

To,  
The Additional Director (South)  
Ministry of Environment and Forest  
Regional Office (Southern Zone)  
Kendriya Sadan, IVth Floor, E & F Wings  
17<sup>th</sup> Main Road, II Block, Kormangala  
Bangalore – 560 034

Date: 26.05.2017

**Sub: Six monthly compliance report of Botvadeacho Dongor Iron Ore Mine (T.C. No. 28/51), Goa for the period October 2016 to March 2017.**

Respected Sir,

We are herewith submitting the condition wise compliance report & corresponding annexures and CD as per the conditions laid down in the Environmental Clearance No: **J-11015/1239/2007-IA.II(M)** dated **24/12/2009** for the period **October 2016 to March 2017**.

Thanking you,

Yours faithfully,



Mr. Vikil Kawale  
Mines Manager  
B D Mines

**Enclosed:** Six monthly compliance report and corresponding annexures of Botvadeacho Dongor Iron Ore Mine for the period of **October 2016 to March 2017**.

**C.C.** – Member Secretary, Goa State Pollution Control Board  
-- CGWB

**VEDANTA LIMITED**

Sesa Goa iron ore: Sesa Ghor, 20 EDC Complex, Patto, Panjim, Goa – 403 001, India  
T +91 0832 2460600 | Website: [www.sesagoaironore.com](http://www.sesagoaironore.com)

**Registered Office:** Vedanta Limited, 1st Floor, 'C' wing, Unit 103, Corporate Avenue, Atul Projects, Chakala, Andheri (East), Mumbai 400093, Maharashtra, India.  
CIN: L13209MH1965PLC291394

**,Compliance report to conditions of environmental clearance issued by**

**Ministry of Environment & Forests, Govt. of India, for Botvadeacho Dongor Iron Ore Mine  
(T.C. No. 28/51)**

**Letter No: J-11015/1239/2007-IA.II(M)**

**Production: 0.225 MTPA as per Environment clearance**

**Period :October 2016 – March 2017**

<b>S. No</b>	<b>Condition of clearance</b>	<b>Status of compliance</b>	<b>Remarks</b>
<b>A.</b>	<b>Specific Conditions</b>		
<b>(I)</b>	Environmental clearance is subject to obtaining clearance under the wildlife (Protection) Act, 1972 from the National Board for Wildlife. Further, grant of environmental clearance does not necessarily imply that wildlife clearance shall be granted to the project and the proposal shall be considered by the National Board for Wildlife on merits. The investment made in the project, if any, based on environmental clearance so granted, in anticipation of clearance from the wildlife angle shall be entirely at the cost and the risk of the company and MoEF in this regard shall not be responsible in any matter.	The provision of Wildlife (Protection) Act, 1972 is not applicable as the mine falls outside the Eco sensitive zones notified for the State of Goa.	
<b>(ii)</b>	Environmental Clearance is subject to final order of the Hon'ble Supreme of India in the matter of Goa Foundation Vs. Union of India in Writ Petition (Civil) no. 460 of 2004, as may applicable to this project.	Noted.	

(iii)	The company shall comply with the conditions stipulated in the environmental clearance accorded to the project for the existing capacity.	Noted and complying.	
(iv)	Wild life Conservation Plan shall be prepared in consultation with the office of the Chief Wild life warden and implemented within six months. The plan shall comprise of in-built monitoring mechanism with special emphasis to protection of Schedule- I species. The status of implementation shall be submitted to the Ministry	Conservation plan for wild life has been prepared in consultation with state forest department and submitted to forest department.	A detailed biodiversity management plan is being prepared in association with CEE.
(v)	A 50 m barrier no mining zone on the side(s) of the nallahs flowing across or adjacent the lease shall be demarcated and the barrier shall be thickly vegetated with native species of trees and shrubs.	Not applicable as there is no nallah passing through the lease area.	
(vi)	The company shall ensure that no silt originating due to mining activity is transported in the surface water course and nearby agricultural fields.	<p>The mine run off water is channelized within the pit. There is no discharging of water from the mine pit.</p> <p>The old waste dumps are located outside mine lease. Protective measures are effectively implemented to control the silt flow. Geotextiles in the form of coir mats and jute mats are laid on the dump slopes. Glyricidia cuttings are used to staple the geotextiles to the dump surface. Seeds of stylo santhus hamata are sprayed on the geotextiles so as to form a green cover. Step dumping method is followed; each step is restricted to 10-12 m height.</p> <p>Settling ponds, check dams, filter beds are constructed</p>	

