

To

Date: 30/11/2024

**The Director**

**Ministry of Environment and Forest**

**Regional Office (Southern Zone)**

**Kendriya Sadan, 4<sup>th</sup> Floor, 17<sup>th</sup> Main Road, II Block, Koramangala**

**Bangaluru – 560 034.**

**Subject: Submission of Half Yearly Compliance Report for the period of April 2024 to September 2024.**

**Ref.** 1. Environment Clearance [File No.: IA-J-11015/3/2023-IA-II(NCM)] granted to Bicholim Mineral Block- Block 1 (Auction Block) of M/s Vedanta Limited.

Respected Sir,

This has reference to the captioned subject and cited Environmental Clearance. Kindly acknowledge the enclosed Six-monthly compliance report to Environment clearance [File No.: IA-J-11015/3/2023-IA-II(NCM)] dated 23/01/2024, for the period of April 2024 to September 2024.

Thanking you,

Yours faithfully



**Dhirajkumar Jagdish**  
**Dy. CEO – Iron Ore Goa**  
**Authorised Signatory**

**VEDANTA LIMITED**

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

Sanctioned: Public / PA1

Compliance report to conditions of environment clearance issued by  
Ministry of Environment, Forest and Climate Change  
for Bicholim Mineral Block- Block 1 (Auction Block) of Vedanta Limited  
File No.: IA-J-11015/3/2023-IA-II(NCM)

**Specific EC Conditions for (Mining Of Minerals)**

<b>S.No</b>	<b>EC Conditions</b>	<b>Compliance Status</b>
1.1	The instant Environmental Clearance (EC) is subject to the outcome of the WP 592 of 2022 (MSPL v. State of Goa & Ors.) regarding challenging the constitutionality of the tender documents of Phase I auction of Goa mines and PIL WP 2029/2023 (F) (Suresh Govind Gaonkar & Ors v. Directorate of Mines and Geology & Ors) regarding challenging the state's decision to go ahead with the auction of the mining block.	WP 592 of 2022 (MSPL v. State of Goa & Ors) has been dismissed and the validity of tender documents and LOI was upheld.  PIL WP 2029/2023 (F) (Suresh Govind Gaonkar & Ors v. Directorate of Mines and Geology & Ors) is pending before the Hon'ble Bombay High Court at Goa
2.1	The Project Proponent shall monitor the air quality, noise level, water quality, water level and ground vibration during drilling and blasting at the edge of the mine, near the village, crusher and at other sensitive receptors and such collected data shall be submitted quarterly to the Ministry's Regional Office.	Air quality (Ambient and Fugitive), noise level (core and buffer), water quality (surface water and ground water), water levels (from buffer villages) monitoring is carried out every month. No Drilling and Blasting is carried out. <b>Annexure – 1</b>
3.1	The budget of Rs 309.3 Lakhs to address the concerns raised by the public in the public consultation to be completed within 3 years from the date of start of mining operations. PP shall comply with all action plans made for public hearing concerns and make regular maintenance and record the progressive activity outcomes. The Project proponent shall ensure that the activities proposed under the public hearing is different from the CSR activities.	Will be complied with, action plan to comply the CER in three years is prepared and accordingly acted upon. it's the progress details are maintained and recorded. It is ensured that CER is different from CSR. <b>Annexure - 2</b>
4.1	The Project Proponent shall create awareness among the local people working within the project area as well as its surrounding area on the ban of Single Use Plastic (SUP) in order to ensure the compliance of Notification published by MoEF&CC on 12/08/2021. A report, along with photographs, on the measures taken shall also be included in the six monthly compliance report.	Various awareness programmes on the ban of Single Use Plastic conducted as follows: Awareness sessions in Bicholim Government High school (beneficiary: 35 students) and Sesa technical school at Sanquelim (beneficiary: 40 students)  Nukkad natak/Skit performed in public area in Bicholim village bus stand on Ban on SUP, Plastic waste and environment protection.

		<p>Plastic waste awareness and plastic waste collection drive in Sarmanas village and temples – 22/04/2024</p> <p>Awareness session among employees by conducting training sessions – 2 training sessions.</p> <p>Posters displays at prominent places withing mine unit like admin building, canteen etc on ban of Single Use Plastic.</p> <p>A report, along with photographs, on the measures taken has been attached as <b>Annexure 3</b></p>
5.1	<p>The Project Proponent should adopt the proper mitigation measures as proposed under EMP with budgetary provision of Rs 72 Cr. The adoption of mitigation measures and monitoring of the same as proposed in the EMP shall be done under the supervision of the qualified environmental personnel. The implementation status of the same shall be submitted to the Ministry’s Regional Office.</p>	<p>The Budgetary provision is mentioned as Rs 72 Cr. in the condition, which is a typo error. The budgetary provision committed and presented to EAC was Rs 72 Lakhs.</p> <p>The adoption of mitigation measures and monitoring of the same as proposed in the EMP is done under the supervision of the qualified environmental personnel.</p> <p>The implementation status of same is attached as <b>Annexure 4</b>.</p>
5.2	<p>The Project Proponent should establish in house (at project site) environment laboratory for measurement of environment parameter with respect to air quality and water (surface and ground). A dedicated team to oversee environment management shall be setup at site which should comprise of Environment Engineers, Laboratory chemist and staff for monitoring of air, water quality parameters on routine basis instead of engaging environment monitoring laboratories/consultants. Any non-compliance or infringement should be reported to the concerned authority.</p>	<p>In house (at project site) environment laboratory for measurement of environment parameter is established.</p> <p>A dedicated team to oversee environment management is setup at site for monitoring of environment parameters.</p> <p>There was no non-compliance in this reporting period.</p>
6.1	<p>The Project Proponent shall explore the possibility of using atleast 20% of Electric vehicles/CNG/Solar instead of diesel operation within three years.</p>	<p>Currently inducted 4 EV Wheel loaders in our mining operation in the reporting period. These Ev machines are under observation to study the performance in the mining condition. Going forward more EV HEMM's and dumpers will be included with the advent in technology and feasibility.</p>

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Sensitivity: Public (C4)

7.1	NoC from the Central Ground Water Authority (CGWA)/ Concerned Local authority, as the case may be, shall be obtained before drawing the ground water for the project activities, State Pollution Control Board / Pollution Control Committees shall not issue the Consent to Operate (CTO) under Air (Prevention and Control of Pollution) Act and Water (Prevention and Control of Pollution) Act till the project proponent shall obtain such permission.	Obtained NOC for drawing the rainwater harvested/pit water from Goa State Water resource department dated 21/09/2023
8.1	The Project Proponent shall also organize employment-based apprenticeship/ internship training program every year with appropriate stipend for the youth and other programs to enhance the skill of the local people. The data should be maintained for the training imparted to the persons and the outcome of the training, for the assessment of the training program should be analyzed periodically and improved accordingly. The preference shall be given to the local people for the purpose of employment as committed before the EAC.	Vedanta Bicholim Mines registered under the Apprenticeship Program under Directorate of Skill Development, to identify the local youth who have completed the industrial training institute program and will enhance their skill in line with the industrial requirements. We are in the process of finalising the candidates and will be onboarded for a year-long apprenticeship program in the third week of December 2024. Further, we have registered under the PM Internship Scheme, through which we are identifying the local youth who have completed the graduation or industrial training institute program and will enhance their skill in line with the industrial requirements. We are in the process of receiving the applications from the local community, and the appropriate trade will be engaged for a year-long training before the end of December 2024.
9.1	The Project Proponent should periodically monitor and maintain the health records of the mine workers digitally prior to mining operations, at the time of operation of mine and post mining operations. Regular surveillance on occupational health shall be carried out every year for mine workers. PP shall also organize medical camp for the benefit of the local people and also the monitor the health impacts due to mining activity.	<p>Periodic Health monitoring and surveillance records are maintained in soft as well as in physical form (register) for mine workers.</p> <p>Mobile Health Unit set for Pilgao, Mayem, Mulgao, Lamgao &amp; Sirigao villages close to our operations with 2,541 footfall for the reporting period.</p> <p>5 specialized health camps for women, children &amp; old age people conducted - 507 people benefited.</p>

10.1	The mining lease holders shall, after ceasing mining operations, undertake regrassing 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. The implementation report of the above said condition shall be submitted to the Ministry's Regional Office.	Land restoration will be done as per Mine closure plan and it will be implemented scientifically.
11.1	The Hon'ble Supreme Court has imposed a capping on mining of iron ore to 20 MTPA for the entire State of Goa. Accordingly, the Project Proponent shall first obtain the necessary permission from the competent authority with regard to the amount of mineral they can mine per year, before starting its mining operation.	Necessary permission obtained from the competent authority before starting mining operation.
12.1	The Project Proponent needs to obtain prior permission from the MoEF&CC for mining in common boundary as and when required.	Necessary permission will be obtained from the MoEF&CC for mining in common boundary.
13.1	As committed before the EAC, the Project Proponent needs to explore the feasibility for installing conveyor belt system for transportation.	The company has explored the feasibility for OLBC with capacity of 3 MTPA from dry mineral processing plant to Sarmanas Jetty covering a length of 5.772 km. Further detailed studies and rigorous assessments are recommended to identify the optimal system for implementation, considering specific mine conditions and livelihood of the local stakeholders along with long-term operational benefits.
14.1	The mined out pits will be converted into water reservoirs, pond with other ecotourism facilities like water sports, boating, fishing etc., Pisciculture in mine pits will be developed and also the local community will be involved for cage fishing to make it a commercially viable venture.	Reclamation activities will be carried out simultaneously with mining activities. The finalised areas will be taken up for reclamation / eco-restoration various projects like pisciculture, theme-based biodiversity garden will be implemented. The company will collaborate with various research
14.2	The ecology restoration or mine reclamation activities shall be carried out concurrently with mining operations. The Project Proponent shall ensure that the restoration models demonstrated before the EAC shall be developed in association with research institutes like NEERI, Goa University etc.	institutes/consultants/subject matter experts/forest dept./ agriculture dept. as and when required.
15.1	Regular monitoring and analysis of discharge water and at upstream and downstream of Bicholim and Asnora river needs to be carried out quarterly through NABL/MoEF&CC accredited laboratory.	Regular monitoring of mine discharge water and upstream & downstream of Bicholim and Assonora river is being carried out every month through NABL/MoEF&CC accredited laboratory.

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16.1	Extensive native fruit bearing plantation shall be carried out in all safety zones with density of 2500 trees/ha.	Plantation exists in safety zone area. it will be further strengthened by gap filling with native species.
16.2	The Project Proponent needs to complete the entire peripheral plantation under green belt, safety barrier plantation and gap plantation within three years from the start of mining operations. The Project Proponent should plant quality sapling of appropriate height of native and fruit bearing species. In case of tall transplants (seedlings) the seedlings should have proper trained root stock with root biomass commensurate with seedling height to ensure good growth after out planting. Plantation shall be undertaken in consultation with the State Forest Department. The Project Proponent shall make the actual count on the saplings planted and its survival rate and in case of failure of achievement of 95% survival rate, action plan for achieving the target survival rate shall be submitted to the Ministry's Regional Office.	The safety belt/ peripheral plantation will be completed within three years from start of operations. Aftercare will be provided to the saplings so as to achieve maximum survival rate.
17.1	The waste dump slopes shall be covered with laterite material and then with biodegradable geotextile mats to prevent the soil erosion of the dump slopes so as to facilitate the growth of native species.	Approx. 2 ha of final waste dump has been covered with laterite material and geotextiles as to facilitate the growth of native species.
18.1	The Project Proponent needs to install the permanent water sprinklers along 3.40 km haul road within the ML area and 2.80 km length outside the ML area on either side of the road.	Will be complied with in phases.
18.2	As committed by the Project Proponent, existing trucks of 10.5 Tonnes shall be replaced with higher capacity trucks of 25 Tonnes in phased manner to reduce traffic load and emissions per tonne/km.	Will implemented in phased manner after consultation with local stake holders and Government authorities.
18.3	Fugitive dust monitoring during transportation shall be monitored regularly at all the sensitive receptors and report shall be submitted quarterly to the Regional Office of MoEF&CC. Regular sprinkling shall be done on roads to suppress the dust at the source.	Fugitive dust monitoring is done within mine area such as haul road, mine face, screening plant and dumping site. Reports are attached as <b>Annexure 1</b> . Regular sprinkling on haulage road is done to suppress the dust.
18.4	The Project Proponent shall adhere to the pollution control measures suggested by the Central Pollution Control Board (CPCB) in the environmental guidelines for crushing/screening activity.	Will be complied with when the crushing/ screening plant will be installed.

19.1	The wheel washing facility for the ore transport vehicles shall be provided at the exit point of the mine.	The wheel washing facility for the ore transport vehicles is provided at the exit point of the mine.
20.1	The Project Proponent needs to speed up the process of construction of underpass.	Under pass work will be executed by Public Works Department of State Government. The advance payment for the work is done.
21.1	The Project Proponent needs to strengthen the settling pond with proper stone pitching in line with the design of settling pond considering the annual rainfall, flow rate, catchment area and its discharge.	Settling ponds are provided considering rainfall and are regularly maintained. Desilting of settling ponds is carried out before onset of monsoon. Proper overflow arrangement provided.
21.2	The catch drains and siltation ponds needs to be regularly maintained to arrest silt and sediments flow from dumps.	The catch drains and siltation ponds are maintained and desilted before the onset of monsoon to arrest silt and sedimentation flow from dumps.
22.1	The Project Proponent needs to develop a nursery adjacent to the mineral block (Survey no 72/4 in Bicholim Village) for an area of about 1100 sq.m in consultation with State Forest Department. PP shall develop theme-based gardens like medicinal gardens, horticulture gardens, spice gardens etc.,	Nursery has been developed at the identified location. Native species of sapling collected and developed in consultation with forest department.
23.1	The Project Proponent needs to modify the crushing & screening units within 4 months from the date of issue of this EC.	The erection of crushing and screening plant is yet to be started. All the necessary maintenance, modification, safety and environment protective measures will be carried out before getting the plant into operation.
24.1	The Project Proponent needs to use modern equipment's such as Camera Traps for ensuring presence and movement of wild animals in the vicinity of the mine lease area as well as in study area in consultation with Wildlife Wing of Forest Department. Appropriate interventions shall be taken to minimise stress conditions for wild animals and to avoid Man-Animal conflict.	We have prepared and submitted Wildlife Conservation Plan to Forest Department including provision of funds for installation of camera. WLCP is under scrutiny and will be executed in consultation with Forest Department once approved.
24.2	The Project Proponent needs to explore the possibility of using advanced/ latest mining technologies available so as to minimize the ecological impacts.	Complied. Latest mining software is used for mine planning. Advanced mining machinery is used for mining operations.
24.3	The Project Proponent should follow-up the status of implementation on Wildlife Conservation Plan from the Forest Officials and the same shall be submitted to the Ministry's Regional Office in the six monthly compliance report.	Wild Life Conservation Plan submitted to Forest Department. WLCP is under scrutiny and will be executed in consultation with Forest Department once approved.

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25.1	The Continuous Ambient Air Quality Monitoring Stations (CAAQMS) shall be installed and commissioned in consultation with CPCB. The real time data so generated should be displayed digitally at entry and exit gate of mine lease area for public display and shall be linked to server of CPCB/SPCB.	3 CAAQMS are procured and under installation. The real time data so generated will be displayed digitally at entry and exit gate of mine lease area for public display and will be linked to server of Goa State Pollution Control Board.
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**Standard EC Conditions for (Mining of minerals)**

	<b>Statutory Compliance</b>	
1.1	This Environmental Clearance (EC) is subject to orders/ judgment of Hon'ble Supreme Court of India, Hon'ble High Court, Hon'ble NGT and any other Court of Law, Common Cause Conditions as may be applicable.	Complied.
1.2	The Project proponent complies with all the statutory requirements and judgment of Hon'ble Supreme Court dated 2nd August, 2017 in Writ Petition (Civil) No. 114 of 2014 in matter of Common Cause versus Union of India &Ors before commencing the mining operations.	This judgement pertains to mining operations in the state of Odisha and therefore is not applicable for us. We are however complying with all statutory provisions, approvals and consent requirements for our mining operations.
1.3	The State Government concerned shall ensure that mining operation shall not be commenced till the entire compensation levied, if any, for illegal mining paid by the Project Proponent through their respective Department of Mining & Geology in strict compliance of Judgment of Hon'ble Supreme Court dated 2nd August 2017 in Writ Petition (Civil) No. 114 of 2014 in matter of Common Cause versus Union of India & Ors.	This judgement pertains to mining operations in the state of Odisha and therefore is not applicable for us. We are however complying with all statutory provisions, approvals and consent requirements for our mining operations.
1.4	The Project Proponent shall follow the mitigation measures provided in MoEFCC's Office Memorandum No. Z-11013/57/2014-IA.II (M), dated 29th October, 2014, titled "Impact of mining activities on Habitations-Issues related to the mining Projects wherein Habitations and villages are the part of mine lease areas or Habitations and villages are surrounded by the mine lease area".	Mitigation measures are followed which are applicable and are under compliance and part of EC conditions
1.5	A copy of EC letter will be marked to concerned Panchayat / local NGO etc. if any, from whom suggestion / representation has been received while processing the proposal.	Complied
1.6	State Pollution Control Board/Committee shall be responsible for display of this EC letter at its Regional office, District Industries Centre and Collector's office/ Tehsildar's Office for 30 days.	In scope of GSPCB to comply.

1.7	The Project Authorities should widely advertise about the grant of this EC letter by printing the same in at least two local newspapers, one of which shall be in vernacular language of the concerned area. The advertisement shall be done within 7 days of the issue of the clearance letter mentioning that the instant project has been accorded EC and copy of the EC letter is available with the State Pollution Control Board/Committee and web site of the Ministry of Environment, Forest and Climate Change (www.parivesh.nic.in). A copy of the advertisement may be forwarded to the concerned MoEFCC Regional Office for compliance and record.	EC was widely publicized on Lokmat (vernacular language) and The Navhind times on 29 <sup>th</sup> January 2024
1.8	The Project Proponent shall inform the MoEF&CC for any change in ownership of the mining lease. In case there is any change in ownership or mining lease is transferred. PP needs to apply for transfer of EC as per provisions of the para 11 of EIA Notification, 2006 as amended from time to time.	Will be ensured. Currently there is no change in ownership/transfer of EC.
<b>2</b>	<b>Air Quality Monitoring And Preservation</b>	
2.1	The Project Proponent shall install a minimum of 3 (three) online Ambient Air Quality Monitoring Stations with 1 (one) in upwind and 2 (two) in downwind direction based on long term climatological data about wind direction such that an angle of 120° is made between the monitoring locations to monitor critical parameters, relevant for mining operations, of air pollution viz. PM10, PM2.5, NO2, CO and SO2 etc. as per the methodology mentioned in NAAQS Notification No. B-29016/20/90/PCI/I, dated 18.11.2009 covering the aspects of transportation and use of heavy machinery in the impact zone. The ambient air quality shall also be monitored at prominent places like office building, canteen etc. as per the site condition to ascertain the exposure characteristics at specific places. The above data shall be digitally displayed within 03 months in front of the main Gate of the mine site.	<p>Installation of 3 CAAQMS is under process. The real time data so generated will be displayed digitally at entry and exit gate of mine lease area for public display and will be linked to server of Goa State Pollution Control Board</p> <p>The ambient air quality is monitored at prominent places like office building, canteen. Data is displayed on online display board and same shared to Goa State Pollution Control Board.</p>
2.2	Effective safeguard measures for prevention of dust generation and subsequent suppression (like regular water sprinkling, metalled road construction etc.) shall be carried out in areas prone to air pollution wherein high levels of PM10 and PM2.5 are evident such as haul road, loading and unloading point and transfer points. The Fugitive dust emissions from all sources shall be regularly controlled by installation of required equipments/ machineries and preventive maintenance. Use of suitable water-soluble chemical dust suppressing agents may be explored for better effectiveness of dust control system. It shall be ensured that air pollution level conform to the standards prescribed by the MoEFCC/ Central Pollution Control Board.	<p>Regular water sprinkling is carried out on haul road, loading unloading points to control Fugitive dust emissions.</p> <p>Use of suitable water-soluble chemical dust suppressing agents will be explored.</p> <p>Air pollution level conform to the standards prescribed by the MoEFCC/ Central Pollution Control Board.</p>
<b>3</b>	<b>Water Quality Monitoring And Preservation</b>	

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3.1	<p>In case, immediate mining scheme envisages intersection of ground water table, then Environmental Clearance shall become operational only after receiving formal clearance from CGWA. In case, mining operation involves intersection of ground water table at a later stage, then PP shall ensure that prior approval from CGWA and MoEFCC is in place before such mining operations. The permission for intersection of ground water table shall essentially be based on detailed hydro- geological study of the area.</p>	<p>Detailed hydrogeological study was carried out and submitted to the Water Resource department (WRD) for obtaining their NOC and MoEF &amp; Cc as part of EIA for obtaining EC</p> <p>NOC obtained from WRD, Goa government.</p>
3.2	<p>Project Proponent shall regularly monitor and maintain records w.r.t. ground water level and quality in and around the mine lease by establishing a network of existing wells as well as new piezo-meter installations during the mining operation in consultation with Central Ground Water Authority/ State Ground Water Department. The Report on changes in Ground water level and quality shall be submitted on six-monthly basis to the Regional Office of the Ministry, CGWA and State Groundwater Department / State Pollution Control Board.</p>	<p>Ground water level and quality in and around the mine lease is being carried out in Lamgao, Mulgao, Bicholim, Pilgao and Mayem village, every month. New piezo meter (2 nos) installation is under process and in consultation with Water Resource department.</p>
3.3	<p>The Project Proponent shall undertake regular monitoring of natural water course/ water resources/ springs and perennial nallahs existing/ flowing in and around the mine lease including upstream and downstream.</p> <p>Sufficient number of gullies shall be provided at appropriate places within the lease for management of water.</p> <p>The parameters to be monitored shall include their water quality vis-à-vis suitability for usage as per CPCB criteria and flow rate.</p> <p>It shall be ensured that no obstruction and/ or alteration be made to water bodies during mining operations without justification and prior approval of MoEFCC.</p> <p>The monitoring of water courses/ bodies existing in lease area shall be carried out four times in a year viz. pre-monsoon (April May), monsoon (August), post-monsoon (November) and winter (January) and the record of monitored data may be sent regularly to Ministry of Environment, Forest and Climate Change and its Regional Office, Central Ground Water Authority and Regional Director, Central Ground Water Board, State Pollution Control Board and Central Pollution Control Board. Clearly showing the trend analysis on six-monthly basis.</p>	<p>There is no water bodies/course flowing in the lease. Bicholim river and Assonora river is flowing around the lease and regular monitoring of upstream and down stream is being carried out.</p> <p>The storm water management is prepared, and surface runoff water is properly channelized into settling ponds, through trenches/garland drains Monitoring is carried out for the parameters as specified by GSPCB.</p> <p>Ensured that no obstruction and/ or alteration be made to water bodies during mining operations.</p> <p>There is not water courses/spring flowing within mine lease</p>

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3.4	<p>Quality of polluted water generated from mining operations which include Chemical Oxygen Demand (COD) in mines run-off; acid mine drainage and metal contamination in runoff shall be monitored along with Total Suspended Solids (TDS), Dissolved Oxygen (DO), pH and Total Suspended Solids (TSS).</p> <p>The monitored data shall be uploaded on the website of the company as well as displayed at the project site in public domain, on a display board, at a suitable location near the main gate of the Company.</p> <p>The circular No. J- 20012/1/2006-IA.II (M) dated 27.05.2009 issued by Ministry of Environment, Forest and Climate Change may also be referred in this regard.</p>	<p>The mine discharge water is being monitored for said parameters.</p> <p>The monitored data is uploaded in company website and on online display board near mine gate of the company.</p>
3.5	<p>Project Proponent shall plan, develop and implement rainwater harvesting measures on long term basis to augment ground water resources in the area in consultation with Central Ground Water Board/ State Groundwater Department.</p> <p>A report on amount of water recharged needs to be submitted to Regional Office MoEFCC annually.</p>	<p>The rainwater is channelised through trenches, drains and settling pits and harvested in the mine pit. Majority of the water requirement of mines is met through the harvested rainwater.</p> <p>Report on amount of water harvested in mine pit will be submitted in next 6 monthly report.</p>
3.6	<p>Industrial waste water (workshop and waste water from the mine) should be properly collected and treated so as to conform to the notified standards prescribed from time to time.</p> <p>The standards shall be prescribed through Consent to Operate (CTO) issued by concerned State Pollution Control Board (SPCB).</p> <p>The workshop effluent shall be treated after its initial passage through Oil and grease trap.</p>	<p>Industrial waste water (workshop and waste water from the mine) is properly collected and treated after its initial passage through Oil and grease trap so as to conform to the notified standards prescribed through Consent to Operate (CTO) issued by Goa State Pollution Control Board (SPCB).</p>
3.7	<p>The water balance/water auditing shall be carried out and measure for reducing the consumption of water shall be taken up and reported to the Regional Office of the MoEF&amp;CC and State Pollution Control Board/Committee.</p>	<p>Water Balance is prepared and submitted to Regional office MoEF&amp;CC and Goa SPCB. Rainwater is harvested in mine pits and same water is used for dust suppression at mines and road washing.</p>
4.1	<p>The peak particle velocity at 500m distance or within the nearest habitation, whichever is closer shall be monitored periodically as per applicable DGMS guidelines.</p>	<p>There is no drilling and blasting involved in the project.</p>

4.2	<p>The illumination and sound at night at project sites disturb the villages in respect of both human and animal population. Consequent sleeping disorders and stress may affect the health in the villages located close to mining operations. Habitations have a right for darkness and minimal noise levels at night. PPs must ensure that the biological clock of the villages is not disturbed; by orienting the floodlights/ masks away from the villagers and keeping the noise levels well within the prescribed limits for day /night hours.</p>	<p>Floodlights/ masks are oriented away from the villagers. All necessary measures taken to ensure that the noise levels are well within the prescribed limits for day /night hours.</p>
4.3	<p>The Project Proponent shall take measures for control of noise levels below 85 dBA in the work environment. The workers engaged in operations of HEMM, etc. should be provided with ear plugs /muffs. All personnel including laborers working in dusty areas shall be provided with protective respiratory devices along with adequate training, awareness and information on safety and health aspects. The PP shall be held responsible in case it has been found that workers/ personals/ laborers are working without personal protective equipment.</p>	<p>All the necessary measures (as per EIA) to control of noise levels below 85 dBA in the work environment are implemented. All employees are provided with necessary protective respiratory masks, ear plugs/muffs along with adequate training, awareness and information on safety and health aspects.</p>
5.1	<p>The Project Proponent shall adhere to approved mining plan, inter alia, including, total excavation (quantum of mineral, waste, overburden, interburden and top soil etc.); mining technology; lease area; scope of working (method of mining, overburden &amp; dump management, O.B &amp; dump mining, mineral transportation mode, ultimate depth of mining, concurrent reclamation and reclamation at mine closure; land-use of the mine lease area at various stages of mining scheme as well as at the end-of-life; etc.).</p>	<p>Mining is carried out as per approved mining plan</p>
5.2	<p>The land-use of the mine lease area at various stages of mining scheme as well as at the end-of-life shall be governed as per the approved Mining Plan. The excavation vis-à-vis backfilling in the mine lease area and corresponding afforestation to be raised in the reclaimed area shall be governed as per approved mining plan. PP shall ensure the monitoring and management of rehabilitated areas until the vegetation becomes self-sustaining. The compliance status shall be submitted half-yearly to the MoEFCC and its concerned Regional Office.</p>	<p>Will be ensured.  For the reporting period, ROM – 497920 Tonnes Backfilling - 41,64,543 Tonnes</p>
6.1	<p>The Overburden (O.B.), waste and topsoil generated during the mining operations shall be stacked at earmarked OB dump site(s) only and it should not be kept active for a long period of time. The physical parameters of the OB / waste dumps / topsoil dump like height, width and angle of slope shall be governed as per the approved Mining Plan and the guidelines/circulars issued by D.G.M.S. The topsoil shall be used for land reclamation and plantation.</p>	<p>Dumping is carried out at earmarked sites within the mine as per approved Mining Plan and the guidelines/circulars issued by D.G.M.S. Entire area proposed for mine working is broken up- no top soil.</p>

**VEDANTA LIMITED**

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 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

Sensitivity: Public (C4)

<p>6.2</p>	<p>The slope of dumps shall be vegetated in scientific manner with suitable native species to maintain the slope stability, prevent erosion and surface run off.</p> <p>The selection of local species regulates local climatic parameters and help in adaptation of plant species to the microclimate.</p> <p>The gullies formed on slopes should be adequately taken care of as it impacts the overall stability of dumps.</p> <p>The dump mass should be consolidated with the help of dozer/ compactors thereby ensuring proper filling/ leveling of dump mass. In critical areas, use of geo textiles/ geo-membranes / clay liners / Bentonite etc. shall be undertaken for stabilization of the dump.</p>	<p>Use of geotextiles , grass and plantation with native species is done to stabilize the dump slopes and prevent slope failure.</p> <p>Inward slope are provided to each dump bench to channelize run off rain water properly into garland drains, filter beds and then to the settling ponds.</p> <p>Laterite boulder walls will be constructed at the toe of the dump.</p>
<p>6.3</p>	<p>Catch drains, settling tanks and siltation ponds of appropriate size shall be constructed around the mine working, mineral yards and Top Soil/OB/Waste dumps to prevent run off of water and flow of sediments directly into the water bodies (Nallah/ River/ Pond etc.).</p> <p>The collected water should be utilized for watering the mine area, roads, green belt development, plantation etc.</p> <p>The drains/ sedimentation sumps etc. shall be de-silted regularly, particularly after monsoon season, and maintained properly.</p>	<p>The runoff water is channelized properly in to garland drains and then to the settling ponds.</p> <p>Laterite boulder walls are constructed at the toe of the dump.</p> <p>The harvested rainwater is utilized for dust suppression, green belt development, plantation etc. the drains and settling ponds are de silted before the onset of the monsoon</p>
<p>6.4</p>	<p>Check dams of appropriate size, gradient and length shall be constructed around mine pit and OB dumps to prevent storm run-off and sediment flow into adjoining water bodies.</p> <p>A safety margin of 50% shall be kept for designing of sump structures over and above peak rainfall (based on 50 years data) and maximum discharge in the mine and its adjoining area which shall also help in providing adequate retention time period thereby allowing proper settling of sediments/ silt material. The sedimentation pits/ sumps shall be constructed at the corners of the garland drains.</p>	<p>Check dams of appropriate size, gradient and length is constructed around mine pit and OB dumps to prevent storm run-off and sediment flow into adjoining water bodies</p> <p>Adequate safety margin is kept considering maximum rainfall and discharge in the mine and its adjoining area which shall also help in providing adequate retention time period thereby allowing proper settling of sediments/ silt material.</p> <p>All drainages are connected to series of settling ponds</p>

