INDIAN BUREAU OF MINES
MINERALS DEVELOPMEMT AND REGULATION DIVISION

MCDR INSPECTION REPORT

Nagpur regional office

Mine file No : MAH/YTL/LST--35/NGPIII **Mine code : 38MSH26009**

(i) Name of the Inspecting Officer and ID No. : **M017) ASHISH MISHRA**

(ii) Designation : Sr. Asst. Contrl. Mines

(iii) Accompaning mine Official with Designation : Shri Sandeep Singh, Shri Chandresh Bohra

(iv) Date of Inspection : 12/10/2017

(v) Prev.inspection date : 12/09/2006

PART-I : GENERAL INFORMATION

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

(b) Registration NO. : **IBM/256/2011**

(c) Category : A Mechanised

(d) Type of Working : Opencast

(e) Postal address

State : MAHARASHTRA
District : YEOTMAL
Village : SINDOLA
Taluka : WANI
Post office : SINDOLA MINES CEMENTNAGAR
Pin Code : 442502
FAX No. : 07172--75165
E-mail :
Phone : 07172--75026

(f) Police Station :

(g) First opening date : 01/01/1985

(h) Weekly day of rest : WED

2. Address for correspondance :

3. (a) Lease Number : MSH0016
(b) Lease area : 840.83
(c) Period of lease :
(d) Date of Expiry : 31/03/2030

4. Mineral worked : LIMESTONE Main

5. Name and Address of the

Lessee	:	M/S CHANDA CEMENT WORKS (ACC) CEMENT NAGAR, DISTT. CHANDRAPUR (MS) - 442 502 CHANDRAPUR MAHARASHTRA Phone:07172 - 75026 FAX :07172 - 75165
Owner	:	Shri M.L.Narula, Director. M/s Associated Cement Co GREATER BOMBAY MAHARASHTRA Phone: FAX :
Agent	:	Shri S.Nandakumar PO- Sindola Mines Distt. Yavatmal (MS) YEOTMAL MAHARASHTRA Phone: 07172- 75178 FAX :
Mining Engineer		
Name	:	Shri S.Natraj Iyer,Full Time
Qualification	:	B.E. Mining
Appointment/ Termination date	:	

6. Date of approval of Mining Plan/Scheme of Mining :

Mining Scheme rule 12 MCDR1988	08/01/2001
Modif.approved Mining Scheme	02/12/2003
Modif.approved Mining Scheme	10/09/2005
Mining Scheme rule 12 MCDR1988	16/08/2010
Mining Scheme rule 12 MCDR1988	16/10/2015

PART - II : OBSERVATION/COMMENTS OF INSPECTING OFFICERS

Exploration :

Sl.No.	Item	Proposals	Actual work	Remarks
1a	Backlog of previous year	Nil	Nil	LAst SOM was approved for the period 2015-16 to 2019-20 in which 14 boreholes with 1300 meterage at 200 m X 200 m grid were proposed to be drilled in the year 2015-16. The exploration proposed has already been completed in the year 2015-16.
1b	Exploration over lease area for geological axis 1 or 2	G1, G2 & G3	As per the proposals	G1 has been considered for the area where closed spaced drilling is already completed, G2 has been considered for wide spaced drilled area (more than 200 m X 200 m to 400 m X 400 m grid) and G3 has been considered for the area falling between extreme borehole and lease boundary. It was advised to carry out detailed exploration in terms of Rule 12 of MCDR'2017.
1c	Exploration Agencies and Expenditure in lakh rupees during the year	Nil for the year 2016-17	Nil	Till date exploration has been done in the lease in various stages since grant which has been done by Raw Materials and Mine Planning Division of M/s ACC Ltd. and expenditure incurred till date is around Rs 2.80 Cr.