		all along the toe of the dump to prevent flow of silt outside the area.																	
(vii)	<p>Need based assessment for the nearest two villages shall be conducted to study economic measures which can help in upliftment of poor section of society. Income generating projects consistent with the traditional skills of the people besides 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.</p>	<p>Depending on the community stakeholder requirement, various community development projects are initiated in the villages like Technical School, School transport facility, water supply, Smart class project, Science lab. Projects in school, E-SHIKSHA. Separate funds are earmarked for socio economic development of the villages.</p> <table><tr><th>Thrust area</th><th>Activity</th><th>Expenditure in Rs.</th></tr><tr><td rowspan="3">Education</td><td>Transport facility for school students in Pissurlem Sonshi and Navelim</td><td>340537.69</td></tr><tr><td>Career counseling, personality development for Students</td><td>8868</td></tr><tr><td>Sesa Football Academy</td><td>2177111.9</td></tr><tr><td>Need based</td><td>Need based rural development programs</td><td>986510.8</td></tr><tr><td></td><td>total</td><td>3513028.4</td></tr></table>	Thrust area	Activity	Expenditure in Rs.	Education	Transport facility for school students in Pissurlem Sonshi and Navelim	340537.69	Career counseling, personality development for Students	8868	Sesa Football Academy	2177111.9	Need based	Need based rural development programs	986510.8		total	3513028.4	
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Need based	Need based rural development programs	986510.8																	
	total	3513028.4																	

(viii)	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.	Roads used for transporting iron ore are tarred and maintained by mining companies.	
(ix)	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.	For the control of the fugitive dust, various possible measures are adopted some of which are as below:  (a) To control the dust, dumps are covered with lateritic waste, Geotextile and afforested with plants/ grasses species, which helps in minimizing the fugitive dust  (b) Water sprinkling is carried out to prevent the dust from getting air borne	However, after lifting of Mining ban, the mining operation at Botvadeacho Dongor mines, started in February 2017
(x)	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.	All trucks moving out of mining premises are well covered with tarpaulin and sufficient free board is maintained to prevent the spillage of ore/ dust on the road.	However, after lifting of Mining ban, the mining operation at Botvadeacho Dongor mines, started in February 2017
(xi)	Rain water harvesting shall be undertaken to recharge the ground water source. Status of implementation shall be submitted to the Ministry within six months.	Mining pits are utilized for harvesting the rain water .The rain water harvested in mining pit is utilized for the dust suppression, vehicle washing etc.	
(xii)	Permission from the competent authority for extraction of ground water (if any) shall be obtained.	Noted.	

(xiii)	Monitoring of ground and surface water quality shall be regularly conducted and records maintained and data submitted to the Ministry regularly. Further, monitoring points shall be located between the mine and drainage in the direction of flow of ground water and records maintained. Monitoring for Arsenic in ground water shall be undertaken.	Regular monitoring of Ground and Surface water Quality is carried out and results are submitted to Regional Director Central Ground Water Board, GSPCB and ministry.	The Reports are attached as <b>Annexure- 1</b>
(xiv)	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 mating 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.	<p>The mine run off water is channelized within the pit .Discharging of water is not carried out from the mine.</p> <p>The old waste dumps are located outside mine lease. Protective measures are effectively implemented to control the silt flow. Geotextiles in the form of coir mats and jute mats are laid on the dump slopes. Glyricidia cuttings are used to staple the geotextiles to the dump surface. Seeds of stylo santhus hamata are sprayed on the geotextiles so as to form a green cover. Step dumping method is followed; each step is restricted to 10-12 m height.</p> <p>Settling ponds, check dams, filter beds are constructed all along the toe of the dump to prevent flow of silt outside the area.</p>	However, after lifting of Mining ban, the mining operation at Botvadeacho Dongor mines, started in February 2017
(xv)	The design of the check dam shall be so as to Prevent downstream flow of the silt and regular de-siltation of the check dam shall be carried to prevent impact on the downstream water bodies and agricultural land.	Dump run off water is channelized through Garland drains and M.S.pipes into the settling ponds at the toe of the dumps. Check dam is constructed at toe of the dump. De-silting was not required to carry out as there was no silt accumulated in the settling pond.	

