4th MODIFICATION TO THE APPROVED BENTEN &

MINING PL

INCLUDING PROGRESSIVE MINE CO

Submitted under Rule 17(3) of MCR 2016 & Rule 23 of MCDR 20

VEDANTA IRON ORE MINE - (ML NO. 2677)

M/s. VEDANTA LTD



Mine code: Rule 45 Reg. no: 30KAR07013 IBM/327/2011

In Meghalahalli, Bommavvanagathihalli, Madakeripura, Chowdenahally, Tanigehalli, Hirekandavadi villages, Chitradurga & Holalkere taluks Chitradurga District, Karnataka State

Area: 160.59 Ha

Land Type: Forest - Niruthadi Reserved Forest Lease period: 20 years w.e.f 28.10.2012

Category: A (Fully Mechanized), Open Cast, Private, Non-Captive Approved Review and Updation of Mining Plan Period: 2017-18 to 2021-22

Modified Review and Updation of Mining Plan Period: 2019-20 to 2021-22 (i.e., upto 31.03.2022)

TEXT & ANNEXURES

Prepared by

SRIPAD PUJAR M Sc (Mineral Exploration) Qualified Person B. V. R. ACHAR M Sc (Mineral Exploration) Qualified Person

Mar-2020



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MIGH STARY, GOVERNMENT OF INDIA



सान मंत्रालय/ MINISTRY OF MINES

भारतीय खान ब्यूरो/ INDIAN BUREAU OF MINES

क्षेत्रीय खान नियंत्रक कार्यालय/

OFFICE OF THE REGIONAL CONTROLLER OF MINES

फेक्स: (080) 23371027 / 23373287

दुश्चाप: 080-23371027 / 23375366/67 Email ID: ro. bangalore@ibm.gov.in

#/No.: 279/272/91/BNG /430

सेवा में/ To,

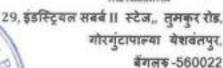
M/s. Vedanta Ltd.,

Sesa Ghor, 20 EDC Complex, Patto,

Panjim-Goa,

North Goa-403001.





दिनांक/Date: 12/03/2020

विषय/Sub: Approval of "Modifications to the Approved Review and Updation of Mining Plan" in respect of ML No. 2677 of M/s Vedanta Ltd. over an area of 160,59Ha in Meghalahalli, Bommavvanagathihalli, Madakeripura, Chowdenahally, Tenigehalli, Hirekandavadi villages, Chitradurga & Holalkere Taluk, Chitradurga District, Karnataka state, submitted for approval under rule 17(3) of MCR, 2016.

संदर्भ /Ref: 1. Your letter No. Nil dated 06/03/2020 submitting 02 copies of draft Modifications to the Approved Review and Updation of Mining Plan in respect of aforesaid M.L. area.

2. This office letter of even no. dated 10/03/2020

 Your letter No. Nil dated. 11/03/2020, submitting final copies of Modifications to the Approved Review and Updation of Mining Plan in respect of aforesaid M.L. Area.

महोदय/Sir.

In exercise of the powers conferred by clause (b) of sub-section (2) of section 5 of the Mines and Minerals (Development & Regulation) Act, 1957 and clause (3) of Rule 17 of the Minerals (Other than Atomic and Hydro Carbons Energy Minerals) Concession Rules, 2016 read with Govt. of India order No.S.O.445 (E) dated 28.04.1987 and S.O.1857 (E)dtd.18/05/2016. I hereby approve the Modifications to the approved Review and Updation of Mining Plan including Progressive Mine Closure Plan in respect ML No. 2677 of M/s Vedanta Ltd. over an area of 160.59Ha in Meghalahalli, Bommavvanagathihalli, Madakeripura, Chowdenahaily, Tenigehalli, Hirekandavadi Villages, Chitradurga & Holalkere Taluk, Chitradurga District, and Karnataka State. This approval is subject to the following conditions:

L. The Modification to the approved Review and Updation of Mining Plan with Progressive Mine Closure Plan is approved without prejudice to any other laws applicable to the mine from time to time whether made by the Central Government, State Government or any other authority and without prejudice to any order or direction from any court of competent jurisdiction.

The proposals shown on the plates and /or given in the document is based on the lease map/Sketch submitted by the applicant /lessee and is applicable from the date of approval.

- 3. It is clarified that the approval of your aforesaid Modification to the approved Review and Updation of Mining Plan with Progressive Mine Closure Plan does not in any way imply the approval of the Government in terms of any other provisions of the Mines and Minerals (Development and Regulation) Act 1957 or the Mineral (Other than Atomic and Hydro-Carbon Energy Minerals) Concession Rules, 2016 and any other laws including Forest (Conservation) Act, 1980, Environment (Protection) Act, 1986 or the rules made there under Mines Act, 1952 and Rules & Regulations made there under.
- Indian Bureau of Mines has not undertaken verification of the mining lease boundary on the ground and does not undertake any responsibility regarding correctness of the boundaries of the leasehold shown on the ground with reference to lease map& other plans furnished by the applicant/lessee.

सं/No.: 279/272/91/BNG

- At any stage, if it is observed that the information furnished, data incorporated in the document are incorrect or misrepresent facts, the approval of the document shall be revoked with immediate effect.
- Next Financial Assurance shall be due for submission on 01.04.2022.

 The execution of Modification to the approved Review and Updation of Mining Plan shall be subjected to vacation of prohibitory orders / notices, if any.

8. The Approval of Modification to the approved Review and Updation of Mining Plan is strictly confined to the proposals contained within the mining leasehold demarcated as per lease sketch given by the joint survey team constituted by the CEC and duly authenticated by the State DMG. It does not convey approval to the proposals falling outside the Mining Lease boundary.

The Approval of Modification to the approved Review and Updation of Mining Plan is without
prejudice to the final order of the Hon'ble Supreme Court order dtd.18/04/2013 in W.P. No. 562/2009
and interim orders passed by the Hon'ble Supreme Court from time to time in the said W.P. Nos.

25910/2009 and 26083/2009.

10. A copy of Environment Impact Assessment and Environment Management Plan as approved by the MOEF, New Delhi shall be submitted to this office along with a copy of their approval letter, within

one month of the date of such approval.

- 11. The Environmental Monitoring Cell of the company shall continue monitoring ambient air quality, dust fall rate, water quality, soil sample analysis and noise level measurements on various stations established for the purpose both in the core zone and buffer zone as per MOEF guidelines and keeping in view IBM's circular No.3/92, season wise every year or by engaging the services of an Environment Laboratory approved by MOEF/CPCB. The data so generated shall be maintained in a bound paged register kept for the purpose and the same shall be made available to the inspecting officer on demand.
- 12. In case the mining lease falls within a radius of 10 kms of National Park/ sanctuary, recommendations of NBWL have to be obtained as per the Order of Hon'ble Supreme Court in I A No. 460/2004.
- 13. An yearly report shall be submitted to this office before 1st July of every year setting forth the extent of protective and rehabilitative works carried out as envisaged in the approved progressive mine closure plan.
- 14. The Modification to the approved Review and Updation of Mining Plan is approved for proposals contained therein and as applicable from the date of approval of the document for the mining activities to be carried out within the mining lease hold. The earlier instances of irregular mining/illegal mining, if any, shall not be regularized with this approval.
- The contents of Circular No 2/2010 issued by the Chief Controller of Mines, Indian Bureau of Mines, Nagpur vide his letter No- 11013/3/MP/90-CCOM VOL-VII dated 06.04.2010 shall be complied with.
- 16. If anything is found to be concealed as required by the Mines Act in the contents of this document and the proposal for rectification has not been made, the approval shall be deemed to have been withdrawn with immediate effect.
- You shall maintain the boundary pillars as required under Rule 12 of Minerals (Other than Atomic & Hydro Carbons Energy Minerals) Concession Rules, 2016.
- 18. As per the Hon'ble Supreme Court of India in Writ Petition No. 114/2014 dated 08.01.2020, the mining Lease holders shall, after ceasing mining operations, undertake re-grassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc.

19. The Modification to the approved Review and Updation of Mining Plan is approved for 3 years period from 2019-20 to 2021-2022 for total Mineral Reserves of 101.664 Million Tonnes of Iron ore and 27.142 Million Tonnes of Hematitic Siliceous Iron Ore with Annual Production Capacity

proposals valid for the following period with respective production capacity.

Contd.....3

	Production Capacity in Tonnes			
Year	Iron Ore	Hematitic Siliceous Ore	Total	
2019-20 for the balance period	471,900	Nil	471,900	
2020-21	5,482,200	407,430	5,889,630	
2021-22	6,489,750	710,235	7,199,985	

- 20. The Lessee shall obtain an Environment Clearance before financial year 2021-22 for production of 7.2 million tonnes per annum of iron ore from the competent authority as committed in modification to the approved Review and Updation of Mining Plan.
- 21. This approval is subject to the grant of production allocation of 7.2 million tonnes per annum of iron ore from the Central Empowered Committee.
- 22. The Lessee shall not produce 7.2 million tonnes per annum of iron ore prior to obtaining the necessary permission/approval from the competent authority.

भवदीय/Yours faithfully,

संलग्नक: अनुलग्नक/ One copy of the approved Modification to the

Approved Review and Updation of Mining Plan with Progressive Mine Closure plan.

(जी सी मीणा/ G C Meena)

क्षेत्रीय खान नियंत्रक/Regional Controller of Mines भारतीय खान ब्यूरो/Indian Bureau of Mines

ANNEXURES

SI. No.	Description	No. of
1	Copy of fourth ML renewal deed dated 02.02.2015	18
2	Name change letter to Sesa Goa Ltd dated 03.08.2005	1
3	Name change letter to Sesa Sterlite Ltd dated 31.12.2013	1
4	Certificate of Company Registration dated 21.10.2015	1
5	Change of name letter to IBM dated 28.04.2015	1
6	Change of name letter to DMG/C&I dated 04.06.2015	1
7	Modification of RUMP approval letter dated 19.06.2018	3
8	Letter of CEC permission dated 04.03.2020	2
9	Forest Clearance Copy dated 30.12.2014	4
10	Environmental Clearance copy dated 05.02.2009	7
11	Copy of board resolution dated 28.10.2016	1
12	List of Directors dated 29.04.2015	1
13	Photo ID of Nominated Owner	1
14	Copy of QP certificates	7
15	Copy of Form I submitted IBM on 18.01.2019	1
16	IBM violation letter and reply	7
17	Lithologs of drilled BH	1
18	Reports of Bulk density tests dated 17.03.2016	1
19	Recovery test reports dated 02.03.2016	4
20	IBM report on Siliceous Ore	8
21	Common boundary working arrangement dated 06.10.2015	2
22	Production and Development Program	2
23	Feasibility Study Report	8
24	Flow sheet of existing plants	1
25	Environment monitoring reports	28
26	Copy of Bank Guarantee	4
27	Analysis reports from NABL lab	47



LIST OF PLANS AND SECTIONS

Nos.	DESCRIPTION	SCALE
I a	Location Plan	NTS
Ιb	Key Plan / Precise area map on Toposheet	1:50,000
Ιc	Lease Sketch	1"=660"
I d	Vectorised Cadastral DGPS map	1" =7920"
II a	Surface Plan	1:2000
Пb	Geological Plan	1:2000
Пс	Geological Cross Sections (IIc/1,2,3,4&5)	1:2000
II d	Typical Slice Plan	1:2000
II e	Graphic Lithologs (II/e 1,2 & 3)	1:1000
III a - c	Year wise Production & Development plan	1:2000
III/d	Year wise Production & Development Sections (1-5)	1:2000
IV	Reclamation Plan	1:2000
V	Environment Plan	1:5000
VI/a	Conceptual Plan & Sections	1:2000
VI/b	Conceptual Dump Management Plan	1:2000
VI/c	Conceptual Dump Section	1:2000
VII	Financial Area Assurance Plan	1:2000



भारतकरूपार Covt. of India

INTRODUCTORY NOTES:

Vedanta Limited (Formerly known as Sesa Sterlite Lef. (Sesa Gon Lef.) is having a Mining Lease No. 2677 for mining of Iron Ore in the Forest land near Meghalahalli, Bommavvanagathihalli, Madakeripura, Chowdenahally, Tanigehalli, Hirekandavadivillages, Chitradurga and Holalkere taluks, Chitradurga district. This lease was first granted in 1952 and the last (fourth) renewal of the lease was executed on 02.02.2015 for twenty years w.e.f. 28.10.2012 the lease area as per CEC Survey was 161.54 Ha. However lease renewal was done for 160.59 ha (Annexure-1). Hence this area of 160.59 Ha. is consider for this Mining Plan..

The details of lease grant and renewals are as follows:

- Date of first grant: 28-10-1952 for a period of 20 years in the name of A. S.
 Krishnamurthy over an area of 388.5000 ha as ML No. 248.
- First renewal Executed on 08.06.1973, for a period of ten years (28.10.1972 to 27.10.1982) over an area of 388.50 ha in favour of A. S. Krishnamurthy as ML No. 1149.
- Second renewal- Executed on 13.05.1983, for a period of ten years (28.10.1982 to 27.10.1992) over an area of 337.91 ha in favour of A.K. Madhava Narain as ML No. 1884.
- Third renewal- Executed on 29.05.1998, for a period of 20 years (28.10.1992 to 27.10.2012) over an area of 163.5000 ha in favour of A. Narrain Mines Pvt. Ltd. as ML No. 2236. In 2005 the name of the mine was changed to M/s Sesa Goa Ltd. (Pl see Annexure-2).
- Fourth renewal- This was executed for twenty years w.e.f. 28.10.2012 over an
 extent of 160.5900 ha as per lease sketch in favour of Sesa Sterlite Ltd. as ML
 No. 2677.In 2013, the name of the company was changed to M/s Sesa Sterlite
 Ltd. (Pl see Annexure-3).

OP: SripudPajard BYR telling Plan is approved subject on Stipulations Indicated in the Mining Plan approval letter No. 279/272/91/2019

Date 12-93-2020

श्रेत्रीय स्थान नियंत्रक Regional Controller of Mines भारतीय स्थान स्पृत्ते Indian Bureau of Mines. संगल्द / Bangalore - 560 022





During 2015, the name of the company has been changed to Vedanta Limited and this was informed to IBM as well DMG/C&I, Kematuka. The details are given in Annexure-4,5,6.

A Review and Updation of Mining Plan for the period of 2017-18 to 2021-22 has been approved by IBM, vide letter no. 279/272/91/BNG/1934 dated 16.12.2016 with an area of 160.59ha for a production level of 2.29 MTPA.

Subsequently, production limit of this lease has been enhanced to 4.51 MTPA as per the letter of CEC for enhancement of permissible production limit, so a modification to the approved Mining Plan has been approved by IBM for the remaining part of 2017-18 to 2021-22.

A second modification to the above modified approved Mining Plan was approved by IBM on 19.06.2018 for including Siliceous Iron Ore as mineral reserves/resources as per latest IBM threshold limits as well as change in working proposals for the years of 2018-19 to 2021-22.

Third modification to the modified approved Mining Plan was approved by IBM (vide letter no. 279/272/91/BNG/349 dated 21.08.2019, Annexure-7) for the remaining three years (2019-20 to 2021-22) for Updation of Reserve & Resources and enhancement of production program to 7.2MTPA for obtaining Environmental Clearance as the existing EC is for 6.0 MTPA.

Now, a fourth modification to the approved Review and Updation of Mining Plan including PMCPis being submitted for approval under Rule 17(3) of MCR 2016 and Rule 23 of MCDR 2017 in order to increase the production /development based on the enhancement of production limit of 5.89 MTPA approved by CEC (Annexure-8) for the remaining period of current financial year 2019-20 to 2021-22respectively and updation of reserves and resources as per latest exploration. The production and development plan during 2021-22 of this plan period will be maintained at 7.2MTPA as in last approved MP in order



MODIFICATION TO THE APPROVED REVIEW SEPROAFION OF MINING IS AT

MOEFCC.

The lease being part of Forest land, has got Forest Clearance which is coterminus with the lease period (Annexure-9) and an Environmental Clearance is also granted for a production limit of 6.0 MTPA (Annexure-10).

The Lesseewas having some mining leases in the state of Goa apart from this lease. However, these leases are not under the custody of the Lesseeas of now as per the recent Hon'ble Supreme Court Judgment dated 07.02.2018. And the correspondence and clarification in this regard is under progress with the State Govt.

However, the details of the leasesare given as follows:

Table -1:

s #	M. L. No. / T. C. No.	Mining Lease	DGPS Survey Area (Ha)	Village/s	Taluka	Distric t
1	03/AML G (ML- 3)/VL/17	Codii Amalgamated Lease	300.208 1	Codli	Dharbundora	South Goa
2	10/1949	ChireacheaAmbeacodilDongu rli	79,9002	South Maulinguem	Bicholim	North Goa
3	D3/1954	Canca Galle Tolop	35,0657	South Maulingaem	Bicholim	North Goa
4	09/1949	Macarxendo	94,7287	South Maulinguem	Bicholim	North Gos
5	76/1952	OrassoDongor	98.4473	Adwalpule&Moite m	Bicholim&Barde z	North Goa
6	28/1951	BotvadeachoDongor	23.7344	Pissurlem	Sattari	North Gou
7	06/1955	MaretaSodo	26.6677	Onda	Sattari	North Goa
8	38/1955	MillemDongor	000,001	Dharbandora	Dharbandora	South Goa
9	39/1955	NirvolCulna	23.9580	Dharbandora	Dharbandora	South Goa
10	26/1955	Cajumol	43,0000	Sancordem	Dharbandora	South Goa
11	32/1955	Pima E Nadora	43.0000	Pirna&Nadora	Bardez	North Goa

1.0 GENERAL

a)



9765565524

Sauvick, Mazumdar@vedanta.co.in

b) Statusof Lessee:

Mobile

E-mail id

Limited Company

(Copy of Certificate of Company Registration enclosed as Annexure-4, board resolution copy enclosed as Annexure-11. List of Directors as Annexure No-12 and Photo ID of Nominated Owner- Shri, Sauvick Mazumdar is enclosed as Annexure-13)

c) Mineral(s)whichareincludedinthe prospectinglicense(forfreshgrant):

Not applicable

d) Mineral(s)whichisincludedintheleasedeed:

Iron Ore



e) Mineral(s)whichtheLesseeintendstomine:

Iron Ore

f) Nameof Qualified Persons preparing the Mining Plan:

Table-3:

Name	SripadPujar	BVR Achar
Qualification	M.Sc. (Min. Exploration)	M.Sc. (Min. Exploration)
Address	ROCK TECH ENTERPRISES, First floor, Sapthagiri Enclave, College Road Hosapete- 583 201 Ballari Dist, Karnataka	
Phone	08394-226563	
Mobile	9448366964 9448469407	
E-mail id	rocktechpt@gmail.com	

(Certificates of qualification/experience enclosed as Annexure-14)

2.0 LOCATIONANDACCESSIBILITY

a) LeaseDetails

Table -4:

Name of the mine	ML no. 2677 of Vedanta Ltd		
Lat/longof boundary point	Corner Point LBC-1, Latitude - 14° 14° 14° 15° 14° 15° 15° 12° 12° 12° 12° 14° 15° 15° 15° 15° 15° 15° 15° 15° 15° 15		
Dateofgrantoflease	First grant: 28.10.1952, Fourth Renewal: 28.10.2012		
Period/ExpiryDate	20 years, Up to 27.10.2032		
PostalAddress	MeghalahalliOffice Complex, Near MeghalahalliVillage, Bheemasamudra		
District	Chitradurga		
State	Karnataka		
Pin code	577501		
Phone	08194 -238 110		
Fax	08194 -238 170		
Mobile	8762048405 / 9483211966		
E-mail id	Sauvick, Mazumdar@vedanta.co.in		
	MK.reddy@vedanta.co.in		

There are 16 corner pillars and lat/long values of these pillars are listed in the Table -7 below.

b) Detailsof leasearea:

Table - 5:

Forest	Non-forest
Nirthadi Reserve Forest, Holalkere Range Area-160.59 Ha	

Table -6:

Totalleasearea	160.59 ha
District & State	Chitradurga Dist., Karnataka State
Taluka	Chitradurga and Holalkere
Village	Meghalahalli, Bommayyanagathihalli, Madakeripura, Chowdenahally, Tanigehalli, Hirekandayadi
Whether the area falls under Coastal Regulation Zone (CRZ)?	No
Existence of public road/railway line, if any nearby and approximate distance	BBH Railway siding (private) is the nearest railway siding is located at about distance of 3.5kms from the mine head, also public road connecting to Meghalahalli village is at the distance of 1.3kms from mine head,
Toposheet No. with latitude & longitude of all corner boundary point/pillar	Toposheet No 57 B/4 Lat / Long values as per lease deed are given in table below



Table - 7: Latitude and longitudes of the corner fillars

SI.	Lease	Co-ordinates		
No Corners		Northing	Easting	
1	LBC-1	14°13'44.1"	76°12'29.1	
2	LBC-2	14°13'46.7"	76°12'24.5"	
3	LBC-3	14°14'17.2"	76°12'09.7"	
4	LBC-4	14°13'56.5"	76°11'45.1"	
5	LBC-5A	14°13'45.1"	76°11'55.4"	
6	LBC-6A	14°13'55.3"	76°12'06.9"	
7	LBC-7A	14°14'04.4"	76°12'06.5"	
8	LBC-8A	14°14'07.0"	76°12'13.2"	
9	LBC-9	14°13'47.6"	76°12'22.6"	
10	LBC-10	14"13'33.3"	76°12'05.5"	
11	LBC-11	14°13'19.4"	76°12'18.3"	
12	LBC-12	14°13'17.4"	76°12'11.0"	
13	LBC-13	14°12'54.3"	76°12'31.3"	
14	LBC-14	14°13'17.1"	76°12'58.3"	
15	LBC-15	14613'33.9"	76°12'36.2"	
16	LBC-16	14°13'37.5"	76°12'28.3"	

The GCP points are cement structures made at that points as there are no permanent points nearby lease area (within 100m). These are shown in Surface Plan and photographs of boundary pillars and GCP are enclosed.

Table - 8: Three ground control points (GCP)

GCP	Co-ordinates		Elevation	Distance	
No.	No. Northing Easting		(MSL)	from BP14	
1	N14° 13' 15.4"	E76° 12' 57.1"	843 m	63.15m	
2	N14° 13' 15.0"	E76° 12' 57.5"	843 m	67.99m	
3	N14° 13' 14.6"	E76° 12' 58.2"	842 m	76.94m	

c) LocationMap:

Agenerallocationmapis attached as Plate-Ia as administrative map and precise map showingareaandaccessroutes aremarkedonSurveyofIndiatopographicalmap of 1:50,000 scale as Plate-Ib.

A copy of sketch for lease along with extended area issued by DMG, Kamataka is enclosed as Plate-Ic and Copy of Vectorised Cadastral DGPS map is enclosed as Plate-Id.

3.0 DETAILS OF APPROVEDMINING PLAN:

3.1) Dateandreferenceof earlierapprovedMining Plan



Period	MP/SOM	Approval details	Remarks
2012-13 to 2016-2017	MP	No.KNT/CTD/MP/Fe-263- SZ/966 dated 21.11.2012	First MP after fourth renewal of mining lease
2017-18 to 2021-2022	RU MP	No. 279/272/91/BNG/1934 dated 16.12,2016	Review &Updation of MP

3.2) Details oflastmodifications - if any (for thepreviousapprovedperiod) of approved MP/SOM, indicating date of approval, reason for modification

Table-10

Period	Modifications	Approval details	Reasons
2017-18 to 2021-2022	First modification of RU MP	letter no. 279/272/91/BNG/1097 / 28 dated 23.03.2018	To incorporate the production limit approved by CEC that is 4.51 MTPA
2018-19 to 2021-2022	Second modification of RU MP	letter no. 279/272/91/BNG/1097 dated 20.06.2018	To incorporate the Hematitic Siliceous Ore in reserves / resources
2019-20 to 2021-2022	Third modification of RU MP	letter no. 279/272/91/BNG/349 dated 21.08.2019	To incorporate updation of reserves/resources, change in production planning and production of 7.2MTPA to get EC from MOEFCC

3.3) Reviewof earlierapprovedproposalinrespectof excavation exploration, reclamationetc.

Excavation:

Table-11: Production and Development details

Year	Production (million tonnes)		Development (million tonnes)			Ore : Waste		
, ac. 1 a. C.	Proposed	Actual	Deviation	Proposed		Deviation	The second secon	7 2 2 3 3 3 3 3 5 5 5 5 5 5 5 5 5 5 5 5 5
2017-18	2,437	2.2885	-6.09%	1.8116	1.8165	+0.27%	1: 0.74	1:0.79
2018-19	4.509	4.508		3.256	2.648*	-18,67%	1: 0.72	1: 0.60
2019-20	4.510	4.427	-	1,563	2.263	7000000	1: 0.35	1, 0.00
2020-21		North Property Carlo		710-50	1.0000		45.0022	-
2021-22								

^{*}The deviation in development quantity was due to non-availability of loading units.

The production and development quantities are upto Jan 31" 2020 only.



Vedanta Limited Mining Lease No. 2677 MODIFICATION TO THE APPROVED
REVIEW & UPLATION OF MINING PLAN

	RON	4-Iron Ore-To	Total waste	CORRIGIO	
Year	Normal Ore +45% Fe	Hematitic Siliceous Ore +35% Fe	Total	(OB/SB+ BHQ + Rehandled waste)	Waste
2019-20*	2,871,600	163,890	3,035,490	1,079,435	1: 0.36
2020-21	3,889,200	618,570	4,507,770	3,202,725	1: 0.71
2021-22	6,772,950	433,215	7,206,165	6,154,120	1: 0.85

Exploration:14 nos. boreholes with a total meterage of 5180m were proposed in 2019-20 to establish depth persistence of siliceous as well as normal ore, However, lessee has drilled 15nos, core boreholes for a total depth of 4969.6m during 2019-20. The details of these holes are given in section 1.0 e (ii). Annexure-15 shows Form-I& Annexure-27 shows Chemical Analysis report.

Reclamation: No proposals in the earlier plan period.

3.4) Statusof complianceof violations pointedout by IBM

Details of violations of provisions of MCDR, issued by IBM vide letter no. KNT/CTD/Fe-04/BNG/Vol-III Dt. 31st Aug 2017 and compliance submitted are given below. (Annexure -16a).

Table- 12:

Rule	Details of Violations	Compliance
11(1)	The deviations observed in mining operations vis-a-vis approved Mining Plan document are given below: (1) It was proposed to form/ develop benches of 7m height in both the blocks, whereas the height of benches observed 8m to 9m against the proposed height of 7m at places (2) It was proposed to dump waste in dump no.3, whereas it is observed that part of waste dumped in dump no.4.	(1) As proposed to develop benches of 7m height for safer operations and safety berms of 1.5 to 2 meters are provided over and above bench height at edge of the benches. However actual height of the benches are kept at 7 meters only. (2)We have dumped waste only in dump number 3 as per approved mining plan. Waste dumping is not started in DUMP number 4.
13(2)	The benches in overbarden have not been sufficiently kept in advance. The width of benches observed less than the height at several places	All working benches in overburden are kept with average width of 10 meters, as per approved mining plan.

33	A high-resolution satellite images obtained from CARTOSAT-2 satellite LISS-IV sensor on the scale of cadastral maps, covering the mining lease and an area of two kilometers from the lease boundary has not been submitted as required under the rule.	It was submitted on 16 15 2017
45(5) a (1)	The production for the month of June, 2017 is reported as 254,261 Tonnes, against the target of 190,833t as per 12 months period. Further, the processed ore is reported as 324,675t, which is more than the production figure indicated above.	There is no restriction on monthly production. Total ROM production achieved fill June 2017 is 12,30,078 MT which is well within CTC approved annual production capacity. Processed ore reported for the month is 251,264 MT, which is less than ROM production.
45(5)(b)(i)	In annual return, part-1, sl.no 12(iii), the lease area utilization at the end of the year, the area reclaimed/rehabilitated given as 23.24 ha, but the same is not found in ML area. Besides, the same area also not brought out in the approved mining plan document, if it is undertaken in the ML area, which is not appropriate and correct. This need to be updated and corrected suitably in the annual returns and wherever is applicable.	In annual return, part-I, sl.no 12(iii) the lease area utilization at the end of the year, it is shown under reclaimed/rehabilitated as 23.24 ba, Since plantation area is above the dump area so these areas can be considered in waste dump area only instead of reclaimed/rehabilitated area. In subsequent annual and other returns these are corrected.

Details of violations of provisions of MCDR-2017, issued by IBM vide letter no. KNT/CTD/Fe-04/BNG/Vol-IV dated 13th Aug 2018and compliance submitted are given below. (Annexure -16b).

Table- 13:

Rule	Details of Violation	Compliance
11(1)	It was proposed in the Modification & review of Mining Plan approved vide letter No. 279/272/91/BNG/24 dated 23/03/2018 for the period 2018-19 to 2021-22. The deviations observed in mining operations vis-à-vis approved document are; The proposed development and production as per the year 2017-18 and 2018-19, given in plan 7 sections of plate NO.(III/a & b), to develop the benches on the southern end of the south block with bench height of 7m & width of more than 8m, but on the day of inspection, it was observed and found that the benches towards SSW side found all the benches have been broken and collapsed without any systematic benches as shown in the plate thereby caused working in contrary to the approved document. Thus, the violation of unsystematic working has been observed.	Since SSW side of pit is our major working area, development is concentrated in almost all the benches which include blasting in top hard laterite benches and excavation in soft friable strata. Therefore, during your field visit benches in all these areas were appearing in haphazard shape. We have developed this area in systematic manner by maintaining all working bench height of 7 m and width of more than 8 m as given in our approved Mining Plan for the year 2017-18 and 2018-19. We have attached recent photographs of the same area showing systematic development for your ready reference

Details of violations of provisions of MCDR-2017, issued by IBM vide letter no. KNT/CTD/Fe-04/BNG/Vol-IV/157 dated 30th July 2019 and compliance submitted are given below. (Annexure -16c).

Table- 14:

-		le-14:		
Rule	Section of Continuous	Compliance		
	 It was observed that the production and development plan was deviated from the proposal towards southern side in between section line 3A-3A' to 5A-5A'. 	i) The modification in proofsals of production, & development work at sentions 3.6-3A* to 5A-5A* for the year 2019-20 s made in latest modified approved mining plan (letter no #279/272/91/ BNG dated 19/8/2019).		
11(1)	 It was noticed that siliceous ore had not been worked out in between section line section 7A-7A' to 9A-9A', thus resulting in no generation of mineral reject and lowering of stripping ratio. 	ii)The proposals of production & development work at sections 7A-7A' to 9A-9A' is made in latest modified approved mining plan (letter no 279/272/91/ BNG dated 19/8/2019). The parking yard and workshop will be removed in the year 2019-20 simultaneously as benches are progressing. Working in this part of the pit is already started; photographs of the same are		
	iii) Retaining wall was not constructed as per the approved document against the proposal of 409 mts.	attached. This part of working is necessary to facilitate the backfilling in next plan period. iii) With reference to approved mining plan the area identified for construction of retaining wall was 409 mts i.e. 168 mts in dump3 and remaining 241 mts was proposed in new office area. Out of this 168 mtrs is already constructed in dump 3 area and reaming construction is proposed in latest approved MP.		
26(2)	Yearly report on PMCP setting forth the extend of protective and rehabilitative work carried out as per the approved Progressive Mine Closure Plan has not been submitted till date.	Soft copy of yearly report of PMCP returns was submitted to your good office through email, hard copy of the PMCP returns is also sent to your good office on the same date. Copies enclosed for ready reference		
Following deficiencies were observed in the annual Returns submitted; i) As per the approved document no area is considered as fully reclaimed and rehabilitated, whereas 23.24 ha is shown in annual returns. (refer part I of annual returns) ii) Ex-mine price is given for ores even though there is no dispatch of lumps & fines. (ref Part IV of the Annual Returns) iii) The Royalty, DMF & NMI-1 may be given separately for calculating the cost of production. (ref part VII of the annual returns)		i) In annual return, part-I, st.no 12(iii) the lease area utilization at the end of the year, it is shown under reclaimed/rehabilitated as 23.24 ha. Since plantation area is above the dump area so these areas can be considered in waste dump area only instead of reclaimed / rehabilitated area. In subsequent annual and other returns these will be corrected. ii) Annual returns part IV, will be referred back and corrections in Ex-mine price for the non-disputched lumps and fines will be corrected accordingly. iii)Royalty on dispatched material is paid by the buyer therefor it is not considered as part of our cost of production. There is no option to		
	production. (ref part VII of the annual returns)	our cost of production. There is no option to mention DMF and NMET separately in cost of production in online annual return form, therefor it is mentioned together into others section.		

Details of violations of provisions of MCDR-2017, issued by IBM vide letter no. KNT/CTD/Fe-04/BNG/Vol-IV/917 dated 11th Dec 2019 and compliance submitted are given below. (Annexure -16d).

Table- 15:

Rule	Details of Violation	Compliance Gove of Ind		
11(1)	Modified RMP with PMCP was approved videletter no.279/272/91/BMG/24 dated 23.03.2018 for a period of 2018-19 to 2021-22. The deviations observed in mining operations vis a vis approved document is given below; i) It was observed that the production and development plan was deviated from the proposal towards southern side in between section line 3A-3A' to 5A-5A'.	Due to presence of Limonitic Dre Bench we faced huge quality issues. Due to partity issue we had slightly deviated from approved plan in the section 3.4-3.4' to 5.4-5.1'. However same has been submitted to your good office for modification. The modification in proposals of production & development work at sections		
	ii)It was noticed that siliceous ore had not been worked out in between section line section 7A-7A' to 9A-9A', thus resulting in no generation of mineral reject and lowering of stripping ratio.	ii) The proposals of production & development work at sections 7A-7A' to 9A-9A' is made in latest modified approved mining plan (letter no 279/272/91/ BNG dated 19/8/2019). We have started working in this area as per the approved production and development plan for FY 2019-20. Till date 6010 tonnes of siliceous ore is produced from the above said sections. By end of FY 2019-20 proposed annual production quantity of siliceous ore will be produced,		

3.5) Indicate and give details of any suspension/closure/prohibitory order issued by any Government agency under any rule or Court of law:

Not applicable as mine is operating in this plan period.

3.6) In case the MP/SOM is submitted under rule 11 of MCDR 2017 or under rule 17(3) of the MCR'2016 for approval of modification, specify reason and justification for modification under these rules.

A fourth modification to the approved Review and Updation of Mining Plan including PMCP is being submitted for approval under Rule 17(3) of MCR 2016 and Rule 23 of MCDR 2017 in order to increase the production /development based on the enhancement of production limit of 5.89 MTPA approved by CEC for the remaining period of current financial year 2019-20 to 2021-22 respectively and updation of reserves and resources as per latest



exploration. The production and development plan during 2021-22 of this plan period will be maintained at 7.2MTPA as in last approved MP in orde to get the Environmental Clearance for the production of 72 MOEFCC.

R&R works:

For protection of the mining area and to prevent further degradation of land and stabilization of dumps, protective measures proposed in the R&R plan has already been carried out. The details are given below:

Table-16:

Description	Proposed	Work done
Retaining walls at toe of waste dump		1 2000000000000000000000000000000000000
(i) R-R dry stone masonry (D1 ±D2 +D3 + D4)	34040 m	34040 m ² / annum
(ii) C-C 1:4:8 in foundation (D1 =D2 +D3 + D4)	1684.99 m ³	1684.99 m ³ / gnnum
Garland drain (1 m bottom width, 2 m top width and 1 m deep in all terraces) for D1+ D2+ D3 + D4	8376 m ³	8376 m ² / annum
Garland drain (1 m bottom width, 2 m top width, and 1 m deep in	8076 m ² 180 m ²	8076 m ² / annum
inclined chutes) for D3 + D4	180 m ³	180 m ³ / annum
Retaining walls at intermediate locations of waste dump	100 m	180 m ³ / annum
(i) R-R dry stone masonry (D3 + D4)	8131.5 m ³	8131.5 m ³ / annum
(ii) C-C 1:4:8 in foundation (D3 + D4)	623.42 m ³	623,42 m ³ /annum
Construction of chute at the gully for D2	NAME OF THE OWNER OWNER OF THE OWNER	Standard Authoriti
(i) CC 1:3:6 in foundation	55.8 m	55.8 m ³ /annum
(ii) R.R stone masonry in cement mortar 1:5 in side walls	90.0 m ²	90.0 m ¹ /annum
(iii) R.R stone masonry in bed of the drain	27.0 m ³	27.0 m ³ / annum
(iv) Stone pitching on both banks	339.0 m	339.0 m ³ / annum
Construction of sump and drop walls for D2	1	The second second
(i) CC 1:3:6 in foundation of the sump	31.98 m ³	31.98 m ³ / annum
(ii) R.R. 1:5 in walls of the sump	25.00 m ³	25.00 m ³ / annum
(iii) R.R 1:5 in front wall	45.00 m ²	45.00 m ³ /annum
(iv) R.R. 1:6 in drop walls	18.75 m	18.75 m ³ / annum
v) CC 1:3:6 in foundation of the drop wall	24.18 m ³	24,18 m ³ /annum
Additional R&R works :		and the second
Construction of retention wall - D3 dump	409m	409m

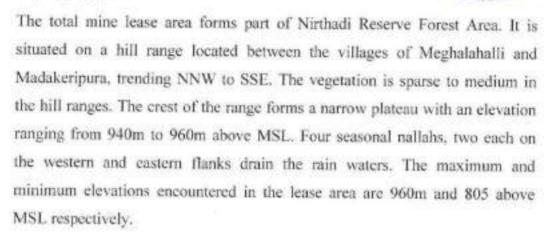
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PART-A

1.0 GEOLOGYANDEXPLORATION:

a) Physiography:



The climate of Chitradurga district, which is in the south-west part of the Decean plateau, is marked by hot summer months, low rainfall and a pleasant winter season. The temperature is around 14° to 17°C during November and December months and goes up to 40° to 41°C during April and May months of the year. The monsoon season extends over a period of six months from June to November. The district receives almost an equal amount of rainfall during the South-west monsoon (June to September) and during the North-east monsoon period (October to November). The average annual rainfall in the district is 580 mm with an average of 40 rainy days. The average annual rainfall in the mine site is 904mm. July happens to be the month receiving highest rainfall which is about 167.7mm average during the period 2001 to 2016. The relative humidity is high during the monsoon ranging between 70% to 75% and remains low in the rest of the year, particularly in the summer months. Winds are generally moderate during summer and strong during rainy season. In the South-west monsoon period, the winds blow mainly from a south-westerly or westerly direction. In the rest of the year the winds are predominantly from directions between north-east and south-east.

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b) RegionalGeology:

The important geological rock formations in the district are crystalline schasts granitic gneisses and the newer granites with few intrusive dykes, all belonging to the oldest rock formations. The schists and their associated rocks constitute a portion of the Dharwar system and are designated as the Chitradurga and the Chikanayakanahalli schist belt. The schistose rocks consist of a complex series of crystalline schists, quartzite, limestone, manganiferous clay schists and banded iron ore formation.

The granitic gneisses occupying a large part of the district are grouped under a separate formation under the title "Peninsular Gneiss" that include a heterogeneous mixture of several types of granitic rocks with enclosed lenses and patches of hornblendic schist. Peninsular gneisses are usually banded in appearance and are of light to dark grey in colour and form excellent building stones. On weathering, they yield red lateritic soils. Peninsular gneisses are found in Challakere, eastern parts of Hiriyur and Hosadurga taluks and in some patches of Chitradurga and Holalkere taluks.

c) Geologyoftheleasearea;

The terrain in which the mine is situated comprises of Dharwarian formation that falls under the Chitradurga – Shimoga schist belt. The lease area forms a narrow plateau with iron ore situated at the top of the hill under a capping of laterite rocks having strike length of 2km and the strike direction being NW – SE dipping 50–60° towards southwest. In the upper level of the ore body, the amount of dip is low whereas at deeper level the dip will be gradually increasing, ultimately reaching to vertical. It is confirmed by the exploration that, the structure of the ore body exhibits a synclinal formation reaching to a maximum depth of 280m from surface whereas anticline shows decomposed

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BHQ, which is exposed at surface along the strike line. Rich iron mineralization is concentrated at the trough area.

The ore zone in the mine is bifurcated by another lease, (RPC Mines) into five blocks namely south and north blocks and are connected by a narrow strip of land at the foot hill on the eastern side. Each block is being worked in a separate pit although the same ore zone is running across these blocks as well as other lease.

The northern block is at higher elevation (920mRL) having an ore body of 700m length with width of 20-40m running NW-SE direction with dip of 50-60 deg towards southwest. This is enclosed by weathered phyllites and schists on either side.

The southern block is at lower elevation (860mRL) having ore zone of strike length of about 1500m in NE - SW dipping 50-60 deg towards south west. The hanging and footwall consist of weathered phyllites and schists.

The general order of superposition of the ore zone in the lease area is as follows:

Table-17:

Lithology	Fe %
Iron Ore	45 to 62
HematiticSiliceous Ore	+35
BHQ	+25-35

At places limonitic ore and manganese ore/ manganiferous clay pockets are also noticed at hanging wall. Weathered dolerite dyke cuts across the ore body. Gabbros as intrusion are alsopresent at extreme northern side of the lease area. The quartz vein running at the toe of the eastern side of the hill is varying from two meters to five meters width.

Iron ore: The ore zone consists of powdery and lumpy ore. Lumpy ore occurs as disseminated boulders of various sizes whereas Powdery ore is soft and

friable in nature. Strike direction being NW – SE dippine 50–60° towards, southwest places the ore zone is covered by capping of Interite. The Size distribution of this material is about 15-25% (+10mm) lumps and remaining 75.50° 85% is fines (-10mm). It is confirmed by the exploration that; the ore body is reaching to a maximum depth of 320m from surface.

It is observed that laterally the grade will be higher at the center of the ore body and gradually will decrease towards hanging wall. The physical characteristic of the ore shows bluish as well as cherry reddish in color and of medium to hard in nature with tumbler index of around 75%.

The chemical analysis of ROM is as follows:

Fe	45 - 62 %
Mn	0.5 to 7 %
SiO ₂	2 to 7.5 %
Al_2O_3	1.8 to 3%

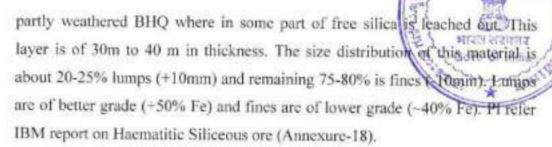
Phyllitic clays: Phyllitic clays are mostly found below the ore body. Thickness varies from few meters.

Limonitic clays: Limonitic clays are also found in hanging wall. These are yellowish in colour and vary in thickness from few centimeters to few meters.

Manganiferous clay: Manganiferous clay is black in color & contains about 0.5-7% of manganese. It occurs both as hanging wall & footwall due to minor folding and thickness varies from few centimeters to meters.

HematiticSiliceous ore: Siliceous ore is present within Iron ore band especially towards south block as lenses and pockets. The strike direction is same as iron ore, being NW – SE and dipping 50–60° towards southwest. Depth of occurrence is also in line with the iron ore.

Hematitic siliceous ore exists in both F/W and H/W side of the ore zone connected to main iron ore body as evidenced by drilled borehole data and surface geological exposure. This ore analyses +35% Fe and >40% silica. It is extend further to a depth of about 320m from the surface. This ore is nothing but



It is confirmed by the exploration that; the ore body is reaching to a maximum depth of 300m from surface. As we go deeper, this Haematitic siliceous ore zone is followed downward by fragmented BHQ and then hard massive BHQ.

The chemical analysis of the haematitic siliceous ore is as follows:

Fe	35 - 45%
Mn	0.5 to 2.5 %
SiO ₂	30 to 40 %
Al_2O_3	0.9 to 2.5%
P	0.01 to 0.08%

BHQ: This banded iron formation is hard to medium hard in nature and at places the quartzite band is converted to shale/phyllite. This may be called shaly BHQ. The strike direction is same as iron ore, being NW – SE and dip is almost vertical. The grade varies from 25-35% Fe.The drilling data of a borehole drilled upto 575m depth confirms BHQ is extending with descending grade.

Annexure-27 shows the chemical analysis reports of boreholes drilled.

d) Prospecting/Exploration:

Table-18: Details of Explorationagency

Name	M/s Kartikay Exploration and Mining Services Pvt. Ltd.	M/s South West Pinnacle Exploration ltd
Drilling Period	2018-19	2019-20
Address	Civil lines, NAGPUR Maharashtra-India	Gurgaon, Haryana



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E-mail id	ali.reyaz@kartikay.co.in	Manik.jain@soutl	westninnacle vom
Phone	7887869427	8800095408	Gove of India

e) Detailsofprospecting/explorationalreadycarriedout

 Numberofpitsandtrenchesindicatingdimensions, spacingetcalongandacrosst hestrike/foliationwithreferencetogeologicalplan.

No pitting/trenching was carried out.

ii) Number of boreholes indicating type (Core/RC/DTH), dia, spacing, in clination, Collarlevel, depthete with standard borehole logsduly marking on geological plan/sections.

Table-19

Year No. of boreholes		Grid interval	Total meterage	No. of Pits	No. of Trenches	
2018-19	17-Core	50m x 50m	3950.20m		-	
2019-20	15- Core	50m x 50m	5276.10m	-		

Table-20: Details of Core Bore Holes drilled during 2018-19

DU	LOCATIO	ON (UTM)	Level	(mRL)	DEPTH	INCLIN-
BH no.	NORTHING	EASTING	Тор	Bettem	(m)	(degree)
ANDD331	1572553,277	630169.435	877,436	653,736	223.70	80
ANDD332	1573837.988	629364.832	929.530	702.53	227.00	75
ANDD333	1574198.945	629604.228	917.282	729.282	188.00	75
ANDD334	1573808.833	629305.724	911.999	696.999	215,00	90
ANDD335	1573947,754	629330.969	893,405	750.405	143.00	55
ANDD336	1573759.552	629364.311	914.280	604.28	310.00	70
ANDD337	1572437,344	630178.427	855,693	530,693	325.00	70
ANDD338	1573873,244	629547.269	926,610	627,61	299.00	60
ANDD339	1573704.541	629497.195	909.583	609.583	300.00	.70
ANDD340	1573855.059	629522.432	926.269	681,269	245.00	80
ANDD341	1574072.104	629808.593	887,550	769,55	118.00	80
ANDD342	1573796.519	629457,484	929.710	696.71	233.00	80
ANDD343	1573703.338	629496.530	909,475	608.975	300.50	90
ANDD344	1572508.556	630702.665	899,364	666,364	233.00	60
ANDD345	1572952.687	630533,964	859.155	647,155	212.00	75
ANDD346	1573705.957	629356.826	905.456	616.456	289.00	70
ANDD347	1573072.895	630148_549	900.247	811.247	89.00	90

Table-21: Details of Core Bore Holes drilled during 2019-20

****	LOCATIO	N (UTM)	Level	(mRL)	DEPTH	INCLIN-	
BH no.	NORTHING	EASTING	Тор	Bottom	(m)	(degree)	
ANDD348 1571945.54		630396.23	838.49	272.49	566.00	65	
ANDD349	1573619.33	629418.48	880.21	613.21	267,00	90	
ANDD350	1573772,70	629159.02	848.38	589.88	258.50	55	
ANDD351	1572839.41	629893.99	854.86	470.36	384.50	85	
ANDD352	1572458.45	630083.44	842.82	205.32	637.50	75	
ANDD353	1573629.73	629280.69	881.26	538.86	342.40	80	
ANDD354	1573889.72	629279.79	879.74	670.44	209.30	75	
ANDD355	1573702.60	629212.74	885.10	565.1	320.00	90	
ANDD356	1573187.08	629837.12	856.85	562.85	294.00	60	
ANDD357	1572477,77	630240.68	866.93	487.93	379.00	60	
ANDD358	1573619.33	629418.48	885,00	575	310.00	65	
ANDD359	1572524.05	630210.78	870.63	670.63	200.00	70	
ANDO360	1573629.71	629279.57	881.05	577.65	303,40	6.5	
ANDD361	1572954.44	629874:64	841.39	691.39	150,00	70	
ANDD362	1573145.41	629782.38	873.02	218.52	654.50	65	

pyt. of lands

Table -22: Summary of total boreholes drilled

Year	Type	Bore Hole ID	Nos.	Diepth (m)
1994-1995	Core	NM-1 to NM-4	4	188
1334-1337	DTH	D-1 to D-86	86	3039
1998-1999	DTH	D-87 to D-129	43	1900
1999-2000	DTH	D-130 to D-167	38	2432
2001-2002	DTH	D-168 to D-188	21	1090
2004-2005	Core	NM-5 to NM-39	35	3111
2004-2003	DTH	D-189 to D-203	15	927
2005-2006	Core	NM-40 to NM-51	12	1015
2003-2006	DTH	D-204 to D-237	34	2772
2008-2009	R.C.	ANRC-1 to ANRC-137	137	15065
2009-2010	Core	ANDD-138 to ANDD 199	62	8040.55
2012-2013	Core	ANDD-200 to ANDD 220	21	5964.70
2015-2016	Core	ANDD-221 to ANDD 314	96	13300
2017-2018	Core	ANDD-315 to ANDD 330	14*	2795
2018-2019	Core	ANDD-331 to ANDD 347	17	3950.2
2019-2020	Core	ANDD-348 to ANDD 362	15	5276.10
	V2.57	TOTAL	650	71083.55

^{*} Borehole nox. 316 & 319 were not drilled.

iii) Details of samples analysis indicating type of sample (surface/sub-surface from pits / trenches/borehole etc)

Borehole samples of ore and waste were analyzed in NABL lab. The lithologs of BH are enclosed as Annexure-17. Analysis reports from NABL lab of the latest boreholes drilled are enclosed in Annexure-27.

iv) Expenditureincurredinvarious prospecting operations:

The cost of exploration carried out during 2019-20 was about Rs. 4.70 crores.

