Your application has been Submitted with following details	
Proposal No	IA/OR/MIN/100679/2016
Compliance ID	20343826
Compliance Number(For Tracking)	EC/M/COMPLIANCE/20343826/2023
Reporting Year	2023
Reporting Period	01 Dec(01 Apr - 30 Sep)
Submission Date	28-10-2023
IRO Name	ARTATRANA MISHRA
IRO Email	jhk109@ifs.nic.in
State	ODISHA
IRO Office Address	Integrated Regional Offices, Bhubaneswar
Note:- SMS and E-Mail has been sent to ARTATRANA MISHRA, ODISHA with Notification to Project Proponent.	

Dalmia cement
FUTURE TODAY

cement! sugar! refractories! power!

LQ/MOEFCC/002/2023-134
October 26, 2023.

To,
The Addl. Principal Chief Conservator of Forests (C),
Ministry of Environment, Forest & Climate Change,
Integrated Regional Office (EZ),
A/3, Chandrasekharpur,
Bhubaneswar – 751 023

Sub: **Submission of Six-Monthly Compliance Report of the Environmental Clearance of Lanjiberna Limestone & Dolomite Mines of M/s Dalmia Cement (Bharat) Limited for the period April-2023 to September-2023.**

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

Dear Sir,

With reference to above captioned subject matter, we are submitting herewith the six-monthly compliance report of the conditions laid down in above Environmental clearance for the period April-2023 to September-2023.

Thanking you,

Yours sincerely,

For **Dalmia Cement Bharat Limited,**

26/10/2023

(Om Prakash R Khelkar)
Asst. Executive Director– Lanjiberna Mines.

Encl: As above.

CC: 1. The Director, Impact Assessment Division, MoEF&CC, New Delhi.
2. The Member Secretary, CPCB, New Delhi.
3. The Member Secretary, OSPCB, Bhubaneswar, Odisha.

Half Yearly Compliance Report(Preview)

Proposal Details

Proposal No
IA/OR/MIN/100679/2016
Category
Non-Coal Mining
Proposal Name
Lanjiberna Limestone and Dolomite Mine of M/s Dalmia Cement Bharat 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/Wastes 7.42 Million TPA (Total Excavation: 17 MTPA) 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
Plot / Survey/ Khasra No.
Village(s)
Sub-District(s)
State
ODISHA
District
SUNDARGARH
MoEF File No
J-11015/202/2016-IA.II(M)
Name of the Entity/
Corporate Office
Dalmia Cement (Bharat) Limited
Entity's PAN
NA
Entity Name as per PAN
NA
Entity details mentioned above is correct ?
Agree

Covering Letter

Covering Letter
Click to View

Compliance Reporting Details

Reporting Year
2023
Reporting Period
01 Dec(01 Apr - 30 Sep)
Remark(if any)

Details of Production and Project Area

Date of Commencement of Project/Activity
1951-05-12

	Project Area as per EC Granted	Actual Project Area in Possession
Private	0	0
Revenue Land	0	0
Forest	0	0
Others	0	0
Total	0	0

PRODUCTION CAPACITY							
Sr.No.	**Name of the Product**	**Units**	**As per EC Granted**	**As per CTO Granted**	**CTO ID**	**Valid Up To**	**Production during last financial year**
1	Limestone	Tons per Annum (TPA)	9500000	9500000	5057	31-03-2024	5463339
2	Dolomite	Tons per Annum (TPA)	80000	80000	5057	31-03-2024	3852

Conditions

Specific Conditions

Sr.No.	Condition Heading	Condition Details	Status of Compliance,Remarks/Reason and Supporting Documents	
1	WATER QUALITY MONITORING AND PRESERVATION	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	PPs Submission	Water requirement is well within 509 KLD and steps are being taken for maximum use of treated wastewater. Complied Attachment: NA

		conservation practices.		
2	AIR QUALITY MONITORING AND PRESERVATION	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.	PPs Submission	EMP is in place and environment monitoring is being done periodically by 3rd party NABL accredited labs. Complied Attachment: NA

General Conditions

Sr.No.	Condition Heading	Condition Details	Status of Compliance,Remarks/Reason and Supporting Documents	
1	Statutory compliance	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.	PPs Submission	Noted Complied Attachment: NA
2	Statutory compliance	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.	PPs Submission	All statutory requirements is being complied from time to time. Complied Attachment: NA
3	Statutory compliance	The State Government concerned shall ensure that mining operation shall not	PPs Submission	Noted Complied Attachment: NA

