vedanta

sesa goa iron ore

Ref No.: VL/2016/CO-ECC- 1

Date: 24.05.2016

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

Sub: Six monthly compliance report of Codli Group of Iron Ore Mines (T.C. No. 70/52, T.C. No. 126/53 and T.C No.69/51), Goa for the period October 2015 to March 2016.

Respected Sir,

We are herewith submitting the condition wise compliance report as per the conditions laid down in the Environmental Clearance Letter No: J-11015/1133/2007-IA.II(M) dated 29/12/2008 for the period **October 2015 to March 2016.**

Thanking you,

Yours faithfully,

For Vedanta Ltd.

Vijaymehta

Mr. Vijay Mehta
Mines Manager
Codli Mines

Enclosed: Six monthly compliance report of Codli Group of Iron Ore Mine for the period of October 2015 to March 2016.

C.C: 1. Member Secretary, Goa State Pollution Control Board
2. CGWB

VEDANTA LIMITED (Formerly known as Sesa Sterlite Ltd/Sesa Goa Ltd.)
sesa goa iron ore: Sesa Ghor, 20 EDC Complex, Patto, Panjim, Goa – 403 001, India
T +91 0832 2460600 | Website: www.vedantalimited.com

Registered Office: Sesa Ghor, 20 EDC Complex, Patto, Panaji (Goa) - 403 001
CIN: L13209GA1965PLC000044

CODLI GROUP OF IRON ORE MINES

(T.C. No. 70/52, T.C. No. 126/53 and T.C No.69/51)

Production Capacity: 7.0 MTPA as per Environment Clearance, however the current production limit is 3.155 MTPA as per capping imposed by State Government

COMPLIANCE TO ENVIRONMENT CLEARANCE CONDITIONS

for the period October 2015 to March 2016

Environment clearance Letter No: J-11015/1133/2007-IA.II (M)

Dated : 29/12/2008

Issued By:

Ministry of Environment & Forests, Govt. of India,

under 2006 EIA Notification

Compliance report to conditions of environmental clearance issued by			
Ministry of Environment & Forests, Govt. of India, for Codli Group Of Iron Ore Mines (T.C. No. 70/52, T.C. No. 126/53 and T.C No.69/51)			
Letter No: J-11015/1133/2007-IA.II(M)			
Production: 7.0 MTPA as per Environment clearance, however the current production limit is 3.155 MTPA as per capping imposed by State Government			
Period – October 2015 to March 2016			
S. No	**Condition of clearance**	**Status of compliance**	**Remarks**
A.	**Specific Conditions**		
(I)	Environmental Clearance is subject to final order of the Hon'ble Supreme of India in the matter of Goa Foundation Vs. Union of India in Writ Petition (Civil) no. 460 of 2004, as may applicable to this project.	Noted.	
(ii)	Environment Clearance is subject to obtaining clearance under the Wildlife (Protection) Act, 1972 from the Competent Authority.	The provisions of Wildlife (Protection) Act, 1972 is not applicable as Codli Group of Mines does not fall within 1 km of Eco-sensitive Zones notified for the State of Goa.	

(iii)	The Three leases Viz. (i) Maindvolicho Sodo iron ore mine (ML area 99.79 ha, T.C No.69/51); (ii) Gadia sodo iron ore mine (ML area 100.0 ha, T.C. No126/53and (iii) Gurmel Iron Ore Mine (ML area 99.76, T.C. no. 70/52) Shall be amalgamated and no horizontal expansion of the mineral bearing areas other than the areas ear marked for 4.0 MTPA productions shall be carried out.	The letter requesting amalgamation has been submitted to DMG dated 15-10-2015.Mining is carried out as per approved mining plan.	
(iv)	No two pits shall be simultaneously worked i.e. before the first pit is exhausted and reclamation work completed, no mineral bearing area shall be worked.	Letter requesting Corrigendum in this condition has been sent to MoEF Dated 10/06/2009. Mining is carried out as per mining plan approved by Indian Bureau of Mines.	
(v)	After exhausting the first mine pit and before starting mining operations in the next pit, reclamation and plantation works in the exhausted pit shall be completed so as to ensure that reclamation, forest cover and vegetation are visible during the first year of mining operations in the next pit. This process will follow till the last pit is exhausted. Adequate rehabilitation of mined pit shall be completed before any new ore bearing area is worked for expansion.	Mining is carried out as per mining plan approved by Indian Bureau of Mines. Some of the exhausted mine pits are utilized to harvest and store rain water which is required for beneficiation and some exhausted pits are utilized for tailing disposal or back filling as approved in the mining plan.	The mine exists since 1970's much before the EIA notification came in place. The mine was always a multi pit operation. The same was informed to MoEF through EIA document and presentations during the grant of EC process.

(vi)	Adequate buffer zone shall be maintained between two consecutive mineral bearing deposits.	The mining is carried out as per the IBM approved mining plan.	
(vii)	Primary Survey of flora and fauna shall be carried out and data shall be submitted to the Ministry within six months.	The primary list of flora and fauna was submitted to MOEF as part of EIA document.	A detailed biodiversity management plan is being prepared in association with CEE. The study period is one year and final report awaited.
(viii)	Conservation plan for wildlife shall be prepared in consultation with the chief Wild Life Warden for implementation Within six months and before start of expansion activity. The plan shall consist of in-built monitoring and evaluation mechanism .Necessary fund for implementation of the same shall be separately allocated and shall not be diverted for any other activity.	Conservation plan for wild life has been prepared in consultation with state forest department and submitted to forest department. For conservation of Flora and fauna 60 lakhs have been allocated.	
(ix)	Zero waste mining concept shall be implemented either by putting up pelletisation plant or dispose off 100% low grade ores/ fines to prospective buyers.	Presently sub grade ore utilized by beneficiation and by blending to maximum possible and balance ore is stacked separately with proper protection for future use. Efforts are made for the utilization of the tailings and Low grade material of 45-50% of Fe. Possibilities are explored for utilizing the waste for the alternative use.	

(x)	Hydro-geological study of the area shall be reviewed annually. In case adverse effect on ground water quality and quantity is observed mining shall be stopped and resumed only after mitigating steps to contain any adverse impact on ground water is implemented. Specific hydro-geological shall be conducted at the end of mining plan period of the 5ith year of mining, before proceeding to undertake mining in the 6th year. The report shall be submitted to the Regional office of the ministry.	Yes, the hydro geological study is reviewed. CSIR- National Geophysical Research Institute has carried out a detailed hydro geological study of the area in February 2013 and as per the study there is no adverse impact on the ground water. Mining was stopped since 2012 following mining ban in the state of Goa and operation in Codli mines resumed in September 2015.	
(xi)	Fugitive dust generation shall be controlled. Fugitive dust emission shall be regularly monitored at locations of nearest human habitation (including schools and other public amenities located nearest to sources of dust generation as application) and records submitted to the Ministry.	The following measures are initiated for control of fugitive dust emission (1)Water sprinkling on mine haulage roads (2)Dumps are covered with geo-textiles and afforested with plants/ grasses which helps in minimizing the fugitive dust. (3)Drilling & blasting is mostly carried out during monsoon. Wet drilling is strictly followed (4)Ore carrying trucks plying on roads are covered with tarpaulin & free board is provided to prevent spillage. (5)Fixed type dust suppression system has been installed on main haulage road on the mine	

(xii)	Shelter belt i.e. Wind Break of 30 m width and consisting of at least 5 tiers around lease facing the school/ agricultural fields (if any in the vicinity) shall be raised.	Complied Green belt or shelter belt of more than 30m. Wide is developed along the lease periphery facing the school/ agricultural fields and habitation.	
(xiii)	A 50 m barrier of "no mining zone" all along both the sides (s) facing the nallah (if any) passing through the lease area shall be demarcated and thick vegetation of native species raised. Status of implementation shall be submitted to the Regional Office of the Ministry on half yearly basis.	No nallah is passing through the lease area.	
(xiv)	A 50 m barrier of "no mining zone "all along both the sides facing the Karmone River shall be demarcated and thick vegetation of native species raised . Status of implementation shall be submitted to the Regional Office of the Ministry on half yearly basis.	Complied Natural Green Barrier of thick vegetation of more than 50 meter has been maintained all along the Karmone river.	
(xv)	Need based assessment for the nearby villages shall be conducted to study economic measures which can help in upliftment of poor section of society. Income generating projects/ tools such as development of fodder farm, fruit bearing orchards Vocational training etc. can from a part of such programme. Company shall provide separate budget for community development activities and income generating programmes. This will be in addition to vocational training for individuals imparted to take up self employment and jobs.	Complied. Need based assessment studies for the nearby villages has been done through Centre for Development Planning and Research in the year 2007-08. As per the studies economic status of the areas is good. Based on this, various projects has been implemented with thrust on health (medical centre), education, agriculture, horticulture women empowerment., vocational training, income generation activities and SHG training water shed development Apart from this	The Expenditure for Community Development Projects for Financial year 2015-16 is attached as **Annexure-3.**

		a project titled Gram Nirman (Model village development scheme) – for Overall development of the Kirlapal- Dabhal Panchayat area in association with Govt. and NGO - Mineral Foundation of Goa is being implemented. Kirlapal - Dabhal panchayat is the first panchayat in Goa to win the president award. In addition to company run ITI school in North Goa, Company has started a new ITI school in South Goa. The unit has also conducted a baseline Socio Economic Survey in Peripheral Villages with the help of Society for Educational Welfare & Economic Development (SEED) in the year 2015. Based on the recommendations various projects has been planned such as Community Mobilization, Income Generation Program - Alternative Source of Income, Skill Development Training to Community Youth, In-school Intervention, Health Intervention, Social Infrastructure Development etc.	
(xvi)	Land- use pattern of the nearby villages shall be studied and action plan for abatement and compensation for damage to agricultural land / common property land (if any) in the nearby villages, due to mining activity shall be submitted to the Regional office of the Ministry within six months. Annual status of implementation of the plan and expenditure thereon shall be reported to the Regional Office of the	Land- Use pattern study has been done as a part of EIA studies and subsequently detailed baseline study is conducted. The baseline study apart from socio-economic details. The various socio-economic and common resource management programs were devised and implemented. Approx. Expenditure on various agriculture development and water shed programmes is	