- f) Surface Plan: Enclosed as Plate no-II a on a scale of 1:2000
- g) Geological Plan: Enclosed as Plate no-II b on a scale of 1:2000
- Geological Section: Enclosed as Plate no-II c on a scale of 1:2000
- i) Futureprogram of exploration:

No proposals as the ML was explored extensively till last year of plan period.

Area under different level of exploration

G1	G2	G3	G4	Other*	Total	
99.16 ha				61.43 ha	160.59 ha	

^{*}Other is non mineralized area present in NE & SE portion and SW portion between sections 6-10, as per few negative boreholes and geological mapping.

The above areas of exploration are marked in Geological Plan, Plate II

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j) MineralReserves/Resources:

As per previouslyapproved modified Mining Plan, the Reserves/Resources were as follows.

Table-23: Resources and Reserves in tonnes as on 31.06.2019

Category	UNFC	Normal Iron Ore	Grade (Threshold at Fe +45%)	HematiticSiliceous Ore	Grade (Threshold at Fe +35%)
A. Total Mineral Reserves			- M-South		
Proved Mineral Reserve	111	104.616	Average	26.458	Average
Probable Mineral Reserve	122	-	51.67%		38.02% Fe
B.Remaining Resources			Fe	*	
Feasibility Mineral Resource	211	0.980		5.682	
Prefeasibility Mineral	221	-			
Measured Mineral Resource	331	0.021		6,016	
Indicated Mineral Resource	332				
Inferred Mineral Resource	333	3.651		1.472	
Reconnaissance Mineral	334	-4		-	
Sub Total		4.652		13.170	
Total Reserves + Resources		109.268		39.628	

The above resource/reserves are updatednow based on exploration data of 15 boreholes drilled in 2019-20. Following sections describe the methodology of estimation as per UNFC guidelines as well change in reserves / resources after re-estimation as per latest surface geological plan and sections updated on 31.01.2020 using latest exploration data.

Geological cross sections are prepared at 50m interval. Sectional areas are calculated, and cross-sectional areas are multiplied by sectional influence and the volume of the individual lithology was arrived. The area of individual lithounits in each cross section is calculated separately.

Proved Mineral Reserves (111) are estimated based on the data of G-1 level of exploration (up to 50x50m grid interval) without projecting depth limits beyond the borehole bottom and lateral extensions of extreme boreholes. The

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maximum and minimum depth considered as per boreholes dailled in respect of

Mineral blocked in the areas of safety zone of 7.5m along the boundary (Feasibility Mineral Resources-211) is estimated separately which is not minable where common boundary working permission is not present. Pit slopes will be maintained at 40°wrt horizontal as per local lithology which exhibits more compactness in depth and in line with the practice of surrounding mining areas like RPC. This has decreased the ore blocked due to pit limit.

Inferred Mineral Resources (333) are estimated below proved level based on geological extension of the individual lithology where borehole data is present.

Measured Mineral Resources (331) are proved mineral reserves but present below UPL, hence presently not minable.

Hematitic siliceous ore (35 to 45% Fe) will be dry screened and C. ore /fines will be blended with high grade ore and sold as and when required. Hence, mining of Hematitic siliceous ore is economically viable.

Tonnage is arrived by multiplying volume by its bulk density. Bulk density considered for iron ore is 3.0 ton/cum,2.70 ton/cumfor Hematiticsiliceous ore and 1.70 ton/cum for waste. Bulk density tests were carried out at mine site by sand fill method by SGS labs, Hospet. The BD test reports are enclosed as Annexure-18.

Recovery is considered as 100% for iron ore as no intercalations are present in ore zone. Hematitic siliceous oreis also having a recovery of 100% wrt both +10mm Cal ore and -10mm fines, which is detailed below (based on recovery test reports, Annexure-19).

Table - 24

HematiticSiliceous Ore	Sample I		Sample 1A		Sample 2		Sample 2A		Average	
	Size%	Fe%	Size%	Fe%	Size%	Fe%	Size%	Fe%	Size%	Fe%
+10mm	19.57	47.85	19.96	50.24	24.53	46.17	29.33	46.64	23,35	47.53



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							1/23	5	Separate.	15
-10mms	80.43	36.53	80.04	36.94	75.47	37.33	70 67	37.39	26.65	37.02
Total	100	38.74	100	39.60	100	39.50	100-0	40.10	100	37.02

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QP: SripadPujar& BVR Achar



k) Detailedcalculationofreserves/resourcessectionwise:

Following tables show re-estimation of reserves / resources as per latest surface geological plan/sections updated on 31.0 2020 using latest exploration data.

Table-25: Proved Mineral Reserves (111)

		- 1	RON ORE (+	45%	Fe)	SILICEOUS IRON ORE (+35% Fe)					
Sections	Area sqm.	Infla		TI	Quantity tons	Area sqm.	Influ Mtr	Volume Cu Mtr	TF	Quantit	
IA-1A	23244	50	1162200	3	-	3503	50	175150	2.7	-	
2-2'	45659	100000	2282950	3	the Section St. Lond Selection Co. Co.	2012	50	100600	2.7		
2A-2A'	-	-	1773800	3	THE RESERVE OF STREET	3024	50	151200	2.7		
3-3'	38264	50	1913200	3	THE RESIDENCE OF STREET, SANSAGE, SANSA	84	50	4200	2.7	or the comment of Alliand Street, Stre	
3A-3A'	14854	50	742700	3	2228100	0	50	0	2.7		
4-4"	27801	50	1390050	3	4170150	535	50	26750	2.7	the second secon	
4A-4A'	14343	50	717150	3	2151450	4420	50	221000	2.7		
5-5'	32750	50	1637500	3	4912500	4052	50	202600	2.7	547020	
5A-5A'	15761	50	788050	3	2364150	3332	50	166600	2.7	449820	
6-6	24165	50	1208250	3	3624750	402	50	20100	2.7	54270	
6A-6A'	8739	50	436950	3	1310850	4429	50	221450	2.7	597915	
7-7	5147	50	257350	3	772050	6842	50	342100	2.7	923670	
7A-7A'	12522	50	626100	3	1878300	0	50	0	2.7	0	
8-8'	2562	50	128100	3	384300	1718	50	85900	2.7	231930	
8A-8A	4692	50	234600	3	703800	1230	50	61500	2.7	166050	
9-9"	3505	50	175250	3	525750	706	50	35300	2.7	95310	
9A-9A	5515	50	275750	3	827250	0	50	0	2.7	0	
10-10'	4594	50	229700	3	689100	2742	50	137100	2.7	370170	
10A-10A	6124	50	306200	3	918600	3122	50	156100	2.7	421470	
11-11"	6840	50	342000	3	1026000	982	50	49100	2.7	132570	
11A-11A	5380	50	269000	3	807000	1502	50	75100	2.7	202770	
12+12'	11749	50	587450	3	1762350	3872	50	193600	2.7	522720	
12A-12A	0	50	0	3	0	10624	50	531200	2.7	1434240	
13-13"	15051	50	752550	3.	2257650	1905	50	95250	2.7	257175	
13A-13A	13796	50	689800	3	2069400	1988	50	99400	2.7	268380	
14-14"	14953	50	747650	3	2242950	6028	50	301400	2.7	813780	
14A-14A'	16547	50	827350	3	2482050	3673	50	183650	2.7	495855	
15-15"	29395	50	1469750	3	4409250	1575	50	78750	2,7	212625	
16A-16A'	12138	50	606900	3	1820700	0	50	0	2.7	0	
17-17	21629	50	1081450	3	3244350	26251	50	1312550	2.7	3543885	
17A-17A	28116	50	1405800	3	4217400	25089	50	1254450	2.7	3387015	
18-18"	32524	50	1626200	3	4878600	20757	50	1037850	2.7	2802195	
18A-18A'	49711	50	2485550	3	7456650	15310	50	765500	2.7	2066850	
19-19'	30687	50	1534350	3	4603050	19149	50	957450	2.7	2585115	
9A-19A'	25737	50	1286850	3	3860550	2950	50	147500	2.7	398250	
20-20'	25193	75	1889475	3	5668425	11498	75	862350	2.7	2328345	
191A	rd 312	Acher	33,887,975		101,663,925	_		10,052,750	-	27,142,32	





		IRO?	ORE (+	15%	Fe)	SII	LICEC	OUS IRON C	ME	35% Fe)
Sections	Area sqm.	Influ Mtr	Volume CuMtr	TF	Quantity tons	Area sqm.	Influ Mtr	Volume Cu Mtr	H	Quantity
2-2"	0	50	0	3	0	14878	50	743900	2.7	2008530
2A-2A'	0	50	0	3	0	367	50	18350	2.7	49545
3-3"	0	50	0	3	0	499	50	24950	2.7	67365
5-5"	0	50	0	3	0	1697	50	84850	2.7	229095
12-12	0	50	0	3	0	4009	50	200450	2.7	541215
12A-12A'	0	50	0	3	0	5816	50	290800	2.7	785160
13-13'	1519	50	75950	3	227850	2850	50	142500	2,7	384750
13A-13A'	2651	50	132550	3	397650	0	50	.0	2.7	0
14-14	0	50	0	3	0	2534	50	126700	2.7	342090
15-15"	0	50	0	3	0	9148	50	457400	2.7	1234980
17-17'	0	50	0	3	0	4999	50	249950	2.7	674865
18-18'	0	50	0	3	0	2270	50	113500	2.7	306450
19-19'	2383	50	119150	3	357450	1648	50	82400	2.7	222480
20-20"	0	75	0	3	0	13291	75	996825	2.7	2691427.5
TOTAL			327,650		982,950			3,532,575		9,537,953

Table-26: Inferred Mineral Resources (333)

Sections		IRO	N ORE (+45	% F	e)	SILICEOUS IRON ORE (+35% Fe)					
	Area 5qm.	Influ Mtr	Volume CuMtr	TF	Quantity tons	Area sqm.	Influ Mtr	Volume Cu Mtr	TF	Quantity	
1A-1A	7380	50	369000	3	1107000	3678	50	183900	2.7	496530	
2A-2A'	382	50	19100	3	57300	0	50	0	2.7	0	
3-3'	916	50	45800	3	137400	631	50	31550	2.7	85185	
3A-3A'	6528	50	326400	3	979200	0	50	0	2.7	0	
4-4'	3201	50	160050	3	480150	1436	50	71800	2.7	193860	
11-11	0	50	0	3	0	170	50	8500	2.7	22950	
13A-13A	208	50	10400	3	31200	0	30	0	2.7	0	
14A-14A*	367	50	18350	3	55050	95	50	4750	2.7	12825	
18A-18A'	4879	50	243950	3	731850	2690	50	134500	2.7	363150	
19-19'	0	50	0	3	0	1603	50	80150	2.7	216405	
20-20"	1344	7.5	100800	3	302400	0	75	0	2.7	0	
TOTAL			1,293,850		3,881,550	H		515,150		1.390,905	



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Table - 27: Measured Mineral Resources (331)

			100000000000000000000000000000000000000			_	-		C1 1	Married		
		IRON	ORE (+4	5%	Fe)	SII	ACE	DUS IRON	HE (ME (+35% Fe)		
Sections	Area sqm.	Influ Mtr	Volume CuMtr	TF	Quantity tons	Area 5qm.	Influ Mtr	Volume Cu Mtr	T	Quantity Tons		
IA-IA'	0	50	0	3	0	12157	50	607850	2.7	1641 195		
2-2'	0	50	0	3	0	615	50	30750	2.7	83025		
3-3'	0	50	0	3	0	8764	50	438200	2.7	1183140		
3A-3A'	0	50	0	3	0	2964	50	148200	2.7	400140		
4-4"	217	50	10850	3	32550	7254	50	362700	2.7	979290		
4A-4A'	0	50	0	3	0	5987	50	299350	2.7	808245		
5-5"	0	50	0	3	0	97	50	4850	2.7	13095		
5A-5A'	0	50	0	3	-0	113	50	5650	2.7	15255		
12A-12A*	0	50	0	3	0	4102	50	205100	2.7	553770		
20-20'	0	75	0	3	0	530	75	39750	2.7	107325		
TOTAL			10,850		32,550			2,142,400		5,784,480		

Reserves estimated by Slice Plan method:Reserves in proved category were estimated by Slice Plan method and are given below:

Table - 28: Proved Mineral Reserves (111) by Slice Plan method

		Ire	n Ore (+45	% Fet			Hematitic Siliceom Ore (+35% Fe)					
mRL.	Area squa.	Influ Mtr	Volume CuMtr	TF	Quantity fons	Area sqm.	influ Mir	Volume Cu Mtr	TF	Quantity	G Total	
940	13251	20	265020	3	795060	- 0	20	0.	2.7	0	795060	
920	66892	20	1337840	3	4013520	0	20	0	2.7	0	4013320	
900	101759	.26	2035180	3	6105540	8896	29	177920	2.7	480384	6585924	
880	102588	24)	2051760	- 3	6135280	14785	20	295700	2.7	798390	6953670	
860	185095	20	3701900	3	11105706	37988	20	759760	2.7	2051352	1327165	
840	175542	20	3510840	3	10532520	88087	20	1761740	27	47566/98	16009211	
820	210888	20.	4217760	. 3	12653280	67153	20	1343068	2.7	3626262	17539543	
800	160988	28	3219760	- 3	9659280	20997	20	419940	2.7	1133838	12287111	
780	140088	20	2801766	- 3	8405280	44052	20	881040	2.7	2178808	11444088	
760	140178	20	7803560	3	8410680	48452	20	969040	2.7	2616408	11789088	
740	103084	20	2061680	3.	6183040	34987	20	699740	2.7	1889298	8674338	
720	49183	20	983600	3	2950800	12764	20	255280	2.7	689256	4288656	
700	63948	20	1278968	3.	3836880	40313	20	806260	2.7	2176902	6013782	
680	54898	20	1097960	3	3293880	12832	20	256640	2.7	692928	3986808	
660	34258	20	683160	3	2055480	11250	20	225000	2.7	607500	2662980	
640.	25988	20	\$19760	3	1559280	10750	20	215000	2.7	580500	2139780	
620	14650	20	281600	3	844800	10050	20	201000	2.7	542700	1387500	
600	17822	20	356440	3	1069320	15495	20	309900	2.7	836730	1587450	
580	0	20	0	3	0	11025	20	220500	2.7	595350	438750	
560	d	20	.0	3	- 0.	10690	20	213800	2.7	577260	382860	
OTAL:	1660527				99631620	500566		- 100000	-/100	27030564	132250584	

The reserves are compared with the quantities arrived by cross section method are tabulated in next page.

Table - 29: Proved Mineral Reserves in million tonnes

Method	lron Ore (+45% Fe)	Hematitic Siliceous Ore (+35% Fe)
Section	101.664	27.142
Slice	99.631	27.031
Difference	2.033	0.111
% difference	2.0%	0.41%



1) MineralResources:

Resource/ reserves updated as on 31.01.2020after re-estimation as per latest surface geological plan and sections updated on 31.01.2020 using latest exploration data and are given below:

Table - 30: Total resources in million tonnes

LevelofExploration	Normal Iron Ore	Grade (Threshold at Fe +45%)	HematiticSiliceous Ore	Grade (Threshold at Fe +35%)	
G1-Detailed Exploration	102.679		42,464		
G2 -GeneralExploration	-	Average		Average	
G3-Prospecting	3.882	51.67 % Fe	1.391	38.02 % Fe	
G4- Reconnaissance	-	a see a see a see a see a se		naceculterin.	

Reserves and resources within the lease area are arrived after applying results of feasibility and economic evaluation (Annexure-23) of the deposit based on the various factors such as:

- a) Open cast mining method, recovery factor is 100% for both normal iron ore and siliceous ore as no intercalations are present in ore zone (tentative lumps recovery is 20-30% and fines recovery 70-80%). Recovery test report enclosed as Annexure-19.
- b) Cutoff grade of +45% for iron ore,+35% for Hematitic siliceous ore, ultimate pit depth of 200m in north block & 300m in south block.
- e) Mineral / ore blocked at lease boundary (10.517 million tonnes of Feasibility mineral resources-211) where necessary permissions are not available.

The following table gives Resource/ reserves updated as on \$101.2020 after reestimation as per latest surface geological plan and sections epidated on \$1.01.2020 after restimation as per latest surface geological plan and sections epidated on \$1.01.2020 after reestimation as per latest surface geological plan and sections epidated on \$1.01.2020 after reestimation as per latest surface geological plan and sections epidated on \$1.01.2020 after reestimation as per latest surface geological plan and sections epidated on \$1.01.2020 after reestimation as per latest surface geological plan and sections epidated on \$1.01.2020 after reestimation as per latest surface geological plan and sections epidated on \$1.01.2020 after reestimation as per latest surface geological plan and sections epidated on \$1.01.2020 after reestimation as per latest surface geological plan and sections epidated on \$1.01.2020 after reestimation as per latest exploration data which has taken care of depletion of \$1.01.2020 after reestimation as per latest exploration data which has taken care of depletion of \$1.01.2020 after reestimation as per latest exploration data which has taken care of depletion of \$1.01.2020 after reestimation as per latest exploration data which has taken care of depletion of \$1.01.2020 after reestimation as per latest exploration data which has taken care of depletion of \$1.01.2020 after reestimation as per latest exploration data which has taken care of depletion of \$1.01.2020 after reestimation as per latest exploration data which has taken care of depletion of \$1.01.2020 after reestimation as per latest exploration data which has taken care of depletion of \$1.01.2020 after reestimation as per latest exploration data which has taken care of depletion of \$1.01.2020 after reestimation as per latest exploration data which has taken care of depletion of \$1.01.2020 after reestimation as per latest exploration data which has taken care of depletion of \$1.01.2020 after reestimation as

Table - 31: Resources and Reserves in million tonnes as on 31.01.2020

Category	UNFC	Normal Iron Ore	Grade (Threshold at Fe +45%)	HematiticSiliceous Ore	Grade (Threshold at Fe +35%)	
A. TotalMineralReserves						
Proved Mineral Reserve	111	101.664	Average	27.142	Average	
Probable Mineral Reserve	122		51.67% Fe		38.02% Fe	
B.RemainingResources	- 5000					
Feasibility Mineral Resource	211	0.983		9.534		
Prefeasibility Mineral Resource	221 and 222	•		*		
Measured Mineral Resource	331	0.032		5.784		
Indicated Mineral Resource	332	-				
Inferred Mineral Resource	333	3.882		1.391		
Reconnaissance Mineral Resource	334	*		-		
Sub Total		4.897		16,709		
Total Reserves + Resources		106.561		43.851		

Note: It may not be possible to quantify grade wise reserves, as normally there is considerable variation in size and grade distribution within the ore zone, which results variable recovery factor and bulk density. Thus, tonnages arrived are tentative.



Resources of BHQ-although these are considered as waste as on day-fare also estimated from the exploration data. The total Banded Rematic Quartzite resources are at 59.10 million tonnes of average 25-35%Fe.

Table-32: Measured Mineral Resources (331)- BHQ

Sections	Area sqm.	Influ Mtr	Volume CuMtr	Recovery 100%	TF	Quantity tonnes
2-2'	32864	50	1643200	1643200	2.20	3,615,040
2A-2A'	38257	50	1912850	1912850	2.20	4,208,270
4-4'	14932	50	746600	746600	2.20	1,642,520
4A-4A'	7323	50	366150	366150	2.20	805,530
5-5'	14871	50	743550	743550	2.20	1,635,810
5A-5A*	38912	50	1945600	1945600	2.20	4,280,320
6-6*	24332	50	1216600	1216600	2.20	2,676,520
6A-6A'	32629	50	1631450	1631450	2.20	3,589,190
7-7'	27329	50	1366450	1366450	2.20	3,006,190
7A-7A*	45202	50	2260100	2260100	2.20	4,972,220
8-8'	16606	50	830300	830300	2.20	1,826,660
8A-8A'	41813	50	2090650	2090650	2.20	4,599,430
9.9'	30993	50	1549650	1549650	2.20	3,409,230
9A-9A1	19305	50	965250	965250	2.20	2,123,550
10-10/	35338	50	1766900	1766900	2.20	3,887,180
10A-10A*	24161	50	1208050	1208050	2.20	2,657,710
11-11'	11882	50	594100	594100	2.20	1,307,020
11A-11A'	17542	50	877100	877100	2.20	1,929,620
12-12'	11156	50	557800	557800	2.20	1,227,160
12A-12A'	14401	50	720050	720050	2.20	1,584,110
13-13'	8883	50	444150	444150	2.20	977,130
13A-13A*	8067	50	403350	403350	2.20	887,370
14-14'	8233	50	411650	411650	2.20	905,630
4A-14A'	12313	50	615650	615650	2.20	1,354,430
TOTAL	T T					59,107,840

Incidentally the Banded Hematite Quartzite- intersected through the drilled boreholes almost at bottom of the ore body - has been estimated and shown separately which may be utilized in future after upgradation in mineral conservation point of view.

2.0 MINING:

a) Briefly describe the existing as well as protested method for examination without design parametral indicating appliants Sections in

The mine is being operated by fully mechanized open cast mechanized niming method. The mine is currently having two blocks namely south and north blocks bifurcated by RPC Mines and are connected by a narrow strip of land at the foot hill on the eastern side. The lessee is having common boundary working arrangement with RPC mine. (Annexure-21).

Existing workings:

The mine is being worked by opencast fully mechanized mining method, benches are of 7m height and width of more than 8m. Haul road has 12-16 m width and average gradient of 1 in 16 to 1 in 20 gradients except in short ramps. The face slope is around 80° and overall pit slope is being maintained at <40°.

The dimensions of pits in each blocks and other details are summarized below:

Avg. Avg. UTM Co-ordinates Extent Top Bottom Bench Block Height Width (Dimension) mRL mRL. Nos. Northing Easting m 60.04 ha 1571942 SOUTH 630873 929,80 783.63 20 10 (L. 1410 m x B 428 m) 1573393 629639 9,00 ha NORTH 1574254 629665 946.41 905.43 6 7 10 (L.513 m x B 176 m) 1573581 629420

Table-33: Existing Working pit details

South Block: The pit in this block is running NW-SE direction. There are 20 nos, of benches with height of 7m and avg width is around 10m. The length of these benches varies from 100m to 1200meters. Out of these 20 benches, bottom most seven are in ore zone, four are in waste and remaining nine benches are both ore and waste. The pit slope is maintained at <40°. The top RL and bottom RL of the pit is 929.80m& 783.63m respectively.

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North Block: The pit in this block is running N-S. The top Rt & bettom RL of the pit is 946.41m and 905.43m respectively. There are six benches running along the strike of the ore zone. The parameters of the benches are very much in accordance with standards i.e., the height of the benches is maintained at 7 meters and width of the benches maintained around 10m. The pit slope is maintained at <40°. The length of the existing benches is varying from 100 to 350meters. Out of these six benches, four are in ore and remaining two in both ore and waste.

There are four waste dumps (D1 to D4) existing in the mine area. Out of these two dumps (D1 and D2) are partly stabilized and afforested. Remaining two dumps (D3 and D4) are active dumps. The details and the present status of each dump are as below.

Table - 34: Existing dump details

Dump	Extent (ha)	Qty- MT	Stages	Location	Level MSL	Remarks	
D1	17,49	6,208	6	N1574087-15733392 E629530-629021	930-816	Partly stabilized and afforested over	
D2	5.75	7.710	1	N1572533-1571853 E630211-630503	863-801	an area of 23.24 h	
D3	22,56	12.778	7	N1572931-1572253 E630490-631178	913-816	Active dumps	
D4 20.54		0.096 7		N1573497-1572710 E630046-630713	893-830	Active dumps	

Table - 35: Protective works carried out for existing dumps

34040 m ³
1684.99 m ³
8376 m
8076 m
180 m ³
180 m



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(i) R-R dry stone musonry (D3 + D4) (ii) C-C 1:4:8 in foundation (D3 + D4) 8131 5 67 8131 5 67 623.42 m² street at 24.37 Govt. of India

Existing mineral stocks:

The mine is having stacks of around 8.42 lakh tonnes of incidental siliceous ore of 35 to 45% Fe is already stacked over D1, which is existing since July2009. The Top RL is 911m and Bottom RL 839.49m and it is from Section 16A to 18 towards north west portion of north block.

Proposed workings: The proposed method of working will be fully mechanized opencast, by forming benches of 7m height and width of around 10m. The benches will be advanced towards southwest in south block, whereas towards east in north block. In south block Dump D2 will be re-handled during pit movement in sections 2-7 towards H/W side.

The workings are planned in such a way that levels are matched with adjacent RPC mine where common boundary workings are made. Haul road has 12-16 m width and average gradient of 1 in 16 to 1 in 20 gradients except in short ramps. The face slope will be around 80° and overall pit slope will bemaintained at <40°. Ultimate pit limit is up to 560mRL in South block and whereas in North block the ultimate pit level is up to 620mRL.

b) In situTentativeExcavation

CEC has given approval for enhancement of production quantity of 5.89 MTPA. A production of 0.472 MTPA has been planned for current year (2019-20) and 5.89 MTPA is proposed during 2020-21, and during 2021-22 production will be maintained at 7.2 MTPA as per previous approved modified Mining Plan. However, production of 7.2 MTPA will not be taken up in 2021-22 unless EC for that quantity is granted by MOEFCC.

The mine is being worked at both blocks (South & North) simultaneously to maintain the consistency of ore quality throughout the life of the mine and



conservation of the mineral resources. Recovery is considered as 100% ore and as no intercalations are present in ore zone. Hereatitic siliceous ore is also having a recovery of 100% wrt both +10mm Cal. ore and 10mm lines.

Bulk density considered for iron ore is 3.0 ton/cum, Hematiticsiliceous ore 2.7 ton/cum and 1.70 ton/cum for waste. Bulk density tests were carried out at mine site by sand fill method by SGS labs, Hospet. This and recovery analysis reports are enclosed in Annrexure-17.

Hematitic siliceous ore of +10mm Cal ore will be sold directly as it is of +45% and -10mm fines will be blended with high grade fines and marketed to major steel producers like JSW as it will of better quality with low Mn, P and Al2O3.

Tentative quality of ore with respect to Fe% required to make it suitable for marketing the ore produced will be arrived after proper blending of normal and siliceous ore. The details of the blending ratio for all types of ore is given below:

Table-36: Blending Plan

Year Item			Normal Ore		Siliceous Ore			Sub Total		Total Product
31000 1 1000 1000 1000 1000 1000 1000 1	Fines	Lumps	Product	Fines	Lumps	Product	Fines	Lumps		
2019-	Tonnex	377,520	94,380	471,900	**	240	-	377,520	94,380	471,900
20	Fx%	57.80	60.30	38.30	44	- 14		57.80	60.30	58.30
2020-	Tonnes	4,385,760	1,096,440	5,482,200	264,830	142,601	407,430	4,650,590	1,239,041	5,889,630
21	Fe%	39.00	61.50	59.50	35,05	38.03	43.10	57.64	61.10	58.37
2020-	Tomes	5,191,800	1,297,950	6,489,750	461,653	248,582	710,235	5,653,453	1,546,532	7,199,985
21	Fe94	58.15	60.36	58.59	35.69	58.69	43.74	56.32	60.09	57./3

Table- 37: Insitu Tentative Excavation- in Cum

2000000		Total	Top	OB/SB	R	OM-Iron C)re	Mineral Rejects	ROM/ Waste Ratio
Year	Block	tentative Excavation	Soil	ЛВ	Normal Ore	Hematitic Siliceous ore	Total		
1	2	3	4	5	6	7	8	9	10
2019-20*	South	278300	+	121000	157300	0	157300	-	1; 0,77
2017-20	North	0	-	0	0	-0	0	-	-
	Total	728300	-	121000	157300		157300	-	1: 0.77



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							10/15 to
2020-21	South	2601450	-	1468085	1558250	150900	1709150 44 1:0.85
	North	269150		0	269150		े के के प्रतास के किया कि के किया कि कि
	Total	2870600		1468085	1827400	150900	1928300 Govt. of 1719.74
2021-22	South	6325500		4436900	1625550	263050	
	North	669500	0.0	131800	537700	0	537709 - + 190.24
	Total	6995000	-				2426300 1:1.88

Note: Normal ore is of +45% Fe and Hematitic Siliceous ore is +35% Fe

Table- 38: Insitu Tentative Excavation- in Tonnes

		Total	Top	OB/SB	R	OM-Iron ()re	Mineral	ROM/
Year	Block	tentative Excavation	Soil	/IB	Normal Ore	Hematitic Siliceous ore	. I The Line Color	Rejects	Waste Ratio
1	2	3	4	5	6	7	8	9	10
2019-20*	South	677600		205700	471900	0	471400		1:0.44
2020-21	South	6586018		2495745	4674750	407430	5082180	-	1:0.49
everye.	North	807450	-	0	807450	0	807450	-	-
	Total	7393468		2495745	5482200	407430	5889630		1:0.49
2021-22	South	13390883	-	7803998	4876650	710235	5586885	-	1:1.39
market and	North	224060		224060	1613100	0	1613100		1:0.14
	Total	13614943	-	8028058	6489750	710235	7199985		1:1.12

Note: Normal ore is of +45% Fe and Hematitic Siliceous ore is +35% Fe

Dumpre-handling: (for recovery of mineral):

Table- 39:

	1.00/10- 1/2
Year	Dump Re-handling
2019-20	No proposals
2020-21	No proposals
2021-22	No proposals

Individualyearwisedevelopmentplansandsections:

A production of 0.472 MTPA has been planned for current year (2019-20) and 5.89 MTPA (CEC approved quantity) is proposed during 2020-21 and during 2021-22 production will be maintained at 7.2 MTPA as per previous approved modified Mining Plan.

Production and Development plan and sections are enclosed as Plates III/a to c. Individual year wise production /development details are given Annexure-22 and summary of the same is given below:

^{*}Production program for 2019-20 is ~0.472 MT as 4.427 MT of ore has already been produced upto Jan 31st 2020.



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Table- 40: Summary of Production / Development street accepte

	RON	A-Iron Ore-To	nnes	Total waste	The second second	
Үеаг	Normal Ore +45% Fe	Hematitic Siliceous Ore +35% Fe	Total	(OB/SB+ BHQ + Rehandled waste)		
2019-20*	471,900		471,900	205,700	1: 0.44	
2020-21	5,482,200	407,430	5,889,630	2,495,745	1: 0.49	
2021-22	6,489,750	710,235	7,199,985	8,028,058	1:1.12	

The following table describes the working proposals year wise, block wise.

Table- 41: Year wise / block wise workings

Year	Block	Sections	Area in	No. of	Level in	Loca	tion
rear	DIOCK	Sections	Ha	benches	mRL	Northing	Easting
2019-	South	140 15	55.0	9	920 797	1571942	630873
2020	South	1 to 15	55.0	1980	860-783	1573393	629639
2020-	South	1 to 15	56.12	20	898-777	1571942	630873
	South:	1.19			939-111	1573393	629639
2021	North	16A to 20	5.70	5	940-905	1574254	629665
	Other	1024 10:20				1573581	629420
	South	1 to 15	60.0	20	905-777	1571942	630873
2021-	South	1 10 12	00.0	20	903-777	1573393	629639
2022	North	North 16A to 20		6	934-899	1574254	629665
	DAGGER	1071 10 20	8.00	0	234-033	1573581	629420

During this plan period, total waste will be dumped on the existing dumps, D3 and D4 area. During 2019-20 dumping will be on D4 and start from 820mRL and continue up to 870mRL in five stages, with each stage (terrace) of height of 10m. During 2020-21, dumping will be both on D3 & D4 and start from 820mRl and continue up to 910mRL in nine stages of 10m each. During 2021-22, dumping will be on D3 and start from 820mRL and continue up to 930mRL in ten stages of 10m each. Dumps will be built up from the bottom of the existing dump in a retreating manner.

Table- 42: Proposed dumping details

Year	Dames	Area	Qty	No. of	Level	Dump	Location Co	o-ordinates
	Dumps In H	In Ha	ta MT stay	stages	mRL	slope	Northing	Easting
2019-20	D4	13.01	0.206	5	820-860	28 ^O	1573497	630046



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- 39		1	1 3		1		1872710 6 650713
2020-21	D3 &D4	22,73	2.496	6	850-910	28 ⁰	\$2.57340# 651211 \$373258 851311
2021-22	D3	23,00	8.028	10	820-920	280	15 3253 4630593

The dumping proposals are given in Plates no.VI a and VI b.

d) Salientfeaturesof theproposedmethodofworking:

It is proposed to operate the mine by fully mechanized open-cast mining method in two shifts(6am to 2pm and 2pm to 10pm). Mining will be carried out in both the blocks. The benches will be made with a height of 7m and width will be around 10m. The existing pit will be worked by advancing the benches across the strike direction.

The produced ore will be transported through 35 tons capacity dumpers to the Crushing/Screening plant to get the end products like calibrated lumps (+6mm-40mm) and fines (-10mm). These products will be stacked in designated areas. The waste will be dumped through dumpers systematically in SE part of the lease (D3/D4) where already waste dump is present. Existing infrastructure at mine site at south block consisting of mine office, canteen, workshop, parking yard etc. have been shifted towards footwall side.

The existing machinery are enough to handle the proposed production and development. Hence, no additional deployment of machinery is envisaged as Lessee is already having adequate machinery commensurate with the EC quantity.

Table: 43- Machinery Details

Sr. No	Equipment / Machinery	Manufacturer	No. of units	Engine H P	Capacity
1	Hydraulic	CAT 330	2	220	1.65cum
	Excavators	Volvo 460	1	316	2.45cum
	(Total 8 nos.)	Volvo 700	5	424	4.0cum



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2	Wheel Loaders	CAT/Volvo	9	142	3.16mm
3	Wagon drill	Atlas Capco	1	15/2	2066/1172
4	Ripper Dozer	D9R	3	42	Govt of in
5	Dozer	D6R	1	199	Borne
6	Dumpers	Volvo	35	405	35 tons
7	Crushing/Screening Plant with generator	Power Screen	4		1x1000 and 3x500tph
8	Water Tanker	TATA	4	130	8000 ltrs
9	Jeeps / Service Vehicles	Mahindra/Tata	7	70	

Calculation of adequacy of loading /hauling equipment:

Hydraulic excavators of varying capacity ranging from 1.65 cum to 4.0 cum are being used. A typical hourly capacity of an excavator assuming an average bucket capacity of 3.11 cum is calculated below.

Hourly capacity of shovel = (3600x BC x Sf x Ff x Tf x n) / Ct

BC = Bucket capacity = 3.11 eum

Sf = Swell factor = 0.8Ff = Fill factor = 0.9

Tf = Tonnage Factor =3

n = Efficiency = 0.8

Ct = Cycle time in seconds = 45

TPH = (3600x3.11x0.80x0.9x3x0.8)/45 = 430 tph

Considering 357 working days x 13hrs/day (two shifts);

Yearly handling by one excavator = $430 \times 13 \times 357 = 1.96$ million tons/annum. So, for 8 excavators = $1.96 \times 8 = 15.96$ million tons/annum.

This is more than sufficient as total proposed handling is around 15.23million tons/annum. Wheel loaders will be used for leveling as well as handling ore at Crushing/screening plants.

Dumpers: Considering two shifts working with 13 effective working hours for 357 days in a year, dumper wise handling is given below:

For 35 tonners with effective average handling of 90tph; (The dumpers will make three trips/hr, so it will carry 35x3=105tph). Yearly handling by one dumper = $105 \times 13 \times 357 = 0.487$ million tons/annum So, for 30 dumpers = $32 \times 0.487 = 15.584$ million tons/annum.

Remaining 5 dumpers will be extra being used for secondary handling as welfor transportation.

Transport system: The produced ore will be transported through 35 tons capacity dumpers inside the mine area to the Crushing/Screening plant to get the end products like calibrated lumps (+6mm-40mm) and fines (-10mm). The ore production will be dispatched by road as well as by rail.

Proposed Pipe Conveyor System: Currently, this mine has three exit routes namely Gate-1 (Mines to Sasalu railway siding), Gate -2 (Mines to BBH railway siding) and Gate-3 (Direct road via Bheemasamudra). However, lessee has proposal to establish a suitable Pipe Conveyor Systemwithin two years to avoid surface transport and helpto reduce the environmental footprint substantially. The proposed system will have following key features:

- Total length of the conveyor including the tripper conveyor would be about 4.8km.
- Proposed to achieve a capacity of about 6 rakes/day.
- Designed for 330 days for conveyor and 12hrs per day considering operation during day light (6am to 6pm) with 24000 TPD, 2000 TPH.
- Two shifts conveyor operation and 3rd shift for maintenance.
- Reclaiming of material is proposed to be through Pay loaders.
- Project will be implemented in two phases.

Additional information: In case of rail, the iron ore (about 70-80%) will be transported from the mine to the Railway siding at BBH by own Volvo trucks of 35tonnes capacity and to Sasahu through hired tippers of 10 tonnes capacity. At railway siding, ore will be loaded into railway wagons and transported up to the end user destination. About 20-30% of ore production will be directly transported by existing road network of mines to Bheemasamudra village road joining state highway and connecting to National Highway No.13.





Drilling & Blasting:

The formations are mostly soft and drilling blasting will be resorted only when hard strata are encountered. Only about 20% of material needs blasting. Holes of 7-8m will be drilled covering inclination and sub-grade drilling. Drill holes will have a spacing and burden of 3m and 4m respectively. Wagon drill and diesel driven compressors will be used for drilling.

Broad Blasting Parameters: Bench height & width shall be maintained at 7m and 10m respectively each for easy operation of machinery. Holes of 7 to 8m will be drilled covering inclination and sub-grade drilling. Drill holes in development shall have a spacing and burden of 3.0m and 4.0m respectively. Charge per hole will be kept at around 30kgs. Normally two rows of blasting pattern will be adopted to control the ground vibration, back break and noise pollution. Stemming of around 3m will be done to control the fly-rock generation. The maximum no of holes kept in one blasting round will be restricted as per the provisions of MMR. Use of MS delay detonators & cord relays will help in controlling the vibration and achieve better fragmentation. Yield will be around 2700 cum /round.

Blast initiation in the hole will be done using Nonel shock tube of 25Ms and 42Ms. The powder factor will be around 7.0 tons/kg as only hard strata will be blasted. Hence, the charge per hole will be around 25kg depending on the strata.

Type of explosives to be used: Slurry explosives

Storage of explosives: The Lessee will be hiring licensed Blasting contractors for blasting activity in the mine

Adequacy of drill machines: For a quantity of 14.4 lakhs TPA (20% of 7.2 MTPA) that is 4800tpd, with an output of 37.8 tonnes/m of drilling, one wagon

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drill machine is enough as it can drill 20m/hr. (4800/37.8 3 127m / day). Hence it can drill 127m in six to seven hours.

Layoutof mineworkings: c)

The proposed method of working will be opencast fully mechanized, by forming benches of 7m height and width of >8m. The benches will be advanced in the direction of south & west in south block, whereas towards east in north block. Some of the dumps will also be re-handled during pit movement. Haul road has 12-16 m width and average gradient of 1 in 16 to 1 in 20 gradients except in short ramps. The face slope will be around 80° and overall pit slope will be maintained at <40°.

Table- 44: Year wise / block wise working details

Year Block	Sections	Area in	No. of	Level in	Loca	tion	
2010		OTTO TO THE	Ha	benches	mRL	Northing	Easting
2019-	South	1 to 15	55.0	9	860-783	1571942	630873
2020	100000	2000 SEC	(4152.24)		000-703	1573393	629639
2020-	South	1 to 15	56.12	20	898-777	1571942	630873
000000000000000000000000000000000000000	-	SW 35.5	0.700			1573393	629639
2021	North.	16A to 20	5.70	5	940-905	1574254	629665
	100		100		340-203	1573581	629420
2021-	South	1 to 15	60.0	20	905-777	1571942	630873
2022				20	30000011	1573393	629639
million in	North	16A to 20	8.00	6	934-899	1574254	629665
	1000	a cocatament	80.890		224-099	1573581	629420

Table- 45: Proposed dumping details

Year	Dumps	Dumps	11/0/15/50/11	No. of	Level	Dump	Location C	Location Co-ordinates	
		In Ha	MT	stages	mRL	slope	Northing	Easting	
2019-20	D4	13.01	0.206	5	820-860	280	1573497	630046	
					020-000	-0	1572710	630713	
2020-21	D3	22.73	2.496	6	850-910	28 ⁰	1573497	631211	
	&D4			-	0.70-710	-0	1572253	630046	
2021-22 D3	D3	23.00	8.028	10	820-920	28 ^{ti}	1572931	631211	
	25.00 0.026 10 820-920 28	0	1572253	630503					

The dumping proposals are given in Plates no.VI a and VI b.Location of proposed workings and dumping are shown in the production layout plans plate III/a to c. The working section is enclosed as III/b and Conceptual dump management plan is shown in Plate no. VIb.



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f) ConceptualMinePlanning:

Excavation: In the entire lease area, about 99.16 ha area simineralized Considering the current exploration data and geology, pit layout is designed The mining will be carried out in the already opened pits. Bench height will be 7m and width will be >8m. Overall slope angle will be maintained at <40°. The final pit limit is designed based on the depth, average dip and width of the ore body.

The mineable reserves estimated are 128.806 million tons and with the proposed production of 7.20 million TPA, the life of mine will be around 17.89 years. The parameters of ultimate pit limit will be as follows:

Table-46: UPL Parameters

Block/	Pit Area		Pi	t Dimension	
Pit	ha	Length	Width	Max. Depth	Slope
North	27.00	490m	551m	200m	35° (FW)
South	72.16	1410m	512m	195m	35° (HW)

The ultimate pit limit and ultimate pit slope is demarcated on the Geological Plan and Cross Sections and enclosed as Plates II b and c.

The mining lease is getting expired on 28.10.2032. The land use has been demarcated based on the production limits fixed by CEC. The mining will be done up to lease period. The mining area will be extended from 77.99 ha in this plan period to 99.16 ha during conceptual stage. Based on current exploration the ultimate pit limit will be extended over the stabilized dumps D1 & D2 in western part, the surface dumping in D3 and D4 will be done in this plan period and further waste will be back filled in the worked-out pit. The details of backfilling area and its capacity has been given in next section and shown in the Conceptual dump sections, plate no. VI/b. Necessary land use required for other allied works has been demarcated in the conceptual plan plate no. VI/a.

Recovery of ROM: Recovery is considered as 100% for error ore and as no intercalations are present in ore zone. (Annexure-19). Hernatic siliceous ore as also having a recovery of 100% wrt both +10mm Cal ore and -10mm times.

Disposal of Waste:

During this plan period, waste will be dumped in D3 and D4. In total D3 & D4 (with extension) dumping put together is having about 37.20 ha area and can accommodate about 15.79 million tons of waste and this area is enough for surface dumping as waste generation in three years plan period is 10.73 million tonnes. Waste generated for the life of the mine will be 86.358 million tonnes.

Backfilling of voids: No proposals of backfilling in this plan period. But during this plan period workings will be carried out in south block between sections 8-8' to 14A-14A' to exhaust ore present there, which will generate space to accommodate about 51.804 million tons of waste as backfilling. Back filling will start only after exhausting this belly portion of pit. Care will be taken to develop the both the eastern and the western side of the pit by orienting the excavation straight and excavation will be widened at the bottom so that the bottom mRL will remain same throughout both the sides of the pit. This will make the pit suitable for backfilling of waste by exhausting the ore at the bottom. So, in conceptual plan period mining will be with concurrent backfilling.

Table- 47: Conceptual dumping and backfilling program

Dumping:



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Year	Dumps	Area	Qty	No. of	Level	Dump	Location C	o-prelimates	
- wants	In Ha	MT	stages	mRL	slope	Northing	Easting		
2019-20	D4	13.01	0.206	5	820-860	280	1575497	638046	
50000			O.E.O.		020-000	20	379710	-630713	
2020-21	D3	22.73	2.496	6	850-910	28°	1573497	631211	
	&D4		2,750		850-310	20	1572253	630046	
2021-22	D3	23.00	8.028	10	820-920 28°	820 020	200	1572931	631211
	23.00 8.028 10 820-920 28	20	1572253	630503					

Backfilling:

Stages	Cupacity.		Capacity	Location Co-ordinates		
	Block		in MMT	Northing	Easting	
1 st stage (2022-27)	21.69ha	8-8' to 12A-12A'	29.665	1572420- 1573400	629800- 630500	
2 nd stage (2027-32)	11.79 ha	13-13' to 14A-14A'	22.139	1572860- 1573360	629630- 630110	

Reclamation and Rehabilitation:

Protective measures proposed in the R&R plan has already been carried out. The details are given below:

Table-48:

Description	Proposed	Work done
Retaining walls at toe of waste dump	roposed	mork done
(i) R-R dry stone masonry (D1+D2+D3+D4)	34040 m ³	34040 m ³ / annum
(ii) C-C 1:4:8 in foundation (D1 +D2 +D3 + D4)	1684.99 m ¹	1684,99 m ³ / prinur
Garland drain (1 m bottom width, 2 m top width and 1 m deep in	8376 m ³	8376 m ¹ / annum
all terraces) for D1+D2+D3+D4	8976 m ²	8076 m / annum
Garland drain (1 m bottom width, 2 m top width and 1 m deep in	180 m ²	180 m³ / annum
inclined chotes) for D3 + D4	180 m	180 m ² / annum
Retaining walls at intermediate locations of waste dump	1)	
(i) R-R dry stone musonry (D3 + D4)	8131.5 m ³	8131.5 m ¹ /annum
(ii) C-C 1:4:8 in foundation (D3 + D4)	623.42 m ¹	623,42 m ³ / annum
Construction of chute at the gully for D2		
(i) CC 1:3:6 in foundation	55.8 m	55.8 m ³ / annum
(ii) R.R stone masonry in cement mortar 1:5 in side walls	90.0 m	90.0 m3 / ponum
(iii) R.R stone masonry in bed of the drain	27.0 m ²	27.0 m ^T /annum
(iv) Stone pitching on both banks	339.0 m	339,0 m ³ / annum
Construction of sump and drop walls for D2		DESCRIPTION OF THE PROPERTY.
(i) CC 1:3:6 in foundation of the sump	31.98 m ³	31,98 m ³ /annum
(ii) R.R 1:5 in walls of the sump	25.00 m ¹	25.00 m ² / unnum
(iii) R.R 1:5 in front wall	45.00 m ³	45.00 m ³ / innum
iv) R.R. 1:6 in drop walls	18.75 m	18.75 m ³ / annum
y) CC 1:3:6 in foundation of the drop wall	24.18 m	24.18 m ³ / annum
Additional R&R works:		
Construction of retention wall - D3 dump	409m	409m



No pending works of R&R, however, Engineering structures like toe wall and garland drains are proposed at the bottom of dumps to prevent wash off from dumps into adjacent areas. These are marked, and detail are given in Conceptual dump management plan, plate no. VI/a.

Table- 49: Year wise Engineering measures

Year	2020-2021	2021-2022
Retention wall	18	Maintenance of existing structures
Garland drain	2 nos. (70m, 175m)	Maintenance of existing structures

Afforestation: To minimize the impact of mining on environmental components outside the mine lease area, greenbelt zone of 5.03 ha along the lease boundary with 7.5m width is already established as safety zone inside mine lease area this will be maintained.

Table-50: Year wise Plantation on the slope of South Block dump

Year A	Area (ha)	Area (ha) No.		Species	UTM Co-ordinates	
10000	Saplings Rate Species	Northing	Easting			
2020-21	1.20	3000		www.numero.u	1572626	630857
E4826-250	5/3/2/07	CONSTR.	70-80%	As per R&R	1572774	631064
2021-22 0.60	0.60	1500		recommendations	1572735	630716
	57.575	1500			1572875	630906

Table -51: Land Use Pattern

Туре	Existing Area (Ha)	Plan period Area (Ha)	Conceptual period Area (Ha.)
Mining	69.04	77.99 *	99.16**
Active dump area	43,10	45,40**	45.40
Stabilized dump area	23.24	20.94	6.54
Mineral stock	10.89	06.77#	06,77
Statutory building	02.80	00.50 ^	00,50
Crushing/Screening/stock	04.60	03.18 5	03.18 8
Road	01.89	00.78	00.78
Safety zone (7.5m)	05.03	05.03	05.03
Total	160.59	160.59	160.59

Note:

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*Mining: 77.99 Ha (Seistang pit 19 00 ho + 4 125 from going frameday

+1.42 ha x pan trushing & Severiff 1 11 ha from Stanfork building areal

"Mineral stock: 6.77 ha (Existing 10.89 ha - 4.12 ha for mining) Terraporty Similary basically to the Caristing 2 gold

crushing of screenly acon 3. 17the (Entitly 4-6010 - 1:42to forming)

Conceptual period are breakup details:

Stabilized dumps area reducing from 23.24 ha to 6.54 ha in the conceptual stage as mining area will move into stabilized waste dump

MIVINY 99.16 Ha. (Plan ported mas 77.99 : + 14.40 to from State Used we te deling + 6.77 no troop enimeral states)



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3.0 MINEDRAINAGE

a) Minimumandmaximumdepthofwatertablebasedonobservations from nearbywellsandwaterbodies:

The water table near the mine varies from 30m to 50m bgl that is about 600 above MSL as per the bore wells drilled nearby.

b) Maximumandminimumdepthofworkings:

The mine is located on hilly range with highest elevation ranging from 807above MSL and 960 above MSL respectively. The ultimate depth of the mining will be 560above MSL.

