# INDIAN BUREAU OF MINES MINERALS DEVELOPMENT AND REGULATION DIVISION

#### MCDR INSPECTION REPORT

### Bhubaneshwar regional office

Mine file No : ORI/LST/SNG/MCDR-12/BBS Mine code : 380RI13028

(i) Name of the Inspecting: SRM ) SHRI SUDIP RANJAN MAZUMDAR

Officer and ID No.

(ii) Designation : Senior Mining Geologist

(iii) Accompaning mine : Shri. G.P.sahu, Mines Manager

Official with Designation

(iv) Date of Inspection : 07/01/2018
(v) Prev.inspection date : 10/03/2016

PART-I : GENERAL INFORMATION

1. (a) Mine Name : KHATKURBAHAL (72.44 HA)

(b) Registration NO. : IBM/4177/2011

(c) Category : B Manual
(d) Type of Working : Opencast

(e) Postal address

State : ORISSA

District : SUNDARGARH

Village : KHATKURBAHAL

Taluka : RAIGANGRUB

Taluka : RAJGANGPUR
Post office : KHATKURBAHAL

Pin Code : 770018

FAX No. : 0661-4400172

E-mail : rkl\_sivacem@sancharnet.in

Phone : 0661-4400828,168,080, 42450

(f) Police Station : KUTRA

(g) First opening date : 01/04/1998

(h) Weekly day of rest : SUN

2. Address for : KHATKURBAHAL LIMESTONE MINE, M/S SHIVA CEMENT LTD

correspondance P.O.KHATKURBAHAL, DIST:SUNDERGRAH

ORISSA-770018

3. (a) Lease Number : ORIO733
(b) Lease area : 72.44
(c) Period of lease : 50

(d) Date of Expiry : 03/11/0047

4. Mineral worked : DOLOMITE Associated

LIMESTONE Main

5. Name and Address of the

Lessee : SHIVA CEMENT LTD.

CIVIL TOWNSHIP ROURKELA

SUNDARGARH ORISSA

Phone: 0661-4400828, 168, 080

FAX :0661-4400172

Owner : MANOJ RUSTAGI, Nominated Owner

PLOT NO. YY-5, CIVIL

TOWNSHIP 7&8 AREA, ROURKELA ODISHA SUNDARGARH ORISSA

Phone: 0661-2664168

FAX :

Agent : RAVI GAUR

PLOT NO. YY-5, CIVIL

TOWNSHIP 7&8 AREA, ROURKELA ODISHA SUNDARGARH ORISSA

Phone: 9010044450

FAX :

Mining Engineer

Name : ANIL KUMAR JHA, Full Time

Qualification : B.Tech (Mining)
Appointment/ : 16/10/2009

Termination date

Geologist

Name : Toofan Singh, Full Time

Qualification : M.Phil (Geology)

Appointment/ : 27/07/2007

Termination date

Manager

Name : GAJENDRA PRASAD SAHU

Qualification : B.Tech (Mining)
Appointment/ : 28/04/2017

Termination date

6. Date of approval of Mining : Mining Scheme rule 12 MCDR1988 28/10/2004 Plan/Scheme of Mining : Mining Scheme rule 12 MCDR1988 24/03/2009 Renewal under rule 24 MCR1960 20/12/2011 MP modif under MCR 1960 11/07/2016 MP review under 17(1) MCR 2016 24/04/2017

