

## MCDR INSPECTION REPORT

### General

S.N.	Particulars	Details
1	Name of the Mine Date of Inspection: Name of Inspecting Officer	Nandini Limestone Mine Bhilai Steel Plant of SAIL 07/12/2018 Shri Rudra N. Mishra (Senior Mining Geologist)
2	Total Lease Area (Ha) with breakup of Non-forest and forest land	Non- forest: 526.34hect. Forest Land: 00.00 hect. Total Land: 526.34 hect.
3	Mine code	38MPR13003
4	IBM Registration Number under rule 45 of MCDR,2017	IBM/5662/2011
5	Name of the Lease, Address, Phone, email and fax number	Bhilai Steel Plant of SAIL, Shri H. N. RAI (Director-Tech.), SAIL Address: Director (Technical), steel Authority of India Limited, Ispat Bhawan, Lodhi Road, New Delhi-110003 Phone 01124363358/fax 01124367105 Email <a href="mailto:hn.rai@sailex.com">hn.rai@sailex.com</a>
6	Village	Deorjhal, Ahiwara, Pithora, Nandini-Kundini
7	Taluka/Mandal	Dhanda
8	District	Durg
9	Pin code	490036
10	State	Chhattisgarh
11	Post Office	Nandini Nager
12	Nearest Police Station	Nandini police thana
13	Nearest Railway Station	Power House, Bhilai
14	Date of Grant of Mining Lease	12.01.2005
15	Date of Execution	28.06.2005
16	Date of opening of Mine	15.06.1958
17	Date of First Renewal, if applicable and its period & expiry	(1) 174.45 Ha. 01.01.59 to 31.12.78, 20 Years (2) 446.00 Ha. 31.03.67 to 30.03.87, 20 Years
18	Date of Second Renewal, if applicable and its period & expiry	526.34 Ha. (Both the Mining leases was Amalgamated) 2 nd Renewal 31.03.1997 to 30.03.2017, 20 Years. Supplementary lease extension upto 31.12.2028.
19	Date of submission of renewal application if Mining Operations are continuing under deemed extension	N.A.
20	Name of the Nominated Owner with Address, phone, email, fax number and date of appointment	Shri H. N. RAI (Director-Tech.), SAIL Address: Director (Technical), steel Authority of India Limited, Ispat Bhawan, Lodhi Road, New Delhi-110003 Phone 01124363358/fax 01124367105 Email <a href="mailto:hn.rai@sailex.com">hn.rai@sailex.com</a>
21	Name of the Mine Agent with Address, phone, email, fax number	Shri T.G. Ullaskumar Agent Cum Dy. General Manager I/c (Flux)

	and date of appointment	Nandini Mine (Limestone) Bhilai Steel Plant Appointment 01.03.2013 Working Experience: 33 years Email: <a href="mailto:tgulaskumar@sail-bhilaisteel.com">tgulaskumar@sail-bhilaisteel.com</a>
22	Name of the Mine Manager with Address, phone, email, fax number and date of appointment in mines	ShriPankaj Kumar Mine Manager, Mobile No. 9407982945 e-mail: <a href="mailto:pankajkumar@sail-bhilaisteel.com">pankajkumar@sail-bhilaisteel.com</a> , Fax No. 07821-257233 Appointment 30.10.2017. Working Experience: 10 years
23	Name of the Mining Engineer, Qualification and total experience with address, phone, email, fax number and date of appointment in the mine	Shri Pramod Kumar Asst. Mine Manager, Mobile No. 9407981275 e-mail: <a href="mailto:pramodkumar4@sail-bhilaisteel.com">pramodkumar4@sail-bhilaisteel.com</a> Fax No. 07821-257233 Appointment 16.12.2012 Working Experience: 11 years
24	Whether Geologist and Mining Engineer appointment in mines satisfy the rule 55 & carrying out their duties as per rule 54 & 55 (MCDR 2017).	Shri Manish Dubey Geologist, Mobile No. 9407984113 Fax No. 07821-257233 Appointment 01.07.2008. Working Experience: 09 years
25	Date of Approval of Mine Plan/Modified Mine Plan with five-year period and specific condition in approval letter, if any.	26.12.2016 Modifications in Mining Plan For 2017-18 to 2021-22
26	Date of Approval of Scheme of Mining/Modified Scheme of Mining with five- year period and specific condition in approval letter, if any.	N.A.
27	Mineral(s) granted in lease and approved for Mining	Limestone
28	Method of Mining (Opencast, Underground)	Opencast
29	Category (Fully Mechanised, Others or Manual)	Fully Mechanised
30	Captive/Non-Captive	Captive mine

