

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

**MCDR inspection REPORT  
Jabalpur regional office**

**Mine file No :** MP/KTN/LST-50

**Mine code :** 38MPR18049

- (i) Name of the Inspecting : **G005** ) **SANJAY M. GIRHE**  
Officer and ID No.
- (ii) Designation : Regional Mining Geologist
- (iii) Accompanying mine :  
Official with  
Designation
- (iv) Date of Inspection : 21-NOV-19
- (v) Prev.inspection date : 04-DEC-17

**PART-I : GENERAL INFORMATION**

1. (a) **Mine Name** : **KUTESHWAR**
- (b) **Registration NO.** : **IBM/5662/2011**
- (c) Category : A Fully Mechanised
- (d) Type of Working : Opencast
- (e) Postal address :  
State : MADHYA PRADESH  
District : KATNI  
Village : MARWA, JARARODA  
Taluka : VIJAYRAGHAVGARH  
Post office : BARHI  
Pin Code : 483770  
FAX No. : 07626-273251  
E-mail : sailktr@yahoo.co.in  
Phone : 07626-273251
- (f) Police Station :
- (g) First opening date : 30-JAN-76
- (h) Weekly day of rest : THU
2. Address for : STEEL AUTHORITY OF INDIA LTD.  
correspondance : P.O. BARHI, DIST. KATNI (M.P.)  
483770
3. (a) Lease Number : MPR0523
- (b) Lease area : 91.14
- (c) Period of lease : 10
- (d) Date of Expiry : 14-MAY-02
4. Mineral worked : LIMESTONE Main

## 5. Name and Address of the

Lessee : Steel authority of India Ltd.  
 G. OJHA, DIR(PER & I/C RMD)  
 LODHI RD, ISPAT BHAWAN  
 NEWDELHI-110003 KATNI  
 MADHYA PRADESH  
 Phone:07626-273211  
 FAX :07626-273201

Owner : STEEL AUTHORITY OF INDIA LTD.  
 AT & P.O. BARHI, DIST.KATNI  
 M.P KATNI MADHYA PRADESH  
 Phone: 07626-273211/25  
 FAX : 07626-273201

Agent : H.S.PRASAD, GM(FLUX), KTR  
 At & P.O.katni, Kuteshwar,  
 Barhi Dist.Katni MP> KATNI  
 MADHYA PRADESH  
 Phone: 07626-273211  
 FAX : 07626-273201

6. Date of approval of Mining	:	Renewal under rule 22 MCR1960	12-JUN-03
Plan/Scheme of Mining		PMCP under 23B(2) for Existing	29-DEC-05
		Mining Scheme rule 12 MCDR1988	14-JUN-07
		Modif.approved Mining Scheme	24-SEP-09
		Mining Scheme rule 12 MCDR1988	09-SEP-11
		MP modif under MCR 1960	04-APR-16

## PART - II : OBSERVATION/COMMENTS OF INSPECTING OFFICERS

## Exploration :

Sl.No.	Item	Proposals	Actual work	Remarks
1a	Backlog of previous year	During the 2018-19 total 07 core drilling boreholes were proposed	No exploration done during the year 2018-19 as total 57 BHs were proposed during modified mining approved on 5th Nov-2018 for period 2018-19 to 2020-21.	Out of these 57 BHs total 7 boreholes proposed in 2018-19 couldnot be acheived due initiation period of modified mining plan approved 05.11.2018.
1b	Exploration over lease area for geological axis 1 or 2	During the 2018-19 total 07 core drilling boreholes were proposed	Total area explored under G1 level-189.46Ha. In first phase total 244 BHs drilled with cummulative 9618mts drilling, During 1996-97 total 57 BHs were drilled with cummulative 3199mts drilling.	In past Marwa Block area was explored extensively for G1 level by 57 boreholes drilled in 1996-97 with avg. depth of 58m borehole depth with cummulative meterage of 3199m.
1c	Exploration Agencies and Expenditure in lakh rupees during the year	NMDC & lessee SAIL himself had carried out the exploration in the past.	In past explortaion had carried out very long back before in 1995, hence relevant details are not available at this stage.	No comments
1d	Balance area to be explored to bring Geological axis in 1 or 2	Total 57 BHs have been proposed in modified mining approved on 5th Nov-2018 for period 2018-19 to 2020-21.	Out of these 57 BHs total 7 boreholes proposed in 2018-19 couldnot be acheived due initiation period of modified mining plan approved 05.11.2018. Balance area is to be explored in G1 & G2 level during approved plan period.	