		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.		
4	Statutory compliance	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.	PPs Submission	Not Applicable. Complied Attachment: NA
5	Statutory compliance	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.	PPs Submission	CTO has been granted by Odisha State Pollution Control Board and valid till 31.03.2024. Complied Attachment: NA
6	Statutory compliance	The PP shall adhere to the provision of the Mines Act,1952, Mines and Mineral (Development &	PPs Submission	All statutory compliances are being adhered w.r.t various circulars are being issued time to time by

		Regulation), Act,2015 and rules & regulations 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.		DGMS and IBM. Complied Attachment: NA
7	Statutory compliance	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.	PPs Submission	All consents are in place for mining activity. Complied Attachment: NA
8	Statutory compliance	The Project Proponent shall follow the mitigation measures provided in MoEF & CC'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".	PPs Submission	Noted and followed. Complied Attachment: NA
9	Statutory compliance	The Project Proponent shall obtain necessary prior permission of the competent authorities for drawl of requisite quantity of surface water and from CGWA for	PPs Submission	Permission for ground water withdrawal has been obtained vide NOC No: - CGWA/ NOC/MIN/ORIG/2018/4309 and the renewal is in process.

		withdrawal of ground water for the project.		Being Complied Attachment: NA
10	Statutory compliance	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.	PPs Submission	A copy of EC letter has been submitted to the concerned Panchayat. Complied Attachment: NA
11	Statutory compliance	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.	PPs Submission	Noted Complied Attachment: NA
12	Statutory compliance	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	PPs Submission	Newspaper advertisement was made in ?Manthan?, Odia Newspaper and in ? Odisha Today?, English newspaper on 09.03.2020 . Complied Attachment: NA

		be forwarded to the concerned MoEF & CC Regional Office for compliance and record		
13	Statutory compliance	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.	PPs Submission	Noted. Complied Attachment: NA
14	AIR QUALITY MONITORING AND PRESERVATION	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	PPs Submission	Since the mines area is longitudinal wave in shape, hence 2 nos. of online CAAQMS stations have been installed in discussion with OSPCB and as per CTO condition. The air quality data is being digitally displayed in front of main gate. Complied Attachment: NA

			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.		
	15	AIR QUALITY MONITORING AND PRESERVATION	Effective safeguard measures for prevention of dust generation and subsequent suppression (like regular water sprinkling, metaled 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 equipment? s /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	PPs Submission	Water sprinkling on haulage roads is done on a regular basis for dust suppression. Dust suppression systems have been installed at all source emission points and the air quality conforms to the prescribed standards. Complied Attachment: NA

		by the MoEF CC/ Central Pollution Control Board.		
16	WATER QUALITY MONITORING AND PRESERVATION	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 MoEF & CC 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.	PPs Submission	Permission for ground water withdrawal has been obtained vide NOC No: - CGWA/NOC/MIN/ORIG/2018/4309 and the renewal is in progress. Being Complied Attachment: NA
17	WATER QUALITY MONITORING AND PRESERVATION	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	PPs Submission	Regular monitoring of the nearby surface water bodies as well as the water table is done in and around the mines lease area. The report of ground water quality and level is submitted to MoEF & CC, CGWA and SPCB on regular basis. Complied Attachment: NA

			use. A provision for regular monitoring of water table in open dug well 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.		
		18	WATER QUALITY MONITORING AND PRESERVATION	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.	PPs Submission	The ground water level and quality in and around the mines lease area are being monitored and analyzed by 3rd party NABL accredited lab. The reports are being submitted periodically to the statutory bodies. Complied Attachment: NA
		19	WATER QUALITY MONITORING	The Project Proponent shall undertake regular	PPs Submission	Regular monitoring of surface water bodies such

			AND PRESERVATION	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 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 MoEF & CC. 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	as nallahs, springs etc. in and around the mines lease area is being done and records maintained. The water quality monitoring and analysis is being done by 3rd party NABL accredited lab and reports are sent to statutory bodies regularly. Complied Attachment: NA		