(xvi)	Provision shall be made for the housing the laborer's 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.	Not applicable.	
(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.	Dump run off water is channelized through Garland drains and M.S.pipes into the settling ponds at the toe of the dumps. De-silting if required is carried out well before the onset of monsoon. During the reporting period there was no desilting carried out as there is no silt within the settling pond	
(xviii)	Occupational health and safety measures for the workers including identification of work related health hazards, training on malaria eradication, HIV, and health effects on exposures 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 or less) shall be conducted followed by follow up action wherever required.	Company has employed doctor who is trained in occupational health. Well-equipped occupational health center is at the site to conduct the spirometry, audiometry etc. Periodic monitoring is carried out for all the employees for the exposure to dust and health records are maintained. Various awareness programme are organized for the workers related to occupational health and safety issues.	Pit is utilized as water reservoir.

(xix)	Green belt development and selection of plant species shall be as per CPCB guidelines. Herbs and shrubs shall also form a part of afforestation programme besides tree Plantation. Details of year wise afforestation programme including rehabilitation of mined out area shall be submitted to the Ministry within six months.	Company carries out annual plantation programme. The plantation comprises a mix of fast growing species, native species and grasses and shrubs. Details of afforestation programme submitted to ministry on regularly basis. The company has established its own state of art 'Root trainer nursery at codli village.	Plantation is done on common dump along with Gaval Sonshi Mine & Mareto Sodo Mine Plantation details for the year 2016-17 are attached in the Annexure- 2
(xx)	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.	There is no top soil within the lease area.	
(xxi)	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 10m and overall slope of the dump shall not exceed 28°. The OB lump 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 areas shall continue until the vegetation becomes self-sustaining. Compliance status shall be submitted to the Ministry of Environment & Forests on six monthly basis.	Over Burden is been stacked at earmarked dumps sites only and not kept active for a long period. The dumps are located outside the lease area .Dumping is carried out as per the approved mining plan, Step dumping method is followed and each step is of 10 -15 m each. Over all angle is maintained approx. 28 degrees. The finalized areas are covered with geotextiles and jute and taken up for plantation. .	
(xxii)	Slope of the mining bench and ultimate pit limit shall be as per the mining scheme approved by Indian bureau of mines.	Complied. Mining is carried out as per mining plan an approved by Indian Bureau of Mines.	

(xxiii)	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 from the Tailing Dam (if any) shall be regularly monitored and report submitted to the Ministry of Environment & Forests, Central Pollution Control Board and the State Pollution Control Board.	Will be complying in case of discharge. No tailing dam is present.	
(xxiv)	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.	Action plan prepared for the issues / suggestion made during public hearing had been submitted to MOEF.	
(xxv)	A final mine closure plan , along with details of Corpus Fund, shall be submitted to the Ministry of Environment & Forest ,5 years in advance of final mine closure for approval.	Final closure plan approved by Indian Bureau of mines would be submitted to MOEF in due course of time in accordance with rule 23C of MCDR.	
(xxvi)	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 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.	PUC check certificate of all the truck plying for the transportation of the ore is checked and kept as record. All trucks leaving mining premises are covered with tarpaulin. No wild life sanctuaries fall in our transport routes. Trucks are weighed before the exit point to prevent the overloading.	However, after lifting of Mining ban, the mining operation at Botvadeacho Dongor mines, started in February 2017

(xxvii)	The environmental clearance is subject to the condition. If any, stipulated by the IBM on the mining scheme submitted by the project proponent for its approval.		
(xxviii)	Adequate buffer zone shall be maintained between two consecutive mineral bearing deposits.	Since it is single pit operation, this is not applicable.	