	Ministry from time to time.	included in the community development budget.	
(xvii)	Maintenance of village roads through which transportation of ores are undertaken shall be carried out by the company regularly at its own expenses. The roads shall be black topped.	Complied. Company carries out maintenance of village roads which are used for transportation. The roads are black topped. Mine road meeting the public road is asphalted.	
(xviii)	Rain water harvesting shall be undertaken to recharge the ground water sources .Status of implementation shall be submitted to the Regional Office of the Ministry within six months and thereafter every year from the next consequent year.	Complied. Rain water harvesting is carried out within the mining lease area. The Exhausted mine pits are utilized for harvesting all the rain water falling within the lease area. The status of implementation is communicated to ministry on six monthly basis. Check dams are also constructed which aid in rain water percolation.	Pits are utilized as water reservoir for Beneficiation Plant and also as tailing ponds.
(xix)	Measures for prevention and control of soil erosion and management of silt shall be undertaken. Protection of dumps against erosion shall be carried out with geo textile matting or other suitable materials, and thick plantations of native trees and shrubs shall be carried out at the dump slopes. Dumps shall be protected by retaining walls.	Complied. Necessary protective measures to prevent the silt flow are implemented. Geo-textiles along with leguminous grasses are laid on the dump slope. Plantation of Native species is taken up on geo-textile laid areas. Retaining walls made of lateritic boulders are constructed at the toe of the dumps followed by series of settling ponds and bunds. The settling ponds are de-silted before the on-set of monsoons.	The Environmental Protective Measures for the year 2016-17 are in process and details of the same will be submitted in the next six monthly compliance report.
(xx)	Trenches/ garland drains shall be constructed at foot of dumps and coco filters installed at regular intervals to arrest slit from being carried to water bodies. Adequate number of Check Dams and Gully Plugs shall be constructed across seasons / perennial nallahs (if any) flowing through the ML	Complied. Garland drains are constructed on each dump step to channelize the water. ERW pipes are used to channelize the water from one step to other and finally in to the trenches at the toe of dump. Adequate number of check dams or	

	area and silts arrested. De-silting at regular intervals shall be carried out.	filter beds is provided within the trenches. The trenches are connected to series of settling ponds. The settling ponds are desilted every year before the onset of monsoon. Lateritic boulder wall are constructed all along the toe of the dump. No nallah passes through the ML area.	
xxi	Dump and sump capacity shall be designed keeping 50% safety margin over and above peak sudden rainfall (based on 50 years data) and maximum discharge in the area adjoining the mine site. Sump capacity shall also provide adequate retention period to allow proper settling of silt material. Sedimentation pits shall be constructed at the corners of the garland drains and deslited at regular intervals.	Complied. Garland drain of appropriate size, gradient and length is constructed for both mine pit and for waste. Sedimentation pits are constructed at the corners of the garland drains and de-silted at regular intervals.	
(xxii)	Ground water in the core zone shall be regularly monitored for contamination and depletion due to mining activity and records maintained. The monitoring data shall be submitted to the regional office of the Ministry regularly .Further , monitoring points shall be located between the mine and drainage in the direction of flow of ground water shall be set up and records maintained .	Complied. Monitoring of Ground water is done in the wells surrounding the lease area periodically and the reports are submitted to Ministry and SPCB regularly.	Graphical Representation of Ground Water Monitoring Results are attached as **Annexure-2**
(xxiii)	Fugitive dust generation shall be controlled .Fugitive dust emission shall be regularly monitored at locations at nearest human habitation (including schools and other public amenities located nearest to sources of dust generation as applicable)and records submitted to the Regional Office of	Complied. Fugitive dust emission is been monitored and the reports are sent to the MOEF and GSPCB. Following measures are initiated for control of fugitive dust emission 1) Water sprinkling is carried out to prevent the dust being	Graphical Representation of Air Monitoring Results are attached as **Annexure 1**

	the Ministry.	getting air borne (2)Dumps are covered with Lateritic waste, geotextiles and afforested with plants/ grasses which helps in minimizing the fugitive dust . 3) Drilling & blasting is mostly carried out during monsoon. Wet drilling is strictly followed. (4)Wheel wash system has been provided to contain the dust being carried on public road. (5) Ore carrying trucks plying on public road are covered with tarpaulin & free board is provided to prevent spillage. (6)Fixed type dust suppression system has been installed on main haulage road on the mine.	
(xxiv)	Cultivable waste land shall be identified and fodder farming or other suitable productive use of waste land shall be taken up in phased manner. Status of implementation shall be submitted to the Regional office of Ministry.	Complied. Efforts are made to create awareness through Panchayats and Self Help Group for identification of such land which can be brought under cultivation. Over the years, various such agricultural land (in Kalsai, Vagon, Bandol, Kirlapale villages) has been brought under . cultivation through our agricultural development programs in association with state agriculture department.	Total beneficiaries are 220 farmer families and area under cultivation is 26.63ha. (land earlier was fallow land). Various crop improvement methods are adopted on field e.g. SRI-systematic Rice intensification etc.
(xxv)	Monitoring of soil samples for assessment of transformation to acidic stage or contamination due to mining activity (as applicable) shall be regularly conducted and records maintained.	Complied. Soil analysis from adjoining agriculture lands is done regularly and records maintained at site.	

(xxvi)	Transportation of ore shall be done by covering the trucks with tarpaulin or other suitable mechanism so that no spillage of ore / dust takes place. Transportation shall be done only during day time.	Complied. All trucks plying out of mining premises are properly covered with tarpaulin. No transportation is carried out during night time.	
(xxvii)	Occupational health and safety measures for the workers including identification of work related health hazards, training on malaria eradication, HIV, and health effects on exposures to mineral dust etc. shall be carried out. The company shall engage a full time qualified doctor who is trained in occupational health. Periodic monitoring for exposure to Respirable mineral dust on the workers shall be conducted and records maintained including health records of the Workers. Awareness programme for workers on impact of mining on their health and precautionary measures like use of personal equipments etc. shall be carried out periodically. Review of impact of various health measures undertaken (at interval of five years of less) shall be conducted followed by follow up action wherever required.	Complied. The Company has employed a doctor who is Qualified in occupational health. Well equipped Occupational Health Centre is at the site to conduct the periodical medical examinations including Spirometry, Audiometry etc. Periodic monitoring is carried out for all the employees as per statutory requirement and all the health records are maintained. Awareness programs on Occupational Health & Safety Issues are organized for the employees. Also HIV/AIDS Awareness training is conducted by Doctors for the workers. Health surveillance of mine workers is conducted by Doctors and necessary advice is given after review of their health status.	
(xxviii)	Top soil/ solid waste shall be stacked properly with proper slope and adequate safeguards and shall be utilized for backfilling (wherever applicable) for reclamation and rehabilitation of mined out area. Top soil shall be separately stacked for utilization later for reclamation and shall not be stacked along with over burden.	There is no topsoil within the lease area, as entire area is broken up for mining activity.	

(xxix)	Over burden (OB) shall be stacked at earmarked dump sites (s) only and shall not be kept active for long period. The maximum height of the dump shall not exceed 30 m, each stage shall preferably be of 10 m and overall slope of the dump shall not exceed 28 degree. The OB dump shall be backfilled. The OB dumps shall be scientifically vegetated with suitable native species to prevent erosion and surface run off. Monitoring and management of rehabilitated areas shall continue until the vegetation becomes self -sustaining. Compliance status shall be submitted to the Ministry of Environment & Forest on six monthly basis.	OB is stacked at the earmarked dump sites as per the approved mining plan. Proper care is taken for scientifically stabilizing the dumps. Dumps are covered with Geotextile. Leguminous grass species like Styllosanthus scabra, Styllosanthus hamata is grown in the first year of dumping. In subsequent years the native species are planted on the same dump. Aftercare is provided and area is properly vegetated & maintained. Compliance is submitted on six monthly basis to Ministry.	
(xxx)	Slope of the mining bench and ultimate pit limit shall be as per the mining scheme approved by Indian Bureau of Mines.	Complied. It is implemented as per the mining plan approved by Indian Bureau of mines	
(xxxi)	Adequate plantation shall be raised in the Ml area , haul roads ,OB dump sites etc. Green belt development shall be carried out considering CPCB guidelines including selection of plant species and in consultation with the local DFO/ Agriculture Department. Herbs and shrubs shall also from a part of forestation programme besides tree plantation .The density of the trees not be less than 2500 plants per ha, The company shall involve local people with the help of self help group for plantation programme. Details of year wise afforestation programme including rehabilitation of mined out area shall be submitted to the Regional Office of the Ministry every year.	Complied. Plantation has been carried out for the green belt in and around the mining sites. Finalized dumps portions, roadsides, embankment are planted with mix of both fast growing and native species. Expert advice from forest department is sought. Herbs and shrubs of locality like glyricidia, karwand etc are planted along with forestry species. Plantation and providing after care to the plants is carried out with the help of local youths or the villagers from nearby location. Spacing of 2m *2m is maintained in between two saplings. Details of	