7.1	<p>No Transportation of the minerals shall be allowed in case of roads passing through villages/ habitations. In such cases, PP shall construct a ‘bypass’ road for the purpose of transportation of the minerals leaving an adequate gap (say at least 200 meters) so that the adverse impact of sound and dust along with chances of accidents could be mitigated. All costs resulting from widening and strengthening of existing public road network shall be borne by the PP in consultation with nodal State Govt. Department. Transportation of minerals through road movement in case of existing village/ rural roads shall be allowed in consultation with nodal State Govt. Department only after required strengthening such that the carrying capacity of roads is increased to handle the traffic load. The pollution due to transportation load on the environment will be effectively controlled and water sprinkling will also be done regularly. Vehicular emissions shall be kept under control and regularly monitored. Project should obtain Pollution Under Control (PUC) certificate for all the vehicles from authorized pollution testing centers. [If applicable in case of road transport].</p>	<p>Most of the road used for transportation is dedicated road which joins the Major district road (MDR20) before entering the Jetty.</p>
7.2	<p>The Main haulage road within the mine lease should be provided with a permanent water sprinkling arrangement for dust suppression.</p> <p>Other roads within the mine lease should be wetted regularly with tanker-mounted water sprinkling system.</p> <p>The other areas of dust generation like crushing zone, material transfer points, material yards etc. should invariably be provided with dust suppression arrangements. The air pollution control equipments like bag filters, vacuum suction hoods, dry fogging system etc. shall be installed at Crushers, belt-conveyors and other areas prone to air pollution.</p> <p>The belt conveyor should be fully covered to avoid generation of dust while transportation. PP shall take necessary measures to avoid generation of fugitive dust emissions.</p>	<p>Permanent water sprinkling arrangement for dust suppression will be done in phased manner.</p> <p>Dedicated water tankers are deployed for dust suppression on the mines haulage roads.</p> <p>There is no fixed crushing plant at the mine. Goa Iron Ore is having inherent moisture content of approx. 12 % due which there is no generation of dust while ore handling, however continuous dust suppression is carried out through water tankers</p> <p>Ore transportation is done through tippers, by road.</p>
8.1	<p>The Project Proponent shall develop greenbelt in 7.5m wide safety zone all along the mine lease boundary as per the guidelines of CPCB in order to arrest pollution emanating from mining operations within the lease. The whole Green belt shall be developed within first 5 years starting from windward side of the active mining area. The development of greenbelt shall be governed as per the EC granted by the Ministry irrespective of the stipulation made in approved mine plan.</p>	<p>Green belt development will be carried out as per approved mining plan, CPCB guidelines.</p>

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Sensitivity: Public (C4)

9.1	<p>The Project Proponent shall carryout plantation/ afforestation in backfilled and reclaimed area of mining lease, around water body, along the roadsides, in community areas etc. by planting the native species in consultation with the State Forest Department/ Agriculture Department/ Rural development department/ Tribal Welfare Department/ Gram Panchayat such that only those species be selected which are of use to the local people. The CPCB guidelines in this respect shall also be adhered.</p> <p>The density of the trees should be around 2500 saplings per Hectare.</p> <p>Adequate budgetary provision shall be made for protection and care of trees.</p>	<p>Plantation and afforestation in backfilled final dumps, reclaimed areas and other locations in mine lease with native species in consultation with State Forest Department.</p> <p>The company will collaborate with various research institutes/consultants/subject matter experts/forest dept./agriculture dept. as and when required.</p> <p>After care for the plantations are done and adequate budgetary provision are made.</p>
9.2	<p>The Project Proponent shall make necessary alternative arrangements for livestock feed by developing grazing land with a view to compensate those areas which are coming within the mine lease. The development of such grazing land shall be done in consultation with the State Government. In this regard, Project Proponent should essentially implement the directions of the Hon'ble Supreme Court with regard to acquisition of grazing land. The sparse trees on such grazing ground, which provide mid-day shelter from the scorching sun, should be scrupulously guarded/ protected against felling and plantation of such trees should be promoted.</p>	<p>There are no grazing land within mine lease.</p>
10.1	<p>Project Proponent shall make provision for the housing for workers/labors or shall construct labor camps within/outside (company owned land) with necessary basic infrastructure/ facilities like fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche for kids etc. The housing may be provided in the form of temporary structures which can be removed after the completion of the project related infrastructure. The domestic waste water should be treated with STP in order to avoid contamination of underground water.</p>	<p>Not applicable</p>
11.1	<p>The Project Proponent shall submit the time- bound action plan to the concerned regional office of the Ministry within 6 months from the date of issuance of environmental clearance for undertaking the activities committed during public consultation by the project proponent and as discussed by the EAC, in terms of the provisions of the MoEF&amp;CC Office Memorandum No.22-65/2017-IA.III dated 30 September, 2020. The action plan shall be implemented within three years of commencement of the project.</p>	<p>Time bound action plan was submitted along with the compliance report submitted in the month of May 24.</p> <p>Attaching the report for ready reference. Annexture 5</p>

12.1	The Project Proponent shall prepare digital map (land use & land cover) of the entire lease area once in five years purpose of monitoring land use pattern and submit a report to concerned Regional Office of the MoEF&CC.	Complied
12.2	The Project Authorities should inform to the Regional Office regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.	-
12.3	The Project Proponent shall submit six monthly compliance reports on the status of the implementation of the stipulated environmental safeguards to the MOEFCC & its concerned Regional Office, Central Pollution Control Board and State Pollution Control Board.	Will be complied with.
12.4	A separate 'Environmental Management Cell' with suitable qualified manpower should be set-up under the control of a Senior Executive. The Senior Executive shall directly report to Head of the Organization. Adequate number of qualified Environmental Scientists and Mining Engineers shall be appointed and submit a report to RO, MoEF&CC.	A separate 'Environmental Management Cell' is set up with suitable qualified manpower under Health-Safety and Environment. Senior executive is reporting to Head of the Organization and EHS Head at corporate.
12.5	The concerned Regional Office of the MoEF&CC shall randomly monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the MoEF&CC officer(s) by furnishing the requisite data / information / monitoring reports.	Will be ensured
12.6	In pursuant to Ministry's O.M No 22-34/2018-IA.III dated 16.01.2020 to comply with the direction made by Hon'ble Supreme Court on 8.01.2020 in W.P. (Civil) No 114/2014 in the matter Common Cause vs Union of India, the mining lease holder shall after ceasing mining operations, undertake regrassing the mining area and any other area which may have been disturbed due to other mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc.	Final mine closure plan will be scientifically implemented as approved by IBM.
12.7	The Ministry or any other competent authority may alter/modify the above conditions or stipulate any further condition in the interest of environment protection.	Noted
12.8	Concealing factual data failure to comply with any or submission of false/ fabricated data and of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.	Noted
12.9	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 there under and also any other orders passed by the Hon'ble Supreme Court of India/High	Noted

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Sensitivity: Public (C4)

	Court and any other Court of Law relating to the subject matter.	
12.10	Any appeal against this environmental clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.	Noted



**sesa goa**

To

28/11/2024

The Director  
Ministry of Environment and Forest  
Regional Office (Southern Zone)  
Kendriya Sadan, 4<sup>th</sup> Floor, 17<sup>th</sup> Main Road, II Block, Koramangala  
Bangaluru – 560 034.

**Subject:** Compliance to Specific EC Conditions No. 2.1 and 18.3 - Block I Bicholim Mineral Block

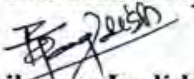
Respected Sir,

Reference: a) EC File No. IA-J-11015/3/2023-IA-II(NCM) dated. 23/01/2024 granted to Bicholim Mineral Block- Block I (Auction Block) of M/s Vedanta Limited for mining of Iron Ore

With reference to Specific EC Condition No. 2.1 and 18.3, granted to Bicholim Mineral Block-Block I (Auction Block) of M/s Vedanta Limited for mining of Iron Ore, we hereby submit Air quality (Ambient and Fugitive), noise level (core and buffer), water quality (surface water and ground water) water levels (from buffer villages) and fugitive Dust monitoring reports for the months April to June 2024.

**Thanking you  
Yours faithfully**

**For Vedanta Limited**

  
**Dhirajkumar Jagdish  
Dy. Chief Executive Officer-Iron Ore Goa  
Authorized Signatory**

**VEDANTA LIMITED**

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CIN: L13209MH1965PLC291394

Document is signed (F&T)

## Annexure -1

**1a. April 2024**

Format No. : 10/Rev 06



# ENVIRONMENTAL LABORATORY



**(UNIT OF MINERAL ENGINEERING SERVICES)**

Recognised by BIS, FSSAI, ISO:45001:2018 Certified Laboratory  
Recognised by MoEFCC(CPCB) under E(P) Act 1986 recognition valid upto 23.05.2025

## TEST REPORT

Table No. 1

### AMBIENT AIR QUALITY

<b>Name of the Client</b> : M/s. Vedanta Ltd., <b>Name of the Project</b> : Block I - Bicholim Mineral Block Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa <b>Sample Collected by</b> : Environmental Laboratory (Unit of Mineral Engineering Services) <b>Station at &amp; Code</b> : A1, Lamgao village <b>Duration</b> : 24 Hrs <b>Issue date</b> : 06.05.2024 <b>Reference</b> IS 5182 & Lab SOP					
Date of Sampling	Lab Code	Sulphur Dioxide (SO <sub>2</sub> ), µg/m <sup>3</sup>	Nitrogen Dioxide (NO <sub>2</sub> ), µg/m <sup>3</sup>	Particulate Matter	
				PM <sub>10</sub> , (µg/m <sup>3</sup> )	PM <sub>2.5</sub> , (µg/m <sup>3</sup> )
02.04.2024	N/24/04/1-0059	8	9	45	27
04.04.2024	N/24/04/1-0151	12	16	42	25
10.04.2024	N/24/04/2-0161	13	18	53	28
12.04.2024	N/24/04/2-0289	10	12	55	32
16.04.2024	N/24/04/3-00144	11	13	59	34
18.04.2024	N/24/04/3-00233	13	17	50	28
23.04.2024	N/24/04/4-0117	10	15	46	25
25.04.2024	N/24/04/4-0221	12	14	55	29
<b>Limits for Industrial , Residential, Rural and other Areas</b>		<b>80 24 Hrs</b>	<b>80 24 Hrs</b>	<b>100 24 Hrs</b>	<b>60 24 Hrs</b>

ARSHIYA KOUSAR  
 Dy. T.M. - Chemical

Govt. Analyst / Authorised Signatory

# 948, 2nd Cross, St. Thomas Town Post, Kammanahalli, Bangalore - 560 084.  
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## TEST REPORT

Table No. 2

### AMBIENT AIR QUALITY

Name of the Client : M/s. Vedanta Ltd.,  
Name of the Project : Block I - Bicholim Mineral Block  
Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages,  
Bicholim Taluka, North Goa  
Sample Collected by : Environmental Laboratory (Unit of Mineral Engineering Services)  
Station at & Code : A2, Mulgao village  
Duration : 24 Hrs  
Issue date : 06.05.2024  
Reference IS 5182 & Lab SOP

Date of Sampling	Lab Code	Sulphur Dioxide (SO <sub>2</sub> ), µg/m <sup>3</sup>	Nitrogen Dioxide (NO <sub>2</sub> ), µg/m <sup>3</sup>	Particulate Matter	
				PM <sub>10</sub> , (µg/m <sup>3</sup> )	PM <sub>2.5</sub> , (µg/m <sup>3</sup> )
02.04.2024	N/24/04/1-0060	12	18	55	30
04.04.2024	N/24/04/1-0152	11	14	40	27
10.04.2024	N/24/04/2-0162	9	15	47	25
12.04.2024	N/24/04/2-0290	12	17	43	22
16.04.2024	N/24/04/3-00145	10	13	54	28
18.04.2024	N/24/04/3-00234	12	18	51	31
23.04.2024	N/24/04/4-0118	11	13	48	25
25.04.2024	N/24/04/4-0222	7	9	45	26
Limits for Industrial , Residential, Rural and other Areas		80 24 Hrs	80 24 Hrs	100 24 Hrs	60 24 Hrs

*Arshiya Kousar*  
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## TEST REPORT

Table No. 3

### AMBIENT AIR QUALITY

Name of the Client : M/s. Vedanta Ltd.,  
 Name of the Project : Block I - Bicholim Mineral Block  
 Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages,  
 Bicholim Taluka, North Goa  
 Sample Collected by : Environmental Laboratory (Unit of Mineral Engineering Services)  
 Station at & Code : A3, Pilgao village  
 Duration : 24 Hrs  
 Issue date : 05.05.2024  
 Reference IS 5182 & Lab SOP

Date of Sampling	Lab Code	Sulphur Dioxide (SO <sub>2</sub> ), µg/m <sup>3</sup>	Nitrogen Dioxide (NO <sub>2</sub> ), µg/m <sup>3</sup>	Particulate Matter	
				PM <sub>10</sub> , (µg/m <sup>3</sup> )	PM <sub>2.5</sub> , (µg/m <sup>3</sup> )
02.04.2024	N/24/04/1-0061	10	11	53	28
04.04.2024	N/24/04/1-0153	10	14	56	30
10.04.2024	N/24/04/2-0163	12	14	50	27
12.04.2024	N/24/04/2-0291	11	16	48	29
16.04.2024	N/24/04/3-00146	9	12	51	31
18.04.2024	N/24/04/3-00235	11	14	53	27
23.04.2024	N/24/04/4-0119	7	10	39	17
25.04.2024	N/24/04/4-0223	11	12	56	32
Limits for Industrial , Residential, Rural and other Areas		80 24 Hrs	80 24 Hrs	100 24 Hrs	60 24 Hrs

*Arshiya K DUSAR*  
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### TEST REPORT

Table No. 4

#### AMBIENT AIR QUALITY

Name of the Client : M/s. Vedanta Ltd.,					
Name of the Project : Block I - Bicholim Mineral Block Bicholim, Bordem, Langao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa					
Sample Collected by : Environmental Laboratory (Unit of Mineral Engineering Services)					
Station at & Code : A4, Shirgao village					
Duration : 24 Hrs					
Issue date : 06.05.2024					
Reference IS 5182 & Lab SOP					
Date of Sampling	Lab Code	Sulphur Dioxide (SO <sub>2</sub> ), µg/m <sup>3</sup>	Nitrogen Dioxide (NO <sub>2</sub> ), µg/m <sup>3</sup>	Particulate Matter	
				PM <sub>10</sub> , (µg/m <sup>3</sup> )	PM <sub>2.5</sub> , (µg/m <sup>3</sup> )
02.04.2024	N/24/04/1-0062	9	10	49	27
04.04.2024	N/24/04/1-0154	10	15	23	29
10.04.2024	N/24/04/2-0164	11	13	45	23
12.04.2024	N/24/04/2-0292	12	14	51	28
16.04.2024	N/24/04/3-00147	11	14	48	28
18.04.2024	N/24/04/3-00236	7	9	35	18
23.04.2024	N/24/04/4-0120	9	11	42	23
25.04.2024	N/24/04/4-0224	6	9	40	21
Limits for Industrial ,		80	80	100	60
Residential, Rural and other Areas		24 Hrs	24 Hrs	24 Hrs	24 Hrs

*Arshiya Kousar*  
ARSHIYA KOUSAR  
Dy. T.M. - Chemical

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**Annexture -1**

Format No. : 10/Rev 06



# ENVIRONMENTAL LABORATORY



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## TEST REPORT

Table No. 5

### AMBIENT AIR QUALITY

**Name of the Client** : M/s. Vedanta Ltd.,  
**Name of the Project** : Block I - Bicholim Mineral Block  
 Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages,  
 Bicholim Taluka, North Goa  
**Sample Collected by** : Environmental Laboratory (Unit of Mineral Engineering Services)  
**Station at & Code** : A5, Bicholim Guest House- transportation route  
**Duration** : 24 Hrs  
**Issue date** : 06.05.2024  
**Reference** IS 5182 & Lab SOP

Date of Sampling	Lab Code	Sulphur Dioxide (SO <sub>2</sub> ), µg/m <sup>3</sup>	Nitrogen Dioxide (NO <sub>2</sub> ), µg/m <sup>3</sup>	Particulate Matter	
				PM <sub>10</sub> , (µg/m <sup>3</sup> )	PM <sub>2.5</sub> , (µg/m <sup>3</sup> )
02.04.2024	N/24/04/1-0063	7	11	42	22
04.04.2024	N/24/04/1-0155	12	16	53	28
10.04.2024	N/24/04/2-0165	7	9	40	23
12.04.2024	N/24/04/2-0293	10	13	36	16
16.04.2024	N/24/04/3-00148	7	9	52	22
18.04.2024	N/24/04/3-00237	10	11	48	25
23.04.2024	N/24/04/4-0121	9	12	37	19
25.04.2024	N/24/04/4-0225	9	11	45	21
<b>Limits for Industrial , Residential, Rural and other Areas</b>		<b>80 24 Hrs</b>	<b>80 24 Hrs</b>	<b>100 24 Hrs</b>	<b>60 24 Hrs</b>

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# ENVIRONMENTAL LABORATORY

(UNIT OF MINERAL ENGINEERING SERVICES)

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## TEST REPORT

Table No. 6

### AMBIENT AIR QUALITY

Name of the Client : M/s. Vedanta Ltd.,  
Name of the Project : Block I - Bicholim Mineral Block  
Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages,  
Bicholim Taluka, North Goa  
Sample Collected by : Environmental Laboratory (Unit of Mineral Engineering Services)  
Station at & Code : A6, DBB office  
Duration : 24 Hrs  
Issue date : 06.05.2024  
Reference IS 5182 & Lab SOP

Date of Sampling	Lab Code	Sulphur Dioxide (SO <sub>2</sub> ), µg/m <sup>3</sup>	Nitrogen Dioxide (NO <sub>2</sub> ), µg/m <sup>3</sup>	Particulate Matter	
				PM <sub>10</sub> , (µg/m <sup>3</sup> )	PM <sub>2.5</sub> , (µg/m <sup>3</sup> )
03.04.2024	N/24/04/2-0047	6	9	38	17
05.04.2024	N/24/04/2-0067	6	12	46	22
11.04.2024	N/24/04/2-0240	9	18	49	28
13.04.2024	N/24/04/3-0054	9	12	44	23
17.04.2024	N/24/04/3-00149	10	11	35	19
19.04.2024	N/24/04/3-00267	10	15	40	25
24.04.2024	N/24/04/4-0159	10	11	45	28
26.04.2024	N/24/04/5-0023	9	13	50	29
Limits for Industrial , Residential, Rural and other Areas		80 24 Hrs	80 24 Hrs	100 24 Hrs	60 24 Hrs

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# ENVIRONMENTAL LABORATORY

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## TEST REPORT

Table No. 7

### AMBIENT AIR QUALITY

<b>Name of the Client</b> : M/s. Vedanta Ltd., <b>Name of the Project</b> : Block I - Bicholim Mineral Block Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa <b>Sample Collected by</b> : Environmental Laboratory (Unit of Mineral Engineering Services) <b>Station at &amp; Code</b> : A7, NSP office <b>Duration</b> : 24 Hrs <b>Issue date</b> : 06.05.2024 <b>Reference</b> IS 5182 & Lab SOP					
Date of Sampling	Lab Code	Sulphur Dioxide (SO <sub>2</sub> ), µg/m <sup>3</sup>	Nitrogen Dioxide (NO <sub>2</sub> ), µg/m <sup>3</sup>	Particulate Matter	
				PM <sub>10</sub> , (µg/m <sup>3</sup> )	PM <sub>2.5</sub> , (µg/m <sup>3</sup> )
03.04.2024	N/24/04/2-0048	9	11	43	24
05.04.2024	N/24/04/2-0068	5	8	51	28
11.04.2024	N/24/04/2-0241	6	12	36	22
13.04.2024	N/24/04/3-0055	9	12	49	27
17.04.2024	N/24/04/3-00150	12	14	41	25
19.04.2024	N/24/04/3-00268	13	19	53	29
24.04.2024	N/24/04/4-0160	9	10	47	26
26.04.2024	N/24/04/5-0024	10	11	34	17
<b>Limits for Industrial ,</b>		<b>80</b>	<b>80</b>	<b>100</b>	<b>60</b>
<b>Residential, Rural and other Areas</b>		<b>24 Hrs</b>	<b>24 Hrs</b>	<b>24 Hrs</b>	<b>24 Hrs</b>

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**TEST REPORT**

Table No. 8

**AMBIENT AIR QUALITY**

Name of the Client : M/s. Vedanta Ltd.,  
Name of the Project : Block I - Bicholim Mineral Block  
Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages,  
Bicholim Taluka, North Goa  
Sample Collected by : Environmental Laboratory (Unit of Mineral Engineering Services)  
Station at & Code : A8, 4 Top office  
Duration : 24 Hrs  
Issue date : 06.05.2024  
Reference IS 5182 & Lab SOP

Date of Sampling	Lab Code	Sulphur Dioxide (SO <sub>2</sub> ), µg/m <sup>3</sup>	Nitrogen Dioxide (NO <sub>2</sub> ), µg/m <sup>3</sup>	Particulate Matter	
				PM <sub>10</sub> , (µg/m <sup>3</sup> )	PM <sub>2.5</sub> , (µg/m <sup>3</sup> )
03.04.2024	N/24/04/2-0049	9	11	48	27
05.04.2024	N/24/04/2-0069	10	15	40	25
11.04.2024	N/24/04/2-0242	12	18	52	30
13.04.2024	N/24/04/3-0056	6	9	36	24
17.04.2024	N/24/04/3-00151	9	11	44	22
19.04.2024	N/24/04/3-00269	10	17	50	27
24.04.2024	N/24/04/4-0161	9	13	46	24
26.04.2024	N/24/04/5-0025	12	15	39	21
<b>Limits for Industrial , Residential, Rural and other Areas</b>		<b>80 24 Hrs</b>	<b>80 24 Hrs</b>	<b>100 24 Hrs</b>	<b>60 24 Hrs</b>

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## TEST REPORT

Table No. 9

### Fugitive Emission

<b>Name of the Client</b> : M/s. Vedanta Ltd., <b>Name of the Project</b> : Block I - Bicholim Mineral Block Bicholim, Bordem, Langao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa <b>Sample Collected by</b> : Environmental Laboratory (Unit of Mineral Engineering Services) <b>Duration</b> : 08 Hrs <b>Issue Date</b> : 02.05.2024			
Station at & Code	Date of sample	Lab Code	Particulate mater ( $\mu\text{g}/\text{m}^3$ )
FA1, Crushing and screening & Ore Stacking- NSP	03.04.2024	N/24/04/2-0051	167
	19.04.2024	N/24/04/3-00271	265
FA2, Mine Face- 5 top Common Boundary	03.04.2024	N/24/04/2-0050	280
	19.04.2024	N/24/04/3-00270	187
FA3, Dumping- 5 Top	03.04.2024	N/24/04/2-0053	187
	19.04.2024	N/24/04/3-00273	265
FA4, Haul road- at 4 Top	03.04.2024	N/24/04/2-0052	354
	19.04.2024	N/24/04/3-00272	278
Ref : Environmental (Protection) Rules, 2010 (Sixth Amendment) <p style="text-align: right;">Particulate mater ( <math>\mu\text{g}/\text{m}^3</math> )</p> <b>Permissible limits for Fugitive Emissions</b> <span style="float: right;">1200 <math>\mu\text{g}/\text{m}^3</math></span>			

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### TEST REPORT

Table No. 11

Name of the Client	: M/s. Vedanta Limited		
Name of the Project	: Block I - Bicholim Mineral Block Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa		
Sample Collected by	: Environmental Laboratory (Unit of Mineral Engineering Services)		
Particular of Sample Collected	: EDW1 - 1 Top (Bicholim Dhabdabha), EDW2 - 2 Top Discharge (Lamgao), EDW3 - 5 Top Discharge (Mulgao)		
Sample Collected by	: Environmental Laboratory (Unit of Mineral Engineering Services)		
Date of sampling	: 19.04.2024		
Issue Date	: 04.05.2024		
Ref	: Environmental (P) Rules, 1986 SCHEDULE I, - 01.01.2016		

SI. No.	Sample Code	EDW1	EDW2	EDW3	General Standards For Effluent Discharge of Environmental Pollutants	Method of Testing
	Lab Code	ED/24/04/3-0068	ED/24/04/3-0069	ED/24/04/3-0070		
	Parameters	Results				
1	Colour (Hazen Units),	1	<1	1	--	IS:3025(P-4)2021
2	pH	6.96	5.60	6.38	5.5-9.0	IS 3025 (P-11) 2022
3	Turbidity, NTU	1.6	1.5	5.4	--	IS:3025 (P-10) 1984 RA 2017
4	Electrical Conductivity (µmhos/cm)	116.8	54.56	45.89	--	IS 3025 (P-14)
5	Total Dissolved Solids (TDS) mg/l	80	42	32	--	IS 3025(P- 16)02022
6	Total Suspended Solids, mg/l	<5.0	<5.0	<5.0	Non Rainy Day 50, Rainy Day 100	IS 3025 (P-17) 2022
7	Chlorides (as Cl), mg/l	18.99	10.49	14.49	1000	IS 3025 (P-32) 1988 RA 2019
8	Total Hardness (as CaCO <sub>3</sub> ), mg/l	30	12	10	--	IS:3025 (P-21) 2009 RA 2019
9	Calcium (as Ca), mg/l,	8.01	2.4	2.4	--	IS:3025 (P-40)1991 RA 2019
10	Magnesium (as Mg) mg/l,	2.43	1.45	3.88	--	IS 3025 (P-2) 2019
11	Sulphates (as SO <sub>4</sub> ) mg/l	3.6	1	2	1000	IS 3025 (P-24) Sec 1 2022
12	Nitrates (as NO <sub>3</sub> ), mg/l	0.12	0.22	0.14	--	IS:3025 (P-34) Sec 1 2023
13	BOD [3 days at 27°C] mg/l	<3.0	<3.0	<3	30	IS 3025 (P-44) 2014
14	COD, mg/l	<5.0	<5.0	<5	250	IS 3025 (P-58) 2006 RA 2022
15	Iron (as Fe), mg/l	0.031	0.045	0.067	3	IS 3025 (P-2) 2019
16	Manganese (as Mn), mg/l	0.008	0.012	0.006	2	IS 3025 (P-2) 2019
17	Dissolved Oxygen (as O <sub>2</sub> ), mg/l, Max	5.3	5.5	5.4	Min 4	IS:3025(Part-38)1989RA 2019
18	Oil & Grease, mg/l	<1.0	<1.0	<1.0	10	IS 3025 (P-39) 2021

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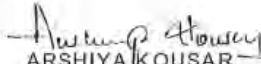
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## TEST REPORT

Table No. 12

<b>Name of the Client</b>	: M/s. Vedanta Limited
<b>Name of the Project</b>	: Block I - Bicholim Mineral Block Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa
<b>Sample Collected by</b>	: Environmental Laboratory (Unit of Mineral Engineering Services)
<b>Particular of Sample Collected</b>	: SW1 - Upstream Bicholim River, SW2 - Downstream Bicholim River
<b>Sample Collected by</b>	: Environmental Laboratory (Unit of Mineral Engineering Services)
<b>Date of sampling</b>	: 19.04.2024
<b>Issue Date</b>	: 04.05.2024
<b>Ref:IS : 2296, 1982 Class C Norms (Stream Water Standards)</b>	

Sl.No.	Sample Code Lab Code Parameters	SW1	SW2	Limits For Stream Water Standards	Method of Testing
		ED/24/04/3-0071	ED/24/04/3-0072		
1	Colour (Hazen Units),	5	5	300	IS:3025(P-4)2021
2	pH	6.59	6.73	6.5 to 8.5	IS 3025 (P-11) 2022
3	Turbidity,NTU	4.2	3.5	-	IS:3025 (P-10) 1984 RA 2017
4	Electrical Conductivity (µmhos/cm)	83	1044	-	IS 3025 (P-14)
5	Total Dissolved Solids (TDS) mg/l	64	710	1500	IS:3025(Part-16)2023
6	Total Suspended Solids, mg/l	24	44	-	IS 3025 (P-17) 2022
7	Chlorides (as Cl), mg/l	10.84	415.39	600	IS:3025(Part-32);1988RA2019
8	Total Hardness (as CaCO <sub>3</sub> ),mg/l	32	124	-	IS:3025 (P-21) 2009 RA 2019
9	Calcium (as Ca),mg/l,	8.01	15.23	-	IS:3025 (P-40)1991 RA 2019
10	Magnesium (as Mg) mg/l,	2.91	20.9	-	IS 3025 (P-2) 2019
11	Sulphates (as SO <sub>4</sub> ) mg/l	3	52.6	400	IS:3025(P-24)Sec 1 2022
12	Nitrates (as NO <sub>3</sub> ),mg/l	0.5	0.44	50	IS:3025 (P-34) Sec 1 2023
13	BOD [3 days at 27°C] mg/l	<3.0	<3.0	-	IS 3025 (P-44) 2014
14	COD, mg/l	21.2	21.2	-	IS 3025 (P-58) 2006 RA 2022
15	Iron (as Fe), mg/l	0.074	0.012	50	IS:3025(P-2) 2019
16	Manganese (as Mn), mg/l	0.008	0.003	-	IS 3025 (P-2) 2019
17	Dissolved Oxygen (as O <sub>2</sub> ), mg/l, Max	5.4	5.6	Min 4	IS:3025(Part-38)1989RA 2019
18	Oil & Grease, mg/l	<1.0	<1.0	0.1	IS:3025(Part 39)2021