1d	Balance area to be explored to bring Geological axis in 1 or 2	No such proposals	Nil	At the time of approval of the document for 2015-16 to 2019-20, MCDR'1988 was in force. Now after enactment of MCDR'2017, lessee was advised to carry out exploration as per Rule 12 of MCDR'2017.
1e	Balance reserve as on 01/04/20		Balance reserves as on 01/04/2017: 111-25 MT 121-3 MT 211-12 MT 221- 40 MT 333- 4 MT Total: 84 MT	
1f	General remarks of inspecting officers on geology, exploration etc		Limestone occuring in the area is sandwiched between waste rock of purple shale and flaggy siliceous Limestone. There are mainly 3 bands of Limestone occuring in the area which are Western, Middle and Eastern. Argillaceous or Flaggy Limestone Band is present between Western and Middle Bands and Siliceous band is between Middle and Eastern Bands. Quality of these two bands is marginal (~34% CaO) as per the threshold value.	The area has been explored with 174 Core and 67 DTH bore holes. Surface topography is having mounds and general RL is around 200-206 mRL. The area has been proved upto a depth of 150 mRL.

Development :

Sl.No.	Item	Propasals	Actual work	Remarks
2a	Location of development w.r.t.lease area	2016-17: Western Shale-ML56 to ML58 Flaggy Limestone-ML55 to ML60 Siliceous Limestone-ML55 to ML60	As per the proposals	

2b	Separate benches in topsoil, overburden and minerals (Rule 15)	Yes	Yes	
2c	Stripping ratio or ore to OB ratio	1:1.25 (ROM-600000 T, OB-750000 cuM)	1:0.88 (ROM-564875 T, OB-493974 cuM)	
2d	Quantity of topsoil generation in m3	Nil	Nil	
2e	Quantity of overburden generation in m3	750000 cuM	493974 cuM	
2f	General remarks of inspecting officers on development of pit w.r.t. type of deposit etc			Deposit occuring in the area is geologically disturbed and Limestone is occuring in 3 separate bands accordingly lying between shale. Two intermediate bands with high Silica is also occuring which is of marginal grade and is being stacked as sub-grade. hence, pit is developed accordingly to excavate three bands simultaneously so that quality of ROM and graded ore can be maintained as per the requirement of Cement Plant for which the mine is captive.

Exploitation:

Sl.No.	Item	Propasals	Actual work	Remarks
3a	Number of pit proposed for production	One pit	One pit has been developed	

3b	Quantity of ROM mineral production proposed	2016-17: 600000 T	2016-17: 564875 T	
3c	Recovery of sailable/usable mineral from ROM production	100%	100%	Sub-grade has been considered separate which is coming from Flaggy Limestone and Siliceous Limestone Bands.
3d	Quantity of mineral reject generation	2016-17: 160000 T	2016-17: 101632 T	
3e	Grade of mineral rejects generation and threshold value declared.	CaO 36-39%	CaO 36-19% and SiO2 14-17%	
3f	Quantity of sub grade mineral generation.	No such proposals	Not applicable	Not applicable in light of MCDR'2017
3g	Grade of sub grade mineral generation	Not applicable	Not applicable	
3h	Manual / Mechanised method adopted for segregating from ROM	No seggregartion is proposed	Not applicable	ROM is fed into a closed Mechanical crushing system where no rejects are generated and complete ROM after crushing is dispatched to the Cement Plant.
3i	Any analysis or beneficiation study proposed and carried out for sub grade mineral and rejects.	No	No	ACC has a separate division for R & D and no such information was available at the mine regarding any study.

3j	Provision of drilling and blasting in mineral benches	Yes	Yes 1 Rock Drill of IR make (ICM260, non-electric) having 115 mm dia is deployed in the mine for the purpose. Drill holes for 8-9 m are being drilled with 5% sub-grade drilling with application of wet drilling methods to avoid any dust. Spacing X Burden is being kept at around 5-6 m X 3-4 m. SME is being used for blasting alongwith NONEL. 70% of the blast holes are being charged with explosives and rest 30% are being filled and stemmed with soil for effective blasting.	
3k	Provision of mining machineries in mineral benches	Yes	Yes One Back hoe with 4.5 cuM capacity Two Dumpers with 65 T capacity One Rock Drill with 115 mm dia One Dozer 320 HP One Wheel Loader with 5.2 cuM capacity with auxilliary equipments like Jeep, Truck, Tractor, Explosive Van and Pumps for dewatering	
3l	Whether height of benches in overburden and mineral suitable for method of mining proposed in MP/SOM	8.0 m Bench height is proposed	8.0 m Bench height observed	Bench height has been selected as per the mechanization and its suitable as per the method of mining proposed i.e. Category A, Mechanized working.
3m	Total area covered under excavation/pits	72.52 ha	70.90 ha	
3n	Ore to OB ratio for the pit/mine during the year.	1:1.25 (ROM-600000 T, OB-750000 cuM)	1:0.88 (ROM-564875 T, OB-493974 cuM)	

