

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

Inspection under SDF for star rating of mines REPORT

Bangalore regional office

Mine file No : KNT/CTD/FE/4/BNG

Mine code : 30KAR07013

- (i) Name of the Inspecting : **M003**) **G C MEENA**
Officer and ID No.
- (ii) Designation : Regional Controller Mines
- (iii) Accompanying mine :
Official with
Designation
- (iv) Date of Inspection : 05/11/2019
- (v) Prev.inspection date : 21/02/2019

PART-I : GENERAL INFORMATION

1. (a) **Mine Name** : **A. NARRAIN**
- (b) **Registration NO.** : **IBM/327/2011**
- (c) **Category** : **A Fully Mechanised**
- (d) **Type of Working** : **Opencast**
- (e) **Postal address**
- State** : **KARNATAKA**
- District** : **CHITRADURGA**
- Village** : **MEDEKERIPURA**
- Taluka** : **CHITRADURGA**
- Post office** : **BHEEMASAMUDRA**
- Pin Code** : **577501**
- FAX No.** : **0832-6713721 (F), Jayavel.G**
- E-mail** : **MK.Reddy@vedanta.co.in**
- Phone** : **0832-6713600 (O),**
- (f) **Police Station** : **Baramasagara**
- (g) **First opening date** : **03/10/1955**
- (h) **Weekly day of rest** : **SUN**
2. **Address for correspondance** : **Vedanta Limited(formerly Sesa sterlite/Sesa Goa
Sesa Ghor, 20 EDC Complex,
Patto, Panaji, Goa- 403001**
3. (a) **Lease Number** : **KAR1020**
- (b) **Lease area** : **163.5**
- (c) **Period of lease** : **20**
- (d) **Date of Expiry** : **13/05/2013**
4. **Mineral worked** : **IRON ORE** **Main**

5. Name and Address of the

Lessee : VEDANTA LIMITED
 Sesa Ghor, EDC Complex,
 Patto- Panaji, Tiswadi,
 North Goa, Goa. NORTH GOA
 GOA
 Phone:08194238101, 9483211966
 FAX :08194238170

Owner : SAUVICK MAZUMDAR
 M/S VEDANTA LTD., SESA
 GHOR, EDC CO PATTO, PANAJI,
 TISWADI, NORTH GOA, 403001
 NORTH GOA GOA
 Phone: 08194238101
 FAX : 08194238170

Agent : M. Krishna Reddy
 Megalahalli Office Complex
 Bheemasamudra ,
 Chitradurga, Karnataka
 CHITRADURGA KARNATAKA
 Phone: 08194-238101
 FAX : 0832-2460612

Mining Engineer

Name : Padmaraja Tumati, Full Time
 Qualification : BE Mining Exp 15 Years
 Appointment/ : 15/07/2017
 Termination date

Geologist

Name : Somshekhar Dhodkunde, Full Time
 Qualification : M.Sc, Applied Geology
 Appointment/ : 11/01/2016
 Termination date

Manager

Name : Vijayanand Chakrasali
 Qualification : BE Mining FCC
 Appointment/ : 03/10/2017
 Termination date

6. Date of approval of Mining Plan/Scheme of Mining	:	Renewal under rule 22 MCR1960	03/04/1992
		Renewal under rule 22 MCR1960	04/03/1998
		Modif.of approved Mining Plan	02/07/2001
		Mining Scheme rule 12 MCDR1988	06/03/2003
		Modif.approved Mining Scheme	18/08/2005
		Mining Scheme rule 12 MCDR1988	26/04/2007
		Mining Scheme rule 12 MCDR1988	19/08/2008
		Modif.approved Mining Scheme	25/02/2010
		Mining Scheme rule 12 MCDR1988	29/02/2012
		Mining Scheme rule 12 MCDR1988	03/09/2012
		Renewal under rule 24 MCR1960	19/11/2012
		Modif.of approved Mining Plan	10/05/2016
		MP review under 17(1) MCR 2016	15/12/2016
		MP modif under 17(3) MCR 2016	23/03/2018
		MP modif under 17(3) MCR 2016	19/06/2018
		Modif.approved Mining Scheme	19/08/2019

