

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

Mining Plan Modification REPORT

Bangalore regional office

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

Mine code : 30KAR07013

- (i) Name of the Inspecting : **S47**) **DR. Sudhakara T.L**
Officer and ID No.
- (ii) Designation : Senior Mining Geologist
- (iii) Accompanying mine : Mr. Mamlekar Irshad Shaikh, Mines Manager
Official with
Designation
- (iv) Date of Inspection : 11/11/2022
- (v) Prev.inspection date : 05/07/2019

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 : Vedanta Limited(formerly Sesa sterlite/Sesa Goa
correspondance 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 : SAJJAD AHAMED, Full Time
 Qualification : B.Tech IN MINING
 Appointment/ : 17/11/2021
 Termination date

Geologist

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

Manager

Name : Mamlekar Irshad Shaikh,,,
 Qualification : FCC
 Appointment/ : 31/12/2020
 Termination date

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|---|---|--------------------------------|------------|
| 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 |

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|--------------------------------|------------|
| MP review under 17(1) MCR 2016 | 12/03/2020 |
| MP review under 17(1) MCR 2016 | 13/12/2021 |

PART - II : OBSERVATION/COMMENTS OF INSPECTING OFFICERS

Exploration :

| Sl.No. | Item | Proposals | Actual work | Remarks |
|--------|---|-----------|-----------------------------|---|
| 1a | Backlog of previous year | NIL | NIL | NIL |
| 1b | Exploration over lease area for geological axis 1 or 2 | NIL | NIL | NIL |
| 1c | Exploration Agencies and Expenditure in lakh rupees during the year | NIL | NIL | Lessee has explored mineralized area in G1 level. There is a proposal for drilling total 11 no. of boreholes during the year 2022-23 and 2024-25 to understand the depth continuity of the mineralization. |
| 1d | Balance area to be explored to bring Geological axis in 1 or 2 | NIL | NIL | NIL |
| 1e | Balance reserve as on 01/04/20 | 117.5 MT | 117.5 MT (As on 31.03.2022) | Total R&R : 139.11 MT |
| 1f | General remarks of inspecting officers on geology, exploration etc | | | In the lease area, lessee has carried out 652 boreholes with a total meterage of 71752 m (Diamond Drill holes : 278, RC Drill holes : 137, DTH Drill holes : 237 Exploration has been carried out from Year 1994 to 2020. The proposed 05 boreholes of 2022-23 not carried out, lessee has proposed to carryout the same during 2023-24 . |

Development :

| Sl.No. | Item | Proposals | Actual work | Remarks |
|--------|------|-----------|-------------|---------|
|--------|------|-----------|-------------|---------|

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|----|---|--|---|---|
| 2a | Location of development w.r.t.lease area | SB - N1571942-1573393, E630873-629639 NB- N1574254-1573581, E629665-629420 SB Vertical (mRL) : 777 NB Vertical (mRL) :899 | SB - N1572184-1573183, E630763-629822 NB- N1573653-1574081, E629588-629458 SB Vertical (mRL) : 749 NB Vertical (mRL) : 892 | Development has carried out within in the proposed lateral extent. Deviation in vertical extent observed, violation pointed out. |
| 2b | Separate benches in topsoil, overburden and minerals (Rule 15) | South Block: OB - 6 Mineral - 9 OB/Mineral - 5 North Block: OB - 1 Mineral - 4 | South Block: OB - 6 Mineral - 10 OB/Mineral- 5 North Block: OB - 1 Mineral - 4 | Section 4 has been considered for South Block and Section 17 for North Block. |
| 2c | Stripping ratio or ore to OB ratio | 1: 1.12 | 1: 0.94 | Ore : 5589540 tons OB quantity : 5252151 tons |
| 2d | Quantity of topsoil generation in m3 | NIL | NIL | Mine is being in the operation since 1955. Entire area is already broke open. Hence no top soil available. |
| 2e | Quantity of overburden generation in m3 | 4568700 | 2988954.77 | Actual quantity of overburden generation in tonnes: 5252151 |
| 2f | General remarks of inspecting officers on development of pit w.r.t. type of deposit etc | | | Vertical excavations are extended beyond the approved proposal limits in both south and north block 749mRL and 877 mRL respectively even though a less ROM production (5589540 tons) and OB development (2988955 m3) is achieved. Hence, violation pointed out. |

Exploitation:

| Sl.No. | Item | Propasals | Actual work | Remarks |
|--------|------|-----------|-------------|---------|
|--------|------|-----------|-------------|---------|