 Quantity andquality of waterlikelytobeencountered, the pumping arrangements and places where the minewater is finally proposed to be discharged:

No ground water will be encountered during mining as the lowest level in mining will be well above general ground level. The monsoon water runoff gets drained off through the natural valleys.

d) Regionalandlocaldrainagepattern:

The average annual rainfall in the mine site is 700mm. July happens to be the month with the heaviest rainfall is 167.7mm average during the period 2001 to 2015. No Rainwater will be collected within the pit as most of it will be infiltrated into the ground. Monsoon water falling on slopes and other areas will be coursed through the existing natural valleys which are provided with check dams and gully checks. These will help in arresting solid wash off from the mining area. Ground water will not be encountered during this plan period as well as in conceptual period.



4.0 STACKING OFMINERALREJECT/SUBGRADE DISPOSALOFWASTE

 a) Nature and quantity of topsoil, overburden/waste and Mineral Reject to be disposed off:



Topsoil: As this mine is working since 1954, entire mining lease area is broken and open hence no topsoil will be generated.

Waste Rocks: Overburden ferruginous shale/phyllitic clays, quartzite (siliceous waste), weathered dyke etc are the waste materials to be handled during mining. The physical characteristics of wastes are;

Phyllitic clay: Fine grained soft material with pinkish to yellowish in colour.

Quartzite (siliceous waste): Its mainly weathered BHQ having fine grains and it is friable material, whitish in colour.

Weathered dyke: Its mainly weathered basic dyke having fine grains and it is friable material which is pinkish in colour.

BHQ: This banded iron formation is hard to medium hard in nature and at places the quartzite band is converted to shale/phyllite. This may be called shaly BHQ.

Table -52: Year wise Quantity of waste and others in tonnes

OUN	Tops	Topsoil		aste	Mineral rejects		
Year	Reuse / Spreading	Storage	Backfilling	Storage	Storage	Beneficiation	
2019-20	-	2	2	205,700			
2020-21		-	-	2,495,873			
2021-22		-		8.028,058			

b) Dumping area:

Currently the mine area has four dumps, the details of each demp are:

Table - 53: Existing dump details

Dump	Extent (ha)	Qty- MT	Stages	Location	Level MSL	Remarks 900
DI	17.49	6.208	6	N1574087-15733392 E629530-629021	930-816	Partly stabilized and afforested over
D2	5.75	7.710	1	N1572533-1571853 E630211-630503	863-801	an area of 23,24 ha
D3	22.56	12,778	7	N1572931-1572253 E630490-631178	913-816	Active dumps
D4	20.54	0.096	7	N1573497-1572710 E630046-630713	893-820	richive duttips

Proposed dumping:

During this plan period 10.73 milliontonnes of waste is proposed to be generated and this waste will be dumped on D3 and D4, which are already on non-mineralized area and outside the UPL. The proposed dumping area over D3 & D4 is about 37.20 ha in extent and can accommodate about 15.79 million tons of waste. This has been estimated considering the number of stages, slopes and haul road width etc. (The design details are given in Plate VIb). This area is enough for surface dumping as waste generation in three years plan period is 10.73 million tonnes only.

Table- 54: Proposed dumping details

Year	Dumps	Area	Qty	No. of	Level mRL	Dump	Location Co-ordinates	
	L-anapa-	In Ha	MT	stages		slope	Northing	Easting
2019-20	D4	13.01	0.206	- 24	820-860	28 ^a	1573497	630046
		15.01	0.200	0.200	620-600	-0	1572710	630713
2020-21 D3 &D4 22.73 2.496 6		850-910	28°	1573497	631211			
				1572253	630046			
2021-22	D3	23.00	8.028	10	820-920	280	1572931	631211
-WATER	100	23,00 8,0	0.000	110	020-920	40	1572253	630503



Manner of disposal and configuration, sequence of buildup of dumps along c) with the proposal of stacking of sub grade ore: Govt, of India

During this plan period the waste will be dumped on D3 and D4 dump. During 2019-20 dumping will be on D4 and start from 820mRL and continue up to 870mRL in five stages, with each stage (terrace) of height of 10m. During 2020-21, dumping will be both on D3 & D4 and start from 820mRl and continue up to 910mRL in nine stages of 10m each. During 2021-22, dumping will be on D3 and start from 820mRL and continue up to 930mRL in ten stages of 10m each. Dumps will be built up from the bottom of the existing dump in a retreating manner.

No pending works of R&R, however, all required measures as per requirement of R&R plan, like engineering structures like toe wall and garland drains are proposed at the bottom of dumps to prevent wash off from dumps into adjacent areas. These are marked, and details are given in Conceptual dump management plan, plate no. VI/a.

Table- 55: Year wise Engineering measures

Year	2020-2021	2021-2022		
Retention wall	-	Maintenance of existing structures		
Garland drain	2 nos. (70m, 175m)	Maintenance of existing		
Location	The second secon	tom of D3 and D4		

Mineral Rejects / Sub-grade: No Mineral rejects / subgrade is proposed to be produced. All ROM of +45% Fe grade of this mine is saleable. Currently the mine is having around 8.42 lakh tonnes of incidental Hematiticsiliceous ore of 35 to 45% Fe is already stacked over D1. Further generation of Hematiticsiliceous orein this plan period will be also be temporarily stacked over D1. This will be blended with ROM as and when required.

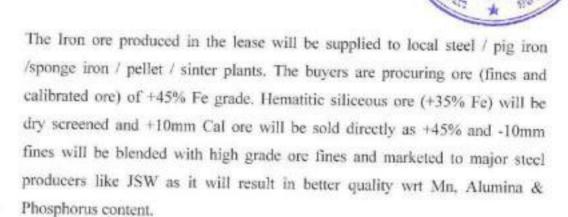




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5.0 USEOFMINERALANDMINERALREJECT

a) Requirement of end-useindustry:



The quality of ore with respect to Fe% required to make it suitable for marketing will be arrived after proper blending of normal and siliceous ore. The details of the blending ratio for all types of ore is given below:

Table- 56: Blending Plan

Year	Item		Normal Ore		Siliceous Ore			Sub Total		Total Product
		Fines	Lumps	Product	Fines	Lumps	Product	Fines	Lumps	
2019-	Tonnes	377,520	94,380	471,900		140	200	377,520	94,380	171.000
20	F228	57.80	60.30	58.30	44	-		57.80	60.30	471,900
2020-	Tonnes	4,385,760	1,096,440	5,482,200	264.830	142,601	407,430	4.650,590	1,239,041	58.30
21	Fe%	59.00	61.50	59.50	35.03	58.05	43.10	57.64	61.10	5,889,630
2020-	Tonnes	5,191,800	1,297,950	6,489,750	461,653	248,582	710,235	5,653,453	The second second of the contract of the contr	38.37
21	Fe%	58.15	60.36	58.59	35.69	58.69	43.74	36.32	1,546,532	7,199,985 57.13

b) Requirementof intermediateindustriesinvolvedinup-gradationof mineralbeforeitsend-use:

No involvement of any intermediate industries before its end use. The proposed ore production in this Mining Plan will be maintained above 45% Fe, occasionally by blending fines (-10mm) of Hematitic siliceous ore (+35% Fe) after dry



screening with high grade ore. +45% Fe material is being ased for direct use in steel industries.

c) Detailrequirementsforotherindustries, captive consumption, expor-Associatedindustrialuse etc.

No such use is envisaged now, as all ore produced is expected to be consumed directly in local steel industries. However, the ore can be exported to international steel mills after ban on export is vacated by Govt.

d) Physicalandchemicalspecificationstipulatedbybuyers:

Iron ore are sold to steel plants through e-auction. Physical and chemical specifications stipulated by buyers are:

Table -57:

Buyer	Category	Grade	Use	
Pig Iron Division of VedantaLtd and others like- JSW/ BMM, Prakash Sponge etc.	Cal. Ore of -40+6 mm	Fe 54-62% Mn <2.7% MnO<3.3% Al ₂ O ₃ <2%	Steel Production	
JSW/BMM etc.	Fines of		Sinter plant/ pellets and others.	

e) Detailsofprocesses adoptedtoupgrade theROM tosuittheuser requirements:

Dry processing of ROM (screening) into different sizes like +6-40mm calibrated lumps and -10mm fines. Hematitic siliceous ore (35 to 45% Fe) will

be dry screened and lumps/fines will be blended with high oracle ore and sold? as and when required.

3



6.0 PROCESSINGOFROMANDMINERALREJECT

a) Processing/ beneficiationoftheROM orMineralReject:

The mined ROM is crushed and screened in the existing dry processing plants for size separation as per buyer's requirement. These will be used to treat Hematitic siliceous ore (35 to 45% Fe) also and lumps/fines will be blended with high grade ore, as and when required.

b) Flowsheetorschematicdiagramof the processing procedure:

Ore produced from the mine is segregated in four crushing/screening plants (1x1000tph and 3x500tph) to bifurcate ore according to size gradation. ROM is fed to either fixed/mobile plant. The material in fixed plant is directly fed to the vibro grizzly (screen) and +70mm &-70mm will be separated. The separated +70mm material is sent to primary jaw crusher (36" x 20") where it is crushed and sent to primary screen. The separated -70 mm material from vibro grizzly is sent to primary screen where the material gets separates into 10mm, 10 to 40mm and +40mm. The -10mm material is directly sent to product bunker. The +10 -40mm material is sent to the secondary screen. The material of +40mm is sent to cone crusher where it gets crushed and is sent to secondary screen where it separates materials into 10mm, 10 to 40mm lumps. So, the materials of -10 fines and 10 to 40 mm lumps are stacked separately. The whole process is involved in a single closed system and 100% material is recovered.

Typical flow sheet of Crushing / screening plants is given in Annexure-24.

c) Disposalmethodfortailingsor rejectfromtheprocessingpant;

No tailings or rejects from plant. Not applicable.

d) Quantityandqualityoftailings/rejectproposedtobedisposed:

No tailings or rejects from plant. Not applicable.

e) Quantityandtypeofchemicalsifanytobeusedintheprocessing plant:

No chemicals are used.

f) Specifyquantityand typeof chemicalstobestoredonsite/plant:

Not applicable.

g) Water requirement:

No wet processing is proposed only size bifurcation by simple crushing and screening. Water requirement is only for dust suppression in plant and mining area, where about 554cum/day of water will be used which sourced from the bore well located outside lease area.

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7.0 OTHERS

a. Site services:

Repairs of equipment will be undertaken at workshop located at mine site of the major repair or overhauling of the equipment will be done at workshop located near administrative building. Well-equipped administrative office, Stores, First-aid station, rest shelter, canteen, latrines and urinals are available at the mines. Two water treatment plants are located at mine site canteen and near administrative office.

b. Employmentpotential:

Table -58:

-233
Nos.
67
111
67
27
10
282

Table - 59: Details of Employment

Type	Nos.
Sr. Management (AVP, GM, AGM)	7
Geologist	2
Mines Manager/Mining Engineer	1
Asst. Managers/Mining Engineers	15
Engineers	15
Chemist	1
Officers	24
Trainees	2
Sub Total	67
Workers	215
Total	282



8.0PROGRESSIVEMINECLOSUREPLANUNDERRULE230F MCDR'2017

Environment Base line information: 8.1



Table-60: Existinglandusepattern:

Туре	Existing Area (Ha)
Mining	69.04
Active dump area	43.10
Stabilized dump area	23.24
Mineral stock	10.89
Statutory building	02.80
Crushing/Screening Area/stock	04.60
Road	01.89
Safety zone (7.5m)	05.03
Total	160.59

Waterregime:

The mine area receives average amount of rainfall of about 904mm annually. Mines are located in hilltops and the present mine level is much higher level than the water table of the region. The ultimate depth of mining will be 620 m above MSL and ground water table is at around 600m above MSL. Hence, the mining activities will not intersect ground water table even at conceptual stage.

Qualityof air:

Recent data generated by the Lessee was considered to assess AAQ status for the study area. The maximum and minimum concentration for PM10 in the buffer zone are well within the prescribed limits. The concentration of SO2 and NO_χ were also within the annual average limits of 80 μg /cum. (Pl see Annexure-25 for details).



AAQ data was collected for six stations in the mining leave area and alralyzed for PM10 and PM2.5 fractions. The concentration for PM10 and PM2.5 are well within the prescribed limits. The concentration of SO and NOν were also within the annual average limits of 80 μg/cum. (Pl see Annexure-25-10) details).

Ambientnoiselevel:

The noise level data recorded for buffer zone varies from 36.2 to 64.5 dB(A) Leq. and in core zone it varies from 44.2 to 8.6 dB(A) Leq. (Pl see Annexure-25 for details).

Flora:

Core zone:

Almost all the area is broken and being used for mining activities. Only the plantation that was developed by Lessee is the floral population consisting of mainly of Bamboo, Amla, Acacia, Cassia cemia, Cassia fistula, Pongamiapinnata, Jamun, Mango, Tamarind, Gulmohar, Eucalyptus, Neem, Ficus etc.

Buffer zone:

According to the Classification of forest types of India proposed by Champion and Seth (1968) the vegetation occurring in the area belongs to Southern tropical dry deciduous forests, the area falls under the mixed deciduous sub classification. According to the classification proposed by Legris and Pascal (1982) area falls under Deciduous climax forests. According to this classification this type of forests does not have the potentiality of secondary moist deciduous forests. The canopy is open and the majority of the trees are leafless during the dry months. The flowering and fruiting are generally far



advanced before the first flush of new leaves appears with the statement Appears - May.

The dominant tree species found in the area are Buelianamintage2 Anogeissuslatifolia, Wrightiatomentosa, Grewiaorbiculata. Few climbers and twiners like Celastruspaniculata, Coeculushirsutus , Aristolochiaindica, Asparagus racemosus are also observed. Shrubs like Calotropis procera, Calotropis gigantea, Cassia auriculata, Tecoma stans, Dodonaeaviscosa, Gardenia gummifera .Clerodendrumserratum etc., are a part of this type of vegetation. The dominant grasses include species like Andropogonpumilus, Brachiariaeruciformis, Chrysopogonfulvus, Cymbopogan Apludamutica. martini, Cynodondactylon, Heteropogoncontortus etc., The ground flora is chiefly seasonal. Some of the herbs growing in this area are Acalyphaindica, biternataete. Dendrophthoe falcata and few other species of Loranthaceae grow as parasites on tree branches.

Climaticconditions:

The climate of Chitradurga district, which is in the south-west part of the Deccan plateau, is marked by hot summer months, low rainfall and a pleasant winter season. The temperature is around 14° to 17°C during November and December months and goes up to 40° to 41 °C during April and May months of the year. The monsoon season extends over a period of six months from June to November. The district receives almost an equal amount of rainfall during the South-west monsoon (June to September) and during the North-east monsoon period (October to November). The average annual rainfall in the district is 580 mm with an average of 40 rainy days. The average annual rainfall in the mine site is 700 mm. The relative humidity is high during the monsoon ranging between 70% to 75% and remains low in the rest of the year, particularly in the summer months. Winds are generally moderate during summer and strong during rainy season. In the South-west monsoon period the winds blow mainly



ಭಾರತ ಸರಕಾರ from a south-westerly or westerly direction. In the rest of the year the whole are predominantly from directions between north-east and south-east.

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Humansettlements:

1

There are no villages and habitation within the lease area. Workmen and staff will come from the villages outside the leasehold. So, there is no displacement involved. In the buffer zone about 36 villages are present with a total population of 50,868. The population details of villages in the buffer zone along with distance from the mine and direction is given below:

Table-61:

Village	Population	Dist& Direction	Village	Population	Dist& Direction
Alagavadi	1939	9023m - NE	Jammenahalli	614	5986m - NW
Arabagatta	540	5525m - NE	Kadleguddu	1496	4163m - NE
B.Durga	2193	9878m - SW	Kagalagere	699	8439m - NW
Bheemasamadra	1273	5543m - SE	Kallavvanagathihalli	990	8383m - SW
Bommenahalli	2718	5840m - SE	Kariyannanahalli	306	9462m - NE
Chikkaguntanur	168	9147m - SE	Kodagavalli	1136	8834m - NE
Doddiganahal	1112	4251m - NW	Konanur	643	3790 m - NE
Dyamavvanahalli	6495	7443m - NE	Lingavvanagatihalli	400	9601m - N
Ganjigatte	1083	9995m -NW	Medakeripura	3172	3728m - NW
Gellarahalli	1503	8371m - NW	Megalahalli	812	926 m- NE
Gowrammanahaffi	960	7602m - E	Muthugaduru	1648	9986m - W
Gyarehalli	507	7633m - NE	Obavvanagathihalli	1163	7141m - NE
Halerangapura	1031	8526m+ NW	Palakihalli	1380	7268m - NW
Hanumanakatte	281	8820m - NE	Palya	1459	5412m - SE
Hireguntanur	2656	4537 m = SW	Siddapura	594	4665m - NW
Hosahalli	1416	5397m - NW	Siddavvanahalli	1399	6720 m - NE
Hosarangapura	341	7154m - NW	Sirigere	4421	6132m - N
Hunasekatte	1252	7434m - NE	Udogere	1068	8756m - NW



Publicbuildings, places of worshipand monuments: There public buildings, places of worship or monuments are located near tige dease area

Anysanctuarylocatedinthevicinity ofleasehold: There is no sanctuary near the lease area.

Table-62: Year wise Plantation on the slope of South Block dump

Year	Area (ha)	No.	Survival	Species	UTM Co-	ordinates
	. transfrag	Saplings	Rate	Species	Northing	Easting
2020-21	1.20	3000			1572626	630857
	112.0	5000	70-80%	As per R&R	1572774	631064
2021-22	0.60	1500	7.0-007.0	recommendations	1572735	630716
MALE 1 - E.E.	0.00 1500	1200			1572875	630906

Impact Assessment:

i)Landareaindicatingthearealikelytobedegradedduetoquarrying,dumping, roads, workshop, processing plant, tailing pond/dam, townshipetc.

The mining pits are present in the lease area serving as production benches. The major impacts observed include soil erosion, loss of topsoil, creation of pits and deforestation and possibility of adding silt load in the natural nallah nearby the lease area.

ii) Airquality:

The semi-arid climatic condition of the area coupled with mining activities on the top of the hills through open-east, contributes to air pollution. The dust is observed to be the predominant air pollutant when the mining is in operation. Fugitive dust generation is controlled by spraying the water on the haulage road, Loading Point and Transportation routes. Green belt is developed all along the lease boundary and tall growing saplings have planted all along the road side which acts as wind barrier. All the transportation trucks carrying ore are covered with Tarpaulin and the same instructions in local language is displayed near security point for all the transportation truck drivers. Dust Suppression system is also installed at dry screening plant. Ambient Air Quality monitoring is carried out twice a week in core zone as well as in buffer zone for

confirming the permissible limits of the pollutants. Proposed



Station code	Location
A1	Mining Pit (South block)
A2	Crushing Point (South block)
A3	Dumping Area (South block)
A4	Haulage Road (South block)
A5	Ore Stack Yard (South block)
A6	Mining Pit (North Block)
Α7	Haulage Road(North Block)
A8	Megalahalli Village

iii) Waterquality:

The major impact on water pollution is due to erosion of waste dump and subgrade dump, oil and grease, contamination of water bodies due to discharge of
mine water/effluent and sedimentation of the seasonal nallahs flowing nearby.

There is zero discharge of wastewater from the Mining lease. During monsoon
the runoff water is collected in the settling pond and only the overflow water is
allowed to go in the natural stream after passing through series of settling ponds
and check dams. The natural stream water is collected in the village tank for
public usage which is regularly monitored. All the waste dumps are covered
with Geo textile and plantation is carried out on finalized dump slope. All the
Waste dumps are protected with Retaining wall and Garland drainage. Oil &
grease traps are provided at workshop where the oil is separated from water and
is reused. Water Quality monitoring is carried out for confirming the permissible
limits of the pollutants. Proposed monitoring stations are;

Table-64:

Station Code	Location
SW1	Settling Pond SPF-2 (SW of LBC-10)
SW2	Settling Pond SPR-5 (NE of LBC-2)
SW3	Settling Pond SPR-1 (NE of LBC-15)
SW4	Settling Pond SPR-3 (Water discharge point)



MODIFICATION TO THE APPROVED REVIEW & UPDATION OF MERING PLAN

-1147		11/10
SW5	150m SE of LBC-12 (Water discharge)	(int)
WI	Megalahalli Tube well	28



iv)Noiselevels:

Noise pollution by mining activities is mainly because of excavation, handling and transportation of ore and overburden and operation of processing equipment. All the DG sets in the mining area are provided with acoustic enclosures. The Staff working in noise area is provided with ear plugs & ear muffs. All the mining machineries have air-conditioned cabins which provides noise and dust free environment to the operator. Noise Quality monitoring is carried out for confirming the permissible limits of the pollutants. Proposed monitoring stations are:

v)Vibrationlevels(duetoblasting):

Very little drilling and blasting activities are proposed and hence no major impact from drilling / blasting.

vi)Waterregime:

There is no seepage water and there is no water table in the vicinity as the lowest level in mining will be well above the ground level. Monsoon water gets drained trough seasonal nallahs joins nearby tank.

vii) Acidmine drainage:

Not applicable as no acidic material is present in the mining area.

viii) Surfacesubsidence:

Not applicable as it is opencast mining in a fairly stable area

vii)Socio-economics:

The mining will bring positive effect by way of generation of employment and business opportunities to local people. Apart from this Lessee will undertake CSR activities focusing on measures to improve education, health, literacy of the people of surrounding villages.

viii)Historicalmonumentsetc.

There are no public buildings, places of worship or monuments are located near the lease area.

Table - 66: Sources of Pollution and Mitigation measures

Item	Source	Existing	Proposed
Air	The semi-arid elimatic condition of the area coupled with mining activities on the top of the hills through open-cast mining	Water spraying the water on the haulage road, Loading Point and Transportation routes. All the transportation trucks carrying ore are covered with Tarpaulin. Dust Suppression system is also installed at dry screening plant.	Same measures will be continued
Water	Erosion of waste dump and sub- grade dump, oil and grease, contamination of water bodies due to discharge of mine water/effluent	Zero discharge of waste water from Mining lease. Rain water is collected in the settling pond and only the overflow water is allowed to go in the natural stream after passing through series of settling ponds and check dams. All the waste dumps are covered with Geo textile and plantation is carried out on finalized dump slope. All the Waste dumps are protected with Retaining wall and Garland drainage, Oil & grease traps are provided at workshop where the oil is separated from water and is reused.	Same measures will be continued
Noise	Mining activities like excavation,	The Staff working in noise area is provided with ear plugs & ear	

handling and transportation of ore and overburden and operation of processing equipment and DG sets.

muffs. All the mining machineries have air-conditioned cabine which provides noise and dust fixed environment to the operator All the DG sets in the mining area are provided with acoustic enclosures.

Same nicesures will be continued man extends ovt. of India

8.3 Progressive reclamation Plan:

8.3.1. Mined-out Land:

1

No mined-out land is proposed to be generated in this plan period. In next plan periods, it is proposed to take up backfilling in the mined-out pits.

8.3.2 Topsoil Management:

The mine is working since 1954 and entire area is broken, and it does not have any topsoil.

8.3.3 Tailings Dam Management:

No proposals as no tailing dam is present or proposed.

8.3.4 Acid mine drainage, if any and its mitigative measures:

Not applicable as no acidic material is present in the mining area.

8.3.5 Surface subsidence mitigation measures:

Not applicable as the proposal is for opencast mining in a fairly stable area.

Table-67: Summary of year wise proposal for item No. 3.3

1	445-750	
2	45.30	
10	· 表生 16.0	
	£7.00	

Items	Details	Caronini.		Proposals 12 377			
		Position (as on 01.02.2020)	2019- 2020	2020- 2021	2021-	Remarks	
Dump management	Area afforested	23.24 ha		1.20 ha	0,60 ha	1	
	No of suplings planted	27,000	**	3000	1500	-	
	Cumulative no. of plants	404,508	77)	407508	409008		
	Cost including watch and care during the year	Rs. 68.713/-		Rs.3.0 lakhs	Rs.1.5 lakhs		
Management of worked out	Area available for rehabilitation(ha)	-	-	-			
benches	Afforestation done (ha)	**	-	*		-	
	No of suplings plented	99.		*	*		
	Cumulative no of plants		*	*	*3	(4)	
	Any other method of rehabilitation (specify)			*			
	Cost including watch and care during the year		250		8	*	
Reclamation and	Void available for Backfilling – in ha	-	*	5		*	
Rehabilitation by backfilling	Void filled by waste/tailings					*	
	Afforestation on the backfilled area		-	+		- 27	
	Rehabilitation by making water reservoir		*				
	Any other means (specify)		*		-		
Rehabilitation of waste land	Area available (ha)	***	*		18	٠	
within lease	Area rehabilitated	**					
TAMAKAN MINING	Method of rehabilitation	14.00	*	-			
Others	Green belt/ Avenue plantation	-	*1	3	*	9	
specify)*	Env. monitoring	Will	be carrie	d out as pr	roposed		

^{*} Note: The various R & R works which are completed have been mentioned in Para 2(f) in tabular form.



8.4 Disaster Management and Risk Assessment:

No high-risk accidents are anticipated, as the project is propen east mining operation in a stable area free from land subsidence, earthquate etc. No tailing dam is proposed, and risks associated with it will not come into picture. However, in case anything happens then the designated Mines Manager & Safety officer will be managing the situation. He will be having communication facility and a Jeep at his disposal which will help in evacuating persons involved in any accidents. Chitradurga is the nearest place (30km) where Hospital, Police Station etc are available. However, the Mines Manager and Safety Officer will co-ordinate the activities in case any disaster happens.

The details of Mines Manager are:

Name: Mr. VijayanandChakrasali,

Ph.: 08194 238110 Mobile: 9481815010

8.5 Care and maintenance during temporary discontinuance:

During such time, the area will be closed at gates and temporary staff will be arranged for care and maintenance.

8.6 Financial Assurance:

The total area utilization at the end of this plan period will be 160.59 Ha. So, financial assurance will be Rs. 481.77 lakhs @Rs. 3.0 lakhs per ha. However, a Bank Guarantee for this amount has already been submitted to RCoM, Bangalore.(Copy enclosed as Annexure-26).



Vedanta Limited Mining Lease No. 2677

MODIFICATION IN THE APPROVE REVIEW & UPDATED OF MINING PRAY

Table -68: Areas for Financial Assurance as per CCOM's Circular no.

		Area of land use (in ha)				Net area that	
SI. No. Type of Land Use		Type of Land Use	Area put on use at start of plan	Additional requirement during plan period	As at the end of Plan period	considered as	calculation of financial assurance
	1	2	3	4	5	6	
1	Area under mining	69.04	08.95	77.99	**	77.99*	
2	Storage for topsoil	-	-				
3	Overburden dump	66.34	0	66.34	***	66.34**	
4	Mineral Stock/ Sub Grade dump	10.89	-4.12	06.77		06.77"	
5	Statutory Buildings	02.80	-02.30	00.50	_	00.50*	
6	Roads	01.89	-1.11	00.78		00.78	
7	Railways	-		-		00.70	
8	Green belt / safety zone	05.03		05.03	-	05.03	
9	Crushing/Screening plant	04.60	-1.42	03.18		03.185	
10	ETP				9		
11	Township area		-				
12	Biodiversity Area			2			
13	Others						
	Grand Total	160.59		160,59	-	160.59	

Land use breakup details:

"Mining: 77.99 Ha (Texisting pit 69.04 Hat 449 Ha From socisting Mineral stack + I waha from crushing & screening + 1.11 ha From Read)

**Dump: 66.34 ha (Existing 43.10 ha+2.30 ha from Statutory building area+20.94 ha stabilized part of dump)

*Mineral stock: 6.77 ha (Existing 10.89 ha - 4.12 ha for mining)

A A Statutory Building: Octo Ha (Excisting 2080ha - 2.3cha tes of umping)

& Crushing Sexcerning Area Bels Harce seisting 4,604a-1,62 ha for ining)

Qualified Person

क्षेत्रीय खान नियंत्रक

Regional Controller of Mines

भारतीय खान व्यस Indian Bureau of Mines. मारना / Bangalore - 560 022

This Mining Plan is approved subject to the conditions / stipulations

B.V.R. ACHAR

Qualified Person

Indicated in the Mining Plan approval letter No. 279/272/91/9/19

Date. 12+03-2020

OP: SripadPujar& BVR Achar

CONSENT LETTER/ UNDERTAKING/ OF TIFIC



to make any further correspondence regarding any correction of the Mining Plan with the said Achar. This is to request the Regional Controller of Mines, Indian Bureau of Mines, Bengaluru, Karnataka State, under Kule 17(3) of MCR 2016 has been prepared by Sripad Pujar and BVR Meghalahalli & other villages, Chitradurga and Holalkere taluks, Chitradurga district, Limited (Formerly known as Sesa Sterlite Ltd / Sesa Goa Ltd) over an area 5t 166.59 ha near 10. Modification to the approved modified Mining Plan of M. 30: 2677-01 Vedanta espire of prigo

B.V.R. ACHAR

SRIPAD PUJAR

qualified persons at his address below:

Bellary Dist. Karnataka College Road, Hosapete - 583 201, ROCK TECH ENTERPRISES, First floor, Sapthagiri Enclave,

be acceptable on me and binding in all respects. said qualified persons be deemed to have been made with my knowledge and consent and shall We hereby undertake that all modifications / updating as made in the said Mining Plan by the

when an authorized agency is approved by the State Govt. 02. It is certified that the CCOM Circular No-2/2010 will be implemented and complied with

permission is required the lessee will approach the concerned authorities. organization. Court etc. which have been taken into consideration and wherever any specific with all statutory rules, Regulations, Orders Made by the Central or State Government, Statutory Limited (Formerly known as Sesa Sterlite Ltd / Sesa Goa Ltd) over an area of 160.59 ha complies 03. It is certified that the Progressive Mine Closure Plan of M.L. No. 2677 of Vedanta

of my knowledge and records, The information furnished in the Progressive Mine Closure Plan is true and correct to the best

manner as proposed. Further, all the measures proposed in this closure plan will be implemented in a time bound

prescribed by D.G.M.S. in respect of miners' health will be strictly implemented. specific permissions are required, the applicant will approach the D.G.M.S. Further, standards other villages, Chitradurga and Holalkere taluks, Chitradurga district, Karnataka State and where in the Mining Plan over an area of 160.59 ha, belonging to Vedanta Ltd near Meghalahalli & 04. The provisions of Mines Act, Rules and Regulations made there under have been observed

Vedanta Ltd

Date:

Place:

лэимО рэтиниом Jahringk Mazumdar **GETIMILATMAGEV**

med with professional wave too sective 180 T 052-772 - 444(emb) - ignidantific Antumusmosti and machine. 1071-570 T CHALLER AND HER KIND AME



CERTIFICATE FROM QP

The provisions of the Mineral Conservation and Development Rules 2017 have been observed in the preparation of Modification to the approved Review and Updation of Mining Plan including Progressive Mine Closure Plan of M.L. No. 2677 of Vedanta Limited (Formerly known as Sesa Sterlite Ltd / Sesa Goa Ltd) over an area of 160.59 ha near Meghalahalli & other villages, Chitradurga and Holalkere taluks, Chitradurga district, Karnataka State and whenever specific permissions are required, the applicant will approach the concerned authorities of Indian Bureau of Mines.

The information furnished in the Mining Plan is true and correct to the best of our knowledge.

SRIPAD PUJAR Qualified Person

B.V.R. ACHAR Qualified Person

Place: Hosapete

Date: 11-03-2020.



Mine and Dump Photos M/s, Vedanta Ltd. ML. No. 2677



A view of South Block Mining pit



A view of North Block Mining pit

Mine and Dump Photos M/s, Vedanta Ltd. ML . No. 2677



A view of Dump 3- Active Dumping



A view of Stack of Siliceous ore



34

RW-2 & GD-2: Retaining Wall and Garland Drain below Dump-2 between BP-12 & 13

Latitude: 14°13'14.7"N Longitude: 76°12'13.2"E



RW-6 & GD-6: Retaining Wall and Garland Drain below ID2 in South west corner of South Block

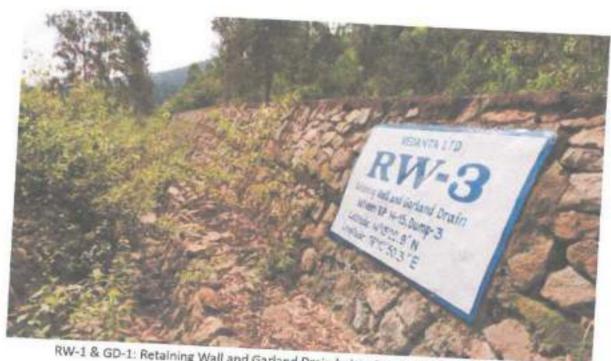
Latitude: 14"13'34.2"N Longitude: 76"12'04.6"E

ML NO: 2677 of MS Vedanta Ltd.



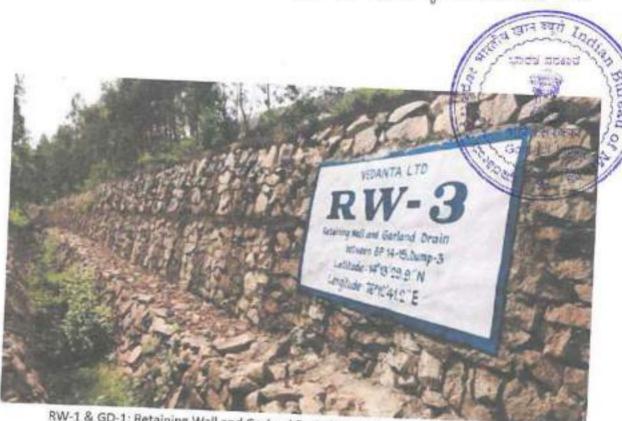
RW-7 & GD-7: Retaining Wall and Garland Drain below ID3 in North Eastern side of South Block

Latitude: 14"13'29.8"N Longitude: 76°12'43.6"E



RW-1 & GD-1: Retaining Wall and Garland Drain below Dump-3 between BP-14 & 15

Latitude: 14°13'22.9"N Longitude: 76°12'50.3"E



3.

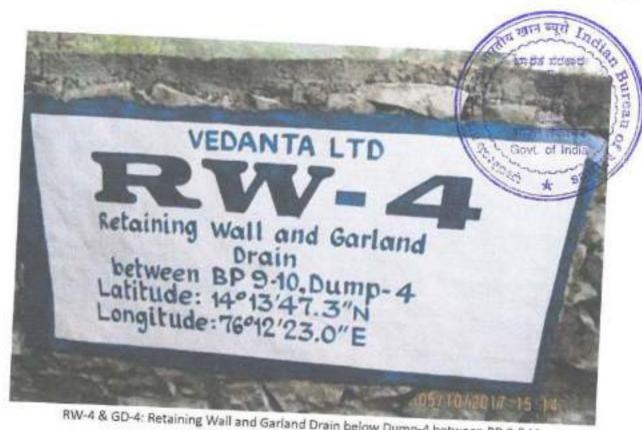
RW-1 & GD-1: Retaining Wall and Garland Drain below Dump-3 between 8P-14 & 15

Latitude: 14°13'29.9"N Longitude: 76°12'41.2"E



RW-3: Retaining Wall at intermediate location of Dump-3

Latitude: 14°13'29.3"N Longitude: 76°12'40.2"E



RW-4 & GD-4: Retaining Wall and Garland Drain below Dump-4 between BP-9 &10

Latitude: 14°13'47.3"N Longitude: 76°12'23.0°E



RW-4 & GD-4; Retaining Wall and Garland Drain below Dump-4 between BP-1 & 16

Latitude: 14*13'38.0"N Longitude: 76*12'27.9"E

ML No 2677 of M/s Vodante 21/00/2017 11:14 VEDANTA LTD Check dam Capacity 30×15
Latitude: 14°13'28. 5"N

CDR-3: Check Dam in Revenue Land below Dump-3

Longitude: 76 12'

Latitude: 14*13'28.5"N Longitude: 76*12'53.9"E



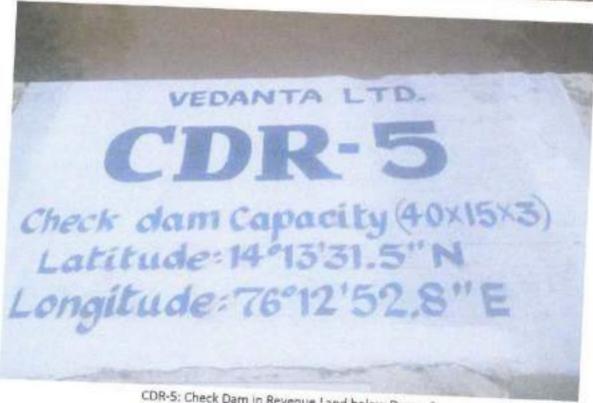
Latitude: 14°13'13.5"N Longitude: 76°12'56.9"E



CDR-4: Check Dam in Revenue Land below Dump-3

Latitude: 14°13'29.2"N Longitude: 76°12'52.9"E





CDR-5: Check Dam in Revenue Land below Dump-3

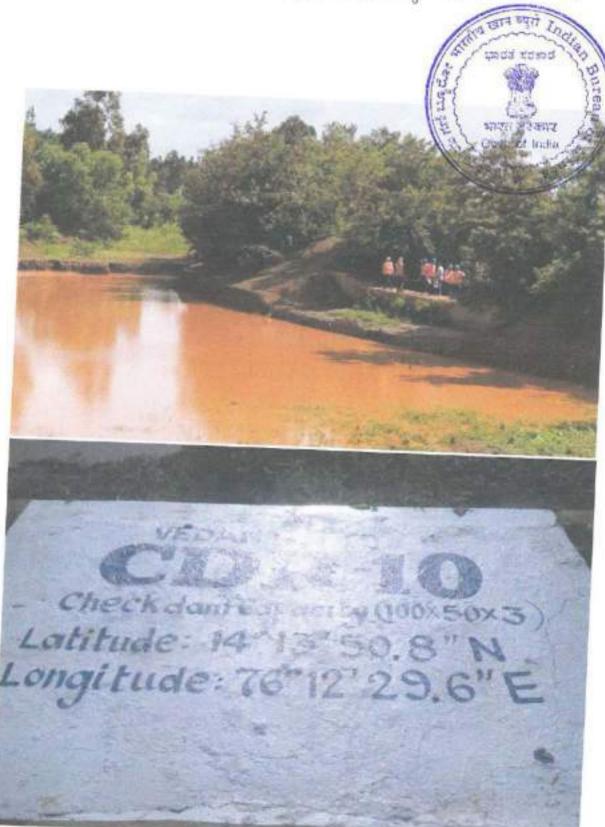
Latitude: 14"13'31.5"N Longitude: 76°12'52.8"E MLNO 2644 of Mb Veclanta Ltd.

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CDR-07: Check Dam in Revenue Land below Dump-3

Latitude: 14*13'32.2"N Longitude: 76*12'47.1*E ML No 8677 of M/s Valanta Ltd.

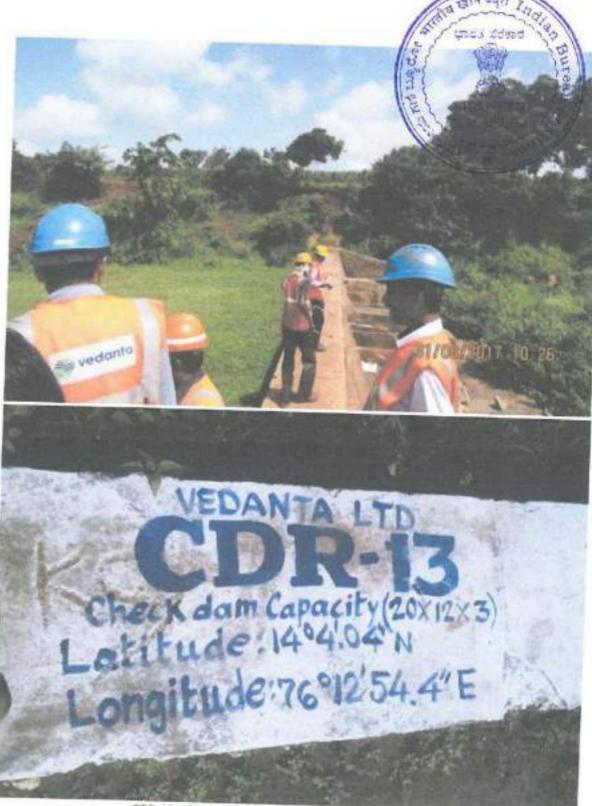


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CDR-10: Check Dam in Revenue Land below Dump-4

Latitude: 14*13'50.8°N Longitude: 76*12'29.6"E

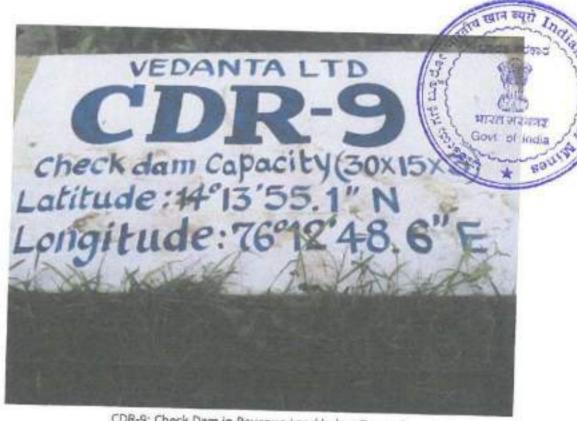
ML No 2677 of M/s Valenta Ltd



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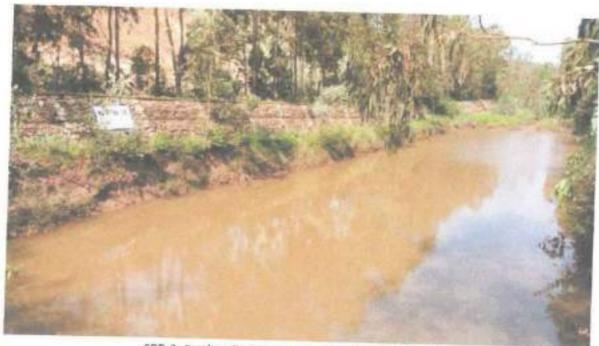
CDR-13: Check Dam in Revenue Land below Dump-4

Latitude: 14°4'04."N Longitude: 76°12'54.4"E



CDR-9: Check Dam in Revenue Land below Dump-3

Latitude: 14"13'55.1"N Longitude: 76"12'48.6"E



SPR-2: Settling Pond in Revenue Land below Dump-3

Latitude: 14"13'23.6"N Longitude: 76*12'49.9"E Photographs of Boundary Pillars ML No. 2677 of M/s



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Govt. of India .













Photographs of Boundary Pillars ML No. 2677 of M/s, Wdanta

















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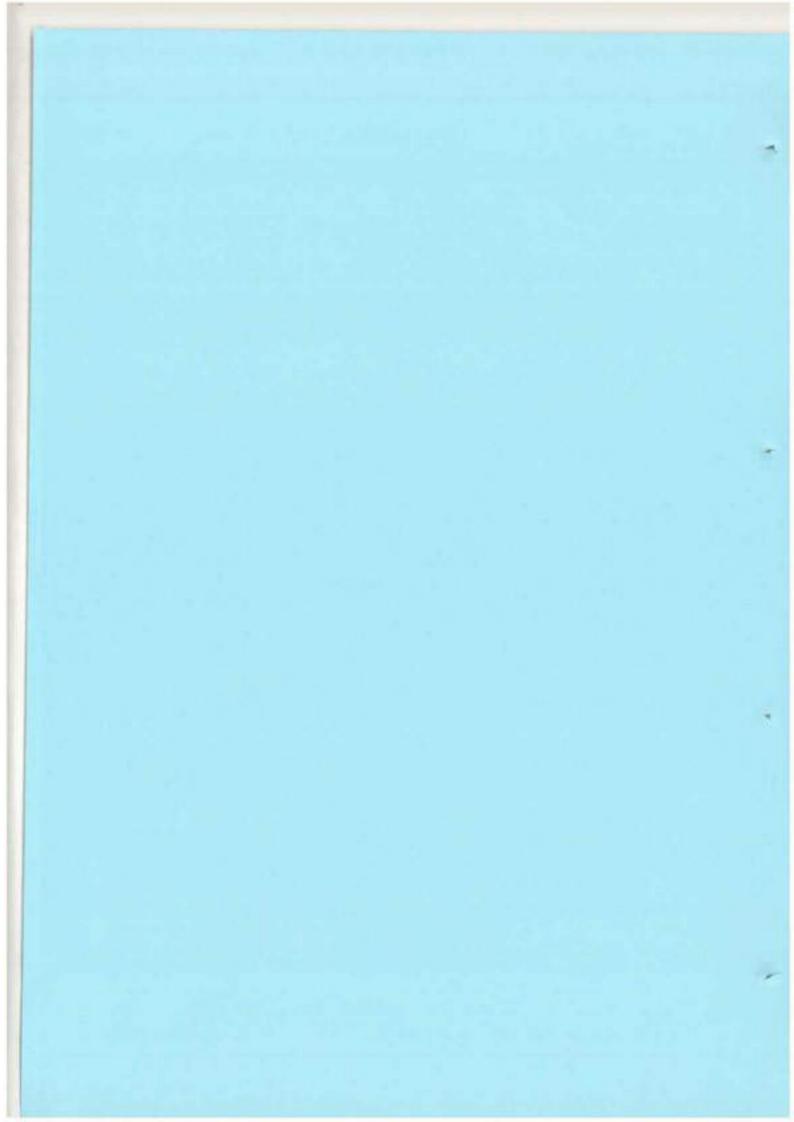
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Photographs of GCP – ML no. 2677 of Vedanta Ltd

ANNEXURES



ORIGINAL"



GOVERNMENT OF KARNATAKA

ಗಣಿ ಮತ್ತು ಭೂವಿಜ್ಞಾನ ಇಲಾಪ Department of Mines and Geology

ಗಣಿ ಗುತ್ತಿಗೆ MINING LEASE

Registered No. 2677 (RML-2236)

Name of Lessee/s M/S Sega Stextite Utd.

Notification No: CI (66 MMM 2014) 67-01-2017

Date of Grant Renewal Addendeum No: CI (66 MMM 2014) 62-01-2017

Period wenty (20) years w.e.f. 28 10-2012

SRIPAD PUJAR QUALIFIED PERSON

B.VIR. ACHA.

GOVERNMENT OF KARNATAKA	
The indenture made this O2rd day of Februar between the Governor of Karnataka, (Hereinafter referred to as the "which expression shall, where the context so admits be deemed to include office and assigns) of the one part and when the lessee/licensee is an indi-	State Government" le his successors in
(1)-(1) When the lessee in an individual:	

(Name of person with address and occupation) (hereinafter referred as expression shall, where the context so admits, be deemed to include headministrators, representative and permitted assigns).	"the lessee" which is heirs, executors,
(2)-(2) When the lessees are more than one individual:	
	(Name of
person with address and occupation)	and
(hereinafter referred to us "the lessee which expression shall, where the be deemed to include their respective heirs, executors, administrators, tother permitted assigns).	
(3)-(3) When the lessees is a registered firm:	

(Name and address of Partner) son of	
of son of all entry	ing on business in
partnership under the firm name and style of	1932) and having ntext so admits be
When the lessee is a registered company:	
Ms Sepa Sterlite Ltd.	
4	ame of Company)
No.	λ.

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a company registered under The Companies Act 1956
incorporated) having its registered office at P.B. 43, Megalahall: office complex, Neat
(Address) (hereinafter referred to as "The lessee" which expression shall where the context
to admits be deemed to include its successors and permitted assigns) of the other part. Breemakamudra,

WITNESSETH that in consideration of the rents and royalties, covenants and agreements by and in these presents and the schedule hereunder written reserved and contained and on the part of" the lessee / lessees" to be paid, observed and performed, the State Government (with the approval of the Central Government)* hereby grants and demissis upto the lessee/lessees.

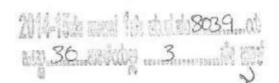
All those the mines beds veins, seems of state the mineral or minerals) (hereinafter and in the scheduled refers to as the said minerals) situated, lying and being in or under the lands which are referred to in Part I of the said schedule, together with the liberties, powers and privileges to be exercised or (enjoyed in connection herewith which are mentioned in PART II of the schedule subject to restrictions and conditions as to the exercise and enjoyment of such liberties, powers and privileges which are mentioned in PART III of the said schedule EXCEPT and reserving out are the demise up to the State Government the liberties, powers and privileges hence next ensure YIELDING AND PAYING of up to the Stale Government the several rents and royalties mentioned in PART V of the said Schedule at the respective times herein specified subject to the provisions contained in PART VI of the Schedule and the lessee/lessees hereby/covenant/covenants with the State Government as in PART VII of the said Schedule expressed and the State Government hereby covenants with the less, e/lessees in PART VIII of the Schedule is expressed AND it is hereby mutually agreed between the parties here to as in PART IX of the said Schedule in expressed.

IN WITNESS WHERE OF these presents have been executed in manner hereunder appearing the day and year first above written.