PART - II : OBSERVATION/COMMENTS OF INSPECTING OFFICERS

Exploration :

Sl.No.	Item	Proposals	Actual work	Remarks
1a	Backlog of previous year	14 no of boreholes with 5180m for FY 2019-20	1st borehole is running, drilling started on 02/11/19	New bore holes drilled for infill drilling
1b	Exploration over lease area for geological axis 1 or 2	No proposal	Total mineralized area in lease is 90.25Ha and entire area is Explored at G1 level.	Future exploration if any done it will be only for quality purpose.
1c	Exploration Agencies and Expenditure in lakh rupees during the year	No proposal	Drilling by M/S South west Pinnacle is in progress	Exploration drilling is given on contract.
1d	Balance area to be explored to bring Geological axis in 1 or 2	No proposal	99.16 Ha of leasehold area is mineralized; entire mineralized zone is explored up to G-1 Level.	Entire mineralized area is explored to G-1 level
1e	Balance reserve as on 01/04/20	NA	100.381MMT	Balance Reserves quantity as on 01/04/2020 as per AR 2018-19.
1f	General remarks of inspecting officers on geology, exploration etc			

Development :

Sl.No.	Item	Proposals	Actual work	Remarks
2a	Location of development w.r.t.lease area	SB -N1572000-1573350,E629800-630800 NB-N1573693-1573993,E629600-629650	SB - N1572000-1573300,E629800-630800 NB- N1573693-1573993,E629600-629650	Nil
2b	Separate benches in topsoil, overburden and minerals (Rule 15)	South Block: OB - 7 Mineral - 5 OB/Mineral- 1 North Block: OB - 2 Mineral - 3	South Block: OB - 7 Mineral - 5 OB/Mineral- 1 North Block: OB - 2 Mineral - 3	Ore - 6 Benches OB - 7 Benches

2c	Stripping ratio or ore to OB ratio	1:0.36	1:0.44	
2d	Quantity of topsoil generation in m3	Nil	Nil	Mine is being in the operation since 1954. Entire area is already broke open. Hence no top soil available.
2e	Quantity of overburden generation in m3	634962	594173	BD 1.70 tons/cum
2f	General remarks of inspecting officers on development of pit w.r.t. type of deposit etc			NIL

Exploitation:

Sl.No.	Item	Propasals	Actual work	Remarks
3a	Number of pit proposed for production	2	2	North & South Block
3b	Quantity of ROM mineral production proposed	3035490 Tonnes	2066271 Tonnes	Data is as on 31st Oct2019
3c	Recovery of sailable/usable mineral from ROM production	100 %	100 %	Dry screening & crushing plant with 100% product recovery
3d	Quantity of mineral reject generation	163890 Tonnes	6010 Tonnes	Hematitic siliceous ore could not be handled due to less exposure of SO benches.
3e	Grade of mineral rejects generation and threshold value declared.	+35% Fe (Hematitic Siliceous ore)		
3f	Quantity of sub grade mineral generation.	No Proposal	NA	No Proposal as per App. Mining Plan
3g	Grade of sub grade mineral generation	No Proposal	NA	No Proposal as per App. Mining Plan