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|----|---|---|--|---|
| 3a | Number of pit proposed for production | 2 | 2 | North & South Block |
| 3b | Quantity of ROM mineral production proposed | 7199985 | 5589540 | Lessee has restricted ROM production to capping fixed by CEC. |
| 3c | Recovery of sailable/usable mineral from ROM production | 100% | 100% | Dry crushing & screening plant with 100% product recovery. |
| 3d | Quantity of mineral reject generation | No proposal | NIL | NIL |
| 3e | Grade of mineral rejects generation and threshold value declared. | No proposal | NIL | NIL |
| 3f | Quantity of sub grade mineral generation. | No proposal | NIL | No Proposal as per App. Mining Plan. |
| 3g | Grade of sub grade mineral generation | No proposal | NIL | 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 | Adopted as proposed |
| 3i | Any analysis or beneficiation study proposed and carried out for sub grade mineral and rejects. | No Proposal | Wet beneficiation studies carried out for low-grade ore and siliceous ore. | Lessee has carried out lab scale beneficiation test at VAB Amona Plant, Goa and Acore. |
| 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. | -- |
| 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. | No. of excavators: 1 unit of 3.1 m ³ and 9 units of 4 m ³ . No. of Dumpers: 30 units of 18 cu.m and 5 units of 20.3 cu.m |

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| 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. | 7-7.5 meters | Between Section line 3A-4, hanging wall side, benches width not maintained as proposed and few benches appears to have merged. Violation pointed out. |
| 3m | Total area covered under excavation/pits | 77.99 | 74.41 | Within the proposed extent |
| 3n | Ore to OB ratio for the pit/mine during the year. | 1: 1.12 | 1: 0.94 | Ore : 5589540 tons OB quantity : 5252151 tons |
| 3o | Total area put in use under different heads at the end of year | O/c working:77.99 Waste disposal:66.34 buildings & roads: 1.28 Mineral stack, Safety zone:14.98 | O/c working : 74.405 Waste disposal: 66.521 Buildings & roads, plant: 6.46 Mineral stack, Safety zone: 13.380 | -- |
| 3p | Production of ROM mineral during the last five year period as applicable | 2017-18: 2.29 MMT 2018-19:4.51MMT 2019-20:4.51MMT 2020-21:5.89MMT 2021-22 : 7.2 MMT (intonnes) | 2017-18: 2.29 MMT 2018-19:4.51MMT 2019-20:4.55MMT 2020-21:5.60MMT 2021:22: 5.60MMT (intonnes) | As per Annual Returns. |

3q General remarks of inspecting officers on method of mining etc.

Lessee is carrying out mining by fully mechanized method, which is suitable for the ore body geometry and type of ore body. At some locations, lessee has not maintained the bench width as proposed. Further, erosion of benches has been observed due to rain water, for these points violation pointed out.

Solid Waste Management - Dumping:

| Sl.No. | Item | Propasals | Actual work | Remarks |
|--------|--|---|---|--|
| 4a | Separate dumping of topsoil, OB and mineral rejects (Rule 32,33) | 8.028 MMT of OB dump in D3&D4 dumps | 5.252 MMT of OB/waste dumped in D3 & D4 dumps | Dumping has been carried out at earmarked location |
| 4b | Location of topsoil, OB and mineral reject dumps | D3&D4 dump as per proposal in Mining plan. | Dumping is done in D3&D4 dump as per proposal in Mining plan. | No topsoil available in mine. |
| 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 | -- |
| 4d | Location of dumps w.r.t. ultimate pit limit (Rule 16) | Outside Ultimate pit Limit | Outside Ultimate pit Limit | Some benches are approaching OB dumps as proposed in modification for approved mining plan |
| 4e | Number of active and alive dumps. | 02 (D3 &D4 dump) | 02 (D3 &D4 dump) | -- |
| 4f | Number of dead dumps. | 02 (D1 &D2 dump) | 02 (D1 &D2 dump) | Both the dumps are stabilized. |
| 4g | Number of dumps established. | 02 (D1 &D2 dump) | 02 (D1 &D2 dump) | Stabilized by means of geotextile and vegetation. |

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| 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 | Retaining wall and garland drain of hard rock is provided. |
| 4i | Length of Retaining wall or garland drain all along dumps | Retaining wall : 0 Garland drain: 0 | Retaining wall-80m Garland drain- 0 m | |
| 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 | | | Lessee has maintained the dump by terracing and stabilized by geo-textile and Vegetation. Keeping in view of dump height, in the approved mining plan dated 01/02/2023 it is advised lessee to adhere the recommendation made by the NIRM in the slope stability report and in addition to this it is advised to establish permanent monitoring mechanism for continuous monitoring the stability of pit and dump slopes. |