  
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## TEST REPORT

Table No. 13

Name of the Client	: M/s. Vedanta Limited
Name of the Project	: Block I - Bicholim Mineral Block
	Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa
Sample Collected by	: Environmental Laboratory (Unit of Mineral Engineering Services)
Particular of Sample Collected	: SW3 - Upstream Asnora River, SW4 - Downstream Asnora River
Sample Collected by	: Environmental Laboratory (Unit of Mineral Engineering Services)
Date of sampling	: 19.04.2024
Issue Date	: 04.05.2024
Ref:IS : 2296, 1982 Class C Norms (Stream Water Standards)	

Sl.No.	Sample Code Lab Code Parameters	SW3	SW4	Limits For Stream Water Standards	Method of Testing
		ED/24/04/3-0073	ED/24/04/3-0074		
		Results			
1	Colour (Hazen Units),	1	1	300	IS:3025(P-4)2021
2	pH	6.50	6.66	6.5 to 8.5	IS 3025 (P-11) 2022
3	Turbidity,NTU	3.2	4.8	—	IS:3025 (P-10) 1984 RA 2017
4	Electrical Conductivity (µmhos/cm)	59	810	—	IS 3025 (P-14)
5	Total Dissolved Solids (TDS) mg/l	38	574	1500	IS:3025(Part-16)2023
6	Total Suspended Solids, mg/l	12	13	-	IS 3025 (P-17) 2022
7	Chlorides (as Cl), mg/l	12.81	238	600	IS 3025(Part-32) 1988RA2019
8	Total Hardness (as CaCO <sub>3</sub> ),mg/l	18	76	—	IS:3025 (P-21) 2009 RA 2019
9	Calcium (as Ca),mg/l.	4.8	8.01	—	IS:3025 (P-40)1991 RA 2019
10	Magnesium (as Mg) mg/l.	1.45	13.61	—	IS 3025 (P-2) 2019
11	Sulphates (as SO <sub>4</sub> ) mg/l	2	34.4	400	IS:3025(P-24)Sec 1 2022
12	Nitrates (as NO <sub>3</sub> ),mg/l	0.15	0.19	50	IS:3025 (P-34) Sec 1 2023
13	BOD [3 days at 27°C] mg/l	<3.0	<3.0	-	IS 3025 (P-44) 2014
14	COD, mg/l	10.6	10.6	-	IS 3025 (P-58) 2006 RA 2022
15	Iron (as Fe), mg/l	0.112	0.179	50	IS:3025(P-2) 2019
16	Manganese (as Mn), mg/l	0.009	0.015	-	IS 3025 (P-2) 2019
17	Dissolved Oxygen (as O <sub>2</sub> ), mg/l, Max	5.3	5.5	Min 4	IS:3025(Part-38)1989RA 2019
18	Oil & Grease, mg/l	<1.0	<1.0	0.1	IS:3025(Part 39)2021

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### TEST REPORT

Table No.14

Name of the Client		: M/s. Vedanta Limited					
Name of the Project		: Block I - Bicholim Mineral Block					
		Bicholim, Bordern, Lamgao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa					
Sample Collected by		: Environmental Laboratory (Unit of Mineral Engineering Services)					
Particulars of sample collected		: GW1 - Well water Bicholim (Anand Mulgaudi), GW2 - Well water Lamgao village (Santosh dewari), GW3 - Well water Mulgao village (Vitthal Sathu House)					
Date of sample collection		: 19.04.2024					
Issue Date		: 04.05.2024					
Ref		: IS:10500-2012 Norms Amendment - 4 (Drinking Water Standards)					
Sl. No.	Sample Code	GW1	GW2	GW3	Desirable Limits	Permissible Limits	Method of Testing
	Lab Code	ED/24/04/3-0075	ED/24/04/3-0076	ED/24/04/3-0077			
Parameters		Results					
1	Colour (Hazen Units)	<1	<1	<1	5	15	IS:3025 (P-4) 2021
2	pH Value	6.58	6.67	6.71	6.5 to 8.5	6.5 - 8.5	IS:3025 (P-11) 2022
3	Turbidity, NTU, Max	0.5	1.5	0.9	1	5	IS:3025 (P-10)1984 RA 2017
4	Electrical Conductivity (µmhos/cm)	143.6	88.4	46.4	-	-	IS 3025 (P-14)
5	Total Dissolved Solids, mg/l, Max	105.0	64.0	37.0	500	2000	IS 3025 (P-16)1984 RA2017
6	Total Suspended Solids, mg/l	<5.0	<5.0	<5.0	-	-	IS 3025 (P-17) 2022
7	Calcium (as Ca), mg/l, Max	6.40	5.61	2.40	75	200	IS:3025 (P-40)1991 RA 2019
8	Chloride as Cl (mg/l), mg/l, Max	22.66	22.66	13.30	250	1000	IS:3025 (P-32) 1988 RA 2019
9	Iron (as Fe), mg/l, Max	0.100	0.059	0.028	1.0	1.0	IS:3025 (Part-2) 2019
10	Magnesium (as Mg) mg/l, Max	2.92	1.45	1.45	30	100	IS:3025 (P-46)1994 RA 2019
11	Manganese (as Mn), mg/l, Max	0.051	0.032	0.017	0.1	0.3	IS:3025 (P-2) 2019
12	Nitrates (as NO <sub>3</sub> ), mg/l, Max	2.85	0.95	0.30	45	45	IS:3025 (P-34) Sec 1 2023
13	Sulphates (as SO <sub>4</sub> ), mg/l, Max	4.20	3.60	3.60	200	400	IS:3025 (P-24) Sec 1 2022
14	Alkalinity (as CaCO <sub>3</sub> ) mg/l, Max	14.85	14.9	4.95	200	600	IS:3025 (P-23).1986 RA 2019
15	Total Hardness (as CaCO <sub>3</sub> ) mg/l, Max	28.0	20.0	12.0	200	600	IS:3025 (P-21):2009 RA 2019
16	Escherichia coli/100ml	Not Detected	Not Detected	Not Detected	Shall not be detectable in any 100ml Sample		IS:15185:2016 RA 2021
17	Total Coliform /100ml	Not Detected	Not Detected	Not Detected	Shall not be detectable in any 100ml Sample		IS:15185:2016 RA 2021
18	Water levels in well from surface (m)	9.0	39.0	4.5	-	-	-

*[Signature]*  
BINU MANI

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Govt. Analyst / Authorised Signatory

*[Signature]*  
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Annexure -1

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# ENVIRONMENTAL LABORATORY

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## TEST REPORT

### NOISE LEVEL DATA

Table No 10

Report No : M001240402

<b>Name of the Client</b>		: M/s. Vedanta Limited					
<b>Name of the Project</b>		: Block I - Bicholim Mineral Block Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa					
<b>Sample Collected by</b>		: Environmental Laboratory (Unit of Mineral Engineering Services)					
<b>Season</b>		: Summer, 2024					
<b>Date of monitoring</b>		: 11.04.2024					
<b>Issue Date</b>		: 06.05.2024					
Code No.	Monitoring stations	Day			Night		
		L <sub>min</sub>	L <sub>eq</sub>	L <sub>max</sub>	L <sub>min</sub>	L <sub>eq</sub>	L <sub>max</sub>
<b>Buffer zone</b>							
N1	Lamgao village	41.0	50.1	56.3	34.0	39.8	44.8
N2	Mulgao village	39.0	51.8	58.3	34.0	41.4	47.3
N3	Pilgao village	36.5	47.2	54.2	34.5	40.3	46.3
N4	Shirgao village	36.0	46.5	53.8	34.0	39.1	44.5
<b>Corezone</b>							
N5	Bicholim Guest House-transportation route	41.0	50.1	56.3	34.0	39.8	44.8
N6	DBB office	39.0	49.9	54.3	34.0	41.4	47.3
N7	NSP office	36.5	46.3	52.3	34.5	40.3	46.3
N8	4 Top office	35.6	43.2	51.0	34.0	39.1	44.5
N9	Mobile screening plant NSP	44.0	62.7	82.0	During operation		
N10	Mine Face- 5 top Common Boundary	39.0	51.2	61.2	During operation		
N11	Dumping- 5 Top	40.0	57.2	74.2	During operation		
N12	Ore stacking - MS10	43.0	53.3	68.5	During operation		
<b>Permissible limits as per ILO Code of Practice</b>				<b>Permissible Limits of Ambient Noise Levels as per CPCB Guidelines</b>			
For Unprotected ear - 8 hrs working shift				Leq. Limit dB(A)			
Warning limit - 85 dB(A)				Day		Night	
Danger limit - 90 dB(A)				75		70	
Worker not to be exposed for more than 115 dB(A)				Industrial areas		65	
With ear protection -				Commercial area		55	
130 dB(A) 'impulse' or 120 dB(A) 'Fast'				Residential area		55	
No entry when noise level exceeds 140 dB(A)							

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**Annexure -1**

**1b. May 2024**

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**TEST REPORT**

Table No. 1

**AMBIENT AIR QUALITY**

<b>Name of the Client</b> : M/s. Vedanta Ltd., <b>Name of the Project</b> : Block I - Bicholim Mineral Block Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa <b>Sample Collected by</b> : Environmental Laboratory (Unit of Mineral Engineering Services) <b>Station at &amp; Code</b> : A1, Lamgao village <b>Duration</b> : 24 Hrs <b>Issue date</b> : 14.06.2024 <b>Reference</b> IS 5182 & Lab SOP					
Date of Sampling	Lab Code	Sulphur Dioxide (SO <sub>2</sub> ), µg/m <sup>3</sup>	Nitrogen Dioxide (NO <sub>2</sub> ), µg/m <sup>3</sup>	Particulate Matter	
				PM <sub>10</sub> , (µg/m <sup>3</sup> )	PM <sub>2.5</sub> , (µg/m <sup>3</sup> )
10.05.2024	N/24/05/2-0296	11	13	46	26
11.05.2024	N/24/05/3-0126	9	14	50	26
17.05.2024	N/24/05/4-0449	7	13	38	21
18.05.2024	N/24/05/4-0456	11	12	30	19
24.05.2024	N/24/05/4-0477	9	11	44	24
25.05.2024	N/24/05/5-0267	11	12	40	25
29.05.2024	N/24/05/5-0284	10	14	53	27
30.05.2024	N/24/05/5-0294	7	9	48	22
<b>Limits for Industrial ,</b>		<b>80</b>	<b>80</b>	<b>100</b>	<b>60</b>
<b>Residential, Rural and other Areas</b>		<b>24 Hrs</b>	<b>24 Hrs</b>	<b>24 Hrs</b>	<b>24 Hrs</b>

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### TEST REPORT

Table No. 2

#### AMBIENT AIR QUALITY

<b>Name of the Client</b>	: M/s. Vedanta Ltd.,
<b>Name of the Project</b>	: Block I - Bicholim Mineral Block Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa
<b>Sample Collected by</b>	: Environmental Laboratory (Unit of Mineral Engineering Services)
<b>Station at &amp; Code</b>	: A2, Mulgao village
<b>Duration</b>	: 24 Hrs
<b>Issue date</b>	: 14.06.2024
<b>Reference</b>	: IS 5182 & Lab SOP

Date of Sampling	Lab Code	Sulphur Dioxide (SO <sub>2</sub> ), µg/m <sup>3</sup>	Nitrogen Dioxide (NO <sub>2</sub> ), µg/m <sup>3</sup>	Particulate Matter	
				PM <sub>10</sub> , (µg/m <sup>3</sup> )	PM <sub>2.5</sub> , (µg/m <sup>3</sup> )
10.05.2024	N/24/05/2-0297	7	10	54	32
11.05.2024	N/24/05/3-0127	11	14	45	24
17.05.2024	N/24/05/4-0450	9	13	48	25
18.05.2024	N/24/05/4-0457	7	11	55	28
24.05.2024	N/24/05/4-0478	11	14	52	27
25.05.2024	N/24/05/5-0268	11	12	50	28
29.05.2024	N/24/05/5-0285	11	11	49	26
30.05.2024	N/24/05/5-0296	6	9	43	24
<b>Limits for Industrial , Residential, Rural and other Areas</b>		<b>80 24 Hrs</b>	<b>80 24 Hrs</b>	<b>100 24 Hrs</b>	<b>60 24 Hrs</b>

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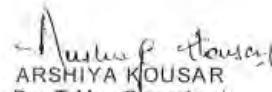


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**TEST REPORT**

Table No. 3

**AMBIENT AIR QUALITY**

<b>Name of the Client : M/s. Vedanta Ltd.,</b> <b>Name of the Project : Block I - Bicholim Mineral Block</b> Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa <b>Sample Collected by : Environmental Laboratory (Unit of Mineral Engineering Services)</b> <b>Station at &amp; Code : A3, Pilgao village</b> <b>Duration : 24 Hrs</b> <b>Issue date : 14.06.2024</b> <b>Reference IS 5182 &amp; Lab SOP</b>					
Date of Sampling	Lab Code	Sulphur Dioxide (SO <sub>2</sub> ), µg/m <sup>3</sup>	Nitrogen Dioxide (NO <sub>2</sub> ), µg/m <sup>3</sup>	Particulate Matter	
				PM <sub>10</sub> , (µg/m <sup>3</sup> )	PM <sub>2.5</sub> , (µg/m <sup>3</sup> )
08.05.2024	N/24/05/2-0290	13	16	42	25
09.05.2024	N/24/05/2-0293	12	18	38	20
15.05.2024	N/24/05/3-0143	10	11	48	25
16.05.2024	N/24/05/4-0446	11	15	45	24
22.05.2024	N/24/05/4-0471	9	11	53	22
23.05.2024	N/24/05/4-0474	10	13	41	25
29.05.2024	N/24/05/5-0286	9	11	36	18
30.05.2024	N/24/05/5-0295	12	15	39	20
<b>Limits for Industrial ,</b>		<b>80</b>	<b>80</b>	<b>100</b>	<b>60</b>
<b>Residential, Rural and other Areas</b>		<b>24 Hrs</b>	<b>24 Hrs</b>	<b>24 Hrs</b>	<b>24 Hrs</b>

  
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**TEST REPORT**

Table No. 4

**AMBIENT AIR QUALITY**

<b>Name of the Client : M/s. Vedanta Ltd.,</b>					
<b>Name of the Project : Block I - Bicholim Mineral Block</b>					
<b>Bicholim, Bordem, Langao, Mulgao, Mayem &amp; Sirigao villages, Bicholim Taluka, North Goa</b>					
<b>Sample Collected by : Environmental Laboratory (Unit of Mineral Engineering Services)</b>					
<b>Station at &amp; Code : A4, Shirgao village</b>					
<b>Duration : 24 Hrs</b>					
<b>Issue date : 14.06.2024</b>					
<b>Reference IS 5182 &amp; Lab SOP</b>					
Date of Sampling	Lab Code	Sulphur Dioxide (SO <sub>2</sub> ), µg/m <sup>3</sup>	Nitrogen Dioxide (NO <sub>2</sub> ), µg/m <sup>3</sup>	Particulate Matter	
				PM <sub>10</sub> , (µg/m <sup>3</sup> )	PM <sub>2.5</sub> , (µg/m <sup>3</sup> )
10.05.2024	N/24/05/2-0298	10	14	51	30
11.05.2024	N/24/05/3-0128	12	18	48	23
17.05.2024	N/24/05/4-0451	6	9	35	17
18.05.2024	N/24/05/4-0458	10	15	46	25
24.05.2024	N/24/05/4-0479	9	11	40	22
25.05.2024	N/24/05/5-0269	11	14	36	18
29.05.2024	N/24/05/5-0287	7	11	42	23
30.05.2024	N/24/05/5-0297	10	13	53	29
<b>Limits for Industrial , Residential, Rural and other Areas</b>		<b>80 24 Hrs</b>	<b>80 24 Hrs</b>	<b>100 24 Hrs</b>	<b>60 24 Hrs</b>

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## TEST REPORT

Table No. 5

### AMBIENT AIR QUALITY

<b>Name of the Client : M/s. Vedanta Ltd.,</b> <b>Name of the Project : Block I - Bicholim Mineral Block</b> <b>Bicholim, Bordem, Langao, Mulgao, Mayem &amp; Sirigao villages,</b> <b>Bicholim Taluka, North Goa</b> <b>Sample Collected by : Environmental Laboratory (Unit of Mineral Engineering Services)</b> <b>Station at &amp; Code : A5, Bicholim Guest House- transportation route</b> <b>Duration : 24 Hrs</b> <b>Issue date : 14.06.2024</b> <b>Reference IS 5182 &amp; Lab SOP</b>					
Date of Sampling	Lab Code	Sulphur Dioxide (SO <sub>2</sub> ), µg/m <sup>3</sup>	Nitrogen Dioxide (NO <sub>2</sub> ), µg/m <sup>3</sup>	Particulate Matter	
				PM <sub>10</sub> , (µg/m <sup>3</sup> )	PM <sub>2.5</sub> , (µg/m <sup>3</sup> )
10.05.2024	N/24/05/2-0299	11	12	45	27
11.05.2024	N/24/05/3-0129	9	11	48	25
17.05.2024	N/24/05/4-0452	12	17	56	32
18.05.2024	N/24/05/4-0459	8	9	50	28
24.05.2024	N/24/05/4-0480	11	14	43	24
25.05.2024	N/24/05/5-0270	9	11	38	21
29.05.2024	N/24/05/5-0288	10	11	40	22
30.05.2024	N/24/05/5-0298	7	9	52	27
<b>Limits for Industrial ,</b>		<b>80</b>	<b>80</b>	<b>100</b>	<b>60</b>
<b>Residential, Rural and other Areas</b>		<b>24 Hrs</b>	<b>24 Hrs</b>	<b>24 Hrs</b>	<b>24 Hrs</b>

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### TEST REPORT

Table No. 6

### AMBIENT AIR QUALITY

<b>Name of the Client : M/s. Vedanta Ltd.,</b> <b>Name of the Project : Block I - Bicholim Mineral Block</b> Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa <b>Sample Collected by : Environmental Laboratory (Unit of Mineral Engineering Services)</b> <b>Station at &amp; Code : A6, DBB office</b> <b>Duration : 24 Hrs</b> <b>Issue date : 14.06.2024</b> <b>Reference IS 5182 &amp; Lab SOP</b>					
Date of Sampling	Lab Code	Sulphur Dioxide (SO <sub>2</sub> ), µg/m <sup>3</sup>	Nitrogen Dioxide (NO <sub>2</sub> ), µg/m <sup>3</sup>	Particulate Matter	
				PM <sub>10</sub> , (µg/m <sup>3</sup> )	PM <sub>2.5</sub> , (µg/m <sup>3</sup> )
10.05.2024	N/24/05/2-0300	6	9	48	24
11.05.2024	N/24/05/3-0130	12	14	54	27
17.05.2024	N/24/05/4-0453	11	16	44	25
18.05.2024	N/24/05/4-0460	10	11	40	22
24.05.2024	N/24/05/4-0481	9	10	38	19
25.05.2024	N/24/05/5-0271	10	12	55	27
29.05.2024	N/24/05/5-0289	11	15	47	26
30.05.2024	N/24/05/5-0299	12	14	38	18
<b>Limits for Industrial ,</b>		<b>80</b>	<b>80</b>	<b>100</b>	<b>60</b>
<b>Residential, Rural and other Areas</b>		<b>24 Hrs</b>	<b>24 Hrs</b>	<b>24 Hrs</b>	<b>24 Hrs</b>

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**TEST REPORT**

Table No. 7

**AMBIENT AIR QUALITY**

**Name of the Client** : M/s. Vedanta Ltd.,  
**Name of the Project** : Block I - Bicholim Mineral Block  
 Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages,  
 Bicholim Taluka, North Goa  
**Sample Collected by** : Environmental Laboratory (Unit of Mineral Engineering Services)  
**Station at & Code** : A7, NSP office  
**Duration** : 24 Hrs  
**Issue date** : 14.06.2024  
**Reference** IS 5182 & Lab SOP

Date of Sampling	Lab Code	Sulphur Dioxide (SO <sub>2</sub> ), µg/m <sup>3</sup>	Nitrogen Dioxide (NO <sub>2</sub> ), µg/m <sup>3</sup>	Particulate Matter	
				PM <sub>10</sub> , (µg/m <sup>3</sup> )	PM <sub>2.5</sub> , (µg/m <sup>3</sup> )
10.05.2024	N/24/05/2-0301	11	13	51	27
11.05.2024	N/24/05/3-0131	5	7	36	19
17.05.2024	N/24/05/4-0454	11	14	40	22
18.05.2024	N/24/05/4-0461	10	12	43	23
24.05.2024	N/24/05/4-0482	9	10	52	27
25.05.2024	N/24/05/5-0272	7	9	54	28
29.05.2024	N/24/05/5-0290	6	8	38	22
30.05.2024	N/24/05/5-0300	11	13	48	26
<b>Limits for Industrial , Residential, Rural and other Areas</b>		<b>80 24 Hrs</b>	<b>80 24 Hrs</b>	<b>100 24 Hrs</b>	<b>60 24 Hrs</b>

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**TEST REPORT**

Table No. 8

**AMBIENT AIR QUALITY**

<b>Name of the Client : M/s. Vedanta Ltd.,</b> <b>Name of the Project : Block I - Bicholim Mineral Block</b> Bicholim, Bordem, Langao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa <b>Sample Collected by : Environmental Laboratory (Unit of Mineral Engineering Services)</b> <b>Station at &amp; Code : A8, 4 Top office</b> <b>Duration : 24 Hrs</b> <b>Issue date : 14.06.2024</b> <b>Reference IS 5182 &amp; Lab SOP</b>					
Date of Sampling	Lab Code	Sulphur Dioxide (SO <sub>2</sub> ), µg/m <sup>3</sup>	Nitrogen Dioxide (NO <sub>2</sub> ), µg/m <sup>3</sup>	Particulate Matter	
				PM <sub>10</sub> , (µg/m <sup>3</sup> )	PM <sub>2.5</sub> , (µg/m <sup>3</sup> )
10.05.2024	N/24/05/2-0302	11	12	50	27
11.05.2024	N/24/05/3-0132	12	14	36	20
17.05.2024	N/24/05/4-0455	10	11	40	22
18.05.2024	N/24/05/4-0462	7	9	47	26
24.05.2024	N/24/05/4-0483	9	10	51	28
25.05.2024	N/24/05/5-0273	10	12	49	30
29.05.2024	N/24/05/5-0291	12	14	41	22
30.05.2024	N/24/05/5-0301	6	9	53	28
<b>Limits for Industrial ,</b>		<b>80</b>	<b>80</b>	<b>100</b>	<b>60</b>
<b>Residential, Rural and other Areas</b>		<b>24 Hrs</b>	<b>24 Hrs</b>	<b>24 Hrs</b>	<b>24 Hrs</b>

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# Annexture -1

Format No. : 10



## ENVIRONMENTAL LABORATORY

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### TEST REPORT

Table No. 9

#### Fugitive Emission

<b>Name of the Client</b>	: M/s. Vedanta Ltd.,		
<b>Name of the Project</b>	: Block I - Bicholim Mineral Block Bicholim, Bordem, Langao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa		
<b>Sample Collected by</b>	: Environmental Laboratory (Unit of Mineral Engineering Services)		
<b>Duration</b>	: 08 Hrs		
<b>Issue Date</b>	: 14.06.2024		
Station at & Code	Date of sample	Lab Code	Particulate mater ( $\mu\text{g}/\text{m}^3$ )
FA1, Crushing and screening & Ore Stacking- NSP	10.05.2024	N/24/05/2-0303	455
	24.05.2024	N/24/05/4-0484	388
FA2, Mine Face- 5 top Common Boundary	10.05.2024	N/24/05/2-0304	356
	24.05.2024	N/24/05/5-0266	412
FA3, Dumping- 5 Top	11.05.2024	N/24/05/3-0133	487
	25.05.2024	N/24/05/5-0274	364
FA4, Haul road- at 4 Top	11.05.2024	N/24/05/3-0134	369
	25.05.2024	N/24/05/5-0275	347
Ref : Environmental (Protection) Rules, 2010 (Sixth Amendment)			
<b>Particulate mater (<math>\mu\text{g}/\text{m}^3</math>)</b>			
<b>Permissible limits for Fugitive Emissions</b>			<b>1200 <math>\mu\text{g}/\text{m}^3</math></b>

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**Annexture -1**

Format No. : 10



# ENVIRONMENTAL LABORATORY

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## TEST REPORT

Table No. 10

<b>Name of the Client</b>	: M/s. Vedanta Limited
<b>Name of the Project</b>	: Block I - Bicholim Mineral Block Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa
<b>Sample Collected by</b>	: Environmental Laboratory (Unit of Mineral Engineering Services)
<b>Particular of Sample Collecte</b>	: EDW1 - 1 Top Discharge (Bicholim Dhabdabha), EDW2 - 2 Top Discharge (Lamgao), EDW3 - 5 Top Discharge (Mulgao)
<b>Sample Collected by</b>	: Environmental Laboratory (Unit of Mineral Engineering Services)
<b>Date of sampling</b>	: 24.05.2024
<b>Issue Date</b>	: 14.06.2024
<b>Ref</b>	: Environmental (P) Rules, 1986 SCHEDULE I, - 01.01.2016

Sl. No.	Sample Code	EDW1	EDW2	EDW3	General Standards For Effluent Discharge of Environmental Pollutants	Method of Testing
	Lab Code	N/24/05/4-0485	N/24/05/4-0486	N/24/05/4-0487		
	Parameters	Results				
1	Colour (Hazen Units),	1	<1	1	—	IS:3025(P-4)2021
2	pH	6.83	5.90	6.82	5.5-9.0	IS 3025 (P-11) 2022
3	Turbidity,NTU	1.8	1.4	3.4	—	IS:3025 (P-10) 1984 RA 2017
4	Electrical Conductivity (µmhos/cm)	110.8	62.3	40.6	—	IS 3025 (P-14)
5	Total Dissolved Solids (TDS) mg/l	78	38	28	—	IS 3025(P- 16)02022
6	Total Suspended Solids, mg/l	<5.0	<5.0	<5.0	Non Rainy Day 50, Rainy Day 100	IS 3025 (P-17) 2022
7	Chlorides (as Cl), mg/l	20.4	18.6	16.6	1000	IS 3025 (P-32) 1988 RA 2019
8	Total Hardness (as CaCO <sub>3</sub> ),mg/l	26	14	16	—	IS:3025 (P-21) 2009 RA 2019
9	Calcium (as Ca),mg/l,	5.6	3.5	4.0	—	IS:3025 (P-40)1991 RA 2019
10	Magnesium (as Mg) mg/l,	2.91	1.46	1.45	—	IS 3025 (P-2) 2019
11	Sulphates (as SO <sub>4</sub> ) mg/l	2.6	1.8	1.8	1000	IS 3025 (P-24) Sec 1 2022
12	Nitrates (as NO <sub>3</sub> ),mg/l	0.12	0.33	0.32	—	IS:3025 (P-34) Sec 1 2023
13	BOD [3 days at 27°C] mg/l	<3.0	<3.0	<3	30	IS 3025 (P-44) 2014
14	COD, mg/l	<5.0	<5.0	<5	250	IS 3025 (P-58) 2006 RA 2022
15	Iron (as Fe), mg/l	0.036	0.052	0.036	3	IS 3025 (P-2) 2019
16	Manganese (as Mn), mg/l	0.006	0.08	0.005	2	IS 3025 (P-2) 2019
17	Dissolved Oxygen (as O <sub>2</sub> ), mg/l, Max	5.8	5.9	5.9	Min 4	IS:3025(Part-38)1989RA 2019
18	Oil & Grease, mg/l	<1.0	<1.0	<1.0	10	IS 3025 (P-39) 2021

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## TEST REPORT

Table No. 11

<b>Name of the Client</b>		: M/s. Vedanta Limited			
<b>Name of the Project</b>		: Block I - Bicholim Mineral Block			
		Bicholim, Bordem, Langao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa			
<b>Sample Collected by</b>		: Environmental Laboratory (Unit of Mineral Engineering Services)			
<b>Particular of Sample Collected</b>		: SW3 - Upstream Asnora River, SW4 - Downstream Asnora River			
<b>Sample Collected by</b>		: Environmental Laboratory (Unit of Mineral Engineering Services)			
<b>Date of sampling</b>		: 24.05.2024			
<b>Issue Date</b>		: 14.06.2024			
<b>Ref:IS : 2296, 1982 Class C Norms (Stream Water Standards)</b>					
	<b>Sample Code</b>	<b>SW3</b>	<b>SW4</b>	<b>Limits For Stream Water Standards</b>	<b>Method of Testing</b>
<b>Sl.No.</b>	<b>Lab Code</b>	N/24/05/4-0490	N/24/05/4-0491		
	<b>Parameters</b>	<b>Results</b>			
1	Colour (Hazen Units),	2	3	300	IS:3025(P-4)2021
2	pH	6.62	6.50	6.5 to 8.5	IS 3025 (P-11) 2022
3	Turbidity,NTU	3.7	5.2	-	IS:3025 (P-10) 1984 RA 2017
4	Electrical Conductivity (µmhos/cm)	66.0	650	-	IS 3025 (P-14)
5	Total Dissolved Solids (TDS) mg/l	40.0	390	1500	IS:3025(Part-16)2023
6	Total Suspended Solids, mg/l	15.0	18.0	-	IS 3025 (P-17) 2022
7	Chlorides (as Cl), mg/l	19.0	192.0	600	IS:3025(Part-32) ;1988RA2019
8	Total Hardness (as CaCO <sub>3</sub> ),mg/l	16.0	60.0	-	IS:3025 (P-21) 2009 RA 2019
9	Calcium (as Ca),mg/l,	3.0	12.0	-	IS:3025 (P-40)1991 RA 2019
10	Magnesium (as Mg) mg/l,	1.1	7.3	-	IS 3025 (P-2) 2019
11	Sulphates (as SO <sub>4</sub> ) mg/l	2.0	29.0	400	IS:3025(P-24)Sec 1 2022
12	Nitrates (as NO <sub>3</sub> ),mg/l	0.2	0.3	50	IS:3025 (P-34) Sec 1 2023
13	BOD [3 days at 27°C] mg/l	<3.0	<3.0	-	IS 3025 (P-44) 2014
14	COD, mg/l	12.0	15.0	-	IS 3025 (P-58) 2006 RA 2022
15	Iron (as Fe), mg/l	0.12	0.15	50	IS:3025(P-2) 2019
16	Manganese (as Mn), mg/l	0.01	0.01	-	IS 3025 (P-2) 2019
17	Dissolved Oxygen (as O <sub>2</sub> ), mg/l, Max	5.5	5.8	Min 4	IS:3025(Part-38)1989RA 2019
18	Oil & Grease, mg/l	<1.0	<1.0	0.1	IS:3025(Part 39)2021