1e	Balance reserve as on 01/04/20	Out of these 57 BHs total 7 boreholes proposed in 2018-19 couldnot be acheived due initiation period of modified mining plan approved 05.11.2018. Balance area is to be explored in G1 & G2 level during approved plan period.	Reserves (In Mill Tonne) as 01.04.2019 (As per annual Return 2018-19) Proved (111) : 89.00 (SMS & BF Grade) Probable(121&122) : 183.71 (SMS & BF Grade) Resources(In Mill Tonne) Pre-Feasibility 221 & 222 :14.00 Above reserves & resources falling under Gairtalai, Marwa & Jaroda blocks in ML area.	Reserves funsished under proved (111) category as 89 Million Tonnes were mismatching with details furnished in Modified Scheme of Mining approved on dtd 05.11.2018. Violation pointed out for the same.
1f	General remarks of inspecting officers on geology, exploration etc	NA	In the lease area limestone occured in three different horizons upper (Agal Limestone), Middle (High Manganesia Limestone) & lower (Banded limestone).	Limestone occuring on both the side of river (left & right blanks) with the lease holds & belongs to Kajrahat limestone of semri group. The general strike is ENE-WSW with gentle dip towards NNW.

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Development :

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Sl.No.	Item	Propasals	Actual work	Remarks
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2a	Location of development w.r.t.lease area	OB generation was proposed from two benches at 349-343mRL and 343-337mRL Limestone production was proposed in Marwa Block within UTM limits towards E 484136 to 484759 & N2651800 to 2652114 upto 301mRL	Limestone production carried out at proposed locations with very minor deviation. But, in respect of OB generation & its benches formation, deviation were observed as at some places OB benches are merged together.	Violation of Rule 11(1) were pointed out in respect of above deviations.
2b	Separate benches in topsoil, overburden and minerals (Rule 15)	During the year 2019, Top soil- No proposals, Overburden-2 benches of 6mts heights each proposed from 349-337mRL & Limestone production -6 benches of 6mts height each from 337-301mRL proposed.	For OB generation benching pattern as proposed not followed fully. The limestone production carried out by fromation of 6 benches of 6mts height each.	Violation of Rule 11(1) were pointed out for the deviations in overburden benching pattern.
2c	Stripping ratio or ore to OB ratio	Proposed stripping ratio for the year 2018-19 1:0.55 M3/Tonne	Proposed one is being maintained.	
2d	Quantity of topsoil generation in m3	During the year 2019-19, no top soil generation proposed	Nil	Development & production during the review year was proposed in already broken up area.

2e	Quantity of overburden generation in m3	During the year 2018-19 total 1,45,866 CuM overburden generation was proposed	During the year 2018-19 only 21340 CuM overburden generated	Less overburden generation due to low limestone production & development against the proposed targets.
2f	General remarks of inspecting officers on development of pit w.r.t. type of deposit etc	NA	NA	Lease area is divided into 3 blocks namely Gaitalai, Marwa & Jaroda blok. Dimension of Marwa block-702876M2 x 48m depth, Gairtalai block-48735M2 x 17m depth & Jarado block - 126276M2 x 25m depth. Working being carried out as proposed.

### Exploitation:

Sl.No.	Item	Propasals	Actual work	Remarks
3a	Number of pit proposed for production	During the year Pit-1 of Marwa block was proposed production	Production carried out in Pit-1 of Marwa block	Same location as proposed.
3b	Quantity of ROM mineral production proposed	Total 22,27,500 tonnes	Production acheived during the year 12,52,875 tonnes	Production within the EC limit of 2.32 Million TPA
3c	Recovery of sailable/usable mineral from ROM production	16,56,188 Tonnes ( About 75% of toatl ROM production)	9,86,556 Tonne recovered as salable limestone & rest 2,64,585 Tonnes under sized limestone treated as Cement grade limestone.	Cement grade limestone are being stacked separately for furture use.
3d	Quantity of mineral reject generation	Total 4,01,189 Tonnes mineral regeneration was proposed.	Total 2,64,585 Tonne mineral reject generated	Huge quantity of mineral reject generation in screening plant due to size constraint of salable limestone.

