Dalmia
Bharat Cement

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Ref: LQ: GO: 21/126
28th Nov. 2022

Lanjiberna Limestone & Dolomite Mines
At/PO = Lanjiberna-770023
Dist.Sundargarh (ODISHA)

The Director
Ministry of Environment, Forest & Climate Change
Paryavaran Bhawan
CGO Complex, Lodhi Road
NEW DELHI-110 003

Dear Sir,

Sub: Submission of Six Monthly compliance of the conditions of the Environmental clearance of Lanjiberna Limestone & Dolomite Mines of M/s Dalmia Cement (Bharat) Limited formerly known as OCL India Limited for the period April-2022 to September-2022.

Ref:- Environmental clearance ref. F. No. J-11015/202/2016-IA.II (M) dated 04.03.2020

Dear Sir,

With reference to above subject matter and referred letter, we are submitting herewith point-wise compliance report of conditions laid down in above Environmental clearance for the period April-2022 to September-2022 for your kind perusal and record

Hope, you will be find the same in order.

Thanking you,

Yours faithfully,
for Dalmia Cement (Bharat) Limited

(Debiprasad Mishra)
Mines Manager

Encl. as above

Cc to The Regional Director
Ministry of Environment, Forest & Climate Change
Eastern Regional Office, A/3, Chandrasekharpur
BHUBANESWAR-751 023

Cc to The Chairman,
Central Pollution Control Board,Parivesh Bhawan,
CBD-Cum-Office Complex, East Arjun Nagar,
DELHI- 110 032

Cc to The Member Secretary
State Pollution Control Board, Odisha
Paribesh Bhawan,A/118, Nilakanthanagar, Unit-VIII
BHUBANESWAR-751 012

Half-yearly Compliance Report Conditions Imposed in the Environmental Clearance

Date : 28.11.2022

Name of the project: **Expansion of Lanjiberna Limestone and Dolomite Mine of M/s. Dalmia Cement (Bharat) Limited formerly known as OCL India Limited with expansion in production of limestone from 4.2 million TPA to 9.5 million TPA, 0.08 million TPA of Dolomite and Rejects/Waste 7.42 Million TPA (Total Excavation: 17 MTPA) along with four existing crushers installed within mine lease area i.e. 400 TPH, 1200 TPH and 2x 200 TPH (aggregate) and installation of one new crusher of 1600 TPH in the mine lease area of 873.057 ha located at Villages-Alanda, Bihabandh, Jhagarpur, Kesramal, Raiberna, Katang, Dhauraada, Lanjiberna and Kukuda,Tehsil-Rajgangpur and Kutra, District Sundargarh, Odisha -Environmental Clearance- Regarding.**

Clearance Letter No and date: **F. No. J-11015/202/2016-IA.II (M) dated 04.03.2020**

Period of compliance Report: **April-2022 to September-2022**

A. Specific conditions:

Sl.No.	CONDITIONS IMPOSED BY MoEFCC	COMPLIANCE STATUS
I.	Water requirement will be restricted to 509 KLD and PP to improvise on the water uses and adopt better technology for water use along with enhances water conservation practices.	Water Consumption is restricted to 509 KLD and we are adopting controlled water uses and adopting better technology for water use along with enhances water conservation practices. ETP has been installed having Nano Bubble Technology to separate Oil and Grease and the treated water is recycled and also used for dust suppression. To control the surface run-offs, Garland drains have been constructed around the working mine pits to channelize rain water flowing into working mine pit. At the conceptual stage void area will be developed as rainwater storage.
II.	PP to ensure that the necessary EMP should be implemented and monitored properly to ensure better compliance in order to contain the vehicular emission to minimum.	The EMC has been constituted as guideline and the team will implement the EMP. in order to minimized the vehicular emission following steps have been taken. Only PUC certified vehicles are allowed to ply in the mines. Regular maintenance of vehicles is being carried out in a dedicated workshop. Six AAQ monitoring stations have been established monitoring is conducted regularly. Monitoring is being carried out by NABL-Acredited Laboratory. As per the report the results confirms to be within the NAAQS.

B. Standard conditions

I. Statutory compliance

Sl.No.	CONDITIONS IMPOSED BY MoEFCC	COMPLIANCE STATUS
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.	Noted
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.	Noted
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.	Noted
4.	This Environmental Clearance shall become operational only after receiving formal NBWL Clearance from MoEF&CC subsequent to the recommendations of the Standing Committee of National Board for Wildlife, if applicable to the Project.	Complied: Site Specific Wild life conservation plan has been approved by Chief Conservator of Forest (WL), Odisha
5.	This Environmental Clearance shall become operational only after receiving formal Forest Clearance (FC under the provision of Forest Conservation Act, 1980, if applicable to the Project.	Complied: Forest Clearance for diversion of 62.56 ha forest land (62.04 ha for mining and allied activities and 0.52 ha for safety zone) for mining has been obtained from the MoEFCC vide letter letter no. F.No. 8-56/1994-FC (pt) dtd. 30 September,2013 (Copy attached as Annexure-I)
6.	Project Proponent (PP) shall obtain Consent to Operate after grant of EC and effectively implement all the conditions stipulated therein. The mining activity shall not commence prior to obtaining Consent to Establish / Consent to Operate from the concerned State Pollution Control Board/Committee.	Complied: Consent to Operate has been obtained from the State Pollution Control Board, Odisha vide Order No 162 letter no 4884/IND-I-CON-258 Dated 28.03.2022 valid till 31.03.2023 (Copy attached as Annexure-II).
7.	The PP shall adhere to the provision of the Mines Act,1952, Mines and Mineral (Development & Regulation), Act,2015 and rules & regulations	Noted,

	Made there under. PP shall adhere to various circulars issued by Directorate General Mines Safety (DGMS) and Indian Bureau of Mines from time to time.	We adhere the provision of the Mines Act,1952, Mines and Mineral (Development & Regulation), Act,2015 and rules & regulations made there under and various circulars issued by Directorate General Mines Safety (DGMS) and Indian Bureau of Mines from time to time.
8.	The Project Proponent shall obtain consents from all the concerned land owners, before start of mining operations, as per the provisions of MMDR Act, 1957 and rules made there under in respect of lands which are not owned by it.	Noted, Present mining operation have been carried out on the land in which surface right has been granted by the Concern authority.
9.	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".	Noted,
10.	The Project Proponent shall obtain necessary prior permission of the competent authorities for drawl of requisite quantity of surface water and from CGWA for withdrawal of ground water for the project.	Permission for ground water withdrawal is obtained File.No. 21-4/1311/0R/MIN/2017-2277 dated 07.12.2018 & NOC No: - CGWA/ NOC/MIN/ORIG/2018M309 (Copy of the same is attached as Annexure III).
11.	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.	A copy of EC letter have been marked to concerned Panchayats.
12.	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.	Noted
13.	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	Complied: Newspaper advertisement was made in 'Manthan', Odia Newspaper and in 'Odisha Today', English newspaper on 09.03.2020 . (Copy of the same is attached as Annexure IV for compliance and record.)

14.	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 than mining operation shall only be carried out after transfer of EC as per provisions of the para11 of EIA Notification,2006 as amended from time to time.	Noted.

II. Air quality monitoring and preservation

Sl.No.	CONDITIONS IMPOSED BY MoEFCC	COMPLIANCE STATUS
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 502 etc. as per the methodology mentioned in NAAQS Notification No. B-29016/20/90/PCl/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.	The installation of online Ambient Air Quality Monitoring stations and digital display in front of main gate of the mines site have been completed.
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.	Complied Water sprinkling is being regularly done on haul roads, mines faces, limestone receiving hopper, transfer tower of the conveyor etc. to control fugitive dust generation. Crushing plant has been equipped with bag filter/cold fog system Hydraulic drills attached with efficient dust collection system have been deployed. Monitoring is being carried out by NABL-Acredited Laboratory. As per the report the results confirms to be within the NAAQS. (Copy of the Six Monthly Environmental Monitoring Report attached herewith as Annexure-V)

III. Water quality monitoring and preservation

Sl.No.	CONDITIONS IMPOSED BY MoEFCC	COMPLIANCE STATUS
1.	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.	Permission for ground water withdrawal is obtained File.No. 21-4/1311/0R/MIN/2017-2277 dated 07.12.2018 & NOC No: - CGWA/NOC/MIN/ORIG/2018M309 (Copy of the same is already attached as Annexure III).
2.	Regular monitoring of the flow rate of the springs and perennial nallahs flowing in and around the mine lease shall be carried out and records maintain. The natural water bodies and or streams which are flowing in an around the village, should not be disturbed. The Water Table should be nurtured so as not to go down below the pre-mining period. In case of any water scarcity in the area, the Project Proponent has to provide water to the villagers for their use. A provision for regular monitoring of water table in open dug wall located in village should be incorporated to ascertain the impact of mining over ground water table. 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.	Noted, We shall regularly monitor the flow rate of the springs and perennial nallahs flowing in and around the mine lease and records shall be maintain. The natural water bodies and or streams will not be disturbed. In case of any drinking water scarcity , the mine management is being providing potable water to the villagers in summer season in required hamlet. Regular monitoring of ground water level and its quality is currently being done by a network of 6 dug wells. Data thus collected are maintained. Quality parameters were found to be within prescribed limits. The Report on changes in Ground water level and quality is being submitted to the Regional Office of the Ministry, CGWA and State Groundwater Department / State Pollution Control Board.
3.	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.	Regular monitoring of ground water level and its quality is currently being done by a network of 6 dug wells (1) Kheramuta Village, (2) Dhauradah Village, (3) Lanjiberna Village (4) Katang Village (5) Lanjiberna Colony (6) Lanjiberna Mines workshop. Data thus collected are maintained. Quality parameters were found to be within prescribed limits.Water Quality is being analysed by NABL accredited laboratory and reports are submitted regularly to the authorities. (Copy attached as Annexure V). We have also installed a digital piezometer and data of same being submitted in prescribed time frame. (Photographs of the digital piezometers attached as Annexure V-A)
4.	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 and maintain its records.The project proponent shall undertake regular monitoring of water quality upstream	Noted, shall be maintained as per directives.

	and downstream of water bodies passing within and nearby/ adjacent to the mine lease and maintain its records.Sufficient number of gullies shall be provided at appropriate places within the lease for management of water. PP shall carryout regular monitoring w.r.t. pH and included the same in monitoring plan. The parameters to be monitored shall include their water quality vis-a-vis suitability for usage as per CPCB criteria and flow rate. 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. 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.	
5.	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).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. 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	Noted, shall be maintained as per directives.
6.	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. A report on amount of water recharged needs to be submitted to Regional Office MoEFCC annually.	At present we are harvesting rain water by digging and revamping the ponds in different villages it will not only help ground water recharging as will hep the villagers to full fill their daily water needs Besides rain water harvesting is being done in mines pits in which mines working is not taking place for the time being. We are also planning to do roof top rain water harvesting in different schools surrounding to mines area.
7.	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. The standards shall be prescribed through Consent to Operate (CTO) issued by concerned State Pollution Control	There is no waste water in mines however ETP has been already installed having Nano Bubble Technology with skimming system meeting the GSR-422E standard. . (Photograph of the same is attached herewith as Annexure VII). Water quality is being analyzed by NABL accredited laboratory and Quality parameters are

	Board (SPCB). The workshop effluent shall be treated after its initial passage through Oil and grease trap.	within prescribed limits. (Copy of the Six Monthly Environmental Monitoring Report attached herewith as Annexure-VI)
8.	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&CC and State Pollution Control Board/Committee.	Noted and the report will be submitted to concern authority in due course of time.

IV. Noise and vibration monitoring and prevention

Sl.No.	CONDITIONS IMPOSED BY MoEFCC	COMPLIANCE STATUS
1.	The peak particle velocity at 500m distance or within the nearest habitation, whichever is closer shall be monitored periodically as per applicable DGMS guidelines.	Complied, Peak Particle velocity is also monitored by Minimate at desired distance as per DGMS guidelines and sample report of the same is attached herewith as Annexure- VII.
2.	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.	Noted, We ensured not to disturb the villages in respect of both human and animal population with respect to illumination and sound at night at project sites. Orientation of the floodlights are maintained away from the villagers. Mineral transportation from mines to plant are done through fully covered belt conveyor system. Regular maintenance of all machinery /vehicles is being carried out to minimize the noise level . Plantation is being done The Noise level have been monitored periodically and found well within the prescribed limits for day /night hours.
3.	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 provide with protective respiratory devices along with adequate training, awareness and	Complied To control noise levels below 85 dB(A), latest blasting technology is being adopted. Drill bits are being timely sharpened. Preventive maintenance of diesel driven quarry equipment is being done as per OEM's recommendations.

	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.	Workers engaged in high noise operations and in operating HEMM have been provided with ear plugs/ muffs. Regular training, awareness and information on safety and health aspects are carried out at mines site. (Details report available in the para 6.7 of the attached Six Monthly Environmental Monitoring report).

V. Mining plan

Sl.No.	CONDITIONS IMPOSED BY MoEFCC	COMPLIANCE STATUS
1.	The Project Proponent shall adhere to the working parameters of mining plan which was submitted at the time of EC appraisal wherein year-wise plan was mentioned for total excavation i.e.quantum of mineral, waste, over burden, inter burden and top soil etc.. No change in basic mining proposal like mining technology, total excavation, mineral & waste production, lease area and scope of working (viz. method of mining, overburden & dump management,O.B & dump mining, mineral transportation mode, ultimate depth of mining etc.) shall not be carried out without prior approval of the Ministry of Environment, Forest and Climate Change, which entail adverse environmental impacts, even if it is a part of approved mining plan modified after grant of EC or granted by State Govt. in the form to Short Term Permit (STP), Query license or any other name.	Noted
2.	The Project Proponent shall get the Final Mine Closure Plan along with Financial Assurance approved from Indian Bureau of Mines/Department of Mining & Geology as required under the Provision of the MMDR Act, 1957 and Rules/ Guidelines made there under. A copy of approved final mine closure plan shall be submitted within 2 months of the approval of the same from the competent authority to the concerned Regional Office of the Ministry of Environment, Forest and Climate Change for record and verification.	Noted,
3.	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.	Noted,

VI. Land reclamation

Sl.No.	CONDITIONS IMPOSED BY MoEFCC	COMPLIANCE STATUS
1.	The Overburden (O.B.) 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 dumps like height, width and angle of slope shall be governed as per the approved Mining Plan as per the guidelines/circulars issued by D.G.M.S w.r.t. safety in mining operations shall be strictly adhered to ma intain the stability of top soil/OB dumps. The topsoil shall be used for land reclamation and plantation.	Complied, The Overburden (O.B.) generated during the mining operations is being stacked at earmarked OB dump site(s) only. The height, width and angle of slope of the OB dumps are maintained as per the approved Mining Plan. Most of the area under current mining operation does not contain top soil. But wherever top soil is found, the it is being used for plantation and green belt development in a systematic manner.
2.	The reject/waste generated during the mining operations shall be stacked at earmarked waste dump site(s) only.The physical parameters of the waste dumps like height, width and angle of slope shall be governed as per the approved Mining Plan as per the guidelines/circulars issued by DGMS w.r.t. safety in mining operations shall be strictly adhered to maintain the stability of waste dumps.	Complied, The reject/waste generated generated during the mining operations is being stacked at earmarked OB dump site(s) only. The height, width and angle of slope of the OB dumps like height, width and angle of slope are maintained as per the approved Mining Plan.
3.	The reclamation of waste dump sites shall be done in scientific manner as per the Approved Mining Plan cum Progressive Mine Closure Plan,	Noted, The reclamation of waste dump sites shall be done in scientific manner as per the approved Mining Plan cum Progressive Mine Closure Plan,
4.	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. The selection of local species regulates local climatic parameters and help in adaptation of plant species to the microclimate. The gullies formed on slopes should be adequately taken care of as it impacts the overall stability of dumps. 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.	Noted, 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.
5.	The Project Proponent shall carry out slope stability study in case the dump height is more than 30 meters. The slope stability report shall be submitted to concerned regional office of MoEF&CC.	Noted, We shall carry out slope stability study in case the dump height is more than 30 meters. The slope stability report shall be submitted to concerned regional office of MoEF&CC once report will be completed .

6.	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.). The collected water should be utilized for watering the mine area, roads, green belt development, plantation etc. The drains/ sedimentation sumps etc. shall be de-silted regularly, particularly after monsoon season, and maintained properly.	Complied, Catch drains, settling tanks and siltation ponds have been constructed as per approved mining plan to prevent run off of water and flow of sediments directly into the water bodies. The drains/ sedimentation sumps etc. are being de-silted regularly and maintained properly. (Photographs Attached as Annexure- VIII)
7.	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. 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.	Complied, Check dams , garland drain and retaining wall have been constructed around mine pit and OB dumps to prevent storm run-off and sediment flow into adjoining water bodies. (Photographs Attached as Annexure-IX)
8.	The top soil, if any, shall temporarily be stored at earmarked site(s) with in The mine lease only and should not be kept unutilized for long. The physical parameters of the top soil dumps like height, width and angle of slope shall be governed as per the approved Mining Plan and as per the guidelines framed by DGMS w.r.t. safety in mining operations shall be strictly adhered to maintain the stability of dumps. The topsoil shall be used for land reclamation and plantation purpose.	Complied, Most of the area under current mining operation does not contain top soil. But wherever top soil is found, the same is stored at earmarked site(s) as per approved Mining Plan and reused for plantation and green belt development in a systematic manner.

VII. Transportation

Sl.No.	CONDITIONS IMPOSED BY MoEFCC	COMPLIANCE STATUS
1.	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.	Complied, Limestone transportation from mines to plant are done through fully covered belt conveyor system. Only PUC certified vehicles are allowed to ply in the mines and regular maintenance is being carried out of all vehicles in a dedicated workshop.

	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.	(Photocopy of the Sample copy of the PUC attached as Annexure-X)
2.	The Main haulage road within the mine lease should be provided with a permanent water sprinkling arrangement for dust suppression. Other roads within the mine lease should be wetted regularly with tanker-mounted water sprinkling system. 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. 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.	Complied Water sprinkling is being regularly done on haul roads, quarry faces, limestone receiving hopper, transfer tower of the conveyor etc. to control fugitive dust generation. Crushing plant has been provided with bag filter. Filter bags are periodically cleaned/ changed.

VIII. Green Belt

Sl.No.	CONDITIONS IMPOSED BY MoEFCC	COMPLIANCE STATUS
1.	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.	A greenbelt in 7.5m wide safety zone along the common boundary of mine lease and surface right area has been developed as per approved mining plan.

2.	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. The density of the trees should be around 2500 saplings per Hectare. Adequate budgetary provision shall be made for protection and care of trees.	As on date 31.03.2022, total 102.39 hectares area has been covered with plantation out of which, within mining lease area is 84.89 hectares and outside mining lease area is 17.50 hectares. Current year we have planted total 2620 sapling. Till date total 3,38,920 nos of trees have been planted as per approved plan. Survival rate is around 65-70%. Hence Gap Plantation is also carried out to maintain the trees density of around 2500 plants per hectare. (Photograph attached as Annexure-XI). Beside above 23,275 nos sapling of Mango, Cashew (Kaju) , Lemon , Teak & Drumstick (Sajana) planted over an area of 133 acres land under WADI Project scheme for economic upliftment of the farmers, through sustainable agriculture, social empowerment
3.	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.	Till now we have not disturbed any grazing land , will be taken care in due course of time
4.	The Project Proponent shall undertake all precautionary measures for conservation and protection of endangered flora and fauna and Schedule-I species during mining operation. A Wildlife Conservation Plan shall be prepared for the same clearly delineating action to be taken for conservation of flora and fauna. The Plan shall be approved by Chief Wild Life Warden of the State Govt.	Complied: Site specific wild life conservation plan has been approved by chief conservator of forest (WL), Odisha and the same is under implementation as per the approved schedule
5.	And implemented in consultation with the State Forest and Wildlife Department. A copy of Wildlife Conservation Plan and its implementation status (annual) shall be submitted to the Regional Office of the Ministry.	Noted

IX. Public hearing and human health issues

Sl.No.	CONDITIONS IMPOSED BY MoEFCC	COMPLIANCE STATUS
1.	The Project Proponent shall appoint an Occupational Health Specialist for Regular as well as Periodical medical examination of the workers engaged in the mining activities, as per the DGMS guidelines. The records shall be maintained properly. PP shall also carryout Occupational health check-ups in respect of workers which are having ailments like BP, diabetes, habitual smoking, etc. The check-ups shall be undertaken once in six months and necessary remedial/ preventive measures be taken. A status report on the same may be sent to MoEFCC Regional Office and DGMS on half-yearly basis.	Initial medical examination and periodical medical examination of the workers engaged in the mines is being carried out regularly as per the Mines Act and the DGMS guidelines and records have been maintained properly. (Photograph of the same are given as Annexure XII) One regular Occupational Health Specialist have already been appointed in mines dispensary A status report on the same shall be sent to MoEFCC Regional Office and DGMS on half-yearly basis .
2.	The Project Proponent must demonstrate commitment to work towards 'Zero Harm' from their mining activities and carry out Health Risk Assessment (HRA) for identification workplace hazards and assess their potential risks to health and determine appropriate control measures to protect the health and wellbeing of workers and nearby community. The proponent shall maintain accurate and systematic records of the HRA. The HRA for neighborhood has to focus on Public Health Problems like Malaria, Tuberculosis, HIV, Anaemia, Diarrhoea in children under five, respiratory infections due to bio mass cooking. The proponent shall also create awareness and educate the nearby community and workers for Sanitation, Personal Hygiene, Hand washing, not to defecate in open, Women Health and Hygiene (Providing Sanitary Napkins), hazard of tobacco and alcohol use. The Proponent shall carryout base line HRA for all the category of workers and thereafter every five years.	Noted, We are committed to work towards 'Zero Harm' from our mining activities and carry out Health Risk Assessment (HRA) for identification workplace hazards and assess their potential risks to health and determine appropriate control measures to protect the health and wellbeing of workers and nearby community. Record are being maintained for the same
3.	The Proponent shall carry out Occupational health surveillance which be a part of HRA and include Biological Monitoring where practical and feasible, and the tests and investigations relevant to the exposure (e.g. for Dust a X-Ray chest; For Noise Audiometric; for Lead Exposure Blood Lead, For Welders Full Ophthalmologic Assessment; for Manganese Miners a complete Neurological Assessment by a Certified Neurologist, and Manganese (Mn) Estimation in Blood; For Inorganic Chromium- Fortnightly skin inspection of hands and forearms by a responsible person. Except routine tests all tests would be carried out in a Lab accredited by NABH. Records of Health Surveillance must be kept for 30 years, including the	Noted

	results of and the records of Physical examination and tests. The record of exposure due to materials like Asbestos, Hard Rock Mining, Silica, Gold, Kaolin, Aluminium, Iron, Manganese, Chromium, Lead, Uranium need to be handed over to the Mining Department of the State in case the life of the mine is less than 30 years. It would be obligatory for the State Mines Departments to make arrangements for the safe and secure storage of the records including X-Ray. Only conventional X-Ray will be accepted for record purposes and not the digital one). X-Ray must meet ILO criteria (17 x14 inches and of good quality).	
4.	The Proponent shall maintained a record of performance indicators for workers which includes (a) there should not be a significant decline in their Body Mass Index and it should stay between 18.5 -24.9, (b) the Final Chest X-Ray compared with the base line X-Ray should not show any capacities ,(c) At the end of their leaving job there should be no Diminution in their Lung Functions Forced Expiratory Volume in one second (FEV1),Forced Vital Capacity (FVC), and the ratio) unless they are smokers which has to be adjusted, and the effect of age, (d) their hearing should not be affected. As a proof an Audiogram (first and last need to be presented), (e) they should not have developed any Persistent Back Pain, Neck Pain, and the movement of their Hip, Knee and other joints should have normal range of movement, (f) they should not have suffered loss of any body part. The record of the same should be submitted to the Regional Office, MoEFCC annually along with details of the relief and compensation paid to workers having above indications.	Noted
5.	The Project Proponent shall ensure that Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects.	PPE is being provided to workers engaged in dusty and noisy areas. All workers engaged in such places are being given basic and vocational training in regular interval. Occupational health surveillance program of the workers are being taken as per the Mines Act.
6.	Project Proponent shall make provision for the housing for workers/labours 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, creche for	Noted, This is an operating mine, all the necessary facilities are provided for mine workers at site.

	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.	
7.	The activities proposed in Action plan prepared for addressing the issues raised during the Public Hearing shall be completed as per the budgetary provisions mentioned in the Action Plan and within the stipulated time frame. The Status Report on implementation of Action Plan shall be submitted to the concerned Regional Office of the Ministry along with District Administration.	Noted, The activities proposed in Action plan prepared for addressing the issues raised during the Public Hearing shall be completed as per the budgetary provisions mentioned in the Action Plan and within the stipulated time frame. The Status Report on implementation of Action Plan shall be submitted to the concerned Regional Office of the Ministry along with District Administration.

X. Corporate Environment Responsibility (CER)

Sl.No.	CONDITIONS IMPOSED BY MoEFCC	COMPLIANCE STATUS
1.	The activities and budget earmarked for Corporate Environmental Responsibility (CER) as per Ministry's 0.M No 22-65/2017-IA. II (M) dated 01.05.2018 or as proposed by EAC should be kept in a separate bank account. The activities proposed for CER shall be implemented in a time bound manner and annual report of implementation of the same along with documentary proof viz. photographs, purchase documents, latitude &longitude of infrastructure developed & road constructed needs to be submitted to Regional Office MoEF&CC annually along with audited statement	Noted
2.	Project Proponent shall keep the funds earmarked for environmental protection measures in a separate account and refrain from diverting the same for other purposes. The Year wise expenditure of such fund should be reported to the MoEFCC and its concerned Regional Office.	Noted, The amount spent on environmental protection during the period April-2021 to Sept-2022 is Rs 1.33 crore. A separate account is being maintained. (Summary attached as Annexure-XIII)

XI. Miscellaneous

Sl.No.	CONDITIONS IMPOSED BY MoEFCC	COMPLIANCE STATUS
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, We have already prepared the digital map (land use & land cover) of the entire lease area purpose of monitoring land use pattern and submit the same to the Regional Office of the MoEF&CC, Bhubaneswar. (Copy attached as Annexure-XIV)
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.	This an operation mines and hence presently it is not applicable to us.
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.	Being complied
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.	Environmental Management Cell has been set up with suitable qualified person and functioning and reporting to the Head. The details has been submitted to The Regional Director, MoEF&CC, Bhubaneswar. (Copy attached as Annexure-XV)
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.	Noted

(Debiprasad Mishra)
Mines Manager
Lanjiberna Limestone & Dolomite Mines
Daimia Cement (Bharat) Limited

Annexure-I

Forest Clearance

PRINCIPAL SECRETARY TO GOVT. FOREST & ENV. DEPARTMENT 07 OCT 2013

F. No. 8-56/1994-FC (pt.)
Government of India
Ministry of Environment and Forests
(F.C. Division)

Paryavaran Bhawan,
CGO Complex, Lodhi Road,
New Delhi - 110 003.
Dated: 30 September, 2013

To,

The Principal Secretary (Forests),
Government of Orissa,
Bhubaneshwar.