		afforestation programme submitted to ministry on regularly basis.	
xxxii	Regular monitoring of ground water level and quantity shall be carried out by establishing a network of existing wells and constructing new piezometers during the mining operation. The monitoring shall be carried out four times in a year - pre-monsoon (April-May), monsoon (August), post -monsoon (November) and winter (January) and the data thus collected shall be regularly sent to MOEF, Central Ground water Authority and Regional Director , Central Ground Water Board.	Complied. Monitoring of ground water is undertaken by establishing a network of existing wells and the reports are submitted to Ministry, CGWB and SPCB regularly.	Graphical Representation of Ground Water Monitoring Results are attached as **Annexure-2**
xxxiii	Status of tailing pond waste disposal and its management (including leachate) shall be regularly submitted to the Regional Office of the Ministry.	Tailings are disposed into exhausted mining pits and treated with lime and flocculants. Pit No 4: Almost reclaimed by backfilling with tailings, Pit No 7: Being utilized as tailing pond. The water is recycled and reused for process.	
(xxxiv)	Waste water from the Beneficiation plant shall be regularly tested for all relevant parameters (especially for heavy metals) and records maintained. The results shall be regularly submitted to the Regional Office of the Ministry.	Complied. There is no discharge of tailings outside the mine area. The tailings are treated and clean water is reused for beneficiation. The treated water if at all discharged outside the mine is analyzed and the results of water monitoring are regularly submitted to MoEF.	
(xxxv)	Adequate air monitoring stations shall be installed in areas of human habitations near the mine and the Beneficiation Plant and the results of ambient air quality shall be maintained and regularly submitted to the Regional Office of the	Complied. Air monitoring stations are installed in the areas of human habitation near mine and the	Graphical Representation of Air Monitoring results are attached as **Annexure 1**

	Ministry	Beneficiation Plant and the results of ambient air quality are maintained and regularly submitted to the Regional Office of Ministry.	
(xxxvi)	Electrical conductivity for tailing concentrate shall be regularly tested and the results submitted regularly to the Regional Office of the Ministry	The tailings are not discharged out of mines. However the mine pit discharge is analyzed regularly for EC and other parameters and report submitted to R.O. of MoEF.	
(xxxvii)	The Waste water from the mine and the Beneficiation plant shall be treated to confirm to the prescribe standards before discharging in to the natural stream. The discharged water from the Tailing Dam (if any) shall be regularly monitored and report submitted to the Ministry of Environment & Forest, Central Pollution Control Board and the State Pollution Control Board.	Complied. The discharge from beneficiation plant is channelized in to mine pits. The water is recycled and reused. There is no discharge of tailings outside the mine area. Monitoring of all the discharge points if any are carried out and results submitted to MoEF and SPCB.	
(xxxviii)	Vehicular emissions shall be kept under control and regularly monitored. Vehicles used for transportation of ores and others shall have valid permissions as prescribed under Central Motor Vehicle Rules, 1989 and its amendments .Transportation of ore shall be done only during day time . The vehicles transporting ores shall be covered with a tarpaulin or other suitable enclosures so that no dust particles / fine matters escape during the course of transportation. No overloading of ores for transportation shall be committed.	Complied Regular maintenance of company vehicles is carried out to keep a check on emissions. PUC check certificate of all the truck plying for the transportation of the ore is checked and kept as record. Trucks are weighed before the exit point to prevent the overloading. All trucks leaving mining premises is properly covered with	

	The trucks transporting ore shall not pass through wild life sanctuary.	tarpaulin .The transportation is carried out only during day time. No wild life sanctuaries fall in our transport routes. RFID is installed in all trucks which can scan and record truck details, cargo, weight of the truck etc.	
(xxxix)	Prior permission from the Competent Authority shall be obtained for extraction of ground water, if any.	No ground water extracted for mining purpose.	Permission from WRD for pumping water from Mine pit is obtained for Codli Mine via registration certificate No. WRD/WDXIII/miningpit/100/15-16/729 dated 19/08/2015.
(xxxx)	Action plan with respect to suggestion /improvements and recommendations made during consultation / hearing shall be submitted to the Ministry and the State Govt within six months.	Issues bought up during the public hearing have been addressed suitably in EIA report submitted to Ministry. The issues are taken care through our CSR activities.	
(xxxxi)	A final mine closure plan , along with details of Corpus Fund, shall be submitted to the Ministry of Environment & Forest ,5 years in advance of final mine closure for approval.	Final closure plan approved by Indian Bureau of mines would be submitted to MoEF in due course of time in accordance with rule 23C of MCDR	

B	GENERAL CONDITIONS		
S. No	**Condition of clearance**	**Status of compliance**	**Remarks**
i	No change in mining technology and scope of working shall be made without prior approval of the Ministry of Environment & Forest.	Complied. There is no change in mining technology and scope of working. Mining is carried out as per mining plan an approved by Indian Bureau of Mines	
ii	No change in the calendar plan including excavation, quantum of mineral and waste shall be made.	Mining is carried out as per mining plan approved by Indian Bureau of Mines	
iii	Fugitive dust emission from all the sources shall be controlled regularly. Water spraying arrangement on haul roads, loading and unloading and at transfer points shall be provided and properly maintained.	Complied (1) Water sprinkling is carried out to prevent the dust being getting air borne. (2)Dumps are covered with Lateritic waste, geotextiles and afforested with plants/ grasses which help in minimizing the fugitive dust. (3)Drilling & blasting is mostly carried out during monsoon. Wet drilling is strictly followed during the fair season. (4)Wheel wash system has been provided to contain the dust being carried on public road. (5) Ore carrying trucks plying on public road are covered with tarpaulin & free board is provided to prevent spillage. (6) A dry wheel wash is been constructed to prevent dust generation when transport trucks moves out of mine.	
iv	Four ambient air quality -monitoring stations shall be established in the core zone as well in the buffer zone for RPM, SPM,SO2,NOX monitoring data , topographical	Complied. Four Air monitoring stations are fixed within the core & buffer zone and monitored as per new Mining	Graphical Representation of the Air Monitoring results are attached as **Annexure 1**

	features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution control Board.	standards in core zone and NAAQ in buffer zone at the in-house environment laboratory approved by MOEF.	
v	Data on ambient air quality (RSPM, SPM, SO2, and NOX) Should be regularly submitted to the Ministry including its Regional office located at Bangalore and the State Pollution Control Board /Central Board /Central Board / Central Pollution Control Board once in six months.	It is regularly complied with.	
vi	Measures shall be taken for control of noise levels below 85 dB in the work environment .Workers engaged in operations of HEMM, etc . Shall be provided with ear Plugs /muffs.	Complied. Most of the dumpers & HEMM is with A/C cabins which minimize the impact of noise on operator. DG sets are provided with acoustic enclosures. All people working in mines are provided with requisite personal protective equipment's.	
vii	Industrial waste water (Workshop and waste water from the mine) should be properly collected treated so as to confirm to the standards prescribed under GSR 422(E) dated 19th May, 1993 and 31st December, 1993 or as amended from time to time. Oil and grease trap shall be installed before discharge of workshop effluents.	Treated effluent from the workshop & treated effluent of the beneficiation plant is analyzed periodically on monthly basis. Oil and grease trap is installed to treat work shop effluent.	

viii	Personnel working in dusty areas shall be provided with protective respiratory devices and they shall also be imparted adequate training and information on safety and health aspects.	Dust mask are provided to the personnel's exposed to dusty conditions. All the dumpers & HEMM are with A/C cabins. Regular on the job training on health and safety aspects is provided to all personnel working on mines.	
ix	Provision shall be made for the housing the laborers within the site with all necessary infrastructure and facilities such as fuel for cooking , mobile toilets , mobile STP, safe drinking water , medical health care , creche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.	No workmen/ labor stays in the mine lease area. To and fro transport arrangement is made for all the people working on mines.	
x	A separate Environment Management Cell with suitable qualified personnel shall be set - up under the control of a Senior Executive, who will report directly to the Head of the Organization.	Complied Environment cell has multidisciplinary staff, qualified in Occupational health, safety, environment and community development, headed by Head -HSE who reports to the CEO of the Company.	Chief Operating Officer (CEO) ↓ Krishna Kulkarni (Head, HSE) ↓ Jagdish Desai ↙ ↓ ↘ Sharon Sayadri Prachi

<table>
<tr><td>xi</td><td>The project authorities shall inform to the Regional Office of the Ministry located at Bangalore regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.</td><td>It is an ongoing mining project.</td><td></td></tr>
<tr><td>xii</td><td>The funds earmarked for environmental protection measures shall be kept in separate account and shall not be diverted for other purpose .Year wise expenditure shall be reported to the Ministry and its Regional Office located at Bangalore.</td><td>Complied

Expenditure for all the environmental measure / monitoring /reclamation etc. are separately earmarked in operational budget. Yearly expenditure on environment activities is submitted to ministry regional office.