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 proposals | NIL | NIL |
| 5b | Area under backfilling of mined out area | No proposals | NIL | NIL |

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|----|---|--------------|-----|--|
| 5c | Concurrent use of topsoil for restoration or rehabilitation of mineral out area (Rule 32) | No proposals | NIL | NIL |
| 5d | Total area fully reclaimed and rehabilitated | No proposals | NIL | NIL |
| 5e | General remarks of inspecting officers on backfilling and reclamation etc. | | | There is no backfilling proposal for the year 2021-22. |

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 2022 | PMCP Report submitted on 30th June 2022. | Submitted within stipulated time. |
| 6b | Area available for rehabilitation (ha) . | No proposal | Nil | No restoration of mined out area for mining plan |
| 6c | afforestation done (ha). | 1.20 Ha | 8.42 Ha (Inside ML) 2.48(Outside ML) | Plantation on dump and greenbelt& outside lease area |
| 6d | No. of saplings planted during the year | 1500 | 33723(Within ML) 12202(Outside ML) | It includes dump, greenbelt & outside lease area |
| 6e | Cumulative no .of plants | 409008 | 468359 | It includes plantation on dump area and green belt. |
| 6f | Any other method of rehabilitation | Not in proposal | Not applicable | No rehabilitation proposed for mining plan period 2017-22. |
| 6g | Cost incurred on watch and care during the year | INR 3,00,000.00 | INR. 76,03,237.00 | Cost includes, Procurement of saplings, watering & manure etc |

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|----|--|-------------|----------------|--|
| 6h | Compliance on reclamation and rehabilitation by backfilling (i) Voids available for backfilling (Lx B x D | No proposal | Not applicable | No restoration of mined out area for mining plan |
| 6i | Compliance on reclamation and rehabilitation by backfilling (ii) Voids filled by waste / tailings | No proposal | Not applicable | No restoration of mined out area for mining plan |
| 6j | Compliance on reclamation and rehabilitation by backfilling (iii)Afforestation on backfilled area | No proposal | Not Applicable | No restoration of mined out area for mining plan |
| 6k | Compliance on reclamation and rehabilitation by backfilling (iv) Rehabilitation by making water reservoir | Noproposal | Not Applicable | No restoration of mined out area for mining plan |
| 6l | Compliance on reclamation and rehabilitation by backfilling (v)any other specific means. | Noproposal | Not Applicable | No restoration of mined out area for mining plan |
| 6m | Compliance of rehabilitation of waste land within lease (i)afforestation | Noproposal | Not Applicable | No restoration of mined out area for mining plan |
| 6n | Compliance of rehabilitation of waste land within lease (ii)Area rehabilitation (ha) | Noproposal | Not Applicable | No restoration of mined out area for mining plan |
| 6o | Compliance of rehabilitation of waste land within lease (iii)Method of rehabilitation | Noproposal | Not Applicable | No restoration of mined out area for mining plan |

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|----|---|--------------------------|---------------|--|
| 6p | Compliance of environmental monitoring (core zone and buffer zone) | Proposed in Mining Plan. | 100% Complied | Complied within timeframe. |
| 6q | General remarks of inspecting officers on PMCP compliance and progressive closure operations etc. | | | Lessee has carried out the PMCP activities as proposed in the Mining Plan. |

Mineral Conservation:

| Sl.No. | Item | Propasals | Actual work | Remarks |
|--------|---|---|---|--|
| 7a | ROM Mineral dispatch or grade-wise sorting within lease area | Grade wise Lumps and Fines sorting within lease are and dispatch outside. | Grade wise Lumps and Fines sorting within lease are and dispatch outside. | As per buyers / market demand. |
| 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. | Proposed for crushing & Screening for different size grades. | Sorting of Lumps & fines for following grades done at mine site 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 carried out using dry crushing and screening plants and this product is dispatched grade wise. |
| 7d | Any beneficiation process at mines . | No proposals of beneficiation, | Only dry Crushing & Screening carried out | Only facility of dry processing of ROM is available in lease area. |

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| 7e | General remarks of inspecting officer on Mineral conservation and beneficiation issues | Lessee has adopted crushing and screening technique to sort different size and grade material in the mine site. In the latest approved mining plan lessee proposes to adopt wet beneficiation plant within the lease area for utilization of low-grade iron ore in the lease. |
|----|--|---|