<b>B</b>	<b>GENERAL CONDITIONS</b>		
<b>S. No</b>	<b>Condition of clearance</b>	<b>Status of compliance</b>	<b>Remarks</b>
i	No change in mining technology and scope of working shall be made without prior approval of the Ministry of Environment & Forest.	Complied. There is no change in mining technology and scope of working. Mining is carried out as per mining plan approved by Indian Bureau of Mines	
ii	No change in the calendar plan including excavation, quantum of mineral and waste shall be made.	No mining activity during the last six month period (October to March).	
iii	Fugitive dust emission 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.	Complied (1) Water sprinkling is carried out to prevent the dust being getting air borne. (2) Dumps are covered with Lateritic waste, geotextiles and afforested with plants/ grasses which help in minimizing the fugitive dust. (3) Ore carrying trucks plying on public road are covered with tarpaulin & free board is provided to prevent spillage.	However, after lifting of Mining ban, the mining operation at Botvadeacho Dongor mines, started in February 2017

iv	Four ambient air quality -monitoring stations shall be established in the core zone as well in the buffer zone for RPM, SPM,SO <sub>2</sub> ,NO <sub>x</sub> monitoring data , topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution control Board.	Complied.  Air monitoring stations are fixed within the core & buffer zone and monitored as per new Mining standards in core zone and NAAQ in buffer zone at the in-house environment laboratory approved by MOEF.	However, after lifting of Mining ban, the mining operation at Botvadeacho Dongor mines, started in February 2017
v	Data on ambient air quality (RSPM, SPM, SO <sub>2</sub> , and NO <sub>x</sub> ) Should be regularly submitted to the Ministry including its Regional office located at Bangalore and the State Pollution Control Board /Central Board /Central Board / Central Pollution Control Board once in six months.The monitored data of criteria pollutants mentioned above shall be regularly uploaded on the company's website and also displayed at project site.	It is regularly complied with.	
vi	Measures shall be taken for control of noise levels below 85 dB in the work environment .Workers engaged in operations of HEMM, etc. Shall be provided with ear Plugs /muffs.	Complied. Most of the dumpers & HEMM is with A/C cabins which minimize the impact of noise on operator. DG sets are provided with acoustic enclosures.  All people working in mines are provided with requisite personal protective equipment's.	

vii	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.	There is no workshop in the mining lease.	
viii	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.	Dust mask are provided to the personnel's exposed to dusty conditions. All the dumpers & HEMM are with A/C cabins. Regular on the job training on health and safety aspects is provided to all personnel working on mines.	
ix	Provision shall be made for the housing the laborers within the site with all necessary infrastructure and facilities such as fuel for cooking , mobile toilets , mobile STP, safe drinking water , medical health care , crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.	Not applicable.	

x	A separate Environment 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.	Complied  Environment cell has multidisciplinary staff, qualified in –Environment engineering, Agriculture, Forestry who reports to the CEO of the Company.					
xi	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.	It is an ongoing mining project.					
xii	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.	Complied  Expenditure for all the environmental measure / monitoring /reclamation etc. are separately earmarked in operational budget. Yearly expenditure on environment activities is submitted to ministry regional office.	<table><tr><td><b>Purpose</b></td><td><b>Expenditure in Rs.</b></td></tr><tr><td>STATUTORY REQUIREMENT</td><td>470,338.00</td></tr></table>	<b>Purpose</b>	<b>Expenditure in Rs.</b>	STATUTORY REQUIREMENT	470,338.00
<b>Purpose</b>	<b>Expenditure in Rs.</b>						
STATUTORY REQUIREMENT	470,338.00						
xiii	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.	It is an ongoing mining project.					

xiv	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 .	Necessary support shall be provided to the regional officer for the visit, furnishing requisite data etc.	
xv	The project proponent shall submit six monthly reports on the status of the implementation of the stipulated environmental safeguards to the Ministry of Environment and Forests its Regional office, Bangalore, Central Pollution Control Board and State Pollution Control Board. The project proponent shall upload the status of compliance of the environment of the environmental clearance conditions on their website and update the same periodically and simultaneously send the same by e-mail to the Regional Office, Ministry of Environment and Forests, Bangalore.	The status of compliance is uploaded on company's website	
xvi	The project proponent shall advertise in at least two local newspapers widely circulated in the region around the project, one of which shall be in the vernacular language of the locality /office of Municipal Corporation/Gram Panchayat concerned and on the company's web site within seven days from the date of this clearance letter, informing that the project has been accorded environmental clearance and copies of clearance letter are available with the State Pollution Control Board/Committee and may also be seen at Website of the Ministry of Environment and Forests at <a href="http://envfor.nic.in">http://envfor.nic.in</a> .	Copy of advertisement of the Environment Clearance letter in two local newspapers has been done.	