The Schedule above referred to.

ov. w. bolim

A Cottent



NAME OF THE LESSEE	: M/S SESA STERLITE LTD.,
EXTENT	: 160.59 HECTARES
VILLAGE	: NIRTHADI RESERVED FOREST RANGE (Harigurer Hobali) : MEGALAHALLI (Part of Sy.No.21) = 119.465-1400 : BOMMAVVANAGATHIHALLI (Part of Sy.No.7) = 0.680 MADAKERIPURA (Part of Sy.No.18) = 13.681 :CHOWDENAHALLY (Part of Sy.No.1) = 1.6660 :TANIGEHALLY (Part of Sy.No.35) = 3.8800 : HIREKANDAVADI (Part of Sy.No.107) = 21.218
TALUK	: HOLALKERE & CHITRADURGA
DISTRICT	: CHITRADURGA

CORDINATES OF LEASE BOUNDARY AND REVENUE BANDHS

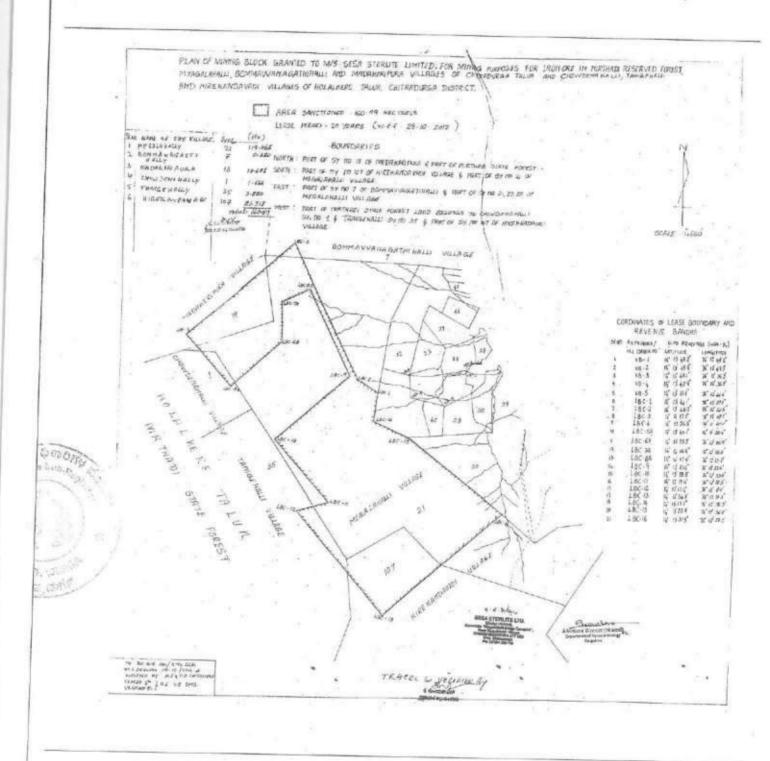
Sl.No.	REFERENCE/	GPS READINGS (WGS-84)				
	ML CORNER PTS	LATITUDE	LONGITUDE			
1	VB-1	140 13 48.2"	76° 12' 49.2''			
2	VB-2	140 13' 49.9"	76° 12' 49.3''			
3	VB-3	140 13 48.1"	76° 12' 36.3''			
4	VB-4	140 13 42.9"	76 12' 36.8'			
5	VB-5	140 13 41.1"	76" 12" 44.4"			
6	LBC-1	140 13' 44.1"	769 12 29.11			
7	LBC-2	140 13 46.7"	760 12' 24.5''			
8	LBC-3	140 14' 17.2"	76° 12' 09.7'			
9	LBC-4	146 13 56.5	76° 11' 45.1''			
10	LBC-5A	140 13' 45.1"	76" 11' 55.4"			
11	LBC-6A	140 131 55.31	76° 12' 06.9'			
12	LBC-7A	140 141 04.411	760 12' 06.5"			
13	LBC-8A	140 14' 07.0"	760 12' 13.2''			
14	LBC-9	146 13 47.6	76° 12' 22.6''			
15	LBC-10	140 13' 33.3"	760 12' 05.5''			
16	LBC-11	14° 13' 19.4''	760 12: 18.3**			
17	LBC-12	14° 13' 17.4''	760 12 11.0			
18	LBC-13	140 12' 54.3"	76° 12' 31.3''			
19	LBC-14	140 13 17.1"	765 12' 58.3''			
20	LBC-15	14° 13` 33.9``	76° 12' 36.2"			
21	LBC-16	140 131 37.51	760 121 28.311			



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LIBERTIES, POWERS AND PRIVILEGES TO BE EXERCISED AND ENJOYED BY

THE LESSEE/LESSEES SUBJECT TO THE RESTRICTIONS AND CONDITIONS IN PART III

1. To enter upon land and search for mine work etc.,

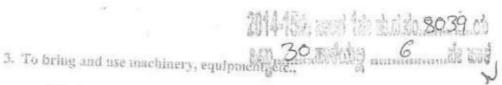
Liberty and power at all times during the term demised to enter upon said lands and to search for, mine, bore, dig, drill for win, work, dress, process, convert, carry away and dispose of the said mineral/minerals.

2. To sink, drive and make pits shafts and inclines etc.,

Liberty and power for or in connection with any of the purposes mentioned in this part to sink, drive, make, maintain and use in the said lands any pits, shafts, inclines, drifts, levels, water ways, airways and other works. (and to use, maintain, deepen or extend any existing works of the like nature in the said lands).

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Liberty and power for or in connection with any of the purposes mentioned in this to erect, construct and maintain and use on or under the said lands and engines, machinery plant dressing-fluors, furnaces, coke ovens, brick-kilns work-shops, store-houses, bungalows, godowns, sheds and other buildings and other works and conveniences of the like nature on or under said lands.

4. To make roads and ways etc., and use existing roads and ways.

Liberty and power for or in connection with any of the purposes mentioned in this part to make any tramways, railways, roads and other ways in or over the and said lands and to use, maintain and go and repuss with or without horses, cattle wagons, locomotives or other vehicles over the same (or any existing tramways, railways road and other ways in or over the said lands) on such conditions may be agreed to.

5. To get building and road materials etc.,

5. Liberty and powers for or in connection with any of the purposes mentioned in this part to quarry and get, ordinary building atone and gravel and other building and road materials (except that of specified minor minerals) and ordinary clay and to use and employ the same and to manufacture such ordinary clay into bricks or tiles and to use such bricks or tiles not to sell any such material, bricks or tiles.

6. To use waters from streams etc..

Liberty and power for or in connection with any of the purposes mentioned in this part but subject to the rights of any existing or future lessees and with the written permission of the Deputy Commissioner to appropriate and use water from any streams, water-courses, springs or other sources in or upon the said lands and divert, set up or dam any such stream or water-course, culverts, drains or reservoirs but not as to deprive any cultivated lands, villages, buildings, or watering places for livestock of a reasonable supply of water as before accustomed nor in any way to foul or pollute any streams or springs. Provided that the lessee/lessees shall not interfere with the navigation in any navigable streams nor shall divert such stream with out the previous written permission of the State Government.

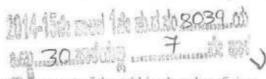
7. To use and for stacking, heaping or depositing purposes.

Liberty and Power to enter upon and use a sufficient part of surface of said lands fort he purpose of stocking, heaping, thereon any produce of the mines or works carried on and any equipment, earth and materials and substances dug or mised under the liberties and powers mentioned in this part.

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5. Beneficiation and carrying away.



- a) Liberty and power to enter upon and use a sufficient part of the said lands to beneficiate any ore produced from the said lands and to carry away such beneficiated ore.
- b) To make coke (to be used in case of coal only):

Liberty and power upon the said lands to convert into coke any coal dust produced from the said lands and to carry away such coke.

9. To clear brushwood and to fell and utilise trees, etc.,

Liberty and power for or in connection with any of the purpose mentioned in this part and subject to the existing rights of others and save as provided in clause 3 of part III of this Schedule to clear undergrowth and brushwood and to fell and utilise any trees or timber standing or found on the said lands provided that the State Government may ask the lessee/lessees to pay or any trees or timber felled and utilised by him/them at the rates specified by the Deputy Commissioner or the State Government.

PARTIII

RESTRICTIONS AND CONDITIONS AS TO THE EXERCISE OF THE LIBERTIES, POWERS AND PRIVILEGES IN PART II.

1. No building etc. upon certain places.

No building or thing shall be erected, set up, placed and no surface operations shall be carried on in or upon any public pleasure ground, burning or burial ground or place held sacred by any class of persons or any house or village site, public road or other place which the State Government may determine as public ground nor in such manner as to injure or prejudicially affect any buildings, work, property or rights of other persons and no land shall be used for surface operations which is already occupied by persons other than the State Government for works or purposes not included in this lease. The lessee/lessees shall not also interfere with any right of way, well or tank.

2. Permission for surface operations in a land not already in use.

Before using for surface operations any land which has not already been used for such operations the lessee/lessees shall give to the Deputy Commissioner of the district two calendar months previous notice in writing specifying the name or other description of the situation and the extent of the land proposed to be so used and the purpose for which the same is required and the said land shall not be so used if objection is issued by the Deputy Commissioner within two menths after the receipt by him of such notice unless the objections so stated shall on reference to the State Government be annualled or waited.

M'M. Balan





3. To cut tress in unreserved lands.

The lessee/lessees shall not without the express sanction of the Deputy Commissioner cut down or injure any timber or trees on the said lands but may without such sanction clear away any brushwood or undergrowth which interferes with any operations authorised by these presents. The Deputy Commissioner or the State Government may require the lessee/lessees to pay for any trees or timber felled and utilised by him at the rates specified by the Deputy Commissioner or the State Government.

4. To enter upon reserved forest:

Notwithstanding anything in this Schedule contained the lessee/lessees shall not enter upon any reserved forest included in the said lands without Previous sanction in writing of the District Forest Officer nor fell, cut and use any timber or trees without obtaining the sanction in writing of that Officer nor otherwise than in accordance with such conditions as the State Government may prescribe.

(4A) The lessee/lessees shall not fell any trees in any forest area converted by this lease without reasonable notice to the Forest Officer and except in accordance with the provisions of the law relating to forests for the time being in force.

5. No mining operations within 50 meters of public works etc.,

The lessee/lessees shall not work or carry no or allow to be worked or carried on any mining operations at or to any point within a distance of 50 metres any railways line except with the previous written permission of the Railway Administration concerned or under or beneath any ropeway or any ropeway trestle or station except under and in accordance with the permission of the authority owning the rope way or from any reservoir. canal or other public works such as public roads and buildings or inhabited site except with the previous written permission of the Deputy Commissioner or any other officer authorised by the State Government in this behalf and otherwise than in accordance with such instructions, restrictions and conditions and either general or special which may be attached to such permission. The said distances of 50 metres or 200 metres shall be measured in the case of railway, reservoir or canal horizontally from the outer toe of the bank of the outer edge of the cutting as the case may be and of building horizontally from the plinth thereof. In the case of village roads no working shall be carried on with the previous permission of the Deputy Commissioner or any other officer duly authorised by the State Government in this behalf and otherwise than in accordance with such directions restrictions and additions either general or special which may be attached to such permission [No.1(51)/65-MII dated 26-2-62]

Explanation: For the purposes of this clause, the expression 'Kailway Administration' shall have the same meaning as it is defined to have in the Indian Railway Act, 1890, by Clause 6 of Section 3 of that Act, 'Public Road,' shall mean a road which has been constructed by artificially surfaced as district from a trace resulting from repeated use, Village road will include any trace shown in the revenue records as village road.

W. W. Salam

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6. Facilities for adjoining Government licenses and leases

The lessee/lessees shall allow existing and future holders of Government licenses or leases over any land which is comprised in or adjoins or is reached by the land held by the lessee/lessees reasonable facilities of access thereto.

PROVIDED THAT no substantial hindrance or interference shall be caused by such holder of licenses or leases to the operations of the lessee/lessees under these presents and the lessee/lessees shall be entitled to compensation as may be mutually agreed upon between the lessee/lessees under these presents and fair compensation (as may be mutually agreed upon or in the event of disagreement as may be decided by the State Government) shall be made to the lessee/lessees by reason of the exercise of this liberty.

The lessee/lessees shall not appoint / let any child labourers to work in the mines, failing which action will be initiated to cancell / determined the mining lease.

PARTIV

LIBERTIES, POWERS AND PRIVILEGES RESERVED TO THE STATE GOVERNMENT

1. To work other minerals,

Liberty and power for the State Government or any lessee/licensee or persons authorised by it in that behalf to enter into and upon the said lands and to search for, win, work, dig, get, raise, dress, process, convert and carry away any minerals other than the said minerals and any other substances, and for the those purposes to sink, drive, make, erect, construct, maintain and use such pits, shafts inclines, drifts, levels and other lines, waterways, airways, water courses, drains, reservoirs, engines, machinery, plant buildings, canals, transways, railways and other work and conveniences as may be deemed necessary or convenient;

Provided that in the exercise of such liberty and power no substantial hindrance or interference shall be caused to with the liberties powers and privileges of the lessee/lessees under these presents and that the lessee/lessees shall be entitled to such fair compensation as may be mutually agreed upon or in the event or disagreement as may be decided by the State Government shall be made to the lessee/lessee for all loss or damage sustained by the lessee/lessees by reason or in consequences, of the exercise of such liberty and power.

2. To make railways and roads.

Liberty and power to the State Government or any lessee or person authorised by it in that behalf to enter into and upon the said lands and to make upon over or through the same any railways, tramways or pipelines for any purpose other than those mentioned in Part-II of these presents and to get from the said lands stones, gravel, earth and other

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materials for making, maintaining and repairing such railways, transways, and roads or any existing railways and roads and to go and repass at all times with or without horses, cattle, 2000 min Dimmer well or other animals carts, wagons, carriage, locomotives, or other vehicles over or along any such railways, tramways, roads, lines, and other ways for all purposes and as occasions may require provided that in the exercise of such liberry and power by such other Jessee or person, no substantial hindrance or interference shall be caused to or with the liberties powers and privileges withthe lessec/lessees under these presents and that fair compensation (as may be mutually agreed upon or in the event of disagreement as may be decided by the State Government) shall be made to the lessee/lessees for all loss or damage by substantial hindrance or interference shall be caused to or with the exercise by such lessee or person of such liberty and power.

PARTV RENTS AND ROYALTIES RESERVED BY THIS LEASE

1. To pay dead rent or royalty whichever is greater:

That lessee shall pay for every year except the first year of the lease dead rent as specified in clause 2 of the part. Provided that where the holder of such mining lease becomes liable under section 9 of the Act, to pay royalty for any mineral removed or consumed by him or by his agent, manager, employee, contractor sub-lease from the leased area, he shall be liable to pay either such royalty or the dead zent in respect of the area,

2. Rate and mode of payment of dead rent:

Subject to the provision of Clause 1 of the Part, during the subsistence of the lease the lessee/lessees shall pay to the State Government annual dead rent for the lands demised and described in part-I of this Schedule, the rate for the time being specified in the third schedule to the Act in such manner, as may be, specified in this behalf by the State

SI. No.	Name of the Mineral	Dead rent fixed per hectare	Area of demised land	Dead ront payable	Total Payable	Dead rent in year
1.	Iron one	2000/	-	20001-	2000/-	
2		pos Hect		The second secon		
3.				Lo HECK	Let HECT	
4.						
D.						

(Here insert the manner in which and the time at which the dead rent, surface rent and water rate should be paid)

3. Rate and mode of Payment of royalty :

Subject to the provision of Clause 1 of this part, the lessee/lessees shall during the subsistence of this lease pay to the State Government at such times and in such manner as

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the State Government may prescribe royalty in respect of an mineral/minerals removed by him/them from the leased area at the rate for the time being specified in the Second Schedule to the Mines and Mineral (Regulation and Development) Act, 1957.

(3-A). The lessee/lessees shall not remove any ores of minerals from the leased area except under and in accordance with the conditions or a permit issued by the Director of Mines and Geology in Karnataka in payment by the lessee/lessees of the royalty due on the ores or minerals.

4. Payment of surface rent and water rate:

The lessee/lessees shall pay rent and water rate the State Government in respect of all part of the surface of the said lands which shall from time to time be occupied or used by the lessee/lessees under the authority of these present at the rate of Rs. ... respectively per annum per hectare of the area so occupied or used and so in proportion for any area less than a hectare during the period from the commencement of such occupation or use until the area shall cease to be so occupied or used and shall as far as possible restore the surface land so used to its original condition. Surface rent and water rate shall be paid as herein before detailed in Clause (2). PROVIDED THAT no such rent/water rate shall be payable in respect of the occupation and use of the area comprised in any roads or ways to which the public have full right of access.

5. Local and other cessess and taxes as prevalent in ... Chillscodusged...

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PART VI

PROVISIONS RELATING TO THE RENTS AND ROYALTIES

Rent and royalties to be free from deduction etc.,

2. Mode of computation of royalty.

For the purpose of computing the said royalties the lessee/lessees shall keep a correct account of the mineral/minerals produced and dispatched the account as well as the weight of the mineral/minerals in stock or in the process of export may be checked by any Officer authorised by the Central or a State Government.

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(Here specify the mode of arriving at sale and prices at pits mount of minerals)

3. Course of action if rents and royalties are not paid in time,

Should any rent, royalty or other sums due to the State Government under the terms and conditions of these presents be not paid by the lessee/lessees within the prescribed time, the same may be recovered together with simple interest due there on at the rate of twenty four percent per annum on a certificate of such officer as may be specified by the State Government by general or special order in the same manner as an arrear of land

PART VII

THE COVENANTS OF THE LESSEE/LESSEES

1. Lessees to pay rents, royalties, Taxes, etc.

The lessec/lessees shall pay the rents and royalties reserved by this lease at such time and in the manner provided in PART V and VI of these presents and also may and discharge all taxes, rates assessments and impositions whatsoever being in the nature of public demands which shall from time to time be charged, assessed or imposed by the authority of the Central and State Government upon or in respect of the premises and works of the lessee/lessees in common with other premises and works of alike nature except demands for land revenues.

2. To maintain and keep boundary marks in good order.

The lessee/lessees shall at his/their own expenses erect and at all times maintain and keep in repair boundary marks and pillars according to the demarcation to be shown in the plan annexed to this lease/lessees. Such marks order and pillars shall be sufficiently clear of the shrubs and other obstructions as to allow easy identifications.

3. To commence operations within a year and work in a workman like manner.

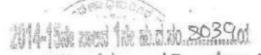
The lessee/licensee shall commence operation within a year from the date of execution of the lease and shall thereafter at all times during the continuance of this lease, search for, win, work and develop the said minerals without voluntary intermission in a skilful and workman like manner and prescribed under clause 12 hereinafter without doing or permitting to be done any unnecessary or avoidable damage to the surface of the said lands or the drops, buildings, structures, or other property for the purposes of this clause. operation shall include the erection of machinery laying of a tramway or construction of a road in connection with the mine.

To indemniç Government against all claims.

The lessee/lessees shall make and pay such reasonable Satisfaction & compensation as may be assessed by lawful authority in accordance with the law in force on the subject

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for all damage, injury or disturbance which may be done by find their in exercise of the powers granted by this lease and shall indemnify and keep indemnified fully and completely State Government against all claims which may be made by any person or persons in respect of any such damage, injury or disturbance and all costs and expenses in connection therewith.

5. To secure and keep in good condition pits shafts etc.,

The lessee/lessees shall during the subsistence of this lease well and sufficiently secure and keep open with timber or other durable means all pits shafts and that may be made or used on the said land make and maintain sufficient fences to the satisfaction of the State Government round every such pit, shaft or working whether the same is abandoned or not & shall during the same period keep all working in the said lands, except such as may be abandoned assessable free from water and foul air as far as possible.

6. To strengthen and support the Mines to necessary extent.

. The lessee/lessees shall strengthen and support to the satisfaction of the Railway administration concerned or the State Government, as the case may be, any part of the mine which in its opinion requires such strengthening or support for the safety of any railway, reservoirs, canal, road and any other public works or structures.

7. To allow inspection of working.

The lessee/lessees shall allow any officer authorised by the Central Government or the State Government in that behalf to enter upon the premises including any buildings, excavation or land comprised in the lease for the purpose of inspecting, examining, surveying prospecting and making plans there of sampling and collecting any data and the lessee/lessees shall with proper person employed buy the lessee/lessees and acquainted with the mines and works effectually assist such officer, agents, servants and workmen in conducting every such inspection and shall afford them all facilities, information connected with the working of the mines which they may reasonably require and also shall and will conform to and observe all orders and regulations which the Central or State Governments as the result of such inspection of otherwise may from time to time deem fit to impose.

8. To report accidents.

The lessee/lessees shall without delay send to the Deputy Commissioner/Director of Mines and Geology a report of any accident causing death or serious bodily injury or serious injury to property or seriously affection or endangering life or property which may occur in the course of the operation under this lease.

9. To report discovery of other minerals.

The lessee/lessees shall report to the State Government, the discovery in the leased area of any mineral not specified in the lease within sixty days of such discovery along with full particulars of the nature and position of each such find. If any mineral not

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specified in the lease is discovered in the lease area the lease research not win and dispose of such mineral unless such mineral included in the lease or a separate lease is obtained therefore.

10. To Keep records and account regarding production and employees etc:

The lessee/lessees shall at all times during the said term keep or cause to be kept at an office to be situated upon or near the said lands correct and intelligible books of accounts which shall contain accurate entires showing from time to time.

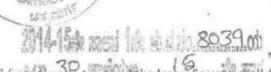
- Quantity and quality of the said mineral/ minerals realised from the said lands;
- (2) Quantity of the various qualities of the ores beneficiated or converted. (for example coal converted into coke)
- (3) Quantities of the various qualities of the said mineral/minerals sold and exported separately.
- (4) Quantities of the various qualities of the said mineral/, minerals otherwise disposed of an the manner and purpose of such disposal.
- (5) The prices and all other particulars of all sales of the said mineral/minerals.
- (6) The number of persons employed in the mines of works or upon the said lands specifying nationality, qualifications and pay of the technical personnel.
- (7) Such other facts, particulars and circumstances as the Central or the State Governments may from time to time required and shall also furnish free of charge to such officers and at such times as the Central and State Governments may appoints, true and correct abstracts of all or any such books of accounts and such information and returns to all or any of the matters aforesaid as the State Governments may prescribed and shall at all reasonable tikes allow such officers as the Central Government of State Government shall in that behalf appoint, to enter into and have access to the said officers for the purposes of examining and inspecting the said books of accounts, plans and records and to make copies thereof and make extracts there from.

11. To maintain plans etc.,

The lessee/lessees shall at all times during the said term maintain at the mine office correct, intelligible, up to date complete plans sections of the mines in the said lands. They shall show all the operations workings, and all the trenches, pits and drillings made by the him/them in the course of operations carried on by him/them under the lease, faults and other disturbances encountered and geological data and all such plans and sections shall be amended an filled up by and from actual surveys to be made for that purposes at the end of

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twelve months or nay period specified from time to tune and the lesseed essets stall furnish free of charge to the Central and State Governments true and correct copies of such plans and section whenever required. Accurate records of all trenches, pits and drillings shall show:-

- (a) The sub-soil and strata through which they pass.
- (b) Any minerals encountered.
- (c) Any other matter of interest and all data required by the Central and State Government from time to time.

The lessee/lessees shall allow any officer of the Central or the State Governments authorised in this behalf by the Central Government, to inspect the same at all reasonable times, He/they shall also supply when asked for by the State Government/ the Coal Controller/ the Director/General Geological Survey of India/the Controller Indian Bureau of Mines, a composite plan of the area showing thickness dip, inclination, etc., of all the seams as also the quantity of reserves quality wise.

- 11A. The lessee shall pay a wage not less than the minimum wage prescribed by the Central or State Government from time to time.
- .11B. The lessee shall comply with provisions of the Mines Act, 1952 and rules made the-under.)
- 11C. The lessee shall take measures for the protection of environment like planting of trees, reclamation of land, use of pollution control devices; and such other measures as may be prescribed by the Central or state Government from time to time at his own expenses.
- 11D. The lessees shall pay compensation to the occupier of the land on the date and in the manner laid down in these rules.
- 11E. The lessee shall in the matter of employment give preference to the tribals and to the persons who become displaced because of the taking up of mining operations.

12. Act 67 of 1957:

The lessee/lessees shall be bound by such rules may be issued from time to time by the Government of India under Section 18 of the Mines and Minerals (Regulations and Development) Act, 1957 (Act 67 of 1957) and shall not carry on mining or other operation under the said lease in any way other than as prescribed under these rules.

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13. To provide weighing machine:



Unless specifically exempted by the State Government the lessee/lessees shall provide and at all time keep at or near the pit head or each of the pit heads at which the said minerals shall be brought to bank a properly constructed and efficient weighing machine and shall weigh or cause to be weighed thereon all the said minerals from time to time brought to bank sold exported and converted and also the converted products shall at the close of each day cause the total weights, ascertained by such means of the said minerals, ores products raised, sold, exported and converted during the previous twenty-four hours to be entered in the aforesaid books of accounts. The lessee/lessees shall permit the State Government at all times during the said term to employ and persons or persons to be present at the weighing of the said minerals as aforesaid and to keep accounts thereof and to check the accounts kept by the lessee/lessees. The lessee/lessees shall give fifteen days previous notice in writing to the Director of Mines and Geology of every such measuring or weighing in order that he or some officer in his behalf may be present thereat.

14. To allow test of weighing machine:

The lessee/lessees/shall allow any person or persons appointed in that behalf by the State Government at any time or times during the said term to examine and test every weighting machine to be provided and kept as afore-said and the weights used there with in order to ascertain whether the same respectively are correct and in good repair and order if upon any such examination or testing any such weighting machine of weights shall be found incorrect or out of repair or order the State Government may require that the same be adjusted, repaired and put in order by and at the expenses of the lessee/lessees and if such requisition be not complied with within fourteen days after the same shall have been made, the State Government may cause such weighing machine or weights to be adjusted, repair and put in order and the expense of so doing shall be paid by the lessec/lessees to the State Government on demand and if upon any such examination or testing as aforesaid any error shall be discovered in any weighing machine or weights to the prejudice of the State Government such error shall be regarded as having existed for three calendar months previous to the discovery thereof or from the last occasion of so examining and testing the same weighing machine and weights in core such occasion shall be within such period of three months and the said rent and to yairy shall be paid and accounted for accordingly.

15. To pay compensation for injury to third parties:

The lessee/ lessees shall make any pay reasonable satisfaction and compensation for all damage, injury or disturbance of person or property which may be done by or on these



part of the lessee/lessees in exercise of the libergies and Dawer granted by presents and shall at all times have harmless and keep indemnified the State Government from and against all suits, claims and demands which may be brought made by any person in respect of any such damage, injury or disturbance.

16. Not to obstruct working of other minerals.

The lessee/lessees will exercise the liberties and powers hereby granted in such a matter as to offer no unnecessary or reasonable avoidable obstructions or interruption to the development and working within the said lands of any minerals not included in this lease and shall at all times afford to the Central and State Government and to the holders of prospecting licenceor mining leases in respect of any such minerals or any such minerals within any land adjacent to the said lands as the case may be reasonable means of access and safe and convenient passage upon and across the said lands to such minerals for the purpose of getting working, developing and carrying away the same provided that the lessee/lessees shall receive reasonable compensation for any damage or injury which he/they may sustain by reason or in consequence of the use of such passage by such lessee/lessees or holders of prospecting licences.

17. Transfers of lease:

- The lessee/lessees shall not, without the previous consent in writing of the State Government, which in the case of a mining lease in respect of any mineral specified in the first Schedule to the Act shall not be given except after previous approval of the Central Government:
 - a) assign, subject, mortgage or in any other manner, transfer the mining lease or any right, title or interest therein or
 - b) enter into or make any arrangement, contract or understanding whereby the lessee/lessees will or may be directly or indirectly financed to a substantial extent by or under which the lessee's operations or undertakings will or may be substantially controlled by any person or body of persons other than the lessee/lessees.

Provided that the State Government shall not give its written consent unless:

- a) the lessee has furnished an affidavit along with his application for transfer of the mining lease specifying therein the amount that he has already taken or proposes to take as consideration from the transferee.
- the transfer of the mining lease is to be made to a person or body directly undertaking mining operations.





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(2) Without prejudice to the above provisions, the lessee lessees may subject to the condition specified in the proviso to Rule 35 of said Rules, transfer this lease or any right, title or interest therein, to a person who has filed and affidavit stating that he has filed upto date income tax returns, paid income tax assessed in him and paid the income tax on the basis of self assessment as provided in the Income tax Act 1961 (43 of 1961) on payment of five hundred rupees to the State Government.

Provided that the lessee/lessees shall make available to the transferee the original or certified copies of all plans of abandoned workings in the area and in a belt meters wide surrounding it.

Provide further that where the Mortgage is an institution or a Bank or a Corporation specified in Schedule V it shall not be necessary for any such institution Bank of Corporation to meet with the requirement relating income tax.

(3) The State Government may by order in writing, determine the least at any time if the lessee/lessees has/have in the opinion of the State Government committed a reach of any of the above provisions or has/have transferred the lease or any right, title or interest therein otherwise than in accordance with clause(2):

Provided that no such order shall be made without giving the lessee/lessees a reasonable opportunity stating his/their case.

18. Not to be financed or controlled by a Trust, Corporation Firm or person.

The lease shall not be controlled and the lessee/lessees shall not allow themselves to be controlled by any Trust, Syndicate, Corporation, Firm or person except with the written consent of the Central Government. The lessee/lessees shall not enter into or make any arrangement compact or understanding whereby the lessee/lessees will or may be directly or indirectly financed by or under which the lessee/lessees operations or undertakings will or may be carried on directly or indirectly by or for the benefit of or subject to the control of any Trust, Syndicate, Corporation. Firm of person unless with the written sanction given prior to such arrangement compact or understanding being entered into or made of the Central Government and any or every such arrangement compact or understanding as aforesaid entered into or made with such sanction as aforesaid) shall only be entered into or made and shall always b subject to an express condition binding upon the other party of parties thereto that on the occasion of state: of emergency of which the President if India in his discretion shall be the sole judge it shall be terminable if so required in writing, by the State Government and shall in the event of any such requisition being made be forthwith thereafter determined by the lessee/lessees accordingly.

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19. Lessee shall deposit any additional amount necessary: Sandal Control of the c

Whenever the security deposit of Rs.10,000/- or any last thereof or any further sum hereafter deposited with the State Government in replenishment thereof shall be forfeited or applied by the Central or State Government pursuant to the power hereinafter declared in that behalf the lessee/lessees shall deposit with the State Government such further sum as may be sufficient with the unappropriated part hereof to bring the amount in deposit with the State Government up to the sum of Rs. 10,000/-

20. Delivery of working in good order to State Government after determination of lease.

The lessee/lessees shall at the expiration or sooner determination of the said term or as renewal thereof deliver up to the State Government all mines, pits shafts, inclines drifts levels, waterways, airways, and other works now existing or hereafter to be sunk or made on or under the said lands except such as have been abandoned with the sanction of the Government and in an ordinary and fair course of working all engines machines plant, buildings, structures, other works and convenience which at the commencement of the said term were upon or under the said lands and all such machinery set up by the lessee/lessees below ground which cannot be removed without causing injury to the mines or works under the said lands (except such of the same as may with the sanction of the State Government have become discussed) and all buildings and structures of bricks or stone creeted by the lessee/lessees above ground level in good repair order and condition and fit in all respects for further working of the said mines and the said minerals.

21. Right of pre-emption

- a) The State Government shall from time to time and all times during the said term have the right (to be exercised by notice in writing to the lessee/lessees) of pre-emption of the said minerals (and all products thereof) lying in or upon the said lands hereby demised or elsewhere under the control of the lessee/lessees and the lessee/lessees shall with all possible expedition deliver all mineral or products or minerals purchased by the State Government under the power conferred by this provision in the quantities at the times in the manner and at the place specified in the notice exercising the said right.
- b) Should the right of pre-emption conformed by this present provision be exercised and a vessel chartered to carry the minerals or products thereof procured on behalf of the State Government or the Central Government be detained on demurrage at the part of loading the lessee/lessees shall pay the amount due to causes beyond the control of the lessee/lessees.

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- The price to be paid for all eliments of preducts of infierals taken in preemption by the State Government injectories of the rights hereby conferred
 shall be the fair market price prevailing at the time of pre-emption
 PROVIDED THAT in order to assist in arriving at the said fair market price
 the lessee/lessees shall if so required furnish to the State Government for the
 confidential information of the Government particulars of the quantities,
 descriptions and prices of the said minerals of products thereof sold to other
 customers and of charters entered into for freight carriage of the same and
 shall produce to such officer or officers as maybe directed by the State
 Government original or authenticated copies of contracts and charater
 parties entered into for the sale of freightage of such minerals of products.
- In the event of the existence of a state or war of emergency (of which (I) existence of President of India shall be the sole judge and a notification to this effect in the Gazette of India shall be conclusive proof) the State Government with the consent of the Central Government shall from time to time and all times Suring the said term have the right (to be exercised by a notice in writing to the lessee/lessees) forthwith take possession and control of the works, plant, machinery and premises of the lessee/lessees on or in connection with the said lands or operations under this lease and during such possession or control the lessce/lessees shall conform to and obey all direction given by or on behalf of the Central Government or State Government regarding to use of employment of such works, plants, premises and minerals. PROVIDED THAT fair compensation which shall be determined in default of agreement by the State Government shall be paid to the lessee/lessees for all loss or damage sustained by him/them by reason or in consequence of the exercise of the powers conferred by this clause and PROVIDED ALSO that the exercise of such powers shall not determine the said term hereby granted or effect the terms and provisions of these presents further that may be necessary to give effect to the provisions of this clause.

22. Employment of Foreign National

The lessee/lessees shall not employ, in connection with the mining operations any person who is not an Indian national except with the previous approval of Central Government.

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23. Recovery of expenses incurred by the State Government 3 Opposite and 3 Language of the State Government 3 Opposite Annuage of the State Government 3 Opposite Annuage of the State Government 3

If any of the works or matters which in accordance with the covenants in that behalf hereinbefore contained are to be carried or performed by the lessee/lessees be not so carried out or performed within the time specified in that behalf, the State Government, may cause the same to be carried out or performed and the lessee/lessees shall pay the State Government on demand all expenses which shall be incurred in such carrying out or performance of the same and the decision of the State Government as to such expenses shall be final.

24. Furnishing of Geophysical data

The lessee/lessees shall furnish-(a) all geophysical data relating to mining fields or engineering and ground water surveys, such as anomaly maps, sections, plans, structures, contour maps, logging, collected by him/ them during the course or mining operations to the Director General, Geological Survey of India, Calcutta.

(b) all information pertaining to investigations of radio active minerals collected by him/tnem during the course of mining operations to the Secretary, Department of Atomic Energy, New Delhi.

Data or information referred to above shall be furnished every year reckoned from the date of commencement of the period of the mining lease.

(c) Lesses shall install RFID integrated weigh bridge in the lease premises and arrange transportation of PART VIII ore so produced from the mine of per sub-mle 3(1) of chapter I of the karmataka (Pseumbon of the gal timing, Transportation and Storage of line of the Covenants of the State Government Rules-2011.

1. Lessee/Lessees may hold and enjoy rights quietly

The lessee/lessees paying the rents, water rate and royalties here by reserve and observing and performing all the covenants and agreements herein contained and on the part of the lessee/lessees to be observed and performed shall and may quietly hold and enjoy the rights and premises hereby demised for and during the term hereby granted without any unlawful interruption from the State Government, or any person rightfully claiming underit.

2. Acquisition of lands of third parties and compensation thereof

If in accordance with the provision of Clause 4 of Part VII of this Schedule, the lessee/lessees shall offer to pay to an occupier of the surface of any part of the said lands compensation for and damage or injury which may arise from the proposed operations of the lessee/lessees and the said occupier shall refuse his consent to be exercise of the right and powers reserved to the State Government and demised to the lessee/lessees by these presents and the lessee/lessees shall report the matter to the State Government and shall

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deposits with it the amount offered of compensating and if the Central/State Government satisfied that the amount of compensation offered is fair and reasonable or if it is not so and Central Governments shall consider fair and reasonable, the State Government shall operations as may be necessary for the purpose of this lease. In assassin the amount of such compensation the State Government shall be guided by the principles of the Land Acquisition Act.

3. To renew:

The mining lease is renovable in terms of the Provisions of the Act and the roles made there under.

Provided that the State Government may for reasons to be reported in writing reduce the area applied for.

If the Jease is in respect of minerals specified in the First Schedule to the Act, renewal will be subject to the prior approval of the Central Government.

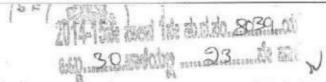
If the lossee/lessoes be desirous of taking a renewal lease of the premises hereby demised or of any part or parts of them for a further term from the expiration of the term hereby granted and is otherwise eligible, he/ they shall prior to the expiration of the last mentioned term give to the State Government 12 calendar months previous notice in writing and shall pay the rents, rates and royalties hereby reserved and shall observe and perform the several covenants and agreements herein contained and on the part of the lessee/lessees to be observed and performed up to the expiration of the term hereby granted. The State Government on receipt of application for renewal, shall consider it in ac ordance with the provisions of the Act and the rules made thereunder and shall pass orders as it deems fit. If renewal is granted the State Government will at the expense of the lessee/lessees and upon his executing and delivering to the State Government if required a counter part thereof execute and deliver to the resceelesses a renewed lease of the said premises or part thereof for the further term of Toeuty years at such rents, rates, and royalties and on such terms and subject to such rents, rates and royalties and on such terms and subject to such covenants and agreements, including this present covenant to renew as shall be accordance with the Mineral Concession Rules, 1960, applicable to (Name of Mineral on the day next following the Expiration of the terms hereby granted).

4. Liberty to determine the lense:

The lessee/lessees may at any time determine this lease by giving not less than 12 calendar months notice in writing to the State Government or to such officer, or authority as the State Government may specify in this behalf and upon the expiration of such notice provided that the lessee/lessees shall upon such expiration render and pay all rents, water rates, royalties compensation for damages and other meneys which may then be due and

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payable under these presents to the lessor or thy other person or persons and shall deliver up these presents to the State Government the lease and the said term and the liberties, powers and privileges hereby granted shall absolutely cease and determine but without projudice to any right or remedy of the lessor in respect of any breach of any of the coverants of agreements contained in these presents.

- a. The State Government may on an application made by the lessee permit him to surrender one or more minerals from his lease which is for a group of minerals on the ground that deposits of that mineral have since exhausted or depleted to such an extent that it is no longer possible to work the mineral economically, subject to the condition that the lessee-
- Makes an application for such surrender of mineral at least six months before the intended date of surrender; and
- c. Gives an undertaking that he will not cause any hindrance in the working of the mineral so surrendered by any other person who is subsequently granted a mining lease for that mineral.

5. Refund of security deposit

On such date as the State Government may elect within twelve calendar months after the determination of this lease or of any renewal thereof, the amount of the security deposit paid in respect of this lease and then remaining in deposit with the State Government and not required to be applied to any of the purposes mentioned in this lease shall be refunded to the lesses/lessees. No interest shall run on the security deposit.

PART IX

General Provisions

1. Obstructions to Inspection

In case the lessee/lessees or his/their transferce/assignee does/do not allow entry or inspection by the Officers authorised by the Central or State Government under clauses (i), (j) or (1) of sub-rule (1) rule 27 of said Rules, the State Government shall give notice in writing to the lessee/lessees requiring him/them to show cause within such time as may be specified in the notice why the lease should not be determined and his/their security deposit forfeited; and if the lessee/lessees fails/fail to show cause within the aforesaid time to the satisfaction of the State Government, the State Government may determine the lease and forfeit the whole or part of the security deposit.

2. Penalty In case of default in payment of royalty and breach covenants:

If the lessee/lessees or his/their transferee or assigned makes/make any default in payment of rent or water rate or royalty as required by Section 9 of the Act of rent or

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commits a breach of any of the conditions and covenants other than those referred to in covenant (1) above, the State Government shall give notice to the lessee/lessees requiring him/them to pay the rent water rate, royalty or remedy the breach, as the case may be, within sixty days from the date of receipt of the notice and if the rent, water and royalty are not paid or the breach is not remedied within such period, the State Government may without prejudice to any proceedings that may be taken against him/them, determine the lease and forfeit the whole or part of the security deposit.

3. Penalty for repeated breaches of covenants

In cases of repeated breaches of covenants and agreements by the lessee/lessees for which notice has been given by the State Government in accordance with clauses (1) and (2) aforementioned on earlier occasion, the State Government without giving any further notice may impose such penalty not exceeding twice the amount of unnual dead rent specified in Clause 2, Part V.

4. Fallure to fulfill the terms of leases due to "Force Majeure"

Failure on the part of the lessee/lessees to fulfill any of the terms and conditions of this lease shall not give the Central or State Government any claim against the lessee/lessees or be deemed a breach of this lesse. In so far as such failure is considered by the said Government to arise from force majeure, and if through force majeure the fulfillment by the lessee/lessees of any of the terms and conditions of this lease be delayed. the periods and such delay shall be added to the period fixed by this lease. In this clause the expression "Force Majeure" means Act of God, war, insurrection, riot, civil commotion. strike, tide, storm, tidal wave flood, lightning, explosion, fire, earthquake and any otherhappening which the lesses/lesses could not reasonably prevent of control.

Lessee/Lessees to remove his/their properties on the expiry of lease:

The lessee/lessees having first paid and discharged rents, rates and royalties payable by virtue of these Presents may at the expiration or sooner determination of the said term or within six calendar months thereafter (unless the lease shall be determined under clauses 1 and 2 of this Part and in this case at any time not less than three calendar mouths not more than six calendar months after such determination) take down and remove for his/their own benefit or any engines, machinery plant, by: brings, structures, tramways, railway and other works, erections and conveniences thich may have been crected/set up or placed by the Jessee/Jessees in or upon the said lands and which the Jessee/Jessees is/ere not bound to deliver to the State Government under clause 20 of Part VII of this Schedule and which the State Government shall not desire to purchase.

6. Forfeiture of property left more than six months after determination of lease

If at the end of six calendar months after the expiration or sooner determination of the said term under the provision contained in clause 4 of Part VIII of this Schedule become effective there shall remain in or upon the said land any engines machinery plant. 100 -10 - Irlain



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buildings, structures tramway, railway 30 miles wife energy buildings or other properly which are not required by the lessee/lessees in connection with operations in any other lands held by him/them under prospecting licence or mining lease the same shall if not removed by the lessec/lessees within one calendar months after notice in writing requiring their removal has been given to the lessee/lessees by the State Government be deemed to become the property of the State Government and may be sold or disposal of insuch manner as the State Government shall deem fit without liability to pay any compensation or to account to the lessee/lessees in respect thereof.

7. Notices

eta Mogolighum Office Complex Pean Megolighum Village Every notice by these presents required to be given to the lessectaes shall be given in writing to such, person resident on the said lands as the lessee/lessees inay appoint for the purpose of receiving such notice and if there shall have been no such appointment then every such notice shall be sent to be lessee/lessees by registered post addressed to the lessee/lossees at the address recorded in the lease or at such other address in India at the lessee/lessees may from time to time in writing to the State Government designate for the receipt of notice and every such service shall be deemed to the proper and valid service upon the lessee/lessees and shall not questioned or challenged by him.

8. Immunity of State Covernment from liability to pay compensation

If in any event of the orders of the State Government are revised, reviewed or cancelled by the Central Government in pursuance of proceedings under Chapter VII of Mineral Concession Rules, 1960, the lessec/lessees shall not be entitled to compensation for any loss sustained by the lessee/lessees In exercise of the powers and privileges conferred upon him/them by these presents.

"(8A) The lease is executed at Bangalore the Capital town of the state of Keena taka (Name of the Grate) and subject to the provision of Article 226 of the Constitution of India it is hereby agreed upon by the lessee and the lesser that in the event of any dispute in relation to the area under lease, condition of lease, the dues realiable under the lease and in respect of all matters touching the relationship of the lessee and the lessory the suits (or appeals) shall be filed in the Civil Courts at Child advisco...(Name of the city) and it is hereby expressly agreed that neither party shall be Empetent to file and petition at any place other than the courts named above."

9. For the purpose of stamp duty the anticipated royalty from the demised land is

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IN WITNESS WHERETHE Presents is appearing the day and year first above written. uted in the manner hereunder

In the presence of

SESA STERLITE LTD.

Mining Obligator,

Kornstehn "Maggalahatii Office Complex",

for and on behalf of

In the presence of

For Seas Sterilte Limited

Quelin

Head Iron Ore Kernataka

Signed by

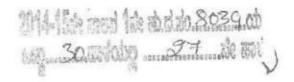
for and on behalf of the Governor of Kumutaka

Commado or k Additional Director (Mineral) Department of Mines & Geology Bangalore

B.R. Lavesha sta P. Revenne. Nisarga Nileya. Dhavelaginio Excly find stage Breemers amudori Road. chi fondusqu.

G R Na garaga 5/o late G S Kame chart Ras No 495" Sm. Ragforenche Nilayo Dhovalagin Ext. 2 d stage Herra Sauche Kond Chitedunga 577501





25] ADDITIONAL CONDITIONS:

"The owner of a mining lease shall:

- (a) Ensure that prospecting work is carried out in his lease area at his own cost in such mining lease where:
- (i) Prospecting has not been done and a Prospecting Report has not been filed with the Indian Bureau of Mines;
- (ii) The Prospecting Report for the mining lease has been prepared in terms of standards that are materially different or incompatible with UNFC standards;
- (III) Fresh prospecting work has become necessary for such minerals for which the threshold values have been revised by the Indian Bureau of Mines; and
- (iv) Fresh prospecting is required to prove the depth persistency of the ore or mineral deposit;
- (b) Ensure that prospecting work, if required under clause (a) above, shall be completed as per the time-schedule given below:

SI. No.	Item	Time limit
1	All mining lease with an area of less than 10 hectares.	Within one year of the imposition of the condition in the mining lease.
2	All mining leases with an area more than 10 hectares and less than 50 hectares.	One half of the area within one year of the imposition of the condition in the mining lease and remaining half of the mining lease area within three years of imposition of condition in the mining lease.
3	All mining leases with an area of more than 50 hectares.	The mining lease area to be equally demarcated for prospecting work such that all the prospecting work is completed in a period of five years from the date of imposition of the condition in the mining lease.

(c) Submit:

- (i) Yearly report on the progress in the prospecting work alongwith the expenditure details and a copy of the interim Prospecting Report, where 3 the prospecting Report is for a part area (as at serial number (2) and (3) of the sub-clause (b) above; and
- (ii) Complete Prospecting Report with a feasibility report at end of the prospecting Report, to the Chief Controller of Mines, Indian Bureau of Mines, and concerned State Government".
- 26) This deed is executed subject to the conditions mentioned in the notification and addendum No.CI 166 MMM 2014 dated 07-01-2015 & 12-01-2015 respectively.
- 27) Any difference amount in the stamp duty and registration fee, arises later lessee shall pay the same immediately upon intimation.
- 28) Lessee shall not engage child / bonded labours in mining.

DIRECTOR

Dept. of Mines & Geology

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RUMAN STREET,

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Print Date & Time: 13-02-2015 12:36:24 PM

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Sesa Sterlite Limited
"Megalehell Office Complex"
BHEEMAS/ MUERA - 577 520.
Chitrodurga Tq. & Dist.

SESA STERUTE LTD. Mining Division. Near Megalanall Village, Briefmasomudra

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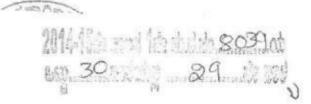
Sesa Sterlite Limited

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Megala

ರಜಿಕ್ಟ್ರೇಷನ್ ಕಾಯ್ದೆ ಕಲಂ 88(i) ಪ್ರಕಾರ ಹಾಜರಾಗಲು ವಿನಾಯ್ದಿಯಿರುವ ನಿರ್ದೇಶಕರು, ಗಣಿ ಮತ್ತು ಭೂ ವಿಜಾನ ಇಲಾಖೆ ಐನಿಜ ಭಷ್ಷನ್ನ ರೇಷ್ಟ್ ಸ್ಟೋರ್ಟ್ ರಸ್ತೆ ಬೆಂಗಳೂರು ಇವರು ದಸ್ತಾವೇಜನ್ನು ಬರೆದುಕೊಟ್ಟರುವಿರನ್ನು ನಾನು ಒಪ್ಪಿರುತ್ತೇನೆ.

ಗುರುತಿಸುವವರು



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Designed and Developed by C-DAC, ACTS Pune

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ಪ್ರಮಾಣ ಪತ್ರ

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ಪ್ರಕಾರ

ನೊತ್ತೆ(ರೂ.)

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ಇತರ ಬ್ಯಾಂಕ್ ಡಿ.ಡಿ.

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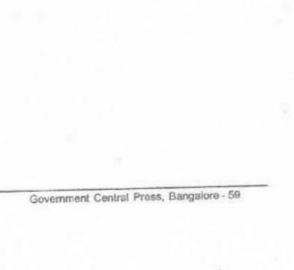
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ದಿನಾಂಕೆ: 13/02/2015

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Designed and Developed by C-DAC ACIS Pune.





GOVERNMENT OF KARNATAKA

No. Cl.163: MMM 2005

Kumataka Government Secretariat M. S. 7, 21ding Bangalore, Dated: 03.08.2005.

From,

The Secretary to Government (Mines, SSI & Textiles) Commerce & Industries Department, BANGALORE-560 001.

To.

Commissioner for Mines & Geological Resources Development and Director of Mines and Geology, No.49, "Khimija Bhavan" D.Devaraj Urs Road BANGALORE-560 (01).

Sir.

Sub: Change of name in respect of M.L. bearing No.2236 dated 29.05.1998 from M/s.A. Namyan Mines Limited to M/s. Sesa Goa Limited.