Sub: Diversion of 62.56 ha. of forest land (62.04 ha. for mining and allied activities and 0.52 ha. for safety zone) for mining of limestone and Dolomite in Lanjibera Mines by M/s. OCL India Ltd. within Sundergarh Forest Division in the district of Sundergarh, Odisha during 1st RML.

Sir,

I am directed to refer to Government of Orissa's letter No. 10F (Cons.) 206/2012-2813/ F&E dated 15.02.2012 on the above mentioned subject, on the above mentioned subject, wherein prior approval of the Central Government for diversion 62.56 hectares of forest land (62.04 ha.. for mining and allied activities and 0.52 ha. for safety zone) for mining of limestone and dolomite in the district of Sundergarh, Odisha during 1st RML, was sought, in accordance with Section section-2 of the Forest (Conservation) Act, 1980, After careful consideration of the proposal by the Forest Advisory Committee constituted by the Central Government under Section 3 of the said Act, in-principal approval for the said diversion was granted vide this Ministry's letter of even number dated 2nd April 2012, subject to fulfilment of certain conditions. The State Government has furnished compliance report in respect of the conditions stipulated in the in-principle approval and has requested the Central Government to grant final approval.

2. In the connection, I am directed to say that on the basis of the compliance report furnished by the State Government of Orissa vide their letter no. 10F (Cons)-35 /2013-18,393/F &E dated 4th September 2013, approval of the Central Government is hereby granted under section 2 of the Forest (Conservation) Act, 1980 for diversion of 62.56 ha. of forest land (62.04 ha. for mining and allied activities and 0.52 ha. for safety zone) of limestone and dolomite in Lanjibera Mines by M/s. OCL India Ltd. within Sundergarh Forest Division in the district of Sundergarh, Odisha during 1st RML, subject to the fulfillment of the following conditions:

(i) Legal status of the diverted forest land shall remain unchanged;

(ii) The State Government shall charge the Additional amount of (NPV) if so determined, as per the final decision of the Hon'ble Supreme Court of India;

(iii) Following activities shall be undertaken by the user agency at the project cost:

(a) Implementation of a plan containing appropriate mitigative measures to minimize soil erosion and choking of streams technically approved by RCCF, Rourkela Circle;

(b) Planting of adequate drought hardy plant species and sowing of seeds in the appropriate area within the mining lease to arrest soil erosion as per the plan technically approved by RCCF, Rourkela Circle;

(c) Construction of check dams, retention /toe walls along the contour to arrest sliding down of the excavated material as per the plan technically approved by RCCF, Rourkela Circle;

(d) Stabilize the overburden dumps by appropriate grading/benching so as to ensure that that angles of repose at any given place is less than 28° as per plan technically approved by RCCF ,Rourkela Circle; and

(e) Strict adherence to the prescribed top soil management as per plan technically approved by RCCF, Rourkela Circle.

(iv) The user agency shall obtain the Environment Clearance as per the provisions of the Environmental (Protection) Act, 1986, if required;

(v) No labour camp shall be established on the forest land;

(vi) The user agency shall provide firewood preferably alternate fuels to the labourers and the staff working at the site so as to avoid any damage and pressure on the nearby forest areas;

(vii) The period of diversion of the said forest land under this approval shall be for a period co-terminus with the period of the mining lease proposed to be granted under the Mines and Minerals (Development & Regulating) Act, 1957, or Rules framed there under, subject to a maximum period of 30 years;

(viii) User agency shall undertake gap planting and soil & moisture conservation activities to restock and rejuvenate the degraded open forests (having crown density less than 0.40), if any, located in the area within 100 meters from outer perimeter of the mining lease as per plan technically approved by RCCF, Rourkela Circle;

(ix) The user agency shall undertake mining in a phased manner after taking due care for reclamation of the mined over area. The concurrent reclamation plan as per the approved mining plan shall be executed by the User Agency from the very first year, and an annual report on implementation thereof shall be submitted to the Nodal Officer, Forest (Conservation) Act, 1980, in the concerned State Government and the concerned Regional Office of the Ministry. If it is found from the annual report that the activities indicated in the concurrent reclamation plan are not being executed by the User Agency, the Nodal Officer or the Chief Conservator of Forests (Central) may direct that the mining activities shall remain suspended till such time, such reclamation activities are satisfactorily executed.

(x) The user agency shall undertake fencing, protection and afforestation of the safety zone area (7.5 meter strip all along the outer boundary of the mining lease or mining cluster, as applicable, and such other areas as specified in the approved mining plan) at the project cost;

(xi) The State Forest Department shall undertake afforestation on degraded forest land, one and half time in extent to the area used for safety zone from the funds realised from the user agency;

(xii) The user agency shall undertake de-silting of the village tanks and other water bodies located within five km from the mine lease boundary so as to mitigate the impact of siltation of such tanks/water bodies, whenever required as per plan technically approved by RCCF , Rourkela Circle;

(xiii) The boundary of the diverted forest land, mining lease and safety zone shall be demarcated on ground at the project cost, by erecting four feet high reinforced cement concrete pillars, each inscribed with its serial number, forward and back bearing and distance from pillar to pillar;

(xiv) The forest land shall not be used for any purpose other than that specified in the proposal;

(xv) The User Agency shall furnish an undertaking to abide by the policy decision of State Government issued vide Steel & Mines Department Notification bearing SRO No. 37/2004 dt. 15.1.2004;

(xvi) The State Government shall implement the Wildlife Management Plan in line with Regional Wildlife Management Plan prepared for Keonjhar and Bonai forest division from funds provided by the user agency, as per revised cost norm;

(xvii) The user agency and the State Forest Department shall implement the site specific conservation plan in leasehold as well as surrounding area duly approved by the CWLW, Odisha from funds provided by the user agency.

(xviii) The user agency shall ensure that because of this project, no damage is caused to the wildlife available in the area;

(xix) Any other condition that the concerned Regional Office of this Ministry may stipulate, from time to time, in the interest of conservation, protection and development of forests & wildlife;

(xx) The user agency shall submit the annual report on compliance to conditions stipulated in the approval to the to the stage Government and the concerned Regional Office of this Ministry; and

(xxi) The user agency and the State Government shall ensure compliance to provisions of the all Acts, Rules, Regulations and Guidelines, for the time being in force, as applicable to the project and to the conditions of "in principal approval" for which they have given undertakings.

Yours faithfully,

(H. C. Chaudhary)
Assistant Inspector General of Forests

Copy to:

1. The PCCF, Government of Orissa, Bhubaneshwar.
2. The Nodal Officer, O/o PCCF, Bhubaneshwar.
3. The Chief Conservator of Forests (Central), Regional Office, Bhubaneshwar.
4. M/s. OCL India Limited, 17th Floor, Narain Manzil, 23, Barakhambha Road, New Delhi 110 001.

5. The Monitoring Cell, FC Division, MoEF, New Delhi for uploading the approval letter in website.
6. Guard File.

(H. C. Chaudhary)
Assistant Inspector General of Forests

Annexure-II

Consent to Operate

BY REGD. POST WITH AD

STATE POLLUTION CONTROL BOARD, ODISHA

[DEPARTMENT OF FOREST, ENVIRONMENT & CLIMATE CHANGE, GOVERNMENT OF ODISHA]
A/118, Nilakantha Nagar, Unit-VIII, Bhubaneswar-751012
Phone-2561909, Fax: 2562822, 2560955

CONSENT ORDER

No. 4884 / IND-I-CON- 258 Dt. 28.03.2022 /

CONSENT ORDER NO.162

Sub : **Consent for discharge of sewage and trade effluent under section 25/26 of Water (PCP) Act, 1974 and for existing / new operation of the plant under section 21 of Air (PCP) Act, 1981.**

Ref : **Your Online Application No.3317308 dated 15-02-2021 and Online reply dated 27.12.2021 & Letter No. Nil, dated 28.09.2021.**

Consent to operate is hereby granted under section 25/26 of Water (Prevention & Control of Pollution) Act, 1974 and under section 21 of Air (Prevention & Control of Pollution) Act, 1981 and rules framed thereunder to

Name of the Industry: LANJIBERNA LIMESTONE & DOLOMITE MINES OF M/S. DALMIA CEMENT (BHARAT) LIMITED.

Name of the Occupier & Designation: T. VENKATESAN, DIRECTOR.
Address: AT/PO: LANJIBERNA, DIST: SUNDARGARH

This consent order is valid for the period up to 31.03.2023.

This consent order supersedes the earlier consent order issued vide letter No. 5346 dated 27.03.2021.

Details of Products Manufactured

Sl. No	Product	Quantity
1.	*Limestone*	*9.5 MTPA*
2.	*Dolomite*	*0.08 MTPA*
3.	*Rejects / Wastes*	*7.42 MTPA*

Details of Mineral Handling Plants /Units

01	*Operation of crushing plant of capacity 1x1200 TPH with stacker reclaimer*
02	*Operation of Cross country belt conveyor (CCBC) of capacity 36,000 TPD*
03	*Operation of crushing plant of capacity 1x400 TPH*
04	*Operation of crushing plant of capacity 1x200 TPH*
05	*Operation of crushing plant of capacity 1x150 TPH*
06	*Operation of crushing plant of capacity 1x1600 TPH*

This consent order is valid for the specified outlets, discharge quantity and quality, specified chimney/stack, emission quantity and quality of emissions as specified below. This consent is granted subject to the general and special conditions stipulated therein.

35) A copy of the annual return (annual return submitted to IBM) shall be submitted to the Board every year.

36) The environmental statement report for the financial year ending 31st March shall be submitted to the Board in form-V on or before 30th September every year.

28/3/22

MEMBER SECRETARY
STATE POLLUTION CONTROL BOARD, ODISHA

To,

T. VENKATESAN, DIRECTOR,
LANJIBERNA LIMESTONE & DOLOMITE MINES OF
M/S. DALMIA CEMENT (BHARAT) LIMITED
M/S. OCL INDIA LTD.
AT/PO:RAJGANGPUR,DIST:SUNDARGARH,
PIN-770017.

Memo No._____/Dt._____/

Copy forwarded to :

i) Regional Officer, State Pollution Control Board, **Rourkela**
ii) District Collector, **Sundargarh**
iii) Director of Mines, Govt. of Odisha, Bhubaneswar
iv) Director, Environment -cum-Special Secretary, F & E. Deptt. Govt. of Odisha, Bhubaneswar.
v) D.F.O, **Sundargarh**
vi) Deputy Director of Mines, **Rourkela**
vii) Addl. Chief Env. Engineer (Hazardous Waste Management Cell)
viii) Sr. Env. Scientist, Central Lab, SPCB, Bhubaneswar
ix) Consent Register

CHIEF ENV. ENGINEER(M)
STATE POLLUTION CONTROL BOARD, ODISHA

Annexure-III

NOC from Central Ground Water Authority

Member (CGWA)

भारत सरकार
केन्द्रीय भूमि जल प्राधिकरण
जल संसाधन, नदी विकास
और गंगा संरक्षण मंत्रालय

Government of India
Central Ground Water Authority
Ministry of Water Resources,
River Development & Ganga Rejuvenation

File No: - 21-4/1311/OR/MIN/2017-3277

NOC No: - CGWA/NOC/MIN/ORIG/2018/4309

Date: - 07 DEC 2018

To

M/s OCL India Limited
Lanjiberna Limestone and Dolomite Mine
Trishna Nirmalya Bhavan,
4th Floor, KIIT Square,
Block Bhubaneswar, District Khordha,
Odisha- 751024

Sub: - NOC for ground water withdrawal to M/s OCL India Limited, in respect of their existing "Lanjiberna Limestone and Dolomite Mine" located at Village Lanjiberna, Block Kutra, District Sundargarh, Odisha – reg.

Refer to your application dated 13.07.2017 for grant of NOC for ground water withdrawal. Based on recommendation of Regional Director, Central Ground Water Board, South Eastern Region, Bhubaneswar vide his letter dated 19/03/2018 and further deliberations on the subject, the NOC of Central Ground Water Authority is hereby accorded to **M/s OCL India Limited, in respect of their existing "Lanjiberna Limestone and Dolomite Mine" located at Village Lanjiberna, Block Kutra, District Sundargarh, Odisha.** This NOC is valid from 31/10/2018 to 30/10/2020 and is subject to the following conditions:-

1. The firm may abstract **58 cu.m/day** of ground water (and not exceeding **2, 11, 70 cu.m/year**) though one (1) existing bore well and **1,411 cu.m/day** (not exceeding **4, 23,300 cu.m/year**) through dewatering the mine seepage through three (3) proposed mine pits on account of mining intersecting the water table. The total withdrawal should not exceed **1,469 cu.m/day** (not exceeding **4, 44,470 cu.m/year**). No additional dewatering and no additional ground water abstraction structures shall be constructed for this purpose without prior approval of the CGWA. Any unexpected variation in inflow of ground water into the mine pit should be reported to the concerned Regional Director, Central Ground Water Board, South Eastern Region, Bhubaneswar.
2. The bore well as well as dewatering structures shall be fitted with digital water meters by the firm at its own cost and monitoring of monthly ground water abstraction data of each abstraction structure shall be recorded in a log book. Compliance to this condition shall be reported within one month from the date of issue of this letter.
3. **M/s OCL India Limited**, in consultation with the Regional Director, Central Ground Water Board, South Eastern Region, Bhubaneswar shall implement ground water recharge measures atleast to the tune of **8,06,150 cu.m/year** as proposed, for augmenting the ground water resources of the area where post monsoon water level is more than 5 meter below ground level. Firm shall report the compliance within six months from the date of issue of this letter. Firm shall also undertake periodic maintenance of recharge structures at its own cost.

4. The photographs of the recharge structures after completion of the same shall be furnished immediately to the Regional Director, Central Ground Water Board, South Eastern Region, Bhubaneswar for verification under intimation to this office.
5. The firm, at its own cost, shall construct two (2) observation wells (piezometers) at suitable locations and install digital water level recorders along the periphery of the mine for monthly ground water level monitoring. Further, the firm shall execute ground water level monitoring four (4) times a year (January, May, August and November) in core and buffer zone by establishing sufficient number of key wells in consultation with the Regional Director, Central Ground Water Board, South Eastern Region, Bhubaneswar. The firm shall install telemetry system in one of the piezometers and share the user ID and password of the telemetry system with the Regional Director, Central Ground Water Board, South Eastern Region, Bhubaneswar.
6. The ground water quality shall be monitored once in a year (during pre-monsoon period).
7. The ground water monitoring data in respect of S. No. 2, 5 & 6 shall be submitted to the Regional Director, Central Ground Water Board, Northern Region, Lucknow on regular basis at least once in a year.
8. The firm shall ensure proper recycling and reuse of waste water after adequate treatment.
9. Action taken report in respect of S. No. 1 to 8 shall be submitted to CGWA within one year period.
10. This NOC is liable to be cancelled in case of non-compliance of any of the conditions as mentioned in S. No. 1 to 9.
11. This NOC is subject to prevailing Central/State Government rules/laws or Court orders related to construction of tubewell/ground water withdrawal/construction of recharge or conservation structure/discharge of effluents or any such matter as applicable.
12. The firm shall report self-compliance online in the website (www.cgwa-noc.gov.in) within one year from the date of issue of this NOC.
13. This NOC does not absolve the applicant / proponent of this obligation / requirement to obtain other statutory and administrative clearances from other statutory and administrative authorities.
14. The NOC does not imply that other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities would consider the project on merits and be taking decisions independently of the NOC.

Member (CGWA)

Copy to:

1. The Member Secretary, Odisha Pollution Control Board Paribesh Bhawan, A/118, Nilakantha Nagar, Unit - VIII, Bhubaneswar - 751012,Odisha **with the request to ensure that the conditions mentioned in the NOC are compiled by the firm in consultation with the District Collector & Magistrate, District Sundargarh, Odisha.**
2. The District Collector & Magistrate, District Sundargarh, Odisha for necessary action.
3. The Regional Director, Central Ground Water Board, South Eastern Region, Bhubaneswar. This has reference to your recommendation dated 19/03/2018.
4. Guard File 2018-19.

Member (CGWA)

Annexure-IV

Newspaper advertisement in 'Manthan', Odia Newspaper and in 'Odisha Today', English newspaper on 09.03.2020

ଓସିଏଲ ଇଣ୍ଡିଆ ଲିମିଟେଡ୍

ରାଜଗାଙ୍ଗପୁର -୭୭୦୦୧୭ (ଓଡ଼ିଶା)

ସର୍ବସାଧାରଣଙ୍କ ଗୋଚରାର୍ଥେ ଏହା ଜଣାଇଦିଆଯାଉଅଛି ଯେ ୮୭୩.୦୫୭ ହେକ୍ଟର ବିଶିଷ୍ଟ ଓସିଏଲ ଇଣ୍ଡିଆ ଲିମିଟେଡ୍‌ର କ୍ୟାପ୍ଟିଭ ଲାଂଜିବେରଣା ଲାଇମଷ୍ଟୋନ ଓ ଡୋଲମାଇଟ ଖଣିର ଉତ୍ପାଦନ କ୍ଷମତାକୁ ବାର୍ଷିକ ୪୨ ଲକ୍ଷ ଟନ (4.2 Million TPA) ଲାଇମଷ୍ଟୋନରୁ ସମ୍ପ୍ରସାରଣ କରି ବାର୍ଷିକ ୯୫ ଲକ୍ଷ ଟନ (9.5 Million TPA) ଲାଇମଷ୍ଟୋନ, ୦.୮ ଲକ୍ଷ ଟନ (0.08 Million TPA) ଡୋଲମାଇଟ, ୭୪.୨ ଲକ୍ଷ ଟନ (7.42 Million TPA) ପରିତ୍ୟକ୍ତ / ବେକାର ସହିତ ଖଣି ଲିଜ ଅଞ୍ଚଳରେ ବର୍ତ୍ତମାନ ଅବସ୍ଥିତ ଥିବା ୪ଟି କ୍ରସର ଯଥା ୪୦୦ TPH, 1200 TPH, ଏବଂ 2 X 200 TPH (ସମ୍ମିଳିତ ଭାବେ) ଏବଂ ୧୬୦୦ TPH ର ନୂତନ କ୍ରସର ସ୍ଥାପନ ଉଦ୍ଦେଶ୍ୟରେ ପ୍ରସ୍ତାବିତ ସମ୍ପ୍ରସାରଣ ପ୍ରକଳ୍ପକୁ ଭାରତ ସରକାରଙ୍କ ପରିବେଶ, ଜଙ୍ଗଲ ଏବଂ ଜଳବାୟୁ ପରିବର୍ତ୍ତନ ମନ୍ତ୍ରାଳୟ (MoEFCC)ଙ୍କ ପକ୍ଷରୁ ଚିଠି କ୍ରମିକ ସଂଖ୍ୟା J-1105/202/2016-IA.II(M) ତା. ୦୪.୦୩.୨୦୨୦ ଦ୍ୱାରା ପରିବେଶ ସମ୍ମତୀୟ ଅନୁମତି ପ୍ରଦାନ କରାଯାଇଅଛି । ଉକ୍ତ ଅନୁମତି ସମ୍ବଳିତ ଚିଠିର ନକଲ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ ନିକଟରେ ଉପଲବ୍ଧ । ଏତଦବ୍ୟତୀତ ପରିବେଶ, ଜଙ୍ଗଲ ଏବଂ ଜଳବାୟୁ ପରିବର୍ତ୍ତନ ମନ୍ତ୍ରାଳୟଙ୍କ ୱେବସାଇଟ http:/envfor.nic.in ରେ ମଧ୍ୟ ଏହା ଅବଗତ ହୋଇପାରିବ ।

କାର୍ଯ୍ୟନିର୍ବାହୀ ନିର୍ଦ୍ଦେଶକ

OCL INDIA LIMITED

Rajgangpur-770017 (Odisha)

PUBLIC NOTICE

Please take notice that the Ministry of Environment, Forests and Climate Change (MoEF&CC), Govt of India, New Delhi, has accorded Environment Clearance vide their letter No. J-1105/202/2016-IA.II(M) dated 4th March, 2020 to proposed expansion of captive Lanjiberna Limestone and Dolomite Mine of OCL India Limited for enhancement of limestone production capacity from 4.2 million TPA to 9.5 million TPA, Dolomite 0.08 million TPA and Rejects/Waste 7.42 million TPA (Total excavation 17.0 million TPA) along with four existing crushers installed within lease area i.e. 400 TPH, 1200 TPH and 2 X 200 TPH (aggregate) and installation of one new crusher of 1600 TPH in the mines lease area of 873.057 ha. Copies of clearance letter are available with the State Pollution Control Board and may also be seen at website of the ministry of Environment, Forests and Climate Change (MoEF&CC) at http:/envfor.nic.in.

Executive Director

Annexure-V

Water Quality & Level Monitoring Report

Cleenviron Private Limited

Consultant and Engineers in Environmental Pollution Control & Monitoring with NABL Accredited Laboratory.

TEST REPORT FOR WATER QUALITY ANALYSIS

FORMAT NO: CPL/WA/3

ULR – TC816220000015787
REPORT NO: CPLR/W/JUL-22/12

REPORT ISSUE DATE: 05.07.2022

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

Name of the Customer	:	**M/s DALMIA CEMENT (BHARAT) LIMITED**
Address of the Customer	:	LANJIBERNA LIMESTONE & DOLOMITE MINES, SUNDARGARH – 770017, ODISHA
Sample ID No	:	**CPL/W/JUN-22/94**
Sample Description	:	Ground Water
Date of Sampling	:	30.06.2022
Location of Sampling	:	Dugwell Dhauradaha Village
Sampling Method	:	APHA 23rd Edition, 1060
Sampling Deviation (if any)	:	Nil
Condition of Sample while receipt	:	Sealed
Appearance of Sample while receipt	:	Clear
Type of Container used for sampling	:	Narrow Mouth & Wide Mouth Plastic Bottles
Sample Received on	:	30.06.2022
Date of Test	:	30.06.2022 – 05.07.2022

Sl No	Parameter	Method of Analysis	Results Obtained	Unit	Permissible Limit in absence of Alternate Source as per IS 10500: 2012
1	Turbidity	APHA 23rd Edition, 2130 B	0.10	NTU	5.0
2	pH Value	APHA 23rd Edition, 4500 H+B	8.43	-	6.5 – 8.5
3	Total Hardness (as $CaCO_3$)	APHA 23rd Edition, 2340 C	282.24	mg/l	600
4	Iron (as Fe)	APHA 23rd Edition, 3500 Fe B	< 0.07	mg/l	0.3
5	Chlorides (as Cl)	APHA 23rd Edition, 4500 Cl B	24.99	mg/l	1000
6	Total Dissolved Solids	APHA 23rd Edition, 2540 B	374	mg/l	2000
7	Electrical Conductivity	APHA 23rd Edition, 2510 B	604	µS/cm	-
8	Calcium (as Ca)	APHA 23rd Edition, 3500 Ca B	46.86	mg/l	200
9	Magnesium (as Mg)	APHA 23rd Edition, 3500 Mg B	40.17	mg/l	100
10	Copper (as Cu)	APHA 23rd Edition, 3111 B	< 0.10	mg/l	1.5
11	Manganese (as Mn)	APHA 23rd Edition, 3500 Mn B	< 0.05	mg/l	0.3
12	Sulfate (as SO_4)	APHA 23rd Edition, 4500 SO_4^{2-} E	81.48	mg/l	400
13	Total Nitrate (as NO_3)	APHA 23rd Edition, 4500 NO_3 B	2.59	mg/l	45
14	Total Alkalinity (as $CaCO_3$)	APHA 23rd Edition, 2320 B	144	mg/l	600
15	Acidity	APHA 23rd Edition, 2310 B	12	mg/l	-
16	Sulphide (as H_2S)	APHA 23rd Edition, 4500 S^{2-} D	< 0.02	mg/l	0.05
17	Sodium (as Na)	APHA 23rd Edition, 3500 Na B	26.11	mg/l	-
18	Potassium (as K)	APHA 23rd Edition, 3500 K B	9.20	mg/l	-
19	Fluoride (as F)	APHA 23rd Edition, 4500 F D	0.28	mg/l	1.5

Test Done By

Verified By

CLEENVIRON PRIVATE LIMITED ROURKELA

Authorized Signatory
Subhanga Praharaj
Managing Director/QM

Registered Office:
D/318, KOELNAGAR, ROURKELA – 769014, Dist: SUNDARGARH, ODISHA

Branch Office & Laboratory:
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Cleenviron Private Limited

Consultant and Engineers in Environmental Pollution Control & Monitoring with NABL Accredited Laboratory.