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1c. June 2024

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**TEST REPORT**

Table No. 1

AMBIENT AIR QUALITY

Name of the Client : M/s. Vedanta Ltd.,  
 Name of the Project : Block I - Bicholim Mineral Block  
 Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages,  
 Bicholim Taluka, North Goa  
 Sample Collected by : Environmental Laboratory (Unit of Mineral Engineering Services)  
 Station at & Code : A1, Lamgao village (Santosh Dewari house)  
 Duration : 24 Hrs  
 Issue date : 03.07.2024  
 Reference IS 5182 & Lab SOP

Date of Sampling	Lab Code	Sulphur Dioxide (SO <sub>2</sub> ), µg/m <sup>3</sup>	Nitrogen Dioxide (NO <sub>2</sub> ), µg/m <sup>3</sup>	Particulate Matter	
				PM <sub>10</sub> , (µg/m <sup>3</sup> )	PM <sub>2.5</sub> , (µg/m <sup>3</sup> )
07.06.2024	N/24/06/2-0168	9	10	48	25
08.06.2024	N/24/06/3-0080	12	14	35	19
14.06.2024	N/24/06/4-0185	6	9	51	27
15.06.2024	N/24/06/4-0222	9	11	46	24
21.06.2024	N/24/06/5-0174	7	9	53	29
22.06.2024	N/24/06/5-0261	11	13	38	20
28.06.2024	N/24/06/5-0577	10	12	42	20
29.06.2024	N/24/07/1-0005	7	9	37	19
<b>Limits for Industrial ,</b>		<b>80</b>	<b>80</b>	<b>100</b>	<b>60</b>
<b>Residential, Rural and other Areas</b>		<b>24 Hrs</b>	<b>24 Hrs</b>	<b>24 Hrs</b>	<b>24 Hrs</b>

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## TEST REPORT

Table No. 2

### AMBIENT AIR QUALITY

Name of the Client : M/s. Vedanta Ltd.,					
Name of the Project : Block I - Bicholim Mineral Block Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa					
Sample Collected by : Environmental Laboratory (Unit of Mineral Engineering Services)					
Station at & Code : A2, Mulgao village (Shri Rashtroli Bhraman Devasthan)					
Duration : 24 Hrs					
Issue date : 03.07.2024					
Reference IS 5182 & Lab SOP					
Date of Sampling	Lab Code	Sulphur Dioxide (SO <sub>2</sub> ), µg/m <sup>3</sup>	Nitrogen Dioxide (NO <sub>2</sub> ), µg/m <sup>3</sup>	Particulate Matter	
				PM <sub>10</sub> , (µg/m <sup>3</sup> )	PM <sub>2.5</sub> , (µg/m <sup>3</sup> )
07.06.2027	N/24/06/2-0169	6	9	53	29
08.06.2024	N/24/06/3-0081	11	14	47	23
14.06.2024	N/24/06/4-0186	9	11	39	25
15.06.2024	N/24/06/4-0223	10	12	53	29
21.06.2024	N/24/06/5-0175	9	11	48	27
22.06.2024	N/24/06/5-0262	11	11	42	23
28.06.2024	N/24/06/5-0578	8	9	46	26
29.06.2024	N/24/07/1-0006	7	11	52	29
Limits for Industrial ,		80	80	100	60
Residential, Rural and other Areas		24 Hrs	24 Hrs	24 Hrs	24 Hrs

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## TEST REPORT

Table No. 3

### AMBIENT AIR QUALITY

<b>Name of the Client</b> : M/s. Vedanta Ltd., <b>Name of the Project</b> : Block I - Bicholim Mineral Block Bicholim, Bordem, Langao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa <b>Sample Collected by</b> : Environmental Laboratory (Unit of Mineral Engineering Services) <b>Station at &amp; Code</b> : A3, Pilgao village (Prakash Parab house) <b>Duration</b> : 24 Hrs <b>Issue date</b> : 03.07.2024 <b>Reference</b> IS 5182 & Lab SOP					
Date of Sampling	Lab Code	Sulphur Dioxide (SO <sub>2</sub> ), µg/m <sup>3</sup>	Nitrogen Dioxide (NO <sub>2</sub> ), µg/m <sup>3</sup>	Particulate Matter	
				PM <sub>10</sub> , (µg/m <sup>3</sup> )	PM <sub>2.5</sub> , (µg/m <sup>3</sup> )
07.06.2027	N/24/06/2-0170	9	12	38	20
08.06.2024	N/24/06/3-0082	8	10	46	26
14.06.2024	N/24/06/4-0187	9	11	35	18
15.06.2024	N/24/06/4-0224	7	9	43	24
21.06.2024	N/24/06/5-0176	10	13	30	19
22.06.2024	N/24/06/5-0263	10	12	48	25
28.06.2024	N/24/06/5-0579	8	9	37	22
29.06.2024	N/24/07/1-0007	9	12	50	26
<b>Limits for Industrial ,</b>		<b>80</b>	<b>80</b>	<b>100</b>	<b>60</b>
<b>Residential, Rural and other Areas</b>		<b>24 Hrs</b>	<b>24 Hrs</b>	<b>24 Hrs</b>	<b>24 Hrs</b>

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## TEST REPORT

Table No. 4

### AMBIENT AIR QUALITY

<b>Name of the Client</b> : M/s. Vedanta Ltd., <b>Name of the Project</b> : Block I - Bicholim Mineral Block Bicholim, Bordem, Langao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa <b>Sample Collected by</b> : Environmental Laboratory (Unit of Mineral Engineering Services) <b>Station at &amp; Code</b> : A4, Shirgao village (Ramesh house -Old Bandekar office) <b>Duration</b> : 24 Hrs <b>Issue date</b> : 03.07.2024 <b>Reference</b> IS 5182 & Lab SOP					
Date of Sampling	Lab Code	Sulphur Dioxide (SO <sub>2</sub> ), µg/m <sup>3</sup>	Nitrogen Dioxide (NO <sub>2</sub> ), µg/m <sup>3</sup>	Particulate Matter	
				PM <sub>10</sub> , (µg/m <sup>3</sup> )	PM <sub>2.5</sub> , (µg/m <sup>3</sup> )
07.06.2027	N/24/06/2-0171	10	11	48	22
08.06.2024	N/24/06/3-0083	8	7	35	18
14.06.2024	N/24/06/4-0188	6	9	42	26
15.06.2024	N/24/06/4-0225	10	10	34	19
21.06.2024	N/24/06/5-0177	9	10	45	27
22.06.2024	N/24/06/5-0264	11	12	36	18
28.06.2024	N/24/06/5-0580	9	11	35	18
29.06.2024	N/24/07/1-0008	12	13	40	22
<b>Limits for Industrial ,</b>		<b>80</b>	<b>80</b>	<b>100</b>	<b>60</b>
<b>Residential, Rural and other Areas</b>		<b>24 Hrs</b>	<b>24 Hrs</b>	<b>24 Hrs</b>	<b>24 Hrs</b>

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## TEST REPORT

Table No. 5

### AMBIENT AIR QUALITY

Name of the Client : M/s. Vedanta Ltd.,  
Name of the Project : Block I - Bicholim Mineral Block  
Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages,  
Bicholim Taluka, North Goa  
Sample Collected by : Environmental Laboratory (Unit of Mineral Engineering Services)  
Station at & Code : A5, Bicholim Guest House- transportation route  
Duration : 24 Hrs  
Issue date : 03.07.2024  
Reference IS 5182 & Lab SOP

Date of Sampling	Lab Code	Sulphur Dioxide (SO <sub>2</sub> ), µg/m <sup>3</sup>	Nitrogen Dioxide (NO <sub>2</sub> ), µg/m <sup>3</sup>	Particulate Matter	
				PM <sub>10</sub> , (µg/m <sup>3</sup> )	PM <sub>2.5</sub> , (µg/m <sup>3</sup> )
07.06.2027	N/24/06/2-0172	12	15	30	18
08.06.2024	N/24/06/3-0084	8	12	49	28
14.06.2024	N/24/06/4-0189	9	10	46	25
15.06.2024	N/24/06/4-0226	10	12	51	28
21.06.2024	N/24/06/5-0178	12	13	39	18
22.06.2024	N/24/06/5-0265	10	11	48	29
28.06.2024	N/24/06/5-0581	9	10	38	19
29.06.2024	N/24/07/1-0009	8	14	34	24
<b>Limits for Industrial , Residential, Rural and other Areas</b>		<b>80 24 Hrs</b>	<b>80 24 Hrs</b>	<b>100 24 Hrs</b>	<b>60 24 Hrs</b>

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## TEST REPORT

Table No. 6

### AMBIENT AIR QUALITY

Name of the Client : M/s. Vedanta Ltd.,					
Name of the Project : Block I - Bicholim Mineral Block Bicholim, Bordem, Langao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa					
Sample Collected by : Environmental Laboratory (Unit of Mineral Engineering Services)					
Station at & Code : A6, DBB office					
Duration : 24 Hrs					
Issue date : 03.07.2024					
Reference IS 5182 & Lab SOP					
Date of Sampling	Lab Code	Sulphur Dioxide (SO <sub>2</sub> ), µg/m <sup>3</sup>	Nitrogen Dioxide (NO <sub>2</sub> ), µg/m <sup>3</sup>	Particulate Matter	
				PM <sub>10</sub> , (µg/m <sup>3</sup> )	PM <sub>2.5</sub> , (µg/m <sup>3</sup> )
07.06.2027	N/24/06/2-0173	9	12	40	22
08.06.2024	N/24/06/3-0085	10	11	37	21
14.06.2024	N/24/06/4-0190	12	13	42	26
15.06.2024	N/24/06/4-0227	8	9	44	24
21.06.2024	N/24/06/5-0179	10	11	44	23
22.06.2024	N/24/06/5-0266	7	9	35	16
28.06.2024	N/24/06/5-0582	6	10	41	22
29.06.2024	N/24/07/1-0010	5	7	35	19
Limits for Industrial ,		80	80	100	60
Residential, Rural and other Areas		24 Hrs	24 Hrs	24 Hrs	24 Hrs

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## TEST REPORT

Table No. 7

### AMBIENT AIR QUALITY

<b>Name of the Client</b> : M/s. Vedanta Ltd., <b>Name of the Project</b> : Block I - Bicholim Mineral Block Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa <b>Sample Collected by</b> : Environmental Laboratory (Unit of Mineral Engineering Services) <b>Station at &amp; Code</b> : A7, NSP office <b>Duration</b> : 24 Hrs <b>Issue date</b> : 03.07.2024 <b>Reference</b> IS 5182 & Lab SOP					
Date of Sampling	Lab Code	Sulphur Dioxide (SO <sub>2</sub> ), µg/m <sup>3</sup>	Nitrogen Dioxide (NO <sub>2</sub> ), µg/m <sup>3</sup>	Particulate Matter	
				PM <sub>10</sub> , (µg/m <sup>3</sup> )	PM <sub>2.5</sub> , (µg/m <sup>3</sup> )
07.06.2027	N/24/06/2-0174	6	11	38	21
08.06.2024	N/24/06/3-0086	8	10	46	26
14.06.2024	N/24/06/4-0191	5	9	50	27
15.06.2024	N/24/06/4-0228	9	11	40	21
21.06.2024	N/24/06/5-0180	11	12	36	19
22.06.2024	N/24/06/5-0267	10	12	43	23
28.06.2024	N/24/06/5-0583	6	9	38	18
29.06.2024	N/24/07/1-0011	9	11	30	16
<b>Limits for Industrial ,</b>		<b>80</b>	<b>80</b>	<b>100</b>	<b>60</b>
<b>Residential, Rural and other Areas</b>		<b>24 Hrs</b>	<b>24 Hrs</b>	<b>24 Hrs</b>	<b>24 Hrs</b>

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## TEST REPORT

Table No. 8

### AMBIENT AIR QUALITY

Name of the Client	: M/s. Vedanta Ltd.,
Name of the Project	: Block I - Bicholim Mineral Block Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa
Sample Collected by	: Environmental Laboratory (Unit of Mineral Engineering Services)
Station at & Code	: A8, 4 Top office
Duration	: 24 Hrs
Issue date	: 03.07.2024
Reference	: IS 5182 & Lab SOP

Date of Sampling	Lab Code	Sulphur Dioxide (SO <sub>2</sub> ), µg/m <sup>3</sup>	Nitrogen Dioxide (NO <sub>2</sub> ), µg/m <sup>3</sup>	Particulate Matter	
				PM <sub>10</sub> , (µg/m <sup>3</sup> )	PM <sub>2.5</sub> , (µg/m <sup>3</sup> )
07.06.2024	N/24/06/2-0175	10	11	49	21
08.06.2024	N/24/06/3-0087	6	10	34	16
14.06.2024	N/24/06/4-0192	11	12	50	26
15.06.2024	N/24/06/4-0229	11	14	30	18
21.06.2024	N/24/06/5-0181	9	12	40	23
22.06.2024	N/24/06/5-0268	10	11	39	21
28.06.2024	N/24/06/5-0584	6	15	44	26
29.06.2024	N/24/07/1-0012	7	17	48	27
<b>Limits for Industrial , Residential, Rural and other Areas</b>		<b>80 24 Hrs</b>	<b>80 24 Hrs</b>	<b>100 24 Hrs</b>	<b>60 24 Hrs</b>

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## TEST REPORT

Table No. 9

### Fugitive Emission

Name of the Client : M/s. Vedanta Ltd.,			
Name of the Project : Block I - Bicholim Mineral Block Bicholim, Bordem, Langao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa			
Sample Collected by : Environmental Laboratory (Unit of Mineral Engineering Services)			
Duration : 08 Hrs			
Issue Date : 03.07.2024			
Station at & Code	Date of sample	Lab Code	Particulate mater ( $\mu\text{g}/\text{m}^3$ )
FA1, Crushing and screening & Ore Stacking- NSP	08.06.2024	N/24/06/3-0088	252
	22.06.2024	N/24/06/5-0269	286
FA2, Mine Face- 5 top Common Boundary	08.06.2024	N/24/06/3-0089	288
	22.06.2024	N/24/06/5-0270	296
FA3, Dumping- 5 Top	15.06.2024	N/24/06/4-0230	328
	29.06.2024	N/24/07/1-0013	485
FA4, Haul road- at 4 Top	15.06.2024	N/24/06/4-0231	354
	29.06.2024	N/24/07/1-0014	387
Ref : Environmental (Protection) Rules, 2010 (Sixth Amendment)			
			Particulate mater ( $\mu\text{g}/\text{m}^3$ )
Permissible limits for Fugitive Emissions			1200 $\mu\text{g}/\text{m}^3$

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## TEST REPORT

Table No. 10

Name of the Client	: M/s. Vedanta Limited
Name of the Project	: Block I - Bicholim Mineral Block Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa
Sample Collected by	: Environmental Laboratory (Unit of Mineral Engineering Services)
Particular of Sample Collecte	: EDW1 - 1 Top Discharge (Bicholim Dhabdabha), EDW2 - 2 Top Discharge (Lamgao), EDW3 - 5 Top Discharge (Mulgao)
Sample Collected by	: Environmental Laboratory (Unit of Mineral Engineering Services)
Date of sampling	: 08.06.2024
Issue Date	: 21.06.2024

Sl. No.	Sample Code	EDW1	EDW2	EDW3	General Standards For Effluent Discharge of Environmental Pollutants	Method of Testing
		Lab Code	Lab Code	Lab Code		
Parameters		Results				
1	Colour (Hazen Units),	5	<1	<1	--	IS:3025(P-4)2021
2	pH	7.10	6.53	6.41	5.5-9.0	IS 3025 (P-11) 2022
3	Turbidity,NTU	2.4	1.8	4.6	--	IS:3025 (P-10) 1984 RA 2017
4	Electrical Conductivity (µmhos/cm)	1060	440	430	--	IS 3025 (P-14)
5	Total Dissolved Solids (TDS) mg/l	710	350	198	--	IS 3025(P- 16)02022
6	Total Suspended Solids, mg/l	38	<5.0	<5.0	Non Rainy Day 50, Rainy Day 100	IS 3025 (P-17) 2022
7	Chlorides (as Cl), mg/l	135.91	72.48	42	1000	IS 3025 (P-32) 1988 RA 2019
8	Total Hardness (as CaCO <sub>3</sub> ),mg/l	350	170	120	--	IS:3025 (P-21) 2009 RA 2019
9	Calcium (as Ca),mg/l,	92.14	32	24	--	IS:3025 (P-40)1991 RA 2019
10	Magnesium (as Mg) mg/l,	41.32	5.83	14.58	--	IS 3025 (P-2) 2019
11	Sulphates (as SO <sub>4</sub> ) mg/l	12.5	14.6	5.8	1000	IS 3025 (P-24) Sec 1 2022
12	Nitrates (as NO <sub>3</sub> ),mg/l	8.5	3.82	2.53	--	IS:3025 (P-34) Sec 1 2023
13	BOD [3 days at 27°C] mg/l	<3	<3	<3	30	IS 3025 (P-44) 2014
14	COD, mg/l	<5	<5	<5	250	IS 3025 (P-58) 2006 RA 2022
15	Iron (as Fe), mg/l	0.025	0.011	0.036	3	IS 3025 (P-2) 2019
16	Manganese (as Mn), mg/l	0.012	0.009	0.018	2	IS 3025 (P-2) 2019
17	Dissolved Oxygen (as O <sub>2</sub> ), mg/l, Max	5.1	5	5.3	Min 4	IS:3025(Part-38)1989RA 2019
18	Oil & Grease, mg/l	<1.0	<1.0	<1.0	10	IS 3025 (P-39) 2021

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Table No. 11

Name of the Client	: M/s. Vedanta Limited
Name of the Project	: Block I - Bicholim Mineral Block
	Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa
Sample Collected by	: Environmental Laboratory (Unit of Mineral Engineering Services)
Particular of Sample Collected	: SW1 - Upstream Bicholim River, SW2 - Downstream Bicholim River
Sample Collected by	: Environmental Laboratory (Unit of Mineral Engineering Services)
Date of sampling	: 08.06.2024
Issue Date	: 21.06.2024
Ref:IS : 2296, 1982 Class C Norms (Stream Water Standards)	

Sl.No.	Sample Code	SW1	SW2	Limits For Stream Water Standards	Method of Testing
	Lab Code	N/24/06/3-0144	N/24/06/3-0145		
	Parameters	Results			
1	Colour (Hazen Units),	5	10	300	IS:3025(P-4)2021
2	pH	6.62	6.71	6.5 to 8.5	IS 3025 (P-11) 2022
3	Turbidity,NTU	3.8	3.1	--	IS:3025 (P-10) 1984 RA 2017
4	Electrical Conductivity (µmhos/cm)	120	1020	--	IS 3025 (P-14)
5	Total Dissolved Solids (TDS) mg/l	75	620	1500	IS:3025(Part-16)2023
6	Total Suspended Solids, mg/l	10	51	-	IS 3025 (P-17) 2022
7	Chlorides (as Cl), mg/l	14.2	118.29	600	IS:3025(Part-32) ;1988RA2019
8	Total Hardness (as CaCO <sub>3</sub> ),mg/l	46	180	--	IS:3025 (P-21) 2009 RA 2019
9	Calcium (as Ca),mg/l,	4.8	46.09	--	IS:3025 (P-40)1991 RA 2019
10	Magnesium (as Mg) mg/l,	2.67	15.79	--	IS 3025 (P-2) 2019
11	Sulphates (as SO <sub>4</sub> ) mg/l	1.85	48.3	400	IS:3025(P-24)Sec 1 2022
12	Nitrates (as NO <sub>3</sub> ),mg/l	0.46	1.5	50	IS:3025 (P-34) Sec 1 2023
13	BOD [3 days at 27°C] mg/l	<3.0	<3.0	-	IS 3025 (P-44) 2014
14	COD, mg/l	18	24	-	IS 3025 (P-58) 2006 RA 2022
15	Iron (as Fe), mg/l	0.041	0.035	50	IS:3025(P-2) 2019
16	Manganese (as Mn), mg/l	0.005	<0.001	-	IS 3025 (P-2) 2019
17	Dissolved Oxygen (as O <sub>2</sub> ), mg/l, Max	5.3	5.1	Min 4	IS:3025(Part-38)1989RA 2019
18	Oil & Grease, mg/l	<0.1	<0.1	0.1	IS:3025(Part 39)2021

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Table No. 12

Name of the Client : M/s. Vedanta Limited  
 Name of the Project : Block I - Bicholim Mineral Block  
 Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa  
 Sample Collected by : Environmental Laboratory (Unit of Mineral Engineering Services)  
 Particular of Sample Collected : SW3 - Upstream Asnora River, SW4 - Downstream Asnora River  
 Sample Collected by : Environmental Laboratory (Unit of Mineral Engineering Services)  
 Date of sampling : 08.06.2024  
 Issue Date : 21.06.2024  
 Ref:IS : 2296, 1982 Class C Norms (Stream Water Standards)

Sl.No.	Sample Code	SW3	SW4	Limits For Stream Water Standards	Method of Testing
	Lab Code	N/24/06/3-0146	N/24/06/3-0147		
	Parameters	Results			
1	Colour (Hazen Units),	<1	<1	300	IS:3025(P-4)2021
2	pH	6.65	6.72	6.5 to 8.5	IS 3025 (P-11) 2022
3	Turbidity,NTU	1.5	4.2	--	IS:3025 (P-10) 1984 RA 2017
4	Electrical Conductivity (µmhos/cm)	70	750	--	IS 3025 (P-14)
5	Total Dissolved Solids (TDS) mg/l	51	460	1500	IS:3025(Part-16)2023
6	Total Suspended Solids, mg/l	8	22	-	IS 3025 (P-17) 2022
7	Chlorides (as Cl), mg/l	15.2	21.64	600	IS:3025(Part-32) ;1988RA2019
8	Total Hardness (as CaCO <sub>3</sub> ),mg/l	20	160	--	IS:3025 (P-21) 2009 RA 2019
9	Calcium (as Ca),mg/l,	6.41	32.1	--	IS:3025 (P-40)1991 RA 2019
10	Magnesium (as Mg) mg/l,	1.94	19.4	--	IS 3025 (P-2) 2019
11	Sulphates (as SO <sub>4</sub> ) mg/l	1.52	28.5	400	IS:3025(P-24)Sec 1 2022.
12	Nitrates (as NO <sub>3</sub> ),mg/l	0.23	1.86	50	IS:3025 (P-34) Sec 1 2023
13	BOD [3 days at 27°C] mg/l	<3.0	<3.0	-	IS 3025 (P-44) 2014
14	COD, mg/l	12	26	-	IS 3025 (P-58) 2006 RA 2022
15	Iron (as Fe), mg/l	<0.005	<0.005	50	IS:3025(P-2) 2019
16	Manganese (as Mn), mg/l	<0.001	<0.001	-	IS 3025 (P-2) 2019
17	Dissolved Oxygen (as O <sub>2</sub> ), mg/l, Max	5.3	5.1	Min 4	IS:3025(Part-38)1989RA 2019
18	Oil & Grease, mg/l	<0.1	<0.1	0.1	IS:3025(Part 39)2021

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**TEST REPORT**

Table No.13

Name of the Client : M/s. Vedanta Limited  
 Name of the Project : Block I - Bicholim Mineral Block  
 Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa  
 Sample Collected by : Environmental Laboratory (Unit of Mineral Engineering Services)  
 Particulars of sample collected : GW1 - Well water Bicholim (Anand Mulgaudi),  
 GW2 - Well water Lamgao village (Santosh dewari), GW3 - Well water Mulgao village (Vitthal Sathu House)  
 Date of sample collection : 18.06.2024  
 Issue Date : 26.06.2024  
 Ref : IS:10500-2012 Norms Amendment - 4 (Drinking Water Standards)

Sl. No.	Sample Code	GW1	GW2	GW3	Desirable Limits	Permissible Limits	Method of Testing
	Lab Code	N/24/06/4-0244	N/24/06/4-0245	N/24/06/4-0246			
	Parameters	Results					
1	Colour (Hazen Units)	<1	<1	<1	5	15	IS:3025 (P-4) 2021
2	pH Value	6.58	6.58	6.64	6.5 to 8.5	6.5 - 8.5	IS:3025 (P-11) 2022
3	Turbidity,NTU, Max	0.4	0.9	0.7	1	5	IS:3025 (P-10)1984 RA 2017
4	Electrical Conductivity (µmhos/cm)	190.0	150.0	84.0	--	--	IS 3025 (P-14)
5	Total Dissolved Solids,mg/l, Max	108.0	110.0	38.0	500	2000	IS:3025 (P-16)1984 RA2017
6	Total Suspended Solids, mg/l	<5.0	<5.0	<5.0	--	--	IS 3025 (P-17) 2022
7	Calcium (as Ca),mg/l, Max	20.44	8.17	3.60	75	200	IS:3025 (P-40)1991 RA 2019
8	Chloride as Cl (mg/l),mg/l, Max	13.59	18.12	12.58	250	1000	IS:3025 (P-32) 1988 RA 2019
9	Iron (as Fe),mg/l, Max	<0.005	<0.005	<0.005	1.0	1.0	IS:3025 (Part-2) 2019
10	Magnesium (as Mg)mg/l, Max	7.29	3.47	2.40	30	100	IS:3025 (P-46)1994 RA 2019
11	Manganese (as Mn),mg/l, Max	<0.001	<0.001	<0.001	0.1	0.3	IS:3025 (P-2) 2019
12	Nitrates (as NO <sub>3</sub> ),mg/l, Max	0.98	0.46	0.70	45	45	IS:3025 (P-34) Sec 1 2023
13	Sulphates (as SO <sub>4</sub> ),mg/l, Max	13.00	14.42	4.52	200	400	IS:3025 (P-24) Sec 1 2022
14	Alkalinity (as CaCO <sub>3</sub> ) mg/l, Max	75.00	25.00	25.00	200	600	IS:3025 (P-23): 1986 RA 2019
15	Total Hardness (as CaCO <sub>3</sub> ),mg/l,Max	82.0	35.0	30.00	200	600	IS:3025 (P-21):2009 RA 2019
16	Escherichia coli/100ml	Not Detected	Not Detected	Not Detected	Shall not be detectable in any 100ml Sample		IS:15185:2016 RA 2021
17	Total Coliform /100ml)	Not Detected	Not Detected	Not Detected	Shall not be detectable in any 100ml Sample		IS:15185:2016 RA 2021
18	Water levels in well from surface (m)	8.0	3.3	4.0	--	--	--

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### TEST REPORT

Table No. 14

Name of the Client		: M/s. Vedanta Limited				
Name of the Project		: Block I - Bicholim Mineral Block				
Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa						
Sample Collected by		: Environmental Laboratory (Unit of Mineral Engineering Services)				
Particulars of sample collected		: GW4 - Well water Pilgao village, (Gajanand Chari)				
		: GW5 - Well water Mayem village				
Date of sample collection		: 18.06.2024				
Issue Date		: 26.06.2024				
Ref : IS:10500-2012 Norms Amendment - 4 (Drinking Water Standards)						
Sl. No.	Sample Code	GW4	GW5	Desirable Limits	Permissible Limits	Method of Testing
	Lab Code	Results				
	Parameters					
1	Colour (Hazen Units)	<1	<1	5	15	IS:3025 (P-4) 2021
2	pH Value	6.63	6.71	6.5 to 8.5	6.5 - 8.5	IS:3025 (P-11) 2022
3	Turbidity, NTU, Max	1.2	2.4	1	5	IS:3025 (P-10)1984 RA 2017
4	Electrical Conductivity (µmhos/cm)	52.00	56.0	--	--	IS 3025 (P-14)
5	Total Dissolved Solids, mg/l, Max	28.0	35.0	500	2000	IS:3025 (P-16)1984 RA2017
6	Total Suspended Solids, mg/l	<5.0	<5.0	--	--	IS 3025 (P-17) 2022
7	Calcium (as Ca), mg/l, Max	2.45	4.08	75	200	IS:3025 (P-40)1991 RA 2019
8	Chloride as Cl (mg/l), mg/l, Max	9.56	13.59	250	1000	IS:3025 (P-32) 1988 RA 2019
9	Iron (as Fe), mg/l, Max	<0.005	<0.005	1.0	1.0	IS:3025 (Part-2) 2019
10	Magnesium (as Mg) mg/l, Max	<1.0	<1.0	30	100	IS:3025 (P-46)1994 RA 2019
11	Manganese (as Mn), mg/l, Max	<0.001	<0.001	0.1	0.3	IS:3025 (P-2) 2019
12	Nitrates (as NO <sub>3</sub> ), mg/l, Max	0.13	0.17	45	45	IS:3025 (P-34) Sec 1 2023
13	Sulphates (as SO <sub>4</sub> ), mg/l, Max	1.85	<1.0	200	400	IS:3025 (P-24) Sec 1 2022
14	Alkalinity (as CaCO <sub>3</sub> ) mg/l, Max	5.00	10.0	200	600	IS:3025 (P-23):1986 RA 2019
15	Total Hardness (as CaCO <sub>3</sub> ), mg/l, Max	6.0	10.2	200	600	IS:3025 (P-21):2009 RA 2019
16	Escherichia coli/100ml	Not Detected	Not Detected	Shall not be detectable in any 100ml Sample		IS:15185:2016 RA 2021
17	Total Coliform /100ml)	Not Detected	Not Detected	Shall not be detectable in any 100ml Sample		IS:15185:2016 RA 2021
18	Water levels in well from surface (m)	3.8	6.8	--	--	--

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Note : This report is subject to the terms and conditions mentioned overleaf.

## Annexure -1

To

28/11/2024

The Director  
Ministry of Environment and Forest  
Regional Office (Southern Zone)  
Kendriya Sadan, 4<sup>th</sup> Floor, 17<sup>th</sup> Main Road, II Block, Koramangala  
Bangaluru – 560 034.