Environment:

| Sl.No. | Item | Propasals | Actual work | Remarks |
|--------|---|--|--|---|
| 8a | Separate removal and utilization of topsoil (Rule 32) | No proposal | NIL | Lessee is working in the brokenup area, no top soil generated. |
| 8b | Concurrent use or storage of topsoil | No proposal | NIL | All ground is exposed and no topsoil is available. |
| 8c | Separate dumps for overburden, waste rock, rejects and fines (Rule 33) | Separate dumps for OB in D3& D4 dumpsand separate stocks for fines & lumps proposed. | Separate dumping in D3 & D4 dumps for OB separate stacks of fines & lumps carried out. | Separate dumping for OB and separate place stacking for mineral Fines and Lumps maintained. |
| 8d | Use of overburden, waste rock, rejects and fines dumps for restoring the land to its original use | No proposal | NIL | No restoration of mined out area proposed in mining plan. |
| 8e | Phased restoration, reclamation and rehabilitation of lands affected by mining operations (Pits, dumps etc) | No Proposal | Plantation is done on finalized stages of dumps. | No restoration of mined out area proposals in mining plan. |

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|----|--|---|--|---|
| 8f | Baseline information on existence of plantation and additional plantation done (Rule 41) | No proposal | No. of Saplings Dumps 24184 Green Belt 9539 Bench Plantation - Total | As per information provided by lessee 33723 |
| 8g | Survival rate | 90% | 90% | -- |
| 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 | | | Aesthetic beauty in & around the mine was good as the lessee had carried out afforestation & other environment protective measures were in place. |

Compliance of Rule 45:

| Sl.No. | Item | Propasals | Actual work | Remarks |
|--------|---|---|---|----------------------------------|
| 9a | Status of submission of Monthly and Annual returns | Monthly Return and Annual return | Monthly Return Submitted up to September 2022. Annual Return for FY2021-22 submitted on 30th June 2022. | Submitted within stipulated time |
| 9b | Scrutiny of Annual return for information on Mining Engineer, Geologist and Manager | 1) Manager: Mr. Irshad Mamlekar 2) Mining Engineer in charge: Mr. Sajjad Ahamed Jelani 3) Geologist in charge: Mr. Maheshwar Kinnal | Officers present during the date of inspection | |

- 9c Scrutiny of O/c working : Appears to be correct
Annual return on 74.410
land use pattern Waste disposal
for area under : 66.340
pits, reclaimed buildings &
area, dumps etc. roads : 6.460
Mineral/
Subgrade stack
: 13.380
- 9d Scrutiny of 33723 saplings Appears to be correct
Annual return on within lease
afforestation area and 12202
saplings
outside lease
area.
- 9e Scrutiny of Mineral reject NIL
Annual return on generation -
mineral reject NIL
generation
(Grade and
quantity)
- 9f Scrutiny of Closing Stock Appears to be correct
Annual return on as on
ROM stock and/or 31.03.2022 :
graded ore ROM -
25581.721
Fines:
a)Below 55%-
8404.66
b)55% to below
58%- 139760.18
c)58% to below
60%- 20841.92
d)60% to below
62%- 11445.17
e)62% to below
65%- 109.70
f)65% and
above- 0.00
Lumps:
a)Below 55%-
0.00
b)55% to below
58%- 0.38
c)58% to below
60%- 58178.11
d)60% to below
62%- 84295.57
e)62% to below
65%- 30203.79
f)65% and
above- 0.00

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|----|---|---|---|------------------------|
| 9g | Scrutiny of Annual return on sale value, Ex. Mine price and production cost | Ex-Mine Price for Fines: a)55% to below 58%- 2718.54 b)58% to below 60%- 3085.95 Ex-Mine Price for Lumps: a)55% to below 58%- 4473.42 b)58% to below 60%- 5408.42 c)60% to below 62%- 4725.26 | No exploration carried out during the year 2021-22, however, in Part-VII in exploration cost has been considered for arriving the Cost of Production. Further, grade-wise sale value given not tallying with the Ex-mine price. | Violation pointed out. |
| 9h | Scrutiny of Annual return on fixed assets | Rs. 1351151459/- including and, industrial plant, machineries and transport equipment. | In Part-IIA Capital Structure, Value of land is mentioned and Depreciation of land value. However, the total lease area is in Forest Land. | Violation pointed out. |
| 9k | Scrutiny of Annual return on mining machineries | | | |

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 |
| MCDR17 Rule 11(1) | 05/12/2022 | | | | |
| MCDR17 Rule 45(7)(a) | 05/12/2022 | 27/02/2023 | | | |

Date :

(DR. Sudhakara T.L)

Indian Bureau of Mines