The environmental expenditure for FY: 2015-16 for Codli Mines is:

<table><tr><td>1</td><td>Statutory Requirement</td><td>42610G</td><td>508380</td></tr><tr><td>2</td><td>Dust Suppression</td><td>42623G</td><td>2885765</td></tr><tr><td>3</td><td>General Expenses</td><td>42600G</td><td>115332</td></tr><tr><td>4</td><td>Mine Reclaimation</td><td>42620G</td><td>314918</td></tr><tr><td>5</td><td>Nursery Management</td><td>42624G</td><td>59081</td></tr><tr><td>6</td><td>Environmental Monitoring</td><td>42C07G</td><td>502990</td></tr><tr><td></td><td colspan="2">Total expenditure (in Rs.)</td><td>4386467</td></tr></table></td><td></td></tr>
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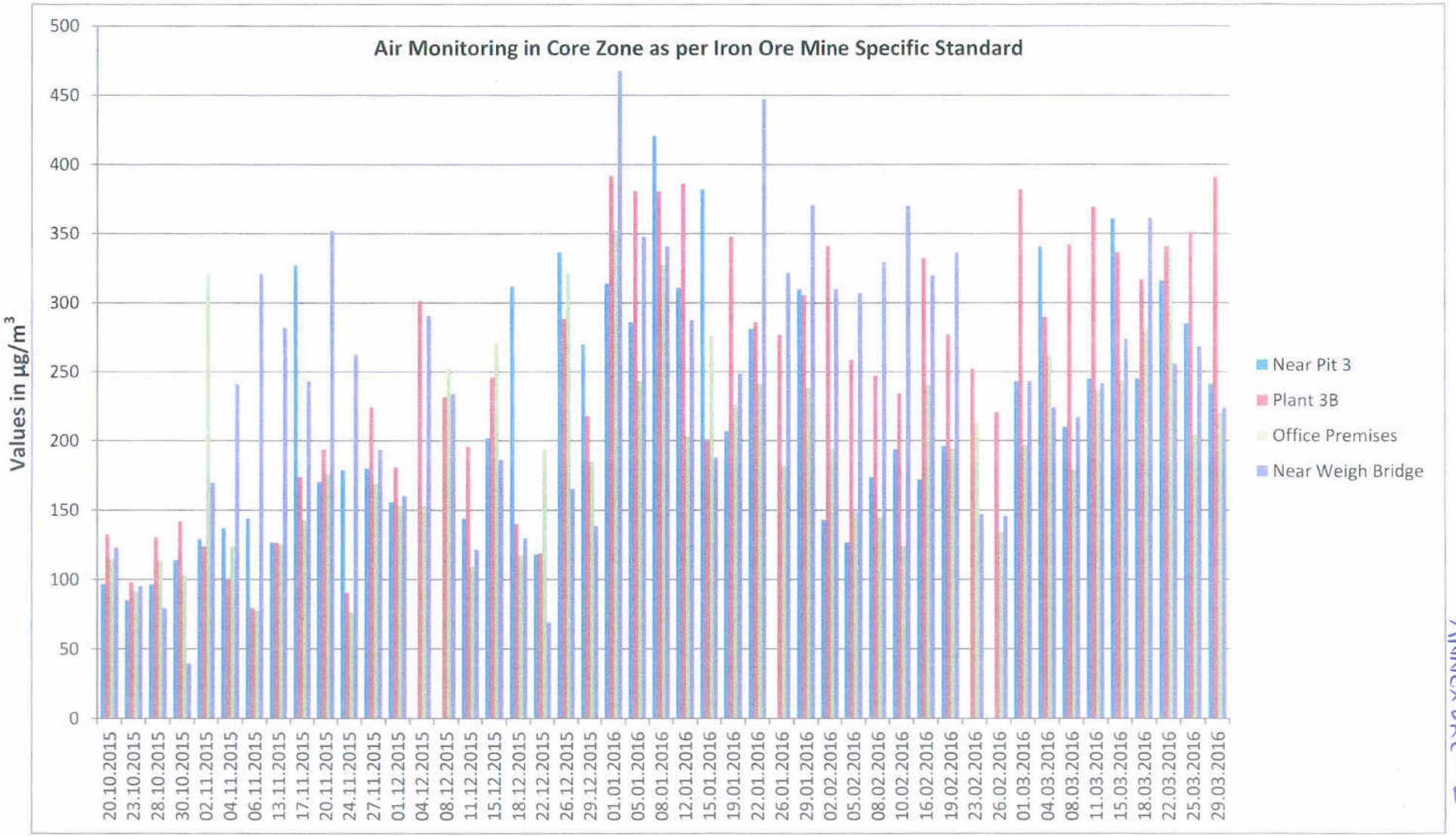
xiii	The project authorities shall inform to the Regional Office of the Ministry located at Bangalore regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.	It is an ongoing mining project.	
xiv	The Regional Office of the Ministry located at Bangalore shall monitor compliance of the stipulated conditions .The project authorities shall extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information /monitoring reports .	Necessary support shall be provided to the regional officer for the visit, furnishing requisite data etc.	
xv	A copy of clearance letter will be marked to concerned Panchayat /local NGO, if any, from whom suggestion / representation has been received while processing the proposal.	Is Submitted	
xvi	State Pollution Control Board shall display a copy of the clearance letter at the Regional office /Tehsildar's Office for 30 days.	--	
xvii	The project authorities shall advertise at least in two local newspaper widely circulated , one of which shall be in the vernacular language of the locality concerned , within 7 days of the issues of the clearance letter informing that the project has been accorded environment clearance and copy of the clearance letter is available with the State Pollution Control Board and also at web site of the Ministry if Environment and Forest at http://envfor.nic.in and a copy of the same shall be	Is complied	

	forwarded to the Regional Office of the Ministry located in Bangalore.		
5	The Ministry or any other competent authority may alter/modify the above conditions or stipulate any further conditions in the interest of environment protection.		
6	Concealing factual data or submission of false /fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provision of Environment (Protection) Act, 1986.		
7	Any appeal against this environment clearance shall lie with the National Environment Appellate Authority, if preferred, within a period of 30 days as prescribed under section 11 of the National Environment Appellate Authority Act, 1997.		
8	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.		