PART - II : OBSERVATION/COMMENTS OF INSPECTING OFFICERS

### Exploration :

Sl.No.	Item	Proposals	Actual work	Remarks
la	Backlog of previous year	Number of boreholes proposed for drilling in 2016-17 was 3 Nos. However, in the modification of mining plan for the period 2016-17 there is no proposal for exploration.	During the last approved mining plan period (2012-13 to 2016-17) 17 nos of boreholes have been proposed for drilling against which 26 nos of boreholes have been drilled during the plan period. The exploration proposal for 2016-17 has completed in 2013-14 and there is no proposal in the modified mining plan for the period 2016-17.	backlog in exploration as per proposal.
1b	Exploration over lease area for geological axis 1 or 2	No Specific Proposal	Lease area explored under G1 level of UNFC is 40.384 Ha and G2 is 20.055 Ha.	Lease area explored under G1 & G2 level of UNFC is 60.439 Ha.
1c	Exploration Agencies and Expenditure in lakh rupees during the year	No Specific Proposal	Not Applicable	Exploration proposal already completed in 2013-14 and there is no proposal in the modified mining plan for the period 2016-17.
1d	Balance area to be explored to bring Geological axis in 1 or 2	No Specific Proposal	Balance area to be explored to bring Geological axis in 1 or 2 is 12 Ha	Balance area to be explored to bring Geological axis in 1 or 2 is 12 Ha
le	Balance reserve as on 01/04/20	Reserve as on 01.04.2016 is 18.88 million tones nd remaining resources at 32.83 million tonnes.	Production during the 2016-17 was 32541.414 tones(~0.03 million tones). Thus Reserve as on 01.04.2017 is 18.85 million tones and remaining resources at 32.83 million tonnes. Thus total reserve and resource as on 01.04.2017 is 51.68 million tones.	Production during the 2016-17 was 32541.414 tones(~0.03 million tones). Thus Reserve as on 01.04.2017 is 18.85 million tones and remaining resources at 32.83 million tonnes. Thus total reserve and resource as on 01.04.2017 is 51.68 million tones.

1f General remarks of inspecting officers on geology, exploration etc

No Comments

There is no backlog in exploration as per proposal. During the last approved mining plan period (2012-13 to 2016-17) 17 nos of boreholes have been proposed for drilling against which 26 nos of boreholes have been drilled during the plan period. The exploration proposal for 2016-17 has boreholes have completed in 2013-14 and been drilled there is no proposal in the modified mining plan period. The for the period 2016-17. Lease area explored under G1 level of UNFC

There is no backlog in exploration as per proposal. During the last approved mining plan period (2012-13 to 2016-17) 17 nos of boreholes have been proposed for drilling against which 26 nos of during the plan exploration proposal for 2016-17 has completed in 2013-14 and there is no proposal in the modified mining plan for the period 2016-17. Lease area explored under G1 level of UNFC

### Development :

Sl.No.	Item	Propasals	Actual work	Remarks
2a	Location of development w.r.t.lease area		Location of development is between the coordinates E0 to E300 and N0 to N300	Location of development is between the coordinates E0 to E300 and N0 to N300
2b	Separate benches in topsoil, overburden and minerals (Rule 15)	No Specific Proposal	Separate benches in OB and Mineral maintained	Separate benches in OB and Mineral maintained
2c	Stripping ratio or ore to OB ratio	1 : 10	1 : 6.7	The stripping ratio is less as the production was less than proposed.

2d	Quantity of topsoil generation in m3	Not Proposed	Not Applicable	Not Applicable
2e	Quantity of overburden generation in m3	Proposal for waste generation was 7104 cum	Quantity disposed of in external dumps 2000 cum	Since the production is less then the proposal, the development was also less.
2f	General remarks of inspecting officers on development of pit w.r.t. type of deposit etc	No Comments	The location of development has been done within the approved area limit. However, bench width and height not maintained as per proposal and overburden removal was less than proposed.	The location of development has been done within the approved area limit. However, bench width and height not maintained as per proposal and overburden removal was less than proposed.

# Exploitation:

Sl.No.	Item	Propasals	Actual work	Remarks
3a	Number of pit proposed for production	One	One	One
3b	Quantity of ROM mineral production proposed		In the year 2016-17, ROM of 32541.414 MT has been produced.	In the year 2016- 17, ROM of 32541.414 MT has been produced.
3с	Recovery of sailable/usable mineral from ROM production	Not Specified	Not Applicable	Not Applicable
3d	Quantity of mineral reject generation	Not Proposed	Nil	Nil