Ref- Your letter No.DMG/ML.No.2236/668 dated 17.06,2005.

I am directed to refer to your latter under reference on the subject and to state that since M/s. A Narayan Mines Limited is smalgamated with M/s. Sesa Goa Limited, change in the name in respect of M.L.No.2236 from M/s. A. Narayan Mines Limited to M/s. Sesa Goa Limited is accepted.

Yours faithfully,

(JAGADISH JOIS)

Under Secretary to Government (Mines)
Commerce & Industries Department.

SRIPAD PUJAR QUALIFIED PERSON

B.V.R. ACHAR

GOVERNMENT OF KARNATAKA

No.CI 205 MMM 2012

Kamataka Government Secretariat, Vikasa Soudha. Bangalore, Dated:31.12.2013

From:

The Secretary to Government, (Mines, SSI & Textiles), Commerce & Industries Department, BANGALORE-560 001.

To:

The Director. Department of Mines & Geology, No.49, Khanija Bhavan, D. Devaraj Urs Road, Bangalore - 560 001.

Sir.

Sub: Change of Name of M/s SESAGOA as M/s SESA STERLITE - reg.

Ref: (1) Your letter No.ಗಭೂಇ/ಗಗುಶಾ/501 AML 2011/2013-14/RML-2236 Dated:12.12.2013.

(2) Fresh Certificate of Incorporation, consequent upon change of name, issued by the Registrar of Companies, Goa, Daman and Diu.

With reference to the above mentioned subject and reference in pursuance to the issue of Certificate referred at (2) above, I am directed to state that the change of name of Sesa Goa Limited as Sesa Sterlite Limited has been perused by the

You are requested to bring this to the notice of the concerned departments.

(Jyothi R.J)

Yours faithfully,

Under Secretary to Govt., (Mines) Commerce & Industries Department

Phone No.080-22034362

Copy to:

1. The Principal Secretary to Govt., Forest, Environment & Ecology Department, M.S. Building, Bangalore.

2. The Member Secretary, Kamataka State Pollution Control Board, Church Street,



GOVERNMENT OF INDIA MINISTRY OF CORPORATE AFFAIRS Registrar of Companies, Goa

Company Law Bhawan , EDC Complex , Pict No. 21 , Patto Panaji Goa - 403001, Goa, INDIA

Certificate of Incorporation pursuant to change of name [Pursuant to rule 29 of the Companies (Incorporation) Rules, 2014]

Corporate Identification Number (CIN): : L13209GA1965PLC000044

I hereby certify that the name of the company has been changed from. Sesa Sterlite Limited to Vedanta Limited with effect from the date of this certificate and that the company is. Ilmited by shares.

Company was originally incorporated with the name Sesa Goa Private Limited

Given under my hand at Goe this Twenty First day of April Two Thousand Fifteen.

Signature-yalid

VISHNU PANDURANG KATKAR

Registrar of Companies Registrar of Companies Goa

Mailing Address as per record available in Registrar of Companies office:

Vedanta Limited SESA GHOR 20 EDCCOMPLEX PATTO, PANJIM, GOA - 403001, Goa, INDIA

> SRIPAD PUJAR QUALIFIED PERSON

B.V.R. ACHAR QUALIFIED PERSON

Date: 28/04/2015

To

15"

The Regional Controller of Mines Indian Burgay of Mines. 29. Industrial suburb II stage, Tumukur road, Geroguntapalaya, Yeshwamhgur, Bangalore-560022

Sub: Change in name of Sem Sterlije Limited to Vedanta Limited

We are pleased to inform you that consequent to the Fresh Certificate of Incorporation Pursuant to Change of Name issued by the Registrar of Companies, Goa, the name of the company has been changed from Seen Storing Limited to Vednote Limited with effect from 21% April 2015.

The copy of the said fresh Certificate of Incorporating dated 21st April referred above is attached herawith for your perusal.

The legal entity continues to be in extinence and the change in name has not silected the corporate structure or any rights one obligations of the Company.

We request you to kindly take on record Change in name of 'SemeSterfee Limited' to 'Vedamia Limited' and do the needful.

QUALIFIED PERSON

QUALIFIED PERSON

Authorised Signatory

Each 1) Certificate of Incorporation

Vectoria Limited Points, more at two forces were for a first trace CA Martini Kitonga, Maghaphan Calan Caromas, The secondary on Post Clipsolings (Seminaria) - 527900

04te: 04.08.2015



To, Socretary (SSI, Mines & Textiles), Government of Kornataka, Vikesesoudha, Rangalore – 560 001

To.

The Director, Department of Mines and Geology, Changa Bhaven, Race course road, Bangalore

Dear Sir,

Sub: Change in name of Sesa Sterlite Limited to Vedanta Limited – Intimotion of change in name under Rule 52, MCR 1960.

We request your kind attention to our letter dated: 25.04.2015 submitted to more kind office regarding the intimution of charge in name under Rule 62 of NICR act 1990.

wide the said intimation we had also furnished the 'Fresh Certificate of incorporation' stated by Registrar of Componers. Ministry of Corporate Affairs, Government of India, who is the competent authority to approve the change of name of a Company under the statutes.

As mendionals in previous communications, we remarks that the legal antity continues to be in existence and the change in name has not affected the composite structure or any rights and obligations of the company.

We enquest you to listimate the concerned departments and the intoutoning Committee sugarding the name change from Seca Steride Committee to Vedanta Limited.

Witness Kinneys

FG/ Vegants United

Total Manes

First-Institut Records:

SRIPAD PUJAR QUALIFIED PERSON

B.V.R. ACHAR GUALIFIED PERSON

Vedanta Limited (Firming) ocum se Sesa Stania Lancer Saza Gra Limited

iz lancer Megal Megastonini Office-Complex Brownsconsists Post Chemistry (Microsophics of Fire)

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आरत सरकार/ GOVERNMENT OF INDIA खान मंत्रासय/ MINISTRY OF MINES आरतीय खान व्यूरी/ INDIAN BUREAU OF MINES क्षेत्रीय खान निर्मेशक कार्योसय/ OFFICE OF THE REGIONAL CONTROLLER OF MINES



फैक्स: (080) 23371027 / 23373287

द्रमाणः 090-23371027/23375366/67

Email ID: ro. bangalore@ilem.gov.in

#/No. 279/272/91/BNG

सेवा में/ To,

M/s. Vedanta Ltd.,

Sesa Ghor, 20 EDC Complex, Patto,

Panjim-Goa.

North Goa-403001.

 इंडस्ट्रियन सबर्व II स्टेज, तुमकुर रोड, गोरमुंदापान्या मेशकंतपुर, बँगलङ-560022

दिनांक/Date: 16/08/2019

2 1 AUG 2019.

विषय/Sub: Approval of "Modifications to the Approved Modified Mining Plan" in respect of ML No. 2677 of M/s Vedanta Ltd. over an area of 161.54 Ha (as per CEC) in Meghalahalli, Bommavvanngathihalli and Madakeripura villages, Chitradurga & Holalkere Taluk, Chitradurga District, Karnataka state, submitted for approval under rule 17(3) of MCR, 2016.

संदर्भ /Ref: Your letter No. Nil dated 19/06/2019 submitting therewith final bound copies of Modifications to the Approved Modified Mining Plan.

ивтач/Sir.

In exercise of the powers conferred by clause (b) of sub-section (2) of section 5 of the Mines and Minerals (Development & Regulation) Act, 1957 and clause (3) of Rule 17 of the Minerals (Other than Atomic and Hydro Carbons Energy Minerals) Concession Rules, 2016 read with Govt, of India order No.S.O.445 (E) dated 28.04.1987 and S.O.1857 (E)did.18/05/2016, I bereby approve the Modifications to the approved Mining Plan including Progressive Mine Closure Plan in respect ML No. 2677 of M/s Vedanta Ltd. over an area of 161.54 Ha (as per CEC) in Meghalahalli, Bommavvanagathihalli and Madakeripura villages, Chitradurga & Holalkere Taluk, Chitradurga District, Karnntaka State. This approval is subject to the following conditions:

 The Modification to the approved Mining Plan with Progressive Mine Closure Plan is approved without prejudice to any other laws applicable to the mine from time to time whether made by the Central Government, State Government or any other authority and without prejudice to any order or direction from any court of competent jurisdiction.

2. The proposals shown on the plates and /or given in the document is based on the lease map/Sketch

submitted by the applicant /lessee and is applicable from the date of approval.

3. It is clarified that the approval of your aforesaid Modification to the approved Mining Plan with Progressive Mine Closure Plan does not in any way imply the approval of the Government in terms of any other provisions of the Mines and Minerals (Development and Regulation) Act 1957 or the Mineral (Other than Atomic and Hydro-Carbon Energy Minerals) Concession Rules, 2016 and any other laws including Forest (Conservation) Act, 1980, Environment (Protection) Act, 1986 or the rules made there under Mines Act, 1952 and Rules & Regulations made there under.

4. Indian Bureau of Mines has not undertaken verification of the mining lease boundary on the ground and does not undertake any responsibility regarding correctness of the boundaries of the leasehold shown on the ground with reference to lease map& other plans furnished by the applicant/ lessee.

SRIPAT PUJAR

B.V.R. ACHAR

सं/No.: 279/272/91/BNG

- 5. At any stage, if it is observed that the information furnished, data incorporated in the document are incorrect or misrepresent facts, the approval of the document shall be revoked with immediate effect.
- Next Financial Assurance shall be due for submission on 01.04.2022.

7. The execution of Modification to the approved Mining Plan shall be subjected to vacation of prohibitory orders / notices, if any.

- 8. The Approval of Modification to the approved Mining Plan is strictly confined to the proposals contained within the mining leasehold demarcated as per lease sketch given by the joint survey team constituted by the CEC and duly authenticated by the State DMG. It does not convey approval to the proposals falling outside the Mining Lease boundary.
- 9. The Approval of Modification to the approved Mining Plan is without prejudice to the final order of the Hon'ble Supreme Court order dtd.18/04/2013 in W.P. No. 562/2009 and interim orders passed by the Hon'ble Supreme Court from time to time in the said W.P. Nos. 25910/2009 and 26083/2009.
- 10. A copy of Environment Impact Assessment and Environment Management Plan as approved by the MOEF. New Delhi shall be submitted to this office along with a copy of their approval letter, within one month of the date of such approval.
- 11. The Environmental Monitoring Cell of the company shall continue monitoring ambient air quality, dust fall rate, water quality, soil sample analysis and noise level measurements on various stations established for the purpose both in the core zone and buffer zone as per MOEF guidelines and keeping in view IBM's circular No.3/92, season wise every year or by engaging the services of an Environment Laboratory approved by MOEF/CPCB. The data so generated shall be maintained in a bound paged register kept for the purpose and the same shall be made available to the inspecting officer on demand.
- 12. In case the mining lease falls within a radius of 10 kms of National Park/ sanctuary, recommendations of NBWL have to be obtained as per the Order of Hon*ble Supreme Court in 1 A No. 460/2004.
- 13. An yearly report shall be submitted to this office before 1st July of every year setting forth the extent of protective and rehabilitative works carried out as envisaged in the approved mine closure plan.
- 14. The Modification to the approved Mining Plan is approved for proposals contained therein and as applicable from the date of approval of the document for the mining activities to be carried out within the mining lease hold. The earlier instances of irregular mining/illegal mining, if any, shall not be regularized with this approval.
- 15. If anything is found to be concealed as required by the Mines Act in the contents of this document and the proposal for rectification has not been made, the approval shall be deemed to have been withdrawn with immediate effect.
- 16. You shall maintain the boundary pillars as required under Rule 12 of Minerals (Other than Atomic & Hydro Carbons Energy Minerals) Concession Rules, 2016.
- 17. The Modification to the approved Mining Plan is approved for 3 years period from 2019-20 & 2021-2022 for total Mineral Reserves of 104.616 Million Tonnes of Hematitic Iron ore and 26.458 Million Tonnes of Hematitic Siliceous Iron Ore with Annual Production Capacity proposals valid for the following period with respective production capacity. Contd.....3

Year	Production Capacity in Tonnes (Iron Ore)
2019-20 for the balance period	3035490
2020-21	4507770
2021-22	7206165

18. The Lessee shall obtain an Environment Clearance before financial year 2021-22 for production of 7.2 million tonnes per annum of iron ore from the competent authority as committed in modification to the approved mining Plan.

19. This approval is subject to the grant of production allocation of 7.2 million tonnes per annum of iron ore from the Central Empowered Committee.

20. The Lessee shall not produce 7.2 million tonnes per annum of iron ore prior to obtaining the necessary permission/approval from the competent authority.

भवदीय/Yours faithfully,

संलग्नक : अनुलग्नक/ One copy of the approved Modification to the Approved Mining Plan with Progressive Mine Closure.

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(जी सी मीणा/ G C Meena)

क्षेत्रीय खान नियंत्रक/Regional Controller of Mines भारतीय खान व्यूरो/Indian Bureau of Mines

प्रतिनिपि सूचनार्थं'Copy for kind information to:

- The Director of Mines & Geology, Govt. of Karnataka, Bangalore, along with a copy of the approved Modification to the approved Mining Plan.
- The Director of Mines Safety, Directorate General of Mines Safety, Bellary Sub-Region, 31, Infantry Road, Cantonment, Bellary – 584104.
- 3. The Controller of Mines (SZ), Indian Bureau of Mines, Bangalore along with soft copy of the Modified Mining plan in CD form.
- Sri Sripad Pujar & Sri BVR Achar, Qualified Person, Rock Tech Enterprises, First Floor, Sapthagiri Enclave, College Road, Hosapete-583201, Bellary Dist, karnataka.

5. Mine file / Guard file

Encl: As above.

(जी सी मीणा/ G C Meena)

क्षेत्रीय खान नियंत्रक/Regional Controller of Mines भारतीय खान क्यूरो/Indian Bureau of Mines

CENTRAL EMPOWERED COMMITTEE

(CONSTITUED BY THE HON'BLE SUPREME COURT OF INDIA IN WRIT PETITION NO. 202/95 AND 171/96)

H Flaor, Chankaya Bhawan, Chankayapari, New Dellii - 21, Tel: 2161 0612 / 13, Fox: 2410 1925

F.No. 2-75/CEC/SC/2018-Pt.VII

Dated: 4th March 2020

To

The Chief Secretary Government of Karnataka Bangalore

Sub: Enhancement of permissible limit in respect of "Category-A" and "Category-B" mining leases and auctioned "C" Category Mine - Karnataka

Sir

Please refer to Government of Karnataka, Commerce & Industries Department letters No. E-Cl 41 MMM 2019 dated 18.2.2020 on the above subject. The CEC, after examining in detail the recommendations of the Technical Committee and report of the ICFRE and keeping in view the Hon'ble Supreme Court order dated 13.4.2012 and Judgment dated 18.4.2013, decision of CEC in the meeting held on 01.12.2015 and the direction in Judgement dated 14.12.2017 of the Hon'ble Supreme Court, hereby approves the revised permissible annual production in respect of following three mining leases as per the details given below:

SI. No.	Name of Lessee, ML No.	Current PAP (in MMT)	Recomme nded PAP (in MMT)	Remarks
1	M/s. Praveen Chandra, ML No. 2294	0.75	1.40	Based on dump capacity
2.	M/s. Vedanta Ltd., ML No. 2677	4.51	5,89	Based on dump capacity
3.	M/s Sri Kumaraswamy Mineral Exports Pvt. Ltd. ML No. 2141	1.48	1.64	Based on road capacity

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4.	M/s JSW Steel Ltd., (auctioned "C" Category Mine, ML No. 009, Old No. 2621)	0.50	0.94	Based on EC
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- The above approval is subject to the following conditions:
 - a) the State Government will ensure that the sum total of annual production from all the lessees does not exceed 28 MMT in District Bellary and 7 MMT in District Chitradurga and Tumkur.
 - b) in the event it is found that the sum total of annual production is exceeding the limits mentioned at (a) above the lease wise permissible annual production of all the operating leases will automatically stand reduced on pro rata basis against the approved PAP given in this letter in such a way that the actual annual production does not exceed 28MMT in District Bellary and 7MMT in District Chitradurga and Tumkur;
 - c) the State Government will ensure that all the respective lessees are having all the requisite statutory approvals; and

Yours faithfully

(Amarnatha Shetty) Member Secretary

Copy to:

- The Secretary (Mines), Government of Karnataka, Bangalore
- The Additional Chief Secretary, Forest, Ecology and Environment Department, Government of Karnataka.
- The Principal Chief Conservator of Forests, Aranya Bhawan, Bangalore.
- iv. Chairman, Monitoring Committee, Bangalore
- v. Controller of Mines (SZ), Indian Bureau of Mines. Bangalore
- vi. Director, Mines & Geology, Government of Karnataka, Bangalore
- vii. Secretary General, Federation of Indian Mineral Industries, New Delhi
- viii. FIMI, Southern Region, Bangalore
- ix. Concerned Lessees

Government of India
Ministry of Environment, Forests and Climate Change
(Forest Conservation Division)

Indira Paryavaran Bhawan, Alignaj, Jorbagh Road, New Delhi - 110003 Date: 30th December, 2014

To

The Principal Secretary (Forests), Government of Karnataka, Bangalore.

Sub: Renewal of mining lease over an area of 164.79 ha(161.54 ha for renewal of mining lease and 3.25 ha for approach road) of forest land in favour of M/s Sesa Sterlite Limited (Earlier known as M/s Sesa Goa Limited), Chitradurga in Nirthadi Reserve Forest, Holatkere Range, Chitradurga, Karnataka - regarding.

Sir.

I um directed to refer to the Government of Kamataka's letter no. No. FEE 91 FFM 2012 dated 23.02.2013 on above mentioned subject seeking prior approval of the Central Government under Section-2 of the Forest (Conservation) Act, 1980. After careful consideration of the proposal by the Forest Advisory Committee constituted under section-3 of the said Act, 'in-principle' approval was granted vide this Ministry's letter of even number dated 31.07.2013 subject to fulfilment of certain conditions prescribed therein. The State Government has furnished compliance report in respect of the conditions stipulated in the 'in-principle' approval and has requested the Central Government to grant final approval.

In this connection, I am directed to say that on the basis of the compliance report furnished by the State Government, vide letter no. no. FEE 91 FFM 2012 dated 4.08.2012 "final approval" of the Central Government is hereby granted under section-2 of the Forest (Conservation) Act, 1980 for renewal of mining lease over an area of 164.79 ha of forest land(161.54 ha for renewal of mining lease and 3.25 ha for approach road) in favour of Sesa Sterlite Limited (Earlier known as M/s Sesa Goa Limited). Chitradurga in Ninthudi Reserve Forest, Holalkere Range, Chitradurga, Karmalaka subject to fulfillment of the following conditions:

- Legal status of the diverted forest land shall remain unchanged.
- All conditions imposed by Hon'ble SC in W.P.(C No.562/2009 (Samaj Parivarrana & others) vs. State of Karnataka & others) including R&R Plan prepared by ICFRE, Safety Zone Plan, Other conditions imposed for re-opening of the mine, etc. shall be complled with.
- The User Agency shall pay the additional amount of NPV, it so determined, as per the final decision of the Hon'ble Supreme Court of India.
- 4. Wherever possible and technically feasible, the User Agency shall undertake by involving local community, the afforestation measures in the blanks within the lease area, as well as along the roads outside the lease area diverted under this approval, in consultation with the State Forest Department at the project cost.

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- The period of diversion of the said forest land under this approval shall be for a period coterminus with the period of the mining lease proposed to be granted under the Mines and Minerals (Development & Regulating) Act, 1957, or Rules framed there under, subject to a maximum period of 20 years.
- 6. User Agency either himself or through the State Forest Department shall undertake gap planting and soil & moisture conservation activities to restock and rejuvenate the degraded open forests (having crown density less than 0.40), if any, located in the area within 100m, from outer perimeter of the mining lease.
- 7. The User Agency shall undertake mining in a phased manner after taking due care for reclamation of the mined over area. The concurrent reclamation plan as per the approved mining plan shall be executed by the User Agency from the very first year, and an annual report on implementation thereof shall be submitted to the Nodal Officer, Forest (Conservation) Act, 1980, in the concerned State Government and the concerned Regional Office of the Ministry. If it is found from the annual report that the activities indicated in the concurrent reclamation plan are not being executed by the User Agency, the Nodal Officer or the Chief Conservator of Forests (Central) may direct that the mining activities shall remain suspended till such time, such reclamation activities are satisfactorily executed.
- 8. Following activities shall be undertaken by the user agency for the management of safety zone;
 - (a) User agency shall ensure demarcation of boundary of safety zone (7.5 meter strip all along the outer boundary of the mining lease area), and its protection by creeting adequate number of 4 feet high RCC boundary pillars inscribed with DGPS coordinates and deploying adequate number of watchers under the supervision of the State Forest Department.
 - (b) In case of the mining leases adjoining the habitation stretch of the boundary of the safety zone of the lease adjacent to the habitation/roads should be properly fenced by the user agency at the project cost to protect the vegetation /regeneration activities in the safety zone.
 - (c) Safety zone shall be maintained as green belt around the mining lease and to ensure dense canopy cover in the area, regeneration shall be taken in this area by the user agency at the project cost under the supervision of the State Forest Department.
 - (d) Afforestation on degraded forest land, to be selected elsewhere, measuring one and a half times the area under safety zone shall also be done by the user agency at the project cost under the supervision of the State Forest Department.
- 9. The User Agency shall implement the Resettlement and Rehabilitation Plan in case of displacement if any as per the Resettlement and Rehabilitation Policy of State Government in consonance with National R&R Policy, Government of India before the commencement of the project work and implementation. The said R&R Plan will be monitored by the State Government/Regional Office of MoEF&CC along with indicators for monitoring and expected observable milestones.
- The User Agency shall undertake de-silting of the village tanks and other water bodies located within five km. from the mine lease boundary so us to mitigate the impact of siltation of such tanks/water bodies, whenever required.



- 11. Following activities shall be undertaken by the User Agency at the project cost:
 - (a) Preparation and implementation of a plan containing appropriate mitigate measures to minimize soil erosion and choking of streams.
 - (b) Planting of adequate drought hardy plant species and sowing of seeds in the appropriate area within the mining lease to arrest soil erosion.
 - (c) Construction of check dams, retention/toe walls along the contour to arrest sliding down of the excavated material.
 - (d) Stabilize the overbunden dumps by appropriate grading/benching so as to ensure that the angles of repose/angle of waste dump at any given place is as per the R R plan approved by Horbie Supreme Court and its orders in WP(C) No 562 of 2009, and
 - (e) Strict adherence to the prescribed top toil management.
 - (f) Ample care shall be taken while reclaiming the mined area by employing suitable top soil management scheme and ensuring plantation of native species of the area.
 - (g) Stabilize the overburden dumps by appropriate grading/benching so as to ensure the angle of repose at any given place is less than 28 degrees

These activities shall be undertaken in consonance with the R&R Plan prepared by the ICFRE in WP(C) No. \$62/2009 & approved by CEC by the user agency under the supervision of the State Forest Department.

- The User Agency shall provide fuels preferably alternate fuels to the labourers and the staff
 working at the site so as to avoid any damage and pressure on the nearby forest areas.
- 13. The boundary of the diversed forest land shall be demarcated on ground at the project cost, by erecting four feet high reinforced cement concrete pillars, each inscribed with its serial number, forward and back bearing and distance from pillar to pillar in consonance with the orders / judgment passed in WP(C) No. 562/2009.
- The layout plan of the proposal shall not be changed without the prior approval of the Central Government.
- 15. The forest land shall not be used for any purpose other than that specified in the proposal.
- 16. The forest land proposed to be diverted shall under no circumstances be transferred to any other agency, department or person without prior approval of the Central Government.
- 17. No damage to the flora and fauna of the adjoining area shall be caused
- Any tree felling shall be done only when it is unavoidable and that too under strict supervision of the State Forest Department.

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- 19. The user agency in consultation with the State Government shall create and maintain alternate habitat/home for the avifauna, whose nesting trees are to be cleared in this project. Birds nests artificially made out of eco-friendly material shall be used in the area, including forest area and human settlements, adjoining the forest area being diverted for the project."
- All other conditions stipulated in the Stage-I approval for which the user agency has submitted undertakings shall be complied with.
- The User Agency shall submit the annual self-compliance report in respect of the above conditions to the State Government and to the concerned Regional Office of the Ministry regularly.
- Any other condition that the concerned Regional Office of this Ministry may stipulate, from time to time, in the interest of conservation, protection and development of forests and wildlife.
- The User Agency and the State Government shall ensure compliance to provisions of the all Acts, Rules, Regulations and Guidelines, for the time being in force, as applicable to the project.
- 24. Stage II approval shall be subject to in principle decision of the authority in the State Government in terms of Section 8 (3) of MMDR Act-1957 that in the interest of Mineral Development, it is necessary to renew the lease.

Yours faithfully

(M Railumge)

Assistant Inspector General of Foresta (FC)

Copy for favour of information to:

1. The Principal Chief Conservator of Forest, Government of Karnataka, Bangalore.

2. The Addl. PCCF (Central), Regional Office Bangalore.

3. The Nodal Officer (FCA), O/o the PCCF, Government of Karnataka, Bangalore.

 The User Agency (Sesa Sterlite limited, PB-43, Megalahalli office complex, Near Bheemasamudra Chitradurga, Karnataka-577501).

5. Monitoring Cell, FC Division, MoEF&CC, New Delhi.

6. Guard File.

(M. Raffamar) Assistant Inspector General of Forests (FC)



J-11015/1167/2007- IA. II (M) Government of India Ministry of Environment & Forests

Telefax: 011-24367267 e-mail: w.bharat@nic.in Paryavaran Bhavan, C.G.O. Complex. Lodi Road, New Dethi-110003 Dated: February 05, 2009

To

M's Sesa Goa Limited. Sesa Ghor, 20 EDC Complex. Patta. Panaji. Goa – 403 001.

Sub: Expansion of A. Narrain Iron Ore Mine (ML area 163.50 ha) from 2.50 to 6.0 MTPA at village Meghalahalli, in Taluk and Distt., Chitradurga, in Karnataka - reg. Environmental Clearance.

Sir.

The undersigned is directed to refer to your letter dated 03.11.2008, received by the Processing Division in the Ministry on 10.11.2008, of the above mentioned subject. The Ministry of Environment and Forests has examined the application.

- It has been noted that the proposal is for expansion of iron Ore mining from 2.5 to 6.0 MTPA. The lease area is 163.50 ha, which is in forest land. Forest clearance was obtained in July, 2005. Proposed expansion will be mainly vertically. Horizontal expansion would be over an area of 2.45 ha only. Out of total lease area of 163.50 ha, only 60.45 ha will be under mining during the plan period. An area of 19.57 ha will be kept for waste dump: 2.0 ha for Top soil storage. 2.0 ha for mineral storage; 4.0 ha will be used for infrastructure; 7.0 ha for roads; 7.88 ha for green belt and 50.60 ha will be reclaimed area. The lease area has undulating terrain ranging from 790 m to 984 m above MSL. The total mineable reserve of the are is 29.85 MT. Life of the mine at proposed rate of production will be 8 years. Method of mining will be open cast mechanised. Bhimasamudra Kere tank is located at a distance of about 6.5 km from the lease boundary. There are no rivers or perennial natlahs in the study area. There are no wildlife sanctuaries, national parks, biosphere reserves, heritage sites etc. within 10 km of the lease. Ultimate depth of mining will be at 735 m above MSL. Ground water table is at 700 m above MSL. Mining will not intersect water table even in future. Peak water requirement at the mine will be 554.5 KLD which will be met from harvested rain water and ground water sources. Solid waste of around 29.50 MT will be generated. These will be used for back-filling of the worked out pits. No relocation and rehabilitation of population will be involved. Mining plan (including progressive mine closure plan) has been approved by Indian Bureau of Mines on 19 08 2006. Public hearing was held on 25 10 2008. Cost of the project will be Rs 272.0 Crores.
- 3. The project has been considered in accordance with the provisions of the EIA notification issued by the Ministry of Environment & Forests vide S.O. 1533 (E), dated September 14, 2006.
- 4. Based on the information submitted by you, as at Para 2 above and others, the Ministry of Environment and Forests hereby accords environmental clearance to the above project under the provisions of EIA notification dated September 14, 2006, subject to the compliance of the following Specific and General conditions:

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B.V.R. ACHAR QUALIFIED PERSON

A. Specific conditions

- Environmental Clearance is subject to final order of the Hon'ble Supreme Court of India in the matter of Goa Foundation Vs. Union of India in Writ Petition (Civil) no. 460 of 2004, as may be applicable to this project.
- Environmental clearance is subject to obtaining clearance under the Wildlife (Protection) Act, 1972 from the Competent Authority.
- No two pits shall be simultaneously worked i.e before the first pit is exhausted and reclamation work completed, no mineral bearing area shall be worked.
- After exhausting the first mine pit and before starting mining operations in the next pit, reclamation and plantation works in the exhausted pit shall be completed so as to ensure that reclamation, forest cover and vegetation are visible during the first year of mining operations in the next pit. This process will follow till the last pit is exhausted. Adequate rehabilitation of mined pit shall be completed before any new ore bearing area is worked for expansion.
- Adequate buffer zone shall be maintained between two consecutive mineral bearing deposits.
- v) Primary survey of flora and fauna shall be carried out and data shall be submitted to the Ministry within six months before start of expansion activity.
- vi) Conservation plan for wildlife shall be prepared in consultation with the Chief Wild Life Warden for implementation within six months and before start of expansion activity. The plan shall consist of in-built monitoring and evaluation mechanism. Necessary fund for implementation of the same shall be separately allocated and shall not be diverted for any other activity.
- Zero waste mining concept shall be implemented either by putting up pelletisation plant or dispose off 100% low grade ores/fines to prospective buyers.
- Hydro-geological study of the area shall be reviewed annually. In case adverse effect on ground water quality and quantity is observed mining shall be stopped and resumed only after mitigating steps to contain any adverse impact on ground water is implemented. Specific hydro-geological shall be conducted at the end of mining plan period of the 5th year of mining, before proceeding to undertake mining in the 6th year. The report shall be submitted to the Regional Office of the Ministry.
- Fugitive dust generation shall be controlled. Fugitive dust emission shall be regularly monitored at locations of nearest human habitation (including schools and other public amenities located nearest to sources of dust generation as applicable) and records submitted to the Ministry.
- x) Shelter belt i.e Wind Break of 30 m width and consisting of at least 5 tiers around lease facing the school / agricultural fields (if any in the vicinity) shall be raised.
- A 50 m barner of no mining zone all along both the side(s) facing the nallah (if any) passing through the lease area shall be demarcated and thick vegetation of native

species raised. Status of implementation shall be submitted to the Regional Office of the Ministry on half yearly basis.

- xii) Need based assessment for the near by villages shall be conducted to study economic measures which can help in upliftment of poor section of society. Income generating projects/tools such as development of fodder farm, fruit bearing orchards, vocational training etc. can form a part of such programme. Company shall provide separate budget for community development activities and income generating programmes. This will be in addition to vocational training for individuals imparted to take up self employment and jobs.
- xiii) Land-use pattern of the nearby villages shall be studied and action plan for abatement and compensation for damage to agricultural land/ common property land (if any) in the nearby villages, due to mining activity shall be submitted to the Regional office of the Ministry within six months. Annual status of implementation of the plan and expenditure thereon shall be reported to the Regional Office of the Ministry from time to time.
- xiv) Maintenance of village roads through which transportation of ores are undertaken shall be carried out by the company regularly at its own expenses. The roads shall be black topped.
- Rain water harvesting shall be undertaken to recharge the ground water source. Status of implementation shall be submitted to the Regional Office of the Ministry within six months and thereafter every year from the next consequent year.
- xvi) Measures for prevention and control of soil erosion and management of silt shall be undertaken. Protection of dumps against erosion shall be carried out with geo textile matting or other suitable material, and thick plantations of native trees and shrubs shall be carried out at the dump slopes. Dumps shall be protected by retaining walls.
- xvii) Trenches / garland drains shall be constructed at foot of dumps and coco filters installed at regular intervals to arrest silt from being carried to water bodies. Adequate number of Check Dams and Gully Plugs shall be constructed across seasonal/perennial nallahs (if any) flowing through the ML area and silts arrested. De-silting at regular intervals shall be carried out.

Garland drain of appropriate size, gradient and length shall be constructed for both mine pit and for waste dump and sump capacity shall be designed keeping 50% safety margin over and above peak sudden rainfall (based on 50 years data) and maximum discharge in the area adjoining the mine site. Sump capacity shall also provide adequate retention period to allow proper settling of silt material. Sedimentation pits shall be constructed at the corners of the garland drains and desilted at regular intervals.

- xviii) Ground water in the core zone shall be regularly monitored for contamination and depletion due to mining activity and records maintained. The monitoring data shall be submitted to the regional office of the Ministry regularly. Further, monitoring points shall be located between the mine and drainage in the direction of flow of ground water shall be set up and records maintained.
- xix) Cultivable waste land shall be identified and fodder farming or other suitable productive use of waste land shall be taken up in phased manner. Status of implementation shall be submitted to the Regional office of the Ministry

- XX) Monitoring of soil samples for assessment of transformation to acidic state or contamination due to mining activity (as applicable) shall be regularly conducted and records maintained
- xxi) Transportation of ore shall be done by covering the trucks with tarpaulin or other suitable mechanism so that no spillage of ore / dust takes place. Transportation shall be done only during day time.
- Occupational health and safety measures for the workers including identification of work related health hazards, training on malaria eradication. HIV, and health effects on exposure to mineral dust etc. shall be carried out. The company shall engage a full time qualified doctor who is trained in occupational health. Periodic monitoring for exposure to respirable mineral dust on the workers shall be conducted and records maintained including health records of the workers. Awareness programme for workers on impact of mining on their health and precautionary measures like use of personal equipments etc. shall be carried out periodically. Review of impact of various health measures undertaken (at interval of five years of less) shall be conducted followed by follow up action wherever required.
- Top soil / solid waste shall be stacked properly with proper slope and adequate safeguards and shall be utilized for backfilling (wherever applicable) for reclamation and rehabilitation of mined out area. Top soil shall be separately stacked for utilization later for reclamation and shall not be stacked along with over burden.
- Over burden (OB) shall be stacked at earmarked dump site(s) only and shall not be kept active for long period. The maximum height of the dump shall not exceed 30 m, each stage shall preferably be of 10 m and overall slope of the dump shall not exceed 28". The OB dump shall be backfilled. The OB dumps shall be scientifically vegetated with suitable native species to prevent erosion and surface run off.

Monitoring and management of rehabilitated areas shall continue until the vegetation becomes self-sustaining. Compliance status shall be submitted to the Ministry of Environment & Forests on six monthly basis.

- Slope of the mining bench and ultimate pit limit shall be as per the mining scheme approved by Indian Bureau of Mines.
- Adequate plantation shall be raised in the ML area, haul roads, OB dump sites etc. Green belt development shall be carried out considering CPCB guidelines including selection of plant species and in consultation with the local DFO / Agriculture Department. Herbs and shrubs shall also form a part of afforestation programme besides tree plantation. The density of the trees shall not be less than 2500 plants per ha. The company shall involve local people with the help of self help group for plantation programme. Details of year wise afforestation programme including rehabilitation of mined out area shall be submitted to the Regional Office of the Ministry every year.
- Regular monitoring of ground water level and quality shall be carried out by establishing a network of existing wells and constructing new piezometers during the mining operation. The monitoring shall be carried out four times in a year pre-monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January) and the data thus collected shall be regularly sent to MoEF. Central Ground Water Authority and Regional Director, Central Ground Water Board.

- xxviii) Adequate air monitoring stations shall be installed in areas of human habitations near the mine and the results of ambient air quality shall be maintained and regularly submitted to the Regional Office of the Ministry.
- The waste water from the mine shall be treated to conform to the prescribe standards before discharging in to the natural stream. The discharged water water shall be regularly monitored and report submitted to the Ministry of Environment & Forests. Central Pollution Control Board and the State Pollution Control Board.
- Vehicular emissions shall be kept under control and regularly monitored. Vehicles used for transportation of ores and others shall have valid permissions as prescribed under Central Motor Vehicle Rules. 1989 and its amendments. Transportation of ore shall be done only during day time. The vehicles transporting ores shall be covered with a tarpaulin or other suitable enclosures so that no dust particles / fine matters escape during the course of transportation. No overloading of ores for transportation shall be committed. The trucks transporting ore shall not pass through wild life sanctuary.
- Prior permission from the Competent Authority shall be obtained for extraction of ground water, if any,
- xxxii) Action plan with respect to suggestions/improvements and recommendations made during public consultation/hearing shall be submitted to the Ministry and the State Govt within six months.
- XXXIII) A final mine closure plan, along with details of Corpus Fund, shall be submitted to the Ministry of Environment & Forests, 5 years in advance of final mine closure for approval.

B. General conditions

- (i) No change in mining technology and scope of working shall be made without prior approval of the Ministry of Environment & Forests.
- (ii) No change in the calendar plan including excavation, quantum of mineral and waste shall be made.
- (iii) Fugitive dust emissions from all the sources shall be controlled regularly. Water spraying arrangement on haul roads, loading and unloading and at transfer points shall be provided and properly maintained.
- (iv) Four ambient air quality-monitoring stations shall be established in the core zone as well as in the buffer zone for RPM, SPM, SO₂, NO_x monitoring. Location of the stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board.
- (v) Data on ambient air quality (RPM, SPM, S0₂, NO₄) should be regularly submitted to the Ministry including its Regional office located at Bangalore and the State Pollution Control Board / Central Pollution Control Board once in six months

- (v) Measures shall be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in operations of HEMM, etc. shall be provided with ear plugs / muffs.
- (vi) Industrial waste water (workshop and waste water from the mine) should be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May, 1993 and 31st December, 1993 or as amended from time to time. Oil and grease trap shall be installed before discharge of workshop effluents.
- (vii) Personnel working in dusty areas shall be provided with protective respiratory devices and they shall also be imparted adequate training and information on safety and health aspects.
- (viii) Provision shall be made for the housing the labourers within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, creche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.
- (ix) A separate Environmental Management Cell with suitable qualified personnel shall be set-up under the control of a Senior Executive, who will report directly to the Head of the Organization.
- (x) The project authorities shall inform to the Regional Office of the Ministry located at Bangalore regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.
- (xi) The funds earmarked for environmental protection measures shall be kept in separate account and shall not be diverted for other purpose. Year wise expenditure shall be reported to the Ministry and its Regional Office located at Bangalore.
- (xii) The project authorities shall inform to the Regional Office located at Bangalore regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.
- (xiii) The Regional Office of the Ministry located at Bangalore shall monitor compliance of the stipulated conditions. The project authorities shall extend full cooperation to the officer(s) of the Regional Office by furnishing the requisite data / information / monitoring reports.
- (xiv) A copy of clearance letter will be marked to concerned Panchayat / local NGO, if any, from whom suggestion / representation has been received while processing the proposal.
- (xv) State Pollution Control Board shall display a copy of the clearance letter at the Regional office, District Industry Centre and Collector's office / Tehsildar's Office for 30 days
- (xvi) The project authorities shall advertise at least in two local newspapers widely circulated, one of which shall be in the vernacular language of the locality concerned, within 7 days of the issue of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and also at web site of the Ministry of Environment and Forests at http://envfor.nic.in and a copy of the same shall be forwarded to the Regional Office of the Ministry located in Bangalore

- The Ministry or any other competent authority may alter/modify the above conditions or stipulate any further condition in the interest of environment protection.
- Concealing factual data or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1985.
- Any appeal against this environmental clearance shall lie with the National Environment Appellate Authority, if preferred, within a period of 30 days as prescribed under Section 11 of the National Environment Appellate Authority Act, 1997.
- The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act. 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act. 1986 and the Public Liability Insurance Act, 1991 along with their amendments and rules

Yours faithfully.

(W. Bharat Singh) Deputy Director

Copy to:

- Secretary, Ministry of Mines, Government of India, Shastri Bhawan, New Delhi.
- Secretary, Department of Environment, Government of Karnataka, Bangalore, 2
- Secretary. Department of Mines and Geology, Government of Karnataka, Bangalore, 3.
- Secretary, Department of Forests, Government of Karnataka, Bangalore, 4
- Chief Conservator of Forests, Regional Office (SZ), Kendriya Sadan, 4th Floor E&F, 5. Wings 17th Main Road, 1 Block, Koranmangala, Bangalore-560 034.
 Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-Cum-Office
- 6. Complex, East Arjun Nagar, New Delhi-110 032.
- Chairman, Karnataka State Pollution Control Board, Parisara Bhawan, 4th & 5th Floor, 7. 49, Church Street, Bangalore - 560 001.
- Member Secretary, Central Ground Water Authority, A2, W 3 Curzon Road B Barracks, K.G. Marg, New Deihi-110001.
- Controller General, Indian Bureau of Mines, Indira Bhavan, Civil Lines, Nagpur- 440 9
- District Collector, Chitradurga, Government of Karnataka. 10.
- El Division, Ministry of Environment & Forests, Paryavaran Bhawan, New Delhi. 11
- Monitoring File. 12.
- Guard File. 13.
- Record File. 14.

(W. Bharat Singh) Deputy Director



CERTIFIED TRUE COPY OF THE MINUTES OF THE BOARD MEETING OF VEDANTA LIMITED (FORMERLY KNOWN AS SESA STERLITE LIMITED) ("COMPANY") HELD ON OCTOBER 28, 2016

To appoint Mr. Sauvick Mazumdar, Chief Operating Officer - Iron Ore Business of the Company as the Owner of Mines under Mines Act. 1952 in place of Mr. DD Jalan.

"RESOLVED THAT that in supersession of Resolutions passed earlier in this regard, Mr. Sauvick Mazumdar, Chief Operating Officer – Iron Ore Business, be and is hereby appointed as the Owner of Mines with immediate effect in place of Mr. DD Jalan under Section 76 of Mines Act, 1952, for various Mining Leases in the name of the Company, as follows:

Name of Mining Lease	T.C. No.
Xirvol Culna	39 of 1955
Canca Galia Tolop	3 of 1954
Maindvolicho Sodo	69 of 1951
Gurmel	70 of 1952
Orasso Dongor	76 of 1952
Millem Dongor	38 of 1955
Cajumol	26 of 1955
Pirna E Nadora	32 of 1955
Maretta Soddo	6 of 1955
Macarxendo	9 of 1949
Gadia Sodo	126 of 1953
Botvadeacho Dongor	28 of 1951
Chireanchim Ambeacodil Dongurli	10 of 1949
A. Narrain Mines, Chitradurga	2677 (RML 2236)

RESOLVED FURTHER THAT the said Owner be authorized to sign application forms, notices, etc. as may be required for compliance under the Mining Laws, take all necessary steps in connection with mining operations and to appoint an agent."

For Vedanta Limited

Tarun Jain Whole-Time Director

Vedanta Limited (Formory Sesa Sterite Limited)
DLF Atra. Jacarenda Marg. DLF City Phase II. Gurgaon – 122 002. Horyana
T+91-124 4590000 www.vedantalimited.com

Registered Office: Sess Chor. 20 EDC Complex, Parts, Panal/ (Soo) - 403 001 CW. L13209GA1965PL0000044

B.V.R. ACHAR QUALIFIED PERSON

QUALIFIED PERSON



List of Directors as on 29.04.2015

SR. NO.	DIRECTOR'S NAME	DESIGNATION	PAN NO.	TEL. NO.	RESIDENTIAL ADDRESS
1	Mr. Navīn Agarwal	Executive Chairman	ACTPA4140J	022 66451000 (Office no.)	Vedanta, 75 Nehru Road, Vile Parle (E), Mumbai- 400099
2	Mr. Naresh Chandra	Independent Non- Executive Director	AAAPC1072G	011- 26897295 (Res.)	C-4/4053, Vasant Kunj, New Delh -110070
3	Mr. Ravi Kaht	Independent Non- Executive Director	AAIPK7999L	022- 22041123 (Res.)	114 6 NCPA Apartments, 11 th floor, NCPA Complex, Nariman Point, Mumbai-400 021
4	Ms. Lailta D. Gupte	Independent Non- Executive Director	AAEPG5696C	9821069170	Mhaskar Building, 153 C Matunga, Sir Bhalchandra Road, (Opposite Ruia College), Mumbal – 400 019.
:5	Ms. Anuradha Dutt	Independent Non- Executive Director	AAGPD5393M	011 - 47194400	78, Golf Links, New Delhi – 110 002.
6	Mr. Tarun Jain	Wholetime Director	AACPJ90893	022 66461000 (Office no.)	Vedanta, 75 Nehru Road, Vile Parle (E), Mumbal- 400099.
7	Mr. Din Dayal Jalan	Wholetime Director and Chief Financial Officer	АВНР/9120Е	011- 49166100 (Office no.)	DLF Atria, Jacaranda Marg, DLF City Phase II, Gurgaon- 122 002, Haryana
8	Mr. Thomas Albanese	Wholetime Director and Chief Executive Officer	BNCPA8714K	011- 49166100 (Office no.)	DLF Atria, Jacaranda Marg, DLF City Phase II, Gurgaon- 122 002, Haryana

For VEDANTA LIMITED

RAJIV CHOUBEY

29.04.2015

COMPANY SECRETARY & AVP- LEGAL

SRIPAD PUJAR QUALIFIED PERSON

Vedanta Limited (Formerly known as Sasa Starita Limited/Sasa Goa Limited)
Registered Office: Sesa Ghor, 20 EDC Complex, Patto, Panaji (Goa) - 403 001
T +91-832 246 0800 | F +91-832 246 0890 | Website: www.sesasterite.com
CIN: L13209GA1965PLC000044

B.V.R. ACHAR QUALIFIED PERSON

ML no. 2677

Photo ID of Nominated Owner





भारतीय विशिष्ट पहचान प्राधिकरण

भारत सरकार

Government of India

Enrolment No 1118/00115/90901

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SENSORES FOR



आपका आधार क्रमांक / Your Aadhaar No. :

2178 0914 5566

आधार - आम आदमी का अधिकार



आस्त्रा सरकार Government of India



Sauvick Mazumber DOS 1208/9075



2178 0914 5566

आधार - आम आदमी का अधिकार







स्चना

- अध्या पहचान का प्रतास है, जागरिकात का गाँगे।
- प्रत्यान का प्रताण ऑक्टमपुत प्रवाणीयरण द्वारा पाप्त करें ।

INFORMATION

- Audhant is proof of identity, not of citizenship.
- To establish identify, authenticate online.
 - अग्रात देश भर में मान्य है।
- अपन अविषय से सरकारी और गैर करकारी रोटाओं का लाम उत्तरने में उपयोगी होगा ।
- Audhour is valid throughout the country.
- Aadhaar will be helpful in availing Government. and Non-Government services in future .



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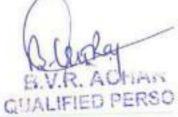
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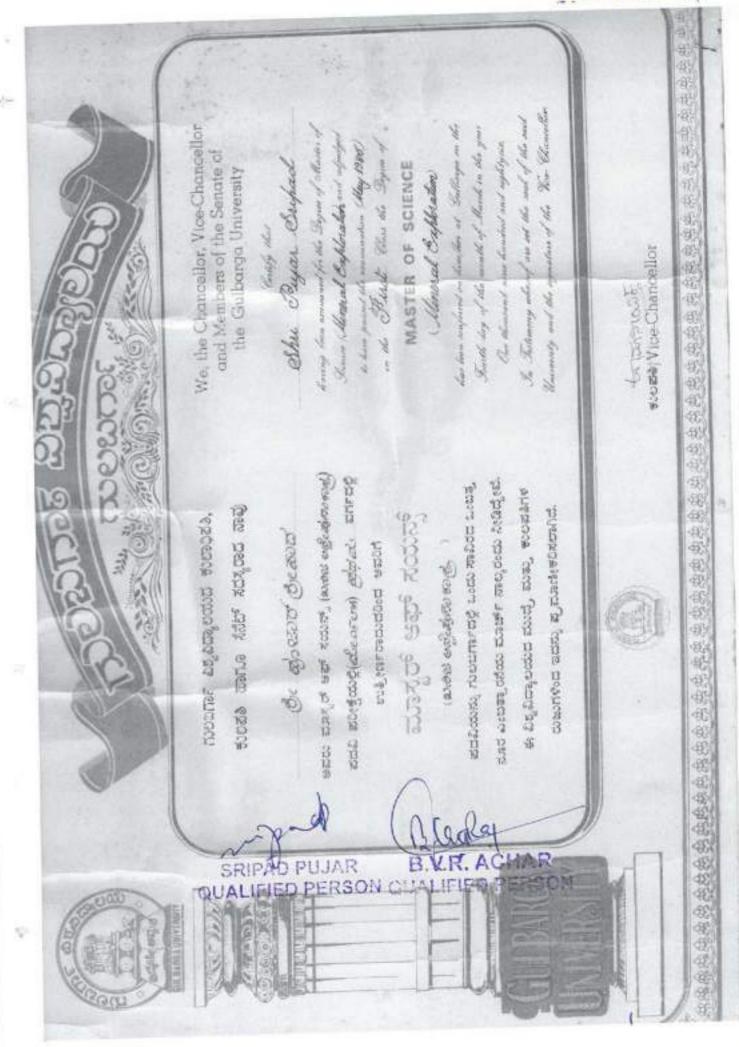






SRIPAD PUJAR QUALIFIED PERSON





ADMINISTRATIVE OFFICE

SELLARY DUT KARHSTAKA ZTATE TANKS - 0017-224 TANK NO. Sum: ADDREGATES, SANGUR. TOTAL SHEALEST

TOT/ 11, 193-94

38th June, 1993.