xvii	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. The clearance letter shall also be put on the website of the company.	Is complied	
xviii	State Pollution Control Board shall display a copy of the clearance letter at the Regional office, District industries center and collector office/Tehsildar's Office for 30 days.	--	
xix	The environmental statement for each financial year ending 31st March in Form-V as is mandated shall be submitted to the State Pollution Control Board as prescribed under The Environment (Protection) Rules, 1986, as amended subsequently and shall also be put on the website of the company along with the status of compliance of environmental clearance conditions. The same shall also be sent to the Regional Office of Ministry by e-mail.	Is complied.	
5	The Ministry of Environment and Forests reserves the right to revoke the clearance if conditions stipulate are not implemented to the satisfaction of the Ministry. MOEF may impose additional environmental conditions or modify the existing ones, if necessary.		
6	In case of any deviation or alteration in the project proposed from those submitted to this Ministry for clearance, a fresh reference should be made to the Ministry to assess the adequacy of the condition(s) imposed and to add additional	Noted	

	environmental protection measures required, if any.		
7	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, 1986.		
8	Any appeal against this environment 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.		
9	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 made thereunder and also any other orders passed by the Hon'ble Supreme Court of India/ High Court of Goa and any other Court of Law relating to the subject matter.		

### M/s Sesa Environment Laboratory

Vedanta Limited, Mining Division, Codli Mines, P.O. Kirlapale, Goa-403727

Recognised by Ministry of Environment, Forests and Climate change, Govt. of India Vide Notification .S.O.137(E).

dated 12<sup>th</sup> January 2015, Valid up to 11.01.2020

\* Certified by ISO 9001:2008 and OHSAS 18001:2007

#### Ambient Air Quality Monitoring Report

Location Name: Botvadeacho Dongor Mine

Instruments used: Respirable Dust Sampler 460NL

Calibration date: 07.08.2016

Validity of calibration :06.08.2017

Standard method used for analysis: Particulate Matter Gravimetric method

Monitoring Date	Mine pit/ service Road	Emission Standards
16.10.2016	214	1200 µg/m3
18.10.2016	193	
23.10.2016	210	
25.10.2016	192	
30.10.2016	196	

Govt. Analyst



Laboratory Incharge

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Recognised by Ministry of Environment, Forests and Climate change, Govt. of India Vide Notification .S.O.137(E).dated 12

\* Certified by ISO 9001:2008 and OHSAS 18001:2007

#### Ambient Air Quality Monitoring Report

Location Name: Botvadecaho Dongor Mine


Instruments used: Respirable Dust Sampler 460NL

Calibration date: 28.09.2016

Validity of calibration :27.09.2017

Standard method used for analysis: Particulate Matter Gravimetric method

Monitoring Date	Particulate Matter	Emission Standards
01.03.2017	452	1200 µg/m <sup>3</sup>
06.03.2017	412	
08.03.2017	384	
13.03.2017	372	
15.03.2017	316	
20.03.2017	342	
22.03.2017	376	
27.03.2017	376	
29.03.2017	342	

  
Govt. Analyst



  
Laboratory Incharge

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Recognised by Ministry of Environment, Forests and Climate change, Govt. of India Vide Notification .S.O.137(E), dated 12<sup>th</sup> January 2015, Valid up to 11.01.2020

\* Certified by ISO 9001: 2008 and OHSAS 18001:2007

#### Ambient Air Quality Monitoring Report

Mine Name: North central Mine

Location Name : Viridi village

Instruments used: Fine Particulate Sampler APM550 MFC, Respirable Dust Sampler

Calibration date: 28.09.2016

Validity of calibration :27.09.2017

Standard method used for analysis: PM10 & PM2.5 - Gravimetric method

SO<sub>2</sub> - Improved west & Gaeke

NO<sub>x</sub> - Modified Jacob & Hoccheiser


Monitoring Date	PM <sub>2.5</sub> in µg/m <sup>3</sup> (24 hourly)	PM <sub>10</sub> in µg/m <sup>3</sup> (24 hourly)	SO <sub>2</sub> in µg/m <sup>3</sup> (24 hourly)	NO <sub>x</sub> in µg/m <sup>3</sup> (24 hourly)
01.03.2017	31	52	4	8
06.03.2017	41	60	6	10
08.03.2017	39	68	4	6
13.03.2017	37	55	8	10
15.03.2017	32	43	4	10
20.03.2017	28	35	8	12
22.03.2017	42	47	8	10
27.03.2017	39	60	6	8
29.03.2017	37	49	8	10