3e	Grade of mineral rejects generation and threshold value declared.	Not Proposed	Mineral reject generation was nil.	The cut off grade for limestone has been taken as 40% CaO content. Threshold value of limestone for Orissa is CaO-35% (Min), MgO- 4% (Max), SiO2 - 18% (Max) & Alkalies0.5% (Max)
3f	Quantity of sub grade mineral generation.	There is no proposal for subgrade generation during the year 2016-17	Subgrade generation during the year 2016-17 was nil.	Subgrade generation during the year 2016-17 was nil.
3g	Grade of sub grade mineral generation	Not Proposed	Nil	Nil
3h	Manual / Mechanised method adopted for segregating from ROM	Manual	Manual	Manual
3i	Any analysis or beneficiation study proposed and carried out for sub grade mineral and rejects.	Not Proposed	Nil	

3j Provision of drilling and blasting in mineral benches

Yes, Controlled blasting technique is adopted to minimize the ground vibration and flying fragments using nonelectric delay initiating device as shock tube like Raydet and lineinitiation is practiced for sequential firing. Generally, slurry explosive or class VI explosives like Nova Column & Nova prime are used for charging up to 1/3rd hole length by Nonels (Raydet), TLD and Safety fuse are used for firing. Safety fuse and ordinary detonators are used for initiation. 25 % of total charge is us

Yes, Shorthole drilling and controll blasting technique adopted, explosive used from own magazine. SDD from Ideal Explosive Ltd is in used for control blasting.

Yes, Shorthole drilling and controll blasting technique adopted, explosive used from own magazine. SDD from Ideal Explosive Ltd is in used for control blasting.

3k Provision of mining machineries in mineral benches

Yes, the provision of mining 1.IR Compressor -03 nos., 2.Jack Hammer - 05 nos., 3. Tippers - 45 nos, 4.Water Pump (Electrical) -5.Water Tanker - 01 nos. 6.PC 200 L&T Komatsu - Nil. 7. Hammer, crow bars, baskets, spades etc. -As required. 8.Drilling rods. - As required.

Yes, The following mining machineries are deployed in mineral machineries as benches. PC 200 L&T proposed are: KOMATSU - 1 NOS, Tractor compressor - 1 nos., IR Compressor - 2 nos., Jack Hammer -8 nos.,

Yes, The following mining machineries are deployed in mineral benches. PC 200 L&T KOMATSU - 1 NOS, Tractor compressor - 1 nos., IR Compressor - 2 nos., Jack Hammer -8 nos.,

Whether height 31 of benches in overburden and mineral suitable 5m & width for method of mining proposed minimum 5m. in MP/SOM

Height of the benches will be maximum of will be

It has been observed during inspection that height of the benches both in Northern and Southern Part of the Quarry is not maintained as per proposal and is about 8-9m with bench width of less than 6m at places.

The shortcoming has been intimated to the lessee through violation letter.

3m Total area covered under excavation/pits Total area s at the end of plan period is 7.516 Ha

1:10

Total area covered under covered under excavation/pits at the excavation/pit end of year 2016-17 is 6.6 Ha.

Total area covered under excavation/pits at the end of year 2016-17 is 6.6 Ha.

Ore to OB ratio for the pit/mine during the year.

1:6.7

30	Total area put in use under different heads at the end of year	Total area put in use under different heads at the end of plan period is 12.638 Ha	Area put in use at the end of the year 2016-17 is:  1.Covered under current (O/C) Workings: 6.6 Ha.  2.Used for waste disposal: 1.17 Ha  3.Occupied by plant, buildings, residential, welfare buildings & roads: 3.26 Ha etc.	
3p	Production of ROM mineral during the last five year period as applicable	Yearwise ROm Production proposal. 2012-13 = 2,51,991 MT 2013-14 = 2,64,384 MT 2014-15 = 2,89,170 MT 2015-16 = 3,05,694 MT 2016-17= 1,72,627 MT	Yearwise Actual ROM Produced 2012-13 = 45,870 MT 2013-14 = 53,090 MT 2014-15 =65,710 MT 2015-16 = 67,870 MT 2016-17 = 32,541 MT	
3q	General remarks of inspecting officers on method of mining etc.	No Comments	Exploitation has been done from one pit as per proposal. However, the ROM production is less than proposed. Also, the Height and width of the benches has not been maintained as per proposal.	Exploitation has been done from one pit as per proposal. However, the ROM production is less than proposed. Also, the Height and width of the benches has not been maintained as per proposal.