3h	Manual / Mechanised method adopted for segregating from ROM	Fully mechanized method of mining	Fully mechanized method of mining	Dry screening and crushing plant.
3i	Any analysis or beneficiation study proposed and carried out for sub grade mineral and rejects.	No Proposal	Beneficiation studies done on siliceous ore.	The study was done through IBM lab.
3j	Provision of drilling and blasting in mineral benches	Proposal was to blast top hard benches of Lumpy ore	Top hard lumpy ore benches are blasted using controlled blasting method	The blasting service is outsourced.
3k	Provision of mining machineries in mineral benches	Proposal is given for use of mining machinery in mineral benches.	Excavators and Dumpers are used for excavation of ore and waste in mining pit	Company owned machinery is used for excavation.
3l	Whether height of benches in overburden and mineral suitable for method of mining proposed in MP/SOM	7 m height of bench is proposed for mining.	Average height of 7 to 7.5 meters is maintained in entire pit.	Nil
3m	Total area covered under excavation/pits	69.04 Ha	69.04 Ha is covered for mining purpose	
3n	Ore to OB ratio for the pit/mine during the year.	1:0.76	1:0.59	
3o	Total area put in use under different heads at the end of year	O/c working 69.04 Stabilized dump area 23.24 Waste disposal 43.10 Crushing/scree ning 04.60 buildings & Road 04.69 Mineral/ Subgrade stack 10.89 Safety Zone 05.03 Total 160.59	O/c working 69.04 Stabilized dump area 23.24 Waste disposal 43.10 Crushing/screening 04.60 buildings & Road 04.69 Mineral/ Subgrade stack 10.89 Safety Zone 05.03 Total 160.59	

3p	Production of ROM mineral during the last five year period as applicable	2014-15: 2.29 MMT 2015-16: 2.29 MMT 2016-17: 2.289 MMT 2017-18: 2.438 MMT 2018-19: 4.509 MMT	2014-15: 1.03 MMT 2015-16: 2.28 MMT 2016-17: 2.28 MMT 2017-18: 2.28 MMT 2018-19: 4.508 MMT	Actual production is within proposed limit.
3q	General remarks of inspecting officers on method of mining etc.			NIL

Solid Waste Management - Dumping:

Sl.No.	Item	Propasals	Actual work	Remarks
4a	Separate dumping of topsoil, OB and mineral rejects (Rule 32,33)	Not in proposal	NIL	No top soil & mineral rejects in proposal for FY 2019-20
4b	Location of topsoil, OB and mineral reject dumps	OB will be dumped in D3 dump in SE corner of South Block.	OB will is dumped in D3 dump in SE corner of South Block.	Dumping is done in D3 dump as per proposal in Mining plan.
4c	Number of dumps within lease area and outside of lease area	Inside Lease : 02 Inactive & 02 active Outside Lease- NIL	Inside Lease : 02 Inactive & 02 active Outside Lease- NIL	OB will be accommodated in D3 from 2019-20 and from 2020-22 in D4 dump. 2 no of dumps are active and 2 no of dumps are inactive.
4d	Location of dumps w.r.t. ultimate pit limit (Rule 16)	Outside Ultimate pit Limit	Outside Ultimate pit Limit	All the OB is disposed within leasehold area.
4e	Number of active and alive dumps.	02 (D3& D4 dumps)	02 (D3& D4 dumps)	
4f	Number of dead dumps.	02 (D1 & D2 dumps)	02 (D1 & D2 dumps)	Both the dumps are stabilized.
4g	Number of dumps established.	02 (D1 & D2 dumps)	02 (D1 & D2 dumps)	Stabilized by means of geotextiling and vegetation.

4h	Whether Retaining wall or garland drain all along dumps are there.	Retaining wall & garland drain in finalized stages	Retaining wall & garland drain is provided	NIL
4i	Length of Retaining wall or garland drain all along dumps	R.W G.D D3 230m 2455m	R.W G.D D3 230m 2455m	NIL
4j	Number of settling ponds	9 settling ponds are there	9 settling ponds are there	All 9 settling ponds are outside lease area
4k	Specific comments of inspecting officer on waste dump management			

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 for this financial year	NIL	No backfilling proposed for mining plan period 2017-22.
5b	Area under backfilling of mined out area	Not proposed	NIL	No backfilling proposed for mining plan period 2017-22.
5c	Concurrent use of topsoil for restoration or rehabilitation of mineral out area (Rule 32)	Not in proposal	No top soil generated.	No restoration of mined out are for mining plan 2017-22
5d	Total area fully reclaimed and rehabilitated	Not in proposal	NA	No restoration of mined out are for mining plan 2017-22
5e	General remarks of inspecting officers on backfilling and reclamation etc.			