NAAQS Limits: PM<sub>2.5</sub> 60 µg/m<sup>3</sup>


PM<sub>10</sub> 100 µg/m<sup>3</sup>

SO<sub>2</sub> 80 µg/m<sup>3</sup>

NO<sub>x</sub> 80 µg/m<sup>3</sup>

  
Govt. Analyst



  
Laboratory Incharge

# M/s Sesa Environment Laboratory

Vedanta Limited, Mining Division, Codli Mines, P.O. K. Palapale, Goa-403727

Recognised by Ministry of Environment, Forests and Climate change, Govt. of India Vide Notification .S.O.137(E). dated 12<sup>th</sup> January 2015, Valid up to 11.01.2020

\* Certified by ISO 9001: 2008 and OHSAS 18001:2007

## Ambient Air Quality Monitoring Report

Mine Name: North Central Cluster Mine

Instruments used: Fine Particulate Sampler APM550 MFC, Respirable Dust Sampler 460 NL, Gaseous Pollutant Sampler

Validity of calibration :27.09.2017

Calibration date: 28.09.2016

Standard method used for analysis: PM10 & PM2.5 - Gravimetric method

SO2,- Improved west & Gaeke

NOx- Modified Jacob & Hoccheiser

Location Name : Cudnem Village					Location Name : Datin village			
Monitoring Date	PM <sub>2.5</sub> in µg/m <sup>3</sup> (24 hourly)	PM <sub>10</sub> in µg/m <sup>3</sup> (24 hourly)	SO <sub>2</sub> in µg/m <sup>3</sup> (24 hourly)	NOx in µg/m <sup>3</sup> (24 hourly)	PM <sub>2.5</sub> in µg/m <sup>3</sup> (24 hourly)	PM <sub>10</sub> in µg/m <sup>3</sup> (24 hourly)	SO <sub>2</sub> in µg/m <sup>3</sup> (24 hourly)	NOx in µg/m <sup>3</sup> (24 hourly)
01.03.2017	56	68	10	13	48	62	8	12
06.03.2017	38	49	11	15	40	68	10	10
08.03.2017	48	63	12	16	46	63	8	12
13.03.2017	55	61	10	16	50	65	6	10
15.03.2017	57	88	10	12	49	73	6	8
20.03.2017	48	71	8	12	47	71	12	10
22.03.2017	53	72	8	10	46	84	10	10
27.03.2017	51	70	10	14	41	54	8	16
29.03.2017	56	74	8	12	46	78	8	15

Location Name : Sonshi Village					Location Name : Sanquelim Village			
01.03.2017	56	72	8	15	57	82	8	11
06.03.2017	39	51	5	8	51	46	4	8
08.03.2017	41	60	6	8	51	88	6	10
13.03.2017	44	79	6	10	56	78	4	8
15.03.2017	34	58	4	11	50	67	9	12
20.03.2017	39	63	6	10	55	86	6	10
22.03.2017	51	80	8	12	57	80	8	10
27.03.2017	36	55	10	12	53	75	8	14
29.03.2017	26	46	8	10	43	68	6	10

NAAQS Limits: PM<sub>2.5</sub> 60 µg/m<sup>3</sup> PM<sub>10</sub> 100 µg/m<sup>3</sup> SO<sub>2</sub> 80 µg/m<sup>3</sup> NO<sub>x</sub> 80 µg/m<sup>3</sup>

Govt. Analyst



Laboratory Incharge

**PLANTATION DETAILS  
FOR THE FINANCIAL YEAR 2016-2017**

Location	PLANTATION 2016		
	Species	QTY	Area
BOTUADACHO DONGOR	Accacia	4200	OML
	Apta	200	
	Bamboo	100	
	Cashew	500	
	Casia siamea	150	
	Peltoforum	105	
	Rain tree	245	
	Tamrind	100	
	Total	5600 nos	
Total area		1.38 Ha	Plantation is done on common dump along with BD Mine & Mareto Sodo mine