# Solid Waste Management - Dumping:

Sl.No.	Item	Propasals	Actual work	Remarks
4a	Separate dumping of topsoil, OB and mineral rejects (Rule 32,33)	Separate dumping of overburden has been proposed	OB dumping has been done as per proposal	OB dumping has been done as per proposal

4b	Location of topsoil, OB and mineral reject dumps	The proposed location of OB dump with coordinates - E 200 to E 300 and N 0 to N 100	Actual location of OB dumps with coordinates E 200 to E 300 and N 0 to N 100	Actual location of OB dumps with coordinates E 200 to E 300 and N 0 to N 100
4c	Number of dumps within lease area and outside of lease area	Number of dumps within lease area - Two Number of dumps outside lease area - Nil	Number of dumps within lease area - Two Number of dumps outside lease area - Nil	Number of dumps within lease area - Two Number of dumps outside lease area - Nil
4d	Location of dumps w.r.t. ultimate pit limit (Rule 16)	Location of OB dumps outside ultimate pit limit -E 200 to E 300 and N 0 to N 100	Location of OB dumps outside ultimate pit limit - E 200 to E 300 and N 0 to N 100	Location of OB dumps outside ultimate pit limit - E 200 to E 300 and N 0 to N 100
4e	Number of active and alive dumps.	One	One	
4f	Number of dead dumps.	One	One	
<b>4</b> g	Number of dumps established.	One	One	
4h	Whether Retaining wall or garland drain all along dumps are there.	YES	It has been observed during inspection that the retaining wall around the active waste dump is found to be broken at places	The shortcoming has been intimated to the lessee through violation letter.
4i	Length of Retaining wall or garland drain all along dumps		Length of Retaining wall all along dump: 250m X 1.5m X 1m Length of garland drain all along dump: 250m X 1.5m X 1m	It has been observed during inspection that the retaining wall around the active waste dump is found to be broken at places. The shortcoming has been intimated to the lessee through violation letter.

<b>4</b> j	Number of settling ponds	Not proposed	Two Nos of Settling pond have been constructed.	It has been observed during inspection that the setting pits and drains are not cleaned. The shortcoming has been intimated to the lessee through violation letter.
4k	Specific comments of inspecting officer on waste dump management	No Comments	Dumping is done at the proposed dumping site. It has been observed during inspection that the retaining wall around the active waste dump is found to be broken at places. Also, the setting pits and drains are not cleaned. The shortcoming has been intimated to the lessee through violation letter.	Dumping is done at the proposed dumping site. It has been observed during inspection that the retaining wall around the active waste dump is found to be broken at places. Also, the setting pits and drains are not cleaned. The shortcoming has been intimated to the lessee through violation letter.

## 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.	Not Proposed	Not Applicable	Not Applicable
5b	Area under backfilling of mined out area	Not Proposed	Not Applicable	Not Applicable
5c	Concurrent use of topsoil for restoration or rehabilitation of mineral out area (Rule 32)	Not Proposed	Not Applicable	Not Applicable

5d	Total area fully reclaimed and rehabilitated	Not Proposed	Not Applicable	Not Applicable
5e	General remarks of inspecting officers on backfilling and reclamation etc.		Backfilling is not proposed during the year 2016-17 in the modified mining plan	Backfilling is not proposed during the year 2016-17 in the modified mining plan

## 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).	Not Specified	Annual report on PMCP for the year 2016-17 has not been submitted.	The yearly report on extent of protective and rehabilitation works carried out as envisaged in the approved mine closure plan for year 2015-16 and 2016-17 has not been submitted to the competent authority till date. The shortcoming has been intimated to the lessee through violation letter.
6b	Area available for rehabilitation (ha) .	Not Proposed	Not Applicable	
6c	afforestation done (ha).	0.4 Ha	3.7 На	
6d	No. of saplings planted during the year	No. of saplings proposed for plantation during the year 2016-17 was 160 nos.	No. of saplings planted during the year 2016-17 was 300 nos.	No. of saplings planted during the year 2016-17 was 300 nos.
бе	Cumulative no .of plants	Not Specified	Cummulative number of saplings planted is 5610 nos	