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).	Before 1st July 2019	Before 1st July 2019	PMCP report submitted to IBM within time.
6b	Area available for rehabilitation (ha) .	Not in proposal	NA	No restoration of mined out are for mining plan 2017-22
6c	afforestation done (ha).	0.60 Ha	7.07 Ha	Plantation on dump and greenbelt.
6d	No. of saplings planted during the year	1500	37150	
6e	Cumulative no .of plants	Not in proposal	491512	It includes plantation on dump are and green belt
6f	Any other method of rehabilitation	Not in proposal	Not Applicable	
6g	Cost incurred on watch and care during the year	NIL	Sapling Procurement cost - Rs. 1783023/ Sapling watch and care cost - Rs. 4320000/	Procurement of saplings, watering & manure.
6h	Compliance on reclamation and rehabilitation by backfilling (i) Voids available for backfilling (Lx B x D	Not in proposal	NA	No restoration of mined out are for mining plan 2017-22
6i	Compliance on reclamation and rehabilitation by backfilling (ii) Voids filled by waste / tailings	Not in proposal	NA	No restoration of mined out are for mining plan 2017-22
6j	Compliance on reclamation and rehabilitation by backfilling (iii)Afforestati on on backfilled area	Not in proposal	NA	No restoration of mined out are for mining plan 2017-22

6k	Compliance on reclamation and rehabilitation by backfilling (iv) Rehabilitation by making water reservoir	Not in proposal	NA	No restoration of mined out are for mining plan 2017-22
6l	Compliance on reclamation and rehabilitation by backfilling (v)any other specific means.	Not in proposal	NA	No restoration of mined out are for mining plan 2017-22
6m	Compliance of rehabilitation of waste land within lease (i)afforestation	Not in proposal	NA	No restoration of mined out are for mining plan 2017-22
6n	Compliance of rehabilitation of waste land within lease (ii)Area rehabilitation (ha)	Not in proposal	NA	No restoration of mined out are for mining plan 2017-22
6o	Compliance of rehabilitation of waste land within lease (iii)Method of rehabilitation	Not in proposal	NA	No restoration of mined out are for mining plan 2017-22
6p	Compliance of environmental monitoring (core zone and buffer zone)	Environmental monitoring for air water and noise proposed in core zone and buffer zone.	Environmental monitoring carried out by Chennai Mettex Lab Pvt ltd .	Within limit.
6q	General remarks of inspecting officers on PMCP compliance and progressive closure operations etc.			

Mineral Conservation:

Sl.No.	Item	Propasals	Actual work	Remarks
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7a	ROM Mineral dispatch or grade-wise sorting within lease area	In proposal	Fines & lumps grade wise sorting is done within lease area	Grade wise Fines and lumps are dispatched separately from lease area
7b	Method of grade-wise mineral sorting i.e. manual or mechanical.	Mechanical	Mechanical	Dry crushing & Screening plant
7c	Different grade of mineral sorted out at mines.	Lumps Below 55% 55% to below 58% 58% to below 60% 60% to below 62% 62% to below 65% 65% and above Fines Below 55% 55% to below 58% 58% to below 60% 60% to below 62% 62% to below 65% 65% and above	Lumps Below 55% 55% to below 58% 58% to below 60% 60% to below 62% 62% to below 65% 65% and above Fines Below 55% 55% to below 58% 58% to below 60% 60% to below 62% 62% to below 65% 65% and above	Sorting of fines and lumps is done using dry crushing and screening plants and this product is dispatched separately as per the grade and market requirement.
7d	Any beneficiation process at mines .	Only dry Crushing & Screening	Only dry Crushing & Screening	Only facility of dry processing of ROM is available in lease area.
7e	General remarks of inspecting officer on Mineral conservation and beneficiation issues			NIL