3o	Total area put in use under different heads at the end of year	Area under: Minng: 72.52 ha Top soil Stack: 0.80 ha Waste Dumps: 24.27 ha Infrastructure : 3.09 ha Mineral Storage: 5 ha Roads: 4.25 ha Total: 109.93 ha	Area under: Minng: 70.90 ha Top soil Stack: 0.80 ha Waste Dumps: 23.59 ha Infrastructure: 3.09 ha Mineral Storage: 1.4 ha Roads: 4.25 ha Total: 104.03 ha	
3p	Production of ROM mineral during the last five year period as applicable	2015-16: 600000 T 2014-15: 600000 T 2013-14: 600000 T 2012-13: 600000 T 2011-12: 600000 T	2015-16: 570758 T 2014-15: 569632 T 2013-14: 366512 T 2012-13: 269336 T 2011-12: 253069 T	
3q	General remarks of inspecting officers on method of mining etc.			Method of mining is category A mechanized and is as per the mechanization and capital investments as well as requirements of the Cement Plant for which the mine is captive. Further, Production and development in the mine is highly dependent on another mine Govari (558.90 ha) of M/s ACC Limited as the grade generated at Sindola Mine is inferior to Govari. Hence, to maintain the feed to the cement plant with optimum quality and quantity, development & production is being monitored with softwares.

Solid Waste Management - Dumping:

Sl.No.	Item	Propasals	Actual work	Remarks
4a	Separate dumping of topsoil, OB and mineral rejects (Rule 32,33)	Yes	Yes	
4b	Location of topsoil, OB and mineral reject dumps	Top Soil Stack: ML98-ML101 Mineral Rejects Stacks: ML66-ML70 & ML84-ML89 Waste Dumps: ML53-ML55, ML61-ML66, ML75-ML78, ML90-ML92, ML91-ML92, ML92-ML93, ML93-ML94, ML93-ML95, ML96-ML99, ML55-ML58, ML71-ML75, ML76-ML81 & ML95-ML101	As per the proposals	
4c	Number of dumps within lease area and outside of lease area	Total 16 dumps all within lease area Top Soil- 1 Stack Mineral rejects- 2 Stacks Waste Dumps- 13 Dumps	As per the proposals	
4d	Location of dumps w.r.t. ultimate pit limit (Rule 16)	4-5 dumps are located within pit limits which are proposed to be shifted to outside UPL in the next 5 years period	As per the proposals.	
4e	Number of active and alive dumps.	All 16 dumps are active and alive	All dumps/stacks are active	
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.	Yes	Yes	
4i	Length of Retaining wall or garland drain all along dumps	500 m garland drain was proposed in the year 2016-17	As per the proposals	
4j	Number of settling ponds	Nil	Nil	
4k	Specific comments of inspecting officer on waste dump management			All waste dumps are active and alive and a few of dumps are within the pit limits that are proposed to be shifted outside pit limits in next 5 years period. Protective works in form of Garland drains and retaining walls are constructed along the te of the dumps and being maintained.

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 such proposals	Nil	The area is having scarcity of water and at conceptual stage, dumps are proposed for reclaimation and rehabilitation and the mined out area is proposed to be converted into water reservoir.
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 such proposals	Nil	

5d	Total area fully reclaimed and rehabilitated	No such proposals	Nil	
5e	General remarks of inspecting officers on backfilling and reclamation etc.			The area is having scarcity of water and at conceptual stage, dumps having an area of 40.77 ha are proposed for reclaimation and rehabilitation and the mined out area of 73.77 ha is proposed to be converted into water reservoir.