6f	Any other method of	Not Proposed	Not Applicable
6g	rehabilitation Cost incurred on watch and care during the year	Rs 40,000/-	Rs. 6,51,500/-
6h	Compliance on reclamation and rehabilitation by backfilling (i) Voids available for backfilling ( Lx B x D	Not Proposed	Not Applicable
6i	Compliance on reclamation and rehabilitation by backfilling (ii) Voids filled by waste / tailings	Not Proposed	Not Applicable
6j	Compliance on reclamation and rehabilitation by backfilling (iii)Afforestati on on backfilled area	Not Proposed	Not Applicable
6k	Compliance on reclamation and rehabilitation by backfilling (iv) Rehabilitation by making water reservoir	Not Proposed	Not Applicable
61	Compliance on reclamation and rehabilitation by backfilling (v)any other specific means.	Not Proposed	Not Applicable
6m	Compliance of rehabilitation of waste land within lease (i)afforestation	Not Proposed	Not Applicable

Remarks

6n	Compliance of rehabilitation of waste land within lease (ii)Area rehabilitation (ha)	Not Proposed	Not Applicable	
60	Compliance of rehabilitation of waste land within lease (iii)Method of rehabilitation	Not Proposed	Not Applicable	
бр	Compliance of environmental monitoring (core zone and buffer zone)		Regular monitoring of ambient air quality, noise quality and waster quality is done as per proposal.	
6q	General remarks of inspecting officers on PMCP compliance and progressive closure operations etc.	No Comments	The yearly report on extent of protective and rehabilitation works carried out as envisaged in the approved mine closure plan for year 2015-16 and 2016-17 has not been submitted to the competent authority till date. The shortcoming has been intimated to the lessee through violation letter.	The yearly report on extent of protective and rehabilitation works carried out as envisaged in the approved mine closure plan for year 2015-16 and 2016-17 has not been submitted to the competent authority till date. The shortcoming has been intimated to the lessee through violation letter.

Propasals Actual work

Mineral Conservation:

Sl.No. Item

Remarks

7a	ROM Mineral dispatch or grade-wise sorting within lease area	There is no proposal to establish crushing plant in the ML area for upgradation. The average grade limestone available from the lease area will be directly utilized in lessee's own plant after resorting to mechanical crushing at plant site.		Only re-sizing of blasted rocks to below 300 mm is carried out manually.
7b	Method of grade- wise mineral sorting i.e. manual or mechanical.	Not proposed	Not applicable	Only Re-Sizing of Blasted rocks to below 300mm is carried out manually.
7c	Different grade of mineral sorted out at mines.	Not proposed	Not applicable	
7d	Any beneficiation process at mines .	Not Proposed	Not applicable	
7e	General remarks of inspecting officer on Mineral conservation and beneficiation issues	No Comments	There is no subgrade generation during the year 2016-17. The cutoff grade for limestone has been taken as 40% CaO content.	There is no subgrade generation during the year 2016-17. The cutoff grade for limestone has been taken as 40% CaO content.

Propasals Actual work

Environment:

Item

Sl.No.

8a	Separate removal and utilization of topsoil (Rule 32)	shall be	Yes, intermittent top soil encountered has been preserved separately.	Yes, intermittent top soil encountered has been preserved separately.
8b	Concurrent use or storage of topsoil	No top soil shall be generated during the proposed plan period 2016 - 17.	Intermittent soil encountered is preserved for future use and plantation.	Intermittent soil encountered is preserved for future use and plantation.
8c	Separate dumps for overburden, waste rock, rejects and fines (Rule 33)		Location of OB dumps E 200 to E 300 to NO to N 100	Location of OB dumps E 200 to E 300 to NO to N 100
8d	Use of overburden, waste rock, rejects and fines dumps for restoring the land to its original use	Not Proposed	Not Applicable	
8e	Phased restoration, reclamation and rehabilitation of lands affected by mining operations (Pits, dumps etc)	Not Proposed	Not Applicable	
8f	Baseline information on existence of plantation and additional plantation done (Rule 41)	Not Proposed	Number of trees planted during the year 2016-17 was 300 nos.	
8g	Survival rate	Not Proposed	As per the information submitted the survival rate within the lease area is 40 %	