### Exploration

S.N.	Item	Proposals (2017-18)	Actual Work (2017-18)	Remarks
1a	Backlog of previous year	Nil	Nil	Entire lease area is explored in G1 category. 100*100 Grid pattern prospecting was done.
1b	Exploration over lease area for Geological axis 1 or 2.	N/A	N/A	
1c	Exploration Agency & Expenditure in Lakh Rupees during the year	N/A	N/A	

1d	Balance area to be explored to bring Geological axis in 1 or 2.	N/A	N/A	
1e	Balance reserves as on 01.04.18	Under 111: 47.85MT. Under 211: 53.98MT		
1f	General remarks of Inspecting officer on geology, exploration etc.	Chandi Limestone formation of Raipur Group of Chhattisgarh Basin. The Regional strike of the beds is considered East - west with a Dip amount of less than 2 degree towards North. The mineralised beds are horizontal to Sub-horizontal. Bedding plane Joints are found in the third bench. Beside these, a set of week joints are prevailing all over the area. The area is devoid of major geotectonic disturbances. Limestone is flaggy in nature, predominantly grey/pink in color, stromatolitic fine to medium grained, hard and compact. On the basis of nore hole data, the lithological sequence is as follow: Soil & Alluvium, Purple grey/pinkish Limestone, Pink siliceous shaly Limestone, siliceous /Dolomitic Limestone. Entire lease area is explored in G1 category.		

### Development

S. N.	Item	Proposals (2017-18)	Actual Work (2017-18)	Remarks
2a	Location of Development w.r.t. lease area	BFQ(S-W) & BSQ (N-E)	BFQ(S-W) & BSQ (N-E)	
2b	Separate benches in topsoil overburden and mineral (Rule 15)	Yes	Maintained. Top soil is not being encountered.	
2c	Stripping ratio or ore to OB ratio	1:0.37	1:0.20	
2d	Quantity of topsoil generation in m <sup>3</sup>	Less Top Soil	Top soil is not being encountered	
2e	Quantity of overburden generation in m <sup>3</sup>	202703 m <sup>3</sup>	109100 m <sup>3</sup>	
2f	General remarks of Inspecting officer on development of pit w.r.t type of deposit etc.	During the inspection first three bench only exposed rest two bench was waterlogged. Limestone is flaggy in nature, predominantly grey/pink in color, stromatolitic, fine to medium grained, hard and compact and occasionally grades into shaly variety		

### Exploitation

S.N .	Item	Proposals (2017-18)	Actual Work (2017-18)	Remarks
3a	Number of pits proposed for production	02	02	
3b	Quantity of ROM mineral production proposed (2017-18)	1002288T	396278T	
3c	Recovery of Salable/usable mineral from ROM production	Approx 25%	Approx 25%	
3d	Quantity of mineral reject generation	200457T	88631T	

3e	Grade of mineral reject generation and threshold value declared	CaO < 34% MgO > 4%	CaO < 34% MgO > 4%	
3f	Quantity of sub-grade mineral generation	Proposal has not been given in approved Mining Plan	No sub grade mineral has been generated.	
3g	Grade of sub-grade mineral generation	Proposal has not been given in approved Mining Plan NIL	NIL	
3h	Manual/Mechanized method adopted for segregation from ROM	Mechanised	Mechanised	
3i	Any analysis or beneficiation study proposed & carried out for sub-grade mineral and reject	Proposal has not been given in approved Mining Plan	NA	
3j	Provision of drilling & blasting in mineral benches	IDM-30 (150 mm) ICM-260 (100mm)	IDM-30 (150 mm) ICM-260 (100mm)	
3k	Provision of mining machineries in mineral benches	Excavator, Dozer, Drill, Dumper	Excavator, Dozer, Drill, Dumper	
3l	Whether height of benches in overburden and mineral suitable for method of mining proposed in MP/SOM	Yes	Yes	
3m	Total area covered under excavation /pits	138.1	138.1	
3n	Ore to OB ratio for the pit/mine during the year	1:0.37	1:0.20	
3o	Total area put in use under different heads at the end of year	Pit- 6 hact. Waste dump-0.77h Reject- Nil	Pit- 6 hact. Waste dump-0.55h	
3p	Production of ROM in Tonnes mineral during last five-years period, as Applicable	2013-14	285250T	337195.00T
		2014-15	285688T	457680.00T
		2015-16	285687T	366943.00T
		2016-17	280437T	265292.00T
		2017-18	1002288T	396278.00T
3q	General remarks of inspecting officer on method of mining etc	Method of mining is Open cast mechanized mining with shovel dumper combination. Working are being carried out as per approved documents.		