TEST REPORT FOR WATER QUALITY ANALYSIS

FORMAT NO: CPL/F/669

ULR – TC681622000001678F
REPORT NO: CPL/R/W/JUL-22/12

REPORT ISSUE DATE: 05.07.2022

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

Name of the Customer	:	**M/s DALMIA CEMENT (BHARAT) LIMITED**
Address of the Customer	:	LANJIBERNA LIMESTONE & DOLOMITE MINES, SUNDARGARH – 770017, ODISHA
Sample ID No	:	**CPL/W/JUN-22/94**
Sample Description	:	Ground Water
Date of Sampling	:	30.06.2022
Location of Sampling	:	Dugwell Dhauradaha Village
Sampling Method	:	APHA 23rd Edition, 1060
Sampling Deviation (if any)	:	Nil
Condition of Sample while receipt	:	Sealed
Appearance of Sample while receipt	:	Clear
Type of Container used for sampling	:	Narrow Mouth & Wide Mouth Plastic Bottles
Sample Received on	:	30.06.2022
Date of Test	:	30.06.2022 – 05.07.2022

Sl No	Parameter	Method of Analysis	Results Obtained	Unit	Permissible Limit in absence of Alternate Source as per IS 10500: 2012
20	Cadmium (as Cd)	APHA 23rd Edition, 3111 B	ND	mg/l	0.003
21	Lead (as Pb)	APHA 23rd Edition, 3111 B	ND	mg/l	0.01
22	Arsenic (as As)	APHA 23rd Edition, 3114 B	ND	mg/l	0.05
23	Mercury (as Hg)	APHA 23rd Edition, 3112 B	ND	mg/l	0.001
24	Selenium (as Se)	APHA 23rd Edition, 3114 C	ND	mg/l	0.01
25	Nickel (as Ni)	APHA 23rd Edition, 3111 B	ND	mg/l	0.02
26	Zinc (as Zn)	APHA 23rd Edition, 3111 B	ND	mg/l	15.0
27	Total Chromium (as Cr)	APHA 23rd Edition, 3111 B	ND	mg/l	0.05

ND: Non Detectable.

Test Done By

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CLEENVIRON PRIVATE LIMITED ROURKELA

Authorized Signatory
Subhanga Praharaj
Managing Director/QM

***** End of Test Report *****

Registered Office:
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Cleenviron Private Limited

Consultant and Engineers in Environmental Pollution Control & Monitoring with Laboratory Facility.

TEST REPORT FOR WATER QUALITY ANALYSIS

FORMAT NO: CPL/F/8/08

REPORT NO: CPL/R/W/JUL-22/12N

REPORT ISSUE DATE: 05.07.2022

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

Name of the Customer	:	**M/s DALMIA CEMENT (BHARAT) LIMITED**
Address of the Customer	:	LANJIBERNA LIMESTONE & DOLOMITE MINES, SUNDARGARH – 770017, ODISHA
Sample ID No	:	**CPL/W/JUN-22/94**
Sample Description	:	Ground Water
Date of Sampling	:	30.06.2022
Location of Sampling	:	Dugwell Dhauradaha Village
Sampling Method	:	APHA 23rd Edition, 1060
Sampling Deviation (if any)	:	Nil
Condition of Sample while receipt	:	Sealed
Appearance of Sample while receipt	:	Clear
Type of Container used for sampling	:	Narrow Mouth & Wide Mouth Plastic Bottles
Sample Received on	:	30.06.2022
Date of Test	:	30.06.2022 – 05.07.2022

Sl No	Parameter	Method of Analysis	Results Obtained	Unit	Permissible Limit in absence of Alternate Source as per IS 10500: 2012
1	Colour	APHA 23rd Edition, 2120 B	< 5	Hazen	15
2	Odour	APHA 23rd Edition, 2150 B	Agreeable	-	Agreeable
3	Taste	APHA 23rd Edition, 2160 B	Agreeable	-	Agreeable
4	Temperature	APHA 23rd Edition, 2550 B	28.1	°C	-
5	Residual Free Chlorine	MERCK	0.38	mg/l	1.0 (min)
6	Total Bacterial Count	RAKIRO	Absent	Nos/100ml	Absent
7	E coli	RAKIRO	Absent	Nos/100ml	Absent

Test Done By

Verified By

CLEENVIRON PRIVATE LIMITED ROURKELA

Authorized Signatory
Subhanga Praharaj
Managing Director/QM

***** End of Test Report *****

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Cleenviron Private Limited

Consultant and Engineers in Environmental Pollution Control & Monitoring with NABL Accredited Laboratory.

TC - 0818

TEST REPORT FOR WATER QUALITY ANALYSIS

FORMAT NO: CPL/F/R/08

ULR – TC681622000001679F
REPORT NO: CPL/R/W/JUL-22/13

REPORT ISSUE DATE: 05.07.2022

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

Name of the Customer	:	**M/s DALMIA CEMENT (BHARAT) LIMITED**
Address of the Customer	:	LANJIBERNA LIMESTONE & DOLOMITE MINES, SUNDARGARH – 770017, ODISHA
Sample ID No	:	**CPL/W/JUN-22/91**
Sample Description	:	Ground Water
Date of Sampling	:	30.06.2022
Location of Sampling	:	Dugwell Lanjiberna Village
Sampling Method	:	APHA 23rd Edition, 1060
Sampling Deviation (if any)	:	Nil
Condition of Sample while receipt	:	Sealed
Appearance of Sample while receipt:		Clear
Type of Container used for sampling:		Narrow Mouth & Wide Mouth Plastic Bottles
Sample Received on	:	30.06.2022
Date of Test	:	30.06.2022 – 05.07.2022

Sl No	Parameter	Method of Analysis	Results Obtained	Unit	Permissible Limit in absence of Alternate Source as per IS 10500: 2012
1	Turbidity	APHA 23rd Edition, 2130 B	0.20	NTU	5.0
2	pH Value	APHA 23rd Edition, 4500 H+B	7.54	-	6.5 – 8.5
3	Total Hardness (as $CaCO_3$)	APHA 23rd Edition, 2340 C	334.66	mg/l	600
4	Iron (as Fe)	APHA 23rd Edition, 3500 Fe B	< 0.10	mg/l	0.3
5	Chlorides (as Cl)	APHA 23rd Edition, 4500 Cl B	32.98	mg/l	1000
6	Total Dissolved Solids	APHA 23rd Edition, 2540 B	448	mg/l	2000
7	Electrical Conductivity	APHA 23rd Edition, 2510 B	726	µS/cm	-
8	Calcium (as Ca)	APHA 23rd Edition, 3500 Ca B	88.88	mg/l	200
9	Magnesium (as Mg)	APHA 23rd Edition, 3500 Mg B	27.43	mg/l	100
10	Copper (as Cu)	APHA 23rd Edition, 3111 B	< 0.10	mg/l	1.5
11	Manganese (as Mn)	APHA 23rd Edition, 3500 Mn B	< 0.05	mg/l	0.3
12	Sulfate (as SO_4)	APHA 23rd Edition, 4500 SO_4^{2-} E	40.96	mg/l	400
13	Total Nitrate (as NO_3)	APHA 23rd Edition, 4500 NO_3 B	2.22	mg/l	45
14	Total Alkalinity (as $CaCO_3$)	APHA 23rd Edition, 2320 B	216	mg/l	600
15	Acidity	APHA 23rd Edition, 2310 B	16	mg/l	-
16	Sulphide (as H_2S)	APHA 23rd Edition, 4500 S^{2-} D	< 0.02	mg/l	0.05
17	Sodium (as Na)	APHA 23rd Edition, 3500 Na B	42.4	mg/l	-
18	Potassium (as K)	APHA 23rd Edition, 3500 K B	8.24	mg/l	-
19	Fluoride (as F)	APHA 23rd Edition, 4500 F D	0.30	mg/l	1.5

Test Done By

Verified By

CLEENVIRON PRIVATE LIMITED ROURKELA

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Cleenviron Private Limited

Consultant and Engineers in Environmental Pollution Control & Monitoring with NABL Accredited Laboratory.

TC - 6816

TEST REPORT FOR WATER QUALITY ANALYSIS

FORMAT NO: CPL/F/03/E

ULR – TC681622000001679F
REPORT NO: CPL/R/W/JUL-22/13

REPORT ISSUE DATE: 05.07.2022

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

Name of the Customer	:	**M/s DALMIA CEMENT (BHARAT) LIMITED**
Address of the Customer	:	LANJIBERNA LIMESTONE & DOLOMITE MINES, SUNDARGARH – 770017, ODISHA
Sample ID No	:	**CPL/W/JUN-22/91**
Sample Description	:	Ground Water
Date of Sampling	:	30.06.2022
Location of Sampling	:	Dugwell Lanjiberna Village
Sampling Method	:	APHA 23rd Edition, 1060
Sampling Deviation (if any)	:	Nil
Condition of Sample while receipt	:	Sealed
Appearance of Sample while receipt:		Clear
Type of Container used for sampling:		Narrow Mouth & Wide Mouth Plastic Bottles
Sample Received on	:	30.06.2022
Date of Test	:	30.06.2022 – 05.07.2022

Sl No	Parameter	Method of Analysis	Results Obtained	Unit	Permissible Limit in absence of Alternate Source as per IS 10500: 2012
20	Cadmium (as Cd)	APHA 23rd Edition, 3111 B	ND	mg/l	0.003
21	Lead (as Pb)	APHA 23rd Edition, 3111 B	ND	mg/l	0.01
22	Arsenic (as As)	APHA 23rd Edition, 3114 B	ND	mg/l	0.05
23	Mercury (as Hg)	APHA 23rd Edition, 3112 B	ND	mg/l	0.001
24	Selenium (as Se)	APHA 23rd Edition, 3114 C	ND	mg/l	0.01
25	Nickel (as Ni)	APHA 23rd Edition, 3111 B	ND	mg/l	0.02
26	Zinc (as Zn)	APHA 23rd Edition, 3111 B	ND	mg/l	15.0
27	Total Chromium (as Cr)	APHA 23rd Edition, 3111 B	ND	mg/l	0.05

ND: Non Detectable.

Test Done By

Verified By

CLEENVIRON PRIVATE LIMITED ROURKELA

Authorized Signatory
Subhanga Praharaj
Managing Director/QM

***** End of Test Report *****

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Cleenviron Private Limited

Consultant and Engineers in Environmental Pollution Control & Monitoring with Laboratory Facility.

TEST REPORT FOR WATER QUALITY ANALYSIS

FORMAT NO: CPL/F/05

REPORT NO: CPL/R/W/JUL-22/13N

REPORT ISSUE DATE: 05.07.2022

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

Name of the Customer	:	**M/s DALMIA CEMENT (BHARAT) LIMITED**
Address of the Customer	:	LANJIBERNA LIMESTONE & DOLOMITE MINES, SUNDARGARH – 770017, ODISHA
Sample ID No	:	**CPL/W/JUN-22/91**
Sample Description	:	Ground Water
Date of Sampling	:	30.06.2022
Location of Sampling	:	Dugwell Lanjibera Village
Sampling Method	:	APHA 23rd Edition, 1060
Sampling Deviation (if any)	:	Nil
Condition of Sample while receipt	:	Sealed
Appearance of Sample while receipt	:	Clear
Type of Container used for sampling	:	Narrow Mouth & Wide Mouth Plastic Bottles
Sample Received on	:	30.06.2022
Date of Test	:	30.06.2022 – 05.07.2022

Sl No	Parameter	Method of Analysis	Results Obtained	Unit	Permissible Limit in absence of Alternate Source as per IS 10500 : 2012
1	Colour	APHA 23rd Edition, 2120 B	< 5	Hazen	15
2	Odour	APHA 23rd Edition, 2150 B	Agreeable	-	Agreeable
3	Taste	APHA 23rd Edition, 2160 B	Agreeable	-	Agreeable
4	Temperature	APHA 23rd Edition, 2550 B	28.6	°C	-
5	Residual Free Chlorine	MERCK	0.48	mg/l	1.0 (min)
6	Total Bacterial Count	RAKIRO	Absent	Nos/100ml	Absent
7	E coli	RAKIRO	Absent	Nos/100ml	Absent

Test Done By

Verified By

CLEENVIRON PRIVATE LIMITED ROURKELA

Authorized Signatory
Subhanga Praharaj
Managing Director/QM

***** End of Test Report *****

Registered Office:
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Cleenviron Private Limited

Consultant and Engineers in Environmental Pollution Control & Monitoring with NABL Accredited Laboratory.

TEST REPORT FOR WATER QUALITY ANALYSIS

FORMAT NO: CPL/F/03

JLR – TC8816220000016801F
REPORT NO: CPL/R/W/JUL-22/14

REPORT ISSUE DATE: 05.07.2022

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

Name of the Customer	:	**M/s DALMIA CEMENT (BHARAT) LIMITED**
Address of the Customer	:	LANJIBERNA LIMESTONE & DOLOMITE MINES, SUNDARGARH – 770017, ODISHA
Sample ID No	:	**CPL/W/JUN-22/93**
Sample Description	:	Ground Water
Date of Sampling	:	30.06.2022
Location of Sampling	:	Dugwell Katang Village
Sampling Method	:	APHA 23rd Edition, 1060
Sampling Deviation (if any)	:	Nil
Condition of Sample while receipt	:	Sealed
Appearance of Sample while receipt:		Clear
Type of Container used for sampling:		Narrow Mouth & Wide Mouth Plastic Bottles
Sample Received on	:	30.06.2022
Date of Test	:	30.06.2022 – 05.07.2022

Sl No	Parameter	Method of Analysis	Results Obtained	Unit	Permissible Limit in absence of Alternate Source as per IS 10500: 2012
1	Turbidity	APHA 23rd Edition, 2130 B	0.40	NTU	5.0
2	pH Value	APHA 23rd Edition, 4500 H+B	6.65	-	6.5 – 8.5
3	Total Hardness (as $CaCO_3$)	APHA 23rd Edition, 2340 C	386.14	mg/l	600
4	Iron (as Fe)	APHA 23rd Edition, 3500 Fe B	< 0.16	mg/l	0.3
5	Chlorides (as Cl)	APHA 23rd Edition, 4500 Cl B	59.98	mg/l	1000
6	Total Dissolved Solids	APHA 23rd Edition, 2540 B	535	mg/l	2000
7	Electrical Conductivity	APHA 23rd Edition, 2510 B	890	µS/cm	-
8	Calcium (as Ca)	APHA 23rd Edition, 3500 Ca B	74.34	mg/l	200
9	Magnesium (as Mg)	APHA 23rd Edition, 3500 Mg B	50.94	mg/l	100
10	Copper (as Cu)	APHA 23rd Edition, 3111 B	< 0.10	mg/l	1.5
11	Manganese (as Mn)	APHA 23rd Edition, 3500 Mn B	< 0.05	mg/l	0.3
12	Sulfate (as SO_4)	APHA 23rd Edition, 4500 SO_4^{2-} E	82.17	mg/l	400
13	Total Nitrate (as NO_3)	APHA 23rd Edition, 4500 NO_3 B	5.53	mg/l	45
14	Total Alkalinity (as $CaCO_3$)	APHA 23rd Edition, 2320 B	208	mg/l	600
15	Acidity	APHA 23rd Edition, 2310 B	22	mg/l	-
16	Sulphide (as H_2S)	APHA 23rd Edition, 4500 S^{2-} D	< 0.02	mg/l	0.05
17	Sodium (as Na)	APHA 23rd Edition, 3500 Na B	54.48	mg/l	-
18	Potassium (as K)	APHA 23rd Edition, 3500 K B	10.16	mg/l	-
19	Fluoride (as F)	APHA 23rd Edition, 4500 F D	1.94	mg/l	1.5

Test Done By

Verified By

CLEENVIRON PRIVATE LIMITED ROURKELA

Authorized Signatory
Subhanga Praharaj
Managing Director/QM

Registered Office:
D/318, KOELNAGAR, ROURKELA – 769014, Dist: SUNDARGARH, ODISHA

Branch Office & Laboratory:
D/124, KOELNAGAR, ROURKELA – 769014, Dist: SUNDARGARH, ODISHA

Tele Fax: 0661 – 2475748, email: cleenviron@gmail.com

Cleenviron Private Limited

Consultant and Engineers in Environmental Pollution Control & Monitoring with NABL Accredited Laboratory.

TEST REPORT FOR WATER QUALITY ANALYSIS

FORMAT NO: CPL/F/80

ULR – TC581622000001680F
REPORT NO: CPL/R/W/JUL-22/14

REPORT ISSUE DATE: 05.07.2022

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

Name of the Customer	:	**M/s DALMIA CEMENT (BHARAT) LIMITED**
Address of the Customer	:	LANJIBERNA LIMESTONE & DOLOMITE MINES, SUNDARGARH – 770017, ODISHA
Sample ID No	:	**CPL/W/JUN-22/93**
Sample Description	:	Ground Water
Date of Sampling	:	30.06.2022
Location of Sampling	:	Dugwell Katang Village
Sampling Method	:	APHA 23rd Edition, 1060
Sampling Deviation (if any)	:	Nil
Condition of Sample while receipt	:	Sealed
Appearance of Sample while receipt:		Clear
Type of Container used for sampling:		Narrow Mouth & Wide Mouth Plastic Bottles
Sample Received on	:	30.06.2022
Date of Test	:	30.06.2022 – 05.07.2022

Sl No	Parameter	Method of Analysis	Results Obtained	Unit	Permissible Limit in absence of Alternate Source as per IS 10500: 2012
20	Cadmium (as Cd)	APHA 23rd Edition, 3111 B	ND	mg/l	0.003
21	Lead (as Pb)	APHA 23rd Edition, 3111 B	ND	mg/l	0.01
22	Arsenic (as As)	APHA 23rd Edition, 3114 B	ND	mg/l	0.05
23	Mercury (as Hg)	APHA 23rd Edition, 3112 B	ND	mg/l	0.001
24	Selenium (as Se)	APHA 23rd Edition, 3114 C	ND	mg/l	0.01
25	Nickel (as Ni)	APHA 23rd Edition, 3111 B	ND	mg/l	0.02
26	Zinc (as Zn)	APHA 23rd Edition, 3111 B	ND	mg/l	15.0
27	Total Chromium (as Cr)	APHA 23rd Edition, 3111 B	ND	mg/l	0.05

ND: Non Detectable.

Test Done By

Verified By

CLEENVIRON PRIVATE LIMITED ROURKELA

Authorized Signatory
Subhanga Praharaj
Managing Director/CM

***** End of Test Report *****

Registered Office:
D/38, KOELNAGAR, ROURKELA – 769014, Dist: SUNDARGARH, ODISHA

Branch Office & Laboratory:
D/134, KOELNAGAR, ROURKELA – 769014, Dist: SUNDARGARH, ODISHA
Tele Fax: 0661 – 2475746, email: cleenviron@gmail.com

Cleenviron Private Limited

Consultant and Engineers in Environmental Pollution Control & Monitoring with Laboratory Facility.

TEST REPORT FOR WATER QUALITY ANALYSIS

FORMAT NO: CPL/F/03

REPORT NO: CPL/R/W/JUL-22/14N

REPORT ISSUE DATE: 05.07.2022

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

Name of the Customer	:	**M/s DALMIA CEMENT (BHARAT) LIMITED**
Address of the Customer	:	LANJIBERNA LIMESTONE & DOLOMITE MINES, SUNDARGARH – 770017, ODISHA
Sample ID No	:	**CPL/W/JUN-22/93**
Sample Description	:	Ground Water
Date of Sampling	:	30.06.2022
Location of Sampling	:	Dugwell Katang Village
Sampling Method	:	APHA 23rd Edition, 1060
Sampling Deviation (if any)	:	Nil
Condition of Sample while receipt	:	Sealed
Appearance of Sample while receipt	:	Clear
Type of Container used for sampling	:	Narrow Mouth & Wide Mouth Plastic Bottles
Sample Received on	:	30.06.2022
Date of Test	:	30.06.2022 – 05.07.2022

Sl No	Parameter	Method of Analysis	Results Obtained	Unit	Permissible Limit in absence of Alternate Source as per IS 10500: 2012
1	Colour	APHA 23rd Edition, 2120 B	< 5	Hazen	15
2	Odour	APHA 23rd Edition, 2150 B	Agreeable	-	Agreeable
3	Taste	APHA 23rd Edition, 2160 B	Agreeable	-	Agreeable
4	Temperature	APHA 23rd Edition, 2550 B	28.4	°C	-
5	Residual Free Chlorine	MERCK	0.46	mg/l	1.0 (min)
6	Total Bacterial Count	RAKIRO	Absent	Nos/100ml	Absent
7	E coli	RAKIRO	Absent	Nos/100ml	Absent

Test Done By

Verified By

CLEENVIRON PRIVATE LIMITED ROURKELA

Authorized Signatory
Subhanga Praharaj
Managing Director/QM

***** End of Test Report *****

Registered Office:
D/318, KOELNAGAR, ROURKELA – 769014, Dist: SUNDARGARH, ODISHA

Branch Office & Laboratory:
D/124, KOELNAGAR, ROURKELA – 769014, Dist: SUNDARGARH, ODISHA

Tele Fax: 0661 – 2472706, email: cleenviros@gmail.com

Cleenviron Private Limited

Consultant and Engineers in Environmental Pollution Control & Monitoring with Laboratory Facility.

GROUND WATER LEVEL MONITORING REPORT

PROJECT SITE: *LANJIBERNA LIMESTONE & DOLOMITE MINES*
CLIENT: *M/s DALMIA CEMENT (BHARAT) LIMITED*

Ground Water Levels are measured from existing Dug Wells on 4th June 2022 for the Second Quarter from the following mentioned points and data thus recorded are as follows:

Sl No	Location	MP to GL (m)	TDBMP (m)	WLBGL (m)	GL (m)	WLAMSL (m)
1	Village Dhauradha	1.29	9.78	4.67	242.34	237.67
2	Village Katang	0.60	8.55	5.45	264.89	259.44
3	Village Lanjiberna No: 3	0.67	5.67	2.73	252.41	253.14
4	Lanjiberna Colony	0.55	11.95	1.95	247.83	245.88
5	Brick Plant	0.75	6.89	5.53	245.03	239.50
6	Village Kheramuta	0.80	8.81	6.20	243.23	237.03

MP	:	Measuring Point
GL	:	Ground Level
TDBMP	:	Total Depth Below Measuring Point
WLBGL	:	Water Level Below Ground Level
WLAMSL	:	Water Level Above Mean Sea Level

Authorized Signatory
Subhangs Praharaj
Managing Director/QM

CLEENVIRON PRIVATE LIMITED ROURKELA

Registered Office:
D/916, KOELNAGAR, ROURKELA – 769014, Dist: SUNDARGARH, ODISHA
Branch Office & Laboratory:
D/126, KOELNAGAR, ROURKELA – 769014, Dist: SUNDARGARH, ODISHA
Tele Fax: 0661 – 2473748, email: cleenviron@gmail.com

Annexure-VI-A

Photographs of the Digital Piezometers

Annexure-VI

Photograph of ETP

Annexure-VII

Sample Records of Minimate

Instantel

Event Report

Date/Time	Vert at 13:12:43 July 1, 2022
Trigger Source	Geo: 0.510 mm/s
Range	Geo: 31.75 mm/s
Record Time	3.75 sec (Auto=3Sec) at 1024 sps
Job Number:	1

Notes
Location: LANJIBERNA MINES
Client: OCL INDIA LTD
User Name:
General:

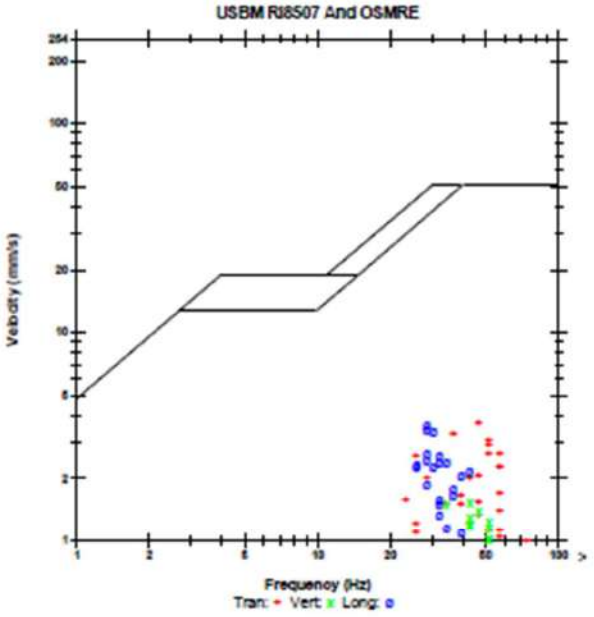
Extended Notes

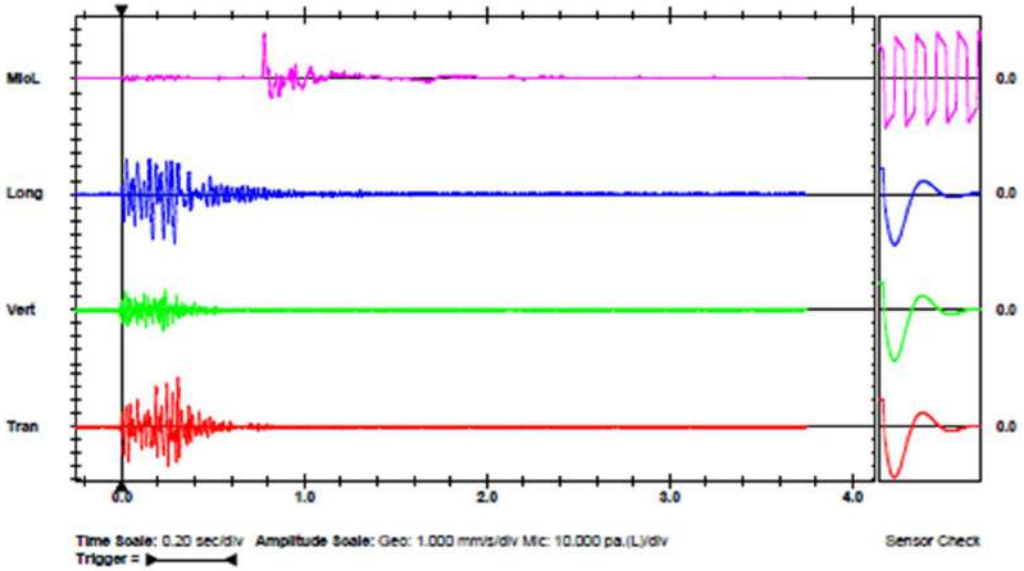
Microphone	Linear Weighting
PSPL	28.00 pa.(L) at 0.781 sec
ZC Freq	12 Hz
Channel Test	Passed (Freq = 19.7 Hz Amp = 467 mv)

	Tran	Vert	Long	
PPV	3.715	1.540	3.651	mm/s
ZC Freq	47	43	28	Hz
Time (Rel. to Trig)	0.310	0.229	0.290	sec
Peak Acceleration	0.116	0.085	0.076	g
Peak Displacement	0.013	0.007	0.021	mm
Sensor Check	Passed	Passed	Passed	
Frequency	7.4	7.5	7.2	Hz
Overswing Ratio	3.6	3.6	4.0	