8h	Water sprinkling on roads to control airborne dust	Not Proposed	One water tanker used for control of airborne dust.	One water tanker used for control of airborne dust.
8i	General remarks of inspecting officer on aesthetic beauty in and around mines area	No Comments	Aesthetic beauty in and around mines is maintained.	Aesthetic beauty in and around mines is maintained.

## Compliance of Rule 45:

Sl.No.	Item	Propasals	Actual work	Remarks
9a	Status of submission of Monthly and Annual returns	Annual Return for the year 2016-17 has been submitted. Monthly return till Jan'18 has been submitted.	Annual Return for the year 2016-17 has been submitted. Monthly return till Jan'18 has been submitted.	Annual Return for the year 2016-17 has been submitted. Monthly return till Jan'18 has been submitted.
9b	Scrutiny of Annual return for information on Mining Engineer, Geologist and Manager	Graduate Mining Engineer: 2 Diploma Mining Engineer: 1 Geologist: 1	Graduate Mining Engineer : 2 Diploma Mining Engineer : 1 Geologist : 1	Graduate Mining Engineer : 2 Diploma Mining Engineer : 1 Geologist : 1
9c	Scrutiny of Annual return on land use pattern for area under pits, reclaimed area, dumps etc.	<pre>(O/C) workings = 6.6 Ha. 2. Used for waste disposal = 1.17 Ha.</pre>	1. Covered under current (O/C) workings = 6.6 Ha. 2. Used for waste disposal = 1.17 Ha. 3. Occupied by plant, buildings, residential, welfare buildings & roads = 3.23 Ha.	<ol> <li>Covered under current (O/C) workings = 6.6 Ha.</li> <li>Used for waste disposal = 1.17 Ha.</li> <li>Occupied by plant, buildings, residential, welfare buildings &amp; roads = 3.23 Ha.</li> </ol>

9d	Scrutiny of Annual return on afforestation	Number of trees planted during the year 2016-17 is 300 nos.	Number of trees planted during the year 2016-17 is 300 nos.	Number of trees planted during the year 2016-17 is 300 nos.
9e	Scrutiny of Annual return on mineral reject generation (Grade and quantity)	Nil	Nil	Nil
9f	Scrutiny of Annual return on ROM stock and/or graded ore		grade limestone at mine head at the end of the year 2016-17 was 4632.694 tonnes	Closing stock of cement grade limestone at mine head at the end of the year 2016-17 was 4632.694 tonnes
9g	Scrutiny of Annual return on sale value, Ex. Mine price and production cost	Ex-mine price (in Rs Per Tonne) of cement grade limestone is 286.07.	Ex-mine price (in Rs Per Tonne) of cement grade limestone is 286.07.	Ex-mine price (in Rs Per Tonne) of cement grade limestone is 286.07.
9h	Scrutiny of Annual return on fixed assets	Assets Rs 170760 (in	Value of Fixed Assets Rs 170760 (in respect of the mine, beneficiation plant, mine work-shop, power and water installation)	Value of Fixed Assets Rs 170760 (in respect of the mine, beneficiation plant, mine work- shop, power and water installation)
9k	Scrutiny of Annual return on mining machineries		Air Compressor : 2 Nos Other HEM machinery: 1 No Water Tanker : 1 No Pumps (Elec.) : 3 No	Air Compressor : 2 Nos Other HEM machinery: 1 No Water Tanker : 1 No Pumps (Elec.) : 3 No

PAGE: 19

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

Violation observed			Show c	ouse position	
Rule NO.		Issued on	Compliance on	Rule NO.	Issued on Compliance on
MCDR17 Rul	e 26(2)	12/01/2018			
MCDR17 Rul	e 11(1)	12/01/2018			

#### Date:

(SHRI SUDIP RANJAN MAZUMDAR)

Indian Bureau of Mines