### **Solid Waste Management-Dumping**

S.N.	Item	Proposals (2017-18)	Actual Work (2017-18)	Remarks
4a	Separate dumping of topsoil, OB & mineral reject (Rule 32,33)	Top soil: NIL OB: yes M/Reject: yes	Top soil: NIL OB: yes M/Reject: yes	.

4b	Location of topsoil, OB & mineral reject dumps	OB: North Side of the Blast furnace quarry (BFQ) & EASTERN SIDE OF Black stone quarry (BSQ) Mineral reject: Screen reject has been kept at North - Eastern side of the Lease area.	OB: North Side of the Blast furnace quarry (BFQ) & EASTERN SIDE OF Black stone quarry (BSQ) Mineral reject: Screen reject has been kept at North - Eastern side of the Lease area.	
4c	Number of Dumps within lease area and outside lease area	02 (within Lease area)	02 (within Lease area)	
4d	Location of Dumps w.r.t. ultimate pit limit (Rule 16)	Beyond UPL (Non-mineralised area)	Beyond UPL (Non-mineralised area)	
4e	Number of Active & Alive dumps	Active Dumps: 02	Active Dumps: 02	
4f	Number of dead dumps	Dead dumps: 11	Dead dumps: 11	
4g	Number of dumps established	09 nos	09 nos	
4h	Whether Retaining wall or garland drain all along dumps are there	Proposal has not been given in approved Mining Plan	Retaining wall under construction.	
4i	Length of Retaining wall or garland drain all along dump	Garland drain 200 mtrs.	Garland drain 200 mtrs.	
4j	Number of settling ponds	Proposal has not been given in approved Mining Plan	Not applicable	
4k	Specific comments of inspecting officer on waste dump management	Waste generation is very high.		

### **Solid Waste Management-Backfilling**

S.N.	Item	Proposals (2017-18)	Actual Work (2017-18)	Remarks
5a	Status on part or full extraction of mineral from mined out area before starting backfilling	Both quarries are not been exhausted	Not Applicable	
5b	Area under backfilling of mined out area	Area not matured for backfilling	Not Applicable	

5c	Concurrent use of topsoil for restoration or rehabilitation of mined out area (Rule 32)	Less top soil present within lease area and same has been utilised in the plantation.	Less top soil present within lease area and same has been utilised in the plantation.	
5d	Total area fully reclaimed & rehabilitated	56.16ha	56.16ha	
5e	General remarks of inspecting officer on backfilling, reclamation etc	Area not matured for backfilling and reclamation & rehabilitation.		

**Progressive Mine Closer Plan**

S. N.	Item	Proposals (2017-18)	Actual Work (2017-18)	Remarks
6a	Whether Annual report on PMCP submitted on time and correctly-Rule 23E (2). Details should be given in the format as given in Annexure-20	Yes	Yes	
6b	Management of worked/mined out benches			
	Area available for rehabilitation (Ha)	Nil	Nil	
	Afforestation done (ha)	2.00ha	4.00ha	
	No. of saplings planted during the year	2500 nos	5000 nos	
	Cumulative no. of plants	850000nos	926527nos	
	Any other specific method of rehabilitation	Nil	Nil	
	Cost incurred on watch & care during the year	25.2lac	25.2lac	
6c	Compliance on reclamation and rehabilitation by backfilling i) Voids available for backfilling (L*B*D) ii) Void filled by waste/tailings iii) Afforestation on the backfilling iv) Rehabilitation by making water reservoir v) Any other specific means	Proposal has not been given in approved Mining Plan	NA	
6d	Compliance of Rehabilitation of waste land within lease i) Afforestation ii) Area rehabilitation iii) Method of rehabilitation	Proposal has not been given in approved Mining Plan	NA	
6e	Compliance of Environment monitoring (core zone & buffer zone)	Air wet Drilling, water check Dams, Noice control Blasting,	Air within Permissible limit, Water - within	