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) .	No such proposals and no area is available for rehabilitation .	Nil	
6c	afforestation done (ha).	1.5 ha for 2016-17	Afforestation has been done as per the proposals	Total afforestation on 2.3 ha area has been carried out in the lease. Also the lease has 193.67 ha area under forest out of total lease area 840.83 ha where no mining activities are done. Hence status of plantation (both natural and afforestation carried out by lessee) in the area is good.

6d	No. of saplings planted during the year	3000 saplings	3000 saplings	Survival rate is 84%. Apart from this plantation carried out within the lease area, 500 saplings also planted outside the lease area but survival rate is 55% only for outside lease area plantation.
6e	Cumulative no .of plants	5000 saplings	4600 saplings	
6f	Any other method of rehabilitation	No such proposals and no area is available for rehabilitation .	Nil	
6g	Cost incurred on watch and care during the year	45.1 Lakhs including SDF expenditure	96 Lakhs	
6h	Compliance on reclamation and rehabilitation by backfilling (i) Voids available for backfilling (Lx B x D	No such proposals and no area is available for rehabilitation .	Nil	
6i	Compliance on reclamation and rehabilitation by backfilling (ii) Voids filled by waste / tailings	No such proposals and no area is available for rehabilitation .	Nil	
6j	Compliance on reclamation and rehabilitation by backfilling (iii)Afforestation on backfilled area	No such proposals and no area is available for rehabilitation .	Nil	

6k	Compliance on reclamation and rehabilitation by backfilling (iv) Rehabilitation by making water reservoir	No such proposals and no area is available for rehabilitation .	Nil	The area is having scarcity of water and at conceptual stage, dumps having an area of 40.77 ha are proposed for reclaimation and rehabilitation and the mined out area of 73.77 ha is proposed to be converted into water reservoir.
6l	Compliance on reclamation and rehabilitation by backfilling (v)any other specific means.	No such proposals and no area is available for rehabilitation .	Nil	
6m	Compliance of rehabilitation of waste land within lease (i)afforestation	No such proposals and no area is available for rehabilitation .	Nil	
6n	Compliance of rehabilitation of waste land within lease (ii)Area rehabilitation (ha)	No such proposals and no area is available for rehabilitation .	Nil	
6o	Compliance of rehabilitation of waste land within lease (iii)Method of rehabilitation	No such proposals and no area is available for rehabilitation .	Nil	
6p	Compliance of environmental monitoring (core zone and buffer zone)	Yes	Yes	Monitoring of various environmental parameters is being done in the core and buffer zone and the reports are within permissible limits. The data is also being sent to MoEFCC on real time basis.

6q	General remarks of inspecting officers on PMCP compliance and progressive closure operations etc.	Apart from some plantation, protective work along the toe of the dumps and environment monitoring, no reclaimation is proposed or actually carried out in the area. PMCP compliance has been done by the lessee and annual report has been submitted.

Mineral Conservation:

Sl.No.	Item	Propasals	Actual work	Remarks
7a	ROM Mineral dispatch or grade-wise sorting within lease area	Grade-wise dispatch	Grade-wise Dispatch	
7b	Method of grade-wise mineral sorting i.e. manual or mechanical.	Mechanical crushing	Mechanical crushing for size reduction only	
7c	Different grade of mineral sorted out at mines.	Cement grade Limestone	Cement grade Limestone	
7d	Any beneficiation process at mines .	No beneficiation process except mechanical size reduction	As per the proposals	

7e	General remarks of inspecting officer on Mineral conservation and beneficiation issues		The only beneficiation process at mine is mechanical size reduction where Limestone ROM is being crushed to a size of -75 mm in a closed circuit. After crushing, complete material is dispatched to Cement Plant. Hence no material loss is there. Also, marginal grade Limestone (36-39% maximum CaO, average ~34% CaO) obtained from Flaggy and Siliceous Bands are considered as Mineral rejects and are separately stacked for future usage. Hence mineral conservation aspect is satisfactory.