3e	Grade of mineral rejects generation and threshold value declared.	Mineral reject quantity of - 10mm of cement grade above the threshold value proposed	Grade of mineral reject quantity of - SiO <sub>2</sub> - ranging from 3.59 to 4.69% CaO - ranging from 47.20 to 49.60% MgO - ranging from 2.10 to 3.52%	Mineral reject quantity of above grades is sweetner quality for cement manufacturing plant need to be conserved judiciously.
3f	Quantity of sub grade mineral generation.	Not Proposed	Nil	No sub-grade generation from mine.
3g	Grade of sub grade mineral generation	Not Proposed	Nil	
3h	Manual / Mechanised method adopted for segregating from ROM	Mechanised method was proposed	Mechanised method by way of screening plant is adopted for segregating from ROM	
3i	Any analysis or beneficiation study proposed and carried out for sub grade mineral and rejects.	Not Proposed	Dry beneficiation/ screening of ROM is being practised for getting +10mm size limestone suitable in Sinter making plant of SAIL plant at Bokaro	
3j	Provision of drilling and blasting in mineral benches	Proposed for Drilling & blasting with wagon drill - 100mm dia & Jack hammer of 32mm diameter.	Drilling & blasting being carried out as per the proposals.	One dedicated explosive magazine of 6.6 tonnes is installed in lease area.
3k	Provision of mining machineries in mineral benches	IR Drill - 100mm, Rock Breaker-32mm, Excavator-2.7 CuM, Dozer-420HP, Dumpers-18/22 Tonner, etc	Mining operation being carried out by deploying IR Drill - 100mm, Rock Breaker-32mm, Excavator-2.7 CuM, Dozer-420HP, Dumpers-18/22 Tonner, etc machineries	Machineries both contractual as well as in-house.
3l	Whether height of benches in overburden and mineral suitable for method of mining proposed in MP/SOM	Height of 6 m in overburden & 6m in limestone were proposed	Proposed height of 6m in OB & 6m in limestone are being maintained, except at one location OB benches were merged as pointed out during inspection.	Violation of Rule 11(1) of MCDR, 2017 was pointed for merging of OB benches against given proposals.

3m	Total area covered under excavation/pits	101.34 Ha	87.78 Ha as per modified mining plan approved on 05.11.2018	As per annual return for 2018-19, area covered under excavation pits was furnished as 112.910Ha which is not matching with the area furnished in Modified Scheme of Mining approved on dtd 05.11.2018. Accordingly, violation pointed out under Rule 45(5) (C) of MCDR,17
3n	Ore to OB ratio for the pit/mine during the year.	1: 0.55 M3/ Tonnes	Not maintained due to low OB generation during the year.	
3o	Total area put in use under different heads at the end of year	Area proposed as per modified scheme of mining approved 05.11.2018 Area under mining-87.78Ha OB, IB, Fines dumps-22.63Ha Mineral Stacks-8.33Ha Infrastructure -36.70Ha Road-15.26Ha	Area under mining-112.91Ha OB, IB, Fines dumps-53.13Ha Infrastructure-129.94Ha As per annual return 2018-19	Violation of Rule 45(5) (c) of MCDR,17 pointed out for the deviation in excavation area.
3p	Production of ROM mineral during the last five year period as applicable	2014-15 -: 2314474 2015-16 -: 2314474 2016-17-: 1865100 2017-18-: 1978200 2018-19-: 20,57,376	2014-15 -: 942381 2015-16 -: 1168223 2016-17-: 1338971 2017-18-: 1235175 2018-19-: 1252545	



3q	General remarks of inspecting officers on method of mining etc.	NA	NA	Mining operation being carried out by opencast fully mechanised method by deploying HEMM for excavation, drilling, blasting & transportation of material.
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### Solid Waste Management - Dumping:

Sl.No.	Item	Propasals	Actual work	Remarks
4a	Separate dumping of topsoil, OB and mineral rejects (Rule 32,33)	OB & mineral rejects dumping was proposed towards Southern barrier zone and fines generated proposed to be dumped at central part of lease area	Dumping carried as per the proposals.	Year wise dumping was depicted in Plate No-VI of modified Review of mining plan.
4b	Location of topsoil, OB and mineral reject dumps	OB dumps - E3437830 to 3437200 & N709100 to 708890, IB dumping- E3438080 to E3438520 with avg height of 7 to 8mts	Dumping of OB & IB carried out as per the proposals	
4c	Number of dumps within lease area and outside of lease area	Marwa Block-04 overburden & IB dumps Jarorada Block- 03 overburden & IB dumps Gairtalai Block-01 overburden dump	Marwa Block-04 overburden & IB dumps Jarorada Block- 03 overburden & IB dumps Gairtalai Block-01 overburden dump	No dumping out side mining lease.

4d	Location of dumps w.r.t. ultimate pit limit (Rule 16)	As per the approved document proposed beyond ultimate pit limit	Minor portions of dumps in Marwas, Gairtalai & Jarorada blocks falling under ultimate pits limits.	As reported, dumps area which is falling under UPL is of temporary dumping nature.
4e	Number of active and alive dumps.	Marwa Block-04 overburden & IB dumps are active	Marwa Block-04 overburden & IB dumps are active	
4f	Number of dead dumps.	Jarorada Block- 03 overburden & IB dumps & in Gairtalai Block-01 overburden dump are dead dumps	Jarorada Block- 03 overburden & IB dumps & in Gairtalai Block-01 overburden dump are dead dumps	Due to non operation of blocks the status of dumps are dead dumps
4g	Number of dumps established.	Not proposed in the approved document.	Not Applicable	
4h	Whether Retaining wall or garland drain all along dumps are there.	Proposal for construction of garland drain along the periphery of waste dump has been given.	Garland drain has been constructed along the waste & IB dumps.	
4i	Length of Retaining wall or garland drain all along dumps	Proposals of retaining wall & garland drains given during the year 2018-19	Proposals of retaining wall & garland drains given but length are not specified in approved document.	
4j	Number of settling ponds	Not proposed in approved document	Not Applicable	

4k	Specific comments of inspecting officer on waste dump management	NA	NA	Huge quantity of overburden & Interburden are being generated during mining operations, hence more emphasis need to be given on systematic dumps management & this aspect was discussed during inspection accordingly.
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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.	Full extraction of mineral is not occurred in any pits & no such proposals given	Not Applicable	
5b	Area under backfilling of mined out area	Not Proposed	None of the pits area has been backfilled as of now	
5c	Concurrent use of topsoil for restoration or rehabilitation of mineral out area (Rule 32)	No Proposals of top soil during the year 2018-19	Not Applicable	
5d	Total area fully reclaimed and rehabilitated	Not Proposed	Not Applicable	

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5e	General remarks of inspecting officers on backfilling and reclamation etc.	NA	NA	Limestone is not exhausted in any pits so far, hence scope of backfilling and reclamation do not exist. Fines material below threshold value generated during crushing/screening can be very well utilized for backfilling in future.
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Progressive Mine Closure Plan:

Sl.No.	Item	Proposals	Actual work	Remarks
6a	Whether Annual report on PMCP submitted on time and correctly. Rule 23 E(2).	To be submitted before 1st July of every year	Annual PMCP report submitted well within time limit	
6b	Area available for rehabilitation (ha) .	No area is proposed for rehabilitation	With the lease, no such area is available for rehabilitation as of now.	
6c	afforestation done (ha).	Total 17500 saplings proposed to be planted over 4.5Ha with 80% survival rate	During the year 2018, total 18000 saplings were planted with cumulative survival rate of 85%.	
6d	No. of saplings planted during the year	Total 17500 saplings proposed to be planted over 4.5Ha with 80% survival rate during the year 2018-19	During the year 2018, total 18000 saplings were planted with cumulative survival rate of 85%.	
6e	Cumulative no .of plants	1700 Nos	1800 Nos	
6f	Any other method of rehabilitation	Not Proposed	Nil	