Peak Vector Sum 4.346 mm/s at 0.310 sec

Serial Number BE16619 V 10.72-1.1 Minimate Blaster
Battery Level 6.0 Volts
Unit Calibration January 4, 2022 by UES New Delhi
File Name R619JK04.P70
Scaled Distance 39.8 (250.0 m, 45.0 kg)





Time Scale: 0.20 sec/div **Amplitude Scale:** Geo: 1.000 mm/s/div Mic: 10.000 pa.(L)/div
Trigger =
Sensor Check

Printed: August 6, 2022 (V 10.72 - 10.72)
Format © 1995-2014 Xmark Corporation

Instantel

Event Report

Date/Time	Tran at 13:16:28 June 28, 2022
Trigger Source	Geo: 0.510 mm/s
Range	Geo: 31.75 mm/s
Record Time	3.75 sec (Auto=3Sec) at 1024 sps
Job Number:	1

Notes
Location: LANJIBERNA MINES
Client: OCL INDIA LTD
User Name:
General:

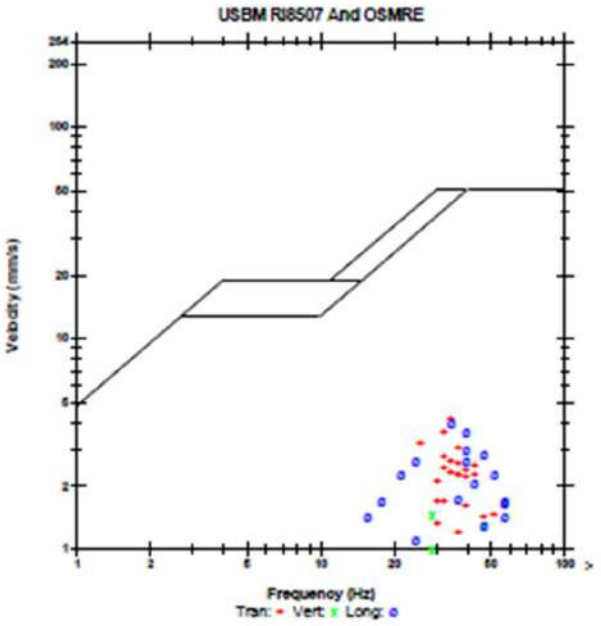
Extended Notes

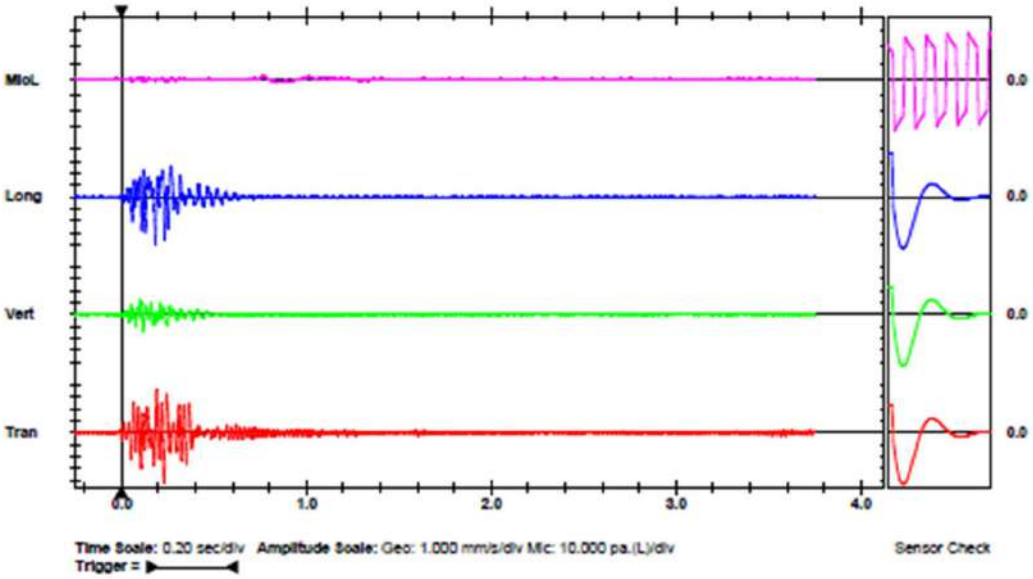
Microphone	Linear Weighting
PSPL	3.000 pa.(L) at 0.765 sec
ZC Freq	12 Hz
Channel Test	Passed (Freq = 20.1 Hz Amp = 442 mv)

	Tran	Vert	Long	
PPV	4.207	1.476	3.969	mm/s
ZC Freq	34	28	34	Hz
Time (Rel. to Trig)	0.229	0.117	0.184	sec
Peak Acceleration	0.086	0.051	0.085	g
Peak Displacement	0.020	0.006	0.017	mm
Sensor Check	Passed	Passed	Passed	
Frequency	7.5	7.6	7.5	Hz
Overswing Ratio	3.6	3.5	3.9	

Peak Vector Sum 4.695 mm/s at 0.232 sec

Serial Number	BE16619 V 10.72-1.1 Minimate Blaster
Battery Level	5.9 Volts (Battery Low)
Unit Calibration	January 4, 2022 by UES New Delhi
File Name	R619JKCK.VG0
Scaled Distance	38.8 (260.0 m, 45.0 kg)





Time Scale: 0.20 sec/div **Amplitude Scale:** Geo: 1.000 mm/s/div Mic: 10.000 pa.(L)/div
Trigger =

Sensor Check

Annexure-VIII

Photographs of Catch drains, Settling tanks and Siltation Pond

Annexure-IX

Photographs of Check dams , Garland drain and Retaining wall

Annexure-X

Sample copy of PUC Certificates

Form 59

[See rules 115 (2)]

Pollution Under Control Certificate
Authorised By :
Government of Odisha

Date	:	**22/08/2022**
Time	:	**19:55:31 PM**
Validity upto	:	**21/02/2023**

Certificate SL. No.	:	OR01600030004438
Registration No.	:	OR16C1779
Date of Registration	:	09/Apr/2008
Month & Year of Manufacturing	:	September-2007
Valid Mobile Number	:	******9780
Emission Norms	:	BHARAT STAGE II
Fuel	:	DIESEL
Test Code	:	OR0160003
GSTIN	:	21AUMPK6272E1ZQ
Fees	:	Rs.177.00 (GST to be paid extra as applicable)
MIL observation	:	No

Vehicle Photo with Registration plate
60 mm x 30 mm

Sr. No.	Pollutant (as applicable)	Units (as applicable)	Emission limits	Measured Value (upto 2 decimal places)
1	2	3	4	5
Idling Emissions	Carbon Monoxide (CO)	percentage (%)		
	Hydrocarbon, (THC/HC)	ppm		
High idling emissions	CO	percentage (%)		
	RPM	RPM	2500 ± 200	
	Lambda	-	1 ± 0.03	
Smoke Density	Light absorption coefficient	1/metre	2.45	0.91

This PUC certificate is system generated through the national register of motor vehicles and does not require any signature.

Note : 1. Vehicle owners to link their mobile numbers to registered vehicle by logging to https://vahan.parivahan.gov.in

Authorised Signature with stamp of PUC operator
30mm x 20 mm

Annexure-XI

Photographs of Plantation in Mines area


Lanjiberna Limestone & Dolomite Mines
SAFETY ZONE
PLANTATION


BHARAT NIRMAN RAJIV GANDHI SEVA KENDRA
G.P. - KUNMURU


Dalmia
ATION OF VANAMA
SALIMETA
26.07.2021
Organised by
Bharat Foundation, Ltd


realme Shot by Pratyush

Annexure-XII

Sample copy report IME/ PME

DeotaleDiagnosticCentre(we care)

Consultation Diagnostics Health Check- Ups Immunization
Clinic: Vinayak Apt. 3rd floor Dhantoli Lokmat Chowk Nagpur
For any assistance call at 9860204241, 0712-2424868
Email ID: deotaledeepak19577@gmail.com

(PME)

MEDICAL CHECK-UP

SR NO	6
TEST NO	11
Designation	WIREMAN
Contractor Name	
MOB NO	9937011896
CHECK-UP DATE	29-10-21

EMPLOYEES NAME : DILIP XALXO				
Gender: MALE	Age : 37 Yrs	Ht: 170 Cms	Wt: 65 Kg	BMI: 22.49
TEMP. : 36.2 °C	SPO2 : 99 %		Chest : 34/36 inch	Waist : 35 inch

Company Address: Lanjiberna Limestone & Dolomite Mines M/S. Ocl India Ltd Odish-770023

Personal H/O: ALCOHOL: YES TOBACCO: NO SMOKING: NO GUTKHA: YES

General Exam:-	BP : 130/80 mmHg	Pulse : 82	bps

C.V.S.: N R/S : N CNS:N SP/LIVER :N/P Abdomen : soft

TEST	Result	Units	Normal Range
(F) Blood Glucose	93	mg/dl	80-110
(P) Blood Glucose	182	mg/dl	80-120
Blood Group	O+VE		

Hematology

TEST	Result	Units	Normal Range
Hemoglobin	12.9	gm/dl	12-17
Leukocyte Count	6700	/CUMM	3500-10,000
Neutrophils	74	%	43-76
Lymphocytes	23	%	17-48
Monocytes	1	%	2-10
Eosinophils	2	%	1-6
ESR	8	MM/HR	0.20

LIVER FUNCTION & KIDNEY FUNCTION TEST

TEST	Result	Units	Normal Range
SGOT	28	IU/L	0-40
SGPT	28	IU/L	0-40
Blood Urea	29	mg/dl	10-50
Sr. Creatinine	1.1	mg/dl	0.8-1.3

LIPID PROFILE

Cholesterol	175	mg/dl	< 220
Triglycerides	154	mg/dl	> 200
HDL	42.8	mg/dl	35-50
LDL	107.2	mg/dl	
VLDL	31.8	mg/dl	
CHO/HDL Ratio:	4.7		

Urine Test

Urine Pus Cell : NIL	Urine ALB : NIL	Urine Sugar : NIL

ECG: WNL	X-RAY : WNL		
AUDIOMETRY: RT. WNL		LF. WNL	Colorblindness : NO
Vision:	Unaided - Dist. Rt -6/6		Dist. Lf - 6/6
	Unaided - Near Rt - N/10		Near Lf - N/10
	With Spect Dist. Rt -		With Spect Dist. Lf -
	With Spect Near. Rt -		With Spect Near. Lf -
MEDICAL CHECK – UP:- NORMAL			

Opinion: He/She is physically & mentally fit .He/She is not suffering from any infectious or contagious disease.

Dr. H.K. Sethi, MBBS, FCGP
DGM, (M&HS), Regd. No. 7420 (Odisha)
Dispensary, Lanjiberna Lime Stone & Dolomite Mines, Lanjiberna, OCL India Ltd.
Trained in ILO Classification of Chest Radiograph of Pneumoconioses 2000.

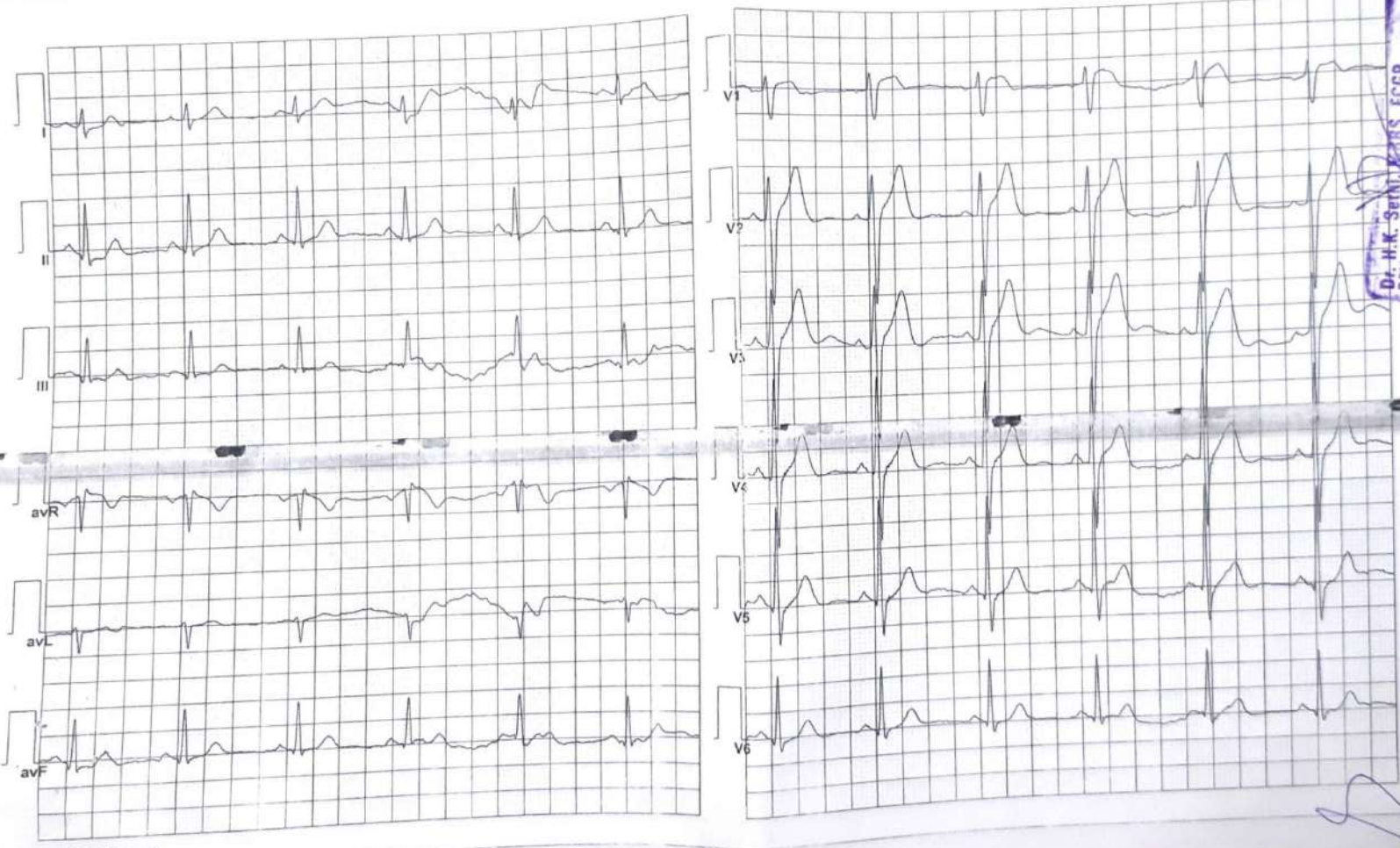
DR.DEEPAK DEOTALE
M.B.B.S.A.F.I.H. (Reg.No.48366)
Dr. Deepak P. Deotale
M.B.B.S., AFIH
(Associated Fellow of Industrial Health)
Reg No 48366

ECG

Hospital/Clinic Name

8393 (OD11) / DILIP XALXO / 37 Yrs / M / 170Cms. / 87Kgs / Non Smoker

Heart Rate : 73 bpm / Tested On : 29-Oct-21 10:28:27 / HF 0.05 Hz - LF 20 Hz / Notch 50 Hz / Sn 1.00 Cm/mV / Sw 25 mm/s



Dr. H.K. Sethi, MBBS, FCGP
DGM, IM&HS, Regd. No. 7420.10/dhal
Dispensary, Lanjberna Lime Stone &
Dolomite Mines, Lanjiberna, OCL India Ltd.
Trained in ILO Classification of Chest Radiograph
of Pneumoconiosis 2000.

Dr. Deepak P. Deotale
M.B.B.S., AFIH
(Associated Fellow of Industrial Health)
Reg No 45368

Allengers ECG (Pisces)

DeotaleDiagnostiCentre(care)

Consultation Diagnostics Health Check- Ups Immunization.

Clinic: Vinayak Apt. 3rd floor Dhantoli Lokmat Chowk Nagpur

Resi:- 1B, Prashant Nagar Wardha-Road Nagpur.

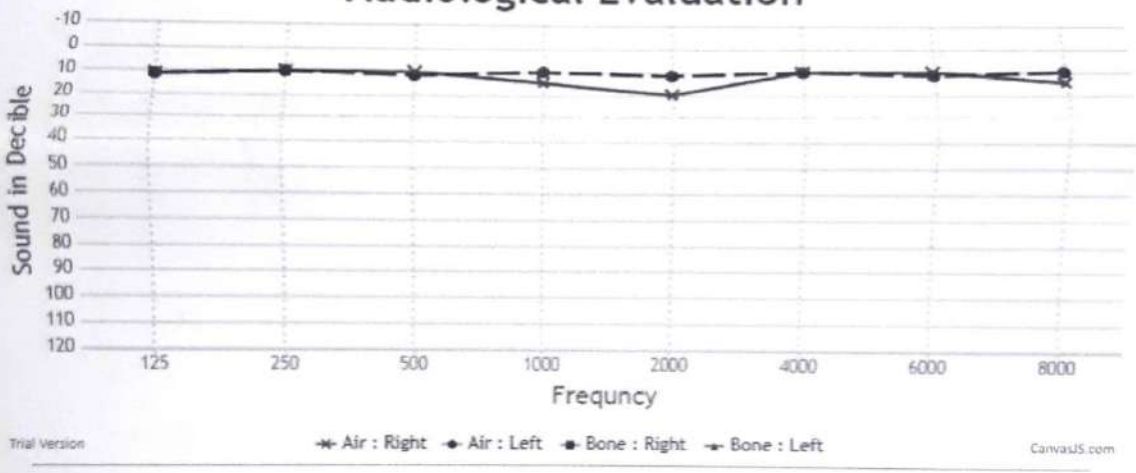
For any assistance call at . 9860204241, 0712-2424868

Email ID : shyam7780@gmail.com

Patient Details

Name: DILIP XALXO	**Age:** 37	**Sex:** Male
Contact:	**Address:**	
Company:	**Contractor:**	**Department:**
Designation:	**CPF:** 11	**Date:** 28-10-21

Audiological Evaluation



TEST FREQUENCY

Air Conduction Test		Bone Conduction Test	
PTA Right (X)	*PTA Left* (•)	*PTA Right* (■)	*PTA Left* (▲)
12.75	11	0	0

Note: NORMAL

Dr. H.K. Sethi, MBBS, FCGP
DGM, (M&HS), Regd. No. 7420 (Odisha)
Dispensary, Lanjiberna Lime Stone &
Dolomite Mines, Lanjiberna, OCL India Ltd.
Trained in ILO Classification of Chest Radiograph
of Pneumoconioses 2000.

Dr. Deepak P. Deotale
M.B.B.S., AFIH
(Associated Fellow of Industrial Health)
Reg. No. 48360

Report of the Examining Authority
(Form 'O' Contd.)
(to be filled in for every medical examination whether initial or periodical or re-examination or after cure/control of disability).

Annexure to Certificate No 6 as a result of medical examination on ..... Left thumb Candidate

Mr. Dilip Xalxo. BR. NO. 133

Dilip Xalxo

Identification Mark .....

1.	General development		: Good/ Fair/ Poor
2.	Height		: 170 Cms
3.	Weight		: 65 Kgs
4.	Eyes:		
	(i) Visual acuity - Distant vision (with or without glasses)		
	Right eye		: 6/6
	Left eye		: 6/6
	(ii) any organic disease of eyes		: NO
	*(iii) night blindness		: NO
	*(iv) colour blindness		: NO
	*(v) Squint		: NO
	(*to be tested in special cases)		
5.	Ears:		
	(i) Hearing	Right ear	: WNL
		Left ear	: WNL
	(ii) any organic disease		: NO
6.	Respiratory system:		
	Chest measurement-		
	(i) after full inspiration		: 34 inch
	(ii) after full expiration		: 36 inch
7.	Circulatory system:		
	Blood Pressure		: 130/80 mm Hg
	Pulse		: 82 / Min
8.	Abdomen:		
	Tenderness		: NO
	Liver		: NP
	Spleen		: NP
	Tumour		: NO
9.	Nervours System:		
	History of fits or epilepsy		: NO
	Paralysis		: NO
	Mental health		: GOOD
10	Locomotor system		: NORMAL
11	Skin		: NORMAL
12	Hernia		: NO
13	Hydrocoel		: NO
14	Any other abnormality		: NO
15	Urine:		
	Reaction		
	Albumin		: NO
	Sugar		: NO
16	Skiagram of chest		: NORMAL
17	Any other "c" test considered necessary by the examining authority		: NO
18	Any opinion of specialist considered necessary		: NO

Place :

Dr. H.K. Sethi, MBBS, FCCP
DGM, (M&HS), Regn No. 7470 (Orissa)
Dispensary, Lanjberna Lime Stone & Dolomite Mines, Lanjberna, OCL India Ltd.
Trained in ILO Classification of Chest Radiograph of Pneumoconiosis 2000.

Signature of the examining authority

Dr Deepak P Deotale
M.B.B.S. AFIH
(Associated Fellow of Industrial Health)
Reg No 48366

Report off Medical Examination under Mines Rule 29B
(To be used in continuation with Form O)

Certificate No. : 6

Name : DILIP XALXO

Identification Marks :

Result of Lung Function Test (Spirometry)

Parameters	Predicted Value	Performed Value	% of Predicted
Forced Vital Capacity (FEV)	03.15	03.3	095
Forced Vital Capacity 1 FEV1	02.00	02.00	121
FEV1 / FVC	79.11	99.68	123
Peak Expiratory Flow	08.28	05.11	061

Spirometry Report enclosed

Place :

Dr. H.K. Sethi, MBBS, FCGP
DGM, (M&HS), Regd. No. 7420 (Odisha)
Dispensary, Lanjiberna Lime Stone & Dolomite Mines, Lanjiberna, OCL India Ltd.
Trained in ILO Classification of Chest Radiograph of Pneumoconioses 2000.

Signature of the examining authority

Dr. Deepak P. Deotale
M.B.B.S., AFIH
(Associated Fellow of Industrial Health)
Reg No 48366

Report off Medical Examination as per the recommendations of National Safety Conferences in Mines

(To be used in continuation with Form O)

Certificate No. : 6

Name : DILIP XALXO

Identification Marks :

1. Cardio logical Assessment

Ausculatio n	S1	N
	S2	N
	Additional Sound	NORMAL
Electrocardiograph (12 leads) findings:		√ Normal / Abnormal

Enclosed ECG

2. Neurological Assessment

Findings	√ Normal / Abnormal
Superficial Reflexes	N
Deep Reflexes	N
Peripheral Circulation	N
Vibrational Syndromes	N

3. ILO Classification of Chest Radiograph:

Profusion of Pneumoconiotic opacities	Grades	Types
Present / Absent √	0	

Enclosed Chest Radiograph

4. Audiometry Findings:

Conduction Type	Left Ear	Right Ear
Ear Conduction	√ Normal / Abnormal	√ Normal / Abnormal
Bone Conduction	√ Normal / Abnormal	√ Normal / Abnormal

Enclosed Audiometry Report.

5. Pathological / Microbiological Investigations:

S.No	Tests	Findings
1.	Blood- Tc, Dc, Hb, ESR, Platelets	√ WNL/Abnormal
2.	Blood Sugar- Fasting & PP	√ WNL/Abnormal
3.	Lipid profile	√ WNL/Abnormal
4.	Blood Urea, Creatinine	√ WNL/Abnormal
5.	Urine Routine	√ WNL/Abnormal
6.	Stool Routine	√ WNL/Abnormal

Enclosed Investigation Reports.

6. Special Tests for Mn exposure

Behavioral Disturbances		Present/Not Present √
Neurological Disturbances	Speech Defect	Present/Not Present √
	Tremor	Present/Not Present √
	Adiadocoinesia	Present/Not Present √
	Emotional Changes	Present/Not Present √

7. Any other Special Test Required:

Place :

Dr. H.K. Sethi, MBBS, FCGP
DGM, (M&HS), Regd. N[illegible]26 (Odisha)
Dispensary, Lanjiberna Lime Stone & Dolomite Mines, Lanjibe[illegible] JCL India Ltd.
Trained in ILO Classifica[illegible] of Chest Radiograph of Pneumoconioses 2000.

Signature of the examining authority

Dr. Deepak P. Deotale
M.B.B.S., AFIH
(Associated Fellow of Industrial Health)
Reg No 48366

[See rules 29-F (2) and 29-L]

Report of medical examination under rule 29-B.

(To be issued in triplicate)**

Certificate No. 6

Certified that Shri/Shrimati* DILIP XALXO employed as in LANGIBEERNA mine. Form B. No..... has been examined for an initial/periodical* medical examination. He/She* appears to be 37 years of age. The findings of the examining authority are given in the attached sheet. It is considered that Shri/Shrimati*

*(a) is medically fit for any employment in mines.

*(b) is suffering from ..... and is medically unfit for

(i) any employment in mine; or

(ii) any employment below ground; or

(iii) any employment or work .....

(c) is suffering from ..... and should get this disability cured/controlled and should be again examined within a period of ..... months. *He/She will appear for re-examination with the result of test of ..... *and the opinion of ..... specialist from ..... He/She* may be permitted/not permitted* to carry on his duties during this period.