SERVICE CERTIFICATE

This is to certify that Mr. ERIPAD POING has been working in our Organization in the capacity of Junior Geologist since 3rd August, 1989. He is sincers and hard working. To the best of our knowledge his conduct and character are found to be good.

We wish him best of luck in his . endedwarz.

FOR TUNDACHADRA MINERALS LIDA.

In remitation

ASST. ADMINISTRATIVE CTFICER.

TELEX: 199-252 TPL IN

41

TIMBLO PRIVATE LIMITED

PHONE, 21106 IS LINES)

Registered Office KADAR HANZIL MARGAO - GOA

POST HOX 40, 34

403 601

19th July, 1989.

TEL. ADD,: TIMBLO MARGAO

TO WHOMSOEVER IT MAY CONCERN

THIS IS TO CERTIFY that Shri P. Shripad was in our employment as a Trainee Geologist at our Head Office Margao Goa, from 3.2.1987 to 31.1.1989 and as a Jr. Geologist from 1.2.88 to 18.7.1989.

During the period of his service we have found him to be diligent, honest and hard working and his services were found to be satisfactory.

He left our service of his own accord for better prospects.

We wish him a bright future career.

This certificate is issued at his request.

TIMBLO PRIVATE LIMITEL

(SATISH TIMBLO) Director.

P. Singal

PRINCIPAL .

S.B.S. Arts Science & Commerce College

SANDUR-583 179.

13



Vijayanagara Srikrishnadevaraya University, Ballari Director, Post Graduate Centre, Nandihalli-sandur

Ph. No(Off) : 08395-278236 : 08395-278226 e mail:directorpgcn@gmail.com web:www.vskub.ac.in

No: VSKUPGCN/ADM/2017-18/379

Date: 23.06.2017

To whomsoever it may concern

This is to certify that Shri Sripad Pujar has been awarded Master of Science (Mineral Exploration) during May 1985 from the PG Centre, Nandihalli under Gulbarga University, Karnataka, which is recognised under University Grants Commission.

Currently, this PG Centre, Nandihalli comes under the jurisdiction of Vijayanagara SriKrishnadevaraya University, Ballari, which is also recognised under University Grants Commission.

This is certified that the Master of Science (Mineral Exploration) is equivalent to Master of Science in Applied Geology.

Further, the Master of Science in Mineral Exploration started in the year 1976 was renamed as Master of Science in Applied Geology in 1993 with same curriculum.

DIRECTOR
Vijayanagara Srikrishnadava ava Inmersit*
O EG. Cantro, Nandiholla-Sandur

ಗುಲಬರ್ಗಾ ವಿಶ್ವವಿದ್ಯಾಲಯ Gulharga Hniversity



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SRIPAD PUJAR QUALIFIED PERSON B.V.R. ACHAR QUALIFIED PERSON





मिनरल एक्सप्लोरेशन कार्पोरेशन लिमिटेड (भारत सरकार का जधम) Mineral Exploration Corporation Limited

(A Government of India Enterprise)

संकोश्या कार्यास्त्र : वर्ष भागामारेष आंग्रेडक्टर पत्रण, शाईलेण्ड प्राईव शेंड से निमरी हिस्स, पामपुत - ५४० ००६ Repd. Office :Dr. Sabasahen Anthedwar Elievan, Highland Drive Road, Seminary Hills, Negpur-440 004. Telephonis :510010, 510318, 510317, 510419, 610141, 510142, 510143, 610111 Fax :081-0712-510133-510548 E-mail : mac: இ. nagpur-dot net in, website www.mectindia.com

Wor SMPS/ASH/Miss/2000/5469

Dated: 8-11-2001

BETWICE CERTIFICATE

This is to certify that their B.V.R.Rober Joined this Argenisation as Officer Traince(Scology) on 25.5.1990 and he resigned from the services of this Corporation with service from 10.0.2001, at the time of leaving the equipme has an halving the post of Semina Gaslogian in the ecole of map of 6.6000-200-8800-220-5275/- with a basic pay of 6.6025/-

SENTER MAINTEEN I FERS, A ADMIN. 1-HOD

TD.

Shel S.V.R.Achar. E.-im. Spolistet. PCCL, naRut.

Through : The Project Menager, PECL. Natur Project,



Vijayanagara Srikrishnadevaraya University, Ballari Director, Post Graduate Centre, Nandihalli-sandur

Ph. No(Off) : 08395-278236

: 08395-278226

e mail:directorogen@email.com web :www.vskub.ac.in

No:VSKUPGCN/ADM/2017-18/378

Date: 23.06.2017

To whomsoever it may concern

This is to certify that Shri Vajirajendrachar B. has been awarded Master of Science (Mineral Exploration) during May 1988 from the PG Centre, Nandihalli under Gulbarga University, Karnataka, which is recognised under University Grants Commission.

Currently, this PG Centre, Nandihalli comes under the jurisdiction of Vijayanagara SriKrishnadevaraya University, Ballari, which is also recognised under University Grants Commission.

This is certified that the Master of Science (Mineral Exploration) is equivalent to Master of Science in Applied Geology.

Further, the Master of Science in Mineral Exploration started in the year 1976 was renamed as Master of Science in Applied Geology in 1993 with same curriculum. Ocalous -

DIRECTOR Vignyamogara Szikrishnadeviz avs. Anmersity

50 EG. Centre, Mandillolli-Sanenr



To.

The Regional Controller of Mines Indian Bureau of Mines Southern Region Bangalore-560022

Dear Sir.

M.C.D.R. RETURNS

Sub: Submission of notice of boreholes in Form-I under rule no 47 (a) MCDR-2017 of M/s. Vedanta Limited, M.L. No. 2677

We are herewith enclosing here with the notice of boreholes in Form-I in respect of Mrs. Vedanta Limited, M.L. No. 2677. Kindly acknowledge the receipt of the same

Thinking you.

Yours faithfully:

For VEDANTA LIMITED.

For Vedanta Limited

Authorised Signatury (Mining Engineer)

Cope To

The Councillot General of Mayor, 1854 Nagrar

The Conveiler Of Mines, 1984, Navgour The Deputy Okenous DNAC, Chimalogic

and the court of the time of the first Ma d - 577 531

Date: 03/02/2020

QUALIFIED PERSON





ole

sesa goa iron ore

Date: 07/10/2017

The Dy. Controller of Mines Indian Bureau of Mines Yeswanthpur, Bangalore-560022

Subject: Our submission for violations on provisions of MCDR-2017 in respect of A Narrain Iron are mines (M. L. No 2677) over an extent of area of 160.59Ha in chitradurga district, Karnataka State.

Ref: Your good office letter no KNT/CTD/FE/4/BNG/Vol-lil/1756 Dt. 31" August 2017

Dear Sir,

Rule 11(1) The Modification to the approved Mining was approved vide letter No. 279/272/91/BNG/1111 dated 10/05/2016 for the period 2016-17. The deviations observed in mining operations vis-u-vis approved document are given below:

> (1) It was proposed to form' develop benches of 7m height in both the blocks, whereas the height of benches observed 8m to 9m against the proposed height of 7m at places

Submission:

As proposed to develop benches of 7m height for safer operations and safety berms of 1.5 to 2 meters are provided over and above bench height at edge of the benches. However actual height of the benches are kept at 7 meters only.

(2) It was proposed to dump waste in dump no.3, whereas it is observed that part of waste dumped in dump no.4.

Submission:

We have dumped waste only in dump number 3 as per approved mining plan. Waste dumping is not started in DUMP number 4.

Rule 13(2) The benches in overburden have not been sufficiently kept in advance. The width of benches observed less than the height at several places

Submission:

All working benches in overburden are kept with average width of 10 meters, as per approved mining plan.

Rule 35(2) A high revolution satellite images obtained from CARTOSAT-2 satellite LISS-IV sensor on the scale of cadastral maps, covering the mining lease and an area of two hilometres from the lease boundary has not been submitted as required under the rule.

VEDANTA LIMITED
Sear Gov has Da. Karsenkt
Madelsfeld Office Couples Decemberado, Chemisega, Natural s. 107 576

Supremed College Visionia Consult, in Obse, 27 wing their EX System Assent, and Propose Credule, Andless Date, System 485115, Std. CALLESS COMMUNICATION (SA

QUALIFIED PERSON

B.V.R. ACHAR QUALIFIED PERSON

1

Submission:

We were in continuous discussion with empired agency and it has been told that the CARTOSAT-2 satellite image for a particular day cannot be generated (date 31.03.2017). However the LISS-IV sensor will be submitted to your office by 30th Oct 2017. For the CARTOSAT-2 image we have send the request to the NRSC for acquisition of high-resolution of cloud free satellite image will submit the same to your office as early as possible.

45(5) a (1)

The production for the month of June, 2017 is reported as 254,261 Tones, against the target of 190,833t as per 12 months period. Further, the processed are is reported as 324,675t, which is more than the production figure indicated above.

Submission:

There is no restriction on monthly production. Total ROM production achieved till June 2017 is 12,30,078 MT which is well within CEC approved annual production capacity. Processed ore reported for the month is 251,264 MT, which is less than ROM production.

Rule 45(5)(b)(i) In annual return, part-1, st.no 12(lii), the lease area utilization at the end of the year, the area reclaimed/rehabilitated given us 23.24 ha, but the same is not found in ML area. Besides, the same area also not brought out in the approved mining plan document, if it is under taken in the ML area, which is not appropriate and correct. This need to be updated and corrected suitably in the annual returns and wherever is applicable.

Submission:

In annual return, part-1, sl.no 12(iii) the lease area utilization at the end of the year, it is shown under reclaimed/rehabilitated as 23.24 ha. Since plantation area is above the dump area so these area can be considered in waste dump area only instead of reclaimed/rehabilitated area. In subsequent annual and other returns these will be corrected.

We hope that above mentioned reasons will suffice. We will produce further documents if required. In view of the compliance mentioned above we request you to please withdraw the said violation and oblige.

Thanking you, Form Vedanta Ltd

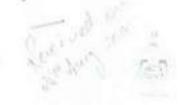
Vijayanand Chakrasali Mines Manager



Copy for Information to:-

1. The controller of Mines (SZ), IBM, Bangalore

 The Director, Department of Mines and Geology, Govt. of Karnataka, Khanija Bhavan, Race Cource Road, Bangalore 560001.



OFFICE OF THE REGIONAL CONTROLLER OF MINES



Tel No 180 24111-02 Fax No 080 2327-281 Front III on hampione a denigor in

29. Industrial Suburb, II Stager Lumber Road, Consegurationiva Yestivantper, Bangalone-560 022

No KNI CIDITI - LINGVOLIV / 15-28

Distoid: 13/0/2018

Sfm. Samik Macarolar, Nomenaed Owner Men Vedmus Linutes Sess Ghar, 20 UDC Complex, Patto Panjini, Goa, Goa, 405 001

Subject: Violation of provisions of MCDR 2017 in respect of A Narram (Vallanta) iron Ore. Misse (M.L. No. 2017) of Mr. Vedanta Ltd., over an extent of 161.54 not us per CEC), in Megaluballi Village, Holofkera Taluk, Chitraduran district, Kamanaka State... Reg.

Sir.

The following provinions of Mineral Conservation and Development Rules 2017 were found violated in your above mine during the inspection on 30/05/2018 by undersigned in the presence of Mines Manager S/Shri Y.M. Mahesh Minny Engineer, Somshekhar Dhoddunde Geologia.

Rule It was proposed in the Modification & Review of Mining Plan approved vide letter No. 11(1) 279/272/91/BNG/24 to 29 dated 23/3/2018 for the period 2018-19 to 2021-22. The deviations observed in mining operations vis-a-vis approved document are given below:

The proposed development & production as per the year 2017-18 & 2018-19, given in plan & sections of plate No. (IH/a & b), to develop the benches on the southern end of the south block with bench height of 7m & width of more than 8m, but on the day of inspection, it was observed and found that the benches towards SSW side found all the benches have been broken and collapsed without any systematic benches as shown in the plate, thereby caused working in contrary to the approved document. Thus the violation of unsystematic workings has been observed.

- 02. In this cosmoction, it is brought to your notice that the above violations considere an offence punishable under Rule 62 of Mineral Conservations and Development Rules, 2017.
- 03. You are, therefore, advised to rectify the above violations immediately and incimate the position to this office within 45 (Forty Five) days from the date of insue of this letter.

Yours furnishly

(C. Parameshwaran) Deputy Controller of Mines Indian Bureau of Mines

Page 1 of 2



Date: 04.09, 2018

To.

The Regional Controller of Mines Indian Burson of Mines Southern Region Europalore-560022

Sub: Our submission for violation on provision of MCDR 2017 in respect of A.Nansin Iron. Orc. Mine. (M.L.: No. 2677). over an extent of 161.54. Ha in Chitedorga district, Kamataka State.

Ref: Your good office latter No: ICNT/CTD/FE-4/BNG/Vol-IV/1538 dated 13-08/2018.

Dear Sir.

- Rule 11(1) It was proposed in the Modification & review of Mining Plan approved wide letter.

 No. 279/272/91/BNG/24 dated TM03/2018 for the period 2018-19 to 2021-22.

 The deviations observed in mining operations vis-5 vis approved document are given below:
 - (I) The proposal development and production as per the year 2017-18 and 201619, given in plan 7 sections of plane NOA(III) & b), to develop the benches an
 the southern end of the south block with bench height of 7m & width of more
 than lim, but on the day of inspection, it was observed and found that the
 benches towards SSW side found all the benches have been broken and
 cullipsed without any systematic benches as shown in the plate thereby council
 working in contrary to the approved document. Thus the violation of
 unsystematic working has been observed.



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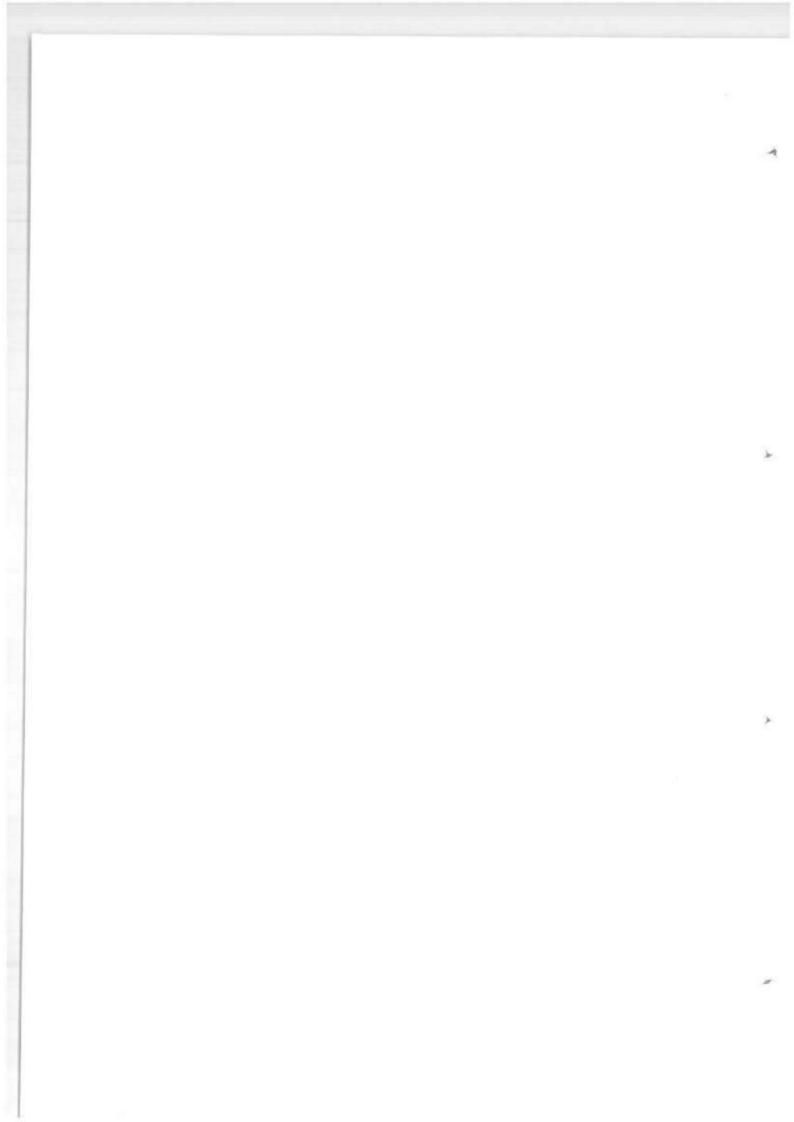
Affine SAW state of pictures require entiring men, creatingment is remembered in advant all the benefits which include blooding to top hard locative bracket and exceeding in suff distribe states. Therefore storing more field was benefitive as all those were requirementally in improved storing. We have developed that near in optionals measure by maintaining all verying from height of 7 as and width of once there if or an given in any premised beliefs of the fact the gase 2017-12 and 2017-19. We have attached required placements of the correction area more presented beliefs of the correction of the co

We harstly expect you to pitter withdraw the mid victoring and obliga-

Tending you,
Since Mediate,
For VEDANTA LIMITUM.
For VEDANTA LIMITUM.

Manager - Mitting

Pillion Stancers







BRET SYSTE /GOVERNMENT OF INDIA बान मंत्रातय/ MINISTRY OF MINES शास्त्रीय क्षमा स्पूरी ANDIAN BUREAU OF MINES शेचीय शाल निर्यमम महयोसफ/ OFFICE OF THE REGIONAL

CONTROLLER OF MINES

फेक्स: (080) 23371827 / 23373287 #(MTV): 080-23371027 / 23375366/67 Final ID: : vo. bougalore@Bon.gov.in.

ਲੋਂ,Letter No: KNT/CTD/Fe-4/BNG/Vol-IV

19, इंडरिट्यार सबर्व ।। स्टेज,, तुमक्र रीड, शीरगृंटापाल्या येशवंतपुर, बॅगामुच -560022

विनांचा:29.07.2019

3 0 JUL 2019

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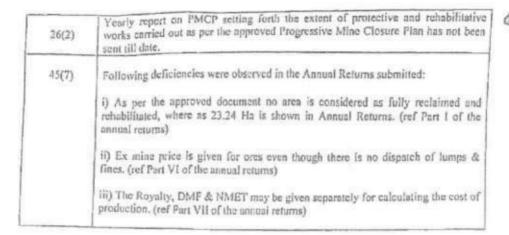
Shri. Sauvict Mazumdar, Mainlanted Owner, Sesa Ghor, 20EDC Complex. Patto Panjim Goa , Gos-103001

PERG/Sub : Violation of provisions of Mineral Conservation and Development Rules, 2017 in respect of your of Vedania Limited (ML-2677) over an assa of 160.59 He Jocated in Chitradurga. district of Kometaka State.

महोद्*या*/Str.

The following provisions of the Mineral Conservation & Development Rules 2017 were found violated in your above mine during the inspection carried out by the undersigned along with Shri K. Chanterjee, JMO in presence of, Shri. Fadmaraja T. - Mining Engineer and Shri. Somshekhar Dhodhunde - Geologist en 05.07.2019,

Rule	Nuture of violations observed
11(1)	Modified RMP with PMCP was approved vide letter no.279/272/91/BNG/24 dated 23.03.2018 for a period of 2018-19 to 2021-2022. The deviation observed in mining operation vis-s-vis approved document are given below
	 It was observed that the production & development plan was deviated from the proposal towards Southern side in between Section Line 3A-3A' to 5A-5A'.
	 ii) It was noticed that silicous ere had not been worked out in between section lin section ZA-7A* to 9A-9A*, thus resulting in no generation of mineral reject an lowering of stripping ratio.
	iii) Retaining wall was not constructed as per the approved document against the proposal of 409 Mts.



02. In this connection it is brought to your notice that the above violations constitute an offence punishable under Rule 62 of MCDR 2017. Further, the violation of Rule 11(1) may also attract provisions of Rule 11(2) of MCDR, 2017 regarding suspension of mining operations till the compliance of violations.

03. You are advised to rectify/explain the above violations immediately and intimate the position to this office within 45 (Forty Five) days from the date of issue of this letter.

अवदीय/Yours faithfully,

(अरुण कुमार) उप खान नियंत्रक भारतीय खान स्यूरो

प्रतिलिपि सूचनार्थं /Copy for kind information to:

1. The Controller of Mines (SZ), Indian Bureau of Mines, Bangalore,

 The Director, Department of Mining & Geology, No.49, Khanijabhayan, R.C. Road, Bangalore-560 001

> उप खान नियंत्रक भारतीय खान व्यूरो



Date: 07.09, 2019

The Regional Controller of Mines Indian Bureau of Mines Southern Region Bangalore-560022

Subject: Our submission for violations on provisions of MCDR-2017 in respect of A Narrain Iron are mines (M. L. No 2677) over an extent of area of 160.59Ha in Chitradurga district, Kamunika State.

Ref: Your good office letter no KNT CTD FE-4 BNG/Vol-IV 157 Dt. 30th July 2019

Dear Sir.

- Rule 11(1) Modified RMP with PMCP was approved vide letter no.279/272/91/BMG/24 dated 23.03.2018 for a period of 2018-19 to 2021-22. The deviation observed in mining operations vis a vis approved document are given helms:
 - It was observed that the production and development plan was deviated from the proposal towards southern side in between section line 3A-3A' to 5A-5A'.

Submission:

The modification in proposals of production & development work at sections 3A-3A* to 5A-5A* for the year 2019-20 is made in latest modified approved mining plan (letter no 279/272/91/BNG dated 19 8 2019).

 It was noticed that siliceous ore had not been worked out in between section line section 2A-7A' to 9A-9A', thus resulting in no generation of mineral reject and lewering of stripping ratio.

Submission:

The proposals of production & development work at sections 7A-7A' to 9A-9A' is made in latest modified approved mining plan (letter no 279/272 91/ BNG dated 19/8/2019). The parking yard and workshop will be removed in the year 2019-20 simultaneously as benches are progressing. Working in this part of the pit is already started; photographs of the same are attached as ANNEXURE-1 for reference. This part of working is necessary to facilitate the backfilling areas in next plan period.

VEDANYA LIMITED

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 Retaining wall was not constructed as per the approved document against the proposal of 409 mts.

Submission:

With reference to approved mining plan the area identified for construction of retaining wall was 409 mts i.e. 168 mts in dump3 and remaining 241 mts was proposed in new office area. Out of this 168 mtrs is already constructed in dump 3 area and reaming construction is proposed in latest approved mining plan.

Rule 26(2) Yearly report on PMCP setting forth the extend of protective and rehabilitative work carried out as per the approved Progressive Mine Closure Plan has not been submitted till date.

Submission:

Soft copy of yearly report of PMCP returns was submitted to your good office through email dated 29.06.2019 to recombine a rediffmail.com (Attached as ANNEXURE-2), hard copy of the PMCP returns is also sent to your good office on the same date. We are attaching here with copy of email (Attached as ANNEXURE-2) and copy of PMCP returns (Attached as ANNEXURE-3) for your ready reference.

Rule 45(7) Following deficiencies were observed in the annual Returns submitted;

 As per the approved document no area is considered as fully reclaimed and rehabilitated, whereas 23.24 ha is shown in annual returns. (refer part I of annual returns)

Submission:

In annual return, part-1, sl.no 12(iii) the lease area utilization at the end of the year, it is shown under reclaimed rehabilitated as 23.24 ha. Since plantation area is above the dump area so these areas can be considered in waste dump area only instead of reclaimed rehabilitated area. In subsequent annual and other returns these will be corrected.

 Ex-mine price is given for ores even though there is no disputch of lumps & fines. (ref Part IV of the Annual Returns)

Submission:

Annual returns part IV, will be referred back and corrections in Ex-mine price for the non dispatched lumps and fines will be corrected accordingly.

VEDANTA LIMITED

Sess Gas Iron Gre, KarnstetuNo 15, SMS Chambers, 1st Floor, Santay Road, Seceshivaseper, Bengatory - 550080 X; 039238 72755 t www.secagouronord.com.
Registered Office: Visionia Cimend, 1st Floor, 'C' wing, Unit 103, Corporate Avenue, Atol Projects, Chalaia, Ancheri (East), Membai 400093, Materialitica, India
ON: ±13265MH18657U2291394



 The Royalty, DMF & NMET may be given separately for calculating the cost of production. (ref part VII of the annual returns)

Submission:

Royalty on dispatched material is paid by the buyer therefor it is not considered as part of our cost of production. There is no option to mention DMF and NMET separately in cost of production in online annual return form, therefor it is mentioned together into others section.

We hope that above mentioned reasons will suffice. We will produce further documents if required. In view of the compliance mentioned above we request you to please withdraw the said violation and oblige.

FOR VEDANTA LIMITED

Moneger - Mining Vijayanand Chakrasali Mines Munager Lorm Vedanta Ltd

Copy for Information to:-

1. The controller of Mines (SZ), IBM. Bangalore

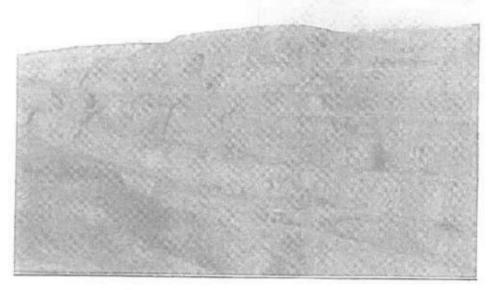
 The Director, Department of Mines and Geology, Govt. of Karnataka, Khanija Bhavan, Race Cource Road, Bangalore 560001. To.



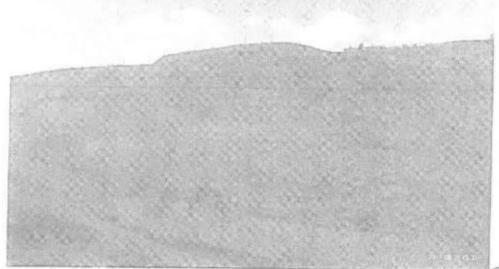
VEDANTA LIMITED

ANNEXURE-1

PIT photos of South Block, footwall side section 7A-7A' to 9A-9A'



Pit position during mine inspection on 05.07,2019



Pit position after starting of operations as on 19.08.2019



ANNEXURE-2

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29th June 2019

THE PROMPETO

To,
The Regional Controller of Mines
Indian Bureau of Mines,
Industrial Estate, Goruguntanpalya,
Yeshwantpura
Bangalore 22

Subject: Report on Reciamation and Rehabilitation carried out in accordance with the proposals in approved PMCP and FMCP for the year 2018-19 for Vedanta Limited Iron Ore Mine of M/s Vedanta Limited (ML: 2677) situated in Chitradurga, Karautako.

Respected Sir,

With reference to the above subject, we are herewith submitting the information on Reclamation and Rehabilitation carried out in accordance with the proposals in approved PMCP and FMCP for the year 2018-19 for Vedanta Limited from Ore Mine of M/s Vedanta Limited (ML: 2677) situated in Chitradurga, Karnetake.

Thanking You. For Vedants Limited

FOR VEDANTA LIMITED

Managar - Mining

Authorized Signatory

from !

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Englosures:

- 1. Duly filled "Format- B".
- 2. Air Monitoring Results as Annexure I
- 3. Water Monitoring Results as Annexura II
- 4. Noise level Monitoring Results as Annexure III



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संग्रेय काम विवास काशोलय OFFICE OF THE REGIONAL CONTROLLER OF MINES

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STREET STREET Violation of provincious of Stancial Conservation and Development Roles, 2017 in respect of your of Violatia Limited (Street) and area of 190.59 The meaning in Chipatographics of Katharaka State.

FE 104 NO

The following proceedings of Mineral Conservation and Development States 2015, were found undered in your afform time during the inspection on 05.7.2019 by set Arian Komar Deputy Controllered Miras and communicated to you wide this uffice regressed infer of even musber during most 2019 gaving your a period of 45 (Forty First), days time for multiparties of the same & software during the position corried on the undersigned days 105.71.2019.

Hinte	Nature of violations observed
	Monthed SCAP with PMCP was approved vide lines in 270/27200 (force) authors 23.03.2038 for a period of 2018-19 to 2021-2022. The deviation observed in mining operation colors in approved document are given ticken.
	is it was observed that the production At development plan was documed from the proposal towards Southern side in between Section Line 3.3-3.3 at 3.4-5.4.
	10 It was noticed that silicons one had not been worked one or between section line sentence "Art's," to 0.5 set," thus resulting on an ignicitation of inneural raises and forecasts of strepping ratio.

- 02. Fit thate you have not complied the pointed out violation and the suply received from you vide your letter dated 07/00/2019 has been examined and is not found satisfactory in respect of Rule 13(3).
- 03. It is mean brought to your notice that these violations constitute an offence punishable under rule 62 of MCDR 2017. On not compliance of the above provisions of MCDR 2017, the mining operation can be inspended under the rule 11/21/of the above provisioned rules.
- 94. You are therefore, directed to show cause within a period of 30 attory) days from the date of issue of this larger as to why your more should not be impended for the above offence.
- us, there were that no further netter will be given to you in this regard.

and way yours faithfully.

ाने से होणा अंतेम खान नियस्क भारतीय काल स्पृत

untill auser a spy for kind information to

- L. The Controller of Stimes (SZ), Indian Burgon of Shines, Bengalon.
- The Effector, Department of Mining & Overlegy, No. 19 K.hampablacan, R.t. Road, Burgalone Society.

हेत्रीय खात क्रियपह भारतीय खात व्यक्त



Date: 03.01, 2020

To The Regional Controller of Mines Indian Bureau of Mines Southern Region Bangalore-560022

Dear Sin

Subject: Violations on provisions of MCDR-2017 in respect of Vedanta Limited (M. L. No 2677).

over an area of 160.59Ha in Chitradurga district, Karnataka State.

Ref: Your good office letter no KNT/CTD/FE-4/BNG/Vol-IV/917 Dt. 11th December 2019

Rule 11(1) Modified RMP with PMCP was approved vide letter no.279/272/91/BMG/24 dated 23.03.2018 for a period of 2018-19 to 2021-22. The deviations abserved in mining operations vis a vis approved document are given below:

 It was observed that the production and development plan was deviated from the proposal towards southern side in between section line 3A-3A' to 5A-5A'.

Submission:

Due to presence of Limonitic Ore Bench we faced buge quality issues. Due to quality issue we had alightly deviated from approved plan in the section 3A-3A' to 5A-5A'. However same has been submitted to your good office for modification. The modification in proposals of production & development work at sections 3A-3A' to 5A-5A' for the year 2019-20 were approved in latest modified approved mining plan (letter no 279/272/91/ BNG dated 19/8/2019). Currently working is done as per latest approved mining plan without any deviation.

it was noticed that siliceous are had not been worked out in between section line section 7A-7A' to 9A-9A', thus resulting in no generation of mineral reject and lowering of stripping ratio.

Submission:

The proposals of production & development work at sections 7A-7A' to 9A-9A' is made in latest modified approved mining plan (letter no 279/272/91/ BNG dated 19/8/2019). We have started working in this area as per the approved production and development plan for FY 2019-20. Till date 6010 tonnes of siliceous are is produced from the above said sections. By end of FY 2019-20 proposed annual production quantity of siliceous are will be produced.

(A) -1-10

VEBANTA LIBARTED

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We hope that above mentioned reasons will suffice. We will produce further documents if required. In view of the compliance mentioned above we request you to kindly withdraw the said show cause and oblige.

FOR VEDANTA LIMITED

Managar - Mining Wjayanand Chakrasali

Mines Wanager

Form Vedanta Ltd

Copy for Information to -

1. The controller of Mines (52), IBM, Bangalore

2. The Director, Department of Mines and Geology, Govt. of Karnetaka, Khanija Bhavan, Race Course Road, Bengalore 560001. To,

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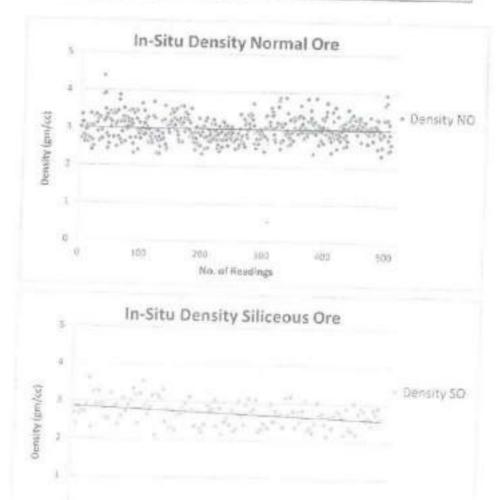
REPORT NO. (16031001A)

Date: 17.09.2015

PO No.: \$500011560 dated 11.12.2015

Insitu Bulk density test and chemical analysis report at ANM Mines

Ore Type	Density (gm/cc)	No. of Readings
Normal Ore	3.00	508
Siliceous Ore	2.70	126



No. of Readings

SRIPND PUJAR QUALIFIED PERSON

100

B.V.R. ACHAR UALIFIED PERSON Report No: 16042003D6





Page N*: 1/ 1

DATE: 02.03.2016

INSPECTION REPORT

REF: IN/HOS/MIN/201500040/1 CARGO DESCRIBED AS

SELLER

PLACE & DATE OF ATTENDANCE

Iron ore (ROM) M/s. Vedanta Ltd.

At A. Narrain Iron ore Mines ML No 2677 (As informed by Vedanta.)

on 23" February 2016

In accordance with the instructions received from our principal, M/s. Vedanta Ltd, we have attended the recovery test and chemical analysis for Iron ore flost material and the details are as under

SAMPLING / SAMPLE PREPARATION:

Manual sampling was carried out as per mutual agreed SOP during the course of opening of pits and requisite number of increments was collected for recovery test and chemical analysis. Sample processed further to obtain representative composite sample. Total two sample packets were prepared and sealed our monogram SGS-05. One sealed sample packet was submitted to our laboratory and remaining one sample is retained by us for record. The recorded sample will be retained by us for a period of two months until and unless definite instructions to the contrary are received in the mean time

ANALYSIS:

One composite sample analysed our In-house laboratory. For each pit the results obtained are as under-

Fell, SiO2 A/2O3 P. Mn as per IHM 01 and 3 as per (\$ 1493 (Part-1) and size test conducted as per (\$ 1507 -2013)

Chemical Composition (on dried basis) RESULTS

-	CONTRACT PROTECTION AND ADDRESS OF	Recovery 1	est of Iron	ore			
. Wt %	SIZE	Fe%	Mn%	SiO2%	AI203%	P%	5%
1.78	+40mm	61.49	2.82	2.91	4.11	0.236	0.011
31.11	+20mm	37.85	0.39	1.75	3.77	0.425	0.011
20.89	+10mm	\$6.85	1.18	3.66	6.32	0.204	0.013
13.78	+6mm	55.91	1.58	5.25	2.8	0.105	0.009
52.44	-6mm	53.83	1.07	1.76	3.0	0.136	0.012

The above reflects our findings at once and blace of inspection. This peroficiale does not relieve Selling-Suppliers from their committeel responsibilities. not does projective busine right of claim towards Seller-Supplier for compensation for any apparent another hidden defeats not detected during our random impedition or becurring thereafter.

The morani sampling method was agreed with the SUIS Principal, as sampling by more reliable evaluate that provide probability somples was not possible. The Histor of this document is countried that collected MANUAL conglish of this type do cut satisfy the minimum requirements for probability sampling, and as fuch cannot be used to draw a attacon inferences such as practice, attackers error at this

Stockpile sampling is the least preferred of compting for obtaining a maly representative earlight. Due to the trimitations of the sampling medical and firmed access to the eroid volume of the cargo, the camples collected will not be representative of the orbits cargo but only that pot eccessive and elempted. SGS accepts on faithfully for the corresposaces of any action taken or not taken one of this report.

For SBS INC

SGS India Private Limited

SGE House 48 Adi Shankaracharya Marg Vikhool (VV), Mumbai 400 083 L +91 22 5540 httlf f. +91 22 6640 8833

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QUALIFIED PERSON

QUALIFIED PERSON

Report N°: 16042003D7





Page N*: 1/1

DATE: 02.03.2016

INSPECTION REPORT

REF: IN/HOS/MIN/201500040/1

CARGO DESCRIBED AS SELLER

PLACE & DATE OF

ATTENDANCE

Iron ore (ROM) M/s. Vedanta Ltd.

At A. Narrain Iron ore Mines ML No 2677 (As informed by Vedanta.) on 23th February 2016

In accordance with the instructions received from our principal M/s. Vedanta Ltd, we have attended the recovery test

and chemical analysis for Iron ore float material and the details are as under: SAMPLING / SAMPLE PREPARATION:

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ANALYSIS:

One composite sample analysed our In-house laboratory. For each pit the results obtained are as under-

Fe. SiO2 Al2O3 P Mn as per IHM 01 and S as per IS 1493 (Part-1) and size test conducted as per IS 1607 -2013

Chemical Composition (on dried basis) RESULTS

		Recovery 1	est of Iron	ore			
Wt %	SIZE	Fe%	Mn%	SiO2%	Al203%	P%	S%
5.45	+40mm	58.42	0.68	5.86	3.89	0.3	0.014
15.45	+20mm	55.75	5.2	2.42	2.32	0.104	0.013
23.21	+10mm	59.96	1.11	3.84	3.13	0.326	0.013
17.87	+6mm	56.87	2.81	5.48	2,6	0.086	0.014
38.02	-6mm	57.86	2.47	2.22	3.02	0.179	0.012

The above reflects our findings at time and place of inspection. This certificate does not relieve Sellers/Suppliers from their contractual responsibilities. nor does prejudice buyer's right of claim towards. Seller/Supplier for compensation for any apparent and/or hidden defects not detected during our random inspection or occurring theseafter.

The manual sampling method with agreed with the SGS Principal, as sampling by more reliable methods that provide probability samples was not possible. The Holder of this document is cautioned that collected MANUAL samples of this type do not satisfy the minimum requirements for probability sampling, and as such cannot be used to draw statistical inferences such an precision, standard error or bias

Stockpile sampling is the least proformed of sampling for obtaining a truly representative sample. Due to the limitations of the sampling method and finaled access to the entire volume of the cargo, the samples collected will not be representative of the entire cargo but only that part accessible and sampled. SGS accepts no liability for the consequences of any action taken or not taken priore basis of this report.

For SGS INC

SGS India Private Limited

SGS House 48 Adi Shankaracherya Marg Vikhroli (W), Mumbai 400 083 t: +91 22 6640 8888 f +91 22 6640 8833

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Report No: 16042003D8





Page Nº: 1/1

DATE: 02.03.2016

INSPECTION REPORT

REF: IN/HOS/MIN/201500040/1

CARGO DESCRIBED AS

SELLER PLACE & DATE OF

ATTENDANCE

Iron ore (ROM) M/s. Vedanta Ltd.

At A. Narrain Iron ore Mines ML No 2677 (As informed by Vedanta.)

on 23th February 2016

In accordance with the instructions received from our principal, M/s. Vedanta Ltd. we have attended the recovery test and chemical analysis for Iron ore float material and the details are as under: SAMPLING / SAMPLE PREPARATION:

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Chemical Composition (on dried basis) RESULTS

		Recovery 7	est of Iron	ore			
Wt %	SIZE	Fe%	Mn%	SiO2%	A1203%	P%	5%
17.44	+40mm	57.37	5.11	0.58	1.78	0.218	0.012
17.89	+20mm	56.72	5.77	0.89	1.78	0.178	0.013
23.23	+10mm	57.84	4,45	0.77	1.93	0.229	0.014
16.88	+6mm	56,58	5.93	0.85	1.22	0.173	0.016
24.56	-6mm	55.75	6,26	0.82	1.78	0.148	0.015

The above reflects our findings at time and place of inspection. This confident does not relieve Selfers/Suppliers from their contractual responsibilities. nor does prejudice buyers right of cham towards Seller/Supplier for compensation for any apparent ancier hidden defects not detected during our random inspection or occurring thereafter.

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SGS India Private Limited

SGS House 4B Adi Shankaracharya Maro Vikhroli (VV), Mumbai 400 083 t: +91 22 6840 8888 f +91 22 6640 8833

For SGS INCLE PVT. LTD.

Report Nº: 16042003D9





Page Nº: 1/1

DATE: 02.03.2018

INSPECTION REPORT

REF: IN/HOS/MIN/201500040/1

CARGO DESCRIBED AS

SELLER

PLACE & DATE OF

ATTENDANCE

from one (ROM)

M/s. Vedanta Ltd.

At A. Narrain Iron ore Mines Mt. No 2677 (As informed by Vedanta)

on 23" February 2016

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ANALYSIS:

One composite sample analysed our in-house laboratory. For each pit the results obtained are as under-

Fig. SiO2.Al2O3.P.Mn as per IHM 01 and S as per IS 1493 (Part-1) and size test conducted as per IS 1607 •2013.

Chemical Composition (on dried basis) RESULTS

		Recovery 7	est of Iron	ore			
Wt %	SIZE	Fe%	Mn's	SI02%	AI203%	P%	5%
25.22	+40mm	60.43	0.33	1,31	5.15	0.117	0.013
18.92	+20mm	57.38	1.07	0.75	3.36	0.124	-
17.12	+10mm	58.21	0.82	0.5	4.28	0.161	
9.00	+6mm	58:41	1.07	0.87	5.25	0.144	the state of the s
29.74	-Smm	55.37	1.07	0.95	4.28	0.174	0.013

The above reflects our findings at time and place of inspection. This sent horse mas not refleve Settan Suppliers from their compactual responsibilities nor does proudice to yet's right of durin lower to Editor Supplier for componentiation for any apparent another hopes geleate not detected during our re-storr i apection or nocurring thereafter.

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For SGS INCOM

SGS India Private Limited

SGE House 4B Adi Shankaracharya Marg Vietroi (VV). Mumbai 400 083 1: +91 22 6640 8888

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भारत सरकार GOVERNMENT OF INDIA

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BENEFICIATION STUDIES ON A SILICEOUS IRON ORE SAMPLE (SO - 1) FROM A.NARRAIN MINES, CHITRADURGA, KARNATAKA

FOR M/s VEDANTA LIMITED, CHITRADURGA, KARNATAKA

> संबंध अवस्य प्राचन प्रवेगायन REGIONAL ORE DRESSING LABORATORY

> > बंगानूर BENGALURU

SRIPAD PUJAR QUALIFIED PERSON

B.V.R. ACHAR QUALIFIED PERSON

INVESTIGATION TEAM

GENERAL SUPERVISION & : Smt. Indira Ravindran PRINCIPAL INVESTIGATOR

Director (OD)

CO-INVESTIGATORS

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: Dr. B. Devaprasad Ananth Asstt. Research Officer

> Md. Assdulla Sr. Technical Assistant

Purna Chandra Rao, Tulluri Jr. Technical Assistant

V bhadra Rao Koruprolu Jr. Technical Assistant

MINERALOGY

Prakash Inkane Sr. Technical Assistant

Purna Chandra Rao, Mendu Jr. Technical Assistant

CHEMICAL ANALYSIS

D.V Moon Sr. Chemist

P. Hari Rama Krishna Sr. Technical Assistant

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3	CHARACTERISTICS OF THE SAMPLE	2
4	EXPERIMENTAL WORK	3
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6	ACKNOWLEDGEMENT	7
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BENEFICIATION STUDIES ON A SILICEOUS IRON ORE SAMPLE (SO – 1) FROM A.NARRAIN MINES, CHITRADURGA, KARNATAKA

FOR M/s VEDANTA LIMITED, CHITRADURGA, KARNATAKA

1. ABSTRACT

- 1.1 A siliceous iron ore sample (SO-1) from A.Narrain Mine, Chitradurga, Karnataka was received from M/s Vedanta Limited, Karnataka for beneficiation studies at the Regional Ore Dressing Laboratory, Indian Bureau of Mines, Bangalore.
- The as received sample assayed 44.92% Fe(T), 64.24% Fe₂O₃ 31.28% SiO₂, 1.32% Al₂O₃, 1.38% Mn, 0.24% CaO, 0.14% MgO, 0.09% P, 0.31% LOI and traces K₂O, Na₂O and S.
- 1.3. Hematite and quartz / feldspar are the major minerals present in the sample. Goethite / limonite, ferruginous clay, psilomelane / pyrolusite, pyrite are observed in minor to trace amounts.
- 1.4. The objectives of the investigation were to:
 - i) Carry out chemical analysis and mineralogical studies on the as received sample.
 - ii) Up grade the ore to >55% Fe(T) by dry methods
- 1.5. The as received sample was subjected to dry screening, the minus 50+0.425 mm fraction assayed 56.08% Fe (T) with 74.2% Fe(T) recovery (Wt.% yield 60.1) by simple screening the iron values improved from 45.42 to 56.08% Fe (T).
- This can be blended with the normal ore. The ratio of blending is 20:80 i.e. Normal: SO-1 ore analyses 55.40% Fe(T), 13.73% SiO₂, 2.01% Mn.
- 1.7. The wet processing of minus 0.425 mm size, subjecting to gravity separation, yielding a concentrate assaying 57.43% Fe (T) with 49.5% Fe (T) recovery (wt% yield 10.2).
- 1.8. The schematic flow sheet for Siliceous Iron Ore Sample (SO-1) is given in Fig No.1.

2. INTRODUCTION

- About 200 kgs of siliceous iron ore sample- 1 was received from M/s Vedanta Limited, Chitradurga for dry beneficiation studies.
- The beneficiation studies were carried out at the Regional Ore Dressing Laboratory, Indian Bureau of Mines, Bangalore.
- 2.3. The objectives of the investigation were to:
 - Carry out chemical analysis and mineralogical studies on the as received sample
 - To upgrade the ore to > 55% Fe(T) by dry methods

3. CHARACTERISTICS OF THE SAMPLE

3.1. Physical

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- 3.1.1 The as received sample contained lumps of 50 mm size with fines. The lumps were hard and compact.
 - 3.2. Chemical
- 3.2.1 A representative portion of the as received sample was ground to requisite size and subjected to complete chemical analysis. The results of chemical analysis of the as received sample are given in Table No.1

Table No. 1: Chemical analysis of the as received sample

Radicals	Percentage
Fe(T)	44.92
Fe ₂ O ₃	64.24
SiO ₂	31.28
Al ₂ O ₃	1.32
Mn	1.38
CaO	0.24
MgO	0.14
K ₂ O	Traces
Na ₂ O	Traces
P	0.09
S	0.05
LOI	Traces

3.3. Mineralogy

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Hematite and quartz / feldspar are the major minerals present in the sample. Goethite / limonite, ferruginous clay, psilomelane / pyrolusite and pyrite are observed in minor to trace amounts.

Hematite is medium to coarse grained (100 to 900 microns) normally present as granular aggregates as pockets.

Quartz / feldspar are fine to medium grained (20 to150 microns) present as discrete grains within the inter-granular spaces hematite

Goethite / limonite are fine to medium grained present as patches within the intergranular spaces of hematite. The approximate percentage of different mineral constituents is given in Table No.2.

Table No. 2: Mineralogical constituents of the original sample

Mineral	Percentage
Hematite	40-45
Quartz	30 - 35
Goethite / limonite	7 - 10
Ferruginous clay .	7 - 10
Psilomelane / pyrolusite	3 - 5
Pyrite	Traces
Tale	Traces

4. EXPERIMENTAL WORK

4.1. Dry size analysis of the as received sample

4.1.1 The as received sample was subjected to dry size analysis to check if iron values were segregating in any particular fractions and each fraction was subjected to chemical analysis. The results are given in Table No 3.

Table No. 3: Dry Sieve Analysis of As Received Sample

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Size	Wt%		Assay %	6	1	Dist.	
mm		Fe(T)		Mn	Fe(T)	SiO ₂	Mn
-50+25	6.6	56.03	16.31	1.75	8.1	3.3	9.
-25+19	5.6	53.23	23.16	1.04	6.6	4.1	4.
-19+12.5	7.3	55.58	19.51	1.05	8.9	4.4	6.5
-12.5+6.3	15.2	57.82	14.43	1.35	19.4	6.8	17.4
-6.3+3	9.9	56.64	14.61	1.22	12.3	4.5	10.2
-3+1.7	3.7	56.69	14.53	1.38	4.7	1,7	4,4
-1.7+1.2	3.7	54,8	16.51	1.55	4.4	1.9	4.8
-1.2+0.85	3.1	55.93	15,51	1.74	3.8	1.5	4.5
-0.85+ 0.6	2.7	54.25	16.55	1.74	3.3	1.4	4.0
-0.6+0.425	2.3	54.18	18.12	1.38	2.7	1.3	2.7
-0.425+0.3	2.5	51.84	22.12	1.73	2.8	1.7	3.6
-0.3+0.212	2.4	47.72	28.67	2.09	2.6	2.2	4.3
0.212+0.150	3.1	39.92	39.74	1.38	2.8	3.9	3.7
0.150+0.106	4.6	27.76	58.2	0.86	2.8	8.3	3.3
0.106	27.3	24.73	62.44	0.69	14.8	53.0	15.9
lead(Calc.)	100	45.42	32.12	1.18	100	100	100
50 + 0.425	60.1	56.08	16.52	1.36	74.2	30.9	60.2
50 + 1.20	52.0	56.26	16.51	1.32	64.5	26.8	69.2 58.0
linus 0.425	39.9	29.35	55.62	0.95	25.8	69.1	30.8

4.1.2 As can be seen from the above table 3, the -50+0.425 mm fraction assayed 56.08% Fe (T) with 74.2% Fe(T) recovery (Wt.% yield 60.1) by simple screening the iron values improved from 45.42 to 56.08% Fe (T) with 1.36% Mn. This can be blended with the normal ore.

4.2. Blending Ratio

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- 4.2.1 The blending ratio of normal ore with siliceous ore after screening i.e. minus 50+0.425 mm fraction is given below in Table No. 4.
- 4.2.2 The analysis of as received normal ore 52.71% Fe (T), 2.57% SiO₂, 5.04% Mn.