**Subject:** Compliance to Specific EC Conditions No. 2.1 and 18.3 - Block 1 Bicholim Mineral Block

Respected Sir,

Reference: a) EC File No. IA-J-11015/3/2023-IA-II(NCM) dated. 23/01/2024 granted to Bicholim Mineral Block- Block 1 (Auction Block) of M/s Vedanta Limited for mining of Iron Ore

With reference to Specific EC Condition No. 2.1 and 18.3, granted to Bicholim Mineral Block-Block 1 (Auction Block) of M/s Vedanta Limited for mining of Iron Ore, we hereby submit Air quality (Ambient and Fugitive), noise level (core and buffer), water quality (surface water and ground water) water levels (from buffer villages) and fugitive Dust monitoring reports for the months July to September 2024.

**Thanking you**  
**Yours faithfully**

**For Vedanta Limited**



**Dhirajkumar Jagdish**  
**Dy. Chief Executive Officer-Iron Ore Goa**  
**Authorized Signatory**

**VEDANTA LIMITED**

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

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

Sustaining the Future

# ANNEXTURE -1

1a. July 2024

Format No. : 10



## ENVIRONMENTAL LABORATORY

(UNIT OF MINERAL ENGINEERING SERVICES LLP)

Recognised by BIS, FSSAI, ISO:45001:2018 Certified Laboratory

Recognised by MoEFCC(CPCB) under E(P) Act 1986 recognition valid upto 23.05.2025

### TEST REPORT

Table No. 1

#### AMBIENT AIR QUALITY

Name of the Client : M/s. Vedanta Ltd.,					
Name of the Project : Block I - Bicholim Mineral Block Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa					
Sample Collected by : Environmental Laboratory (Unit of Mineral Engineering Services)					
Station at & Code : A1, Lamgao village					
Duration : 24 Hrs					
Issue date : 03.08.2024					
Reference IS 5182 & Lab SOP					
Date of Sampling	Lab Code	Sulphur Dioxide (SO <sub>2</sub> ), µg/m <sup>3</sup>	Nitrogen Dioxide (NO <sub>2</sub> ), µg/m <sup>3</sup>	Particulate Matter	
				PM <sub>10</sub> , (µg/m <sup>3</sup> )	PM <sub>2.5</sub> , (µg/m <sup>3</sup> )
03.07.2024	N/24/07/1-0159	<4	<9	28	15
04.07.2024	N/24/07/1-0207	6	9	38	18
10.07.2024	N/24/07/03-0105	9	11	40	26
11.07.2024	N/24/07/03-0134	6	9	35	18
17.07.2024	N/24/07/4-0117	10	13	32	16
18.07.2024	N/24/07/4-0155	8	10	39	19
24.07.2024	N/24/07/5-0124	6	9	46	24
25.07.2024	N/24/07/5-0164	10	11	41	20
Limits for Industrial ,		80	80	100	60
Residential, Rural and other Areas		24 Hrs	24 Hrs	24 Hrs	24 Hrs

*Arshiya Kousar*  
ARSHIYA KOUSAR  
Dy. T.M. - Chemical

Govt. Analyst / Authorised Signatory

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ANNEXTURE -1

Format No. : 10



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## TEST REPORT

Table No. 2

### AMBIENT AIR QUALITY

Name of the Client	: M/s. Vedanta Ltd.,
Name of the Project	: Block I - Bicholim Mineral Block Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa
Sample Collected by	: Environmental Laboratory (Unit of Mineral Engineering Services)
Station at & Code	: A2, Mulgao village
Duration	: 24 Hrs
Issue date	: 03.08.2024
Reference	IS 5182 & Lab SOP

Date of Sampling	Lab Code	Sulphur Dioxide (SO <sub>2</sub> ), µg/m <sup>3</sup>	Nitrogen Dioxide (NO <sub>2</sub> ), µg/m <sup>3</sup>	Particulate Matter	
				PM <sub>10</sub> , (µg/m <sup>3</sup> )	PM <sub>2.5</sub> , (µg/m <sup>3</sup> )
03.07.2024	N/24/07/1-0160	4	9	36	23
04.07.2024	N/24/07/1-0208	7	9	40	32
10.07.2024	N/24/07/03-0106	9	10	33	17
11.07.2024	N/24/07/03-0135	10	12	41	21
17.07.2024	N/24/07/4-0118	8	9	44	25
18.07.2024	N/24/07/4-0156	10	11	43	22
24.07.2024	N/24/07/5-0125	6	9	45	24
25.07.2024	N/24/07/5-0165	9	11	47	23
<b>Limits for Industrial ,</b>		<b>80</b>	<b>80</b>	<b>100</b>	<b>60</b>
<b>Residential, Rural and other Areas</b>		<b>24 Hrs</b>	<b>24 Hrs</b>	<b>24 Hrs</b>	<b>24 Hrs</b>

*Arshiya Kousar*  
ARSHIYA KOUSAR  
Dy. T.M. - Chemical

Govt. Analyst / Authorised Signatory

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## TEST REPORT

Table No. 3

### AMBIENT AIR QUALITY

Name of the Client	: M/s. Vedanta Ltd.,
Name of the Project	: Block I - Bicholim Mineral Block Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa
Sample Collected by	: Environmental Laboratory (Unit of Mineral Engineering Services)
Station at & Code	: A3, Pilgao village
Duration	: 24 Hrs
Issue date	: 03.08.2024
Reference	: IS 5182 & Lab SOP

Date of Sampling	Lab Code	Sulphur Dioxide (SO <sub>2</sub> ), µg/m <sup>3</sup>	Nitrogen Dioxide (NO <sub>2</sub> ), µg/m <sup>3</sup>	Particulate Matter	
				PM <sub>10</sub> , (µg/m <sup>3</sup> )	PM <sub>2.5</sub> , (µg/m <sup>3</sup> )
03.07.2024	N/24/07/1-0161	6	<9	29	15
04.07.2024	N/24/07/1-0209	7	10	43	23
10.07.2024	N/24/07/03-0107	8	13	30	16
11.07.2024	N/24/07/03-0136	6	9	38	20
17.07.2024	N/24/07/4-0119	9	14	35	19
18.07.2024	N/24/07/4-0157	11	16	46	25
24.07.2024	N/24/07/5-0126	8	13	33	17
25.07.2024	N/24/07/5-0166	5	12	38	22
<b>Limits for Industrial ,</b>		<b>80</b>	<b>80</b>	<b>100</b>	<b>60</b>
<b>Residential, Rural and other Areas</b>		<b>24 Hrs</b>	<b>24 Hrs</b>	<b>24 Hrs</b>	<b>24 Hrs</b>

*Arshiya Kousar*

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Format No. : 10



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**TEST REPORT**

Table No. 4

**AMBIENT AIR QUALITY**

Name of the Client	: M/s. Vedanta Ltd.,
Name of the Project	: Block I - Bicholim Mineral Block Bicholim, Bordem, Langao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa
Sample Collected by	: Environmental Laboratory (Unit of Mineral Engineering Services)
Station at & Code	: A4, Shirgao village
Duration	: 24 Hrs
Issue date	: 03.08.2024
Reference	: IS 5182 & Lab SOP

Date of Sampling	Lab Code	Sulphur Dioxide (SO <sub>2</sub> ), µg/m <sup>3</sup>	Nitrogen Dioxide (NO <sub>2</sub> ), µg/m <sup>3</sup>	Particulate Matter	
				PM <sub>10</sub> , (µg/m <sup>3</sup> )	PM <sub>2.5</sub> , (µg/m <sup>3</sup> )
03.07.2024	N/24/07/1-0162	5	9	30	16
04.07.2024	N/24/07/1-0210	7	10	35	19
10.07.2024	N/24/07/03-0108	9	13	40	24
11.07.2024	N/24/07/03-0137	7	<9	33	15
17.07.2024	N/24/07/04-0120	9	15	33	21
18.07.2024	N/24/07/4-0158	11	17	40	22
24.07.2024	N/24/07/5-0127	9	14	40	24
25.07.2024	N/24/07/5-0167	11	16	45	25
<b>Limits for Industrial ,</b>		<b>80</b>	<b>80</b>	<b>100</b>	<b>60</b>
<b>Residential, Rural and other Areas</b>		<b>24 Hrs</b>	<b>24 Hrs</b>	<b>24 Hrs</b>	<b>24 Hrs</b>

*Arshiya Kousar*  
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Dy. T.M. - Chemical

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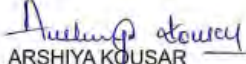
## TEST REPORT

Table No. 5

### AMBIENT AIR QUALITY

**Name of the Client** : M/s. Vedanta Ltd.,  
**Name of the Project** : Block I - Bicholim Mineral Block  
 Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages,  
 Bicholim Taluka, North Goa  
**Sample Collected by** : Environmental Laboratory (Unit of Mineral Engineering Services)  
**Station at & Code** : A5, Anil Naik House Near Sarmanas Jetty (Transportation route)  
**Duration** : 24 Hrs  
**Issue date** : 30.07.2024  
**Reference** IS 5182 & Lab SOP

Date of Sampling	Lab Code	Sulphur Dioxide (SO <sub>2</sub> ), µg/m <sup>3</sup>	Nitrogen Dioxide (NO <sub>2</sub> ), µg/m <sup>3</sup>	Particulate Matter	
				PM <sub>10</sub> , (µg/m <sup>3</sup> )	PM <sub>2.5</sub> , (µg/m <sup>3</sup> )
03.07.2024	N/24/07/1-0163	5	10	38	20
04.07.2024	N/24/07/1-0211	8	9	33	17
10.07.2024	N/24/07/03-0109	11	12	44	26
11.07.2024	N/24/07/03-0138	7	9	46	28
17.07.2024	N/24/07/4-0121	8	10	28	15
18.07.2024	N/24/07/4-0159	4	9	33	17
24.07.2024	N/24/07/5-0128	9	11	40	21
25.07.2024	N/24/07/5-0168	5	9	37	19
<b>Limits for Industrial ,</b>		<b>80</b>	<b>80</b>	<b>100</b>	<b>60</b>
<b>Residential, Rural and other Areas</b>		<b>24 Hrs</b>	<b>24 Hrs</b>	<b>24 Hrs</b>	<b>24 Hrs</b>

  
**ARSHIYA KOUSAR**  
 Dy. T.M. - Chemical

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## TEST REPORT

Table No. 6

### AMBIENT AIR QUALITY

Name of the Client	: M/s. Vedanta Ltd.,
Name of the Project	: Block I - Bicholim Mineral Block Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa
Sample Collected by	: Environmental Laboratory (Unit of Mineral Engineering Services)
Station at & Code	: A6, DBB office
Duration	: 24 Hrs
Issue date	: 03.08.2024
Reference	IS 5182 & Lab SOP

Date of Sampling	Lab Code	Sulphur Dioxide (SO <sub>2</sub> ), µg/m <sup>3</sup>	Nitrogen Dioxide (NO <sub>2</sub> ), µg/m <sup>3</sup>	Particulate Matter	
				PM <sub>10</sub> , (µg/m <sup>3</sup> )	PM <sub>2.5</sub> , (µg/m <sup>3</sup> )
05.07.2024	N/24/07/1-0248	9	10	30	19
06.07.2024	N/24/07/2-0031	9	12	37	23
12.07.2024	N/24/07/03-0184	10	13	39	25
13.07.2024	N/24/07/03-0243	8	<9	40	25
19.07.2024	N/24/07/4-0206	11	14	49	24
20.07.2024	N/24/07/4-0265	10	13	27	19
25.07.2024	N/24/07/5-0192	9	12	30	20
27.07.2024	N/24/07/5-0210	10	11	45	26
<b>Limits for Industrial ,</b>		<b>80</b>	<b>80</b>	<b>100</b>	<b>60</b>
<b>Residential, Rural and other Areas</b>		<b>24 Hrs</b>	<b>24 Hrs</b>	<b>24 Hrs</b>	<b>24 Hrs</b>

*Arshiya Kousar*

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### TEST REPORT

Table No. 7

#### AMBIENT AIR QUALITY

<b>Name of the Client</b>	: M/s. Vedanta Ltd.,
<b>Name of the Project</b>	: Block I - Bicholim Mineral Block Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa
<b>Sample Collected by</b>	: Environmental Laboratory (Unit of Mineral Engineering Services)
<b>Station at &amp; Code</b>	: A7, NSP office
<b>Duration</b>	: 24 Hrs
<b>Issue date</b>	: 03.08.2024
<b>Reference</b>	IS 5182 & Lab SOP

Date of Sampling	Lab Code	Sulphur Dioxide (SO <sub>2</sub> ), µg/m <sup>3</sup>	Nitrogen Dioxide (NO <sub>2</sub> ), µg/m <sup>3</sup>	Particulate Matter	
				PM <sub>10</sub> , (µg/m <sup>3</sup> )	PM <sub>2.5</sub> , (µg/m <sup>3</sup> )
05.07.2024	N/24/07/1-0249	8	10	38	18
06.07.2024	N/24/07/2-0032	6	<9	40	21
12.07.2024	N/24/07/03-0185	9	11	29	15
13.07.2024	N/24/07/03-0244	<4	9	33	22
19.07.2024	N/24/07/4-0207	9	10	22	18
20.07.2024	N/24/07/4-0266	11	12	35	20
25.07.2024	N/24/07/5-0193	8	13	42	24
27.07.2024	N/24/07/5-0211	6	9	48	22
<b>Limits for Industrial ,</b>		<b>80</b>	<b>80</b>	<b>100</b>	<b>60</b>
<b>Residential, Rural and other Areas</b>		<b>24 Hrs</b>	<b>24 Hrs</b>	<b>24 Hrs</b>	<b>24 Hrs</b>

**ARSHIYAK DUSAR**  
 Dy. T.M. - Chemical

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## TEST REPORT

Table No. 8

### AMBIENT AIR QUALITY

<b>Name of the Client</b> : M/s. Vedanta Ltd., <b>Name of the Project</b> : Block I - Bicholim Mineral Block Bicholim, Bordem, Langao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa <b>Sample Collected by</b> : Environmental Laboratory (Unit of Mineral Engineering Services) <b>Station at &amp; Code</b> : A8, 4 Top office <b>Duration</b> : 24 Hrs <b>Issue date</b> : 03.08.2024 <b>Reference</b> IS 5182 & Lab SOP					
Date of Sampling	Lab Code	Sulphur Dioxide (SO <sub>2</sub> ), µg/m <sup>3</sup>	Nitrogen Dioxide (NO <sub>2</sub> ), µg/m <sup>3</sup>	Particulate Matter	
				PM <sub>10</sub> , (µg/m <sup>3</sup> )	PM <sub>2.5</sub> , (µg/m <sup>3</sup> )
05.07.2024	N/24/07/1-0250	5	10	28	16
06.07.2024	N/24/07/2-0033	8	11	30	18
12.07.2024	N/24/07/03-0186	6	10	32	19
13.07.2024	N/24/07/03-0245	5	<9	28	17
19.07.2024	N/24/07/4-0208	8	15	37	20
20.07.2024	N/24/07/4-0267	8	13	41	23
25.07.2024	N/24/07/5-0194	5	11	33	21
27.07.2024	N/24/07/5-0212	9	10	38	20
<b>Limits for Industrial ,</b>		<b>80</b>	<b>80</b>	<b>100</b>	<b>60</b>
<b>Residential, Rural and other Areas</b>		<b>24 Hrs</b>	<b>24 Hrs</b>	<b>24 Hrs</b>	<b>24 Hrs</b>

*Arshiya Kousar*  
ARSHIYA KOUSAR  
Dy. T.M. - Chemical

Govt. Analyst / Authorised Signatory

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# ANNEXTURE -1

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### TEST REPORT

Table No. 9

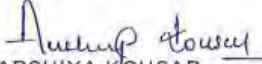
#### Fugitive Emission

Name of the Client : M/s. Vedanta Ltd.,  
Name of the Project : Block I - Bicholim Mineral Block  
Bicholim, Bordem, Langao, Mulgao, Mayem & Sirigao villages,  
Bicholim Taluka, North Goa  
Sample Collected by : Environmental Laboratory  
(Unit of Mineral Engineering Services)  
Station at & Code : FA1, Crushing and screening & Ore Stacking- NSP  
Duration : 24 Hrs  
Issue date : 03.08.2024  
Reference IS 5182 & Lab SOP

Date of sample	Lab Code	Particulate mater ( $\mu\text{g}/\text{m}^3$ )
05.07.2024	N/24/07/1-0248A	122
06.07.2024	N/24/07/2-0034	136
12.07.2024	N/24/07/03-0184A	118
13.07.2024	N/24/07/03-0243A	132
19.07.2024	N/24/07/4-0206A	142
20.07.2024	N/24/07/4-0268	125
26.07.2024	N/24/07/5-0195A	145
27.07.2024	N/24/07/5-0210A	122

Ref : Environmental (Protection) Rules, 2010 (Sixth Amendment)

Permissible limits for Fugitive Emissions  
Particulate mater (  $\mu\text{g}/\text{m}^3$  )  
1200  $\mu\text{g}/\text{m}^3$

  
ARSHIYA KOUSAR  
Dy. T.M. - Chemical

Govt. Analyst / Authorised Signatory

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## ENVIRONMENTAL LABORATORY

(UNIT OF MINERAL ENGINEERING SERVICES LLP)

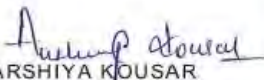
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Recognised by MoEFCC(CPCB) under E(P) Act 1986 recognition valid upto 23.05.2025

### TEST REPORT

Table No. 10

#### Fugitive Emission

Name of the Client : M/s. Vedanta Ltd.,		
Name of the Project : Block I - Bicholim Mineral Block Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa		
Sample Collected by : Environmental Laboratory (Unit of Mineral Engineering Services)		
Station at & Code : FA2, Mine Face- 5 top Common Boundary		
Duration : 24 Hrs		
Issue date : 03.08.2024		
Reference IS 5182 & Lab SOP		
Date of sample	Lab Code	Particulate mater ( $\mu\text{g}/\text{m}^3$ )
05.07.2024	N/24/07/1-0248B	168
06.07.2024	N/24/07/2-0035	231
12.07.2024	N/24/07/03-0184B	185
13.07.2024	N/24/07/03-0243B	135
19.07.2024	N/24/07/4-0206B	212
20.07.2024	N/24/07/4-0269	187
26.07.2024	N/24/07/5-0196A	154
27.07.2024	N/24/07/5-0210B	196
Ref : Environmental (Protection) Rules, 2010 (Sixth Amendment)		Particulate mater ( $\mu\text{g}/\text{m}^3$ )
Permissible limits for Fugitive Emissions		1200 $\mu\text{g}/\text{m}^3$

  
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### TEST REPORT

Table No. 11

#### Fugitive Emission

Name of the Client : M/s. Vedanta Ltd.,		
Name of the Project : Block I - Bicholim Mineral Block Bicholim, Bordem, Langao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa		
Sample Collected by : Environmental Laboratory (Unit of Mineral Engineering Services)		
Station at & Code : FA3, Dumping- 5 Top		
Duration : 24 Hrs		
Issue date : 03.08.2024		
Reference IS 5182 & Lab SOP		
Date of sample	Lab Code	Particulate mater ( $\mu\text{g}/\text{m}^3$ )
05.07.2024	N/24/07/1-0248C	154
06.07.2024	N/24/07/2-0034A	154
12.07.2024	N/24/07/03-0184C	174
13.07.2024	N/24/07/03-0246	122
19.07.2024	N/24/07/4-0206C	134
20.07.2024	N/24/07/4-0268A	158
26.07.2024	N/24/07/5-0195	165
27.07.2024	N/24/07/5-0210C	163
Ref : Environmental (Protection) Rules, 2010 (Sixth Amendment)		Particulate mater ( $\mu\text{g}/\text{m}^3$ )
Permissible limits for Fugitive Emissions		1200 $\mu\text{g}/\text{m}^3$

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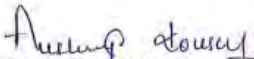
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### TEST REPORT

Table No. 12

#### Fugitive Emission

Name of the Client : M/s. Vedanta Ltd.,		
Name of the Project : Block I - Bicholim Mineral Block Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa		
Sample Collected by : Environmental Laboratory (Unit of Mineral Engineering Services)		
Station at & Code : FA4, Haul road- at 4 Top		
Duration : 24 Hrs		
Issue date : 03.08.2024		
Reference IS 5182 & Lab SOP		
Date of sample	Lab Code	Particulate mater ( $\mu\text{g}/\text{m}^3$ )
05.07.2024	N/24/07/1-0248D	121
06.07.2024	N/24/07/2-0035B	118
12.07.2024	N/24/07/03-0184D	124
13.07.2024	N/24/07/03-0247	135
19.07.2024	N/24/07/4-0206D	165
20.07.2024	N/24/07/4-0269A	175
26.07.2024	N/24/07/5-0196	196
27.07.2024	N/24/07/5-0210D	145
Ref : Environmental (Protection) Rules, 2010 (Sixth Amendment)		Particulate mater ( $\mu\text{g}/\text{m}^3$ )
Permissible limits for Fugitive Emissions		1200 $\mu\text{g}/\text{m}^3$

  
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## TEST REPORT

Name of the Client	: M/s. Vedanta Limited
Name of the Project	: Block I - Bicholim Mineral Block Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa
Sample Collected by	: Environmental Laboratory (Unit of Mineral Engineering Services)
Particular of Sample Collecte	: EDW1 - 1 Top Discharge (Bicholim Dhabdabha), EDW2 - 2 Top Discharge (Lamgao), EDW3 - 5 Top Discharge (Mulgao)
Sample Collected by	: Environmental Laboratory (Unit of Mineral Engineering Services)
Date of sampling	: 09.07.2024
Issue Date	: 17.07.2024

Sl. No.	Sample Code	EDW1	EDW2	EDW3	General Standards For Effluent Discharge of Environmental Pollutants	Method of Testing
	Lab Code	N/24/07/2-0086	N/24/07/2-0087	N/24/07/2-0088		
	Parameters	Results				
1	Colour (Hazen Units),	<1	<1	<1	--	IS:3025(P-4)2021
2	pH	6.84	6.59	6.57	5.5-9.0	IS 3025 (P-11) 2022
3	Turbidity,NTU	3.2	0.8	2.6	--	IS:3025 (P-10) 1984 RA 2017
4	Electrical Conductivity (µmhos/cm)	1130	560	810	--	IS 3025 (P-14)
5	Total Dissolved Solids (TDS) mg/l	860	364	503	--	IS 3025(P- 16)02022
6	Total Suspended Solids, mg/l	45	12	8	Non Rainy Day 50, Rainy Day 100	IS 3025 (P-17) 2022
7	Chlorides (as Cl), mg/l	160	60.83	192.79	1000	IS 3025 (P-32) 1988 RA 2019
8	Total Hardness (as CaCO <sub>3</sub> ),mg/l	380	220	480	--	IS:3025 (P-21) 2009 RA 2019
9	Calcium (as Ca),mg/l,	116.23	60.12	118.55	--	IS:3025 (P-40)1991 RA 2019
10	Magnesium (as Mg) mg/l,	21.87	17.01	44.62	--	IS 3025 (P-2) 2019
11	Sulphates (as SO <sub>4</sub> ) mg/l	15.3	18.4	86.5	1000	IS 3025 (P-24) Sec 1 2022
12	Nitrates (as NO <sub>3</sub> ),mg/l	10.8	2.16	12.1	--	IS:3025 (P-34) Sec 1 2023
13	BOD [5 days at 27°C] mg/l	4.86	3.82	4.15	30	IS 3025 (P-44) 2014
14	COD, mg/l	36	28	36	250	IS 3025 (P-58) 2006 RA 2022
15	Iron (as Fe), mg/l	0.012	0.008	0.01	3	IS 3025 (P-2) 2019
16	Manganese (as Mn), mg/l	<0.001	<0.001	<0.001	2	IS 3025 (P-2) 2019
17	Dissolved Oxygen (as O <sub>2</sub> ), mg/l, Max	5.3	5.2	5.2	Min 4	IS:3025(Part-38)1989RA 2019
18	Oil & Grease, mg/l	<1.0	<1.0	<1.0	10	IS 3025 (P 30) 2021

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### TEST REPORT

Name of the Client	: M/s. Vedanta Limited
Name of the Project	: Block I - Bicholim Mineral Block Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa
Sample Collected by	: Environmental Laboratory (Unit of Mineral Engineering Services)
Particular of Sample Collected	: SW1 - Upstream Bicholim River, SW2 - Downstream Bicholim River
Sample Collected by	: Environmental Laboratory (Unit of Mineral Engineering Services)
Date of sampling	: 09.07.2024
Issue Date	: 17.07.2024
Ref:IS : 2296, 1982 Class C Norms (Stream Water Standards)	

Sl.No.	Sample Code	SW1	SW2	Limits For Stream Water Standards	Method of Testing
	Lab Code	N/24/07/2-0089	N/24/07/2-0090		
	Parameters	Results			
1	Colour (Hazen Units),	5	25	300	IS:3025(P-4)2021
2	pH	6.71	6.83	6.5 to 8.5	IS 3025 (P-11) 2022
3	Turbidity,NTU	2.2	2.6	-	IS:3025 (P-10) 1984 RA 2017
4	Electrical Conductivity (µmhos/cm)	138	1058	-	IS 3025 (P-14)
5	Total Dissolved Solids (TDS) mg/l	84	650	1500	IS:3025(Part-16)2023
6	Total Suspended Solids, mg/l	7	72	-	IS 3025 (P-17) 2022
7	Chlorides (as Cl), mg/l	14	134.9	600	IS:3025(Part-32) ,1988RA2019
8	Total Hardness (as CaCO <sub>3</sub> ),mg/l	32	210	-	IS:3025 (P-21) 2009 RA 2019
9	Calcium (as Ca),mg/l,	10.42	52.9	-	IS:3025 (P-40)1991 RA 2019
10	Magnesium (as Mg) mg/l,	4.61	18.95	-	IS 3025 (P-2) 2019
11	Sulphates (as SO <sub>4</sub> ) mg/l	2.1	51.5	400	IS:3025(P-24)Sec 1 2022
12	Nitrates (as NO <sub>3</sub> ),mg/l	0.32	2.45	50	IS:3025 (P-34) Sec 1 2023
13	BOD [3 days at 27°C] mg/l	3.92	3.84	-	IS 3025 (P-44) 2014
14	COD, mg/l	26	28	-	IS 3025 (P-58) 2006 RA 2022
15	Iron (as Fe), mg/l	<0.005	0.018	50	IS:3025(P-2) 2019
16	Manganese (as Mn), mg/l	<0.001	<0.001	-	IS 3025 (P-2) 2019
17	Dissolved Oxygen (as O <sub>2</sub> ), mg/l, Max	5.4	5.2	Min 4	IS:3025(Part-38)1989RA 2019
18	Oil & Grease, mg/l	<0.1	<0.1	0.1	IS:3025(Part 39)2021

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## TEST REPORT

Name of the Client	: M/s. Vedanta Limited
Name of the Project	: Block I Bicholim Mineral Block Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa
Sample Collected by	: Environmental Laboratory (Unit of Mineral Engineering Services)
Particular of Sample Collected	: SW3 - Upstream Asnora River, SW4 - Downstream Asnora River
Sample Collected by	: Environmental Laboratory (Unit of Mineral Engineering Services)
Date of sampling	: 09.07.2024
Issue Date	: 17.07.2024

Ref:IS : 2296, 1982 Class C Norms (Stream Water Standards)

Sl.No.	Sample Code	SW3	SW4	Limits For Stream Water Standards	Method of Testing
	Lab Code	N/24/07/2-0091	N/24/07/2-0092		
	Parameters	Results			
1	Colour (Hazen Units),	<1	<1	300	IS:3025(P-4)2021
2	pH	6.78	6.67	6.5 to 8.5	IS 3025 (P-11) 2022
3	Turbidity,NTU	2.9	3.4	--	IS:3025 (P-10) 1984 RA 2017
4	Electrical Conductivity (µmhos/cm)	85	660	-	IS 3025 (P-14)
5	Total Dissolved Solids (TDS) mg/l	48	400	1500	IS:3025(Part-16)2023
6	Total Suspended Solids, mg/l	6	17	-	IS 3025 (P-17) 2022
7	Chlorides (as Cl), mg/l	11	173.8	600	IS:3025(Part-32) ;1988RA2019
8	Total Hardness (as CaCO <sub>3</sub> ),mg/l	10	160	--	IS:3025 (P-21) 2009 RA 2019
9	Calcium (as Ca),mg/l,	2.4	44.08	--	IS:3025 (P-40)1991 RA 2019
10	Magnesium (as Mg) mg/l,	<1.0	12.15	--	IS 3025 (P-2) 2019
11	Sulphates (as SO <sub>4</sub> ) mg/l	1.8	67.9	400	IS:3025(P-24)Sec 1 2022
12	Nitrates (as NO <sub>3</sub> ),mg/l	0.15	2.5	50	IS:3025 (P-34) Sec 1 2023
13	BOD [3 days at 27°C] mg/l	3.90	4.52	-	IS 3025 (P-44) 2014
14	COD, mg/l	38	36	-	IS 3025 (P-58) 2006 RA 2022
15	Iron (as Fe), mg/l	<0.005	<0.005	50	IS:3025(P-2) 2019
16	Manganese (as Mn), mg/l	<0.001	<0.001	-	IS 3025 (P-2) 2019
17	Dissolved Oxygen (as O <sub>2</sub> ), mg/l, Max	5.2	5	Min 4	IS:3025(Part-38)1989RA 2019
18	Oil & Grease, mg/l	<0.1	<0.1	0.1	IS:3025(Part 39)2021

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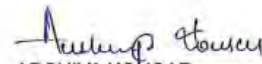
### TEST REPORT