6g	Cost incurred on watch and care during the year	Not Proposed	Nil
6h	Compliance on reclamation and rehabilitation by backfilling (i) Voids available for backfilling ( L x B x D	Not Proposed	Nil
6i	Compliance on reclamation and rehabilitation by backfilling (ii) Voids filled by waste / tailings	Not Proposed	Nil
6j	Compliance on reclamation and rehabilitation by backfilling (iii) Afforestation on backfilled area	Not Proposed	Nil
6k	Compliance on reclamation and rehabilitation by backfilling (iv) Rehabilitation by making water reservoir	Not Proposed	Nil
6l	Compliance on reclamation and rehabilitation by backfilling (v) any other specific means.	Not Proposed	Nil
6m	Compliance of rehabilitation of waste land within lease (i) afforestation	Not Proposed	Nil

6n	Compliance of rehabilitation of waste land within lease (ii)Area rehabilitation (ha)	Mot Proposed	Nil	
6o	Compliance of rehabilitation of waste land within lease (iii)Method of rehabilitation	Not Proposed	Nil	
6p	Compliance of environmental monitoring (core zone and buffer zone)	Environmental parameters monitoring proposed at regular interval in core zone and in buffer zone	Environmental parameters monitoring being carried out at regular interval in core zone as well as in buffer zone.	
6q	General remarks of inspecting officers on PMCP compliance and progressive closure operations etc.	--	--	PMCP report in prescribed form submitted and PMCP works carried out as per the proposals. Significant plantation have been carried out by the lessee in & around the mine.

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#### Mineral Conservation:

Sl.No.	Item	Propasals	Actual work	Remarks
7a	ROM Mineral dispatch or grade-wise sorting within lease area	Before despatch ROM subjected to mechanical screening/crushing. No grade wise sorting is proposed	ROM dispatched after mechanical screening/crushing. No grade wise sorting is done.	

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7b	Method of grade-wise mineral sorting i.e. manual or mechanical.	Grade wise sorting is not proposed.	Not Done	Crusher & screening plant of 450TPH is installed within lease area for grade wise & size wise separation of limestone as per steel plant requirement.
7c	Different grade of mineral sorted out at mines.	No grade wise sorting is proposed	Not Done	
7d	Any beneficiation process at mines .	No benification is proposed. Limestone crushing/screeing proposed	Benificiation not done only limestone crushing/screening is done	
7e	General remarks of inspecting officer on Mineral conservation and beneficiation issues	NA	NA	The mineral reject existing inside the lease are above the threshold limit prescribed by the IBM. The limestone has been classified under mineral reject by virtue of its size i.e below 10 mm as it cannot be used in the steel furnance. The CaO content of the Mineral reject is about 48% to 49%.

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**Environment:**


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Sl.No.	Item	Propasals	Actual work	Remarks
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8a	Separate removal and utilization of topsoil (Rule 32)	RemovalOB is proposed and top soil is in the form top OB. Spreading of this top OB for plantation purpose is proposed.	Top overburden generated utilized as per the proposals.	
8b	Concurrent use or storage of topsoil	Not Proposed	Not done	
8c	Separate dumps for overburden, waste rock, rejects and fines (Rule 33)	Separate dumps proposed as per approved documents	Dumping carried out as per the proposals	
8d	Use of overburden, waste rock, rejects and fines dumps for restoring the land to its original use	Not proposed	No mined out area matured for backfilling, hence OB, mineral rejects & fines are being stacked separately on earmarked locations	
8e	Phased restoration, reclamation and rehabilitation of lands affected by mining operations (Pits, dumps etc)	Not Proposed	Not Done	Mineral not exhausted so far in any pits, hence scope of phase wise restoration & rehabilitation of mined out land doesnot exists.
8f	Baseline information on existence of plantation and additional plantation done (Rule 41)	Total 17500 nos of saplings proposed to be planted with 85% survival	Total 18000 nos of saplings planted with 80% survival during 2018-19	
8g	Survival rate	Proposed 85% during 2018-19	Acheived 80% during 2018-19	



8h	Water sprinkling on roads to control airborne dust	Water sprinkling proposed	Water sprinkling done	Two water tankers of 16KL are dedicately provided for water sprinkling purpose on mine haul road to arrest airborne dust.
8i	General remarks of inspecting officer on aesthetic beauty in and around mines area	NA	NA	The general asthetic beauty of the area is good, the lease area is surrounded by the the catchment area of Bansagar dam. Significant plantation are also done in an around mines area.