		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.		
20	WATER QUALITY MONITORING AND PRESERVATION	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	PPs Submission	All monitoring and analysis data generated by 3rd party NABL accredited lab is being submitted to State Pollution Control Board on regular basis and displayed near main gate. The monitoring results for the period April 2023 to September 2023 is attached as Annexure I Complied Attachment: NA

21	WATER QUALITY MONITORING AND PRESERVATION	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 MoEF & CC annually.	PPs Submission	The village ponds are being restored by cleaning during pre-monsoon to harvest and recharge groundwater to the maximum extent possible. Additionally, roof top rain water harvesting system is being installed on the office premises. Being Complied Attachment: NA
22	WATER QUALITY MONITORING AND PRESERVATION	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 Board (SPCB). The workshop effluent shall be treated after its initial passage through Oil and grease trap.	PPs Submission	Effluent Treatment Plant has been installed and water quality at the inlet and outlet is being analyzed through 3rd party NABL accredited lab, conforming to OSPCB prescribed standards. The effluent generated is passed through Oil & Grease trap at the inlet for better treatment. Being Complied Attachment: NA
23	WATER QUALITY MONITORING AND PRESERVATION	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	PPs Submission	Efforts are being taken to reduce the water consumption by recycling and reuse of treated water. Complied Attachment: NA

		Control Board/Committee.		
24	Noise Monitoring & Prevention	The peak particle velocity at 500m distance or within the nearest habitation, whichever is closer shall be monitored periodically as per applicable DGMS guidelines.	PPs Submission	Peak particle velocity is being monitored periodically as per applicable DGMS guidelines. Complied Attachment: NA
25	Noise Monitoring & Prevention	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.	PPs Submission	The orientation of floodlights is maintained away from the villagers and noise levels are maintained within the prescribed standard limits for day and night. Complied Attachment: NA
26	Noise Monitoring & Prevention	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	PPs Submission	All necessary precautionary measures have been taken such as controlled blasting to control the noise levels as per stipulated standard. Workers engaged in high noise operation areas have been provided with ear plugs/muffs. Complied Attachment: NA

			provide with protective respiratory devices along with adequate training, awareness and information on safety and health aspects. The PP shall be held responsible in case it has been found that workers/ personals/ laborers are working without personal protective equipment.		
	27	MINING PLAN	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	PPs Submission	All the working parameters are as per the approved mining plan. Complied Attachment: NA

			of EC or granted by State Govt. in the form to Short Term Permit (STP), Query license or any other name.		
	28	MINING PLAN	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.	PPs Submission	Noted. Being Complied Attachment: NA
	29	MINING PLAN	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	PPs Submission	The land use at various stages of mining is as per the approved mining plan. The compliance status of the same is submitted half yearly to the statutory body. Complied Attachment: NA

		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.		
30	LAND RECLAMATION	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 maintain the stability of top soil/OB dumps. The topsoil shall be used for land reclamation and plantation.	PPs Submission	The Overburden (O.B.) generated during the mining operations is being stacked at earmarked OB dump site as per approved mining plan. Safety in mining operations is being adhered to maintain slope stability and top soil is used for land reclamation and plantation. Being Complied Attachment: NA
31	LAND RECLAMATION	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	PPs Submission	The rejects/wastes generated during mining operations are stacked at waste dump site as per approved mining plan where in the physical parameters such as height, width and angle of slope are maintained as stipulated in mining plan. Complied Attachment: NA

		operations shall be strictly adhered to maintain the stability of waste dumps.		
32	LAND RECLAMATION	The reclamation of waste dump sites shall be done in scientific manner as per the Approved Mining Plan cum Progressive Mine Closure Plan,	PPs Submission	The reclamation of waste dump sites will be done as per the approved Mining Plan cum Progressive Mine Closure Plan. Agreed to Comply Attachment: NA
33	LAND RECLAMATION	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.	PPs Submission	Vegetation on slope of dumps will be done with local species to maintain the slope stability thereby preventing erosion and surface run off. Being Complied Attachment: NA
34	LAND RECLAMATION	The Project Proponent shall carry out slope stability study in case the dump height is more than 30 meters. The slope stability report	PPs Submission	The slope stability study is being conducted periodically. The same has been conducted by IIT Bhubaneswar and the report will be submitted by Nov 2023.