Signature of examining authority
Dr. DEEPAK P. DEOTALE
M.B.B.S. A.F.I.H.(Reg. No. 48366)
Name and Designation in
Block letters
Dr. Deepak P. Deotale
M.B.B.S., AFIH
(Associated Fellow of Industrial Health)
Reg No. 48366

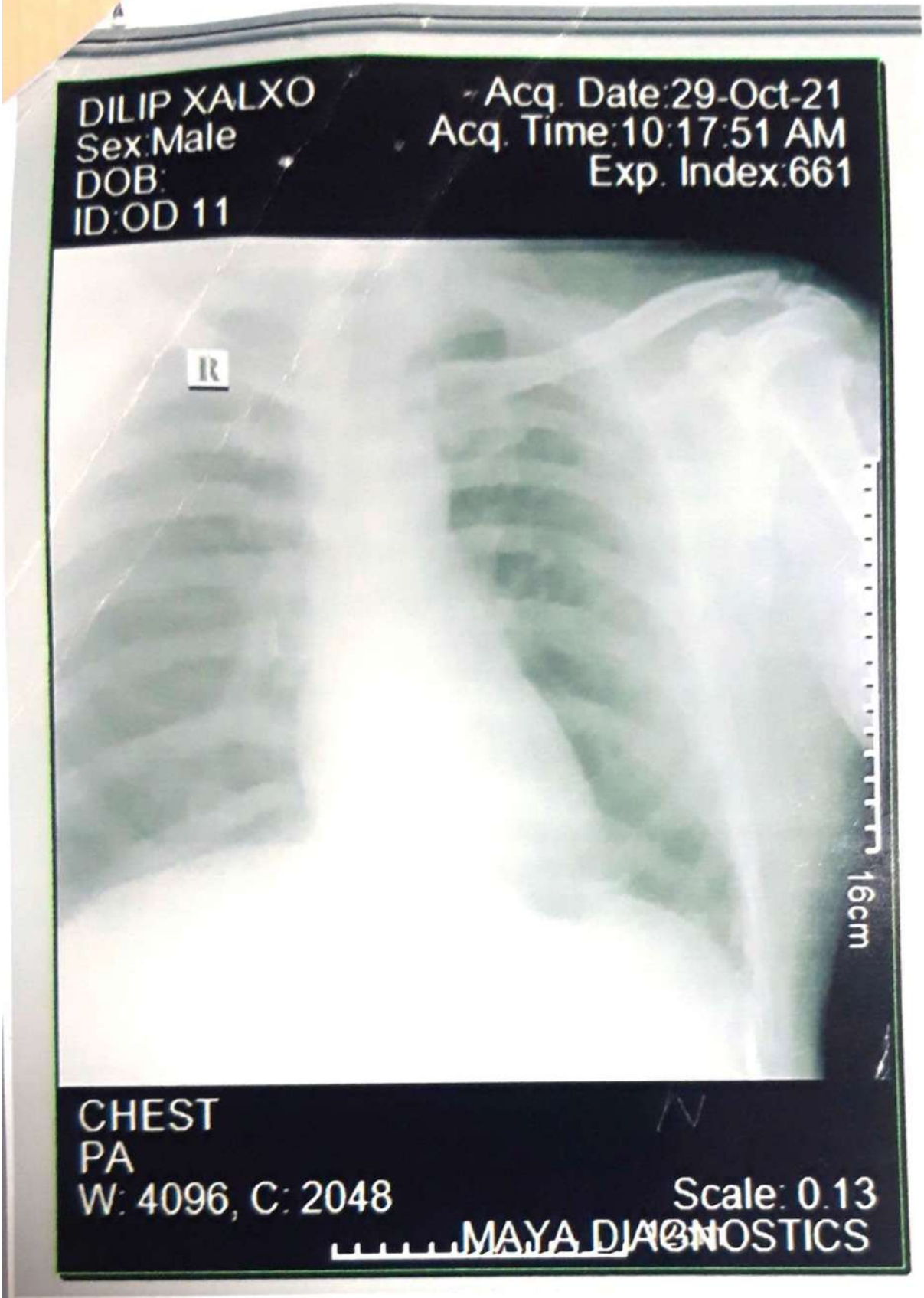
Dr. H.K. Sethi, MBBS, FCGP
DGM, (M&HS), Regd. No. 7420 (Odisha)
Dispensary, Lanjiberna Lime Stone &
Dolomite Mines, Lanjiberna, GCL India Ltd.
Trained in ILO Classification of Chest Radiograph
of Pneumpconioses 2000.

Place :

Date :

* Delete whatever not applicable.

** One copy of the certificate shall be handed over to the person concerned and another copy shall be sent to the manager of the mine concerned by registered post; and the third copy shall be retained by the examining authority.


DILIP XALXO
Sex:Male
DOB:
ID:OD 11
Acq. Date:29-Oct-21
Acq. Time:10:17:51 AM
Exp. Index:661
R
16cm
CHEST
PA
W: 4096, C: 2048
Scale: 0.13
MAYA DIAGNOSTICS

Annexure-XIII

Summary of Environmental Protection Expenditure

Annexure-XIV

Lanjiberna Limestone & Dolomite Mines of M/s Dalmia Cement (Bharat) Limited / OCL India Limited

SUMMARY OF THE EMP-EXPENDITURE (for the half year ending 30.09.2022) (in Rupees)

Tree Plantation in lease area	AAQMS Maintenance	Water Sprinkling Operation	Bag Filter Operation	Data Analysis	Other (Sapling Distribution / Plantation in nearby village & school)	Expenditure Grand Total
491722	57500	2995109	8323695	550356	844092	**13262474**

Debiprasad Mishra
Mines Manager

Annexure-XIV

Photocopy of the cover letter regarding submission of Digital Map

REGD. OFFICE & WORKS : RAJGANGPUR-770017 (ODISHA) INDIA
TEL. : (91) (06624) 220121 / 221212
FAX : (91) (06624) 220933 / 220133 / 220733
E-mail : ocl_rajgangpur@ocl.in
Website : www.ocl.in / www.oclindialtd.in
CIN : L26942OR1949PLC000185

OCL INDIA LIMITED
ओसीएल इण्डिया लिमिटेड

Ref : LQ:GO:20/62
02.06.2017

Lanjiberna Limestone & Dolomite Mines
At/PO = Lanjiberna-770023
Dist.Sundargarh (ODISHA)
Phone No.(0661) 2451419/ 2451417
Fax No. (06624) 220733

The Regional Director
Government of India
Ministry of Environment, Forests & Climate Change
Eastern Regional Office A/3, Chandrashekharpur
BHUBANESHWAR -751023

Sub: Submission of Report on Digital processing of the entire lease in respect of the Forest Lanjiberna Limestone & Dolomite Mines.

Ref: Environmental Clearance letter No J-11015/372/2007-IA.II(M) dated 28.04.2010

Dear Sir,

With reference to above subject matter and referred letter, we are submitting herewith the Report on Digital processing of the entire lease area using remote sensing technique in respect of our Lanjiberna Limestone & Dolomite Mines.

Hope, you will be find the same in order.

Thanking you,

Yours faithfully,
for OCL INDIA LIMITED

S.K.Rout
Asst. Executive Director (Mines & Env)

Encl. As above.

Received.
07.06.17

Annexure-XV

Intimation on Formation of Environmental Monitoring Cell

OCL INDIA LTD.

Dalmia
Bharat Cement

Ref : LQ:GO:20
17.11.2020

Lanjiberna Limestone & Dolomite Mines
At/PO = Lanjiberna-770023
Dist.Sundargarh (ODISHA)

The Regional Director
Government of India
Ministry of Environment, Forests & Climate Change
Eastern Regional Office A/3, Chandrashekharpur
BHUBANESHWAR -751023

Sub: Submission of Intimation regarding formation of Environmental Management Cell at Lanjiberna Limestone & Dolomite Mines.

Ref: Environmental Clearance letter No F. No. J-11015/202/2016-IA.II (M) dated 04.03.2020

Dear Sir,

With reference to above subject matter and referred letter, the Environmental Management Cell have been constituted to supervise the implementation of environment protection at our Lanjiberna Limestone & Dolomite Mines. The Minutes of the Meeting dated 16th November 2020 is attached herewith for your record & reference.

Thanking you,

Yours faithfully,
for OCL India Limited

17.11.20

(Dinesh Singh Panwar)
General Manager (Mines)

Encl. as above

Minutes of the Meeting on "Formation of Environmental Management Cell " in respect of Lanjiberna Limestone & Dolomite Mines of OCL India Limited held at Lanjiberna on 16th November 2020.

Members present

Mr.Dinesh Singh Panwar,	General Manager (Mines)/ Mines Manger
Dr. Udaya Nath Sahoo,	Geologist
Mr Debiprasad Mishra,	Asst. Manager (Mines)
Mr B Jagdish Kumar	Environment Engineer
Mr Bhabagrahi Patra	Senior Executive (EHS)
Mr Suresh Ku Mohapatra	Deputy General Manager (EHS)
Mr. Pratyush Kumar Bhuyan	Surveyor
Mr Tanoj Kumar Behera	Surveyor
Mr Nirakar Mallik	Finance
Mr Tapan Nayak	Manager (CSR)

Mr. Dinesh Singh Panwar was on chair. The following points were discussed. At the outset Mr Panwar elaborated the issue and said that in order to maintain the environmental quality within the prescribed standards, regular monitoring of various environmental components is necessary. The Environmental Management Cell (EMC) for environmental monitoring and pollution control. The EMC team will take care of pollution monitoring aspects and implementation of control measures.

The responsibilities of the EMC include the following:

Environmental monitoring of the core and buffer zone.
Procurement and Commissioning of Pollution Control Monitoring Equipments.
Specification and regulation of maintenance schedules for Pollution Control Equipment.
Ensuring that prescribed standards are maintained.
Ensuring optimum water usage.
Carrying out the Environmental Management Plan.

It was decided unanimously to constitute Formation of Environmental Management Cell at mine level accordingly the following members were constituted in respect of our Lanjiberna Mines :-

Mr.Dinesh Singh Panwar,	General Manager (Mines)
Dr. Udaya Nath Sahoo,	Geologist
Mr Suresh Ku Mohapatra	Deputy General Manager (EHS)
Mr B Jagdish Kumar	Environment Engineer
Mr Debiprasad Mishra,	Asst. Manager (Mines)
Mr Bhabagrahi Patra	Senior Executive (EHS)
Mr. Pratyush Kumar Bhuyan	Surveyor
Mr Tanoj Kumar Behera	Surveyor

EMC shall supervised the implementation of environment protection time to time and submit the report to the Head of the Organization.

The meeting ended with thanks to the chair.

Chairman cum GM (Mines)

ENVIRONMENTAL MONITORING REPORT

BASED ON DATA GENERATED

FROM

APRIL – SEPTEMBER 2022

FOR

DALMIA CEMENT (BHARAT) LIMITED

At/Po: RAJGANGPUR, District: SUNDARGARH, ODISHA

AT

LANJIBERNA LIMESTONE & DOLOMITE MINES PROJECT

Prepared By:

Cleenviron Private Limited
D-124, KOELNAGAR, ROURKELA, ODISHA
Tele fax: 0661 – 2475746
Email:cleenviron@gmail.com

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1. INDRODUCTION

Lanjiberna Lime stone & Dolomite Mines of M/s DALMIA CEMENT (BHARAT) LIMITED is a captive mine for its Cement manufacturing works situated at Rajgangpur in the district of Sundargarh of Odisha State. The mining lease covering an area of 873.057 ha is located near the village Lanjiberna (**Figure No: 1.1**), under Sundargarh Sadar sub-division of Sundargarh district approximately 18 kms from the Cement Works by road and the aerial distance will be around 12 kms. A vicinity map up to 10 kms radius from the center of the lease is given in **Figure No: 1.2**. Presently the mine is producing 9.50 million tones of Lime Stone per annum and 80, 000 TPA of Dolomite as per Environmental Clearance from Ministry of Environment and Forest, Govt. India vide letter no: J-11015/202/2016-IA.II(M) dated: 4th March 2020. Consent to operate from State Pollution Control Board, Odisha is also valid up to 31st March 2023 vide Order No 162,vide letter No 4884/IND-I-CON-258, Dt 28.03.2022 for the production of 9.50 million tones of Limestone and 80, 000 TPA of Dolomite.

2. PRESENT STATUS OF THE PROJECT

At present from April to September 2022 the mine has produced Limestone of 26, 76, 587 MT and production of Dolomite was nil during the period mentioned, apart from this 25, 77, 658 MT of sized Limestone has been dispatched to the cement plant. Total plantation done is 2620 nos. during April to September 2022 and the cumulative plantation till date is 3, 38, 720 saplings covering an area of 102.39 ha and the survival rate is 70%. Along with that the mine authority had planted 23,275 nos. of saplings from Mango, Cashew (Kaju), Lemon , Teak & Drumstick (Sajana) over an area of 133 acres land under WADI Project scheme for economic upliftment of the farmers, through sustainable agriculture & social empowerment.

3. ASPECTS CONSIDERED FOR ENVIRONMENTAL MONITORING

This report is based on the monitoring results generated from April to September 2022 covering summer and monsoon seasons of the year. Micro-meteorological monitoring was carried out on continuous basis and Ambient Air monitoring was carried out on twice weekly basis at each location and Stack Emission from Limestone Crusher Plant was carried out on monthly once basis. However other aspects like, Water quality, Fugitive Dust Emission monitoring and Noise level studies are carried out on quarterly basis. Environmental Monitoring data were generated at Lanjiberna Limestone & Dolomite Mines and its buffer zone covering the following aspects in detail.

i. Micro-meteorological Study
ii. Ambient Air Quality Study
iii. Fugitive Dust Emission Study
iv. Stack Emission Monitoring from Crusher Plant
v. Quarry Discharge Water Quality Study
vi. Ground Water Level Study
vii. Noise Level Study
viii. Effluent Water Quality Study
ix. Soil Quality Study

Monitoring of environmental parameters for collection of data involves field work, which is described below:

3.1 Micro-meteorological Study

For collection of micro-meteorological data like Temperature, Relative Humidity, Wind Speed, Wind Direction, & Rainfall, a weather monitoring station is fixed on the Magazine Hill Top of Lanjiberna Limestone and Dolomite Mines of M/s DALMIA CEMENT (BHARAT) LIMITED Hourly data is being recorded continuously by putting up windows compatible data logging facility instrument, Make: Virtual Electronics Company, Roorkee.

Figure No: 1.1 Location Map of the Project

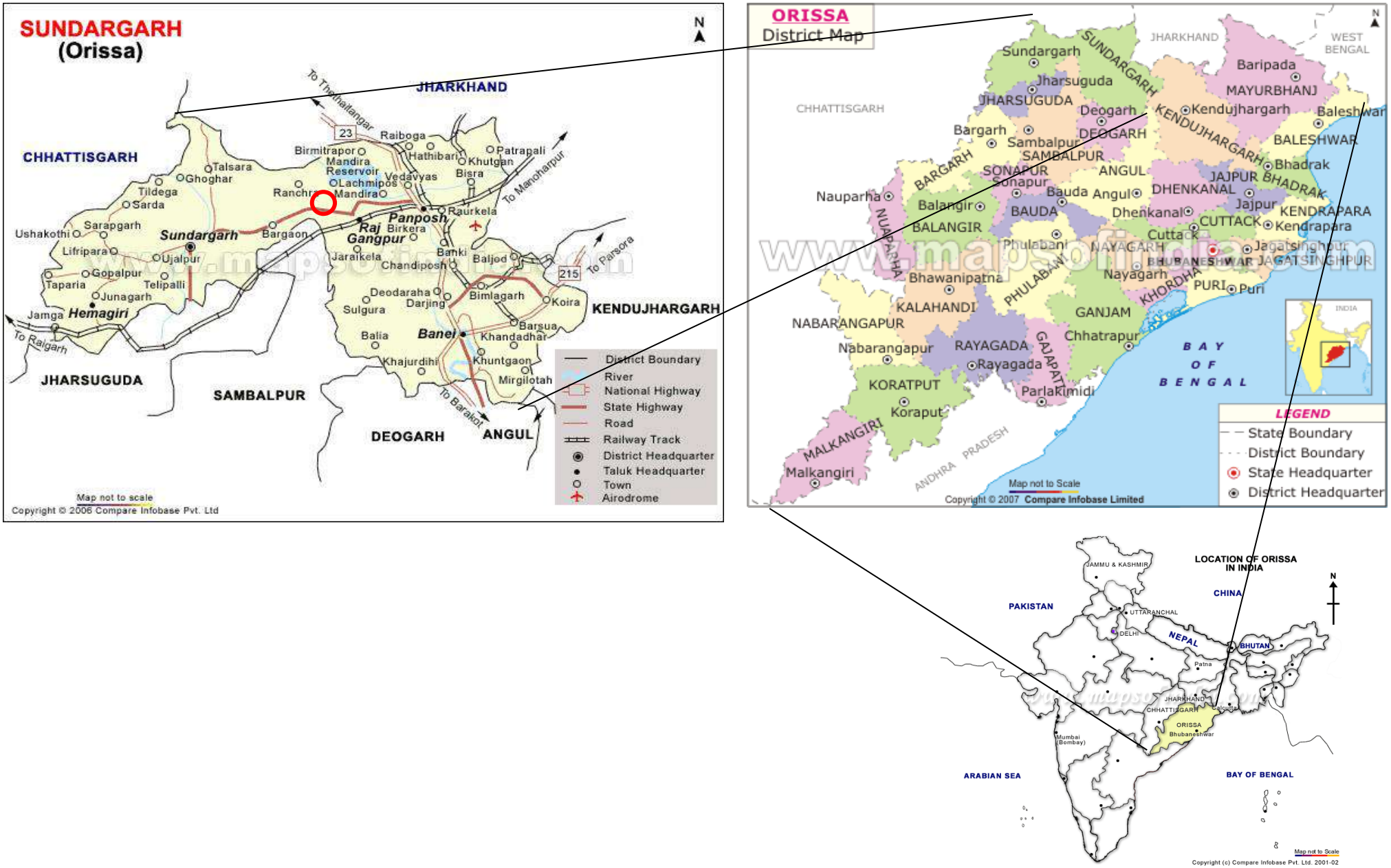
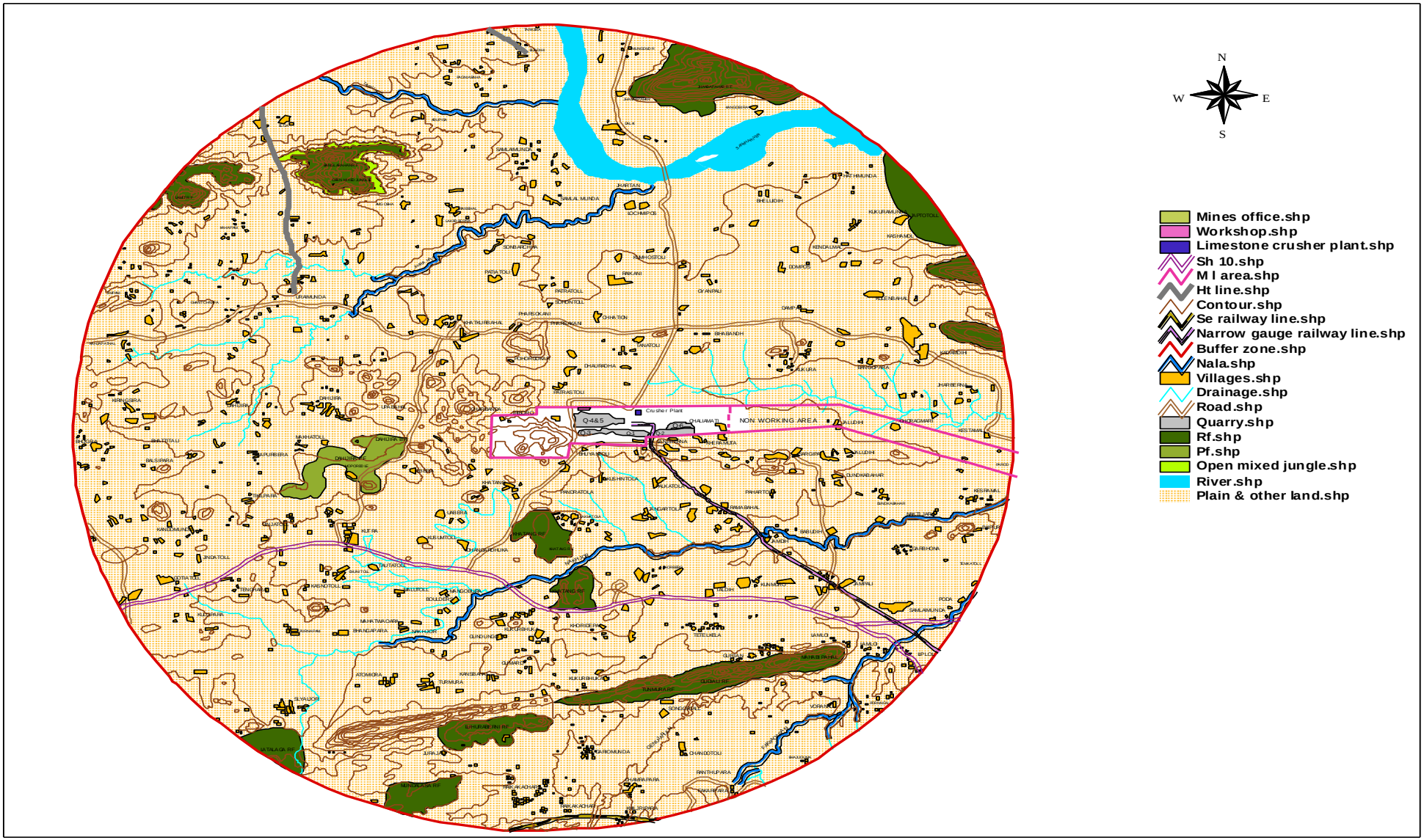


Figure No:1.2 Vicinity Map of Lanjiberna Limestone & Dolomite Mines



Prepared by: Cleenviron Pvt. Ltd.

3.2 Ambient Air Monitoring

To assess ambient air quality, total 6 (six) monitoring stations are fixed including 4 (four) in the Core zone and 2(two) in the buffer zone. The monitoring locations are fixed according to the micro-meteorological data and in consultation with State Pollution Control Board. The monitoring was carried out for parameters like PM2.5, PM10, SO_2, NO_2 & CO and monitoring was carried out on twice weekly from each location. For collection of samples Respirable Dust sampler and Fine Particulate Sampler was placed at each location, sampling and analytical techniques are followed as per the standard method of ambient air sampling and analysis. The other parameters like NH_3, O_3, As, Ni, Pb, Benzene & Benzo(a)pyrene are monitored once in a year from all the four Core zone AAQ monitoring stations.

3.3 Fugitive Dust Emission Monitoring

To find out the quantity of fugitive dust emission from the mining operation, two main dust generating locations are identified and those are within the quarry during operation of Excavators and Drill machines. The second location was set up on the haulage road of the mines leading to Crusher Plant. For collection of samples two high volume samplers are used and 8 hourly samples are collected for Particulate Matter only. Fugitive monitoring was carried out on quarterly basis, during month of May for summer and August for monsoon season.

3.4 Stack Emission Monitoring from Crusher Plant

The crusher plant of Lanjiberna Limestone and Dolomite mines is equipped with a Dust Extraction and Bag House Filter system to control the emission of dust particles during crushing operation of Limestone lumps in to required size. To assess the emission level of Particulate Matter from the stack of bag filter system, monitoring of Stack emission levels was scheduled on monthly once basis. Particulate Matter emission was monitored following the IS methods for Stack monitoring.

3.5 Quarry Discharge Water Quality Study

Total three locations were fixed for sampling of the quarry discharge water from three different quarries operating. The sampling and analysis of quarry discharge water were carried out on monthly basis. The parameters analyzed are as per the Schedule – IV of EPA, G.S.R.422(E), 1993. Few parameters like pH, Temperature and DO are recorded at the site. For other parameters the samples were fixed and preserved as per the standard methods of sampling by APHA 23rd Edition.

3.6 Ground Water Quality Study

To find out the ground water quality of the area, a net work of 5(five) existing dug wells are fixed and the sampling was carried out only during the month of June as per the environmental clearance conditions of MoEF. The parameters analyzed were as per the drinking water standards of IS10500. Few parameters like pH and Temperature are recorded at the site. For other parameters the samples were fixed and preserved as per the standard methods of sampling by APHA 23rd Edition.

3.7 Ground Water Level Study

To assess the ground water availability and fluctuation, a net work of 5(Five) existing dug wells are fixed, from where the ground water quality study were carried out during the month of June and one extra location was considered in the village Katang for ground water level measurement. To measure the ground water level variation, water level is being studied on quarterly basis during the months of May for summer season and August for monsoon season manually.

3.8 Noise Level Study

Noise monitoring were carried out at 4(four) different locations within the Core zone once in three months period during June and August months. The measurements were collected by Sound Level Meter, make: Envirotech Instruments Pvt. Ltd., New Delhi, in dB(A) at a height of 1.5 meter, above ground level and away from the sound reflecting sources like walls and buildings etc.

3.9 Soil Quality Study
Soil samples were scheduled to be collected from three different sites, where the three quarry discharge water is discharged on to the land. The Soil samples are collected and analysed in the month of June.

3.10 Effluent Water Quality
The waste water from Workshop/Garage of the Lanjiberna Limestone & Dolomite mines is directed to an Oil Separation Tank and after removal of Oil & TSS it is reused in HEMM washing. The outlet water from the Oil & Grease Separation tank was sampled and analysed for 5 (Five) parameters on quarterly basis during the months of June and August.

4. SAMPLING LOCATIONS

4.1 Micro-Meteorological Study
One meteorological station was set up on the Magazine Hill Top of the Lanjiberna Limestone & Dolomite Mines to monitor wind speed, wind direction, temperature, relative humidity and rainfall on hourly basis by data logging technique.

4.2 Ambient Air Quality Monitoring
Four ambient air quality monitoring stations are fixed within the core zone and two stations are fixed in the buffer zone. General precautions were taken to position the Respirable Dust Samplers at all the locations. The descriptions of the Ambient Air Monitoring Stations are as follows:

A-1 Brick Plant Area:
The sampling station is located within the core zone and the station was selected to assess the present level of pollution due to excavation, drilling works being carried out in the quarry.

A-2 Limestone Crusher Plant Area:
This location is around the Crusher plant area of the Mines within the core zone. This was selected to assess the air quality in and around the crusher plant and the level of pollution due to crushing, screening and transfer of Limestone to conveyor belts.

A-3 Lanjiberna Mines Office Area:
The location was selected within the core zone and to assess the pollution load generated from the mining operations and movement of vehicles.

A-4 Magazine Hill Top
The location was selected within the core zone and to assess the effect of mining as well as crushing operations of the mine on the background air quality and sensitive receptors on the hill top which is at a higher elevation from the ground.

A-5 Village Katang
This location is situated in the buffer zone of the mine and selection of this location was done as to assess the effect of the mining operation on the local receptors, as this village is falling in the predominant wind direction towards south-west of the lease area.

A-6 Village Bihabandh
This location is situated in the buffer zone of the mine and selection of this location was done as to assess the effect of the mining operation on the local receptors, as this village is falling in the predominant wind direction towards north-east of the lease area.