Name of the Client		: M/s. Vedanta Limited					
Name of the Project		: Block I - Bicholim Mineral Block					
		Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa					
Sample Collected by		: Environmental Laboratory (Unit of Mineral Engineering Services)					
Particulars of sample collected		: GW1 - Well water Bicholim (Anand Mulgaudi), GW2 - Well water Lamgao village (Santosh dewari), GW3 - Well water Mulgao village (Vitthal Sathu House)					
Date of sample collection		: 09.07.2024					
Issue Date		: 17.07.2024					
Ref		: IS:10500-2012 Norms Amendment - 4 (Drinking Water Standards)					
Sl. No.	Sample Code	GW1	GW2	GW3	Desirable Limite	Permissible Limite	Method of Testing
	Lab Code	N/24/07/2-0093	N/24/07/2-0094	N/24/07/2-0095			
	Parameters	Results					
1	Colour (Hazen Units)	<1	<1	<1	5	15	IS:3025 (P-4) 2021
2	pH Value	6.62	6.59	6.74	6.5 to 8.5	6.5 - 8.5	IS:3025 (P-11) 2022
3	Turbidity,NTU, Max	0.8	0.5	<0.1	1	5	IS:3025 (P-10)1984 RA 2017
4	Electrical Conductivity (µmhos/cm)	140.0	170.0	52.0	—	—	IS 3025 (P-14)
5	Total Dissolved Solids,mg/l, Max	92.0	112.0	28.0	500	2000	IS:3025 (P-16)1984 RA2017
6	Total Suspended Solids, mg/l	<5.0	<5.0	<5.0	—	—	IS 3025 (P-17) 2022
7	Calcium (as Ca),mg/l, Max	8.41	7.21	6.41	75	200	IS:3025 (P-40)1991 RA 2019
8	Chloride as Cl (mg/l),mg/l, Max	14.70	25.99	11.50	250	1000	IS:3025 (P-32) 1988 RA 2019
9	Iron (as Fe),mg/l, Max	<0.005	<0.005	<0.005	1.0	1.0	IS:3025 (Part-2) 2019
10	Magnesium (as Mg)mg/l, Max	5.59	<1.0	1.94	30	100	IS:3025 (P-46)1994 RA 2019
11	Manganese (as Mn),mg/l, Max	<0.001	<0.001	<0.001	0.1	0.3	IS:3025 (P-2) 2019
12	Nitrates (as NO <sub>3</sub> ),mg/l, Max	0.25	0.18	<0.1	45	45	IS:3025 (P-34) Sec 1 2023
13	Sulphates (as SO <sub>4</sub> ),mg/l, Max	11.40	3.20	1.80	200	400	IS:3025 (P-24) Sec 1 2022
14	Alkalinity (as CaCO <sub>3</sub> ) mg/l, Max	70.00	22.00	18.00	200	600	IS:3025 (P-23):1986 RA 2019
15	Total Hardness (as CaCO <sub>3</sub> ),mg/l,Max	44.0	20.0	24.00	200	600	IS:3025 (P-21):2009 RA 2019
16	Escherichia coli/100ml	Not Detected	Not Detected	Not Detected	Shall not be detectable in any 100ml Sample		IS:15185:2016 RA 2021
17	Total Coliform /100ml)	Not Detected	Not Detected	Not Detected			IS:15185:2016 RA 2021
18	Water levels in well from surface (m)	5.6	1.5	2.4	—	—	—

  
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### TEST REPORT

Name of the Client		: M/s. Vedanta Limited				
Name of the Project		: Block I - Bicholim Mineral Block				
		Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa				
Sample Collected by		: Environmental Laboratory (Unit of Mineral Engineering Services)				
Particulars of sample collected		: GW4 - Well water Pilgao village, (Gajanand Chari)				
		GW5 - Well water Mayem village				
Date of sample collection		: 09.07.2024				
Issue Date		: 17.07.2024				
Ref		: IS:10500-2012 Norms Amendment - 4 (Drinking Water Standards)				
Sl. No.	Sample Code	GW4	GW5	Desirable Limits	Permissible Limits	Method of Testing
	Lab Code	Results				
	Parameters <td>N/24/07/2-0096</td> <td>N/24/07/2-0097</td> <td></td> <td></td> <td></td>	N/24/07/2-0096	N/24/07/2-0097			
1	Colour (Hazen Units)	<1	<1	5	15	IS:3025 (P-4) 2021
2	pH Value	6.59	6.85	6.5 to 8.5	6.5 - 8.5	IS:3025 (P-11) 2022
3	Turbidity,NTU, Max	2.2	3.6	1	5	IS:3025 (P-10)1984 RA 2017
4	Electrical Conductivity (µmhos/cm)	60.00	94.0	--	--	IS 3025 (P-14)
5	Total Dissolved Solids,mg/l, Max	32.0	58.0	500	2000	IS:3025 (P-16)1984 RA2017
6	Total Suspended Solids, mg/l	<5.0	<5.0	--	--	IS 3025 (P-17) 2022
7	Calcium (as Ca),mg/l, Max	3.20	8.20	75	200	IS:3025 (P-40)1991 RA 2019
8	Chloride as Cl (mg/l),mg/l, Max	14.00	17.00	250	1000	IS:3025 (P-32) 1988 RA 2019
9	Iron (as Fe),mg/l, Max	<0.005	<0.008	1.0	1.0	IS:3025 (Part-2) 2019
10	Magnesium (as Mg),mg/l, Max	<1.0	4.86	30	100	IS:3025 (P-46)1994 RA 2019
11	Manganese (as Mn),mg/l, Max	<0.001	<0.001	0.1	0.3	IS:3025 (P-2) 2019
12	Nitrates (as NO <sub>3</sub> ),mg/l, Max	<0.1	0.12	45	45	IS:3025 (P-34) Sec 1 2023
13	Sulphates (as SO <sub>4</sub> ),mg/l, Max	<1.0	<1.0	200	400	IS:3025 (P-24) Sec 1 2022
14	Alkalinity (as CaCO <sub>3</sub> ), mg/l, Max	10.00	20.0	200	600	IS:3025 (P-23):1986 RA 2019
15	Total Hardness (as CaCO <sub>3</sub> ),mg/l,Max	12.0	24.0	200	600	IS:3025 (P-21):2009 RA 2019
16	Escherichia coli/100ml	Not Detected	Not Detected	Shall not be detectable in any 100ml Sample		IS:15185:2016 RA 2021
17	Total Coliform /100ml)	Not Detected	Not Detected	Shall not be detectable in any 100ml Sample		IS:15185:2016 RA 2021
18	Water levels in well from surface (m)	1.4	2.4	-		

*(Signature)*  
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## TEST REPORT NOISE LEVEL DATA

Report No : ELMES0342407

<b>Name of the Client</b>		: M/s. Vedanta Limited					
<b>Name of the Project</b>		: Block I - Bicholim Mineral Block Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa					
<b>Sample Collected by</b>		: Environmental Laboratory (Unit of Mineral Engineering Services)					
<b>Season</b>		: Monsoon Season, 2024					
<b>Date of monitoring</b>		: 27.07.2024					
<b>Issue Date</b>		: 03.08.2024					
Code No.	Monitoring stations	Day			Night		
		L <sub>min</sub>	L <sub>eq</sub>	L <sub>max</sub>	L <sub>min</sub>	L <sub>eq</sub>	L <sub>max</sub>
<b>Buffer zone</b>							
N1	Lamgao village	36.7	42.2	46.8	33.5	36.1	38.0
N2	Mulgao village	37.6	45.0	50.3	34.2	37.4	41.3
N3	Pilgao village	36.5	47.6	53.6	33.6	36.6	39.4
N4	Chirgao village	36.8	44.3	50.6	33.6	37.3	40.3
N5	Anil Naik House Near Sarmanas Jetty	33.1	41.3	46.6	32.0	36.2	39.3
<b>Corezone</b>							
N6	DBB office	30.0	39.9	42.0	33.5	36.8	39.7
N7	NSP office	40.9	47.4	53.8	34.0	37.3	41.2
N8	4 Top office	35.3	41.8	48.0	34.0	38.0	41.0
N9	Crushing and screening & Ore Stacking- NSP	44.0	50.1	57.5	Not in Operation		
N10	Mine Face- 5 top Common Boundary	38.3	54.0	63.1	Not in Operation		
N11	Dumping- 5 Top	44.0	56.5	66.0	Not in Operation		
N12	Haul road- at 4 Top	40.5	59.2	69.0	Not in Operation		
<b>Permissible limits as per ILO Code of Practice</b>				<b>Permissible Limits of Ambient Noise Levels as per CPCB Guidelines</b>			
For Unprotected ear - 8 hrs working shift				Leq. Limit dB(A)			
Warning limit - 85 dB(A)				Day			
Danger limit - 90 dB(A)				Night			
Worker not to be exposed for more than 115 dB(A)				Industrial areas		75	70
With ear protection -				Commercial area		65	55
130 dB(A) 'Impulse' or 120 dB(A) 'Fast'				Residential area		55	45
No entry when noise level exceeds 140 dB(A)							

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**1b. August 2024**

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### TEST REPORT

Table No. 1

#### AMBIENT AIR QUALITY

Name of the Client : M/s. Vedanta Ltd.,  
Name of the Project : Block I - Bicholim Mineral Block  
Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages,  
Bicholim Taluka, North Goa  
Sample Collected by : Environmental Laboratory (Unit of Mineral Engineering Services)  
Station at & Code : A1, Lamgao village  
Duration : 24 Hrs  
Issue date : 03.08.2024  
Reference IS 5182 & Lab SOP

Date of Sampling	Lab Code	Sulphur Dioxide (SO <sub>2</sub> ), µg/m <sup>3</sup>	Nitrogen Dioxide (NO <sub>2</sub> ), µg/m <sup>3</sup>	Particulate Matter	
				PM <sub>10</sub> , (µg/m <sup>3</sup> )	PM <sub>2.5</sub> , (µg/m <sup>3</sup> )
07.08.2024	N/24/08/3-0057	10	12	36	15
08.08.2024	N/24/08/3-0081	9	10	38	22
16.08.2024	N/24/08/4-0117	<4	9	46	25
17.08.2024	N/24/08/4-0132	7	9	40	23
21.08.2024	N/24/08/4-0359	10	11	27	15
22.08.2024	N/24/08/4-0385	5	<9	32	19
28.08.2024	N/24/08/5-0216	6	9	34	22
29.08.2024	N/24/08/5-0254	9	10	35	19
Limits for Industrial , Residential, Rural and other Areas		80 24 Hrs	80 24 Hrs	100 24 Hrs	60 24 Hrs

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## TEST REPORT

Table No. 2

### AMBIENT AIR QUALITY

Name of the Client : M/s. Vedanta Ltd., Name of the Project : Block I - Bicholim Mineral Block Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa Sample Collected by : Environmental Laboratory (Unit of Mineral Engineering Services) Station at & Code : A2, Mulgao village Duration : 24 Hrs Issue date : 03.08.2024 Reference IS 5182 & Lab SOP					
Date of Sampling	Lab Code	Sulphur Dioxide (SO <sub>2</sub> ), µg/m <sup>3</sup>	Nitrogen Dioxide (NO <sub>2</sub> ), µg/m <sup>3</sup>	Particulate Matter	
				PM <sub>10</sub> , (µg/m <sup>3</sup> )	PM <sub>2.5</sub> , (µg/m <sup>3</sup> )
07.08.2024	N/24/08/3-0058	7	11	46	25
08.08.2024	N/24/08/3-0082	11	12	41	23
16.08.2024	N/24/08/4-0118	6	11	49	27
17.08.2024	N/24/08/4-0133	11	14	35	20
21.08.2024	N/24/08/4-0360	10	12	48	27
22.08.2024	N/24/08/4-0386	9	11	45	24
28.08.2024	N/24/08/5-0217	11	12	38	21
29.08.2024	N/24/08/5-0255	7	9	41	26
Limits for Industrial ,		80	80	100	60
Residential, Rural and other Areas		24 Hrs	24 Hrs	24 Hrs	24 Hrs

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## TEST REPORT

Table No. 3

### AMBIENT AIR QUALITY

Name of the Client	: M/s. Vedanta Ltd.,
Name of the Project	: Block I - Bicholim Mineral Block Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa
Sample Collected by	: Environmental Laboratory (Unit of Mineral Engineering Services)
Station at & Code	: A3, Pilgao village
Duration	: 24 Hrs
Issue date	: 03.08.2024
Reference	IS 5182 & Lab SOP

Date of Sampling	Lab Code	Sulphur Dioxide (SO <sub>2</sub> ), µg/m <sup>3</sup>	Nitrogen Dioxide (NO <sub>2</sub> ), µg/m <sup>3</sup>	Particulate Matter	
				PM <sub>10</sub> , (µg/m <sup>3</sup> )	PM <sub>2.5</sub> , (µg/m <sup>3</sup> )
07.08.2024	N/24/08/3-0059	5	9	39	22
08.08.2024	N/24/08/3-0083	<4	9	28	16
16.08.2024	N/24/08/4-0119	9	12	47	25
17.08.2024	N/24/08/4-0134	6	10	40	24
21.08.2024	N/24/08/4-0361	8	<9	38	25
22.08.2024	N/24/08/4-0387	8	10	25	15
28.08.2024	N/24/08/5-0218	11	12	46	29
29.08.2024	N/24/08/5-0256	5	9	40	22
Limits for Industrial , Residential, Rural and other Areas		80 24 Hrs	80 24 Hrs	100 24 Hrs	60 24 Hrs

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## TEST REPORT

Table No. 4

### AMBIENT AIR QUALITY

Name of the Client : M/s. Vedanta Ltd.,					
Name of the Project : Block I - Bicholim Mineral Block Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa					
Sample Collected by : Environmental Laboratory (Unit of Mineral Engineering Services)					
Station at & Code : A4, Shirgao village					
Duration : 24 Hrs					
Issue date : 03.08.2024					
Reference IS 5182 & Lab SOP					
Date of Sampling	Lab Code	Sulphur Dioxide (SO <sub>2</sub> ), µg/m <sup>3</sup>	Nitrogen Dioxide (NO <sub>2</sub> ), µg/m <sup>3</sup>	Particulate Matter	
				PM <sub>10</sub> , (µg/m <sup>3</sup> )	PM <sub>2.5</sub> , (µg/m <sup>3</sup> )
07.08.2024	N/24/08/3-0060	7	<9	35	24
08.08.2024	N/24/08/3-0084	9	10	28	17
16.08.2024	N/24/08/4-0120	10	12	33	22
17.08.2024	N/24/08/4-0135	8	9	48	27
21.08.2024	N/24/08/4-0362	6	9	40	23
22.08.2024	N/24/08/4-0388	5	<9	46	22
28.08.2024	N/24/08/5-0219	9	10	45	25
29.08.2024	N/24/08/5-0257	6	9	38	19
Limits for Industrial ,		80	80	100	60
Residential, Rural and other Areas		24 Hrs	24 Hrs	24 Hrs	24 Hrs

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## TEST REPORT

Table No. 5

### AMBIENT AIR QUALITY

Name of the Client : M/s. Vedanta Ltd.,					
Name of the Project : Block I - Bicholim Mineral Block Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa					
Sample Collected by : Environmental Laboratory (Unit of Mineral Engineering Services)					
Station at & Code : A5, Anil Naik House Near Sarmanas Jetty (Transportation route)					
Duration : 24 Hrs					
Issue date : 30.07.2024					
Reference IS 5182 & Lab SOP					
Date of Sampling	Lab Code	Sulphur Dioxide (SO <sub>2</sub> ), µg/m <sup>3</sup>	Nitrogen Dioxide (NO <sub>2</sub> ), µg/m <sup>3</sup>	Particulate Matter	
				PM <sub>10</sub> , (µg/m <sup>3</sup> )	PM <sub>2.5</sub> , (µg/m <sup>3</sup> )
07.08.2024	N/24/08/3-0061	8	10	47	27
08.08.2024	N/24/08/3-0085	4	9	39	26
16.08.2024	N/24/08/4-0121	10	11	40	22
17.08.2024	N/24/08/4-0136	9	12	32	23
21.08.2024	N/24/08/4-0363	5	11	44	25
22.08.2024	N/24/08/4-0389	4	9	37	19
28.08.2024	N/24/08/5-0220	5	<9	39	26
29.08.2024	N/24/08/5-0258	7	10	34	21
Limits for Industrial ,		80	80	100	60
Residential, Rural and other Areas		24 Hrs	24 Hrs	24 Hrs	24 Hrs

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## TEST REPORT

Table No. 6

### AMBIENT AIR QUALITY

<b>Name of the Client</b> : M/s. Vedanta Ltd., <b>Name of the Project</b> : Block I - Bicholim Mineral Block Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa <b>Sample Collected by</b> : Environmental Laboratory (Unit of Mineral Engineering Services) <b>Station at &amp; Code</b> : A6, DBB office <b>Duration</b> : 24 Hrs <b>Issue date</b> : 03.08.2024 <b>Reference</b> IS 5182 & Lab SOP					
Date of Sampling	Lab Code	Sulphur Dioxide (SO <sub>2</sub> ), µg/m <sup>3</sup>	Nitrogen Dioxide (NO <sub>2</sub> ), µg/m <sup>3</sup>	Particulate Matter	
				PM <sub>10</sub> , (µg/m <sup>3</sup> )	PM <sub>2.5</sub> , (µg/m <sup>3</sup> )
09.08.2024	N/24/08/3-0168	7	12	38	22
10.08.2024	N/24/08/3-0250	11	11	47	28
12.08.2024	N/24/08/4-0178	8	11	30	16
13.08.2024	N/24/08/4-0246	10	12	44	24
23.08.2024	N/24/08/4-0446	5	9	40	23
24.08.2024	N/24/08/5-0069	10	11	38	25
30.08.2024	N/24/09/2-0011	8	9	39	22
31.08.2024	N/24/09/2-0028	11	13	35	23
<b>Limits for Industrial ,</b>		<b>80</b>	<b>80</b>	<b>100</b>	<b>60</b>
<b>Residential, Rural and other Areas</b>		<b>24 Hrs</b>	<b>24 Hrs</b>	<b>24 Hrs</b>	<b>24 Hrs</b>

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## TEST REPORT

Table No. 8

### AMBIENT AIR QUALITY

<b>Name of the Client</b> : M/s. Vedanta Ltd., <b>Name of the Project</b> : Block I - Bicholim Mineral Block Bicholim, Bordem, Langao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa <b>Sample Collected by</b> : Environmental Laboratory (Unit of Mineral Engineering Services) <b>Station at &amp; Code</b> : A8, 4 Top office <b>Duration</b> : 24 Hrs <b>Issue date</b> : 03.08.2024 <b>Reference</b> IS 5182 & Lab SOP					
Date of Sampling	Lab Code	Sulphur Dioxide (SO <sub>2</sub> ), µg/m <sup>3</sup>	Nitrogen Dioxide (NO <sub>2</sub> ), µg/m <sup>3</sup>	Particulate Matter	
				PM <sub>10</sub> , (µg/m <sup>3</sup> )	PM <sub>2.5</sub> , (µg/m <sup>3</sup> )
09.08.2024	N/24/08/3-0170	8	9	30	17
10.08.2024	N/24/08/3-0252	9	12	36	21
12.08.2024	N/24/08/4-0180	10	12	40	23
13.08.2024	N/24/08/4-0248	6	12	47	28
23.08.2024	N/24/08/4-0448	11	10	38	20
24.08.2024	N/24/08/5-0071	10	12	30	20
30.08.2024	N/24/09/2-0013	7	9	28	19
31.08.2024	N/24/09/2-0030	9	10	41	22
<b>Limits for Industrial ,</b>		<b>80</b>	<b>80</b>	<b>100</b>	<b>60</b>
<b>Residential, Rural and other Areas</b>		<b>24 Hrs</b>	<b>24 Hrs</b>	<b>24 Hrs</b>	<b>24 Hrs</b>

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## TEST REPORT

Table No. 7

### AMBIENT AIR QUALITY

<b>Name of the Client</b> : M/s. Vedanta Ltd., <b>Name of the Project</b> : Block I - Bicholim Mineral Block Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa <b>Sample Collected by</b> : Environmental Laboratory (Unit of Mineral Engineering Services) <b>Station at &amp; Code</b> : A7, NSP office <b>Duration</b> : 24 Hrs <b>Issue date</b> : 03.08.2024 <b>Reference</b> IS 5182 & Lab SOP					
Date of Sampling	Lab Code	Sulphur Dioxide (SO <sub>2</sub> ), µg/m <sup>3</sup>	Nitrogen Dioxide (NO <sub>2</sub> ), µg/m <sup>3</sup>	Particulate Matter	
				PM <sub>10</sub> , (µg/m <sup>3</sup> )	PM <sub>2.5</sub> , (µg/m <sup>3</sup> )
09.08.2024	N/24/08/3-0169	9	12	44	31
10.08.2024	N/24/08/3-0251	7	9	28	17
12.08.2024	N/24/08/4-0179	7	9	36	22
13.08.2024	N/24/08/4-0247	7	9	31	19
23.08.2024	N/24/08/4-0447	6	<9	24	15
24.08.2024	N/24/08/5-0070	7	9	43	24
30.08.2024	N/24/09/2-0012	9	11	38	18
31.08.2024	N/24/09/2-0029	10	13	46	26
<b>Limits for Industrial ,</b>		<b>80</b>	<b>80</b>	<b>100</b>	<b>60</b>
<b>Residential, Rural and other Areas</b>		<b>24 Hrs</b>	<b>24 Hrs</b>	<b>24 Hrs</b>	<b>24 Hrs</b>

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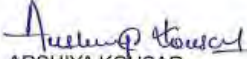
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### TEST REPORT

Table No. 9

#### Fugitive Emission

Name of the Client : M/s. Vedanta Ltd.,		
Name of the Project : Block I - Bicholim Mineral Block Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa		
Sample Collected by : Environmental Laboratory (Unit of Mineral Engineering Services)		
Station at & Code : FA1, Crushing and screening & Ore Stacking- NSP		
Duration : 24 Hrs		
Issue date : 03.08.2024		
Reference IS 5182 & Lab SOP		
Date of sample	Lab Code	Particulate mater ( $\mu\text{g}/\text{m}^3$ )
09.08.2024	N/24/08/3-0171	188
10.08.2024	N/24/08/3-0253	168
12.08.2024	N/24/08/4-0181	263
13.08.2024	N/24/08/4-0249	175
23.08.2024	N/24/08/4-0449	214
24.08.2024	N/24/08/5-0072	197
30.08.2024	N/24/09/2-0014	145
31.08.2024	N/24/09/2-0031	235
Ref : Environmental (Protection) Rules, 2010 (Sixth Amendment)		Particulate mater ( $\mu\text{g}/\text{m}^3$ )
Permissible limits for Fugitive Emissions		1200 $\mu\text{g}/\text{m}^3$

  
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### TEST REPORT

Table No. 10

#### Fugitive Emission

Name of the Client : M/s. Vedanta Ltd.,		
Name of the Project : Block I - Bicholim Mineral Block Bicholim, Bordem, Langao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa		
Sample Collected by : Environmental Laboratory (Unit of Mineral Engineering Services)		
Station at & Code : FA2, Mine Face- 5 top Common Boundary		
Duration : 24 Hrs		
Issue date : 03.08.2024		
Reference IS 5182 & Lab SOP		
Date of sample	Lab Code	Particulate mater ( $\mu\text{g}/\text{m}^3$ )
09.08.2024	N/24/08/3-0172	196
10.08.2024	N/24/08/3-0254	111
12.08.2024	N/24/08/4-0182	147
13.08.2024	N/24/08/4-0250	241
23.08.2024	N/24/08/4-0450	265
24.08.2024	N/24/08/5-0073	187
30.08.2024	N/24/09/2-0015	173
31.08.2024	N/24/09/2-0032	214
Ref : Environmental (Protection) Rules, 2010 (Sixth Amendment)		Particulate mater ( $\mu\text{g}/\text{m}^3$ )
Permissible limits for Fugitive Emissions		1200 $\mu\text{g}/\text{m}^3$

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## ENVIRONMENTAL LABORATORY

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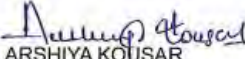
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### TEST REPORT

Table No. 11

#### Fugitive Emission

Name of the Client : M/s. Vedanta Ltd.,		
Name of the Project : Block I - Bicholim Mineral Block Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa		
Sample Collected by : Environmental Laboratory (Unit of Mineral Engineering Services)		
Station at & Code : FA3, Dumping- 5 Top		
Duration : 24 Hrs		
Issue date : 03.08.2024		
Reference IS 5182 & Lab SOP		
Date of sample	Lab Code	Particulate mater ( $\mu\text{g}/\text{m}^3$ )
09.08.2024	N/24/08/3-0173	156
10.08.2024	N/24/08/3-0255	261
12.08.2024	N/24/08/4-0183	178
13.08.2024	N/24/08/4-0251	194
23.08.2024	N/24/08/4-0451	215
24.08.2024	N/24/08/5-0074	175
30.08.2024	N/24/09/2-0016	265
31.08.2024	N/24/09/2-0033	222
Ref : Environmental (Protection) Rules, 2010 (Sixth Amendment)		Particulate mater ( $\mu\text{g}/\text{m}^3$ )
Permissible limits for Fugitive Emissions		1200 $\mu\text{g}/\text{m}^3$

  
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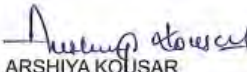
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### TEST REPORT

Table No. 12

#### Fugitive Emission

Name of the Client : M/s. Vedanta Ltd.,		
Name of the Project : Block I - Bicholim Mineral Block Bicholim, Bordem, Langao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa		
Sample Collected by : Environmental Laboratory (Unit of Mineral Engineering Services)		
Station at & Code : FA4, Haul road- at 4 Top		
Duration : 24 Hrs		
Issue date : 03.08.2024		
Reference IS 5182 & Lab SOP		
Date of sample	Lab Code	Particulate mater ( $\mu\text{g}/\text{m}^3$ )
09.08.2024	N/24/08/3-0174	174
10.08.2024	N/24/08/3-0256	154
12.08.2024	N/24/08/4-0184	136
13.08.2024	N/24/08/4-0252	248
23.08.2024	N/24/08/4-0452	145
24.08.2024	N/24/08/5-0075	185
30.08.2024	N/24/09/2-0017	275
31.08.2024	N/24/09/2-0034	264
Ref Environmental (Protection) Rules, 2010 (Sixth Amendment)		Particulate mater ( $\mu\text{g}/\text{m}^3$ )
Permissible limits for Fugitive Emissions		1200 $\mu\text{g}/\text{m}^3$

  
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## TEST REPORT

Name of the Client : M/s. Vedanta Limited  
Name of the Project : Block I - Bicholim Mineral Block  
Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa  
Sample Collected by : Environmental Laboratory (Unit of Mineral Engineering Services)  
Particular of Sample Collecte : EDW1 - 1 Top Discharge (Bicholim Dhabdabha),  
EDW2 - 2 Top Discharge (Lamgao), EDW3 - 5 Top Discharge (Mulgao)  
Sample Collected by : Environmental Laboratory (Unit of Mineral Engineering Services)  
Date of sampling : 08.08.2024  
Issue Date : 21.08.2024

Sl. No.	Sample Code	EDW1	EDW2	EDW3	General Standards For Effluent Discharge of Environmental Pollutants	Method of Testing
		Lab Code	Results	Results		
1	Colour (Hazen Units),	N/24/08/02-0111	N/24/08/02-0112	N/24/08/02-0113	—	IS:3025(P-4)2021
2	pH	1	3	3	5.5-9.0	IS 3025 (P-11) 2022
3	Turbidity,NTU	18.5	42.0	24.6	—	IS:3025 (P-10) 1984 RA 2017
4	Electrical Conductivity (µmhos/cm)	65	56	50	—	IS 3025 (P-14)
5	Total Dissolved Solids (TDS) mg/l	36	32	28	—	IS 3025(P- 16)02022
6	Total Suspended Solids, mg/l	20.0	48.0	30.7	Non Rainy Day 50, Rainy Day 100	IS 3025 (P-17) 2022
7	Chlorides (as Cl), mg/l	13	12	12	1000	IS 3025 (P-32) 1988 RA 2019
8	Total Hardness (as CaCO <sub>3</sub> ),mg/l	18	10	6	--	IS:3025 (P-21) 2009 RA 2019
9	Calcium (as Ca),mg/l,	3.2	2.4	<1	—	IS:3025 (P-40)1991 RA 2019
10	Magnesium (as Mg) mg/l,	2.43	1	<1	—	IS 3025 (P-2) 2019
11	Sulphates (as SO <sub>4</sub> ) mg/l	3.5	1.5	1	1000	IS 3025 (P-24) Sec 1 2022
12	Nitrates (as NO <sub>3</sub> ),mg/l	<1	<1	<1	—	IS:3025 (P-34) Sec 1 2023
13	BOD [3 days at 27°C] mg/l	5.32	3.2	3.85	30	IS 3025 (P-44) 2014
14	COD, mg/l	30	25	28	250	IS 3025 (P-58) 2006 RA 2022
15	Iron (as Fe), mg/l	0.015	0.008	0.009	3	IS 3025 (P-2) 2019
16	Manganese (as Mn), mg/l	<0.001	<0.001	<0.001	2	IS 3025 (P-2) 2019
17	Dissolved Oxygen (as O <sub>2</sub> ), mg/l, Max	5.2	5.4	5.5	Min 4	IS:3025(Part-38)1989RA 2019
18	Oil & Grease, mg/l	<1.0	<1.0	<1.0	10	IS 3025 (P-39) 2021

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## TEST REPORT

Name of the Client	: M/s. Vedanta Limited
Name of the Project	: Block I - Bicholim Mineral Block
	Bicholim, Bordem, Langao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa
Sample Collected by	: Environmental Laboratory (Unit of Mineral Engineering Services)
Particular of Sample Collected	: SW1 - Upstream Bicholim River, SW2 - Downstream Bicholim River
Sample Collected by	: Environmental Laboratory (Unit of Mineral Engineering Services)
Date of sampling	: 08.08.2024
Issue Date	: 21.08.2024
Ref:IS : 2296, 1982 Class C Norms (Stream Water Standards)	