		shall be submitted to concerned regional office of MoEF&CC.		Being Complied Attachment: NA
35	LAND RECLAMATION	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.	PPs Submission	Catch drains, settling tanks and siltation ponds have been constructed as per approved mining plan. The drains/ sedimentation sumps etc. are de-silted regularly and maintained properly. Complied Attachment: NA
36	LAND RECLAMATION	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	PPs Submission	Check dams, garland drain and retaining wall have been constructed around mine pit and OB dumps. Being Complied Attachment: NA

		period thereby allowing proper settling of sediments/ silt material. The sedimentation pits/ sumps shall be constructed at the corners of the garland drains.		
37	LAND RECLAMATION	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.	PPs Submission	Top soil removed is being utilized for plantation and green belt development. Being Complied Attachment: NA
38	Human Health Environment	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	PPs Submission	Transportation of limestone from mines to plant is done through fully covered belt conveyor system (CCBC). Only PUC certified vehicles are allowed to operate within the mining lease hold area. Being Complied Attachment: NA

			strengthening of existing public road network shall be borne by the PP in consultation with nodal State Govt. Department. Transportation of minerals through road movement in case of existing village/ rural roads shall be allowed in consultation with nodal State Govt. Department only after required strengthening such that the carrying capacity of roads is increased to handle the traffic load. The pollution due to transportation load on the environment will be effectively controlled and water sprinkling will also be done regularly. Vehicular emissions shall be kept under control and regularly monitored. Project should obtain Pollution Under Control (PUC) certificate for all the vehicles from authorized pollution testing centers.		
	39	Human Health Environment	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,	PPs Submission	Water sprinkling is being done regularly on haulage roads. Dust suppression systems such as dry fog system is in place at receiving hopper, transfer towers etc. Bag filters have been installed at crusher houses. Complied Attachment: NA

			material transfer points, material yards etc. should invariably be provided with dust suppression arrangements. The air pollution control equipment?s 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.		
		40	GREENBELT	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.	PPs Submission: Green Cover has been developed as stipulated in the approved mining plan. Around 15000 saplings have been planted this year. Being Complied Attachment: NA
		41	GREENBELT	The Project Proponent shall carryout plantation/	PPs Submission: As on 30.09.2023, total cumulative of 3,50,236

			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.		plantations have been done with 15000 saplings planted in this year with an average survival rate of 75%. Efforts are being taken to increase the survival rate to more than 90%. Being Complied Attachment: NA
		42	GREENBELT	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	PPs Submission	Noted and will be taken care in due course of time. Being Complied Attachment: NA

		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.		
43	GREENBELT	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.	PPs Submission	Site specific wild life conservation plan has been approved by chief conservator of forest (WL), Odisha having letter No -4313/CWLW-FDWC-FD-0040-2022, Dated 03rd March 2023. Being Complied Attachment: NA
44	GREENBELT	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.	PPs Submission	The approved wildlife conservation plan is being implemented in consultation with State Forest & wildlife department. Being Complied Attachment: NA
45	Human Health Environment	The Project Proponent must demonstrate commitment to work towards 'Zero Harm? from their mining	PPs Submission	Health Risk assessment has been done and necessary control measures are being taken to protect the health and

			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 biomass 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.		well being of workers and nearby community from time to time. Complied Attachment: NA
	46	Human Health Environment	The Proponent shall carry out Occupational health surveillance which be a part of HRA and include Biological	PPs Submission	Occupational health surveillance is carried out periodically. Complied Attachment: NA

		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 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).		
47	Human Health Environment	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	PPs Submission	Records of Performance Indicators w.r.t workers engaged in the mining activities are maintained. Complied Attachment: NA

		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.		
48	Human Health Environment	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.	PPs Submission	PPEs are provided to the workers and have been made mandatory with necessary training on safety, health and environment aspects. Complied Attachment: NA
49	Human Health Environment	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 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.	PPs Submission	Necessary basic infrastructure facilities are in place for mine workers at site. Complied Attachment: NA

50	Human Health Environment	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.	PPs Submission	Action Plan addressing the issues raised during the public hearing is under implementation as per budgetary provision and within stipulated time frame and status report being submitted to the concerned statutory bodies as well as District administration. Being Complied Attachment: NA
51	Corporate Environmental Responsibility	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	PPs Submission	Noted Complied Attachment: NA
52	Corporate Environmental Responsibility	Project Proponent shall keep the funds earmarked for	PPs Submission	Funds earmarked for environmental protection measures are used only