		In house environment monitoring cell	Permissible limit, Noise- within Permissible limit	
6f	General remarks of inspecting officer on PMCP compliance & progressive closer operations	PMCP proposal are implemented		

### Mineral Conservation

S.N.	Item	Proposals (2017-18)	Actual Work (2017-18)	Remarks
7a	ROM mineral dispatch or grade wise sorting within lease area	Single stage crushing	Single stage crushing	
7b	Method of grade-wise mineral sorting i.e. manual or mechanical	Mechanical	Mechanical	
7c	Different grade of mineral sort out at mine	Above 34% CaO grade Limestone	Above 34% CaO grade Limestone	
7d	Any beneficiation process at mines	Not Proposed in approved document	NA	
7e	General remarks of inspecting officer on Mineral conservation & beneficiation issues	Single Stage of Crushing and grade sorting by mechanical. Machines(excavator) deployed in two or three faces for blending of sub grade		

### Environment

S.N.	Item	Proposals (2017-18)	Actual Work (2017-18)	Remarks
8a	Separate removal and utilization of topsoil (Rule32)	Yes	Yes	
8b	Concurrent use or storage of topsoil	Use for Plantation	Use for Plantation	
8c	Separate dumps for overburden waste rock, rejects and fines (Rule 33)	Proposal has been given for separate dumps for overburden, waste and rejects.	Dumping has been carried out as per proposal.	
8d	Use of overburden, waste rock, rejects and fines dumps for restoring the land to its original use	Not Proposed in approved document	NA	

8e	Phased restoration, reclamation and rehabilitation of lands affected by mining operations (Pits, dumps etc)	Not Proposed in approved document	NA	
8f	Baseline information on existence of plantation & additional plantation done (Rule 41)	2.00Ha	30Ha	
8g	Survival rate	95%	95%	
8h	Water sprinkling on roads to control airborne dust	Proposed	Yes, Water sprinkling has been done with the Water Tanker	
8i	General remarks of inspecting officer on aesthetic beauty in and around mine area	EMP parameters are regularly being monitored. Well developed thick plantation within and outside the lease area. Due to plantation around the mining area aesthetic beauty increased.		

**Compliance of Rule 45**

S. N.	Item	Comments	Remarks
9a	Status of submission of monthly and Annual returns	M.R. Submitted upto–December-2018 A.R. submitted upto- 2017-18	
9b	Scrutiny of Annual return for information on Mining Engineer, Geologist and Manager	Yes	
9c	Scrutiny of Annual return on land use pattern for area under pits, reclaimed area, dumps etc.	Area Under Pit: 138.100ha Reclaimed area:56.10 ha Use for waste disposal: 96.330ha Occupied by plant, building residential, welfare building and roads:21.410ha Other purpose (Mineral Storage):61.010 ha	
9d	Scrutiny of Annual return on afforestation	Nos of plantation during the yr. within lease area-8152 Nos of sapling outside Lease area:942 Nos of sapling.	
9e	Scrutiny of Annual return on mineral reject generation (Grade & Quantity)	88631T Quantity, Grade: Cao=33.10, MgO=6.30, SiO2=9.70	
9f	Scrutiny of Annual return on ROM stock and/or grade ore	Opening Stock: 000.00T ROM:377459.00T, Dispatch:309758.00 T Closing Stock: 18819.00T.	
9g	Scrutiny of Annual return on sale value, Ex. Mine price & production costs	Rs. per tonne ex-mine price and cost of production :733.30Rs.	
9i	Scrutiny of Annual return on Fixed assets	Value of Fixed Assets: Rs 130885783.00	
9k	Scrutiny of Annual return on mining Machineries	Not given	



Details of Violations observed during current Mining Plan inspection: -

नियम	उल्लंघन के प्रकार का ब्यौरा
11(2)	Mining operations in the mining lease are not being carried out in accordance with as per the proposal given in approved modified mining plan dated 26/12/2016 to the extent given below.  a) Limestone benches and over burden benches in mine are not properly maintained as per proposal given in approved mining plan.
27(4)	The plans and sections of mining lease have not been maintained up to date within three months period.

Last Inspection Details: Shri shaival Kartikeya (Jr. Mining Geologist) MCDR inspection held on dated 16/01/2018. Violations pointed out during last inspections have been complied.

Date: 11/01/2019

Name & Designation: Shri Rudra N. Mishra  
(Senior Mining Geologist)