Environment :

Sl.No.	Item	Propasals	Actual work	Remarks
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8a	Separate removal and utilization of topsoil (Rule 32)	Not in proposal	NIL	No top soil generation proposal and actual for FY 2019-20
8b	Concurrent use or storage of topsoil	Not in proposal	NIL	No top soil generation proposal and actual for FY 2019-20
8c	Separate dumps for overburden, waste rock, rejects and fines (Rule 33)	D3 dumps for OB and fines & lumps will be stacked separately	D3 dumps for OB and fines & lumps stacked separately	OB is disposed in D3 dump and ore production is stacked separately for dispatch.
8d	Use of overburden, waste rock, rejects and fines dumps for restoring the land to its original use	Not in proposal	NIL	No restoration of mined out are for mining plan 2017-22
8e	Phased restoration, reclamation and rehabilitation of lands affected by mining operations (Pits, dumps etc)	Not in Proposal	Plantation is done on finalized stages of dumps.	Plantation is being done on dumps .No restoration of mined out are for mining plan 2017-22
8f	Baseline information on existence of plantation and additional plantation done (Rule 41)	No. of Saplings Dumps Green Belt Bench Plantation Total	No. of Saplings Dumps 34150 Green Belt 3000 Bench Plantation Total 37150	Plantation within leasehold area for FY 2019-20.
8g	Survival rate		92%	
8h	Water sprinkling on roads to control airborne dust	Sprinkling of water all along haul roads.	Sprinkling of water is carried out on haul roads and mist spray at plant area.	Special chemical used in water sprinkling on haul roads for increasing roads moisture holding capacity.

8i General remarks
of inspecting
officer on
aesthetic beauty
in and around
mines area

Compliance of Rule 45:

Sl.No.	Item	Propasals	Actual work	Remarks
9a	Status of submission of Monthly and Annual returns	M.R. Submitted up to Sept 2019 A.R. Submitted up to 2018-2019	AR submitted on 29/06/2019	
9b	Scrutiny of Annual return for information on Mining Engineer, Geologist and Manager	1) Manager: Mr. Vijayanand Chakrasali 2) Mining Engineer in charge: Mr. Padmaraja Tumati 3)Geologist in charge: Mr. Somshekar S Dhodakunde	Mining engineer and geologists were present at the time of inspection.	
9c	Scrutiny of Annual return on land use pattern for area under pits, reclaimed area, dumps etc.	O/c working 64.68 reclaimed 28.27 Waste disposal 40.25 buildings & roads 26.89 Mineral/ Subgrade stack 0.50 Total 160.59		
9d	Scrutiny of Annual return on afforestation	WML 22820 nos OML 5500 nos @ 87 % survival.	Appears to be correct.	
9e	Scrutiny of Annual return on mineral reject generation (Grade and quantity)	No Mineral reject in production proposal		

9f	Scrutiny of Annual return on ROM stock and/or graded ore	OS 25515 tonnes Production - 4508260 tonnes ROM closing stock: 151507 Tonnes	Appers to be correct.
9g	Scrutiny of Annual return on sale value, Ex. Mine price and production cost	Production Ex- mine Price Rs Lumps Below 55% - 55% to below 58% 2092 58% to below 60% 2453 60% to below 62% 2790 62% to below 65% 3138 65% and above - Fines Below 55% 682 55% to below 58% 1180 58% to below 60% 1388 60% to below 62% 1559 62% to below 65% 2093 65% and above -	
9h	Scrutiny of Annual return on fixed assets	Total Fixed asset value is Rs. 1166994375 (It includes Land, Plant & machinery and capitalized expenditure)	
9k	Scrutiny of Annual return on mining machineries	Dumpers - 37nos Escavators - 13 nos WL - 15 nos Dozer - 4 Nos WT - 6 nos	

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 :

(G C MEENA)

Indian Bureau of Mines