Sl.No.	Sample Code	SW1	SW2	Limits For Stream Water Standards	Method of Testing
	Lab Code	N/24/08/02-0114	N/24/08/02-0115		
	Parameters	Results			
1	Colour (Hazen Units),	5	5	300	IS:3025(P-4)2021
2	pH	6.60	6.24	6.5 to 8.5	IS 3025 (P-11) 2022
3	Turbidity,NTU	35.0	32.6	-	IS:3025 (P-10) 1984 RA 2017
4	Electrical Conductivity (µmhos/cm)	56	54	-	IS 3025 (P-14)
5	Total Dissolved Solids (TDS) mg/l	32	30	1500	IS:3025(Part-16)2023
6	Total Suspended Solids, mg/l	36	34	-	IS 3025 (P-17) 2022
7	Chlorides (as Cl), mg/l	8	16	600	IS:3025(Part-32) ;1988RA2019
8	Total Hardness (as CaCO <sub>3</sub> ),mg/l	10	12	-	IS:3025 (P-21) 2009 RA 2019
9	Calcium (as Ca),mg/l,	2.4	2.4	-	IS:3025 (P-40)1991 RA 2019
10	Magnesium (as Mg) mg/l,	1	1.4	-	IS 3025 (P-2) 2019
11	Sulphates (as SO <sub>4</sub> ),mg/l	1.6	2	400	IS:3025(P-24)Sec 1 2022
12	Nitrates (as NO <sub>3</sub> ),mg/l	1.1	1.2	50	IS:3025 (P-34) Sec 1 2023
13	BOD [3 days at 27°C] mg/l	3.22	3.62	-	IS 3025 (P-44) 2014
14	COD, mg/l	30	33	-	IS 3025 (P-58) 2006 RA 2022
15	Iron (as Fe), mg/l	<0.005	<0.005	50	IS:3025(P-2) 2019
16	Manganese (as Mn), mg/l	<0.001	<0.001	-	IS 3025 (P-2) 2019
17	Dissolved Oxygen (as O <sub>2</sub> ), mg/l, Max	5.5	5.2	Min 4	IS:3025(Part-38)1989RA 2019
18	Oil & Grease, mg/l	<0.1	<0.1	0.1	IS:3025(Part 39)2021

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### TEST REPORT

**Name of the Client** : M/s. Vedanta Limited  
**Name of the Project** : Block I - Bicholim Mineral Block  
 Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa  
**Sample Collected by** : Environmental Laboratory (Unit of Mineral Engineering Services)  
**Particular of Sample Collected** : SW3 - Upstream Asnora River, SW4 - Downstream Asnora River  
**Sample Collected by** : Environmental Laboratory (Unit of Mineral Engineering Services)  
**Date of sampling** : 08.08.2024  
**Issue Date** : 21.08.2024

**Ref:IS : 2296, 1982 Class C Norms (Stream Water Standards)**

Sl.No.	Sample Code Lab Code Parameters	SW3	SW4	Limits For Stream Water Standards	Method of Testing
		N/24/08/02-0116 Results	N/24/08/02-0117 Results		
1	Colour (Hazen Units),	5	3	300	IS:3025(P-4)2021
2	pH	6.41	6.35	6.5 to 8.5	IS 3025 (P-11) 2022
3	Turbidity,NTU	46	23.7	—	IS:3025 (P-10) 1984 RA 2017
4	Electrical Conductivity (µmhos/cm)	66	130	—	IS 3025 (P-14)
5	Total Dissolved Solids (TDS) mg/l	36	72	1500	IS: 3025(Part-16)2023
6	Total Suspended Solids, mg/l	50	56	-	IS 3025 (P-17) 2022
7	Chlorides (as Cl), mg/l	10	30	600	IS:3025(Part-32) ;1988RA2019
8	Total Hardness (as CaCO <sub>3</sub> ),mg/l	14	22	—	IS:3025 (P-21) 2009 RA 2019
9	Calcium (as Ca),mg/l,	3.2	4.0	—	IS:3025 (P-40)1991 RA 2019
10	Magnesium (as Mg) mg/l,	1.45	2.91	—	IS 3025 (P-2) 2019
11	Sulphates (as SO <sub>4</sub> ) mg/l	5.2	8.8	400	IS 3025(P-24)Sec.1 2022
12	Nitrates (as NO <sub>3</sub> ),mg/l	3.2	4.5	50	IS:3025 (P-34) Sec 1 2023
13	BOD [3 days at 27°C] mg/l	<3.0	<3.0	-	IS 3025 (P-44) 2014
14	COD, mg/l	12	14	-	IS 3025 (P-58) 2006 RA 2022
15	Iron (as Fe), mg/l	<0.005	<0.005	50	IS:3025(P-2) 2019
16	Manganese (as Mn), mg/l	<0.001	<0.001	-	IS 3025 (P-2) 2019
17	Dissolved Oxygen (as O <sub>2</sub> ), mg/l, Max	5.5	5.2	Min 4	IS:3025(Part-38)1989RA 2019
18	Oil & Grease, mg/l	<0.1	<0.1	0.1	IS.3025(Part 39)2021

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## ENVIRONMENTAL LABORATORY

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ISO 45001:2018 Certified Laboratory



### TEST REPORT

Name of the Client		: M/s. Vedanta Limited					
Name of the Project		: Block I - Bicholim Mineral Block					
		: Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa					
Sample Collected by		: Environmental Laboratory (Unit of Mineral Engineering Services)					
Particulars of sample collected		: GW1 - Well water Bicholim (Anand Mulgaudi), GW2 - Well water Lamgao village (Santosh dewari), GW3 - Well water Mulgao village (Vithal Sathu House)					
Date of sample collection		: 08.08.2024					
Issue Date		: 21.08.2024					
Ref : IS:10500-2012 Norms Amendment - 4 (Drinking Water Standards)							
Sl. No.	Sample Code	GW1	GW2	GW3	Desirable Limits	Permissible Limits	Method of Testing
	Lab Code	N/24/08/02-0118	N/24/08/02-0119	N/24/08/02-0120			
	Parameters	Results					
1	Colour (Hazen Units)	<1	<1	<1	5	15	IS:3025 (P-4) 2021
2	pH Value	5.90	5.65	5.80	6.5 to 8.5	6.5 - 8.5	IS:3025 (P-11) 2022
3	Turbidity,NTU, Max	0.4	0.3	0.8	1	5	IS:3025 (P-10)1984 RA 2017
4	Electrical Conductivity (µmhos/cm)	142.0	92.0	80.0	-	-	IS 3025 (P-14)
5	Total Dissolved Solids,mg/l, Max	78.0	50.0	44.0	500	2000	IS:3025 (P-16)1984 RA2017
6	Total Suspended Solids, mg/l	16.0	12.0	8.0	-	-	IS 3025 (P-17) 2022
7	Calcium (as Ca),mg/l, Max	8.00	6.90	4.12	75	200	IS:3025 (P-40)1991 RA 2019
8	Chloride (as Cl (mg/l),mg/l, Max	18.00	14.00	16.00	250	1000	IS:3025 (P-32) 1988 RA 2019
9	Iron (as Fe),mg/l, Max	<0.005	<0.005	<0.005	1.0	1.0	IS:3025 (Part-2) 2019
10	Magnesium (as Mg),mg/l, Max	3.80	2.43	1.94	30	100	IS:3025 (P-46)1994 RA 2019
11	Manganese (as Mn),mg/l, Max	<0.001	<0.001	<0.001	0.1	0.3	IS:3025 (P-2) 2019
12	Nitrate (as NO <sub>3</sub> ),mg/l, Max	3.60	2.50	1.40	45	45	IS:3025 (P-34) Sec 1 2023
13	Sulfate (as SO <sub>4</sub> ),mg/l, Max	16.00	10.40	6.10	200	400	IS:3025 (P-24) Sec 1 2022
14	Alkalinity (as CaCO <sub>3</sub> ) mg/l, Max	14.00	14.00	6.00	200	600	IS:3025 (P-23):1986 RA 2019
15	Total Hardness (as CaCO <sub>3</sub> ),mg/l,Max	36.0	26.0	18.00	200	600	IS:3025 (P-21):2009 RA 2019
16	Escherichia coli/100ml	Not Detected	Not Detected	Not Detected	Shall not be detectable in any 100ml Sample		IS:15185:2016 RA 2021
17	Total Coliform /100ml)	Not Detected	Not Detected	Not Detected			IS:15185:2016 RA 2021
18	Water levels in well from surface (m)	7.2	1.0	2.3	-	-	-

*(Signature)*

Govt. Analyst / Authorised Signatory

*(Signature)*  
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TC-6172

### TEST REPORT

Name of the Client		: M/s. Vedanta Limited				
Name of the Project		: Block I - Bicholim Mineral Block				
		Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa				
Sample Collected by		: Environmental Laboratory (Unit of Mineral Engineering Services)				
Particulars of sample collected		: GW4 - Well water Pilgao village, (Gajanand Chari)				
		: GW5 - Well water Mayem village				
Date of sample collection		: 08.08.2024				
Issue Date		: 21.08.2024				
Ref : IS:10500-2012 Norms Amendment - 4 (Drinking Water Standards)						
Sl. No.	Sample Code	GW4	GW5	Desirable Limits	Permissible Limits	Method of Testing
	Lab Code	N/24/08/02-0121	N/24/08/02-0122			
	Parameters	Results				
1	Colour (Hazen Units)	1	<1	5	15	IS:3025 (P-4) 2021
2	pH Value	6.10	5.92	6.5 to 8.5	6.5 - 8.5	IS:3025 (P-11) 2022
3	Turbidity, NTU, Max	4.2	1.1	1	5	IS:3025 (P-10)1984 RA 2017
4	Electrical Conductivity (µmhos/cm)	50.0	52.0	—	—	IS 3025 (P-14)
5	Total Dissolved Solids, mg/l, Max	30.0	32.0	500	2000	IS:3025 (P-16)1984 RA2017
6	Total Suspended Solids, mg/l	5.0	<5.0	—	—	IS 3025 (P-17) 2022
7	Calcium (as Ca), mg/l, Max	2.40	2.40	75	200	IS:3025 (P-40)1991 RA 2019
8	Chloride as Cl (mg/l), mg/l, Max	12.00	12.00	250	1000	IS:3025 (P-32) 1988 RA 2019
9	Iron (as Fe), mg/l, Max	<0.005	<0.005	1.0	1.0	IS:3025 (Part-2) 2019
10	Magnesium (as Mg), mg/l, Max	<1.0	1.40	30	100	IS:3025 (P-46)1994 RA 2019
11	Manganese (as Mn), mg/l, Max	<0.001	<0.001	0.1	0.3	IS:3025 (P-2) 2019
12	Nitrates (as NO <sub>3</sub> ), mg/l, Max	1.00	1.10	45	45	IS:3025 (P-34) Sec 1 2023
13	Sulphates (as SO <sub>4</sub> ), mg/l, Max	<1.0	<1.0	200	400	IS:3025 (P-24) Sec 1 2022
14	Alkalinity (as CaCO <sub>3</sub> ) mg/l, Max	8.00	8.0	200	600	IS:3025 (P-23):1986 RA 2019
15	Total Hardness (as CaCO <sub>3</sub> ), mg/l, Max	10.0	12.0	200	600	IS:3025 (P-21):2009 RA 2019
16	Escherichia coli/100ml	Not Detected	Not Detected	Shall not be detectable in any 100ml Sample		IS:15185:2016 RA 2021
17	Total Coliform /100ml	Not Detected	Not Detected	Shall not be detectable in any 100ml Sample		IS:15185:2016 RA 2021
18	Water levels in well from surface (m)	2.6	3.2	-		

Govt. Analyst / Authorised Signatory

Govt. Analyst / Authorised Signatory

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### TEST REPORT

Table No. 1

### AMBIENT AIR QUALITY

**Name of the Client** : M/s. Vedanta Ltd.,  
**Name of the Project** : Block I - Bicholim Mineral Block  
 Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages,  
 Bicholim Taluka, North Goa  
**Sample Collected by** : Environmental Laboratory (Unit of Mineral Engineering Services)  
**Station at & Code** : A1, Lamgao village  
**Duration** : 24 Hrs  
**Issue date** : 03.10.2024  
**Reference** IS 5182 & Lab SOP

Date of Sampling	Lab Code	Sulphur Dioxide (SO <sub>2</sub> ), µg/m <sup>3</sup>	Nitrogen Dioxide (NO <sub>2</sub> ), µg/m <sup>3</sup>	Particulate Matter	
				PM <sub>10</sub> , (µg/m <sup>3</sup> )	PM <sub>2.5</sub> , (µg/m <sup>3</sup> )
04.09.2024	N/24/09/3-0138	8	11	40	22
05.09.2024	N/24/09/3-0234	6	9	42	23
11.09.2024	N/24/09/4-0088	8	11	43	20
12.09.2024	N/24/09/4-0111	9	12	36	24
18.09.2024	N/24/09/5-0120	7	9	30	21
19.09.2024	N/24/09/5-0134	8	10	33	22
26.09.2024	N/24/09/6-0137	5	<9	36	18
27.09.2024	N/24/09/6-0162	8	11	38	18
<b>Limits for Industrial ,</b>		<b>80</b>	<b>80</b>	<b>100</b>	<b>60</b>
<b>Residential, Rural and other Areas</b>		<b>24 Hrs</b>	<b>24 Hrs</b>	<b>24 Hrs</b>	<b>24 Hrs</b>

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### TEST REPORT

Table No. 2

#### AMBIENT AIR QUALITY

Name of the Client	: M/s. Vedanta Ltd.,
Name of the Project	: Block I - Bicholim Mineral Block Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa
Sample Collected by	: Environmental Laboratory (Unit of Mineral Engineering Services)
Station at & Code	: A2, Mulgao village
Duration	: 24 Hrs
Issue date	: 03.10.2024
Reference	: IS 5182 & Lab SOP

Date of Sampling	Lab Code	Sulphur Dioxide (SO <sub>2</sub> ), µg/m <sup>3</sup>	Nitrogen Dioxide (NO <sub>2</sub> ), µg/m <sup>3</sup>	Particulate Matter	
				PM <sub>10</sub> , (µg/m <sup>3</sup> )	PM <sub>2.5</sub> , (µg/m <sup>3</sup> )
04.09.2024	N/24/09/3-0139	6	12	35	19
05.09.2024	N/24/09/3-0235	10	12	51	27
11.09.2024	N/24/09/4-0089	6	12	48	22
12.09.2024	N/24/09/4-0112	7	9	43	24
18.09.2024	N/24/09/5-0121	5	11	51	28
19.09.2024	N/24/09/5-0135	6	12	47	26
26.09.2024	N/24/09/6-0138	8	9	40	21
27.09.2024	N/24/09/6-0163	4	11	44	23
<b>Limits for Industrial ,</b>		<b>80</b>	<b>80</b>	<b>100</b>	<b>60</b>
<b>Residential, Rural and other Areas</b>		<b>24 Hrs</b>	<b>24 Hrs</b>	<b>24 Hrs</b>	<b>24 Hrs</b>

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## TEST REPORT

Table No. 3

### AMBIENT AIR QUALITY

**Name of the Client** : M/s. Vedanta Ltd.,  
**Name of the Project** : Block I - Bicholim Mineral Block  
 Bicholim, Bordem, Langao, Mulgao, Mayem & Sirigao villages,  
 Bicholim Taluka, North Goa  
**Sample Collected by** : Environmental Laboratory (Unit of Mineral Engineering Services)  
**Station at & Code** : A3, Pilgao village  
**Duration** : 24 Hrs  
**Issue date** : 03.10.2024  
**Reference** IS 5182 & Lab SOP

Date of Sampling	Lab Code	Sulphur Dioxide (SO <sub>2</sub> ), µg/m <sup>3</sup>	Nitrogen Dioxide (NO <sub>2</sub> ), µg/m <sup>3</sup>	Particulate Matter	
				PM <sub>10</sub> , (µg/m <sup>3</sup> )	PM <sub>2.5</sub> , (µg/m <sup>3</sup> )
04.09.2024	N/24/09/3-0140	8	11	51	30
05.09.2024	N/24/09/3-0236	6	9	40	22
11.09.2024	N/24/09/4-0090	11	10	46	26
12.09.2024	N/24/09/4-0113	10	12	32	19
18.09.2024	N/24/09/5-0122	11	15	47	24
19.09.2024	N/24/09/5-0136	9	13	38	19
26.09.2024	N/24/09/6-0139	10	11	38	19
27.09.2024	N/24/09/6-0164	11	10	48	27
<b>Limits for Industrial ,</b>		<b>80</b>	<b>80</b>	<b>100</b>	<b>60</b>
<b>Residential, Rural and other Areas</b>		<b>24 Hrs</b>	<b>24 Hrs</b>	<b>24 Hrs</b>	<b>24 Hrs</b>

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## TEST REPORT

Table No. 4

### AMBIENT AIR QUALITY

**Name of the Client** : M/s. Vedanta Ltd.,  
**Name of the Project** : Block I - Bicholim Mineral Block  
 Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages, ,  
 Bicholim Taluka, North Goa  
**Sample Collected by** : Environmental Laboratory (Unit of Mineral Engineering Services)  
**Station at & Code** : A4, Shirgao village  
**Duration** : 24 Hrs  
**Issue date** : 03.10.2024  
**Reference** IS 5182 & Lab SOP

Date of Sampling	Lab Code	Sulphur Dioxide (SO <sub>2</sub> ), µg/m <sup>3</sup>	Nitrogen Dioxide (NO <sub>2</sub> ), µg/m <sup>3</sup>	Particulate Matter	
				PM <sub>10</sub> , (µg/m <sup>3</sup> )	PM <sub>2.5</sub> , (µg/m <sup>3</sup> )
04.09.2024	N/24/09/3-0141	7	12	45	28
05.09.2024	N/24/09/3-0237	10	12	38	19
11.09.2024	N/24/09/4-0091	12	11	40	25
12.09.2024	N/24/09/4-0114	8	12	45	25
18.09.2024	N/24/09/5-0123	8	12	43	22
19.09.2024	N/24/09/5-0137	10	9	37	21
26.09.2024	N/24/09/6-0140	6	11	35	23
27.09.2024	N/24/09/6-0165	4	10	40	25
<b>Limits for Industrial ,</b>		<b>80</b>	<b>80</b>	<b>100</b>	<b>60</b>
<b>Residential, Rural and other Areas</b>		<b>24 Hrs</b>	<b>24 Hrs</b>	<b>24 Hrs</b>	<b>24 Hrs</b>

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**TEST REPORT**

Table No. 5

**AMBIENT AIR QUALITY**

Name of the Client : M/s. Vedanta Ltd.,  
 Name of the Project : Block I - Bicholim Mineral Block  
 Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages,  
 Bicholim Taluka, North Goa  
 Sample Collected by : Environmental Laboratory (Unit of Mineral Engineering Services)  
 Station at & Code : A5, Anil Naik House Near Sarmanas Jetty (Transportation route)  
 Duration : 24 Hrs  
 Issue date : 03.10.2024  
 Reference IS 5182 & Lab SOP

Date of Sampling	Lab Code	Sulphur Dioxide (SO <sub>2</sub> ), µg/m <sup>3</sup>	Nitrogen Dioxide (NO <sub>2</sub> ), µg/m <sup>3</sup>	Particulate Matter	
				PM <sub>10</sub> , (µg/m <sup>3</sup> )	PM <sub>2.5</sub> , (µg/m <sup>3</sup> )
04.09.2024	N/24/09/3-0142	10	11	43	21
05.09.2024	N/24/09/3-0238	8	10	45	25
11.09.2024	N/24/09/4-0092	8	9	49	28
12.09.2024	N/24/09/4-0115	10	12	46	26
18.09.2024	N/24/09/5-0124	7	9	50	29
19.09.2024	N/24/09/5-0138	6	11	48	23
26.09.2024	N/24/09/6-0141	12	15	30	19
27.09.2024	N/24/09/6-0166	7	9	43	23
<b>Limits for Industrial , Residential, Rural and other Areas</b>		<b>80 24 Hrs</b>	<b>80 24 Hrs</b>	<b>100 24 Hrs</b>	<b>60 24 Hrs</b>

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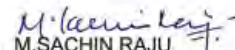
## TEST REPORT

Table No. 6

### AMBIENT AIR QUALITY

**Name of the Client** : M/s. Vedanta Ltd.,  
**Name of the Project** : Block I - Bicholim Mineral Block  
 Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages,  
 Bicholim Taluka, North Goa  
**Sample Collected by** : Environmental Laboratory (Unit of Mineral Engineering Services)  
**Station at & Code** : A6, DBB office  
**Duration** : 24 Hrs  
**Issue date** : 03.10.2024  
**Reference** IS 5182 & Lab SOP

Date of Sampling	Lab Code	Sulphur Dioxide (SO <sub>2</sub> ), µg/m <sup>3</sup>	Nitrogen Dioxide (NO <sub>2</sub> ), µg/m <sup>3</sup>	Particulate Matter	
				PM <sub>10</sub> , (µg/m <sup>3</sup> )	PM <sub>2.5</sub> , (µg/m <sup>3</sup> )
02.09.2024	N/24/09/3-0026	10	11	47	25
03.09.2024	N/24/09/3-0051	8	10	35	24
13.09.2024	N/24/09/4-0145	11	13	49	28
14.09.2024	N/24/09/4-0246	9	10	43	25
20.09.2024	N/24/09/5-0165	11	13	53	28
21.09.2024	N/24/09/5-0214	7	9	48	23
27.09.2024	N/24/09/6-0167	12	15	36	21
28.09.2024	N/24/09/6-0200	10	12	43	23
<b>Limits for Industrial ,</b>		<b>80</b>	<b>80</b>	<b>100</b>	<b>60</b>
<b>Residential, Rural and other Areas</b>		<b>24 Hrs</b>	<b>24 Hrs</b>	<b>24 Hrs</b>	<b>24 Hrs</b>

  
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## TEST REPORT

Table No. 7

### AMBIENT AIR QUALITY

**Name of the Client** : M/s. Vedanta Ltd.,  
**Name of the Project** : Block I - Bicholim Mineral Block  
 Bicholim, Bordem, Langao, Mulgao, Mayem & Sirigao villages,  
 Bicholim Taluka, North Goa  
**Sample Collected by** : Environmental Laboratory (Unit of Mineral Engineering Services)  
**Station at & Code** : A7, NSP office  
**Duration** : 24 Hrs  
**Issue date** : 03.10.2024  
**Reference** IS 5182 & Lab SOP

Date of Sampling	Lab Code	Sulphur Dioxide (SO <sub>2</sub> ), µg/m <sup>3</sup>	Nitrogen Dioxide (NO <sub>2</sub> ), µg/m <sup>3</sup>	Particulate Matter	
				PM <sub>10</sub> , (µg/m <sup>3</sup> )	PM <sub>2.5</sub> , (µg/m <sup>3</sup> )
02.09.2024	N/24/09/3-0027	6	9	45	22
03.09.2024	N/24/09/3-0052	11	14	53	28
13.09.2024	N/24/09/4-0146	8	9	34	20
14.09.2024	N/24/09/4-0247	6	11	50	29
20.09.2024	N/24/09/5-0166	7	10	47	29
21.09.2024	N/24/09/5-0215	10	9	37	18
27.09.2024	N/24/09/6-0168	9	9	31	18
28.09.2024	N/24/09/6-0201	10	10	27	16
<b>Limits for Industrial ,</b>		<b>80</b>	<b>80</b>	<b>100</b>	<b>60</b>
<b>Residential, Rural and other Areas</b>		<b>24 Hrs</b>	<b>24 Hrs</b>	<b>24 Hrs</b>	<b>24 Hrs</b>

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### TEST REPORT

Table No. 8

#### AMBIENT AIR QUALITY

Name of the Client	: M/s. Vedanta Ltd.,
Name of the Project	: Block I - Bicholim Mineral Block Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa
Sample Collected by	: Environmental Laboratory (Unit of Mineral Engineering Services)
Station at & Code	: A8, 4 Top office
Duration	: 24 Hrs
Issue date	: 03.10.2024
Reference	: IS 5182 & Lab SOP

Date of Sampling	Lab Code	Sulphur Dioxide (SO <sub>2</sub> ), µg/m <sup>3</sup>	Nitrogen Dioxide (NO <sub>2</sub> ), µg/m <sup>3</sup>	Particulate Matter	
				PM <sub>10</sub> , (µg/m <sup>3</sup> )	PM <sub>2.5</sub> , (µg/m <sup>3</sup> )
02.09.2024	N/24/09/3-0028	9	11	51	28
03.09.2024	N/24/09/3-0053	7	12	43	28
13.09.2024	N/24/09/4-0147	7	11	42	24
14.09.2024	N/24/09/4-0248	9	13	38	18
20.09.2024	N/24/09/5-0167	10	13	28	16
21.09.2024	N/24/09/5-0216	11	10	43	24
27.09.2024	N/24/09/6-0169	7	11	28	18
28.09.2024	N/24/09/6-0202	10	12	38	19
<b>Limits for Industrial ,</b>		<b>80</b>	<b>80</b>	<b>100</b>	<b>60</b>
<b>Residential, Rural and other Areas</b>		<b>24 Hrs</b>	<b>24 Hrs</b>	<b>24 Hrs</b>	<b>24 Hrs</b>

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### TEST REPORT

Table No. 9

#### Fugitive Emission

Name of the Client : M/s. Vedanta Ltd.,		
Name of the Project : Block I - Bicholim Mineral Block Bicholim, Bordem, Langao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa		
Sample Collected by : Environmental Laboratory (Unit of Mineral Engineering Services)		
Station at & Code : FA1, Crushing and screening & Ore Stacking- NSP		
Duration : 24 Hrs		
Issue date : 03.10.2024		
Reference IS 5182 & Lab SOP		
Date of sample	Lab Code	Particulate mater ( $\mu\text{g}/\text{m}^3$ )
02.09.2024	N/24/09/3-0029	256
03.09.2024	N/24/09/3-0054	186
13.09.2024	N/24/09/4-0148	156
14.09.2024	N/24/09/4-0249	244
20.09.2024	N/24/09/5-0168	245
21.09.2024	N/24/09/5-0217	263
27.09.2024	N/24/09/6-0170	185
28.09.2024	N/24/09/6-0203	212
Ref : Environmental (Protection) Rules, 2010 (Sixth Amendment)		Particulate mater ( $\mu\text{g}/\text{m}^3$ )
Permissible limits for Fugitive Emissions		1200 $\mu\text{g}/\text{m}^3$

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### TEST REPORT

Table No. 10

#### Fugitive Emission

Name of the Client : M/s. Vedanta Ltd.,		
Name of the Project : Block I - Bicholim Mineral Block Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa		
Sample Collected by : Environmental Laboratory (Unit of Mineral Engineering Services)		
Station at & Code : FA2, Mine Face- 5 top Common Boundary		
Duration : 24 Hrs		
Issue date : 03.10.2024		
Reference IS 5182 & Lab SOP		
Date of sample	Lab Code	Particulate mater ( $\mu\text{g}/\text{m}^3$ )
02.09.2024	N/24/09/3-0030	235
03.09.2024	N/24/09/3-0055	212
13.09.2024	N/24/09/4-0149	166
14.09.2024	N/24/09/4-0250	175
20.09.2024	N/24/09/5-0169	254
21.09.2024	N/24/09/5-0218	238
27.09.2024	N/24/09/6-0171	155
28.09.2024	N/24/09/6-0204	185
Ref : Environmental (Protection) Rules, 2010 (Sixth Amendment)		Particulate mater ( $\mu\text{g}/\text{m}^3$ )
Permissible limits for Fugitive Emissions		1200 $\mu\text{g}/\text{m}^3$

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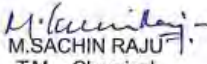
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### TEST REPORT

Table No. 11

#### Fugitive Emission

Name of the Client : M/s. Vedanta Ltd.,		
Name of the Project : Block I - Bicholim Mineral Block Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa		
Sample Collected by : Environmental Laboratory (Unit of Mineral Engineering Services)		
Station at & Code : FA3, Dumping- 5 Top		
Duration : 24 Hrs		
Issue date : 03.10.2024		
Reference IS 5182 & Lab SOP		
Date of sample	Lab Code	Particulate mater ( $\mu\text{g}/\text{m}^3$ )
02.09.2024	N/24/09/3-0031	288
03.09.2024	N/24/09/3-0056	233
13.09.2024	N/24/09/4-0150	223
14.09.2024	N/24/09/4-0251	211
20.09.2024	N/24/09/5-0170	325
21.09.2024	N/24/09/5-0219	287
27.09.2024	N/24/09/6-0172	212
28.09.2024	N/24/09/6-0205	196
Ref : Environmental (Protection) Rules, 2010 (Sixth Amendment)		Particulate mater ( $\mu\text{g}/\text{m}^3$ )
Permissible limits for Fugitive Emissions		1200 $\mu\text{g}/\text{m}^3$

  
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# ANNEXTURE -1

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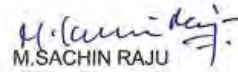
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### TEST REPORT

Table No. 12

#### Fugitive Emission

Name of the Client : M/s. Vedanta Ltd.,		
Name of the Project : Block I - Bicholim Mineral Block Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa		
Sample Collected by : Environmental Laboratory (Unit of Mineral Engineering Services)		
Station at & Code : FA4, Haul road- at 4 Top		
Duration : 24 Hrs		
Issue date : 03.10.2024		
Reference IS 5182 & Lab SOP		
Date of sample	Lab Code	Particulate mater ( $\mu\text{g}/\text{m}^3$ )
02.09.2024	N/24/09/3-0032	269
03.09.2024	N/24/09/3-0057	220
13.09.2024	N/24/09/4-0151	168
14.09.2024	N/24/09/4-0252	215
20.09.2024	N/24/09/5-0171	285
21.09.2024	N/24/09/5-0220	264
27.09.2024	N/24/09/6-0173	205
28.09.2024	N/24/09/6-0206	220
Ref : Environmental (Protection) Rules, 2010 (Sixth Amendment)		
Permissible limits for Fugitive Emissions		Particulate mater ( $\mu\text{g}/\text{m}^3$ ) 1200 $\mu\text{g}/\text{m}^3$