The distances and directions of the Ambient Air Quality monitoring locations are summarized in **Table No 4.1**

Table No 4.1: Ambient Air Quality Monitoring Stations

Sl No	Name of Location	Zone	Distance	Direction
1	Brick Plant Area	Core	-	-
2	Crusher Plant Area	Core	-	-
3	Lanjiberna Mines Office Area	Core	-	-
4	Magazine Hill Top	Core	-	-
5	Village Katang	Buffer	1 km from ML Area	SW
6	Village Bihabandh	Buffer	2 km from ML Area	NE

4.3 Fugitive Dust Emission Study Locations:

Two fugitive dust emission monitoring locations are established inside the core zone, to find out the amount of dust being generated from the source during the excavation, drilling & hauling of Limestone to crusher plant. The descriptions of fugitive emission monitoring locations are as follows:

F-1 Downwind of Excavator/ Drill Machine within the Quarry

This location was fixed within an operating quarry and while operation of mining equipments are on. Towards the down wind direction of any excavator or drill machine within a distance of 500 m, one high volume sampler was set for 8 hour operation and the parameter monitored is SPM general precautions are obeyed while collection of samples.

F-2 Haulage Road Leading to Crusher Plant

This location was fixed to evaluate the amount of pollution load on the ambient air due to moving of heavy earth moving equipments like 35T & 50T Dumpers on the haulage road which leads to the Limestone Crusher Plant. The samplers are being operated for continuous of 8 hours by the side of the haulage road and parameter like SPM was measured.

4.4 Stack Emission Monitoring:

The stack of the bag filter unit installed at the limestone crusher plant was monitored for Particulate Matter emission from the same during the crushing of Limestone lumps in to different sizes. There is a platform made at a height around 25m from the ground at the stack and sample has been collected on monthly basis to evaluate the performance of the bag filters and emission level from the stack.

4.5 Quarry Discharge Water:

In order to assess the present quality of water, which is being discharged on to the land after pumping out from the quarry. Three sampling locations were set at the discharge points of the pumped out water. The samples were being collected from each discharge point every month. The descriptions of the locations are given below:

SW-1 Quarry 2&6 Discharge Water

The water collected inside the quarry no-2&6 is pumped out continuously and is stored in a RCC tank before allowing it to flow out of the ML area by a guided channel towards the northern side of the lease and the water is used by the nearby villagers for irrigation purpose. The sample were collected from the out let of the RCC tank and analyzed for 27 parameters as per the Schedule – VI of EPA, G.S.R.422(E) 1993 for any contaminants in it.

SW-2 Quarry 1&3 Discharge Water
The water collected inside the quarry no-1&3 is pumped out continuously and is stored in a RCC tank before allowing it to flow out of the ML area by a guided channel towards the southern side of the lease and the water is used by the nearby villagers for irrigation purpose. The sample were collected from the out let of the RCC tank and analyzed for 27 parameters as per the Schedule – VI of EPA, G.S.R.422(E) 1993 for any contaminants in it.

SW-3 Quarry 4&5 Discharge Water
The water collected inside the quarry no-4&5 is pumped out continuously and is stored in a RCC tank before allowing it to flow out of the ML area by a guided channel towards the north-eastern side of the lease and the water is used by the nearby villagers for irrigation purpose. The sample were collected from the out let of the RCC tank and analyzed for 27 parameters as per the Schedule – VI of EPA, G.S.R.422(E) 1993 for any contaminants in it.

4.6 Ground Water Quality and Level:
Ground Water quality were monitored by fixing a network of existing dug wells of 5(five) numbers and Water level was monitored by fixing a net work of 6(six) existing dug wells in the nearby villages as well as in the core zone. Samples were collected during the month of June only for evaluating the quality of the water and analyzed as per IS 10500. Ground water levels were measured during month of June and August to know the amount of seasonal fluctuation and availability of ground water during pre-monsoon and monsoon seasons of the area. The details of the water level measurement locations are described below:

GW-1 Village Kheramuta Dug Well
The water sample was collected from the dug well of Kheramuta village and was tested for drinking water quality as the villagers are using the dug well water for their drinking purpose.

GW-2 Lanjiberna Colony Dug Well
The water sample was collected from the dug well of Lanjiberna colony of M/s DALMIA CEMENT (BHARAT) LIMITED and was tested for drinking water quality as the workers are using the dug well water for their drinking domestic purpose.

GW-3 Village Dhauradah Dug Well
The water sample was collected from the dug well of Dhauradah village and was tested for drinking water quality as the villagers are using the dug well water for their drinking purpose.

GW-4 Lanjiberna Mines Workshop Dug Well
The water sample was collected from the dug well of the HEMM workshop/garage of the Lanjiberna Mines and was tested for drinking water quality as the workers are using the dug well water for their drinking purpose.

GW-5 Village Lanjiberna Dug Well
The water sample was collected from the dug well of Lanjiberna village and was tested for drinking water quality as the villagers are using the dug well water for their drinking purpose.

GW-6 Village Katang Dug Well
The water level was measured from the dug well of Katang village for water availability as the villagers are using the dug well water for their domestic purpose.

4.7 Noise Level Monitoring

Noise levels were measured at 4(four) different locations within the core zone only to assess the impact of the mining operation on the ambient noise level. A brief description of the monitoring location is given below:

N-1 Quarry Area during Operation of HEMM

This station was selected to assess the ambient noise level due to the operation of HEMM within the quarry area during ongoing mining works. The monitoring was carried out inside the quarry and at distance of 100 m from the operating machines.

N-2 Limestone Crusher Plant area

This station was selected to assess the ambient noise level due to the operation of Crusher Plant and crushing and screening operation of Limestone lumps. The monitoring was carried out at a distance of 100m from the Crusher building.

N-3 Lanjiberna Colony Area

This station was selected to assess the ambient noise level due to the mining activities and transportation of limestone to the Cement Plant by Railway wagons. The monitoring was carried out near the Lanjiberna Colony.

N-4 Magazine Hill Top

This station was selected to assess the ambient noise level due to the mining activities and crushing of limestone and its impact on the background and sensitive receptors. The monitoring was carried out on the Magazine Hill top near the security search light post.

4.8 Soil Sampling Stations

Soil samples were collected from three different locations in the buffer zone to assess the quality of soil and its fertility. The soil samples are collected from the agriculture land of some nearby villagers, who used to irrigate their cultivated land by Lanjiberna mines quarry discharge water. The descriptions of sampling sites are given below:

S-1 Village Lanjiberna Agriculture Land

Soil sample was collected from the agriculture land of village Lanjiberna, where the pumped out water of quarry 1&3 is discharged.

S-2 Village Bihabandh Agriculture Land

Soil sample was collected from the agriculture land of village Bihabandh, where the pumped out water of quarry 2&6 is discharged.

S-3 Village Dhauradah Agriculture land

Soil sample was collected from the agriculture land of village Dhaurada, where the pumped out water of quarry 4&5 is discharged

4.9 Effluent Water Quality Sampling Station

The wash water of HEMM in workshop is directed to an Oil & Grease separation tank inside the garage premises and the treated water is reused in the washing process. The sample from the outlet of the Tank is collected on quarterly basis for analysis of 5 parameters and to find out the efficiency of the Oil & Grease separation process.

5. METHODOLOGY OF SAMPLING & ANALYTICAL PROCEDURES

5.1 Meteorological Study

For recording various meteorological parameters like, Temperature, RH, Wind Speed, Wind Direction & Rainfall, a weather monitoring station, Make: Virtual Electronics Company, Roorkee was installed at the site. The instrument is equipped with windows based data logging software to store each data on hourly basis, which can be further down loaded to a PC and data can be interpreted as per the requirement of the report.

5.2 Ambient Air Monitoring

Air quality samples were monitored for all parameters as per NAAQS**.** For sampling and analysis, methods prescribed by CPCB were followed and Respirable Dust Samplers were used and for PM2.5 sampling Fine Particulate Samplers were used where ever necessary at the site.

5.3 Fugitive Dust Emission Monitoring

Fugitive dust samples were monitored for parameter like, PM10 only**.** For sampling and analysis ambient air monitoring methods prescribed by CPCB were followed and Respirable Dust Samplers (RDS) were used at the site. 8 hours continuous samplings were carried out once in three months at each location.

5.4 Stack Monitoring

Stack monitoring were carried out once in every month from the bag filter outlet stack of the Limestone Crusher plant and the CPCB standard for monitoring of Stack emission was followed for collecting the sample and the concentration of Particulate Matter were calculated by following the standard methods of CPCB. For collection of sample Ecotech Instruments make Stack sampler, Model: ESS 100 was used at the site.

5.5 Water Quality Sampling

As per the standard practice, one sample from each station was collected once, during the month of August and November. Grab water samples were collected in plastic container by standard sampling technique. Necessary precautions were taken for sample preservation. The parameters like pH, Temp., Conductivity and DO were measured at the site by using portable water analysis kit from WTW, Germany. All other parameters were analysed as per the standard methods for Water and Waste Water analysis by APHA.

5.6 Noise Level Monitoring

Ambient Noise level monitoring was carried out with an integrating Sound Level Meter, Model: SLM 100, Make: Envirotech Instruments Pvt. Ltd. in dB(A). The measurements were collected at a height of 1.5m from the ground level and away from any sound reflecting sources like walls and buildings etc.

The Ambient Noise monitoring was carried out on continuous basis by the data logging system of the instrument and data are logged on at every minute for 24 hours. The Sound Pressure Level were measured and Lmin, Lmax & Leq Day Time and Leq Night Time were calculated and interpreted for data analysis.

6. DATA ANALYSIS

6.1 Micro-meteorological Study:

6.1.1 Wind Speed & Wind Direction

During the entire period from 1st April to 30th September all total 4392 no. of data are recorded by the instrument and after interpretation of the collected data it was found that Calm condition prevailed over

9.47%, while considering the 24 hourly data. 7.47% calm condition prevailed from morning 6 hrs to 14hrs for the entire study period, 9.11% calm condition prevailed from 14hrs to 22hrs and 11.66% calm condition prevailed from 22hrs to 06hrs. The predominant wind directions were from South, SE & SW with average wind speed 3.68 m/sec. The wind rose diagram for the entire study period are depicted on the **Figure No: 6.1, 6.2, 6.3 & 6.4.**

6.1.2 Temperature

The maximum & minimum temperature during the entire study period were divided in to two parts as the study period was covering summer as well as monsoon seasons. The Minimum temperature during the summer season was found to be 21.22^{o}C and the Maximum temperature was found to be 43.95^{o}C up to the end of 30th June.

The minimum and maximum temperature during the monsoon season i.e. from July to September was found to be 20.47^{o}C and 34.1^{o}C. **Table No 6.1** shows a summary of micro-meteorological data collected for the entire period.

6.1.3 Rainfall

The total rain fall from 1st April to 30th September was observed to be 753.2 mm. during the study period. A month wise rainfall data recorded at the site is depicted in **Table No 6.1.**

Table No: 6.1
A Summary of the Micro-meteorological Data

Project Site : Lanjiberna Limestone & Dolomite Mines
Location : Magazine Hill Top

Sl No	Parameters	From April – September 2022
1	Predominant Wind Direction	From South East
2	Calm Condition %	9.47%
3	Average Wind Speed m/sec	3.68
4	Temperature ^{o}C **Summer Season** Minimum Maximum **Monsoon Season** Minimum Maximum	 21.22 43.95 20.47 34.10
5	**Rain Fall in mm** April May June July August September	 0.0 83.5 92.5 19.8 516.0 41.4
	Total	**753.2**

Figure No: 6.1 Wind Rose Diagram for 24 Hours

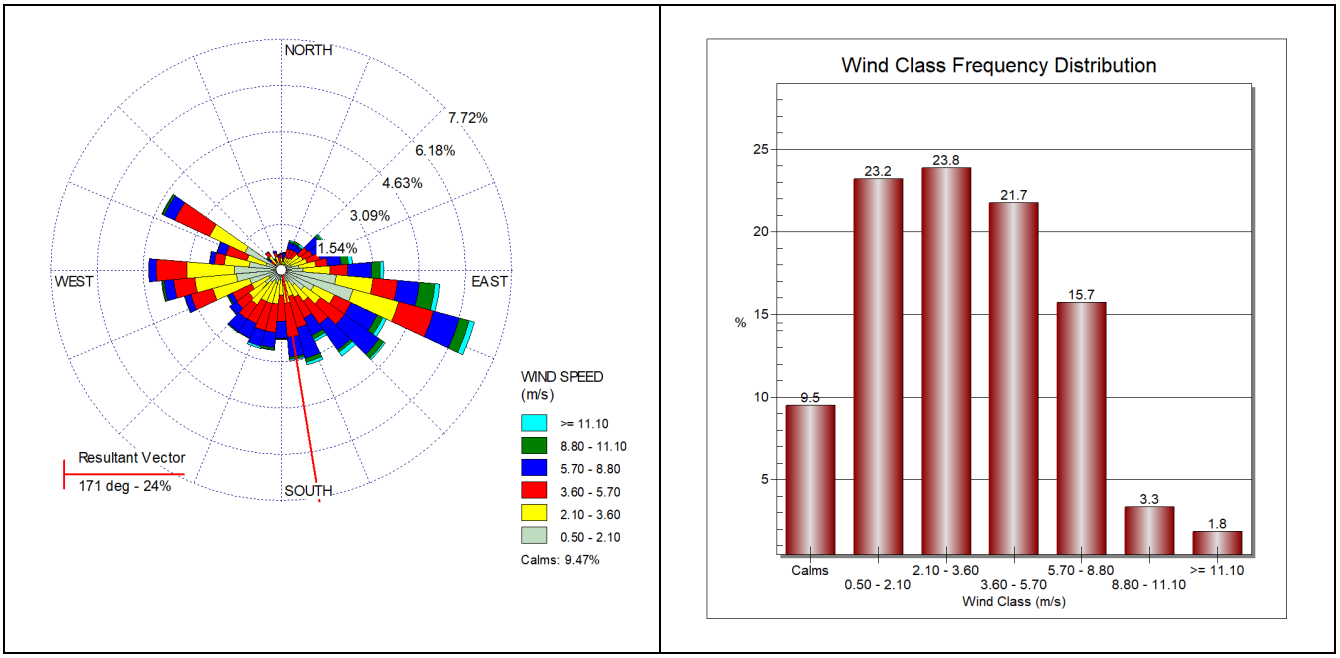


Figure No: 6.2 Wind Rose Diagram from 06 – 14 Hours

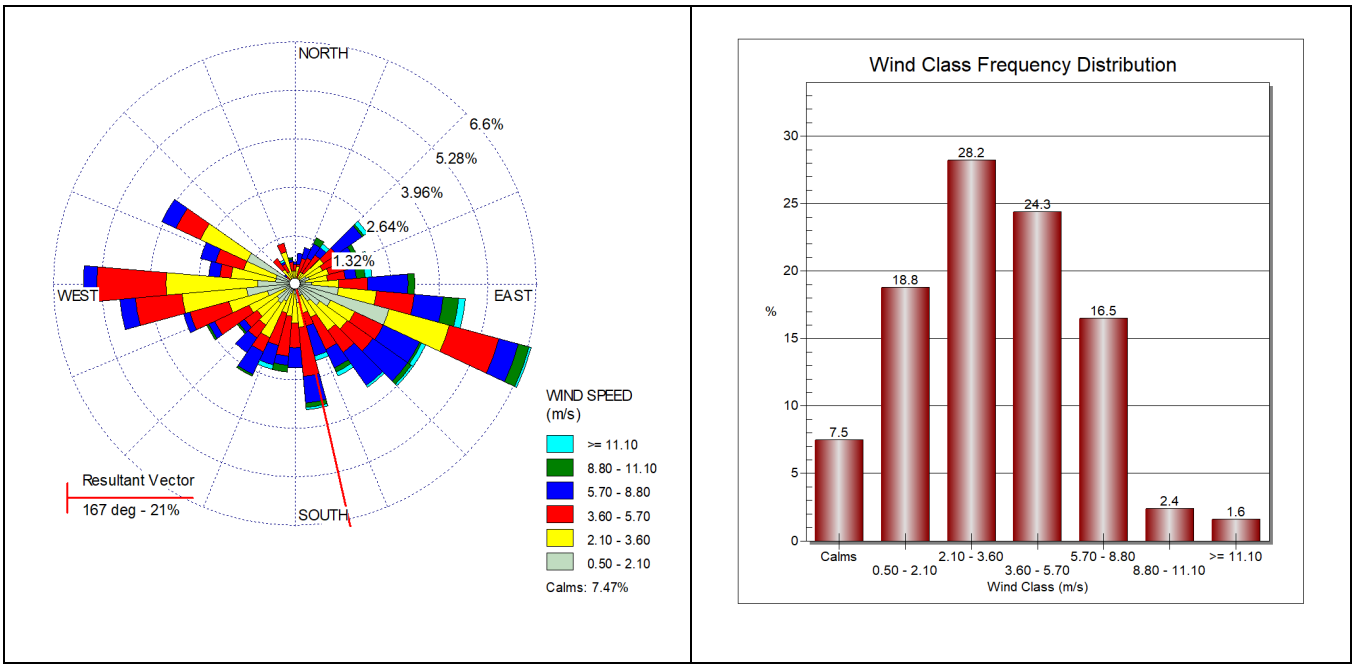


Figure No: 6.3 Wind Rose Diagram from 14 – 22 Hours

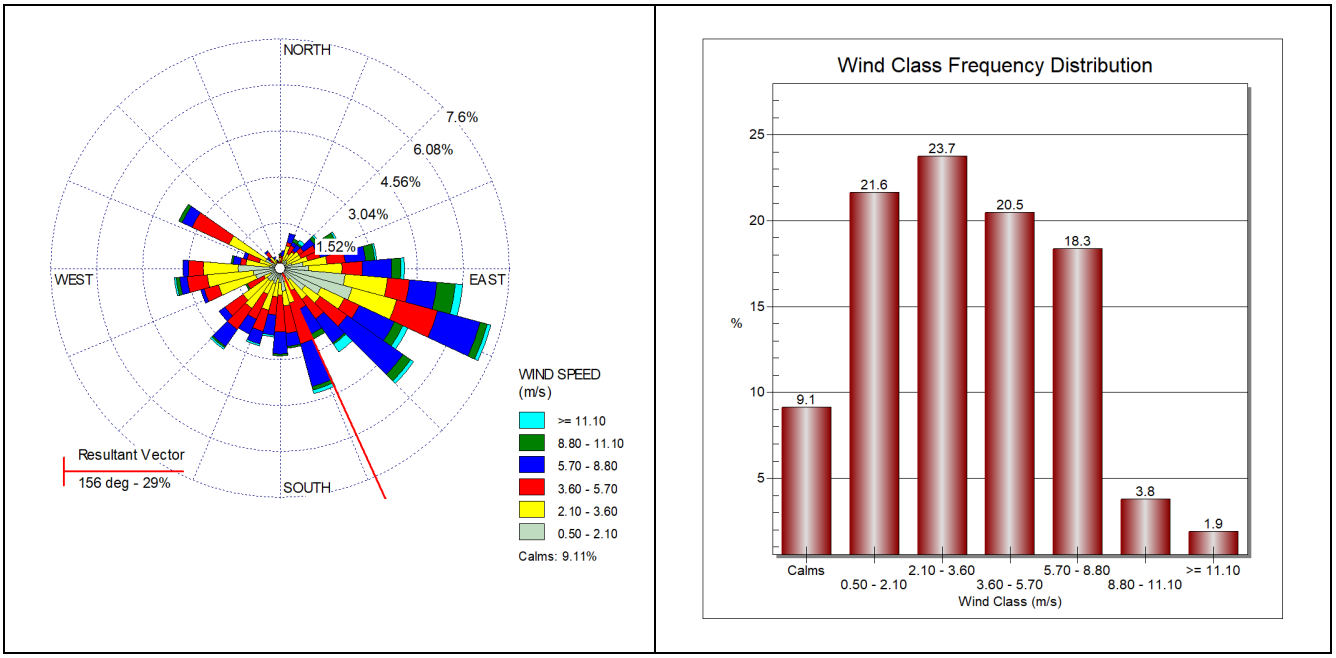
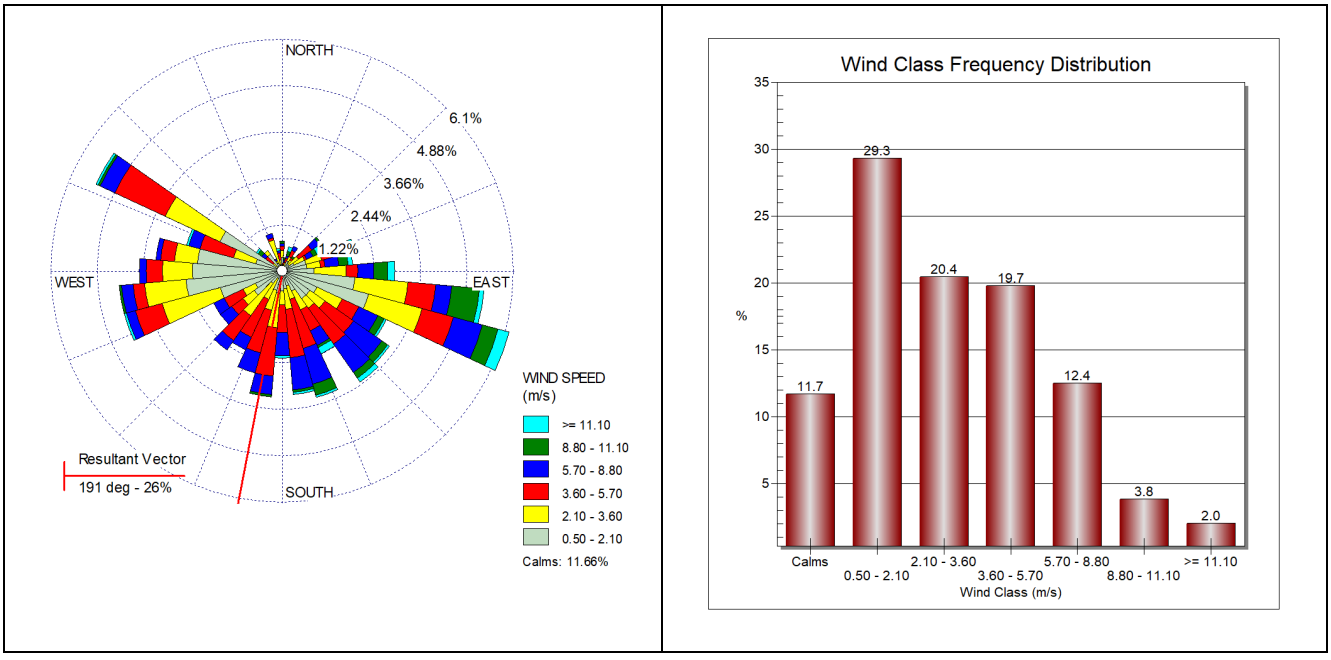


Figure No: 6.4 Wind Rose Diagram from 22 – 06 Hours



6.2 Ambient Air Quality Data

6.2.1 Near Brick Plant (A-1)

PM2.5

Data as given in the **Table No: 6.2** shows that the maximum value was 29µg/m^3, 98 percentile values were 11.04µg/m^3, the lowest value was 9.0µg/m^3 and the average value was 20.85µg/m^3.

PM10

Data as given in the **Table No: 6.2** shows that the maximum value was 91.0µg/m^3, 98 percentile values were 34.12µg/m^3, the lowest value was 34.0µg/m^3 and the average value was 62.26µg/m^3.

All the readings are below the permissible limit of 60 & 100µg/m^3 as specified in the National Ambient Air Quality Standards, CPCB Notification 18th November 2009.

SO_2

The data given in the **Table No: 6.2** shows the maximum value was 13.0µg/m^3, 98 percentile values were 3.02µg/m^3, the lowest value was 3.0µg/m^3 and the average value was 5.67µg/m^3.

NO_2

The data given in the **Table No: 6.2** shows the maximum value was 39.0µg/m^3, 98 percentile values were 11.04µg/m^3, the lowest value was 11.0µg/m^3 and the average value was 20.21µg/m^3.

All the readings are below the permissible limit of 80µg/m^3 as specified in the National Ambient Air Quality Standards, CPCB Notification 18th November 2009.

Table No: 6.2

AMBIENT AIR QUALITY DATA

From 01.04.2022 to 30.09.2022

Station: A-1 (Near Brick Plant)

Month	PM2.5	PM10	SO_2	NO_2
April	21	66	4	14
	23	64	4	17
	21	60	9	32
	20	63	4	11
	23	66	3	11
	21	61	4	15
	21	63	13	39
	27	66	9	30
	25	77	9	27
May	17	45	4	21
	24	68	5	16
	23	67	5	13
	23	69	4	12
	19	56	5	17
	22	57	5	21
	22	70	8	20
	23	67	7	28
	24	68	5	24
June	20	70	6	19
	22	63	5	16

Month	PM2.5	PM10	SO_2	NO_2
	23	67	8	23
	20	62	8	30
	22	63	4	20
	22	66	8	27
	20	58	7	19
	26	79	5	27
	24	68	5	27
July	23	71	8	25
	24	75	5	16
	21	70	7	29
	24	65	4	13
	24	77	5	15
	13	43	5	23
	18	49	4	16
	21	67	5	18
	29	91	4	13
August	12	37	5	16
	14	44	4	18
	9	34	4	28
	21	67	8	27
	22	68	8	30
	17	55	4	13
	12	40	5	21
	22	63	8	19
	16	45	< 3	13
September	21	67	5	24
	22	69	4	15
	22	62	3	12
	25	69	5	13
	21	66	4	15
	11	34	4	16
	21	59	5	20
	22	64	9	27
Minimum	**9**	**34**	**3**	**11**
Maximum	**29**	**91**	**13**	**39**
Average	**20.85**	**62.26**	**5.67**	**20.21**
98%tile Value	**11.04**	**34.12**	**3.02**	**11.04**

6.2.2 Limestone Crusher Plant (A-2)

PM2.5
Data as given in the **Table No: 6.3** shows that the maximum value was 29.0µg/m^3, 98 percentile values were 12.08µg/m^3, the lowest value was 8.0µg/m^3 and the average value was 20.77µg/m^3.

PM10
Data as given in the **Table No: 6.3** shows that the maximum value was 86.0µg/m^3, 98 percentile values were 36.4µg/m^3, the lowest value was 24.0µg/m^3 and the average value was 62.57µg/m^3.