Environment:

Sl.No.	Item	Propasals	Actual work	Remarks
8a	Separate removal and utilization of topsoil (Rule 32)	Yes	Yes	
8b	Concurrent use or storage of topsoil	Concurrent usage wherever required for plantation, rest Top Soil is stacked separately	As per the proposals	
8c	Separate dumps for overburden, waste rock, rejects and fines (Rule 33)	Yes	Yes	No fines are there. OB/ Waste and Mineral rejects are dumped separately.

8d	Use of overburden, waste rock, rejects and fines dumps for restoring the land to its original use	No such proposals and no area is available for rehabilitation .	Nil	The area is having scarcity of water and at conceptual stage, dumps having an area of 40.77 ha are proposed for reclaimation and rehabilitation and the mined out area of 73.77 ha is proposed to be converted into water reservoir.
8e	Phased restoration, reclamation and rehabilitation of lands affected by mining operations (Pits, dumps etc)	Pits are proposed for conversion into Water Reservoir after exhaustion of mineral and Dumps are proposed for stabilization through plantation.	1.5 ha dump area has been stabilized through plantation of 3000 saplings during 2016-17.	
8f	Baseline information on existence of plantation and additional plantation done (Rule 41)	Yes	Yes	
8g	Survival rate		84% in the lease area	50-55% survival rate was observed for plantation done outside the lease area. It is on lower side due to damage to the saplings by cattles.
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	Apart from normal degradation due to mining activities, the area is having forest cover of more than 190 ha. Lessee has also planted around 4500-4600 saplings in the area and most of the plantation done has survived. Around the lease area is mostly agricultural fields for cotton, Tur, Soyabean etc. Overall aesthetic beauty is good.

Compliance of Rule 45:

Sl.No.	Item	Propasals	Actual work	Remarks
9a	Status of submission of Monthly and Annual returns		Annual and Monthly returns submission is up to date. The returns have been submitted online.	
9b	Scrutiny of Annual return for information on Mining Engineer, Geologist and Manager	MIning Engineer: Shri Anil Kumar K. Ganapurapuwar Geologist: Shri Gopinath Rangaswamy Manager: Shri Chandresh Bohra	Correct information furnished	
9c	Scrutiny of Annual return on land use pattern for area under pits, reclaimed area, dumps etc.	Area under: Mining/Pits- 70.90 ha Waste Dumps- 23.59 ha Plant/Building /Roads etc.- 7.34 ha PMCP activities- 1.5 ha	Correct information furnished	

9d	Scrutiny of Annual return on afforestation	Within Lease Area: Number of Saplings- 3000 Survival- 84% Outside Lease Area: Number of saplings- 500 Survival- 55%	Correct information furnished	
9e	Scrutiny of Annual return on mineral reject generation (Grade and quantity)	Quantity of Mineral Rejects: 101632 T Grade: 36-39% CaO, 14-17% SiO2	Correct information furnished	
9f	Scrutiny of Annual return on ROM stock and/or graded ore	ROM: Opening & Closing Stocks- Nil, Production- 564875 T Graded Ore: Opening & Closing Stocks- Nil, Production & Dispatches- 564875 T (Cement Grade Limestone)	Correct information furnished	
9g	Scrutiny of Annual return on sale value, Ex. Mine price and production cost	Sale Value: Nil (Captive usage) Ex. Mine Price: Rs 292.08 per T Cost of Production: Rs 292.08 per T	Correct information furnished	The figures were verified from the cost of production for Maratha Limestone Mine where Cost of Production is reported as Rs 222.47 per T. The difference arised mainly due to overhead cost.
9h	Scrutiny of Annual return on fixed assets	Value of Fixed Assets: Rs 12266264/- Details have been furnished for land, machinery etc and also paid up share capital & reserves and surplus furnished.	Information has been furnished.	

9k	Scrutiny of Annual return on mining machineries	One Back hoe with 4.5 cuM capacity Two Dumpers with 65 T capacity One Rock Drill with 115 mm dia One Dozer 320 HP One Wheel Loader with 5.2 cuM capacity with auxilliary equipments like Jeep, Truck, Tractor, Explosive Van and Pumps for dewatering	Correct information furnished

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

Date :

(**ASHISH MISHRA**)

Indian Bureau of Mines