Ambient Air Quality Monitoring Report

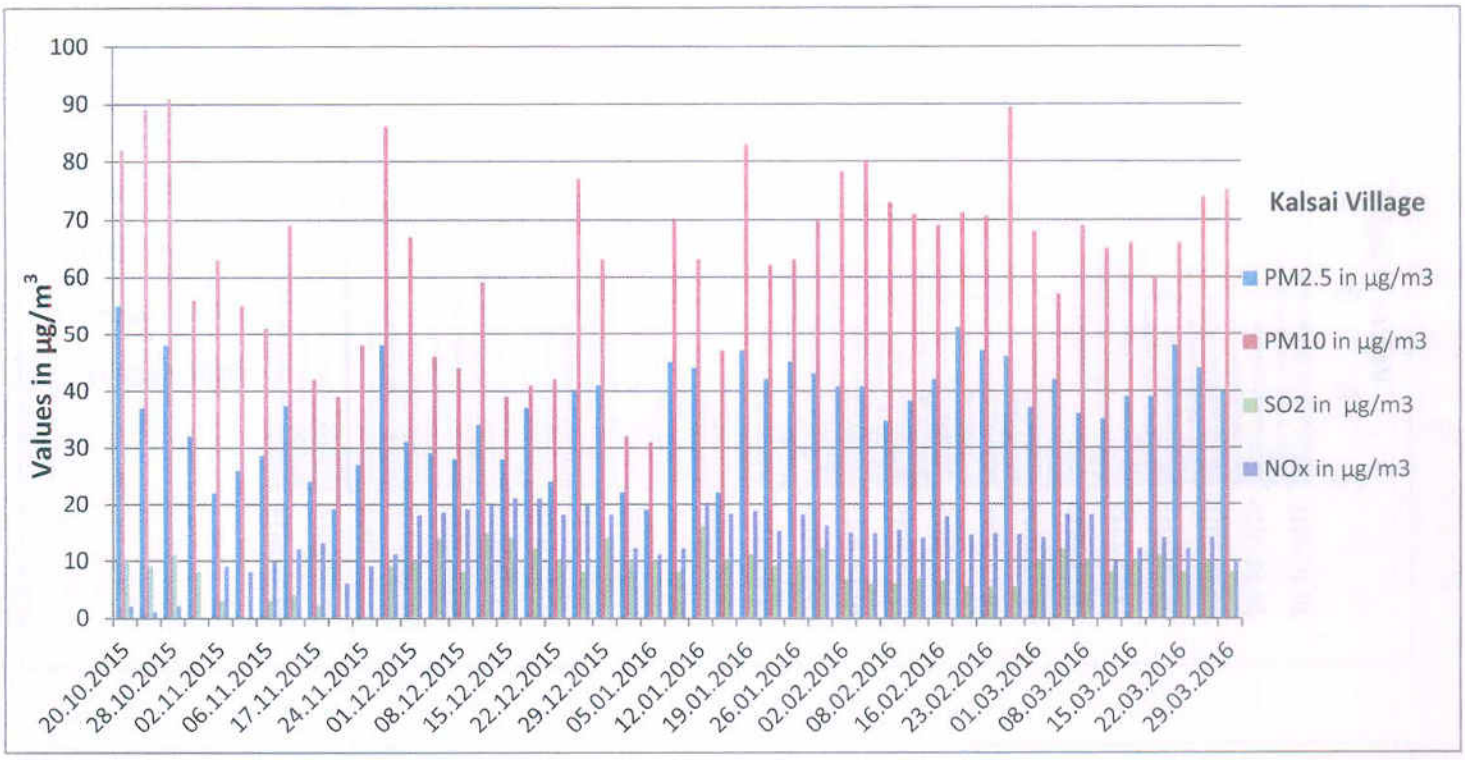
Codli Group of Iron Ore Mine

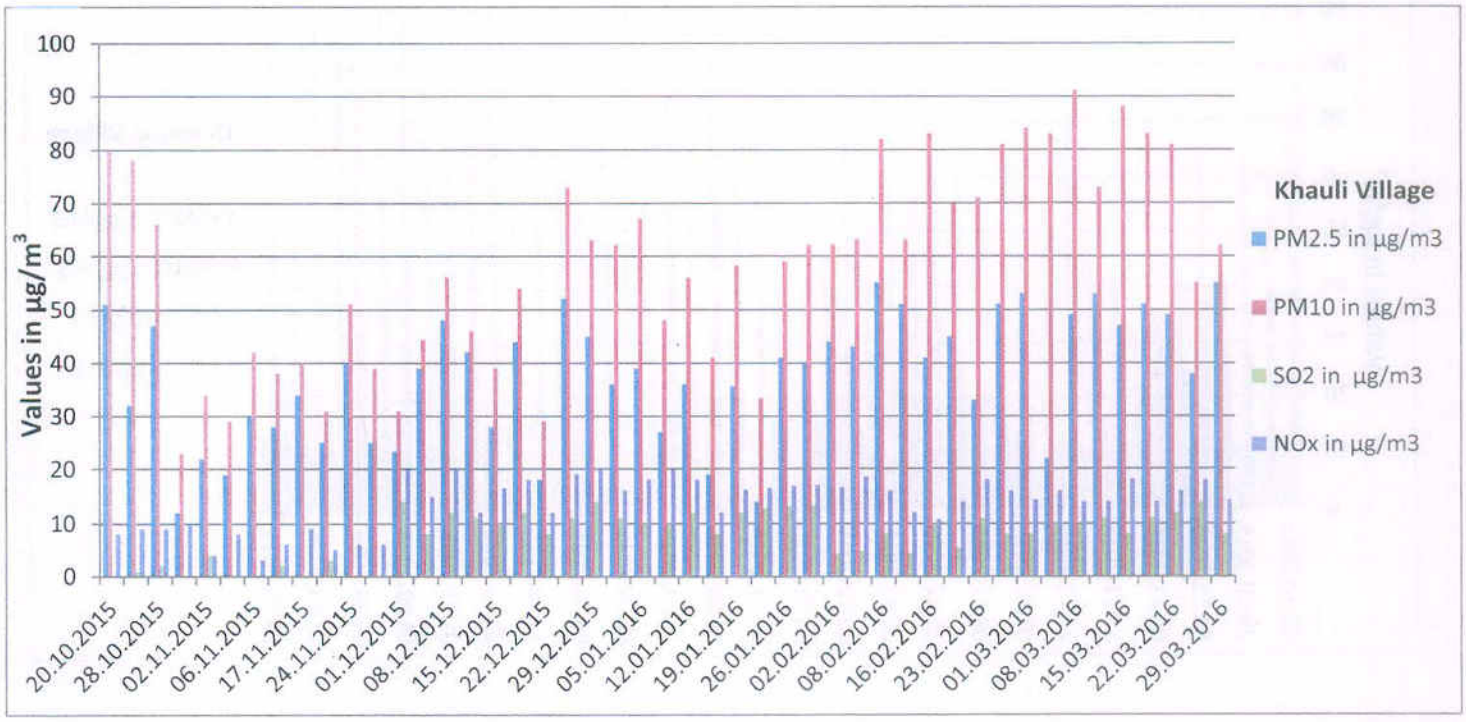


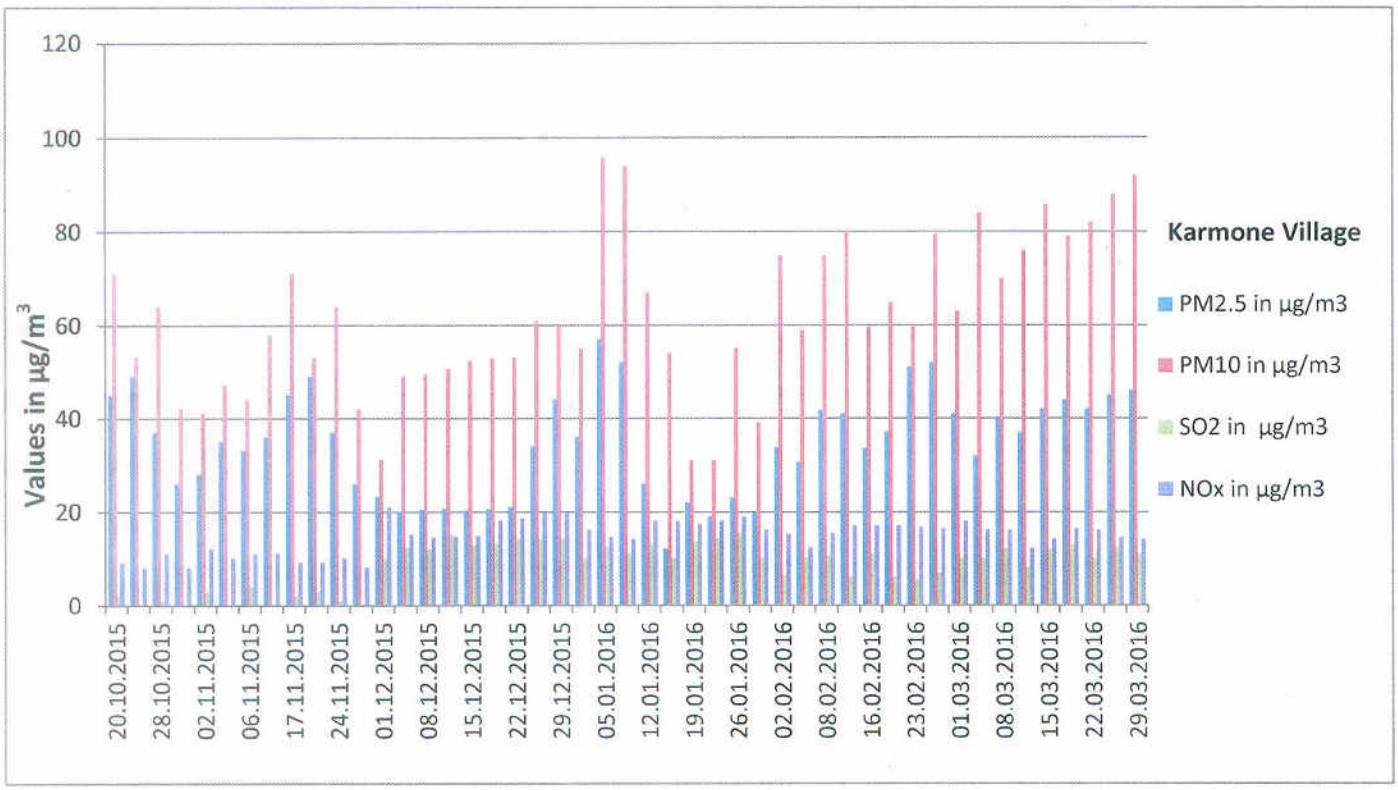
ANNEX URE - 1

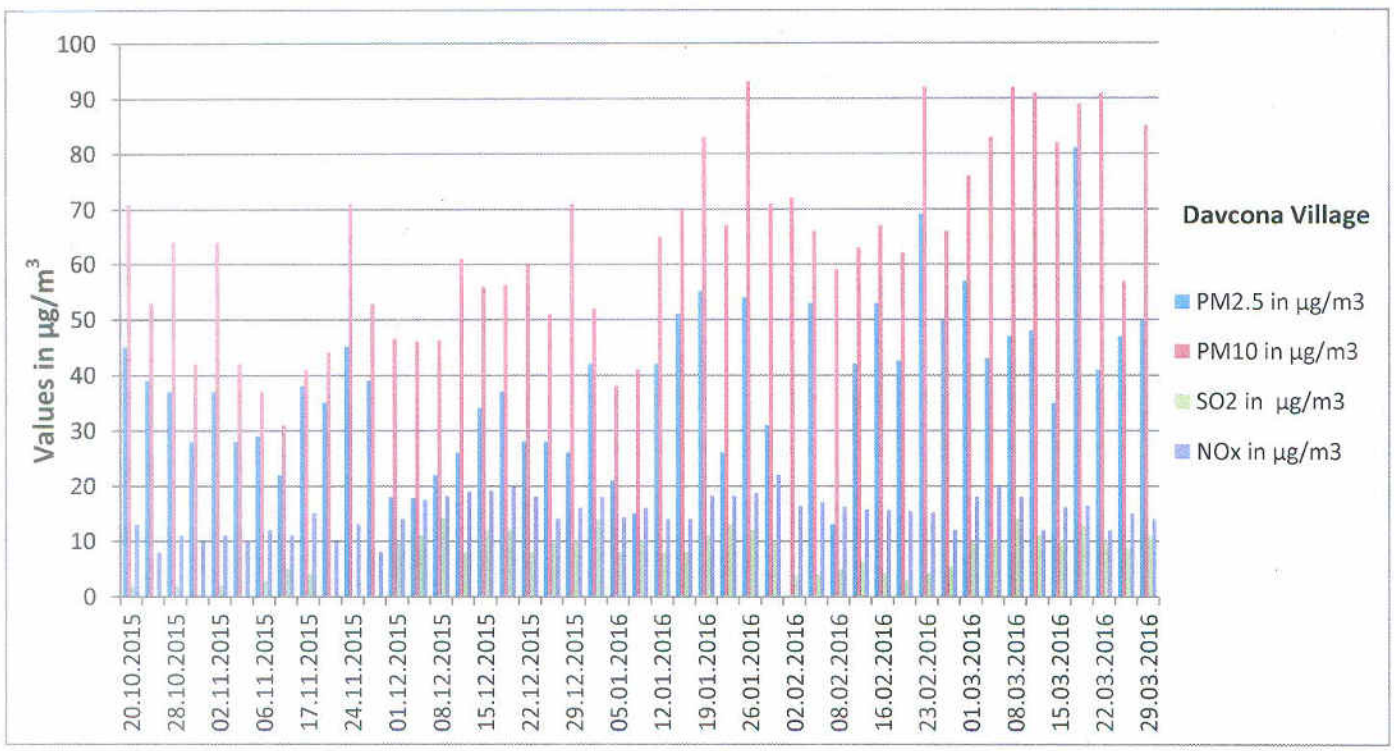
Ambient Air Quality Monitoring Report

Codli Group of Iron Ore Mine






Karmone Village
Values in µg/m3
PM2.5 in µg/m3
PM10 in µg/m3
SO2 in µg/m3
NOx in µg/m3
0
20
40
60
80
100
120
20.10.2015
28.10.2015
02.11.2015
06.11.2015
17.11.2015
24.11.2015
01.12.2015
08.12.2015
15.12.2015
22.12.2015
29.12.2015
05.01.2016
12.01.2016
19.01.2016
26.01.2016
02.02.2016
08.02.2016
16.02.2016
23.02.2016
01.03.2016
08.03.2016
15.03.2016
22.03.2016
29.03.2016