Table No. 4: Blending Ratio

Normal (By wt.)	Siliceous ore 1 (by wt. after dry screening at +0.425mm)	Assay%	Constituent
50	50	54.39	Fe
		9.55	SiO ₂
		3.2	Mn
40	60	54.73	Fe
		10.94	SiO ₂
		2.83	Mn
30	70	55.06	Fe
		12.33	SiO ₂
		2.46	Mn
20	80	55.40	Fe
		13.73	SiO ₂
		2.1	Mn

The blending of 20:80 (Normal: SO-1) ore analysed 55.40% Fe(T), 13.73% SiO2, 2.1% Mn.

4.2.3 The reject minus 0.425 mm after dry sizing of the as received sample was subjected to dry and wet processing.

4.3. Dry and Wet processing of minus 0.425 mm size

4.3.1 Dry magnetic Separation

The minus 0.425 mm fraction after dry screening of as received sample was subjected to dry magnetic separation on Box Magnetic Rapid separator at 15000 gauss. The results are given in Table No. 5.

Tuble No. 5: Dry Magnetic separation on minus 0.425 mm

% Fe(T)	SiO ₂	Al ₂ O ₃
48.05	27.53	1.2
0	56.30	1.3
The second secon	54.14	1.21
		9 28.33 56.30

From the above Table No. 5, by dry magnetic separation, the minus 0.425 mm fraction could not be upgraded to desired level.

4.3.2 Wet Processing

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The minus 0.425 mm was subjected to gravity separation on a Quarter deck Deister table with controlled feed and 7lpm wash water, to get concentrate, tail and slimes. The results are depicted in Table No. 6.

Table No. 6: Tabling of the sample ground to 0.425 mm

S.No	Product	W1%		Assay%			Dist	
			Fc(T)	SiO ₂	Mn	Fe(T)	SiO ₂	Mn
l	Conc. I	4.0	64.19	7.37	0.61	21.7	1.3	9.6
2	Conc.II	6.2	53.07	20.99	0.74	27.8	5.9	18.0
3	Tails	9.4	13.52	79.41	0.55	10.7	33.9	20.3
4	T. Slimes	20.3	23,12	63.39	0.65	39.8	58.8	52.1
5	Head	39,9	29.61	54.98	0.64	100.0	100.0	100.0
6	Conc.1+11	10.2	57.43	15.65	0.69	49.5	7.3	27.6

As seen from the table 6, that by gravity separation the minus 0.425 mm fraction was upgraded from 29.61% to 57.43% Fe(T) with 49.5 % Fe(T) recovery (Wt.% yield 10.18).

5. SUMMARY AND CONCLUSION

- 5.1 A siliceous iron ore sample (SO-1) from A.Narrain Mine, Chitradurga, Kamataka was received from M/s Vedanta Limited, Kamataka for beneficiation studies at the Regional Ore Dressing Laboratory, Indian Bureau of Mines, Bangalore.
- 5.2 The as received sample assayed 44.92% Fe(T), 64.24% Fe₂O₃, 31.28% SiO₂, 1.32% Al₂O₃, 1.38% Mn, 0.24% CaO, 0.14% MgO, 0.09% P, 0.31% LOI and traces K₂O, Na₂O and S.
- 5.3 Hematite and quartz / feldspar are the major minerals present in the sample. Goethite / limonite, ferruginous clay, psilomelane / pyrolusite and pyrite are observed in minor to trace amounts.
- 5.4 The objectives of the investigation were to:

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- iii) Carry out chemical analysis and mineralogical studies on the as received sample.
- iv) Up grade the ore to >55% Fe(T) by dry methods
- 5.5 The as received sample was subjected to dry screening, the minus 50+0.425 mm fraction assayed 56.08% Fe (T) with 74.2% Fe(T) recovery(Wt.% yield 60.1) by simple screening the iron values improved from 45.42 to 56.08% Fe (T).
- 5.6 This can be blended with the normal ore. The ratio of blending is 20:80 i.e. Normal: SO-1 ore analyses 55:40% Fe(T), 13.73% SiO₂, 2.01% Mn.
- 5.7 The wet processing of minus 0.425 mm size, subjecting to gravity separation, yielding a concentrate assaying 57.43% Fe (T) with 49.5% Fe (T) recovery (wt% yield 10.2)
- 5.8 The schematic flow sheet for Siliceous Iron Ore Sample (SO-1) is given in Fig No.1.

6. ACKNOWLEDGEMENT

The authors express their sincere thanks Shri R. K. Sinha, Controller General, Indian Bureau of Mines, Nagpur for his keen interest and also for his guidance in this investigation

Fig No.1: schematic flow sheet for Siliceous Iron Ore Sample (SO-1)

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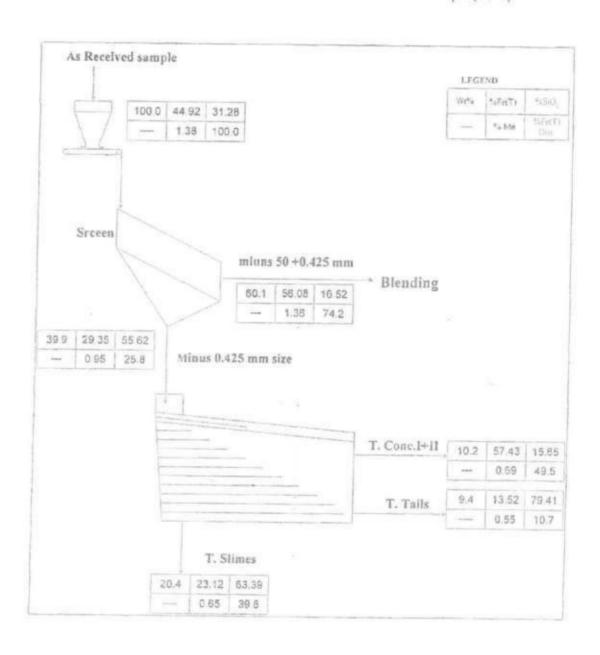
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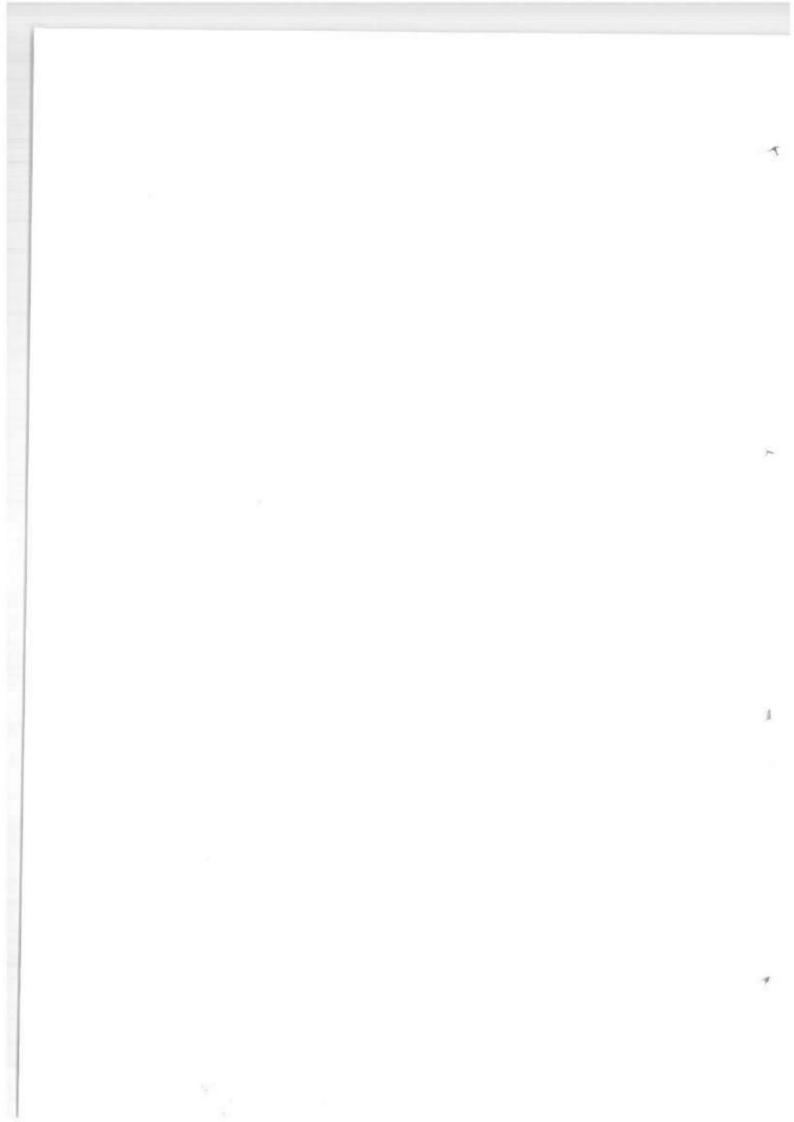
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भारत शरकार/ Govt. of India

अम एवं रीजगार मंत्रास्य/ Ministry of Labour & Employment खान सुरक्षा महानिदेशालय/ Directorate General of Mines Safety हेराज्य, होप, इ.अ. / Bengaluru Region, SZ.



ANNEXURE 2 \

E Mail: dir.bor (regnts gov. n.

No.5, 17" Main, 100 ft Road, 4" Block Koramangala, Eangalore- 560034(Karnataka) Tel: , 080-25535971-74 FAX: 080-25535972

#I.52/BGP/111(3)/P-40/2015-16

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2015.

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Director of Mines Safety/ARE RAND TREET

Bengaluru Region, Southern Zono/Eurye shir e. st v

To stat ift

Shri R. Prayeen Chandra. Ohnars John Mine. No. 59, 12" Main, B S K 1" Stage,

1." Block Srinacai ISANGALORE - 560 050 Stri D.D Jalan,

Neminored Gwner: A Narrain Iron Cire Ming.

M/s Sesa Stervity Limited

(M's Vedants Limited), Selie ghor, 20EDC Complex,

Patto, Panjari, Gen-403051

Subject/विषय :Permission under Regulation 111(3) of the Metalliferous Mines Regulations,1961 to work within 7.5m and up to the common mine boundary between A Narrain Iron ore mine (ML No.2677) of M/s Sesa Sterifite Limited (Re-named as M/s Vedanta Limited) and John Mines (M.L. No. 2294) of Sri R. Praveen Chandra- Modification thereof.

Ref: 1. Your application No. Nil dated 25.05.2015

2. Permission Letter Ne,CR/tron are Perm 2009/4090 dated 07:17:2009

Sir, Alega

Please refer to your application No. No dated 25.05.7015 on the above subject enclosing therecapt Surface Plan No. Nil dated 27:03:2015

It has been stated to your joint application that the modification in the Mine boundary has been done as per the directives of Central Empowered Committee appointed by Montale Supreme court.

The said modification of mine boundaries at your mines has been potential this directorate.

However, you are harryly requested to comply until the conditions of the permission under Pegulation. 111(3) of the Metalishmous Mines Regulations, 15-1 granted vide this Directorate's letter No.CR. Fron ore Parm/2009/4090 cated 97.12.2009 to work within 7.5m of the modified mine boundary as shown on Surface Plan No. Nil dated 27.03.2015.

Earther, you are also requested to submit an updated Surface Plan of each of your mine separately showing available over boundary to the Directorate at the earliest.

Yours faithfully/Street fitz waiting,

Set (S.X.(28s))

Descript of Mines Safety/1987 areas (+-22%) Eengawa Serjon, Southern Zong/3 198, 614, 5 31.1

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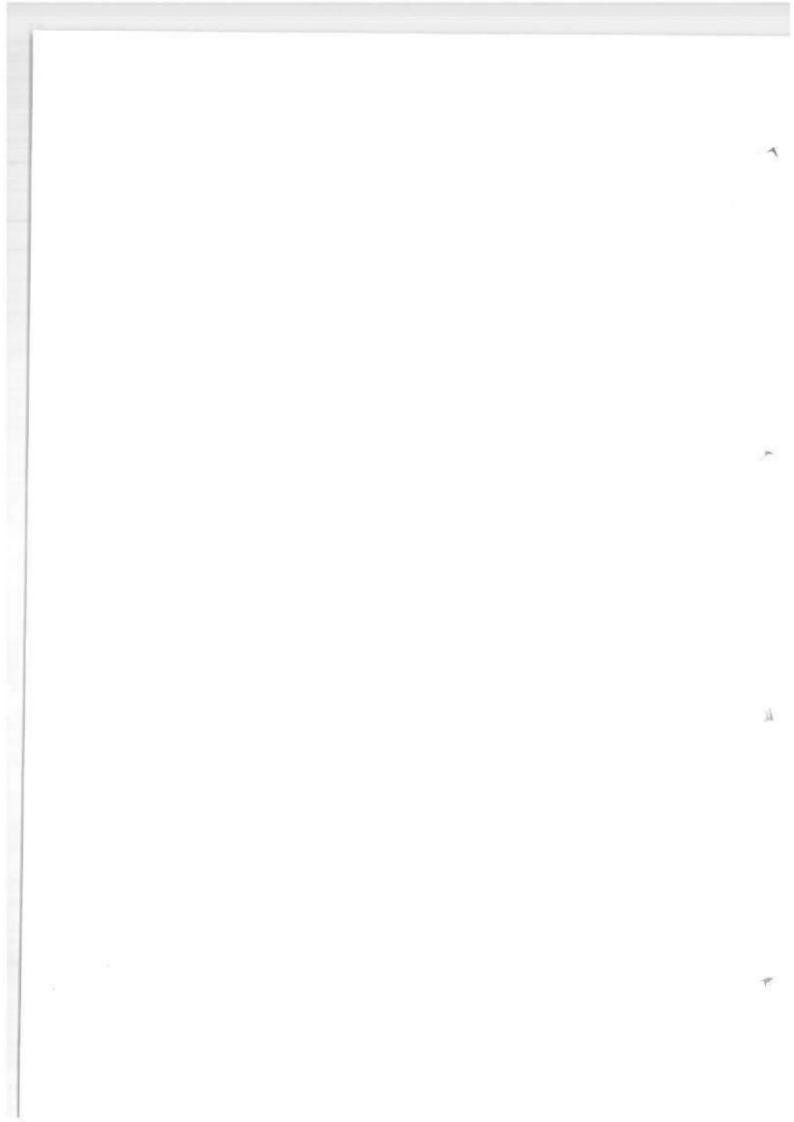
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Copy forwarded for information and necessary action to:

- The Agent, A Narrain Iron ore mine of M/s Vedanta limited, Megalahalii Complex, Bheemasandra, Chitradurga District, Karnataka State/577520,
- The Agent, John Mines, Medikeripura Village, Singere Post Chitradurgii District, Karnataka State-577541
 The Manager, A Narrain Iron ore mine of M/s Vedanta limited, Megalahalli Complex, Bheemasandra, Chitradurga District, Karnataka State-577520,
- The Manager, John Mines, Medikeripura Village, Sirigero Post Chitradurga District, Kamataka States 577541

Director of Mines Safety Villa Breit 1921 6

Bengalum Region, Southern Zone/dange ela, dust.



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PRODUCTION DEVELOPMENT PROGRAM - 2021-22

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FEASIBILITY STUDY REPORT

General Mine description.

Vedanta Limited (Formerly known as Sesa Sterlite Ltd / Sesa Goa Ltd) is having a Mining Lease No. 2677 in the Forest land for mining of Iron Ore near Megalahalli & other villages, Chitradurga and Holalkere taluks, Chitradurga district. The lease was first granted in 1952 and the last (fourth) renewal of the lease was executed on 02,02,2015 for twenty years w.e.f. 28.10,2012 over an area of 160,59 ha.

Exploration- pitting/trenching/drilling.

Lessee has drilled 650 core holes with a total meterage of 71083,55m till date. The details of all drilled bore holes are below:

Year	Type	Bore Hole ID	Nos.	Depth (m)
1994-1995	Core	NM-I to NM-4	4	188
	DTH	D-1 to D-86	86	3257
1998-1999	DTH	D-87 to D-129	43	1900
1999-2000	DTH	D-130 to D-167	38	2432
2001-2002	DTH	D-168 to D-188	21	1090
2004-2005	Core	NM-5 to NM-39	35	3111
	DTH	D-189 to D-203	15	927
2005-2006	Core	NM-40 to NM-51	12	1015
	DTH	D-204 to D-237	34	2772
2008-2009	R.C.	ANRC-1 to ANRC-137	137	15065
2009-2010	Core	ANDD-138 to ANDD 199	62	8040.55
2012-2013	Core	ANDD-200 to ANDD 220	21	5964.70
2015-2016	Core	ANDD-221 to ANDD 314	96	13300
2017-2018	Core	ANDD-315 to ANDD 330	14*	2795
2018-2019	Core	ANDD-331 to ANDD 347	17	3950.2
2019-2020	Core	ANDD-348 to ANDD 362	15	5276.10
	-	TOTAL	650	71083.55

Borehole nox. 316 & 319 were not drilled.

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Reserve assessment-sampling, chemical analysis, recovary with cut – off grade & tonnage factor method of assessment.

Resource/reserves are updated using latest exploration data based on the UNFC guidelines by cross sectional method. Geological cross sections are prepared at 50m interval. Sectional areas are calculated, and cross-sectional areas are multiplied by sectional influence and the volume of the individual lithology was arrived. The area of individual litho units in each cross section is calculated separately.

Hematitic Siliceous Ore of +35% Fe was considered earlier in resources category (331), however, in light of new threshold limit of IBM it is now categorized under Proved Mineral Reserves (111).

Proved Mineral Reserves (111) are estimated based on the data of G-1 level of exploration (up to 50x50m grid interval) without projecting depth limits beyond the borehole bottom and lateral extensions of extreme boreholes. The maximum and minimum depth considered as per boreholes drilled in respect of proved ore is 960 above MSL and 640 above MSL respectively.

Recovery is considered as 100% for iron ore and as no intercalations are present in ore zone. Hematic siliceous ore is also having a recovery of 100% wrt both +10mm Cal ore and -10mm fines, which is detailed below.

Sam	ple 1	Samp	ole IA	Sam	ple 2	Samr	le 2A	Av	erage
Size%	Fe%	Size%	Fe%	Size%	Fe%		100000000000000000000000000000000000000		The state of the s
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100	38.74				All Conditions and Con-	100000	22 - 170 -	100000	37.02
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Hematic siliceous ore of +10mm Cal ore will be sold directly as it is of +45% and -10mm fines will be blended with high grade ore fines and marketed to major steel producers like JSW as it will result in better quality wrt Mn, Alumina & Phosphorus content.

Mineral blocked in the areas of safety zone of 7.5m along the boundary (Feasibility Mineral Resources-211) is estimated separately which is not minable as no common boundary working permission is present.

Pit slopes will be maintained at 40° wrt horizontal as per local lithology which exhibits more compactness in depth and in line with the practice of surrounding mining areas like RPC. This has decreased the ore blocked due to pit limit. However, to confirm this pit design parameters, pit slope study will be conducted by the expert nodal agencies like NIRM and a report will be submitted to IBM soon.

Inferred Mineral Resources (333) are estimated below proved level based on geological extension of the individual lithology where borehole data is present.

The tonnage is arrived by multiplying volume by its bulk density. Exploration data generated from Diamond Core drilling was used. Bulk density considered for iron ore is 3.0 ton/cum, 2.70 ton/cum for siliceous ore and 1.70 ton/cum for waste.

Resources and Reserves in million tonnes as on 31.01,2020

Category	UNFC	Normal Iron Ore	Grade (Threshold at Fe +45%)	Hematitic Siliceous Ore	Grade (Threshold at Fe +35%)
A. Total Mineral Reserves				23343454	
Proved Mineral Reserve	111	101.664	Average	27.142	Average
Probable Mineral Reserve	122	-	51.67% Fe	-/::72	38.02% Fe
B. Remaining Resources					30.027010
Feasibility Mineral Resource	211	0.983		9.534	
Prefeasibility Mineral	221			9,334	
Measured Mineral Resource	331	0.032		5.784	
Indicated Mineral Resource	332	-	ŀ	3.704	1
Inferred Mineral Resource	333	3.882	1	1.391	
Reconnaissance Mineral	334	-	T I	1.391	1
Sub Total		4.897	+	16.709	
Total Reserves + Resources		106.561		43.851	

Production schedule-mine capacity, total handling/ROM ore & OB/waste handling,rate of production, dilution, recovary grade control /blending.

Max production program proposed is 7.20 MTPA for the final year of this plan period. To maintain the consistency of the quality of ore throughout the life of the mine and conservation of the mineral resources, mine is being worked at both blocks (South & North) simultaneously.

Hematic siliceous ore of +10mm Cal ore will be sold directly as it is of +45% and -10mm fines will be blended with high grade ore fines and marketed to major steel producers like JSW as it will result in better quality wrt Mn, Alumina & Phosphorus content.

Summary of Production / Development

	ROM	1-Iron Ore -To	nnes	Total waste	ROM/
Year	Normal Ore +45% Fe	Hematitic Siliceous Ore +35% Fe	Total	(OB/SB+ BHQ + Rehandled waste)	Waste
2019-20*	471,900	44	471,900	205,700	1: 0.44
2020-21	5,482,200	407,430	5,889,630	2,495,745	1: 0.49
2021-22	6,489,750	710,235	7,199,985	8,028,058	1: 1.12

Note: *Production program for 2019-20 is -0.472 MT as 4.427 MT of ore has already been produced upto Jan 31" 2020.

Mining method- bench dimensions, slope angle, stripping ratio & drilling, mining & transport equipment/Machinary.

It is proposed to operate the mine by mechanized open-cast mining method in two shifts. Mining will be carried out in both the blocks. The benches will be made with a height of 7m and width will be more than 8m. The existing pit will be worked by advancing the benches across the strike direction. The produced ore will be transported through 35 tons capacity dumpers to the Crushing/Screening plant to get the end products like calibrated lumps (+10mm-30mm) and fines (-10mm). The waste will be dumped again through dumpers systematically in SE part of the lease (D3 and D4) where already waste dump is present.

The existing already deployed machineries are sufficient to handle the proposed production and development. Hence, no additional deployment of machinery is envisaged. The details of the existing machineries to be deployed in this plan period are given below.

Sr. No	Equipment / Machinery	Manufacturer	No. of units	Engine H P	Capacity
1	Hydraulic	CAT 330	2	220	1.65cum
	Excavators	Volvo 460	1	316	2.45cum
	(Total 8 nos.)	Volvo 700	5	424	4.0cum
2	Wheel Loaders	CAT/Volvo	9	243	3.1cum
3	Wagon drill	Atlas Capco	1	25	20m/hr
4	Ripper Dozer	D9R	3	428	2011111
5	Dozer	D6R	1	199	
6	Dumpers	Volvo	35	405	35 tons
7	Crushing/Screening Plant with generator	Power Screen	4		1x1000 and 3x500tph
8	Proposed beneficiation Plant		1		500tph
9	Water Tanker	TATA	4	130	8000 ltrs
10	Jeeps / Service Vehicles	Mahindra/Tata	7	70	0000 1113

6. Benefication-crushing/manual dressing, sorting, sizing & washing.

The mined ROM is crushed and screened in the existing dry processing plants for size separation as per buyer's requirement. These will be used to treat Hematitic siliceous ore (+35% Fe) and lumps (+10mm) will be sold as it is and fines (-10mm) will be blended with high grade ore, as and when required.

Existing setup: Ore produced from the mine is segregated in four crushing/screening plants (1x1000tph and 3x500tph) to bifurcate ore according to size gradation. ROM is fed to either fixed/mobile plant. The material in fixed plant is directly fed to the vibro grizzly (screen) and +70mm &-70mm will be separated. The separated +70mm material is sent to primary jaw crusher (36" x 20") where it is crushed and sent to primary screen. The separated -70 mm material from vibro grizzly is sent to primary screen where the material gets separates into 10mm, 10 to 40mm and +40 mm. The -10 mm material is directly sent to product bunker. The +10 -40mm material is sent to the secondary screen. The material of +40mm is sent to cone crusher where it gets crushed and is sent to secondary screen where it separates materials into 10mm, 10 to 40mm lumps. Materials of -10 fines and 10 to 40 mm lumps are stacked separately.

Marketing –type of commodity with use, prospective buyers, present sale price & forecasts.

The Iron ore produced in the lease will be supplied to local steel / pig iron /sponge iron / pellet / sinter plants. The buyers are procuring ore (fines and calibrated ore) of +45% Fe grade. Hematitic siliceous ore (+35% Fe) will be dry screened and +10mm Cal ore will be sold directly as +45% and -10mm fines will be blended with high grade ore fines and marketed to major steel producers like JSW as it will result in better quality wrt Mn, Alumina & Phosphorus content.

The average market price (ex-mine) for Iron ore of +45% Fe is around Rs. 1220/- per ton. Hence the mine is economically viable.

The details of prospective buyer's requirement are as below:

Da

Buyer	Category	Grade	Use
Pig Iron Division of Sesa Goa Ltd and others like- JSW/ BMM, Prakash Sponge etc.	Cal. Ore of -40+6 mm	Fe 54-62% Mn <2.7% MnO<3.3% Al ₂ O ₃ <2%	Pig Iron/Sponge for Steel Production
JSW/BMM etc.	Fines of -10mm	Fe 50-60% Mn <2.7% MnO<3.3% Al ₂ O ₃ <2%	Sinter plant/ pellets and others.

8. Infrastructure-road, power source, labour supply and skill:

The mine is having required infrastructural facilities and is well connected by a good motorable road. All plants etc are operated by diesel generators.

Environmental requirements-EIA&EMP, mine closure and reclamation plan, sustainable development strategy etc.

EIA studies and EMP including socio-economic impact, rehabilitation of project affected persons, waste disposal/reclamation detailed land use data were carried out by a reputed environmental consultancy firm and Environmental clearance is taken. A progressive mine closure plan is enclosed in the Mining Plan.

Others like legal factors like tribal issues, national parks etc.

Not applicable

Economic evaluation-capital cost, production & transportation costs, royalty & other taxes, the availability of financing & profits to indicate that the mine is technically and economically viable under forseeble operating scenario.

It is an operating mine being run by lessee's own funds. The operating costs is given below.

Cost of production (Rs/tonne)

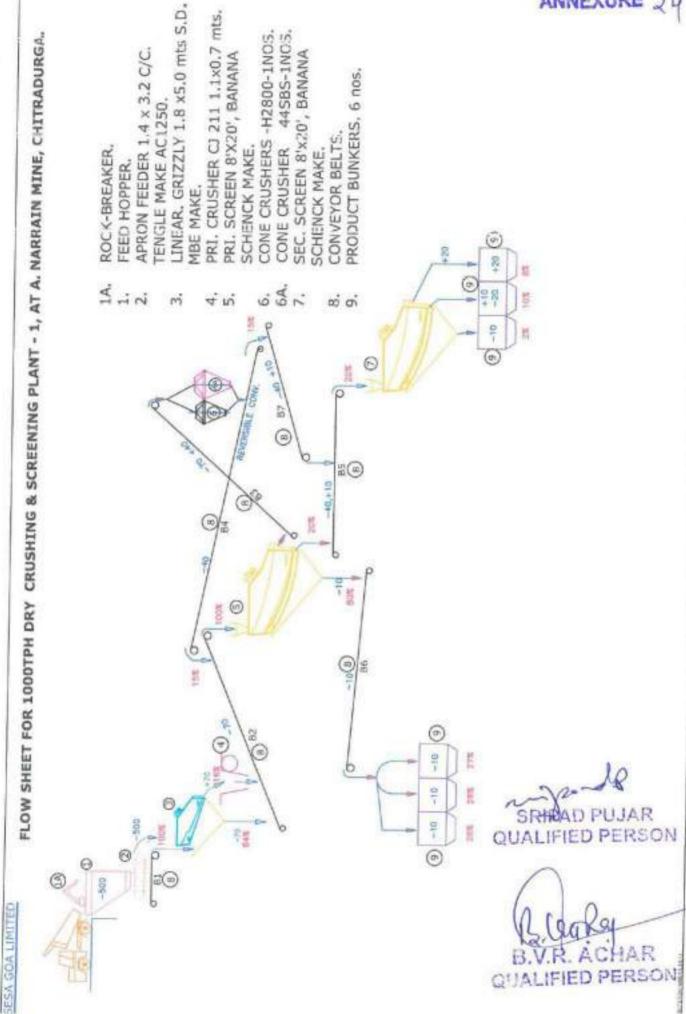
0
230
67
-
59
*
192
548

The Iron ore produced in the lease will be supplied to local steel / pig iron /sponge iron / pellet / sinter plants. The buyers are procuring ore (fines and calibrated ore) of +45% Fe grade. Hematitic siliceous ore (+35 % Fe) will be dry screened and +10mm Cal ore will be sold directly as +45% and -10mm fines will be blended with high grade ore fines and marketed to major steel producers like JSW as it will result in better quality wrt Mn, Alumina & Phosphorus content.

The cost of production is Rs. 548 per ton. Apart from this, Royalty of Rs. 183 (15% of Rs.1220) will add upto the total cost at Rs.731/ton. However, the average market price (ex-mine) is around Rs. 1220/- per ton for Iron ore of +45% Fe. Hence the mine is economically viable.

NPV of the mine at the proposed production program of 4.51 million TPA will be Rs. 36,478 lakhs and IRR will be around 62% considering a profit of around Rs.489/tonne.

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TEST REPORT

AMBIENT AIR QUALITY DATA

- Name of the Project
- Vedinta Limbed Iron Ore Mine (ML:2677)
- Location Name.
- : Core Zone Main Hanlige Road Shift I
- Name of the project Peoponent: Mrs. Vedanta United, Megaliabilli Office Complex. Dheemasamodra, Chitradurga, Kamutaka,
- Month of sampling
- 2 January 2020
- Doration of sampling Date of exporting
- r 8 bours 1 10.02.2020

Parameter	PAL _{to} (i.g./m ²	PM _{2.4} ag./m ²	NO ₃ pg/m ³	SO ₂ ng/m ²
Sample no.	MGF485604.01 MGF485699.01 MGF485626.01 MGF485626.01 MGF485626.01 MGF485660.01 MGF485660.01 MGF485660.01 MGF485660.01 MGF485660.01 MGF485660.01 MGF485660.01 MGF485660.01 MGF485660.01 MGF485660.01 MGF485660.01 MGF485660.01	PT0700819001 PT070823/01 PT0812061/01 PT0812051/01 PT0812071/01 PT0790843/01 PT0790843/01 PT0789940/01 (chronologically disc wive)	10193204-01 1019328-01 10193288-01 11193433-01 11193537-01 11194391401 (chronologically dote wise)	1019310261 1019326501 1019328900 11193434-01 1119345001 11193438-01 1119441B-01 tehronologically the wise!
06.01.2020	11.6	20,8	21.7	14,9
07.01,2020	38.1	10.0	23.4	13.0
13:01.2050	32.5	20.6	19.7	Elo.
14.01,2020	35.5	19.4	22.1	13.6
20.01,2620	43.9	22.6	25.1	14.0
21.60.2020	45.8	27.0	37.7	14.9
27.01.2920	39.7	242	28.5	15.7
28.01.2020	36.7	18.1	26.4	13.8
Promoot/Method	IS:5182 (Part 23) — Oracimetric eschod	MCPL/SOP-44 - Gravimatic method	18:5182 (Part 6) – Jucob and Hochbeiser method	IS:5182 (Part 2) - Improved West and Gucke method
NAAQ Standards	100	60	80	HO HO

Nate: The new market with on * are not accombed by Natle. The result & inference pertoins to the sample sessed with and parameters as per the requalition of the client. BDE a Below Details of the requalition of the client. BDE a Below Details on Long. NA: Not Adolymit, NO: Son Detailed. NS: No Sample.

INFERENCE	As per CPCB Standards Report Status: All values are within the prescribed standards. Mr. All Cod (1970) 1970.
Somple Collected By	MOUNTE FAMORPHOSIS Laboratory Private Limited Hemistone

** End of Region **

Authorized Signators

Laboratory Head Dr. Shanth A. Thimmaiah

Recognized through Gazette Notification of MoEF & CC. GOL vide S.O. 3744 (E) dated 17.10.2019, valid upto 16.10.2034.

QUALIFIED PERSON

QUALIFIED PERSON

"PRAKRUTI BHAVAN", #200, 14 & 24 Floor, 404 Main, 14 Cross, BUM Layout II Stage, Behind Central Silk Board, Bengaluru - 580068, Karnataka, India, Telefax: +91.80.26783006 Email: mail@metamorphosis-india.com.



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TEST REPORT

AMBIENT AIR QUALITY DATA

Name of the Project

2 Vedanta Limited Iron Ore Minc (ML:2677)

Location Name

: Core Zone - Main Haulage Road - Shift - 2 Name of the project Proponent : M/s. Vedanta Limited., Megalahalli Office Complex.

3,

Bheemasamudra, Chitradurga, Karnataka.

Month of sampling

: January - 2020

Duration of sampling

: 8 hours

Date of reporting

: 10.02.2020

Parameter	PM ₁₀ µg /m ³	PM _{2.5} μg/m ³	NO ₂ µg/m³	SO ₂ µg/m ³
Sample no. Date of Sampling	MGF485643-01 MGF480859:01 MGF491277/01 MGF485635/01 MGF485624/01 MGF485421/01 MGF491262/01 (chronologically date wise)	PT0790824/01 PT0790801/01 PT0789917/01 PT0793500/01 PT0485624/01 PT0790806/01 PT0789944/01 (chronologically date wise)	10193083/01 10193103/01 10193266/01 10193290/01 11193435/01 11193451/01 11193539/01 (chronologically dute wise)	10193084/01 10193104/01 10193267/01 10193291/01 11193436/01 11193452/01 11193540/01 (chronologically date wise)
06.01,2020	40.1	17,3	20.3	13.8
07.01.2020	36,2	18,7	21.2	13.4
13.01.2020	36,4	20.3	29.5	13.4
14.01.2020	34.5	21.9	22.5	13.7
20.01,2020	43.0	18.2	23.0	14.2
21.01.2020	43.9	23.3	26.3	14.6
27:01.2020	41.7	24.1	24.9	14.6
28.01.2020	33,8	18.9	27.8	14.2
Protocol / Method	18:5182 (Part 23) = Gravimetric method	MLPL/SOP/44 - Gravimetric method	IS:5182 (Part 6) – Jacob and Hochheiser method	(Part 2) – Improved West and Goeke methoc
NAAQ Standards	100	60	80	80

Note: The tests marked with an " are not accredited by NABL. The result & inference pertains to the sample tested only and parameters as per the requisition of the elient. RDL: Below Detection Limit; NA: Not Analysed, ND: Not Detected, NS: No Sample

INFERENCE As per CPCB Standards Report Status: All values are within the prescribed standards Sample Collected By M/s. METAMORPHOSIS Laboratory Private Limited. Bengaluru

"* End of Report "

Authorized Signatory

Laboratory Head Dr. Shanth A. Thimmaiah



Recognized through Gazette Notification of MoEF & CC, GOI, vide S.O. 3744 (E) dated 17.10.2019, valid upto 16.10.2024,

"PRAKRUIT BHAVAN", #200, 19 & 2nd Floor, 40th Main, 1st Cross, BTM Layout II Stage, Behind Central Silk Board, Bengaluru - 560068, Karnataka, India, Telefax: +91.80.26783006 Email: mail@metamorphosis-india.com.

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TEST REPORT

AMBIENT AIR QUALITY DATA

Name of the Project

: Vedanta Limited Iron Ore Mine (ML:2677)

Location Name

: Core Zone - Loading Point - Shift - 1

3

Name of the project Proponent : M/s, Vedanta Limited., Megalahalli Office Complex, Bheemasimudra, Chitradurga, Karnataka

Month of sampling

: January - 2020.

Duration of sampling

: 8 hours

Date of reporting

: 10.02.2020

Parameter	PM _{to} µg/m ³	PM _{2.8} µg/m ³	NO ₂ µg/m ^k	SO ₂ µg/m ³
Sample no. Date of Sampling	MGI 485629/01 MGF 485623/01 MGF 485627/01 MGF 485433/01 MGF 485424/01 MGF 485414-01 (chronologically date wise)	PT0718478/01 PT0790826/01 PT0718499/01 PT0793496/01 PT0790836/01 PT0790836/01 PT0790841/01 (chronotogscally date wise)	10193093/01 10193256/01 10193280/01 11193437/01 11193465/01 11193529/01 1119445B/01 (chronologically date wise)	10193094/01 10193257/01 10193281/01 11193438/01 11193466/01 11193478/01 (chronologically date wise)
06.01.2020	44,7	27,0	28.7	- 15,5
07:01:2020	47.8	26.7	29.4	15.2
13.01.2020	53.3	28.8	25.1	12.3
14.01.2020	55.3	30.9	21.8	15.8
20.01.2020	55.6	34.9	29.0	13.3
21.01.2020	51.9	30.5	33.3	11.5
27.01.2020	46.7	29.5	33.1	13.0
28.01.2020	39.7	23.4	28.6	14.3
Protocol / Method	IS:5182 (Part 23) — Gravimetric method	MLPL/SOP/44 - Gravimetric method	IS:3182 (Part 6) — Jacob and Hochbeiser method	IS:5182 (Part 2) - Improved West and Greeke method
NAAQ Standards	100	-60	80	80

Note: The tests marked with an " are not accredited by NABL. The result & inference periatus to the sample tested only and parameters as per the requisition of the ellent. BDL: Below Detection Limit: NA: Not Analysed. ND: Not Detected. NS: No Sample

INFERENCE	As per CPCB Standards Report Status: All values are within the prescribed standards.
Sample Collected By	M/s. METAMORPHOSIS Laboratory Private Limited. Bengaluru

** End of Report **

Authorized Signatory

Laboratory Head Dr. Shanth A. Thimmaiah



Recognized through Gazette Notification of MoEF & CC, GOL vide S.O. 3744 (E) dated 17.10.2019, valid upto 16.10.2024.

"PRAKRUTI BHAVAN", #200, 14 & 2nd Floor, 40th Main, 18 Cross, BTM Layout II Stage, Behind Central Silk Board, Bengaluru - 560068, Karnataka, India, Telefax: +91.80.26783006 Email: mail@metamorphosis-india.com.



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TEST REPORT

AMBIENT AIR QUALITY DATA

Name of the Project

: Vedanta Limited Iron Ore Mine (ML-2677)

Location Name

: Core Zone - Loading Point - Shift - 2

Name of the project Proponent : Ms. Vedanta Limited. Megalaballi Office Complex. Bheemasonudra, Chitradorga, Karnataka State.

Month of sampling

: January - 2020

Duration of sampling

: 8 hours

Date of reporting

: 10.02.2020

Parameter	PM _m µg/m ³	PM _{2.5} μg/m ³	NO ₂ µg/m³	SO ₂ μg/m ³
Sample no. Date of Sampling	MGF485611/01 MGF485658/01 MGF491293/01 MGF485647/01 MGF485423/01 MGF485425/01 MGF485416/01 (chronologically date wisc)	PT0790830/01 PT0718606/01 PT0812678/01 PT0790840/01 PT0792373/01 PT0792373/01 PT0793487/01 (chronotogicully date wise)	10193079/01 10193095/01 10193258/01 10193282/01 11193439/01 11193467/01 11193531/01 (chromologically date wise)	10193080/01 10193096/01 10193259/01 10193283/01 11193440/01 11193468/01 11193532/01 (chronologically date wise)
06.01.2020	34.7	17.9	24.3	-14.3
07.01.2020	45.0	22.8	19.1	14.0
13.01.2020	22.2	15.1	19.2	14.0
14.01.2020	24.9	13.3	22.7	14.3
20.01.2020	40,5	23.8	19.7	14.1
21.01.2020	50,0	30.7	21.2	14.0
27.01.2020	34.5	25.7	19.6	14.6
28.01.2020	43.5	33.8	22.9	14.6
Protocol / Method	IS:5182 (Part 23) — Gravimetric method	MLPL/SOP/44 - Gravimetric method	IS:5182 (Part 6) — Jacob and Hochheiser method	IS:5182 (Part 2) — Improved West and Gacke method
NAAQ Standards	100	60	80	80

Note: The tests marked with an ** are not accredited by NABL. The result & inference perialis to the sample lested only and parameters as per the requisition of the client. BDL: Bolow Detection Limit; NA: Not Analysed: ND: Not Detected: NS: No Sample

As per CPCB Standards Report Status: All values are within the prescribed standards INFERENCE. Sample Collected By Mrs. METAMORPHOSIS Laboratory Private Limited, Bengaluru

** End of Report **

Authorized Signatory

Laboratory Head Dr. Shanth A. Thimmaiah



Recognized through Gazette Notification of MoEF & CC, GOI, vide S.O. 3744 (E) dated 17.10.2019, valid upto 16.10.2024.

"PRAKRUTI BHAVAN", #200, 1st & 2nd Floor, 40th Main, 1st Cross, BTM Layout II Stage, Behind Central Silk Board, Bengaluru - 560068, Karnataka, India, Telefax: +91.80.26783006 Email: mail@metamorphosis-india.com.

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TEST REPORT

AMBIENT AIR QUALITY DATA

Name of the Project

: Vedanta Limited Iron Ore Mine (ML:2677)

Location Name

: Core Zone - Ore Stock Area - Shift -1

Name of the project Proponent : M/s. Vedanta Limited, Megalahalli Office Complex, Bheemasamudra, Chitradorga, Karnataka

: January - 2020

Month of sampling Duration of sampling

: 8 bours

Date of reporting

+ 10 02 2020

Parameter	PM ₁₀ µg /m ³	PM _{2.5} μg/m ³	NO ₂ μg/m ³	SO ₂ μg/m ³
Sample no. Date of Sampling	MGF485618/01 MGF485657/01 MGF485442/01 MGF491273/01 MGF485420/01 MGF485420/01 MGF485426/01 (chronologically date wise)	PT0718608/01 PT0790816/01 PT0790849/01 PT0790849/01 PT0793462/01 PT0789902/01 (chronologically dute wise)	10193105/01 10193268/01 10193292/01 11193421/01 11193445/01 11193517/01 11194518/01 (chronologically date wise)	10193106/01 10193269/01 10193293/01 11193422/01 11193446/01 11193518/01 1119453B/01 (chronologically date wise)
06.01.2020	39.2	26.5	27.3	13.6
07.01.2020	36.5	20.3	22.7	13.2
13.01,2020	33.4	18.7	23.1	13.7
14.01,2020	33.5	19.3	22.7	13:0
20.01.2020	52.6	30.9	30.1	13.0
21.01.2020	51.3	41.5	29.4	13.9
27.01.2020	32.4	13.8	23.9	14.1
28.01.2020	41.0	31.0	27.4	13.4
Protocol / Method	IS:5182 (Part 23) – Gravimetric method	MLPL/SOP/44 - Gravimetric method	IS:5182 (Part 6) — Jacob and Hochheiser method	IS:5182 (Part 2) – Improved West and Gineko method
NAAQ Sinndards	100	60	80	90

Note: The tests marked with an * are not necredited by NABL. The result & inference pertains to the sample tested only and pursunctors as per the requisition of the ellent, BDL; Below Detection Limit NA; Not Analysed, ND; Not Detected, NS; No Sample,

per CPCB Standards Report Status; All values are within the prescribed standards.
s. METAMORPHOSIS Laboratory Private Limited. Bengalum

** End of Report **

Authorized Signatory

Laboratory Head Dr. Shanth A. Thimmaiah



Recognized through Gazette Notification of MoEF & CC, GOI, vide S.O. 3744 (E) dated 17.10.2019, valid upto 16.10.2024.

"PRAKRUTI BHAVAN", #200, 1" & 2nd Floor, 40th Main, 1th Cross, BTM Layout II Stage, Behind Central Silk Board, Bengaluru - 560068, Karnataka, India, Telefax: +91.80.26783006 Email: mail@metamorphosis-india.com,



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TEST REPORT

AMBIENT AIR QUALITY DATA

- Name of the Project
- : Vedanta Limited Iron Ore Mine (ML:2677)
- Location Name
- : Core Zone Ore Stock Area Shift -2
- 3.
- Name of the project Proponent : M/s. Vedanta Limited., Megalahalli Office Complex. Bheemasamudra, Chitradurga, Karnataka.
- Month of sampling
- : January 2020
- Duration of sampling
- : 8 hours
- Date of reporting
- + 10.02.2020

Parameter	PNI ₁₀ µg/m ³	PM _{2S} µg/m ²	NO ₂ µg/m³	SO ₂ µg/m³
Sample no. Date of Sampling	MGF485661/01 MGF485651/01 MGF485441/01 MGF48543/2/01 MGF485422/01 MGF485438/01 MGF485430/01 (chronologically date wise)	PT0790833/01 PT0790831/01 PT0790810/01 PT0793490/01 PT0793370/01 PT0812691/01 PT0812677/01 (chronologically date wise)	10193085401 10193107/01 10193270/01 10193294/01 11193423/01 11193447/01 11193519/01 (chronologically date wise)	10193086/01 10193108/01 10193271/01 10193295/01 11193424/01 11193448/01 11193520/01 (chronologically date wise)
06.01.2020	34.5	19,3	22.9	12.6
07.01.2020	28.2	15.0	29.9	1134
13.01.2020	30,0	13.9	27.2	13.8
14.01.2020	21.6	13.8	30.2	12.2
20.01,2020	42.8	23.4	25.2	11.4
21,01,2020	37.7	22.1	25.8	12.2
27.01.2020	33.8	19.7	25.8	12.7
28.01.2020	40.3	21.3	24.0	11.5
Protocol / Method	IS 5182 (Part 23) – Ciravimetric method	MLPL/SOP/44 - Gravimetric method	IS;5182 (Part 6) – Jacob and Hochheiser method	IS:5182 (Part 2) — Improved West and Gacke method
NAAQ Standards	100	(6)	- 80	80

Note: The tests marked with an * are not accredited by NABL. The result & inference periains to the sample tested only and parameters as per the requisition of the client. BDL: Below Detection Limit: NA: Not Analysed, ND: Not Detected, NS: No Sample

INFERENCE	As per CPCB Standards Report Status. All values are within the prescribed standards.
Sample Collected By	M's, METAMORPHOSIS Laboratory Private Limited, Bengalura

** End of Report ***

Authorized Signatory

Laboratory Head Dr. Shanth A. Thimmaiah



Recognized through Notification of MoEF & CC, GOI, vide S.O. 3744 (E) dated 17.10.2019, valid upto 16.10.2024.

"PRAKRUTI BHAVAN", #200, 14 & 244 Floor, 404 Main, 14 Cross, BTM Layout II Stage, Behind Central Silk Board. Bengaluru - 560068, Karnataka, India, Telefax: +91.80.26783006 Email: mail@metamorphosis-india.com.



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TEST REPORT

AMBIENT AIR QUALITY DATA

Name of the Project

: Vedanta Limited Iron Ore Mine (ML:2677) : Core Zone - Unloading Point - Shift - I

Location Name

3.

Name of the project Proponent : M/s. Vedanta Limited., Megalaballi Office Complex. Bheemasamudra, Chitradurga, Karnataka

Month of sampling

: January - 2020

Duration of sampling

: 8 hours

Date of reporting 6.

: 10:02.2020

Parameter	PM _m µg/m ³	PM _{2.5} ng/m ³	NO ₂ ug/m ³	SO ₂ µg/m ³
Sample no. Date of Sampling	MGF48562-01 MGF485405-01 MGF485427-01 MGF485427-01 MGF485410-01 MGF485406-01 (chronologically date wise)	P10718453/01 P10812675/01 P10793689/01 P10793497/01 PT0793486/01 P10789946/01 (chronologically date wise)	10193097/01 10193260/01 10193284/01 11193429/01 11193433/01 11193525/01 1119443B/01 (chronologically date wise)	10193098/01 10193261/01 10193285/01 11193430/01 11193454/01 11193526/01 1119444B/01 (chronologically date wise)
06.01,2020	42.9	19.4	27.7	13.1
07.01,2020	35,6	21.4	31.7	14.1
13,01,2020	45.5	33.2	28.0	11.6
14.01.2020	38.7	27.7	30.5	12.8
20.01.2020	55.7	24.9	30.5	13.5
21.01.2020	57,7	25.6	32.3	14.3
27.01.2020	43.6	26.1	28.6	13.7
28.01.2020	54,8	20.0	27.1	13.0
Protocol / Method	IS:5182 (Part 23) — Gravimetric method	MLPL/SOF/44 - Gravimetric method	IS:5182 (Part 6) – Jacob and Hochheiser method	IS:5182 (Part 2) - Improved West and Gueke method
NAAQ Standards	100	.60	80	80

Note: The tests marked with an " are not accredited by NABL. The result & inference pertains to the sample tested only and parameters." as per the regulation of the client. BDL: Below Detection Limit; NA: Not Analysed: ND: Not Detected. NS: No Sample

INFERENCE	As per CPCB Standards Report Status: All values are within the prescribed standards.
Sample Collected By	M/s. METAMORPHOSIS Laboratory Private Limited, Bengaluru

** End of Report **

Authorized Signatory

Laboratory Head Dr. Shanth A. Thimmaiah



Recognized through Gazette Notification of MoEF & CC, GOI, vide S.O. 3744 (E) dated 17.10.2019, valid upto 16.10.2024.

"FRAKRUTI BHAVAN", #200, 1st & 2nd Floor, 40th Main, 1st Cross. BTM Layout II Stage, Behind Central Silk Board, Bengaluru - 560068, Karnataka, India, Telefax: +91.80.26783006 Email: mail@metamorphosis-india.com.



