the office. Environment monitoring is also being carried out by the lessee and all the parameters are within the standard limits prescribed.

Mineral Conservation:

Sl.No.	Item	Propasals	Actual work	Remarks
7a	ROM Mineral dispatch or grade-wise sorting within lease area	Grade-wise sorting of ROM and then dispatch.	As per the proposals.	
7b	Method of grade-wise mineral sorting i.e. manual or mechanical.	Manual sorting of ROM	Manual sorting	

7c	Different grade of mineral sorted out at mines.	Sillimanite: +35% Alumina containing (cleaned ore) below 35% Alumine containing (Mineral rejects)	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			No beneficiation studies were proposed or carried out. More than 35% Alumina containing material is readily saleable and graded stacks are made accordingly after blending, however, below 35% Alumina containing material, which is mineral reject, is being stacked separately for future usage.

Environment:

Sl.No.	Item	Propasals	Actual work	Remarks
8a	Separate removal and utilization of topsoil (Rule 32)	No top soil is existing in the proposed working area.	Nil	
8b	Concurrent use or storage of topsoil	Not applicable	Nil	
8c	Separate dumps for overburden, waste rock, rejects and fines (Rule 33)	No top soil is available in the proposed working area. Separate dumping of overburden/waste and mineral rejects is proposed.	Separate dumping of waste/OB and mineral rejects is being carried out as per the proposals.	

8d	Use of overburden, waste rock, rejects and fines dumps for restoring the land to its original use	No such proposals	Nil	
8e	Phased restoration, reclamation and rehabilitation of lands affected by mining operations (Pits, dumps etc)	No such proposals	Nil	
8f	Baseline information on existence of plantation and additional plantation done (Rule 41)	Baseline information on existing plantation has been given in the Mining Plan. Additional plantation proposed is 25 saplings over 0.0225 ha area per year.	Additional plantation carried out is 100 saplings over 0.05 ha area in the year 2018-19. Overall 800 saplings were planted over 0.30 ha area out of which 400 saplings are surviving.	
8g	Survival rate	~70-80%	~50%	Actual plantation carried out has been more to balance the survival rate. Actual survival was lower due to infertile soil, scarcity of water and damage due to cattles.
8h	Water sprinkling on roads to control airborne dust	Yes	Yes, water sprinkling is being done through tractor mounted water tabkers deployed on outsourcing basis (twice daily).	

8i	General remarks of inspecting officer on aesthetic beauty in and around mines area	Apart from normal degradations due to active mining, aesthetic beauty in and around the area is satisfactory. Plantation is also carried out by the lessee near the office which is in good condition.
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Compliance of Rule 45:

Sl.No.	Item	Proposals	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 2018-19 MR submitted online upto Dec'2019	
9b	Scrutiny of Annual return for information on Mining Engineer, Geologist and Manager	Mining Engineer: Shri Vinod Bhujade Geologist: Shri Nikhil Pashine Manager: Shri Vinod Bhujade	Correct and complete information furnished	

9c	Scrutiny of Annual return on land use pattern for area under pits, reclaimed area, dumps etc.	Area: Covered under current (O/C) Workings: 1.175 ha Used for waste disposal: 0.698 ha Occupied by plant, buildings, residential, welfare buildings & roads: 0.08 ha Other Purpose (minerals storage, roads, green belt): 0.60 ha	Complete and correct information furnished
9d	Scrutiny of Annual return on afforestation	(i) Number of trees planted during the year: 100 saplings (within the lease area) (ii) Survival rate in percentage: 50	Complete and correct information furnished
9e	Scrutiny of Annual return on mineral reject generation (Grade and quantity)	For Sillimanite: a. Quantity: 79 T b. Grade: Below 30 % Al ₂ O ₃	Complete and correct information furnished
9f	Scrutiny of Annual return on ROM stock and/or graded ore	For Sillimanite: ROM: Opening Stock & Closing Stock= Nil, Production= 263 T Graded Ore: Opening Stock=1189.8 T, Production=183 T, Dispatch=451.8 6 T, Closing Stock=920.94 T	Complete and correct information furnished. The stock position is also matching with the monthly returns.

9g	Scrutiny of Annual return on sale value, Ex. Mine price and production cost	Sale Value: Rs 859643.80/- Ex. Mine Price: Rs 1902.42/- per T Production Cost: Rs 1178/- per T	Complete and correct information furnished. The EMP reported is matching with the computed average sale price from the sale/dispatch data (451.86 T) and sale value furnished.
9h	Scrutiny of Annual return on fixed assets	Value of Fixed Assets: Rs 1183932/- Apart from this, details regarding depreciatio and valuation of land, buildings, capital expenditure etc. is furnished.	Complete information furnished.
9k	Scrutiny of Annual return on mining machineries	Nil	No mechanization as per the approved SOM and method of working is Manual. hence, 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 :**(ASHISH MISHRA)**

Indian Bureau of Mines