Davcona Village
Values in µg/m3
PM2.5 in µg/m3
PM10 in µg/m3
SO2 in µg/m3
NOx in µg/m3
0
10
20
30
40
50
60
70
80
90
100
20.10.2015
28.10.2015
02.11.2015
06.11.2015
17.11.2015
24.11.2015
01.12.2015
08.12.2015
15.12.2015
22.12.2015
29.12.2015
05.01.2016
12.01.2016
19.01.2016
26.01.2016
02.02.2016
08.02.2016
16.02.2016
23.02.2016
01.03.2016
08.03.2016
15.03.2016
22.03.2016
29.03.2016

Well Water Level Report

Codli Group of Iron Ore Mine

ANNEXURE -2

M/s Sesa Environment Laboratory
Janta Limited ,Mining Division ,Codli Mines,P.O. Kirlapale , 403727
Recognised by Ministry of Environment, Forests and Climate change, Govt. of India Vide Notification .S.O.137(E). Dated 12th January 2015, Valid up to 11.01.2020
* Certified by ISO 9001:2008, ISO 14001 :2004 and OHSAS 18001:2007

Surface Water Analysis Report for the Month of March 2016

Mine Name: Codli Mine
Date of Sample collection: 26/03/2016
Standard method used for analysis: APHA Standard

Date of Receipt of sample: 26/03/2016
Analysis completion date: 31/03/2016

Parameter	Unit	Permissible limits	Location					
			Upstream River Khandepar /Downstream River karmane	Mine water discharge	Downstream River Khandepar	Upstream River Kirlapal	Down Stream River Kirlapal	Up Stream River Karmone
Colour	Hazen	----	9	5	12	14	20	18
pH	----	5.5 to 9.0	6.95	7.08	7.11	6.75	6.99	6.9
Turbidity	NTU	----	1.03	1	1.43	1.26	1.98	1.83
Dissolved Solids	mg/lit	----	39	22	40	43	52	33
Conductivity	µS/cm	----	78	44	80.8	86	104	66
Suspended Solids	mg/lit	50	2	2	2	2	2	2
Chlorides	mg/lit	----	5.8	4.8	5.8	6.8	5.8	5.8
Total Hardness as $CaCO_3$	mg/lit	----	30	18	32	32	38	26
Calcium as Ca^{++}	mg/lit	----	8.0	4.8	8.0	7.2	9.6	6.4
Magnesium as Mg^{++}	mg/lit	----	2.4	1.5	2.9	3.4	3.4	2.4
Sulphate as SO_4	mg/lit	----	1.0	1.3	2.0	1.4	1.6	1.2
Phosphate as PO_4	mg/lit	5	BDL	BDL	0.10	0.1	0.1	0.08
Nitrate as NO_3	mg/lit	10	0.10	0.08	0.1	0.14	0.1	0.1
B.O.D (3days, 27°C)	mg/lit	30	<3	<3	<3	<3	<3	<3
C.O.D	mg/lit	250	29	10	20	10	10	20
Total Iron	mg/lit	3	0.13	0.20	0.11	0.19	0.23	0.13
Manganese as Mn	mg/lit	2	BDL	BDL	BDL	BDL	0.01	BDL
D.O	mg/lit	----	6	5	6	6	6	6
Oil & Grease	mg/lit	10	<1	<1	1	1.2	<1	<1

Note:- There is no water discharge from following points:

Discharge from Dump 4; Discharge from Dump 9 (Talaulikar Side); Discharge from Dump9 -Figredo Side; Discharge from Dump 9 - RI Plant side & Discharge Towards Kalsai

BDL- Below Detection Limit .

Govt. Analyst

ENVIRONMENT LABORATORY * SESA * sesa sterlite

for Laboratory Incharge

M/s Sesa Environment Laboratory

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

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* Certified by ISO 9001:2008, ISO 14001 :2004 and OHSAS 18001:2007

Well Water Analysis Report

Mine Name: Codli Mine
Date of Sample collection :26.03.2016
Standard method used for analysis: APHA Standard

Date of Receipt of sample:26.03.2016
Analysis completion date:31.03.2016

Parameter	Unit	Permissible Limit	Location			
			Nursery Well	Wagona Well	Vishnu Naik Well	Inha's Well
Colour	Hazen	<5	<5	<5	<5	<5
pH	-	6.5-8.5	5.96	6.29	6.10	6.13
Turbidity	NTU	5	1.83	1.98	0.99	1.36
Conductivity	µs/cm	-	38	42	34.6	32
Dissolved Solids	mg/lit	500	19	21	17.3	16
Suspended Solids	mg/lit	-	1	2	1	2
Chloride	mg/lit	250	6.8	8.7	4.8	6.8
Total Hardness as CaCO3	mg/lit	200	10	12	8	8
Calcium as Ca++	mg/lit	75	3.2	4.0	1.6	2.4
Magnesium as mg++	mg/lit	30	0.49	0.49	0.97	0.49
Sulphate as SO4	mg/lit	200	1.0	1.2	1.0	1.0
Nitrate as NO3	mg/lit	45	0.1	0.1	0.1	0.1
Alkalinity	mg/lit	200	9	10	5	12
Iron as Fe	mg/lit	0.3	0.02	0.11	0.11	0.12
Manganese as Mn	mg/lit	0.1	BDL	BDL	BDL	BDL
MPN/100ml	mg/lit	Absent	6	21	10	38

BDL- Below Detection Limit

Govt. Analyst

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for **Laboratory Incharge**

M/s Sesa Environment Laboratory

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

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Surface Water Analysis Report for the Month of February 2016

Mine Name: Codli Mine
Date of Sample collection: 27/02/2015
Standard method used for analysis: APHA Standard

Date of Receipt of sample: 27/02/2016
Analysis completion date: 03/03/2016

Parameter	Unit	Permissible limits	Location					
			Upstream River Khandepar /Downstream River karmane	Mine water discharge	Downstream River Khandepar	Upstream River Kirlapal	Down Stream River Kirlapal	Up Stream River Karmone
Colour	Hazen	----	18	7	28	48	49	44
pH	----	5.5 to 9.0	7.31	7.14	7.13	6.93	7.28	6.89
Turbidity	NTU	----	1.52	4.95	2.35	5.11	12.48	2.15
Dissolved Solids	mg/lit	----	39.7	23.3	40.6	42.9	59	32.2
Conductivity	µS/cm	----	79.5	46.6	81.2	85.7	118	64.4
Suspended Solids	mg/lit	100	2	2	2	2	2	2
Chlorides	mg/lit	----	5.8	5.8	5.8	6.8	5.8	4.8
Total Hardness as $CaCO_3$	mg/lit	----	32	16	34	34	50	24
Calcium as Ca^{++}	mg/lit	----	8.8	4	8.8	9	11.2	6.4
Magnesium as Mg^{++}	mg/lit	----	2.4	1.5	2.9	2.9	5.3	1.9
Sulphate as SO_4	mg/lit	----	1.1	1.4	11.5	1.2	1.2	1.2
Phosphate as PO_4	mg/lit	5	0.08	BDL	0.09	BDL	BDL	BDL
Nitrate as NO_3	mg/lit	10	0.11	0.08	0.12	0.1	0.14	0.1
B.O.D (3days, 27°C)	mg/lit	30	<3	<3	<3	<3	<3	<3
C.O.D	mg/lit	250	62	35	43	17	17	35
Total Iron	mg/lit	3	0.16	0.21	0.11	0.20	0.25	0.14
Manganese as Mn	mg/lit	2	BDL	BDL	BDL	BDL	0.01	BDL
D.O	mg/lit	----	7	6	7	6	6	6
Oil & Grease	mg/lit	10	1	<1	1.1	2	1	<1

Note:- There is no water discharge from following points

Discharge from Dump 4; Discharge from Dump 9 (Talaulikar Side); Discharge from Dump9 -Figredo Side; Discharge froDump 9 - RI Plant side & Discharge Towards Kalsai

BDL- Below Detection Limit

Govt. Analyst

ENVIRONMENT LABORATORY sesa sterlite * SESA *

for Laboratory Incharge

M/s Sesa Environment Laboratory

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

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Well Water Analysis Report

Mine Name: Codli Mine
Date of Sample collection :27.02.2016
Standard method used for analysis: APHA Standard

Date of Receipt of sample:27.02.2016
Analysis completion date:03.03.2016

Parameter	Unit	Permissible Limit	Location			
			Nursery Well	Wagona Well	Vishnu Naik Well	Inha's Well
Colour	Hazen	<5	<5	<5	<5	<5
pH	-	6.5-8.5	5.55	6.08	6.05	6.08
Turbidity	NTU	5	1.93	2.44	1.04	1.58
Conductivity	µs/cm	-	41	42.8	37.4	34.6
Dissolved Solids	mg/lit	500	20.5	21.4	18.7	17.3
Suspended Solids	mg/lit	-	2	2	2	2
Chloride	mg/lit	250	6.75	7.71	6.75	5.79
Total Hardness as CaCO3	mg/lit	200	8	10	10	8
Calcium as Ca++	mg/lit	75	3.2	2.4	3.2	2.4
Magnesium as mg++	mg/lit	30	Nil	0.97	0.49	0.49
Sulphate as SO4	mg/lit	200	1.0	11	1.0	1.0
Nitrate as NO3	mg/lit	45	0.1	0.1	0.1	0.1
Alkalinity	mg/lit	200	8	11	1	12
Iron as Fe	mg/lit	0.3	0.03	0.08	0.11	0.13
Manganese as Mn	mg/lit	0.1	BDL	BDL	BDL	BDL
MPN/100ml	mg/lit	Absent	10	20	10	34