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TEST REPORT

AMBIENT AIR QUALITY DATA

Name of the Project

: Vedanta Limited Iron Ore Mine (ML: 2677)

2. Location Name : Core Zone - Unfouding Point - Shift - 2

3. Name of the project Proponent : M/s, Vedanta Limited, Megalahalli Office Complex. Bheemasamudra, Chitradurga, Karnataka

Month of sampling 4. 5.

: January - 2020

Duration of sampling

: 8 hours

Date of reporting

: 10.02.2020

Parameter	PM ₁₀ µg/m ³	PM _{2.5} µg/m ³	NO ₂ µg/m ³	SO ₂ µg/m ³
Sample no. Date of Sampling	MGF491288/01 MGF485436/01 MGF485434/01 MGF485608/01 MGF485633/01 MGF485633/01 MGF48508/01 (chronologically date wise)	P10790846/01 P10812672/01 P10812684/01 P10793493/01 P10789939/01 P10789939/01 (chronologically date wise)	10193081-01 10193099-01 10193262/01 10193286/01 11193431-01 11193455-01 11193527/01 (chronologically date wise)	10193082/01 10193100/01 10193263/01 10193287/01 11193432/01 11193456/01 11193528/01 (chronologically date wise)
06.01.2020	33.5	16.9	23.5	13.3
07.01.2020	37.1	21.2	23.8	13.2
13.01.2020	37.1	20.4	24.9	13.7
14.01.2020	47.2	29.7	28.6	13.6
20.01.2020	42.9	23.8	24.7	14.0
21,01,2020	36.1	23.2	26.4	13,9
27.01.2020	42.1	22.0	22.9	13.1
28.01.2020	47.0	24.8	23,6	12.1
Protocol / Method	IS:5182 (Part 23) – Gravinuetric method	MLPL/SOP/44 - Gravimetric method	IS:5182 (Part 6) — Jacob and Hochheiser method	IS:5182 (Part 2) – Improved West and Gucke method
NAAQ Standards	100	60	80	80

Nutv: The tests marked with an "are not accredited to NABL. The result & inference pertains to the sample tested only and parameters as per the requisition of the ellent. BDL: Below Detection Limit; NA: Not Analysed; ND: Not Detected, NS: No Sample

INFERENCE	As per CPCB Standards Report Status: All values are within the prescribed standards.	
Sample Collected By	M/s, METAMORPHOSIS Laboratory Private Limited, Bengaluru	

** End of Report **

Authorized Signatory

Laboratory Head Dr. Shanth A. Thimmaiah



Recognized through Gazette Notification of MoEF & CC, GOI, vide S.O. 3744 (E) dated 17.10.2019, valid upto 16.10.2024.

Environmental & Industrial Research Laboratory

"PRAKRUTI BHAVAN", #200, 1st & 2nd Floor, 40th Main, 1st Cross, BTM Layout II Stage, Behind Central Silk Board. Bengaluru - 560068, Karnataka, India, Telefax: +91.80.26783006 Email: mail@metamorphosis-india.com.



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TEST REPORT

AMBIENT AIR QUALITY DATA

Name of the Project

: Vedanta Limited Iron Ore Mine (ML:2677) : Core Zone - MEMC Railway Siding - Shift - I

Location Name

Name of the project Proponent : M/s. Vedanta Limited. Megalaballi Office Complex.

Bheemasamudra, Chitradurga, Karnataka

4. Month of sampling

: January - 2020

5.	Duration of sampling	: 8 hours
6.	Date of reporting	: 10.02.2020

Parameter	PM ₁₈ µg/m ³	PM _{2.5} μg/m ³	NO ₂ µg/m ³	SO ₁ µg/m ³
Sample no. Date of Sampling	MGF485606/01 MGF485653/01 MGF491274/01 MGF485437/01 MGF485407/01 MGF485411/01 MGF485411/01 (chronologically date wise)	PT0718614/01 PT0718601/01 PT0718497/2 PT0793488/01 PT0718613/01 PT0790850/01 P10793481/01 (chronologically date wise)	10193109/01 10193272/01 10193296/01 11193425/01 11193457/01 11193521/01 1119457B/01 (chronologically dute wise)	10193110/01 10193273/01 10193297/01 11193426/01 11193458/01 11193522/01 1119459B:01 (chronologically date wise)
06.01,2020	36.5	-18.8	23.0	14.7
07.01,2020	36.9	20.5	23.5	13.4
13,01,2020	35.6	20.5	23.4	13.6
14.01.2020	49.3	21.2	23.3	13.9
20.01.2020	55.1	27.6	25.6	13.7
21.01.2020	51,4	35.5	26,4	14.0
27.01,2020	44,9	24.1	27.0	14.1
28.01.2020	72.7	42.6	26.4	13.5
Protocol / Method	IS:5182 (Part 23) - Gravimetric method	MLPI/SOP/44 - Oravimetrie method	15:5182 (Part 6) — Jacob and Hochheiser method	IS:5182 (Part 2) - Improved West and Gucke method
NAAQ Standards	100	60	80	80

Note: The tests marked with an "are not accredited by NABL. The result & inference pertuins to the sample tested only and parameters as per the regulation of the client, BDL: Below Detection I, mor Nat. Not Analysed, ND; Not Detected, NS; No Sample

INFERENCE	As per CPCB Standards Report Status: All values are within the prescribed standards.
	Mrs. Mi-TAMORPHOSIS Laboratory Private Limited, Beneaturu

** End of Report **

Authorized Signatory

Laboratory Head Dr. Shanth A. Thimmaiah



Recognized through Gazette Notification of MoEF & CC, GOI, vide S.O. 3744 (E) dated 17.10.2019, valid upto 16.10.2024.

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TEST REPORT

AMBIENT AIR QUALITY DATA

1. Name of the Project

: Vedanta Limited Iron Ore Mine (ML:2677)

Location Name

: Core Zone - MEMC Railway Siding - Shift - 2

Name of the project Propunent : M/s. Vedania Limited., Megalaballi Office Complex. Blicemasamodra, Chitradurga, Karnataka

4 Month of sampling

: January - 2020

5. Duration of sampling

: 8 hours

6. Date of reporting : 10.02.2020

Parameter	РМ ₁₀ µg/m ³	PM _{2,5} µg/m ³	NO ₂ µg/m³	SO ₂ µg/m ³
Sample no. Date of Sampling	MGF485654/01 MGF485644/01 MGF491275/01 MGF485632/01 MGF485419/01 MGF485418/01 MGF485604/01 (chronologically date wise)	PT0640507/01 P10790817/01 P10718500/01 PT0793492/01 PT07908047/01 PT0718603/01 PT0790808/01 (chronologically date wise)	10193087/01 10193111/01 10193274/01 10193298/01 11193427/01 11193459/01 11193523/01 (chronologically dute wise)	10193088/01 10193112/01 10193275/01 10193299/01 11193428/01 11193460/01 11193524/01 (chronologically date wise)
06.01.2020	24.0	18.3	22.2	14,0
07.01.2026	20.3	16.9	20.7	12.8
13.01,2020	48.2	24.1	22.8	13.4
14.01.2020	38.2	19.7	24.0	13.6
20.01.2020	41.3	22.0	123.4	13.8
21.01.2020	43.2	25.7	25.6	14.2
27.01.2020	39,9	21.6	17.5	14.4
28.01.2020	47.0	24.0	16.4	14.4
Protocol / Method	IS:5182 (Part 23) - Gravimetric method	MLPL/SOP/44 - Gravimetric method	IS:5182 (Part 6) - Jacob and Hochheiser method	IS:5182 (Part 2) Improved West and Gucke method
NAAQ Standards	an * are not accredited by NA	60	80	90

Note: The tests marked with an "are not accredited by NABL. The result & inference pertains to the sample tested only and parameters as per the requisition of the client. BDL: Below Detection Limit, NA: Not Analysed, NB: Not Detected, NS: No Sample

INFERENCE	As per CPCB Standards Report Status: All values are within the prescribed standards.
Sample Collected By	M/s. METAMORPHOSIS Laboratory Private Limited. Bengaluru

** End of Report **

Authorized Signatory

Laboratory Head Dr. Shanth A. Thimmaiah



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TEST REPORT

AMBIENT AIR QUALITY DATA

- Name of the Project
- 2. Location Name
- 3. Name of the project Proponent

Date of reporting

- 4. Month of sampling 5. Duration of sampling
- : Vedanta Limited from Ore Mine (ML; 2677)
- : Core Zone Fixed crushing cum screening plant 1 Shift 1
- : M/s. Vedanta Limited., Megalaballi Office Complex. Bheemasamudra, Chitradurga, Karnataka
- : January 2020
- : 8 hours
- : 10.02.2020

Parameter	PM ₁₀ µg/ur ³	PM _{2.5} μg/m ³	NO ₂ µg/m³	SO ₂ µg/m ³
Sample no. Date of Sampling	MGF485652/01 MGF485652/01 MGF485620/01 MGF487625/01 MGF485625/01 MGF485638/01 (chronologically date wise)	P10790813-01 P10718611-01 P10812676-01 P10812653-01 P10793482-01 P10793498-01 P10793498-01 (chronologically date wise)	10193089/01 10193252/01 10193276/01 11193441/01 11193533/01 1119463B/01 (chronologically date wise)	10193090/01 10193253/01 10193277-01 11193442/01 11193462/01 11193534/01 1119465B-01 (chronologically date wise)
06.01.2020	43.1	20.3	24.0	13.9
07,01,2020	35.1	18.8	21.9	13,4
13.01.2020	41.6	22.3	22.1	13.4
14.01.2020	20.3	18,9	22.9	13.9
20.01.2020	57.8	22.7	24.5	14.0
21.01,2020	34.7	24.7	24.2	14.1
27.01.2020	38.1	23.8	24.9	13.7
28.01.2020	58.3	30.3	27.8	14.8
Protocol / Method	IS:5182 (Part 23) - Gravimetric method	MLPL/SOP/44 - Ciravimetric method	1S 5182 (Part 6) — Jacob and Hochheiser method	IS:5182 (Part 2) – Improved West and Gacke method
NAAQ Standards	100	60	80	80

Note: The tests marked with an " are not accredited by NABL. The result & inference permins to the sample tested only and parameters as per the requisition of the client, BDLs Below Detection Limit; NAL Not Analysed, ND: Not Detected, NS: No Sample.

INFERENCE	As per CPCB Standards Report Status: All values are within the prescribed standards.
Sample Collected By	M/s, METAMORPHOSIS Laboratory Private Limited, Bengaluru

** End of Report **

Authorized Signatory

Laboratory Head Dr. Shanth A. Thimmaiah



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TEST REPORT

AMBIENT AIR QUALITY DATA

- 1. Name of the Project
- 2. Location Name
- 3. Name of the project Proponent
- 4. Month of sampling 5. Duration of sampling
 - Date of reporting
- : Vedanta Limited Iron Ore Mine (ML: 2677)
- : Core Zone Fixed crushing cum screening plant 1 Shift 2
- M/s. Vedanta Limited_ Megalahalli Office Complex. Bheemasamudra. Chitradurga. Karnataka
- : January 2020
- : 8 hours
- : 10.02.2020

Parameter	PM _m µg/m³	PM _{2.5} μg/m ³	NO ₂ µg/m ³	SO ₂ μg/m ³
Sample no. Date of Sampling	MGF485656/01 MGF485609/01 MGF480893/01 MGF485431/01 MGF485435/01 MGF485445/01 MGF48566/011 (chronologically date wise)	P10790820/01 P10790828/01 P10812662/01 PT0812655/01 PT0790839/01 P10789901/01 PT0812665/01 (chronologically dute wise)	10193077/01 10193091/01 10193254/01 10193278/01 11193443/01 11193463/01 11193535/01 (chronologically date wise)	10193078/01 10193092/01 10193255/01 10193279/01 11193444/01 11193536/01 (chronologically date wise)
06.01.2020	38.6	20.0	22.3	13.5
07.01.2020	36.0	17.9	23.5	13.6
13.01.2020	35.8	17.8	26.0	13.2
14.01,2020	34.5	19.4	26.2	13.6
20.01,2620	38.7	21.7	22.4	13.5
21.01.2020	34.7	21.9	25.4	13.5
27.01.2020	37.8	26.7	24.0	12.7
28.01.2020	-14.7	32.4	27.0	13,2
Protocol / Method	IS:5182 (Part 23) – Gravimetric method	MLPL/SOP/44 - Gravimetric method	IS:5182 (Part 6) – Jacob and Hochbeiser method	IS:5182 (Part 2) — Improved West and Gacke method
NAAQ Standards	100	50	80	80

Note: The tests marked with an " are not accredited by N4BL. The result & inference pertains to the sample tested only and parameters as per the regulsition of the client. BOL: Below Detection Limit NA: Not Analysed, ND: Not Detected, NS: No Sample

INFERENCE	As per CPCB Standards Report Status: All values are within the prescribed standards.
	M/s. METAMORPHOSIS Laboratory Private Limited, Bengaluru

** End of Report **

Authorized Signatory

Laboratory Head Dr. Shanth A, Thimmaiah



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TEST REPORT

AMBIENT AIR QUALITY DATA

Name of the Project

: Vedanta Limited Iron Ore Mine (ML:2677)

Location Name

: Buffer Zone - Megalahalli village

3.

Name of the project Proponent: M/s. Veclants Limited., Megalahalli Office Complex. Bhoemasamadra, Chitradurga, Kamataka

Month of sampling

: January - 2020

9	trucation of sampling	t 24 hours
	Date of reporting	: 10.02.2020

Parameter	PNI ₁₀ µg/m³	PM _{2.5} ng/m ³	NO ₂ µg/m³	SO ₂ µg/m ³
Sample no. Date of Sampling	MGF485641/01 MGF485414/01 MGF485619/01 MGF485615/01 MGF480871/01 MGF480872/01 MGF480872/01 MGF480872/01 MGF480873/01 (chronologically date wise)	P10790829-01 P10718477-01 P10812654-01 P10812660-01 P10812657-01 P10718498-01 P10718498-01 P10718500-01 (chronologically date wise)	10193204/01 10193228/01 11193385/01 11193403/01 1119349/01 11193506/01 11193501/01 (chronologically date wise)	10193207/01 10193231/01 11193388/01 11193406/01 11193502/01 11193503/01 11193504/01 (chronologically date wise)
09.01,2020	34.1	19.5	22.3	12.5
10.01.2020	34.4	20,0	20.5	13.0
16.01.2020	37,0	20,9	23.1	13.5
17.01.2020	36,9	20,7	23.0	12.1
23.01.2020	37.8	23.2	21.9	13.2
24.01.2020	39,7	21.2	20.6	12.6
30.01.2020	36.1	19.7	23.2	13.8
31.01.2020	36,6	17.9	22.6	13.1
Protocol / Method	IS:5182 (Part 23) – Gravimetric method	MLPL/SOP/44 - Gravimetric method	IS S182 (Part 6) — Jacob and Hochheiser method	IS 5182 (Part 2) – Improved West and Gacke method
NAAQ Standards	100	60	80	80

Note: The tests marked with an * are not occredited by NABL. The result & inference pertains to the sample tested only and parameters as per the requisition of the effect. BDL: Below Detection Limit; NA: Not Analysed, ND: Not Denceed: NS: No Sample

INFERENCE	As per CPCB Standards Report Status, All values are within the prescribed standards.	_
Sample Collected By	Mb. METAMORPHOSIS Laboratory Private Limited. Bengalum	

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Authorized Signatory

Laboratory Head Dr. Shanth A. Thimmaiah



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TEST REPORT

AMBIENT AIR QUALITY DATA

Name of the Project

: Vedanta Limited Iron Ore Mine (ML:2677)

2

3.

Location Name : Buffer Zone - Tanigehalli village
Name of the project Proponent : M/s. Vedanta Limited. Megalahalli Office Complex. Bheemasamudra, Chitradurga, Karnataka

: January - 2020

Month of sampling Duration of sampling

± 24 hours

6. Date of reporting : 10.02.2020

Parameter	PM _m µg/m ³	PM _{2.5} ug/m ³	NO ₂ µg/m³	SO ₂ µg/m³
Sample no.	MGF-485642/01 MGF-485637/01 MGF-48564-01 MGF-485639/01 MGF-485655/01 MGF-48565/01 MGF-485657/01 (chronologically	PT0718612/01 PT0718604/01 PT0812680/01 PT0812681/01 PT0812658/01 PT0812663/01 PT0812664/01 PT0812665/01 (chronologically	10.1932.10/01 10.1932.34/01 11.1933.73/01 11.1933.97/01 11.1934.69/01 11.1935.05/01 11.1935.06/01 11.1935.07/01 (chronologically	10.93213/01 10.193237/01 11.193376/01 11.193470/01 11.193472/01 11.193508/01 11.193508/01 11.193510/01 (chronologically
Date of Sampling	date wise)	date wise)	date wise)	date wise)
09.01.2020	37.9	24.3	22.0	12.5
10.01.2020	37.4	20.8	24.9	14,9
16,01,2020	36.6	20.2	23.6	14.3
17:01,2020	38,5	22.2	24.1	14.4
23.01.2020	40.5	21.5	23.3	14.3
24.01.2020	42.9	23.5	27.4	13.7
30,01.2020	38.0	21.9	24.1	13.4
31.01.2020	42.9	19.9	22.3	13,7
Protocol / Method	IS:5182 (Part 23) – Gravimetric method	MLPL/SOP/44 + Gravimetrie method	IS:5182 (Part 6) – Jacob and Hochheiser method	IS:5182 (Part 2) — Improved West and Gacke method
NAAQ Standards	100	60	80	80

Note: The tests marked with un * are not accredited by NABL. The result & inference periodus to the sample tested only and parameters as per the requisition of the client. BDL: Below Detection Limit: NA: Not Analysed, ND: Not Detected, NS: No Sample

INFERENCE As per CPCB Standards Report Status: All values are within the prescribed standards M/s, METAMORPHOSIS Laboratory Private Limited, Bengalum Sample Collected By

** End of Report ***

Authorized Signatory

Laboratory Head Dr. Shanth A. Thimmaiah



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TEST REPORT

AMBIENT AIR QUALITY DATA

Name of the Project

: Vedanta Limited Iron Ore Mine (ML:2677)

Location Name

: Buffer Zone - D-Medikeripura village

3.

Name of the project Proponent: M/s, Vedanta Limited. Megalahalli Office Complex. Bheemasamudra, Chitradurga, Karnataka

Month of sampling

: January - 2020

5. Duration of sampling 1 24 hours

Date of reporting

: 10.02.2020

Parameter	PM _{in} µg/m ³	PM _{2,5} µg/m ³	NO ₂ µg/m ³	SO ₂ µg/m ³
Sample no. Date of Sampling	MGF48565001 MGF48562101 MGF49108401 MGF48565401 MGF48088001 MGF48088101 MGF48088201 (chronologically date wise)	PT0790832/01 PT0718605/01 PT0812664/01 PT0788937/01 PT0790804/01 PT0790804/01 PT0790804/01 PT0790805/01 (chronologically date wise)	10193216/01 10193240/01 11193379/01 11193409/01 11193493/01 11193493/01 11193493/01 (chronologically date wise)	10193219/01 10193243/01 11193382/01 11193412/01 11193478/01 11193496/01 11193499/01 (chronologically date wise)
09.01.2020	32.9	18.1	24.3	15.1
10.01.2020	39.8	21.1	26,2	15.3
16.01,2920	39.4	19.7	25.5	15.0
17.01.2020	39,5	21.1	23.0	15.4
23.01.2020	39.3	20.9	21.4	14.2
24.01.2020	41,6	23.5	24.0	14:1
30.01.2020	36.6	21.3	27,5	14.6
31.01.2020	35.3	21.2	27.4	15.1
Protocol / Methed	IS:5182 (Part 25) – Gravimetric method	MLPL/SOP/44 - Gravimetric method	IS:5182 (Part 6) — Jacob and Hochheiser method	-IS:5182 (Part 2) — Improved West and Goeke method
NAAQ Sundards	100	50	80	80

Nate: The tests marked with an * are not accredited by N4BL. The result & inference pertains to the sample tested only and parameters as per the requisition of the ellent. BDL: Below Detection Limit; NA: Not Analysed, ND: Not Detected, NS: No Sample

INFERENCE As per CPCB Standards Report Status; All values are within the prescribed standards M/s, METAMORPHOSIS Laboratory Private Limited, Bengalum *** End of Report *** Sample Collected By

Authorized Signatory

Laboratory Head Dr. Shanth A. Thimmaiah



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TEST REPORT

AMBIENT AIR QUALITY DATA

Name of the Project

: Vedanta Limited Iron Ore Mine (ML:2677)

Location Name 2.

: Buffer Zone - Konanuru village

3.

Name of the project Proponent: M/s. Vedanta Limited., Megalahalli Office Complex. Bheemasamudra, Chitradurga, Karnataka

Month of sampling

: January - 2020

Duration of sampling

: 24 hours

Date of reporting

: 10.02.2020

Parameter	PM ₁₀ µg/m ³	PM _{2.5} µg /m ³	NO ₂ µg/m³	SO ₂ µg/m ³
Sample no.	MGF 485617-01 MGF 485630-01 MGF 491082-01 MGF 485631-01 MGF 485443-01 MGF 485404-01	P10718602/01 PT0790818/01 PT0812685/01 PT0812656/01 P10793485/01 PT0790805/01	10193222/01 10193246/01 11193391/01 11193415/01 11193487/01 11193511/01	10193225/01 10193249/01 11193394/01 11193418/01 11193490/01 11193514/01
Date of Sampling	MGF485405/01 MGF485406/01 (chronologically date wise)	PT0790806/01 PT0790807/01 (chronologically date wise)	11193512/01 11193513/01 (chronologically date wise)	11193515/01 11193516/01 (chronologically date wise)
09.01.2020	33.7	19.6	25.3	14.6
10.01.2020	42.6	23.6	22.5	15.3
16.01,2020	35.0	20.7	32.9	15.0
17.01.2020	41.8	21.7	23.0	14,3
23.01.2020	38.3	20.4	27.1	14.2
24.01.2020	37.5	24.9	25.2	14,0
30.01.2020	40.8	25.0	25.7	14,8
31.01.2020	34.2	20.7	23.1	15,2
Protocol / Method	IS:5182 (Part 23) — Gravimetrie method	MLPL/SOP/44 - Gravimetrie method	18:5182 (Part 6) – Jacob and Hochheiser method	IS:5182 (Part 21— Improved West and Gacke method
NAAQ Standards	100	60	80	80

Note: The tests marked with an * are not accredited by NABL. The result & inference pertains to the sample tested only and parameters as per the requisition of the cliem. BDL: Below December Limit, NA: Not Analysed, ND: Not Detected, NS: No Sample.

INFERENCE	As per CPCB Standards Report Status; All values are within the prescribed standards.
Sample Collected By	M/s. METAMORPHOSIS Laboratory Private Limited, Bengaluru

** End of Report **

Authorized Signatory

Laboratory Head Dr. Shanth A. Thimmaiah



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Art /5/7 90/01:2015 ZHSAS 18002-2002

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TEST REPORT

AMBIENT AIR QUALITY DATA

Name of the Project

2 Vedanta Limited Iron Ore Mine (ML-2677)

Location Name

: Transport Route Location - Bheemasamudra Petrol Bunk

3.

Name of the project Proponent: Mrs. Vedanta Limited., Megalahalli Office Complex, Bheemasamudra, Chitradorga, Karrutaka

Month of sampling

: January - 2020

Duration of sampling

: 24 bours

Date of reporting

: 10.02.2020

Parameter	PM _{ig} µg/m³	PM _{2.5} μg/m ³	NO ₂ µg/m²	SO ₂ µg/m ²
Sample no. Date of Sampling	1079/01 1077/01 1065/01 1061/01 1062/01 1072/01 1013/01 (chronologically date wise)	PT0790822/01 PT0790821/01 PT0789923/01 PT0790848/01 PT0812687/01 PT0812674/01 PT0790804/01 (chronologically dute wise)		_
06.01.2020	06.01.2020 53.3		**	- T
07.01.2020 46.1		23.3	-	5
13.01.2020	13:01:2020 60.8			
14,01,2020	56.1	24.5		**
20.01.2020	42.7	26.6	**	441
21.01.2020	49.8	24.5	-	194
27.01.2020	47.0	24.2	10	
28.01.2020	63.0	27/2		**
Protocol / Method	4S 5182 (Part 23) – Gravimetric method	MLPL/SOP/44 - Gravimetrie method	IS:5182 (Part 6) – Jacob and Hochbeiser method	IS:5182 (Part 2) — Improved West and Gacke method
NAAQ Standards	[00]	60	80	80

Note: The tests marked with an " are not accordined to NABL. The result & inference pertuins to the sample tested only and parameters as per the requisition of the client. BDL: Below Detection Lang, NA: Not Analysed, ND: Not Detected, NS: No Sample.

INFERENCE	As per CPCB Standards Report Status: All values are within the prescribed standards.
Sample Collected By	Ms. METAMORPHOSIS Laboratory Private Limited, Bengaloni

e* End of Report **

Authorized Signatory

Laboratory Head Dr. Shanth A. Thimmaiah



Recognized through Gazette Notification of MoEF & CC, GOL vide S.O. 3744 (E) dated 17.10.2019, valid upto 16.10.2024.

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TEST REPORT

AMBIENT AIR QUALITY DATA

Name of the Project

: Vedanta Limited Iron Ore Mine (ML:2677)

Location Name

: Transport Route Location - Bommenahalli Village Junction

3.

Name of the project Proponent : M/s. Vedanta Limited, Megalahalli Office Complex, Bhoemasanudra. Chitradurga. Kamataka State.

Month of sampling

: January - 2020

Duration of sampling

: 24 hours

Date of reporting

: 10.02.2020

Parameter	PM ₁₀ , ng/m	PM _{2.5} μg/m ⁵	NO ₂ µg/m ³	SO ₂ µg/m ³
Sample no. Date of Sampling	1080/01 1076/01 1064/01 1060/01 1062/01 1075/01 1014/01 (chronologically date wise)	PT0790812/01 PT0718516/01 PT0793491/01 PT0790845/01 PT0790844/01 PT0793489/01 PT0790809/01 (chronologically date wise)		æ
06.01.2020			-	, e 10
67.01.2020	42.7	22.3	#	(ae
13.01.2020	60.1	28.6	***	100
14.01.2020	58.4	25.4	20	12
20.01.2020	53.6	27.6	++	*** **
21.01.2020	24.4	16.6		-
27,01,2020	53.2	25.0	in the second	120
28.01.2020	55.5	29.5	(14)	**
Protocol / Method	1S:5182 (Part 23) — Gravimetric method	MLPL/SOP/44 - Gravimetric method	IS:5182 (Part 6) — Jucob and Hochheiser method	IS:5182 (Part 2) — Improved West and Gacke method
NAAQ Standards	100	60	80	80

Nine: The tests marked with an * are am accredited by NABL. The result & inference pertains to the sample tested only and parameters us per the requisition of the client, BDL: Below Detection Limit; NA: Not Analy sed; ND: Not Detected, NS: No Sample

INFERENCE	As per CPCB Standards Report Status: All values are within the prescribed standards,
Sample Collected By	Ms. METAMORPHOSIS Laboratory Private Limited, Bengaluru

** End of Report **

Authorized Signatory

Laboratory Head Dr. Shanth A. Thimmaiah



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TEST REPORT

AMBIENT AIR QUALITY DATA

1. Name of the Project

2 Vedanta Limited Iron Ore Minc (ML:2677)

Location Name

: Transport Route Location - Malapanahatti Junction

Name of the project Proponent : M/s. Vedanta Limited., Megalaballi Office Complex.

Bheemasamadra, Chirradurga, Karnataka

Month of sampling Duration of sampling

: Jacuary - 2020 : 24 hours

Date of reporting

: 10.02.2020

Parameter	PM ₁₀ µg/m ³	PM _{2.5} µg/m ³	NO ₂ µg/m ³	SO ₂ µg/m³
Sample no. Date of Sampling	MGF 485645/01 MGF 485649/01 MGF 485618/01 MGF 485618/01 MGF 485441/01 MGF 485442/01 MGF 485442/01 MGF 485442/01 (chronologically dute wise)	PT0718609/01 PT0718607/01 PT0812669/01 PT0812667/01 PT0812673/01 PT0812674/01 PT0812675/01 PT0812675/01 (chronologically date wise)		
09,01,2020	09.01.2020 40.6		. 	**
10:01:2020 33.5		18.9		
16.01.2020	16.01,2020 60.4			450
17.01,2020	56.0	24.5	275	24
23.01.2020	49.6	23.4	44	**
24.01.2020	47.8	22.7		
30.01.2020	52,0	25,3	-	-
31,01,2020	56.7	28,5		
Protocol / Method	IS:5182 (Part 23) — Gravimetric method	MLPL/SOP/44 - Gravimetric method	IS:5182 (Part 6) – Jacob and Hockheiser method	tS:5182 (Part 2) – Improved West and Gacke method
NAAQ Standards	100	:60	80	80

Note: The texts marked with an " are not accredited by NABL. The result & inference pertains to the sample tested only and parameters. us per the requisition of the cilent. BDL: Below Detection Limit; NA: Not Analysed, ND: Not Detected, NS: No Sample

As per CPCB Standards Report Status; All values are within the prescribed standards, MS, METAMORPHOSIS Laboratory Private United, Bengalutu INFERENCE Sample Collected By

e" End of Report ""

Authorized Signatory

Laboratory Head Dr. Shanth A. Thimmaiah



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TEST REPORT

AMBIENT AIR QUALITY DATA

Name of the Project

: Vedanta Limited Iron Ore Mine (ML:2677)

Location Name

: Transport Route Location - Hirekandwadi Village

3.

Name of the project Proponent: M.s. Vedanta Limited., Megalahalli Office Complex, Bheemasamudra, Chitradurga, Karnataka

Month of sampling

: January - 2020

Duration of sampling

: 24 hours

Date of reporting

: 10.02.2020

Parameter	PM _m µg/m³	PM _{2.8} μg/m ³	NO ₂ μg/m ³	SO ₂ µg/m ³	
Sample no. Date of Sampling	1082/01 1083/01 1069/01 1070/01 1065/01 1074/01 1075/01 1075/01 (chronologically date wise)	PT0718615:01 PT0718615:01 PT0812686:01 PT0812682:01 PT0812666:01 PT0790811:01 PT0790812:01 PT0790812:01 (chronologically date wise)			
09,01.2020	34,1	18.3	2		
10,04.2020	52.8	21.5	=		
16.01.2020	40.2	14.7	12		
17,01,2020	30.1	16.9		**	
23.01.2020	32.8	21.6	17		
24.01.2020	33.0	18.4	ii.		
30.01.2020	51.1	17.9	(ee	See	
31.01.2020	55.4	19.8	-		
Protocol / Method IS.5182 (Part 23) - Gravimetric method		MLPL/SOP/44 Gravimetrie inethod	IS:5182 (Part 6) — Jacob und Hochheiser method	IS:5182 (Part 2) — Improved West and Gacke method	
NAAQ Standards	100	50	80	80	

Nute: The tests marked with an " are not accredited to NABL. The result & inference pertains to the sample tested only and parameters as per the requisition of the client. BDL: Helow Detection Limit NA: Not Analysed: ND: Not Detected: NS: No Sample

INFERENCE	As per CPCB Standards Report Status: All values are within the prescribed standards.
Sample Collected By	M/s. METAMORPHOSIS Laboratory Private Limited, Bengaluru

** End of Report **

Authorized Signatory

Laboratory Head Dr. Shanth A. Thimmaiah



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TEST REPORT

AMBIENT AIR QUALITY DATA

Name of the Project

: Vedanta Limited Iron Ore Mine (ML 2677)

Location Name

: Transport Route Location - Circle Gate

Name of the project Proponent: M/s. Vedanta Limited., Megalahalli Office Complex. Bheemasamudra, Chitradurga, Karnataka

Month of sampling

: January - 2020

6.	Date of reporting	: 10.02.202		
	Parameter	PM ₁₀ µg/m ³	T	

Parameter	PM ₁₀ µg/m ³	PM _{2.5} μg/m ³	NO ₂ µg/m ³	SO ₂ µg/m ³
Sample no. Date of Sampling	1081/01 1078/01 1068/01 1067/01 1071/01 1073/01 1073/01 (chronologically dute wise)	PT0790837/01 PT0790815/01 PT0812683/01 PT0790835/01 PT081268/01 PT0790807/01 PT0790808/01 (chronologically date wise)	544 (**
09.01.2020	33.7	15.1		**
10.01,2020	45.7	13.3	**	
16.01.2020	36.0	13,6	-	-
17.01.2020	52.0	20,3		-
23.01.2020	43.1	19.2	-	
24.01.2020	32.8	18.5	-	**
30,01,2020	43.5	19.5	24	
31.01.2020	49.4	21,0	_	**
Protocol / Method	Protocol / Method IS:5182 (Part 23) — Gravimetric method		JS:5182 (Part 6) — Jacob and Hochheiser method	IS:5182 (Part 2) - Improved West and Gacke method
NAAQ Standards	100	60	80	80

Note: The texts marked with an " are not accredited by NABL. The result & inference pertains to the sample tested only and parameters as per the regulation of the client, BDL; Below Delection Limit; NA: Not Analysed, ND: Not Detected, NS: No Sample

INFERENCE	As per CPCB Standards Report Status: All values are within the prescribed standards.
Sample Collected By	M/s. METAMORPHOSIS Laboratory Private Limited, Bengaluru

** End of Report **

Authorized Signatory

Laboratory Head Dr. Shanth A. Thimmaiah



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TEST REPORT

AMBIENT NOISE MEASUREMENT

1. Name of the project

2. Location name

3. Name of the project proponent

80 81 90 92

Date of Measurement
 Name of instrument

6. Date of reporting

: Vedanta Limited Iron Ore Mine (ML:2677)

: Megalahalli Village

: M/s. Vedanta Limited, Megalahalli Office

Complex, Bheemasamudra, Chitradorga, Karnataka

: 29.07.2019

: Digital sound level meter Lutron SL 4033 SD &SL No: Q650063.

: 17.08.2019

			Result (dB (A))					
Sampling point	Sample no.	Protocol	Day		Night			
			LMin	LMax	Leq	LMin	LMax	Leg
Megalahalli Village	08191903	15:9989 -1981	43.3	56.6	50,7	- 14	*	*

Limits in dB (A) Leq							
Area Code	Category of Area/ Zone	Day (6 a.m. to 10 p.m.)	Night (10 p.m. to 6 a. m.				
(A)	Industrial Area	75	70				
(B)	Commercial Area	65	55				
(C)	Residential Area	55	45				
(D)	Sensitive Zone	50	40				

Note: The result & inference pertains to the sample tested only and parameters as per the requisition of the client.

INFERENCE	Report Status as per KSPCB Standards: - Values are found within the permissible limits applicable to residential area.
Sample Collected By	M/s. METAMORPHOSIS SXI Laboratory Private Limited, Bengaluru.

End of Report

Authorized Signatory

Dr. Shanth A. Thimmaiah



PRAKRUTI BHAVAN, #200, 10 & 250 Floor, 40th Main, 1st Cross, BTM Layout II Stage, Behind Central Silk Board, Bengaluru − 560068, Karnataka, India, Telefax: +91.80.26783006 Email: mail@metamorphesis-india.com.

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TEST REPORT

AMBIENT NOISE MEASUREMENT

1. Name of the project

2. Location name

3. Name of the project proponent

: Vedanta Limited from Ore Mine (ML:2677)

: MEMC Railway Siding

 M/s. Vedanta Limited. Megalahalli Office Complex. Bheemasamudra. Chitradurga. Karnataka.

4. Date of Measurement 5. Name of instrument

6. Date of reporting

29.07.2019
 Digital sound level meter Lutron SL 4033 SD &SL No: Q650063.

: 17.08.2019

Sampling point	Sample no.	Protocol	Result (dB (A))					
			Day			Night		
			LMin	LMax	Leg	LMin	LMax	Leg
BBH Siding	08191904	1S:9989 -1981	53.0	59.9	56.7	-	-	-

Limits in dB (A) Leq						
Area Code	Category of Area/ Zone	Day (6-a.m. to 10 p.m.)	Night (10 p.m. to 6 a. m.			
(A)	Industrial Area	75	70			
(B)	Commercial Area	65	55			
(C)	Residential Area	55	45			
(D)	Sensitive Zone	- 50	40			

Note: The result & inference pertains to the sample tested only and parameters as per the requisition of the client.

INFERENCE	Report Status as per KSPCB Standards: - Values are found within the permissible limits applicable to commercial area.
	M/s. METAMORPHOSIS SM Laboratory Private Limited, Bengaluru.

End of Report

Authorized Signatory

Laboratory Head Dr. Shanth A. Thimmaiah



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TEST REPORT

AMBIENT NOISE MEASUREMENT

1. Vedicina United from Ore Mine (MI.(2677)

Name of the project

Location name

Name of the project proponent

Date of Measurement

Name of instrument Date of reporting

1. Medikeripum Village 2 Mis. Vedauta Limited. Megalaluffi Office

Complex Bheemasanadra, Chimalorga, Kamataka

1 Digital sound level meter Lupon SL 4033 SD &SL No. Q650063.

± 17.08.2019

		Result (dB (A))						
Sampling point	Sample no.	Pretecel		Day	,		Night	
			LMin	LMax	Leq	L.Min	LMax	Leg
Medikeripura Village	08191905	15:9989 -1981	50.8	57.7	53.5			

	Limit	s in dB (A) Leq	sie de la companya della companya della companya de la companya della companya de
Area Code	Category of Area/ Zone	Day (6 a.m. to 10 p.m.)	Night (10 p.m. to 6 a. m.
(A)	Industrial Area	75	70
(B)	Commercial Area	65	55
(C)	Residential Area	55	45
(D)	Sensitive Zone	50	40

Note: The result & inference pertains to the sample tested only and parameters as per the requisition of the ellent.

INFERENCE	Report Status as per KSPCB Standards: - Values are found to be within the permissible limits applicable to residential area.				
Sample Collected By	M/s. METAMORPHOSIS ⁵⁵⁶ Laboratory Private Limited, Bengaluru.				

End of Report

Authorized Signatory

Laboratory Head Dr. Shanth A. Thimmaiah



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TEST REPORT

AMBIENT NOISE MEASUREMENT

Name of the project

Location name

Name of the project proponent

Date of Measurement Name of instrument

Date of reporting

: Vedanta Limited from Ore Mine (ML 2677)

Tenigehalli Village

: M's, Vedanta Limited, Megalahalli Office Complex, Bheemasamudra, Chitradurga, Karnataka

: Digital sound level meter Lutton SL 4033 SD &SL No: Q650063.

: 17.08.2019

Sampling point	Sample no.		Result (dB (A))					
		Protocol	Day				Night	
			LMin	LMax	Leg	LMin	LMax	Leg
Tanigehalli Village	08191906	IS:9989 -1981	42.2	59.3	52.6	-	-	

	Limit	s in dB (A) Leq	
Area Code	Category of Area/ Zone	Day (6 a.m. to 10 p.m.)	Night (10 p.m. to 6 a. m.
.(A)	Industrial Area	75	70
(B)	Commercial Area	65	55
(C)	Residential Area	55	45
(D)	Sensitive Zone	50	40

Note: The result & inference pertains to the sample tested only and parameters as per the requisition of the client.

INFERENCE	Report Status as per KSPCB Standards: - Values are found within the permissible limits applicable to residential area.
Sample Collected By	M/s. METAMORPHOSIS M Laboratory Private Limited, Bengaluru.

End of Report

Authorized Signatory

Laboratory Head Dr. Shanth A. Thimmaiah



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TEST REPORT

AMBIENT NOISE MEASUREMENT

1. Name of the project

2. Location name

3. Name of the project proponent

: Vedanta Limited from Ore Mine (ML:2677)

: Konanuru Village

 M/s. Vedanta Limited, Megalohalli Office Complex, Bheemasannalra, Chitradurga, Karnataka

Date of Measurement

5. Name of instrument

6. Date of reporting

29.07,2019
 Digital sound level meter Lutron St. 4033 SD &St. No. Q650063.

: 17.08.2019

Sampling point			Result (dB (A))					
	Sample no.	Protocol	Day		Night			
		10.0403140044504	LMin	LMax	Leq	LMin	LMax	Leq
Konanuru Village	08191907	IS:9989 -1981	36.1	51.8	44.5		÷	

Limits in dB (A) Leq						
Area Code	Category of Area/ Zone	Day (6 a.m. to 10 p.m.)	Night (10 p.m. to 6 a. m.			
(A)	Industrial Area	75	70			
(B)	Commercial Area	65	55			
(C)	Residential Area	55	45			
(D)	Sensitive Zone	50	40			

Note: The result & inference pertains to the sample tested only and parameters as per the requisition of the client.

INFERENCE	Report Status as per KSPCB Standards:- Values are found to be within the							
	permissible limits applicable to residential area.							
Sample Collected By	M/s. METAMORPHOSIS SM Laboratory Private Limited, Bengaluru.							

End of Report

Authorized Signatory

Laboratory Head Dr. Shanth A, Thimmaiah



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TEST REPORT

AMBIENT NOISE MEASUREMENT

1. Name of the project

Location name

Name of the project proponent

Date of Measurement

Name of instrument

Date of reporting

: Vedanta Limited from Ore Mine (ML:2677)

: Sasala Village

: M's. Vedama Limited, Megaluhalli Office Complex, Bheemasamudra, Chitradurga, Karnataka

: Digital sound level meter Lutron SL 4033 SD &SL No: Q650063.

: 17.08.2019

Sampling point	Sample no.	Protocol	Result (dB (A))					
			Day			Night		
			LMin	LMax	Leq	LMin	LMax	Leg
Sasalu Village	8091980	IS:9989 -1981	48.1	54.1	51.7	-	1	

	Limit	s in dB (A) Leq	
Area Code	Category of Area/ Zone	Day (6 a.m. to 10 p.m.)	Night (10 p.m. to 6 a. m.
(A)	Industrial Area	75	70
(B)	Commercial Area	65	55
(C)	Residential Area	55	45
(D)	Sensitive Zone	50	40

Note: The result & inference pertains to the sample tested only and parameters as per the requisition of the client.

INFERENCE	Report Status as per KSPCB Standards: - Values are found within the permissible limits applicable to residential area.
Sample Collected By	M/s. METAMORPHOSIS SSI Laboratory Private Limited, Bengaluru.

End of Report

Authorized Signatory

Laboratory Head

Dr. Shanth A. Thimmaiah



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TEST REPORT

AMBIENT NOISE MEASUREMENT

Name of the project

Location name

Name of the project proponent

Date of Measurement Name of instrument

Date of reporting

: Vedanta Limited from Ore Mine (ML:2677)

: Sirigere village

: M/s. Vedanta Limited. Megalaballi Office Complex, Bheemasamudra, Chitradurga, Karnataka

: Digital sound level meter Lutron St. 4033 SD &SL No: Q650063.

: 17,08,2019

Sampling point	Sample no.	Protocol	Result (dB (A))					
			Day			Night		
			LMin	LMax	Leg	LMin	LMax	Leg
Sirigere village	08191910	IS:9989 -1981	49.1	58.9	52.2	-	-	-

Limits in dB (A) Leq						
Area Code	Category of Area/ Zone	Day (6 a.m. to 10 p.m.)	Night (10 p.m. to 6 a. m.)			
(A)	Industrial Area	75	70			
(B)	Commercial Area	65	55			
(C)	Residential Area	55	45			
(D)	Sensitive Zone	50	40			

Note: The result & inference pertains to the sample tested only and parameters as per the requisition of the client.

INFERENCE	Report Status as per KSPCB Standards: - Values are found within the permissible limits applicable to residential area.
Sample Collected By	M/s. METAMORPHOSIS SM Laboratory Private Limited, Bengaluru.

End of Report

Authorized Signatory

Laboratory Head Dr. Shanth A. Thimmaiah



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Date: 8th June, 20

Mine Code: 30KAR07013

Interim Registration No.: IBM/327/2011

To:

Regional Controller of Mines Indian Bureau of Mines Bengaluru- S60022

Respected Sir.

Subject: Submission of financial assurance as prescribed under rule 27(1) of MCDR-2017

Reference: Letter no. 279/25/88/BNG-Vol-VI, dated 28-04-2017 from your good office

With reference to the above subject we are herewith submitting amended Bank Guarantee, Ref No: 1364BGR000431 amounting to Rs.48177000 (Rupees Four crore eighty one lakh seventy seven thousand only) for our M.L. No. 2677 (R.M.I 2236), Iron Ore Mines for an area of 160.59 Hectares for the year (2017-2022)

Requesting you to kindly return the Bank guarantee submitted earlier with BG number: 1364BGR0004317, issuance date 14th Dec 2016, of amount Rs.40,14,750 (Rupees Forty Lakh fourteen thousand seven hundred and fifty only), which wa submitted along with our Review & Updation of Mining plan for 2017-18 to 2021-22.

Thanking You

For Vedanta Limited

Agent

THE THE PARTY OF T BANGA (O.E.R. 000 033)

QUALIFIED PERSON

CUALIFIED PERSON

VEDANTA LIMITED and Close Box One; Klemotyle

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Employee Office Normal Louist, but More, his way, that the Composite Normal And Street, Children And Louisian Street, and Advances have



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RESIDENTS 19191 PURPOSE

ACANT PATIL LIC. No. AC/STD/VEN/LIC/20/2004

FURCHASER SIGN

This forms an integral part of Bank Guarantee No.1364BGR0004317 dated December 14,2016 and amended on May 31, 2017 valued at Rs.48177000,00 (Rupees Four Crore Eighty One Lakhs Seventy Seven Thousand Only) issued by ICICI Bank Limited, having its registered office at ICICI Bank Tower, Neat Chakli Circle, Old Padra Road, Vadodara, Gujalat. Pin - 390 007.

SHIRODKER 8-13446



For ICICI Bank United

Samir Vernekar V-2054

NK GUARANTEE ICI Bank Limited ncorporated in India)



BG Number: 1364BGR0004317 Amendment Date: 31-05-2017

THE REGIONAL CONTROLLER OF MINES

INDIAN BUREAU OF MINES.

BENGALURU - INDIA

Sub: Amendment of Bank Guarantee No 1364BGR0004317 Dtd 14-12-2016 for INR 4014750.00

Current Bank guarantea details -

BG Currency	BG Anit	BG Expiry Date	BG Claim Expiry Date
TINR	4014750.00	(31-03-2022	31-03-2022

At the request of VEDANTA LIMITED-SESA IRON ORE, we hereby amend above mentioned Bank Guarantee as follows:

The amount of Bank guarantee has been amended to INR 48177000.00 UNDIAN RUPEE Four Crore Eighty One Lakh Seventy Seven Thousand Only)

All other terms and conditions of the original Bank guarantee remain, beckinged. This letter forms an integral part of the original guarantee referred above and may be sept attached thereto.

Notwithstanding anything contained here in above 11 Our liability under this Bank guarantee of all libraries of NR 48177000.00 (INDIAN RUPEE Four

Crore Eighty One Lakh Seventy Saven Thomas and Only) 20 2) This Bank Guarantee shall be valid vote 31-03-2022

22 3) We shall be liable to has any amount under this Bank guarantee or part thereof only if we receive (it you serve) (bod bs) a written claim or demand under this guarantee on or before 31-03-2022 at ICIC Bank-Aid. Shops No.2 3, Gr.Fir., Sesa Ghor, Patto Plaza, Punaji, Goa. Panaji Goa.

Date: 31-05-2017

For ICICI BANK LIMITED

Authorised signatories

Signature:

RENUKA SHIRODKER Name :

8-13446

Signature Code Signature Code

V - 2054

Read, Office: ICICI Bank Ltd, ICICI Bank Tower, Near Chakli Circle, Old Padra Road, Vadodara, Pin code - 390 007, Gujarat Phone: 0265 - 6722222 Fax - 0265 - 6722020 CIN: L65190GJ1994PLC021012

PICICI Bank

Ref: 0364BGR0004317 Pane: 01-06-2017

TEGIONAL CONTROLLER OF MINES, TEUREAU OF MINES,

经

Din: Issuance of Bank Guarantee

Bir/Madam,

Tise find the attached Bank Guarantee issued by us favoring yourself on ANCA LIMITED-SESA IRON ORE

PANA - 000000

gas find the details mentioned below.

Guarantee No. 5	Expiry Date	Claim Expiry Date		nt of Guarantee	
BBGR0004317 Ed 14-12-2016	31-03-2022	31-03-2022	INR	48177000.00	

We confirm that the officials who have signed the above Bank Guarantee are suthbrized to sign such documents on behalf of ICICI Bank Limited. You may verify genuineness of the Bank Guarantee from any branch of ICICI Bank in

The event of invocation, we request you to please ensure compliance with terms and conditions of the bank quarantee in order to ensure timely following in the invocation claim letter-

Bank Guarentee Number

. Expiry/Claim Expiry date

. | Claim amount

Designated Bank branch for submission of invocation claim Any declaration/certification that may be required as part of the quarantee text

Any other requisite document including the original Bank Guarantee

ming you, | Heaithfully, | GIGT Book Limited

EBGRIZED Signatory

K-7850

ICICI Bank Limited Shops No. 2 B-3, Gr. Fir., Sesa Ghor, Patto Plaza, Panal, Gos-403001



Regd. Office: ICICI Bank Tower, Near Chakli Circle, Old Padra Road, Vadodura, Gujarat. Pin – 390 007

Corp. Office: ICICI Bank Towers, Bandra-Kurla Complex, Mumbai 400 051, India

Website: www.icicibank.com CIN: L65190GJ1994PLC021012