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Compliance of Rule 45:

Sl.No.	Item	Propasals	Actual work	Remarks
9a	Status of submission of Monthly and Annual returns	Monthly Return submitted upto - 31/10/2019 Annual Return submitted for financial year - 2018-19	Monthly & Annual Returns submitted online within stipulated time.	
9b	Scrutiny of Annual return for information on Mining Engineer, Geologist and Manager	Shri Hemant Kumar Sahu appointed as Mining Engineer & Shri Satish Kumar Tiwari appointed as Geologist under rule 55(1) (c) (i) of MCDR, 2017	Shri Hemant Kumar Sahu, ME & Shri Satish Kumar Tiwari were present during the inspection.	

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9c	Scrutiny of Annual return on land use pattern for area under pits, reclaimed area, dumps etc.	Area under current working- 112.91Ha Used for OB, IB, Fines dumps-53.13Ha Infrastructure -129.94Ha	Area given under current working as 112.91Ha was mismatching with modified scheme of mining approved on 05.11.2018.	Violation under rule 45(5)(c) of MCDR,2017 issued for deviation in area under current working w.r.t. with modified scheme of mining approved on 05.11.2018.
9d	Scrutiny of Annual return on afforestation	18000 Nos saplings planted with survival rate of 85%	Good plantation work done to enhance the aesthetic beauty of the lease area	
9e	Scrutiny of Annual return on mineral reject generation (Grade and quantity)	Total 2,64,585 tonnes of mineral reject reported of CaO-47.18%	The mineral reject existing inside the lease are above the threshold limit prescribed by the IBM. The limestone has been classified under mineral reject by virtue of its size i.e below 10 mm as it cannot be used in the steel furnance. The CaO content of the Mineral reject is about 48% to 49%.	Mineral reject (Cement grade limestone) by virtue of its size i.e below 10 mm as it cannot be used in the steel furnance. The CaO content of the Mineral reject is about 48% to 49%.

9f	Scrutiny of Annual return on ROM stock and/or graded ore	Limestone (BF) grade: Opening stock : 10,957.360 Tonnes Production: 9,86,556.726 Tonnes Despatched: 9,87,349.856 Tonnes Closing Stock: 10,164.230 Tonnes Limestone (Cement) grade: Opening stock : 19,84,155 Tonnes Production: 2,64,585 Tonnes Despatched: Nil Closing Stock: 22,48,740 Tonnes	Limestone have CaO% >52% with +10mm to -75mm size is being utilized for sinter making & rest - 10mm fines generated from crusher being stacked separately.	Mineral reject (Cement grade limestone) by virtue of its size i.e below 10 mm as it cannot be used in the steel furnance. The CaO content of the Mineral reject is about 48% to 49%.
9g	Scrutiny of Annual return on sale value, Ex. Mine price and production cost	BF grade limestone-: Ex-mine price: Rs 871.82/MT Cement grade limestone Ex-mine price -Rs 871.82/MT	Limestone consumption is captive hence sale value not furnished in AR. Ex-mine price of both BF & Cement grade limestone is furnished as same of Rs-871.82.	Violation under rule 45(5) (c) of MCDR,2017 issued for similarity in ex-mine price of BF & cement grade limestone.
9h	Scrutiny of Annual return on fixed assets	Fixed assets of Rs 131201968 furnished	NA	
9k	Scrutiny of Annual return on mining machineries	IR Drill - 100mm, Rock Breaker-32mm, Excavator-2.7 CuM, Dozer-420HP, Dumpers-18/22 Tonner, etc	IR Drill - 100mm, Rock Breaker-32mm, Excavator-2.7 CuM, Dozer-420HP, Dumpers-18/22 Tonner, etc	NA

**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
MCDR17	Rule 11(1)	16-DEC-19			
MCDR17	Rule 14(2)	16-DEC-19			
MCDR17	Rule 14(3)	16-DEC-19			
MCDR17	Rule 45(5) (c	16-DEC-19			

**Date :**

**(SANJAY M. GIRHE)**

Indian Bureau of Mines