Govt. Analyst

for Laboratory Incharge

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

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* Certified by ISO 9001:2008, ISO 14001 :2004 and OHSAS 18001:2007

Surface Water Analysis Report for the Month of January 2016

Mine Name: Codli Mine
Date of Sample collection: 23/01/2016
Standard method used for analysis: APHA Standard

Date of Receipt of sample: 23/01/2016
Analysis completion date: 30/01/2016

Parameter	Unit		Location						
		Permissible limits	Upstream River Khandepar /Downstream River karmane	Mine water discharge	Downstream River Khandepar	Upstream River Kirlapal	Down Stream River Kirlapal	Up Stream River Karmone	Discharge Towards Kalsai
Colour	Hazen	----	15	<5	6	5	8	18	16
pH	----	5.5 to 9.0	6.78	6.75	6.82	6.55	6.63	6.5	6.07
Turbidity	NTU	----	0.99	1.51	0.99	1.82	7.62	1.33	3.82
Dissolved Solids	mg/lit	----	34.8	19.5	33.8	37.5	44.7	28.5	12.6
Conductivity	µS/cm	----	69.7	39	67.7	75	89.5	57	25.3
Suspended Solids	mg/lit	100	3	2	2	2	2	2	2
Chlorides	mg/lit	----	5.79	4.82	2.89	4.82	3.86	4.82	4.82
Total Hardness as $CaCO_3$	mg/lit	----	28	14	30	32	36	22	8
Calcium as Ca^{++}	mg/lit	----	8	4	7.2	8	11.2	4.8	2.4
Magnesium as Mg^{++}	mg/lit	----	1.94	0.97	2.92	2.92	1.94	2.43	0.49
Sulphate as SO_4	mg/lit	----	3.8	0.84	3.8	4	3	0.38	1.08
Phosphate as PO_4	mg/lit	5	BDL	BDL	BDL	BDL	BDL	0.22	BDL
Nitrate as NO_3	mg/lit	10	0.1	0.12	0.1	1.6	0.34	0.5	0.6
B.O.D (3days, 27°C)	mg/lit	30	<3	<3	<3	<3	<3	<3	<3
C.O.D	mg/lit	250	<10	20	<10	20	20	20	20
Total Iron	mg/lit	3	0.20	0.17	0.61	0.27	0.17	0.15	0.16
Manganese as Mn	mg/lit	2	0.01	0.01	0.03	0.05	0.01	BDL	BDL
D.O	mg/lit	----	7	7	7	6	6	6	7
Oil & Grease	mg/lit	10	1	<1	1	<1	<1	<1	1

Note:- There is no water discharge from following points
Discharge from Dump 4; Discharge from Dump 9 (Talaulikar Side); Discharge from Dump9 -Figredo Side; Discharge froDump 9 - RI Plant side
BDL- Below Detection Limit

Govt. Analyst

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Laboratory Incharge

M/s Sesa Environment Laboratory

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

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Well Water Analysis Report

Mine Name: Codli Mine
Date of Sample collection :23.01.2016
Standard method used for analysis: APHA Standard

Date of Receipt of sample:23.01.2016
Analysis completion date:30.01.2016

Parameter	Unit	Permissible Limit	Location			
			Nursery Well	Wagona Well	Vishnu Naik Well	Inha's Well
Colour	Hazen	<5	<5	<5	<5	<5
pH	-	6.5-8.5	5.14	5.45	5.49	5.74
Turbidity	NTU	5	1.99	2.85	1.32	1.32
Conductivity	µs/cm	-	41.6	41.1	49.2	31.5
Dissolved Solids	mg/lit	500	20.8	20.5	24.6	15.7
Suspended Solids	mg/lit	-	2	2	2	2
Chloride	mg/lit	250	7.6	6.65	6.65	4.75
Total Hardness as CaC03	mg/lit	200	9.17	11	7.34	7.34
Calcium as Ca++	mg/lit	75	2.94	2.2	1.47	2.2
Magnesium as mg++	mg/lit	30	0.44	1.34	0.89	0.45
Sulphate as SO4	mg/lit	200	0.2	0.3	0.31	0.24
Nitrate as NO3	mg/lit	45	0.1	0.1	0.2	0.1
Alkalinity	mg/lit	200	8	11	11	8
Iron as Fe	mg/lit	0.3	0.20	0.18	0.11	0.14
Manganese as Mn	mg/lit	0.1	0.03	0.03	0.04	0.02
MPN/100ml	mg/lit	Absent	7	17	7	31

Govt. Analyst

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Vedanta Limited, Mining Division, Codli Mines, P.O. Kirlapale, Go... 03727

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*Certified by ISO 9001:2008, ISO 14001 :2004 and OHSAS 18001:2007

Surface Water Analysis Report For Month of December 2015

Mine Name: Codli Mine
Date of Sample collection: 28/12/2015
Standard method used for analysis: APHA Standard
Permissible limits - Applicable only for Mine Discharge

Date of Receipt of sample: 28/12/2015
Analysis completion date: 02/01/2016

Parameter	Unit	Permissible limits	Location				
			Upstream River Khandepar /Downstream River karmone	Mine water discharge	Downstream River Khandepar	Upstream River Kirlapal	Upstream River Karmone
Colour	Hazen	----	12	12	12	14	12
pH	---	5.5 to 9.0	6.55	6.07	6.57	6.24	6.38
Turbidity	NTU	----	1.3	2.1	1.3	2.1	1.5
Dissolved Solids	mg/lit	----	41	18	35.1	30.9	26
Conductivity	µS/cm	----	70*	35.9	70	61.7	53
Suspended Solids	mg/lit	100	2	2	3	2	2
Chlorides	mg/lit	----	6.65	5.70	5.70	5.70	5.70
Total Hardness as $CaCO_3$	mg/lit	----	25.68	9.17	23.84	23.84	22.01
Calcium as Ca^{++}	mg/lit	----	6.60	2.93	6.60	5.14	4.40
Magnesium as Mg^{++}	mg/lit	----	2.23	0.45	1.78	2.67	2.67
Sulphate as SO_4	mg/lit	----	4.1	0.67	4.6	3.8	4.1
Phosphate as PO_4	mg/lit	5	BDL	BDL	BDL	BDL	BDL
Nitrate as NO_3	mg/lit	10	0.1	0.12	0.18	0.01	0.1
B.O.D (3days, 27°C)	mg/lit	30	<3	<3	<3	<3	<3
C.O.D	mg/lit	250	16	<10	20	19.6	<10
Total Iron	mg/lit	3	0.1	0.11	0.14	0.06	0.12
Manganese as Mn	mg/lit	2	BDL	BDL	BDL	0.02	BDL
D.O	mg/lit	----	4.6	4.1	4.9	4.4	4.5
Oil & Grease	mg/lit	10	<1	<1	<1	<1	<1

Note:- There is no water discharge from following points
Discharge from Dump 4; Downstream River Kirlapal ; Discharge from Dump 9 (Talaulikar Side); Discharge from Dump9 -Figredo Side, Discharge from Dump 9 - RI Plant side; Discharge Towards Kalsai
The water from Downstream River kirlapal diverted to paddy field hence there is no approach to collect the sample
BDL- Below Detection Limit

Govt. Analyst

ENVIRONMENT LABORATORY sesa sterlite

Laboratory Incharge

M/s Sesa Environment Laboratory

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

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* Certified by ISO 9001:2008, ISO 14001 :2004 and OHSAS 18001:2007

Well Water Analysis Report

Mine Name: Codli Mine
Date of Sample collection :28.12.2015
Standard method used for analysis: APHA Standard

Date of Receipt of sample:28.12.2015
Analysis completion date:02.01.2016

Parameter	Unit	Permissible Limit	Location			
			Nursery Well	Wagona Well	Vishnu Naik Well	Inha's Well
Colour	Hazen	<5.0	4	3	2	4
pH	-	6.5-8.5	5.58	5.21	4.91	5.38
Turbidity	NTU	5	2.24	1.94	0.74	0.8
Conductivity	µs/cm	-	57.6	37.8	32.7	30.1
Dissolved Solids	mg/lit	500	28.9	19	16.3	15
Suspended Solids	mg/lit	-	2	2	2	2
Chloride	mg/lit	250	7.6	6.65	6.65	4.75
Total Hardness as CaCO3	mg/lit	200	9.17	11	7.34	7.34
Calcium as Ca++	mg/lit	75	2.94	2.2	1.47	2.2
Magnesium as mg++	mg/lit	30	0.44	1.34	0.89	0.45
Sulphate as SO4	mg/lit	200	0.34	0.28	0.26	0.24
Nitrate as NO3	mg/lit	45	0.2	0.14	0.1	0.1
Alkalinity	mg/lit	200	4.2	3.2	2.9	3.6
Iron as Fe	mg/lit	0.3	0.16	0.09	0.12	0.10
Manganese as Mn	mg/lit	0.1	0.04	0.02	0.01	0.04
MPN/100ml	mg/lit	Absent	9	12	4	21