All the readings are below the permissible limit of 60 & 100µg/m^3 as specified in the National Ambient Air Quality Standards, CPCB Notification 18th November 2009.

SO_2
The data given in the **Table No: 6.3** shows the maximum value was 10.0µg/m^3, 98 percentile values were 3.0µg/m^3, the lowest value was 3.0µg/m^3 and the average value was 5.17µg/m^3.

NO_2
The data given in the **Table No: 6.3** shows the maximum value was 31.0µg/m^3, 98 percentile values were 11.04µg/m^3, the lowest value was 9.0µg/m^3 and the average value was 18.79µg/m^3.

All the readings are below the permissible limit of 80µg/m^3 as specified in the National Ambient Air Quality Standards, CPCB Notification 18th November 2009.

Table No: 6.3

AMBIENT AIR QUALITY DATA
From 01.04.2022 to 30.09.2022
Station: A-2 (Limestone Crusher Plant)

Month	PM2.5	PM10	SO_2	NO_2
April	16	48	4	18
	19	54	5	15
	23	66	4	13
	25	72	5	14
	25	70	4	17
	24	68	4	16
	18	56	4	16
	24	64	4	20
	26	68	7	19
May	23	68	5	19
	26	72	5	14
	25	79	5	17
	17	51	4	16
	29	86	8	29
	21	68	5	23
	23	79	4	12

Month	PM2.5	PM10	SO_2	NO_2
	22	70	9	26
	26	67	4	16
June	22	67	4	13
	20	62	4	21
	25	72	9	26
	20	68	7	22
	24	67	4	16
	23	67	8	22
	23	71	7	18
	18	57	6	21
	22	63	4	27
July	25	72	4	12
	21	65	5	15
	18	60	5	19
	21	59	7	29
	14	46	5	19
	18	69	5	19
	19	53	5	20
	20	69	3	11
	21	66	3	14
August	23	67	4	15
	24	70	5	18
	8	24	5	20
	21	69	10	31
	16	54	5	18
	16	50	7	20
	18	62	4	25
	20	63	6	25
	21	69	5	21
September	21	57	5	18
	23	66	4	17
	19	61	5	17
	15	48	5	22
	21	60	4	20
	12	36	3	9
	17	46	7	22
	20	55	5	14
Minimum	**8**	**24**	**3**	**9**
Maximum	**29**	**86**	**10**	**31**
Average	**20.77**	**62.57**	**5.17**	**18.79**
98%tile Value	**12.08**	**36.4**	**3.00**	**11.04**

6.2.3 Lanjiberna Mines Office Area (A-3)

PM2.5
Data as given in the **Table No: 6.4** shows that the maximum value was 25.0µg/m^3, 98 percentile values were 11.02µg/m^3, the lowest value was 11.0µg/m^3 and the average value was 19.76µg/m^3.

PM10
Data as given in the **Table No: 6.4** shows that the maximum value was 76.0µg/m^3, 98 percentile values were 33.04µg/m^3, the lowest value was 32.0µg/m^3 and the average value was 58.44µg/m^3.

All the readings are below the permissible limit of 60 & 100µg/m^3 as specified in the National Ambient Air Quality Standards, CPCB Notification 18th November 2009.

SO_2
The data given in the **Table No: 6.4** shows the maximum value was 9.0µg/m^3, 98 percentile values were 3.0µg/m^3, the lowest value was 3.0µg/m^3 and the average value was 5.31µg/m^3.

NO_2
The data given in the **Table No: 6.4** shows the maximum value was 37.0µg/m^3, 98 percentile values were 10.0µg/m^3, the lowest value was 10.0µg/m^3 and the average value was 18.73µg/m^3.

All the readings are below the permissible limit of 80µg/m^3 as specified in the National Ambient Air Quality Standards, CPCB Notification 18th November 2009.

Table No: 6.4

AMBIENT AIR QUALITY DATA
From 01.04.2022 to 30.09.2022
Station: A-3 (Lanjiberna Mines Office Area)

Month	PM2.5	PM10	SO_2	NO_2
April	21	61	5	20
	22	60	5	14
	19	54	4	17
	22	64	5	18
	24	68	4	10
	22	63	5	18
	20	56	5	31
	16	40	7	25
	20	62	6	17
May	19	54	6	18
	22	70	5	16
	22	69	5	13
	23	64	3	11
	22	63	4	12
	25	66	9	33
	20	66	4	12

Month	PM2.5	PM10	SO_2	NO_2
	17	45	5	20
	24	68	5	22
June	24	68	7	19
	21	63	4	12
	19	54	4	12
	20	58	4	16
	17	56	8	24
	23	67	7	21
	20	62	8	33
	23	66	9	24
	20	57	8	29
July	24	75	4	14
	22	62	5	21
	19	58	5	17
	21	66	4	14
	17	55	4	10
	14	38	3	14
	17	59	5	20
	16	45	4	16
	18	49	6	19
August	20	52	5	18
	11	33	7	37
	19	68	3	10
	14	64	5	18
	23	58	6	19
	15	47	5	22
	13	43	4	14
	20	60	8	30
	19	54	5	13
September	24	74	3	12
	11	32	4	19
	25	72	6	14
	24	76	9	29
	12	35	5	13
	20	57	6	19
	21	60	4	15
Minimum	**11**	**32**	**3**	**10**
Maximum	**25**	**76**	**9**	**37**
Average	**19.76**	**58.44**	**5.31**	**18.73**
98%tile Value	**11.02**	**33.04**	**3.00**	**10.00**

6.2.4 Magazine Hill Top (A-4)

PM2.5
Data as given in the **Table No: 6.5** shows that the maximum value was 19.0µg/m^3, 98 percentile values were 9.12µg/m^3, the lowest value was 7.0µg/m^3 and the average value was 15.15µg/m^3.

PM10
Data as given in the **Table No: 6.5** shows that the maximum value was 61.0µg/m^3, 98 percentile values were 28.12µg/m^3, the lowest value was 24.0µg/m^3 and the average value was 46.28µg/m^3.

All the readings are below the permissible limit of 60 & 100µg/m^3 as specified in the National Ambient Air Quality Standards, CPCB Notification 18th November 2009.

SO_2
The data given in the **Table No: 6.5** shows the maximum value was 13.0µg/m^3, 98 percentile values were 3.0µg/m^3, the lowest value was 3.0µg/m^3 and the average value was 6.41µg/m^3.

NO_2
The data given in the **Table No: 6.5** shows the maximum value was 47.0µg/m^3, 98 percentile values were 9.0µg/m^3, the lowest value was 7.0µg/m^3 and the average value was 22.43µg/m^3.

All the readings are below the permissible limit of 80µg/m^3 as specified in the National Ambient Air Quality Standards, CPCB Notification 18th November 2009.

Table No: 6.5

AMBIENT AIR QUALITY DATA
From 01.04.2022 to 30.09.2022
Station: A-4 (Magazine Hill Top)

Date	PM2.5	PM10	SO_2	NO_2
April	17	54	7	35
	15	40	11	42
	12	32	10	47
	15	48	9	30
	9	28	9	25
	13	46	6	22
	15	47	13	36
	16	43	9	31
	17	40	11	34
May	15	49	4	17
	18	52	7	18
	16	52	4	15
	17	52	5	20
	14	43	5	13
	15	47	5	17
	18	56	6	20

Date	PM2.5	PM10	SO_2	NO_2
	17	48	5	13
	14	40	5	17
June	14	43	6	22
	15	43	5	15
	16	45	4	14
	17	49	4	24
	13	44	5	20
	18	49	8	22
	13	46	10	34
	17	50	9	29
	19	61	6	18
July	16	47	6	35
	18	55	7	25
	15	46	5	23
	18	58	4	20
	16	56	8	32
	15	48	6	21
	16	52	4	14
	11	30	5	18
	15	49	3	10
August	11	36	3	7
	15	49	4	14
	12	38	3	9
	7	24	4	18
	16	49	5	29
	15	48	7	24
	17	52	10	24
	14	50	7	24
	15	48	9	29
September	18	56	8	30
	13	38	4	14
	15	40	5	18
	19	54	7	20
	17	51	7	19
	13	43	4	19
	15	44	4	9
	13	38	11	36
	18	53	8	20
Minimum	**7**	**24**	**3**	**7**
Maximum	**19**	**61**	**13**	**47**

Date	PM2.5	PM10	SO_2	NO_2
Average	15.15	46.28	6.41	22.43
98%tile	9.12	28.12	3.00	9.00

Figure No: 6.5 Graphical Representations of PM2.5 Values in Core Zone

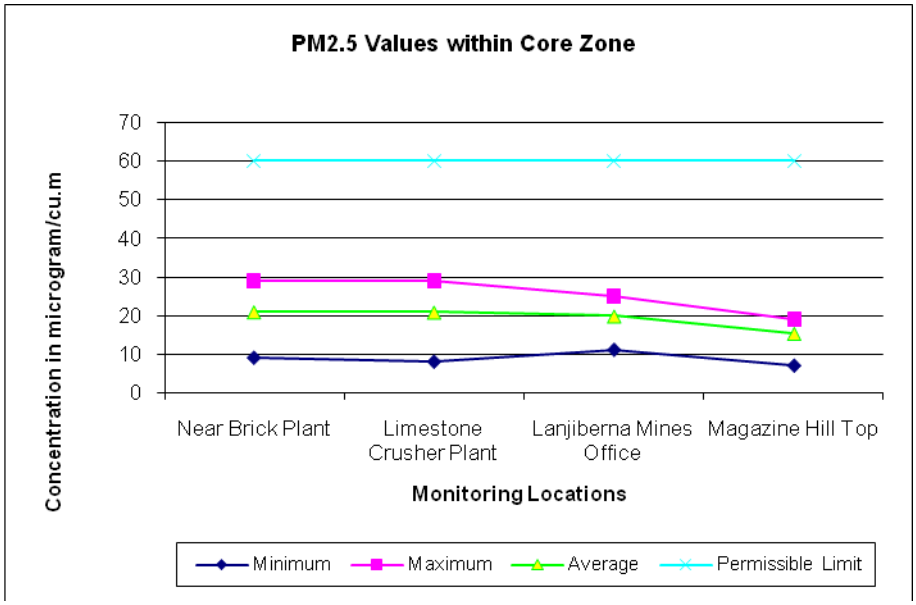


Figure No: 6.6 Graphical Representations of PM10 Values in Core Zone

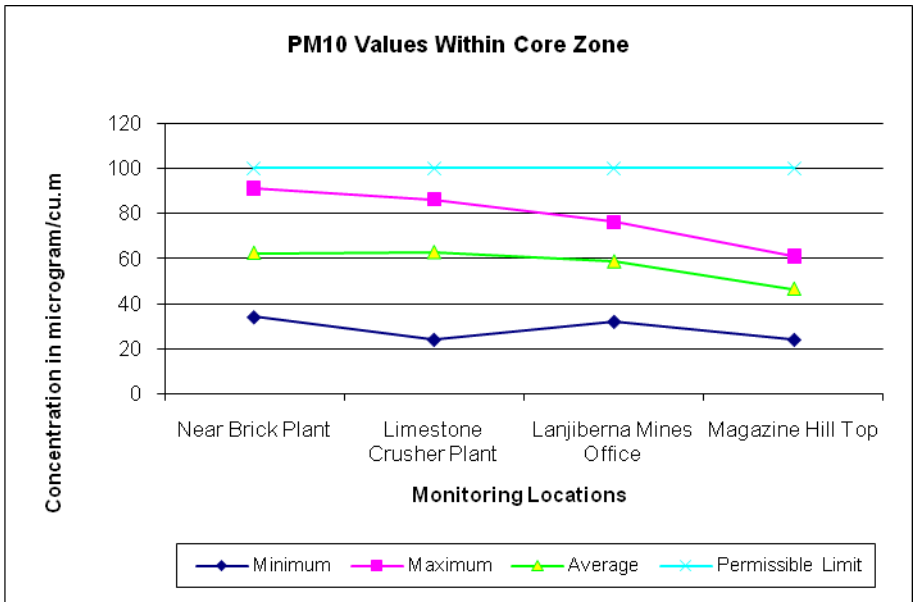


Figure No: 6.7 Graphical Representations of SO_2 Values in Core Zone

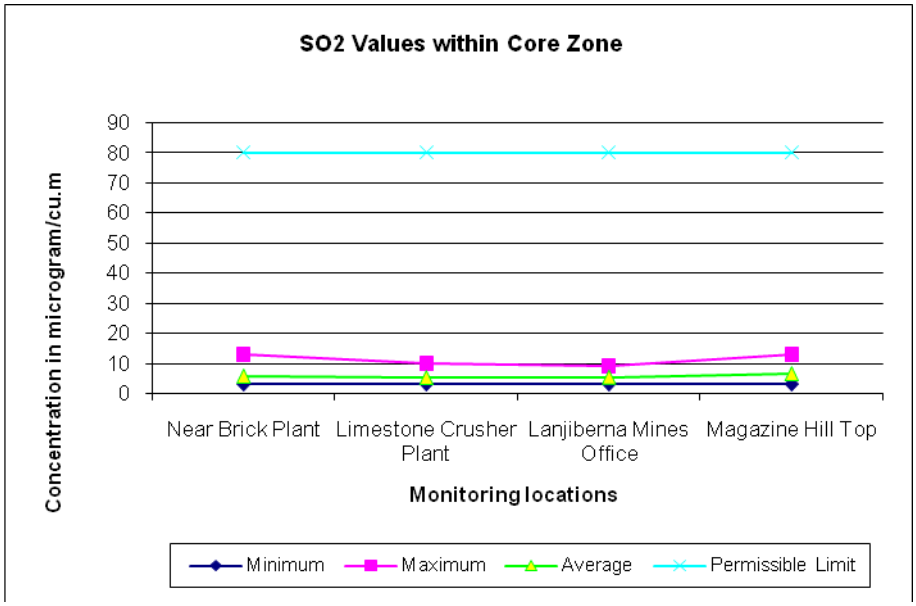
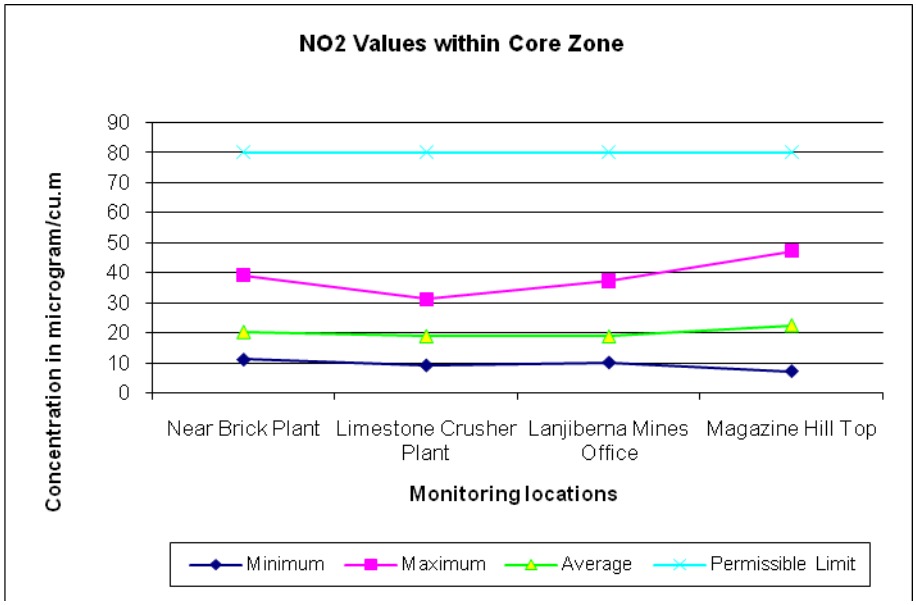


Figure No: 6.8 Graphical Representations of NO_2 Values in Core Zone



6.2.5 Village Katang (A-5)

PM2.5

Data as given in the **Table No: 6.6** shows that the maximum value was 23.0µg/m^3, 98 percentile values were 7.96µg/m^3, the lowest value was 7.0µg/m^3 and the average value was 16.82µg/m^3.

PM10

Data as given in the **Table No: 6.6** shows that the maximum value was 71.0µg/m^3, 98 percentile values were 30.68µg/m^3, the lowest value was 23.0µg/m^3 and the average value was 47.35µg/m^3.

All the readings are below the permissible limit of 60 & 100µg/m^3 as specified in the National Ambient Air Quality Standards, CPCB Notification 18th November 2009.

SO_2

The data given in the **Table No: 6.6** shows the maximum value was 8.0µg/m^3, 98 percentile values were 3.0µg/m^3, the lowest value was 3.0µg/m^3 and the average value was 4.83µg/m^3.

NO_2

The data given in the **Table No: 6.6** shows the maximum value was 34.0µg/m^3, 98 percentile values were 9.84µg/m^3, the lowest value was 6.0µg/m^3 and the average value was 19.12µg/m^3.

All the readings are below the permissible limit of 80µg/m^3 as specified in the National Ambient Air Quality Standards, CPCB Notification 18th November 2009.

Table No: 6.6

AMBIENT AIR QUALITY DATA

From 01.04.2022 to 30.09.2022

Station: A-5 (Village Katang)

Months	PM2.5	PM10	SO_2	NO_2
April	22	62	5	21
	17	52	7	24
	13	40	4	26
	10	33	6	19
	19	53	3	21
	11	38	4	27
	17	43	5	19
	16	53	6	23
May	20	55	4	18
	19	52	5	22
	18	50	4	12
	22	57	4	16
	21	54	3	18
	23	59	6	24
	20	54	3	14
	18	50	3	17
June	22	57	5	20
	20	53	6	21
	19	49	4	16
	21	52	3	14
	20	54	4	16
	22	56	5	20
	23	58	5	22
	20	50	4	15

Months	PM2.5	PM10	SO_2	NO_2
July	21	51	6	18
	16	49	3	16
	14	43	5	18
	17	50	4	15
	15	48	7	20
	17	50	8	23
	13	39	< 3	11
	15	33	6	21
August	13	40	5	17
	8	32	4	25
	23	71	5	18
	14	36	7	34
	15	47	< 3	10
	11	31	8	22
	16	40	4	14
	11	36	4	24
September	7	23	5	24
	22	61	5	31
	17	50	5	18
	14	43	6	28
	11	34	4	10
	15	49	4	20
	12	36	5	17
	12	34	< 03	6
	22	60	4	12
Minimum	**7**	**23**	**3**	**6**
Maximum	**23**	**71**	**8**	**34**
Average	**16.82**	**47.35**	**4.83**	**19.12**
98%tile	**7.96**	**30.68**	**3.00**	**9.84**

6.2.6 Village Bihabandh (A-6)

PM2.5

Data as given in the **Table No: 6.7** shows that the maximum value was 27.0µg/m^3, 98 percentile values were 8.96µg/m^3, the lowest value was 8.0µg/m^3 and the average value was 19.04µg/m^3.

PM10

Data as given in the **Table No: 6.7** shows that the maximum value was 73.0µg/m^3, 98 percentile values were 28.72µg/m^3, the lowest value was 22.0µg/m^3 and the average value was 51.78µg/m^3.

All the readings are below the permissible limit of 60 & 100µg/m^3 as specified in the National Ambient Air Quality Standards, CPCB Notification 18th November 2009.

SO_2
The data given in the **Table No: 6.7** shows the maximum value was 9.0µg/m^3, 98 percentile values were 3.0µg/m^3, the lowest value was 3.0µg/m^3 and the average value was 5.17µg/m^3.

NO_2
The data given in the **Table No: 6.7** shows the maximum value was 39.0µg/m^3, 98 percentile values were 10.0µg/m^3, the lowest value was 10.0µg/m^3 and the average value was 19.27µg/m^3.

All the readings are below the permissible limit of 80µg/m^3 as specified in the National Ambient Air Quality Standards, CPCB Notification 18th November 2009.

Table No: 6.7

AMBIENT AIR QUALITY DATA
From 01.04.2022 to 30.09.2022
Station: A-6 (Village Bihabandh)

Months	PM2.5	PM10	SO_2	NO_2
April	26	58	6	18
	15	46	5	19
	11	34	5	22
	15	50	5	25
	19	45	5	23
	17	49	3	18
	23	73	5	16
	21	60	6	16
May	24	58	4	22
	22	52	5	18
	26	63	6	20
	19	49	3	24
	25	66	7	24
	26	68	8	18
	24	60	5	16
	27	67	6	19
June	25	60	3	20
	24	58	6	19
	23	55	5	21
	21	52	4	22
	22	53	8	23
	24	59	4	19
	26	62	6	18
	23	57	5	20
July	24	59	4	22
	18	51	6	28
	20	59	5	16

Months	PM2.5	PM10	SO_2	NO_2
	21	60	7	22
	15	48	5	15
	17	62	7	39
	16	59	3	19
	13	36	5	19
August	17	51	6	20
	15	40	3	10
	18	48	4	13
	8	22	< 3	12
	12	32	3	10
	16	48	4	14
	20	53	4	19
	21	55	4	18
September	19	52	5	22
	9	29	4	21
	19	55	5	19
	14	44	9	27
	16	59	9	27
	12	36	5	16
	19	48	9	15
	13	38	4	11
	13	39	3	10
Minimum	**8**	**22**	**3**	**10**
Maximum	**27**	**73**	**9**	**39**
Average	**19.04**	**51.78**	**5.17**	**19.27**
98%tile	**8.96**	**28.72**	**3.00**	**10.00**

Figure No: 6.9 Graphical Representations of PM2.5 Values in Buffer Zone

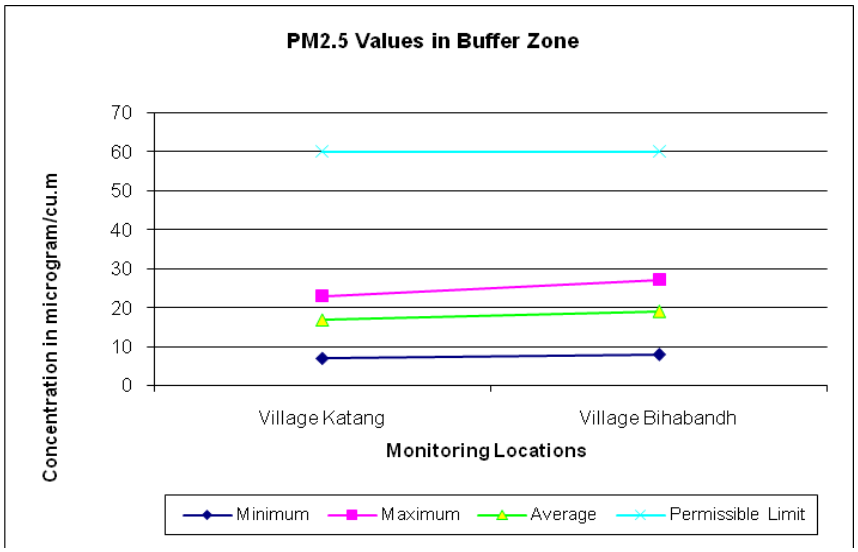


Figure No: 6.10 Graphical Representations of PM10 Values in Buffer Zone

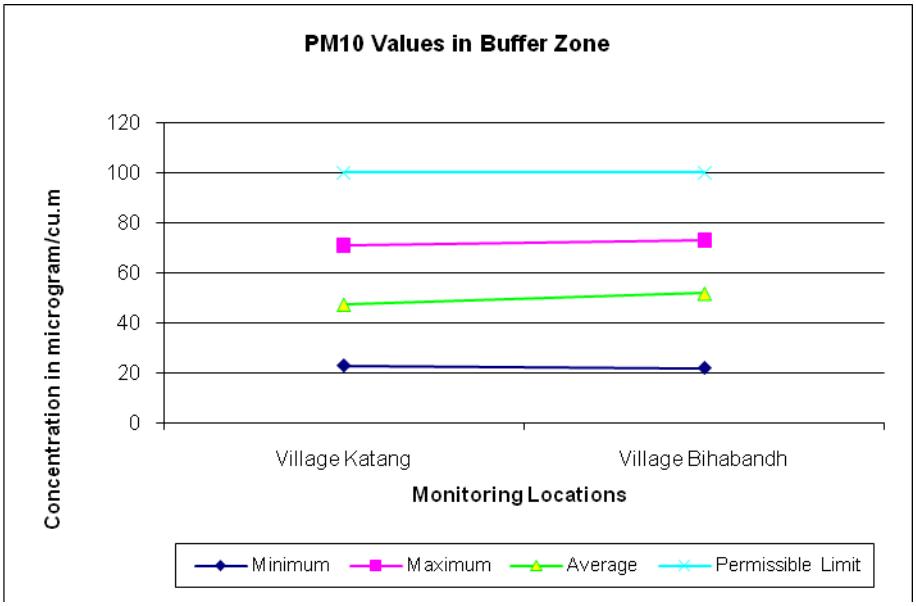


Figure No: 6.11 Graphical Representations of SO_2 Values in Buffer Zone

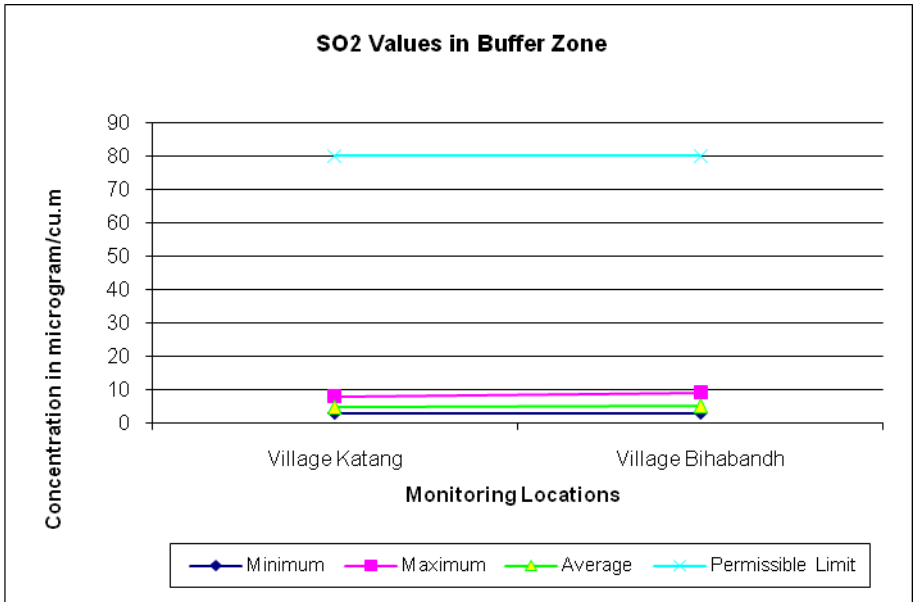
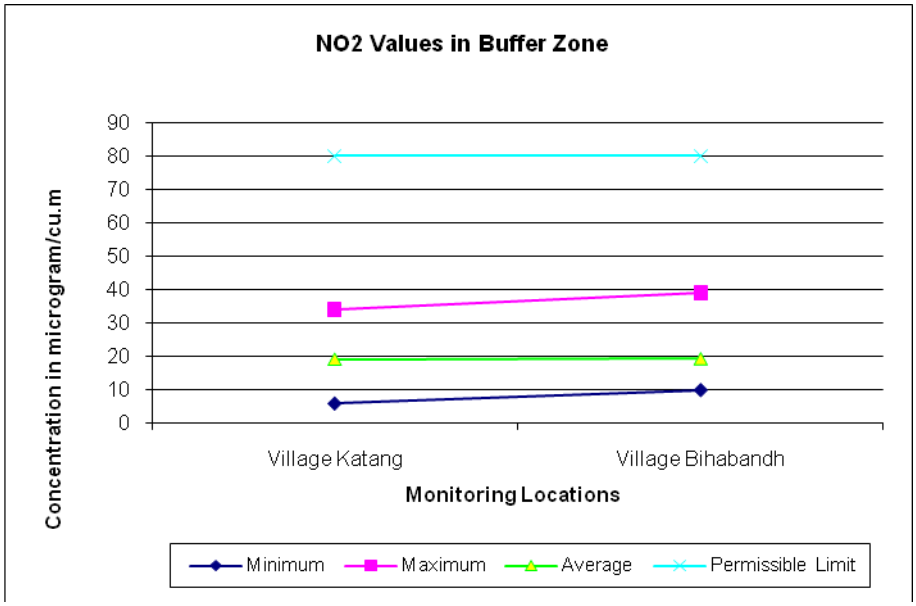


Figure No: 6.12 Graphical Representations of NO_2 Values in Buffer Zone



6.3 Fugitive Dust Emission

The fugitive dust samples collected from two locations during May and September is detailed below.