  
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### TEST REPORT

<b>Name of the Client</b>		: M/s. Vedanta Limited					
<b>Name of the Project</b>		: Block I - Bicholim Mineral Block					
		Bicholim, Borden, Lamgao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa					
<b>Sample Collected by</b>		: Environmental Laboratory (Unit of Mineral Engineering Services)					
<b>Particulars of sample collected</b>		: GW1 - Well water Bicholim (Anand Mulgaudi), GW2 - Well water Lamgao village (Santosh dewari), GW3 - Well water Mulgao village (Vitthal Sathu House)					
<b>Date of sample collection</b>		: 21.09.2024					
<b>Issue Date</b>		: 30.09.2024					
<b>Ref</b>		: IS:10500-2012 Norms Amendment - 4 (Drinking Water Standards)					
Sl. No.	Sample Code	GW1	GW2	GW3	Desirable Limits	Permissible Limits	Method of Testing
	Lab Code	N/24/09/5-0267	N/24/09/5-0268	N/24/09/5-0269			
	Parameters	Results					
1	Colour (Hazen Units)	<1	<1	<1	5	15	IS:3025 (P-4) 2021
2	pH Value	5.82	5.55	5.62	6.5 to 8.5	6.5 - 8.5	IS:3025 (P-11) 2022
3	Turbidity,NTU, Max	1.7	1.4	3.0	1	5	IS:3025 (P-10)1984 RA 2017
4	Electrical Conductivity (µmhos/cm)	124.0	68.0	72.0	—	—	IS 3025 (P-14)
5	Total Dissolved Solids,mg/l, Max	66.0	36.0	40.0	500	2000	IS 3025 (P-16)1984 RA2017
6	Total Suspended Solids, mg/l	2.0	2.0	4.0	—	—	IS 3025 (P-17) 2022
7	Calcium (as Ca),mg/l, Max	3.20	2.40	3.20	75	200	IS:3025 (P-40)1991 RA 2019
8	Chloride as Cl (mg/l),mg/l, Max	16.00	18.00	14.00	250	1000	IS 3025 (P-32) 1988 RA 2019
9	Iron (as Fe),mg/l, Max	<0.005	<0.005	<0.005	1.0	1.0	IS:3025 (Part-2) 2019
10	Magnesium (as Mg)mg/l, Max	1.94	1.45	1.40	30	100	IS:3025 (P-46)1994 RA 2019
11	Manganese (as Mn),mg/l, Max	<0.001	<0.001	<0.001	0.1	0.3	IS:3025 (P-2) 2019
12	Nitrates (as NO <sub>3</sub> ),mg/l, Max	2.86	1.46	2.12	45	45	IS:3025 (P-34) Sec 1 2023
13	Sulphates (as SO <sub>4</sub> ),mg/l, Max	20.00	7.20	4.00	200	400	IS:3025 (P-24) Sec 1 2022
14	Alkalinity (as CaCO <sub>3</sub> ) mg/l, Max	16.00	10.00	12.00	200	600	IS:3025 (P-23);1986 RA 2019
15	Total Hardness (as CaCO <sub>3</sub> ),mg/l,Max	32.0	16.0	20.00	200	600	IS:3025 (P-21);2009 RA 2019
16	Escherichia coli/100ml	Not Detected	Not Detected	Not Detected	Shall not be detectable in any 100ml Sample		IS:15185:2016 RA 2021
17	Total Coliform /100ml)	Not Detected	Not Detected	Not Detected			IS:15185:2016 RA 2021
18	Water levels in well from surface (m)	8.4	2.3	3.2	—	—	—

  
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### TEST REPORT

Name of the Client		: M/s. Vedanta Limited				
Name of the Project		: Block I - Bicholim Mineral Block				
		Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirgao villages, Bicholim Taluka, North Goa				
Sample Collected by		: Environmental Laboratory (Unit of Mineral Engineering Services)				
Particulars of sample collected		: GW4 - Well water Pilgao village, (Gajanand Chari)				
		GW5 - Well water Mayem village				
Date of sample collection		: 21.09.2024				
Issue Date		: 30.09.2024				
Ref		: IS:10500-2012 Norms Amendment - 4 (Drinking Water Standards)				
Sl. No.	Sample Code	GW4	GW5	Desirable Limits	Permissible Limits	Method of Testing
	Lab Code	N/24/09/5-0270	N/24/09/5-0271			
	Parameters	Results				
1	Colour (Hazen Units)	1	<1	5	15	IS:3025 (P-4) 2021
2	pH Value	5.58	5.56	6.5 to 8.5	6.5 - 8.5	IS:3025 (P-11) 2022
3	Turbidity,NTU, Max	2.2	1.6	1	5	IS:3025 (P-10)1984 RA 2017
4	Electrical Conductivity (µmhos/cm)	60.0	66.0	-	-	IS 3025 (P-14)
5	Total Dissolved Solids,mg/l, Max	32.0	36.0	500	2000	IS:3025 (P-16)1984 RA2017
6	Total Suspended Solids, mg/l	4.0	3.6	-	-	IS 3025 (P-17) 2022
7	Calcium (as Ca),mg/l, Max	3.70	4.00	75	200	IS:3025 (P-40)1991 RA 2019
8	Chloride as Cl (mg/l),mg/l, Max	14.00	16.00	250	1000	IS:3025 (P-32) 1988 RA 2019
9	Iron (as Fe),mg/l, Max	<0.005	<0.005	1.0	1.0	IS:3025 (Part-2) 2019
10	Magnesium (as Mg),mg/l, Max	<1.0	<1.0	30	100	IS:3025 (P-46)1994 RA 2019
11	Manganese (as Mn),mg/l, Max	<0.001	<0.001	0.1	0.3	IS:3025 (P-2) 2019
12	Nitrates (as NO <sub>3</sub> ),mg/l, Max	<1.0	1.80	45	45	IS:3025 (P-34) Sec 1 2023
13	Sulphates (as SO <sub>4</sub> ),mg/l, Max	<1.0	<1.0	200	400	IS:3025 (P-24) Sec 1 2022
14	Alkalinity (as CaCO <sub>3</sub> ),mg/l, Max	10.00	12.0	200	600	IS:3025 (P-23):1986 RA 2019
15	Total Hardness (as CaCO <sub>3</sub> ),mg/l,Max	12.0	14.0	200	600	IS:3025 (P-21):2009 RA 2019
16	Escherichia coli/100ml	Not Detected	Not Detected	Shall not be detectable in any 100ml Sample		IS:15185:2016 RA 2021
17	Total Coliform /100ml)	Not Detected	Not Detected	Shall not be detectable in any 100ml Sample		IS:15185:2016 RA 2021
18	Water Levels in well from surface (m)	2.5	6.8	-	-	

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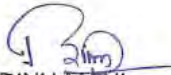
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### TEST REPORT

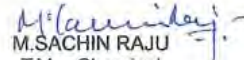
Name of the Client	: M/s. Vedanta Limited				
Name of the Project	: Block I - Bicholim Mineral Block				
	Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa				
Sample Collected by	: Environmental Laboratory (Unit of Mineral Engineering Services)				
Particular of Sample Collected	: SW1 - Upstream Bicholim River, SW2 - Downstream Bicholim River				
Sample Collected by	: Environmental Laboratory (Unit of Mineral Engineering Services)				
Date of sampling	: 21.09.2024				
Issue Date	: 30.09.2024				
Ref:IS	: 2296, 1982 Class C Norms (Stream Water Standards)				

Sl.No.	Sample Code	SW1	SW2	Limits For Stream Water Standards	Method of Testing
	Lab Code	N/24/09/5-0263	N/24/09/5-0264		
	Parameters	Results			
1	Colour (Hazen Units),	10	15	300	IS:3025(P-4)2021
2	pH	6.61	6.75	6.5 to 8.5	IS 3025 (P-11) 2022
3	Turbidity,NTU	4.8	4	--	IS:3025 (P-10) 1984 RA 2017
4	Electrical Conductivity (µmhos/cm)	77	65	--	IS 3025 (P-14)
5	Total Dissolved Solids (TDS) mg/l	42	36	1500	IS 3025(Part-16)2023
6	Total Suspended Solids, mg/l	6	8	-	IS 3025 (P-17) 2022
7	Chlorides (as Cl), mg/l	18	14	600	IS:3025(Part-32) :1988RA2019
8	Total Hardness (as CaCO <sub>3</sub> ),mg/l	14	12	--	IS:3025 (P-21) 2009 RA 2019
9	Calcium (as Ca),mg/l,	3.2	2.6	--	IS:3025 (P-40)1991 RA 2019
10	Magnesium (as Mg) mg/l,	1.45	1.4	--	IS 3025 (P-2) 2019
11	Sulphates (as SO <sub>4</sub> ) mg/l	4.8	2.8	400	IS:3025(P-24)Sec 1 2022
12	Nitrates (as NO <sub>3</sub> ),mg/l	2.6	1.7	50	IS:3025 (P-34) Sec 1 2023
13	BOD [3 days at 27°C] mg/l	2.4	2.1	-	IS 3025 (P-44) 2014
14	COD, mg/l	16	8	-	IS 3025 (P-58) 2006 RA 2022
15	Iron (as Fe), mg/l	<0.005	<0.005	50	IS:3025(P-2) 2019
16	Manganese (as Mn), mg/l	<0.001	<0.001	-	IS 3025 (P-2) 2019
17	Dissolved Oxygen (as O <sub>2</sub> ), mg/l, Max	5.4	5.6	Min 4	IS:3025(Part-38)1989RA 2019
18	Oil & Grease, mg/l	<0.1	<0.1	0.1	IS:3025(Part 39)2021

  
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### TEST REPORT

Name of the Client	: M/s. Vedanta Limited
Name of the Project	: Block I - Bicholim Mineral Block
	Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa
Sample Collected by	: Environmental Laboratory (Unit of Mineral Engineering Services)
Particular of Sample Collected	: SW3 - Upstream Asnora River, SW4 - Downstream Asnora River
Sample Collected by	: Environmental Laboratory (Unit of Mineral Engineering Services)
Date of sampling	: 21.09.2024
Issue Date	: 30.09.2024
Ref:IS	: 2296, 1982 Class C Norms (Stream Water Standards)

Sl.No.	Sample Code	SW3	SW4	Limits For Stream Water Standards	Method of Testing
	Lab Code	N/24/09/5-0265	N/24/09/5-0266		
	Parameters	Results			
1	Colour (Hazen Units),	10	20	300	IS:3025(P-4)2021
2	pH	6.48	7.04	6.5 to 8.5	IS 3025 (P-11) 2022
3	Turbidity,NTU	12.6	20	--	IS:3025 (P-10) 1984 RA 2017
4	Electrical Conductivity (µmhos/cm)	55	550	--	IS 3025 (P-14)
5	Total Dissolved Solids (TDS) mg/l	30	310	1500	IS:3025(Part-16)2023
6	Total Suspended Solids, mg/l	14	32	-	IS 3025 (P-17) 2022
7	Chlorides (as Cl), mg/l	12	130	600	IS:3025(Part-32) ;1988RA2019
8	Total Hardness (as CaCO <sub>3</sub> ),mg/l	16	90	--	IS:3025 (P-21) 2009 RA 2019
9	Calcium (as Ca),mg/l,	3.2	20.0	--	IS:3025 (P-40)1991 RA 2019
10	Magnesium (as Mg) mg/l,	1.94	9.72	--	IS 3025 (P-2) 2019
11	Sulphates (as SO <sub>4</sub> ) mg/l	4.6	20.1	400	IS:3025(P-24)Sec 1 2022
12	Nitrates (as NO <sub>3</sub> ),mg/l	2.5	9.7	50	IS:3025 (P-34) Sec 1 2023
13	BOD [3 days at 27°C] mg/l	<3.0	<3.0	-	IS 3025 (P-44) 2014
14	COD, mg/l	8	16	-	IS 3025 (P-58) 2006 RA 2022
15	Iron (as Fe), mg/l	<0.005	<0.005	50	IS:3025(P-2) 2019
16	Manganese (as Mn), mg/l	<0.001	<0.001	-	IS 3025 (P-2) 2019
17	Dissolved Oxygen (as O <sub>2</sub> ), mg/l, Max	5.6	5.3	Min 4	IS:3025(Part-38)1989RA 2019
18	Oil & Grease, mg/l	<0.1	<0.1	0.1	IS:3025(Part 39)2021

  
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### TEST REPORT

Name of the Client	: M/s. Vedanta Limited
Name of the Project	: Block I - Bicholim Mineral Block
	Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa
Sample Collected by	: Environmental Laboratory (Unit of Mineral Engineering Services)
Particular of Sample Collected	: EDW1 - 1 Top Discharge (Bicholim Dhabdabha), EDW2 - 2 Top Discharge (Lamgao), EDW3 - 5 Top Discharge (Mulgao)
Sample Collected by	: Environmental Laboratory (Unit of Mineral Engineering Services)
Date of sampling	: 21.09.2024
Issue Date	: 30.09.2024

Sl. No.	Sample Code	EDW1	EDW2	EDW3	General Standards For Effluent Discharge of Environmental Pollutants	Method of Testing
	Lab Code	N/24/09/5-0260	N/24/09/5-0261	N/24/09/5-0262		
	Parameters	Results				
1	Colour (Hazen Units),	5	10	5	--	IS:3025(P-4)2021
2	pH	7.06	5.63	5.60	5-9.0	IS 3025 (P-11) 2022
3	Turbidity,NTU	10.8	4.5	3.8	--	IS:3025 (P-10) 1984 RA 2017
4	Electrical Conductivity (µmhos/cm)	63	45	40	--	IS 3025 (P-14)
5	Total Dissolved Solids (TDS) mg/l	34	25	22	--	IS 3025(P- 16)02022
6	Total Suspended Solids, mg/l	12.0	6.0	4.2	Non Rainy Day 50, Rainy Day 100	IS 3025 (P-17) 2022
7	Chlorides (as Cl), mg/l	14	10	8	1000	IS 3025 (P-32) 1988 RA 2019
8	Total Hardness (as CaCO <sub>3</sub> ),mg/l	16	8	6	--	IS:3025 (P-21) 2009 RA 2019
9	Calcium (as Ca),mg/l,	4	1.6	<1	--	IS.3025 (P-40)1991 RA 2019
10	Magnesium (as Mg) mg/l,	1.46	1	<1	--	IS 3025 (P-2) 2019
11	Sulphates (as SO <sub>4</sub> ) mg/l	4.2	1.8	1.1	1000	IS 3025 (P-24) Sec 1 2022
12	Nitrates (as NO <sub>3</sub> ),mg/l	<1	<1	<1	--	IS:3025 (P-34) Sec 1 2023
13	BOD [3 days at 27°C] mg/l	2.6	2	1.33	30	IS 3025 (P-44) 2014
14	COD, mg/l	16	8	8	250	IS 3025 (P-58) 2006 RA 2022
15	Iron (as Fe), mg/l	0.017	0.005	0.007	3	IS 3025 (P-2) 2019
16	Manganese (as Mn), mg/l	<0.001	<0.001	<0.001	2	IS 3025 (P-2) 2019
17	Dissolved Oxygen (as O <sub>2</sub> ), mg/l, Max	5.3	5.5	5.6	Min 4	IS:3025(Part-38)1989RA 2019
18	Oil & Grease, mg/l	<1.0	<1.0	<1.0	10	IS 3025 (P-39) 2021

*M. Sachin Raju*  
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## TEST REPORT NOISE LEVEL DATA

Table No 13

Report No : ELMES0192409

<b>Name of the Client</b>	: M/s. Vedanta Limited						
<b>Name of the Project</b>	: Block 1 - Bicholim Mineral Block Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa						
<b>Sample Collected by</b>	: Environmental Laboratory (Unit of Mineral Engineering Services)						
<b>Season</b>	: Post Monsoon Season, 2024						
<b>Date of monitoring</b>	: 20.09.2024						
<b>Issue Date</b>	: 03.10.2024						
Code No.	Monitoring stations	Day			Night		
		L <sub>min</sub>	L <sub>eq</sub>	L <sub>max</sub>	L <sub>min</sub>	L <sub>eq</sub>	L <sub>max</sub>
<b>Buffer zone</b>							
N1	Lamgao village	37.0	45.4	53.2	34.0	37.5	42.3
N2	Mulgao village	39.0	46.8	54.3	33.0	38.2	44.0
N3	Pilgao village	36.8	46.5	51.7	33.5	37.6	42.8
N4	Shirgao village	37.2	43.4	50.0	34.0	38.9	43.2
N5	Anil Naik House Near Sarmanas Jetty	38.0	46.1	54.0	34.3	38.6	45.0
<b>Corezone</b>							
N6	Mine Face- 5 top Common Boundary	40.5	50.0	58.0	35.0	42.3	51.0
N7	Dry Crushing and screening & Ore Stacking- NSP	42.0	54.0	63.0	34.2	44.0	53.0
N8	Haul road- at 4 Top	42.5	53.8	61.0	34.0	41.8	48.2
N9	Dumping- 5 Top	45.8	55.8	65.0	41.0	47.0	50.0
<b>Permissible limits as per ILO Code of Practice</b>				<b>Permissible Limits of Ambient</b>			
For Unprotected ear - 8 hrs working shift				<b>Noise Levels as per CPCB Guidelines</b>			
Warning limit - 85 dB(A)				Leq. Limit dB(A)			
Danger limit - 90 dB(A)				Day Night			
Worker not to be exposed for more than 115 dB(A)				Industrial areas 75 70			
With ear protection -				Commercial area 65 55			
130 dB(A) 'Impulse' or 120 dB(A) 'Fast'				Residential area 55 45			
No entry when noise level exceeds 140 dB(A)							

*M. Sachin Raju*  
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T.M. - Chemical

Govt. Analyst / Authorised Signatory

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**Note :** This report is subject to the terms and conditions mentioned overleaf.

## ANNEXTURE - 2

Vedanta Limited – Block I Bicholim Mineral Block

<b>CER Implementation progress FY 2024-2025</b>				
Sr. No.	Activities	1st Year budget (in lakhs)	Outreach - 1st year	For reporting period
<b>I</b>	<b>Agriculture Development</b>			
1	Support for agriculture rejuvenation by providing necessary inputs like Seeds, Fertilizer, ploughing, Fencing support etc. in Mayem, Mulgao, Piligao, Bicholim villages to benefit farmers. Farmers awareness and motivational workshop by involving Agriculture department and other experts.	10	100 farmers	Partially completed, benefited 82 farmers
2	Supplying water for irrigation of horticulture garden (Orchards of coconut, arecanut plantation ) in Mulgao village during non monsoon season.	0.6	20 farmers of Mulgao apprx. Area 7000m2	Completed
<b>II</b>	<b>Education</b>			
3	Educative wall Paintings in Govt. Primary Schools in Mulgao, Piligao, Sirigao, Mayem and Lamgao villages.	5	5 primary schools (170 students)	Q 4
4	Teaching learning kits and Sports kits to Government Primary Schools in Mulgao, Sirigao, Mayem, Lamgao, Bordem, Dabdaba and Piligao villages	3.5	6 primary schools	Q 4
6	Construction/Repair of Anganwadi building at Lamgao village	20	approx.20 children	Q 4
7	Computer Labs in 4 high Schools in the buffer zone	10.9	4 computer labs in 4 high schools	Lab established in 2 high schools Benefiting 500 students.
8	Construction of 2 classrooms in Vijayanand High school, Tikhajan-Mayem	20	500 students	Q 4
<b>III</b>	<b>Health Care Facilities</b>			

## ANNEXTURE - 2

9	<p>Mobile Health Van (MHU) catering to Mulgao, Mayem, Piligao, Lamgao and Sirigao villages providing basic medical care services at doorstep.</p> <p>Additionally 10 specialized health camps for women, children and elderly.</p>	30	Covering 5 villages	<p>Mobile health unit started.</p> <p>5 specialized camps for women, children &amp; old age people conducted with 507 people benefited.</p>
<b>IV</b>	<b>Skill Development</b>			
10	Start 2 computer skilling /vocational training centers in Mayem Panchayat and Bicholim Municipal Council offering courses Like DCA, Tally & GST, Web designing, Advance excel and DTP.	10	240 youth per year	2 computer skilling /vocational training centres in Mayem Panchayat and Bicholim Municipal Council
11	<p>10 Skill training workshops covering around 300 women self help group members on rural enterprise development.</p> <p>Creating 10 women enterprises</p>	6	250 SHG members	6 Skill training workshop covered of 200 participants.
	<b>Total</b>	<b>116</b>		

### A. Health

#### 1. Mobile Health Unit :-

The objective of the project is to provide quality health care access to the community across our areas of operation, also to improve overall health status of the community by catering to their day-to- day basic health needs. We are covering five villages close to our operations. (Pilgao, Mayem, Mulgao, Lamgao & Sirigao). Till September around 2,541 footfalls. Also we conducted 5 specialized camps for women, children & old age people 507 people benefited.

## ANNEXTURE - 2



### B. LIVELIHOOD

#### 1. Agriculture support :-

Under our Back to Farming Project we are helping the farmers to rejuvenate fallow paddy fields and continue in ongoing fields. Our assistance is mainly in the form of farm inputs like fertilizers & seeds. We provided seeds & fertilizers to around 82 farmers.



### C. Education :-

#### 1. Computer lab set up in high schools :-

We set up a fully equipped computer lab in two high school :- a) Ideal high school Piligao b) Our lady of grace high school, Bicholim. which is benefit more than 500 students of present batch and will continue to support upcoming batches of students as well. The objective of this initiative is to promote digital learning and provide computer education for the students.

## ANNEXTURE - 2



### Skilling :-

**1. Computer skilling /vocational training centers :-** To provide Computer training to unemployed youths from our operational area for enhancing their employment capability and secure livelihood, we started village computer training centers in collaboration of Vedanta Foundation. Currently we are running computer training centres at Bicholim & Mayem village.



**2. Skill training workshops for SHG :-** This project aims at the enhance technical capacity, entrepreneurship, and business skills of women through workshop vocational training program in different areas. The project has been aligned to the needs of the target beneficiaries as identified through the community mobilization, and in consideration of working towards strengthening of existing SHG.



### ANNEXURE 3

4.1 The Project Proponent shall create awareness among the local people working within the project area as well as its surrounding area on the ban of Single Use Plastic (SUP) in order to ensure the compliance of Notification published by MoEF&CC on 12/08/2021. A report, along with photographs, on the measures taken shall also be included in the six-monthly compliance report.

a. Posters displays at prominent places withing mine unit like admin building, canteen etc on ban of Single Use Plastic.



### ANNEXURE 3

b. Awareness sessions on ban on SUP in Bicholim Government High school (beneficiary: 35 studnets) and Sesa technical school at Sanquelim (beneficiary: 40 students)



Awareness session on ban on SUP in Sesa technical School



Nukkad natak/drama by Bicholim High School students at Bicholim Bus Stand – 26/09/2024



Bicholim Government High school

### ANNEXURE 3

c. SUP waste Cleanliness drives: carried out at Sarmanas Ferry village at Sarmanas, Hanuman Temple at Pilago Village, Ideal School at Pilgao village in Bicholim Taluka - 22/04/2024



d. Awareness session and interaction to all Supervisors and Work person on Single use plastic. Plastic collection drive conducted. - 22/04/2024



ANNEXTURE - 4

**Specific Condition 5.1 The Project Proponent should adopt the proper mitigation measures as proposed under EMP with budgetary provision of Rs 72 Cr. The adoption of mitigation measures and monitoring of the same as proposed in the EMP shall be done under the supervision of the qualified environmental personnel. The implementation status of the same shall be submitted to the Ministry's Regional Office.**

EMP Expenditure			
Description	Cost in Rs		Details
	Revenue	Capex	
GEN EXPENDITURE - ENVIRONMENT	12,76,873	1,74,12,309	Environment Monitoring Air, Water, Noise, Awareness and training. Capex: display board, CAAQMS, water monitoring stations
MINE RECLAMATION	1,71,000	-	Procurement of native and fruit bearing species of saplings and plantation and after care.
EROSION CONTROL	2,77,03,643	-	Laying of silpaulin on waste dumps, De silting of settling ponds (210000m3) , digging of trenches (7km), garland drains. Laying of geotextile final waste dumps of 2Ha.
WATER TREATMENT	4,93,100	-	Water treatment by lime(7 tons) magnasol(0.7 tons) and manpower
DUST SUPPRESSION	26,80,921	-	Hiring of tankers and road sweeping machine.
STATUTORY	27,67,700	-	CTE/CTO/membership fees for Hazardous wate disposal facility
HEALTH	2,25,375	-	Premedical test, Occupational health centre on mines
SAFETY	5,01,555	-	
<b>TOTAL</b>	<b>3,58,20,167</b>	<b>1,74,12,309</b>	
			<b>5,32,32,476</b>

**ANNEXTURE 5**

**Action plan for CER**

<b>Proposed physical targets for addressing issues raised in Public hearing as per MoEF&amp;CC, MOM dated 11/08/2023</b>					
<i>figures in INR Lakhs</i>					
<b>Sr. No.</b>	<b>Activities</b>	<b>3 Years Budget (Rs. In Lakhs)</b>	<b>Yearwise Physical targets &amp; Budget</b>		
			<b>Year1</b>	<b>Year2</b>	<b>Year3</b>
<b>I</b>	<b>Agriculture Development</b>				
1	Support for agriculture rejuvenation by providing necessary inputs like Seeds, Fertiliser, ploughing, Fencing support etc in Mayem, Mulgao, Piligao, Bicholim villages to benefit over 300 farmers. Farmers awareness and motivational workshop by involving Agriculture department and other experts.	45.00	100 farmers beneficiary 10 lakh	100 farmers beneficiary 15lakh	100 farmers beneficiary 20 lakh
2	Supplying water for irrigation of horticulture garden (Orchards of coconut, arecanut plantation ) in Mulgao village during non monsoon season.	1.80	20 farmers of Mulgao, apprx. Area 7000m2 0.6Lakh	20 farmers of Mulgao apprx. Area 7000m2 0.6Lakh	20 farmers of Mulgao apprx. Area 7000m2 0.6Lakh
<b>II</b>	<b>Education</b>				
3	Educative wall Paintings in 16 Govt. Primary Schools in Mulgao, Piligao, Sirigao, Mayem and Lamgao villages.	17.00	Benefit Govt.Primary School-Piligao, Govt.Primary School-Sirigao, Govt.Primary School-Lamgao, Govt.Primary School- Bordem & Govt.Primary School-Kantar Dabdaba villages. (170 students) 5lakh	Benefit Govt.Primary School-Bagwada, Mulgao Govt.Primary School-Manasbag Mulgao, Govt.Primary School- Shirodwadi Mulgao and Govt.Primary School-Bagwada, Piligao and Govt.Primary	Benefit Govt.Primary School-Bhavkai, Govt.Primary School- Kelbaiwada ,Govt.Primary School-Haturli, Govt.Primary School-Gaonkarwada, Govt.Primary School-Haldanwadi,

**ANNEXTURE 5**

				School-Mathwada Piligao (80 students) 5lakh.	and Govt.Primary School-Sikerim in Mayem-Vaiguinim Panchayat. (100 students) 7 lakh
4	Teaching learning kits and Sports kits to 16 Government Primary Schools in Mulgao, Sirigao, Mayem, Lamgao, Bordem, Dabdaba and Piligao villages	8.50	Benefit Govt.Primary School-Bhavkai, Govt.Primary School-Kelbaiwada ,Govt.Primary School-Haturli, Govt.Primary School- Gaonkarwada, Govt.Primary School- Haldanwadi, and Govt.Primary School-Sikerim in Mayem-Vaiguinim Panchayat. 3.5lakh	Benefit Govt.Primary School-Bagwada, Mulgao Govt.Primary School-Manasbag Mulgao, Govt.Primary School- Shirodwadi Mulgao and Govt.Primary School-Bagwada, Piligao and Govt.Primary School-Mathwada Piligao. (80 students) 2.5lakh	Benefit Govt.Primary School-Piligao, Govt.Primary School-Sirigao, Govt.Primary School-Lamgao, Govt.Primary School- Bordem & Govt.Primary School-Kantar Dabdaba villages. (170 students) 2.5lakh
5	Outdoor play equipments in Govt. Primary School Manasbag Mulgao.	1.00	-	Govt. Primary School Manasbag, Mulgao. (12 students) 1Lakh	-
6	Construction/Repair of Anganwadi building at Lamgao village	20.00	Construct/repair new building for anganwadi at Lamgao village.(approx.20 children) 20Lakh	-	-

**ANNEXTURE 5**

7	Computer Labs in 4 high Schools in the buffer zone	14.00	Each computer Lab will be provided with 10, computers, tables & chairs. Benefit 4 High Schools (~2800 students) namely- 1.Our lady of Grace High school-Bicholim, 2.Radhakrishana Vidyalaya - Bicholim,3.Ideal High school, Piligao and 4 Govt. High School Mulgao. 10.9lakh	Continue operation of all 4 computer labs in year 2. (benefitting ~2800 students) 1.5lakh	Continue operation of all 4 computer labs in year 3. (benefitting ~2800 students) 1.6Lakh
8	Construction of 2 classrooms in Vijayanand High school, Tikhajan-Mayem	20.00	Construct 2 classrooms in Vijayanand High School, Mayem. 20 Lakh	-	-
<b>III</b>	<b>Health Care Facilities</b>				
9	Mobile Health Van (MHU) catering to Mulgao, Mayem, Piligao, Lamgao and Sirigao villages providing basic medical care services at doorstep. Additionally 10 specialised health camps per year for women, children and elderly.	102.00	Weekly two MHU visits to each targetted village (5nos). 2 specialised health camps in each targetted village (5nos.) 30Lakh	Weekly two MHU visits to each targetted village (5nos). 2 specialised health camps in each targetted village (5nos.) 34Lakh	Weekly two MHU visits to each targetted village (5nos). 2 specialised health camps in each targetted village (5nos.) 38 Lakh
<b>IV</b>	<b>Skill Development</b>				
10	Start 2 computer skilling /vocational training centres in Mayem Panchayat and Bicholim Municipal Council offering courses Like DCA, Tally & GST, Web designing, Advance excel and DTP.	23.00	Centre will be equiped with 10 computers, chairs , tables, internet facility and trainer. Training 240 local youths. 10lakh	Operation of 2 computer skilling centres in year 2. Training 240 local youths. 6lakh	Operation of 2 computer skilling centres in year 3. Training 240 local youths. 7Lakhs

**ANNEXTURE 5**

11	10 Skill training workshops covering around 300 women self help group members on rural enterprise development. Creating 10 women enterprises	35.00	2 training workshops in each village namely Piligao, Mulgao, Mayem, Sirigao and Bicholim. 6Lakh	2 training workshops in each village namely Piligao, Mulgao, Mayem, Sirigao and Bicholim. Support 3 groups/individual for micro enterprises 12lakh	10 women enterprises from Piligao, Mulgao, Mayem, Piligao and Bicholim villages. 17lakh
<b>V</b>	<b>Infrastructure Development</b>				
12	Retaining wall to agriculture field of Satyavan Chodankar, Mulgao village	22.00	-	Retaining wall of 40m x5m area. 22lakhs	-
	<b>Total</b>	<b>309.30</b>	<b>116</b>	<b>99.6</b>	<b>93.7</b>