Govt. Analyst

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for Laboratory Incharge

M/s Sesa Environment Laboratory
Vedanta Limited, Mining Division, Codli Mines, P.O. Kirlapale, Goa-403727
Recognised by Ministry of Environment, Forests and Climate change, Govt. of India Vide Notification S.O.137(E) Dated 12th January 2015 Valid up to 11.01.2020
* Certified by ISO 9001:2008, ISO 14001:2004 and OHSAS 18001:2007

Surface Water Analysis Report for the Month of November 2015

Mine Name: Codli Mine
Date of Sample collection: 23/11/2015
Standard method used for analysis: APHA Standard
Permissible limits - Applicable only for Mine Discharge

Date of Receipt of sample: 23/11/2015
Analysis completion date: 28/11/2015

Parameter	Unit	Permissible limits	Location					
			Upstream River Khandepar /Downstream River karmane	Mine water discharge	Downstream River Khandepar	Upstream River Kirlapal	Downstream River Kirlapal	Upstream River Karmone
Colour	Hazen	----	8	10	12	11	11	12
pH	----	5.5 to 9.0	6.51	6.03	6.6	6.25	6.19	6.35
Turbidity	NTU	----	1.31	2.46	1.25	2.23	3.33	1.6
Dissolved Solids	mg/lit	----	35.4	18.0	34.1	25.1	28.2	26.7
Conductivity	µS/cm	----	70.7	35.8	68.1	50.6	56.4	53.5
Suspended Solids	mg/lit	100	2	2	2	2	2	2
Chlorides	mg/lit	----	6.65	6.65	5.7	4.75	5.7	4.75
Total Hardness as $CaCO_3$	mg/lit	----	32.64	14.28	30.6	20.4	24.48	24.48
Calcium as Ca^{++}	mg/lit	----	7.34	4.08	6.53	4.08	5.71	4.9
Magnesium as Mg^{++}	mg/lit	----	3.47	0.99	3.47	2.48	2.48	2.97
Sulphate as SO_4	mg/lit	----	3.4	1.2	3.7	5.34	5.6	3.39
Phosphate as PO_4	mg/lit	5	BDL	BDL	BDL	BDL	BDL	BDL
Nitrate as NO_3	mg/lit	10	0.12	0.1	0.14	0.18	0.02	0.1
B.O.D (3days, 27°C)	mg/lit	30	<3	<3	<3	<3	<3	<3
C.O.D	mg/lit	250	14	<10	16	12	20	19.4
Total Iron	mg/lit	3	0.26	0.13	0.28	0.28	0.30	0.20
Manganese as Mn	mg/lit	2	0.05	0.02	0.04	0.07	0.09	0.06
D.O	mg/lit	----	4.4	4.1	4.3	4.3	4.4	4.2
Oil & Grease	mg/lit	10	1	<1	1.4	<1	2	1

Note:- There is no water discharge from following points
Discharge from Dump 4; Discharge from Dump 9 (Talaulikar Side); Discharge from Dump9 -Figredo Side; Discharge froDump 9 - RI Plant side; Discharge Towards Kalsai

BDL- Below Detection Limit

Govt. Analyst

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for
Laboratory Incharge

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Well Water Analysis Report

Mine Name: Codli Mine
Date of Sample collection :23.11.2015
Standard method used for analysis: APHA Standard

Date of Receipt of sample:23.11.2015
Analysis completion date:28.11.2015

Parameter	Unit	Permissible Limit	Locations			
			Nursery Well	Wagona Well	Vishnu Naik Well	Inha's Well
Colour	Hazen	<5.0	4	4	3	4
pH	-	6.5-8.5	6.53	6.58	6.51	6.5
Turbidity	NTU	5	3	2.81	2.98	3.2
Conductivity	µs/cm	-	32	36	36	40
Dissolved Solids	mg/lit	500	16	20	18	20
Suspended Solids	mg/lit	-	3	2	2	2
Chloride	mg/lit	250	4.75	4.75	3.8	2.85
Total Hardness as CaCO3	mg/lit	200	8.16	10.2	10.2	8.16
Calcium as Ca++	mg/lit	75	2.45	2.45	3.26	2.45
Magnesium as mg++	mg/lit	30	0.5	0.99	0.5	0.5
Sulphate as SO4	mg/lit	200	2.4	0.21	2.4	0.22
Nitrate as NO3	mg/lit	45	1.51	0.14	0.1	1.07
Alkalinity	mg/lit	200	3.0	2.4	4.5	6
Iron as Fe	mg/lit	0.3	0.20	0.18	0.20	0.08
Manganese as Mn	mg/lit	0.1	0.05	BDL	BDL	0.04
MPN/100ml	mg/lit	Absent	Absent	20	14	32

BDL- Below Detection limit

Govt. Analyst

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Surface Water Analysis Report for the Month of October 2015

Mine Name: Codli Mine
Date of Sample collection: 05/10/2015
Standard method used for analysis: APHA Standard
Permissible limits - Applicable only for Mine Discharge

Date of Receipt of sample: 05/10/2015
Analysis completion date: 09/10/2015

Parameter	Unit	Permissible limits	Location					
			Upstream River Khandepar /Downstream River karmane	Mine water discharge	Downstream River Khandepar	Upstream River Kirlapal	Down Stream River Kirlapal	Up Stream River Karmone
Colour	Hazen	----	39	18	33	79	40	31
pH	----	5.5 to 9.0	6.52	6	6.56	6.31	6.11	6.23
Turbidity	NTU	----	2.78	3.3	2.52	6.23	3.39	2.6
Dissolved Solids	mg/lit	----	31.3	17.1	30.3	29	24.8	25.1
Conductivity	µS/cm	----	62.7	34.2	60.6	57.9	49.5	49.9
Suspended Solids	mg/lit	100	3	4	3	3	2	2
Chlorides	mg/lit	----	5.7	3.8	3.8	4.75	4.75	4.75
Total Hardness as $CaCO_3$	mg/lit	----	24.48	10.2	26.52	18.36	16.32	16.32
Calcium as Ca^{++}	mg/lit	----	5.71	3.26	5.71	4.90	3.26	3.26
Magnesium as Mg^{++}	mg/lit	----	2.48	0.5	2.97	1.49	1.98	1.98
Sulphate as SO_4	mg/lit	----	4	0.63	3.3	3.8	3.8	0.38
Phosphate as PO_4	mg/lit	5	BDL	BDL	BDL	BDL	BDL	0.22
Nitrate as NO_3	mg/lit	10	0.1	0.12	0.18	0.01	0.1	0.1
B.O.D (3days, 27°C)	mg/lit	30	<3	<3	<3	<3	<3	<3
C.O.D	mg/lit	250	18	<10	<10	19.6	<10	10
Total Iron	mg/lit	3	0.29	0.13	0.28	0.29	0.32	0.20
Manganese as Mn	mg/lit	2	0.06	0.06	0.05	0.08	0.11	0.06
D.O	mg/lit	----	4.1	4.0	4.2	4.0	4.5	4.00
Oil & Grease	mg/lit	10	<1	1.2	2	<1	<1	<1

Note:- There is no water discharge from following points
Discharge from Dump 4; Discharge from Dump 9 (Talaulikar Side); Discharge from Dump9 -Figredo Side; Discharge froDump 9 - RI Plant side;Discharge Towards Kalsai

BDL- Below Detection Limit

Govt. Analyst

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Well Water Analysis Report

Mine Name: Codli Mine
Date of Sample collection :27.10.2015
Standard method used for analysis: APHA Standard

Date of Receipt of sample:27.10.2015
Analysis completion date:31.10.2015

Parameter	Unit	Permissible Limit	Location			
			Nursery Well	Wagona Well	Vishnu Naik Well	India's Well
Colour	Hazen	<5.0	4	2	2	4
pH	-	6.5-8.5	5	5.17	5.10	5
Turbidity	NTU	5	3.38	2.6	3.37	3.17
Conductivity	µs/cm	-	33.6	36.4	39	40.7
Dissolved Solids	mg/lit	500	16.9	18.2	19.5	20.2
Suspended Solids	mg/lit	-	2	2	2	2
Chloride	mg/lit	250	4.75	5.7	4.75	2.85
Total Hardness as CaCO3	mg/lit	200	8.16	10.2	10.2	8.16
Calcium as Ca++	mg/lit	75	1.63	2.45	3.26	2.45
Magnesium as mg++	mg/lit	30	0.99	0.99	0.5	0.5
Sulphate as SO4	mg/lit	200	2.47	2.1	0.22	0.64
Nitrate as NO3	mg/lit	45	0.24	0.18	1.23	0.06
Alkalinity	mg/lit	200	3.1	3.2	2.8	2.5
Iron as Fe	mg/lit	0.3	0.22	0.19	0.21	0.08
Manganese as Mn	mg/lit	0.1	0.06	0.10	0.05	0.06
MPN/100ml	mg/lit	Absent	4	18	16	32

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ANNEXURE -3

Total Expenditure for Community Development Activities
Codli Group of Iron Ore Mines

Financial Year 2015-16

S No.	Thrust Area	Name of Project/Activity	Expenditure (In Rs.)
1	Health	Children day celebration	7,037.00
2	Education	School transport	1,288,108.00
3	Education	Running Village Computer training center with Vedanta foundation.	135,000.00
4	Education	Support to home care nursing for SANJEEVAN	200,000.00
5	Women empowerment	Sakhi-Women empowerment Program, folk dance competition	5,300.00
6	Rural Development Project	Need based rural development projects	222,531.00
	Total Expenditure		1,857,976.00

Other Projects under CSR activities of Vedanta Limited in Goa			
1	Education	Mining Engineering College	2,919,792.00
2	Education	Sesa Football Academy & Sesa Technical School	23,000,000.00
	Total Expenditure		25,919,792.00