Table No 6.8: Fugitive Dust Emission Results

Month	Haulage Road from Quarry to Crusher Plant	Downwind of Drill Machine within the Quarry
	Particulate Matter	Particulate Matter
May	450 µg/m^3	342 µg/m^3
September	486 µg/m^3	585 µg/m^3

Both the locations in the month of September show higher results than in the month of May but are well within the limits.

6.4 Stack Emission Monitoring

The monthly monitoring results of stack emission from the Limestone Crusher Plant Bag filter outlet given below shows that all the results from April to September are within the prescribed limits (100mg/Nm^3) of State Pollution Control Board. The detail results are as follows:

Table No 6.9: Stack Emission Monitoring Results

Sl No	Month	Particulate Matter Concentration in mg/Nm^3
1	April	54
2	May	85
3	June	72
4	July	05
5	August	86
6	September	89

6.5 Water Quality

SW-1 Quarry 2&6 Discharge Water:

The sample after analysis and in comparison with the Standards prescribed in the Schedule – VI of the EPA, G.S.R. 422(E), 1993 for discharge of water on land for irrigation is found to be well within the prescribed limits in the month monitored. The results are detailed in **Table No. 6.10.**

SW-2 Quarry 1&3 Discharge Water

The sample after analysis and in comparison with the Standards prescribed in the Schedule – VI of the EPA, G.S.R. 422(E), 1993 for discharge of water on land for irrigation is found to be well within the prescribed limits in the month monitored. The results are detailed in **Table No. 6.11.**

SW-3 Quarry 4&5 Discharge Water

The sample after analysis and in comparison with the Standards prescribed in the Schedule – VI of the EPA, G.S.R. 422(E), 1993 for discharge of water on land for irrigation is found to be well within the prescribed limits in both the seasons monitored. The results are detailed in **Table No. 6.12.**

Table No: 6.10
Discharge Water Quality from Quarry No 2&6

Sl No	Parameters	May	September	General Standards As per Schedule - VI of EPA, G.S.R.422(E), 1993
1.	Colour	< 5	< 5	-
2.	Odour	Odourless	Odourless	-
3.	Temperature	25.6	29.9	-
4.	Total Suspended Solids	2.8	< 2.5	200
5.	pH Value	7.36	7.83	5.5 – 9.0
6.	Oil & Grease	< 2.0	< 2.0	10
7.	Ammoniacal Nitrogen (as N)	< 5.0	< 5.0	-
8.	Total Kjeldahl Nitrogen (as NH_3)	< 10	< 10	-
9.	BOD (5 days at 20^oC)	01	03	100
10.	COD	4.262	15.481	-
11.	Lead (as Pb)	< 2.0	< 2.0	-
12.	Cadmium (as Cd)	< 0.05	< 0.05	-
13.	Hex. Chromium (as Cr^{+6})	< 0.03	< 0.03	-
14.	Total Chromium (as Cr)	< 0.10	< 0.10	-
15.	Copper (as Cu)	< 0.10	< 0.10	-
16.	Zinc (as Zn)	< 0.10	< 0.10	-
17.	Nickel (as Ni)	< 0.25	< 0.25	-
18.	Fluoride (as F)	< 0.10	< 0.10	-
19.	Dissolved Phosphate (as P)	< 0.01	< 0.01	-
20.	Sulphide (as S)	< 0.50	< 0.50	-
21.	Phenolic Compounds (as C_6H_5OH)	< 0.10	< 0.10	-
22.	Manganese (as Mn)	< 0.05	< 0.05	-
23.	Iron (as Fe)	< 0.10	< 0.10	-
24.	Nitrate Nitrogen (as NO_3 – N)	< 1.0	< 1.0	-
25.	Total Residual Chlorine	0.18	< 0.01	-
26.	Free Ammonia (as NH_3)	< 0.012	< 0.012	-
27.	Cyanide (as CN)	< 0.002	< 0.002	0.2

Table No: 6.11
Discharge Water Quality from Quarry No 1&3

Sl No	Parameters	April	August	General Standards As per Schedule - VI of EPA, G.S.R.422(E), 1993
1.	Colour	< 5	< 5	-
2.	Odour	Odourless	Odourless	-
3.	Temperature	23.9	26.2	200
4.	Total Suspended Solids	6.2	2.8	5.5 – 9.0
5.	pH Value	7.24	7.46	-
6.	Oil & Grease	< 2.0	< 2.0	10
7.	Ammoniacal Nitrogen (as N)	< 5.0	< 5.0	-
8.	Total Kjeldahl Nitrogen (as NH_3)	< 10	< 10	-
9.	BOD (5 days at 20^oC)	02	04	-
10.	COD	7.628	15.282	-
11.	Lead (as Pb)	< 2.0	< 2.0	100
12.	Cadmium (as Cd)	< 0.05	< 0.05	-
13.	Hex. Chromium (as Cr^{+6})	< 0.03	< 0.03	-
14.	Total Chromium (as Cr)	< 0.10	< 0.10	-
15.	Copper (as Cu)	< 0.10	< 0.10	-
16.	Zinc (as Zn)	< 0.10	< 0.10	-
17.	Nickel (as Ni)	< 0.25	< 0.25	-
18.	Fluoride (as F)	< 0.10	< 0.10	-
19.	Dissolved Phosphate (as P)	< 0.01	< 0.01	-
20.	Sulphide (as S)	< 0.50	< 0.50	0.2
21.	Phenolic Compounds (as C_6H_5OH)	< 0.10	< 0.10	-
22.	Manganese (as Mn)	< 0.05	< 0.05	-
23.	Iron (as Fe)	< 0.10	< 0.10	-
24.	Nitrate Nitrogen (as NO_3 – N)	< 1.0	< 1.0	-
25.	Total Residual Chlorine	0.12	0.032	-
26.	Free Ammonia (as NH_3)	< 0.012	< 0.012	-
27.	Cyanide (as CN)	< 0.002	< 0.002	-

Table No: 6.12
Discharge Water Quality from Quarry No 4&5

Sl No	Parameters	June	July	General Standards As per Schedule - VI of EPA, G.S.R.422(E), 1993
1.	Total Suspended Solids	7.1	< 2.5	200
2.	pH Value	7.53	6.74	5.5 – 9.0
3.	Oil & Grease	< 2.0	< 2.0	10
4.	Ammoniacal Nitrogen (as N)	< 5.0	< 5.0	-
5.	Total Kjeldahl Nitrogen (as NH_3)	< 10	< 10	-
6.	BOD (5 days at 20^oC)	05	03	100
7.	COD	18.264	8.448	-
8.	Lead (as Pb)	< 2.0	< 2.0	-
9.	Cadmium (as Cd)	< 0.05	< 0.05	-
10.	Hex. Chromium (as Cr^{+6})	< 0.03	< 0.03	-
11.	Total Chromium (as Cr)	< 0.10	< 0.10	-
12.	Copper (as Cu)	< 0.10	< 0.10	-
13.	Zinc (as Zn)	< 0.10	< 0.10	-
14.	Nickel (as Ni)	< 0.25	< 0.25	-
15.	Fluoride (as F)	< 0.10	< 0.10	-
16.	Dissolved Phosphate (as P)	< 0.01	< 0.01	-
17.	Sulphide (as S)	< 0.50	< 0.50	-
18.	Phenolic Compounds (as C_6H_5OH)	< 0.10	< 0.10	-

Sl No	Parameters	June	July	General Standards As per Schedule - VI of EPA, G.S.R.422(E), 1993
19.	Manganese (as Mn)	< 0.05	< 0.05	-
20.	Iron (as Fe)	< 0.10	< 0.10	-
21.	Nitrate Nitrogen (as NO_3 – N)	< 1.0	< 1.0	-
22.	Colour	< 5	< 5	-
23.	Odour	Odourless	Odourless	-
24.	Temperature	28.0	28.7	-
25.	Total Residual Chlorine	0.28	0.011	-
26.	Free Ammonia (as NH_3)	< 0.012	< 0.012	-
27.	Cyanide (as CN)	< 0.002	< 0.002	0.2

GW-1 Village Kheramuta Dug Well

In comparison of the parameters with the prescribed limits of IS 10500:2012, it was found that the water quality is good and all parameters are found to be within the prescribed limits. All the Heavy metals are found to be below the detection limits. The detail results are given in the **Table No 6.13.**

GW-2 Lanjiberna Colony Dug Well

In comparison of the parameters with the prescribed limits of IS 10500:2012, it was found that the water quality is good and all parameters are found to lie within the prescribed limit. All the Heavy metals are found to be below the detection limits. The detail results are given in the **Table No 6.13.**

GW-3 Village Dhauradah Dug Well

In comparison of the parameters with the prescribed limits of IS 10500:2012, it was found that the water quality is good and all parameters within the prescribed limits. All the Heavy metals are found to be below the detection limits. The detail results are given in the **Table No 6.13.**

GW-4 Brick Plant Dug Well

In comparison of the parameters with the prescribed limits of IS 10500:2012, it was found that the water quality is good and parameters are found to lie within the prescribed limits. All the Heavy metals are found to be below the detection limits. The detail results are given in the **Table No 6.13.**

GW-5 Village Lanjiberna Dug Well

In comparison of the parameters with the prescribed limits of IS 10500:2012, it was found that the water quality is good and all parameters lie within the prescribed limits. All the Heavy metals are found to be below the detection limits. The detail results are given in the **Table No 6.13.**

GW-6 Village Katang Dug Well

In comparison of the parameters with the prescribed limits of IS 10500:2012, it was found that the water quality is good and all parameters lie within the prescribed limits. All the Heavy metals are found to be below the detection limits. The detail results are given in the **Table No 6.13.**

Table No: 6.13
Ground Water Quality in the month of June

Sl No	Parameters	Data Recorded from current Analysis						Max. Desirable Limit As per IS 10500:2012
		GW1	GW2	GW3	GW4	GW5	GW6	
1.	Turbidity	0.10	0.20	0.10	0.20	0.20	0.40	5.0
2.	pH Value	7.19	6.96	8.43	7.42	7.54	6.65	6.5 – 8.5
3.	Total Hardness (as $CaCO_3$)	245.95	298.37	282.24	467.91	334.66	395.14	600
4.	Iron (as Fe)	0.11	0.26	0.07	0.06	0.10	0.16	0.3

Sl No	Parameters	Data Recorded from current Analysis						Max. Desirable
5.	Chlorides (as Cl)	53.98	22.99	24.99	19.99	32.98	59.98	1000
6.	Total Dissolved Solids	386	382	374	604	448	535	2000
7.	Electrical Conductivity	627	622	604	908	726	890	-
8.	Calcium (as Ca)	51.71	48.48	46.86	72.72	88.88	74.34	200
9.	Magnesium (as Mg)	28.41	43.11	40.17	69.56	27.43	50.94	100
10.	Copper (as Cu)	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	1.5
11.	Manganese (as Mn)	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.3
12.	Sulfate (as SO_4)	29.33	6.29	81.48	148.06	40.96	62.17	400
13.	Total Nitrate (as NO_3)	17.04	5.60	2.59	17.04	2.22	5.53	45
14.	Total Alkalinity (as $CaCO_3$)	176	252	144	288	216	208	600
15.	Acidity	16	22	12	18	16	22	-
16.	Sulphide (as H_2S)	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.05
17.	Sodium (as Na)	32.97	30.8	26.11	40.29	42.4	54.48	-
18.	Potassium (as K)	5.59	7.69	9.20	2.61	8.24	10.16	-
19.	Fluoride (as F)	0.20	0.24	0.28	0.18	0.30	1.94	1.5
20.	Cadmium (as Cd)	ND	ND	ND	ND	ND	ND	0.003
21.	Lead (as Pb)	ND	ND	ND	ND	ND	ND	0.01
22.	Arsenic (as As)	ND	ND	ND	ND	ND	ND	0.05
23.	Mercury (as Hg)	ND	ND	ND	ND	ND	ND	0.001
24.	Selenium (as Se)	ND	ND	ND	ND	ND	ND	0.01
25.	Nickel (as Ni)	ND	ND	ND	ND	ND	ND	0.02
26.	Zinc (as Zn)	ND	ND	ND	ND	ND	ND	15.0
27.	Total Chromium (as Cr)	ND	ND	ND	ND	ND	ND	0.05
28.	Colour	< 5	< 5	< 5	< 5	< 5	< 5	15
29.	Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
30.	Taste	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
31.	Temperature	28.2	28.6	28.1	28.4	28.6	28.4	-
32.	Residual Free Chlorine	0.26	0.23	0.38	0.40	0.48	0.46	1.0 (min)
33.	Total Bacterial Count	Absent	Absent	Absent	Absent	Absent	Absent	Absent
34.	E coli	Absent	Absent	Absent	Absent	Absent	Absent	Absent

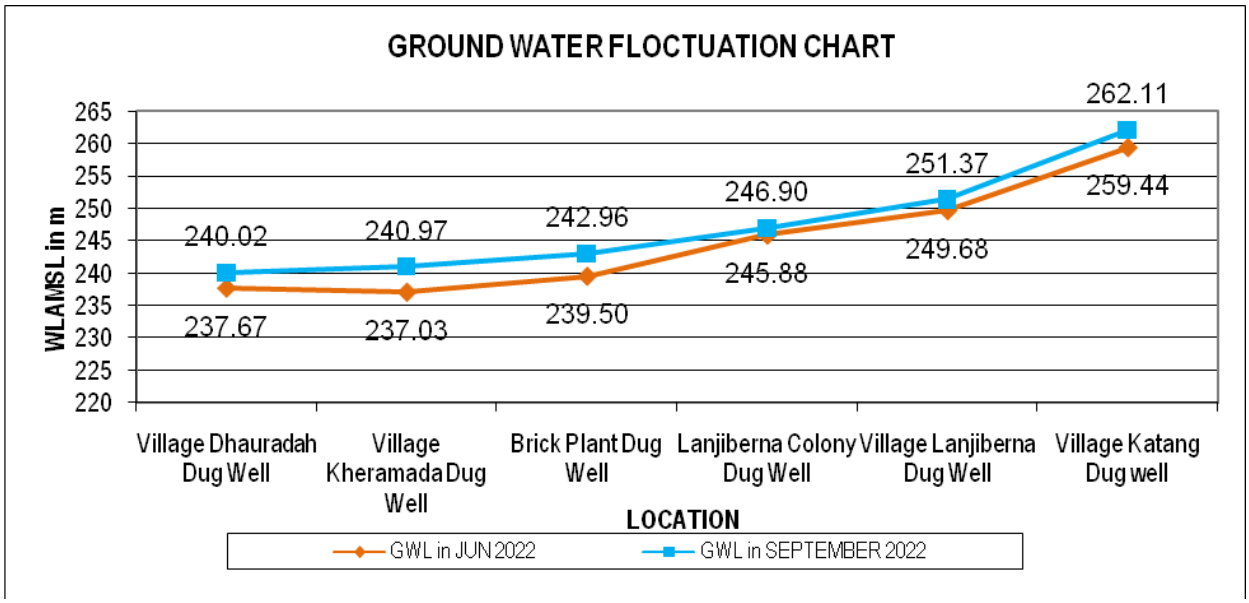
6.6 Ground Water Level Data

The ground water level measured from the existing dug wells mentioned above are found to be varying significantly at all the locations, during the month of June the water level was found to be very low, which has increased significantly during monsoon season. The detail data is given below in the **Table No 6.14**, with a graphical representation of the fluctuation in **Figure No: 6.13.**

Table No 6.14: Ground Water Level Data

Sl No	Location	Ground Level in m AMSL	Ground Water Level in m AMSL		Height of Water Column in m	
			June	September	June	September
1	Village Kheramada Dug Well	243.23	237.03	240.97	1.81	5.75
2	Lanjiberna Colony Dug Well	247.83	245.88	246.90	9.45	10.47
3	Village Dhauradah Dug Well	242.34	237.67	240.02	3.82	6.17
4	Brick Plant Dug Well	245.03	239.50	242.96	0.61	4.07
5	Village Lanjiberna Dug Well	255.14	249.68	251.37	2.27	3.96
6	Village Katang Dug well	264.89	259.44	262.11	2.50	5.17

Figure No 6.13: Seasonal Fluctuation of Ground Water Level



6.7 Noise Level Monitoring Data

Noise monitoring was carried out at four different locations of the mine during month of June and August for summer and monsoon seasons respectively. The Sound Pressure Level recorded was calculated for Lmin, Lmax, Leq Day Time & Leq Night Time. All the data are given in detail in the **Table No 6.15 & 6.16.**

N-1 Quarry Area during Operation of HEMM

The noise level range between 72.3 and 35.9 dB(A) and the Leq values for Day time was 66.9 dB(A) and Leq values for Night time was 41.0 dB(A) during the month of June.

The noise level range between 69.9 and 43.3 dB(A) and the Leq values for Day time was 62.1 dB(A) and Leq values for Night time was 46.1 dB(A) during the month of August.

On comparison of the results with ambient air quality standards in respect of noise by CPCB, it was found that the ambient noise levels from this location was well within the standards for Industrial area for both day and night time.

N-2 Limestone Crusher Plant Area

The noise level range between 82.4 and 35.2 dB(A) and the Leq values for Day time was 76.5 dB(A) and Leq values for Night time was 39.8 dB(A) during the month of June.

The noise level range between 80.4 and 42.7 dB(A) and the Leq values for Day time was 73.2 dB(A) and Leq values for Night time was 50.0 dB(A) during the month of August.

On comparison of the results with ambient air quality standards in respect of noise by CPCB, it was found that the ambient noise levels from this location was well within the standards for both day and night time.

N-3 Lanjiberna Colony area

The noise level range between 51.5 and 33.9 dB(A) and the Leq values for Day time was 45.8 dB(A) and Leq values for Night time was 36.0 dB(A) during the month of June.

The noise level range between 60.2 and 38.2 dB(A) and the Leq values for Day time was 52.4 dB(A) and Leq values for Night time was 41.7 dB(A) during the month of August.

On comparison of the results with ambient air quality standards in respect of noise by CPCB, it was found that the ambient noise levels from this location was well within the standards for Residential area for both day and night time.

N-4 Magazine Hill Top

The noise level range between 50.5 and 35.2 dB(A) and the Leq values for Day time was 44.1 dB(A) and Leq values for Night time was 36.9 dB(A) during the month of June.

The noise level range between 56.4 and 36.2 dB(A) and the Leq values for Day time was 47.7 dB(A) and Leq values for Night time was 38.7 dB(A) during the month of August.

On comparison of the results with ambient air quality standards in respect of noise by CPCB, it was found that the ambient noise levels from this location was well within the standards for Silence Zone for both day and night time.

Table No: 6.15
Noise Level Data in Month of June

SL NO	STATION NO	L_{eq} dB(A) Day Time (0600 Hrs – 2200 Hrs)	L_{eq} dB(A) Night Time (2200 Hrs – 0600 Hrs)	L_{max} dB(A)	L_{min} dB(A)
1.	N1	66.9	41.0	72.3	35.9
2.	N2	76.5	39.8	82.4	35.2
3.	N3	45.8	36.0	51.5	33.9
4.	N4	44.1	36.9	50.5	35.2

Table No: 6.16
Noise Level Data in Month of September

SL NO	STATION NO	L_{eq} dB(A) Day Time (0600 Hrs – 2200 Hrs)	L_{eq} dB(A) Night Time (2200 Hrs – 0600 Hrs)	L_{max} dB(A)	L_{min} dB(A)
1.	N1	62.1	46.1	69.9	43.3
2.	N2	73.2	50.0	80.4	42.7
3.	N3	52.4	41.7	60.2	38.2
4.	N4	47.7	38.7	56.4	36.2

6.8 Soil Quality Data

Soil samples collected from the three different locations during the month of June were analyzed and found to be good enough for agriculture purpose. The **Table No 6.17** shows the detail data of all the three locations.

S-1 Village Lanjiberna Agriculture land

The soil sample from the Lanjiberna agriculture land is of good quality and is suitable for agriculture purpose. The pH was found to be alkaline in nature (8.16). Available Nitrogen in the soil was 163.07 kg/ha, Available Phosphorous was 48.49 kg/ha and Available Potassium was 190.2 kg/ha. Organic Carbon Content was found to be 1.64%. All parameters are suitable for agriculture

S-2 Village Bihabandh Agriculture land

The soil sample from the Bihabandh agriculture land is of good quality and is suitable for agriculture purpose. The pH was found to be slightly alkaline in nature (7.95). Available Nitrogen in the soil was 100.35 kg/ha, Available Phosphorous was low, i.e. 28.89 kg/ha and Available Potassium was 221.88 kg/ha. Organic Carbon Content was found to be 1.10%. All parameters are suitable for agriculture except Phosphorus was low.

S-3 Village Dhauradah Agriculture land

The soil sample from the Dhauradah agriculture land is of good quality and is suitable for agriculture purpose. The pH was found to be slightly alkaline in nature (7.90). Available Nitrogen in the soil was 137.98 kg/ha, Available Phosphorous was 35.69 kg/ha and Available Potassium was 311.04 kg/ha. Organic Carbon Content was found to be 1.21%. All parameters are suitable for agriculture.

Table No: 6.17
Soil Quality Data in the Month of June

Sl. No.	Parameter	Method of Analysis	Unit	S1	S2	S3
1	pH (1:2 Suspension)	IS:2720 (Part 26) – 1987,RA 2011	-	8.16	7.95	7.90
2	Electrical Conductivity	IS 14767 – 2000, RA 2016	µS/cm	473	320	508
3	Available Phosphorous (as P_2O_5)	CPL/SOP/03/P, Issue No: 03, Dtd.: 23.10.2107	Kg/ha	48.49	28.89	35.69
4	Available Potassium (as K_2O)	CPL/SOP/03/K, Issue No: 03, Dtd.: 23.10.2107	Kg/ha	190.2	221.88	311.04
5	Organic Carbon	IS 2720 (Part 22) – 1972, RA 2015	%	1.64	1.10	1.21
6	Available Nitrogen (as N)	CPL/SOP/03/N, Issue No: 03, Dtd.: 23.10.2107	Kg/ha	163.07	100.35	137.98
7	Organic Matter	IS 2720 (Part 22) – 1972, RA 2015	%	2.83	1.90	2.09

6.9 Effluent Water Quality Data

The water quality from the outlet of Oil & Grease Separation tank was monitored during month of June and September for five parameters. pH was in the range of 7.60 to 9.26 which is alkaline, TSS was 21.2 & 37.5 mg/l in June & September months, Oil & Grease content was 2.2 and 2.0 mg/l, Iron was 0.068 mg/l in June and 0.027 mg/l in September and Nickel was < 0.25 mg/l in both the months. All the results are found to be well within the prescribed standards of State Pollution Control Board.

7. CONCLUSION

7.1 Ambient Air Quality

It is concluded from the above study that the overall ambient air quality of the Lanjiberna Limestone & Dolomite mines of DALMIA CEMENT (BHARAT) LIMITED is good and the action taken by the mines authority were quite satisfactory.

7.2 Fugitive Dust Emission

The results of fugitive dust emission monitoring shows that the mining authority has taken up highly effective sprinkling systems inside the mines to control the emission of dust from the drilling, excavation and hauling operations.

7.3 Stack Emission Monitoring

The stack emission monitoring results of all the six months shows that the bag filter installed in the limestone crusher plant is very much effective and results are all within the prescribed standards by the State Pollution Control Board, Odisha.

7.4 Water Quality

The discharge water quality of all the quarries are found to be well within the prescribed standards as per EPA, G.S.R.422(E), 1993 and the ground water quality of the entire area was also good.

7.5 Ground Water Level

There is no problem in the availability of ground water in the area and all the locations have adequate water. The ground water level is found to be low in the month of June due to ongoing dry summer months but is found to be rising sufficiently during the monsoon season as found in the month of September.

7.6 Noise level

Noise monitoring results show that noise levels are well within the limits at all the stations, and there is no problem in the area due noise from the mining activity.

7.7 Effluent Water Quality

The treatment facility available for Oil & Grease separation in the workshop waste water of the mines is found to be good and the system is operating quite well.

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