		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 MoEF&CC and its concerned Regional Office.		for environmental aspects and is not being diverted for any other purpose. Being Complied Attachment: NA
53	MISCELLANEOUS	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.	PPs Submission	Noted and will be complied in due course of time. Agreed to Comply Attachment: NA
54	MISCELLANEOUS	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.	PPs Submission	Six monthly compliance reports are being submitted periodically to the statutory bodies. Complied Attachment: NA
55	MISCELLANEOUS	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	PPs Submission	An Environment Management Cell is in place with qualified environmental officer who functionally reports to the Head of Environment and administratively to the Head of Mines. Complied Attachment: NA

		Environmental Scientists and Mining Engineers shall be appointed and submit a report to RO, MoEF&CC.		
56	MISCELLANEOUS	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.	PPs Submission	Noted and full cooperation will be extended. Agreed to Comply Attachment: NA
57	MISCELLANEOUS	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.	PPs Submission	Digital Map of the entire lease area (LULC Map) is under preparation. Being Complied Attachment: NA
58	Human Health Environment	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	PPs Submission	Periodical medical examination of workers engaged in mining activities is being done as per DGMS guidelines, records maintained properly and submitted to the statutory bodies. An OHS specialist has been deputed in mines dispensary. Complied Attachment: NA

		shall be undertaken once in six months and necessary remedial/ preventive measures be taken. A status report on the same may be sent to MoEF & CC Regional Office and DGMS on half-yearly basis.		
59	Statutory compliance	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.	PPs Submission	Forest Clearance for diversion of 62.56 Ha forest land for mining has been obtained vide File No. 8-56/1994-FC(pt) dated 30.09.2013. Complied Attachment: NA

Document Upload

Last Site Visit Report (if available)
NA
Last Site Visit Report Date (if available)

Additional Attachment (if any)
Click to View

Additional Remarks (if any)
The detailed environment monitoring report of Lanjiberna Mines for the period April 2023 to September 2023 is attached as additional attachment.

☑ I 'Dalmia Cement (Bharat) Limited' hereby give undertaking that the specific / general condition is entered by me is correct.

ENVIRONMENTAL MONITORING REPORT

BASED ON DATA GENERATED

FROM

APRIL – SEPTEMBER 2023

OF

LANJIBERNA LIMESTONE & DOLOMITE MINES (DCBL)
At/Po: LANJIBERNA – 770023, Dist: SUNDARGARH, ODISHA

Prepared By:

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

1. DATA ANALYSIS

1.1 Micro-meteorological Study:

1.1.1 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 2.12%, while considering the 24 hourly data. 0.61% calm condition prevailed from morning 6 hrs to 14hrs for the entire study period, 2.31% calm condition prevailed from 14hrs to 22hrs and 3.58% calm condition prevailed from 22hrs to 06hrs. The predominant wind directions were from North & NW with average wind speed 3.45 m/sec. The wind rose diagram for the entire study period are depicted on the **Figure No: 1.1, 1.2, 1.3 & 1.4.**

1.1.2 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 18.78°C and the Maximum temperature was found to be 43.56°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 22.62°C and 36.06°C. **Table No 1.1** shows a summary of micro-meteorological data collected for the entire period.

1.1.3 Rainfall

The total rain fall from 1st April to 30th September was observed to be 696.5 mm. during the study period. A month wise rainfall data recorded at the site is depicted in **Table No 1.1.**

Table No: 1.1

A SUMMARY OF THE MICRO-METEOROLOGICAL DATA

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

Sl No	Parameters	From April – September 2023
1	Predominant Wind Direction	From North-West & North
2	Calm Condition %	2.12%
3	Average Wind Speed m/sec	3.58
4	Temperature °C	
	Summer Season	
	Minimum	18.78
	Maximum	43.56
	Monsoon Season	
	Minimum	22.62
	Maximum	36.06
5	**Rain Fall in mm**	
	April	12.0
	May	23.0
	June	120.4
	July	34.0
	August	332.3
	September	174.8
	Total	**696.5**

Figure No: 1.1 Wind Rose Diagram for 24 Hours

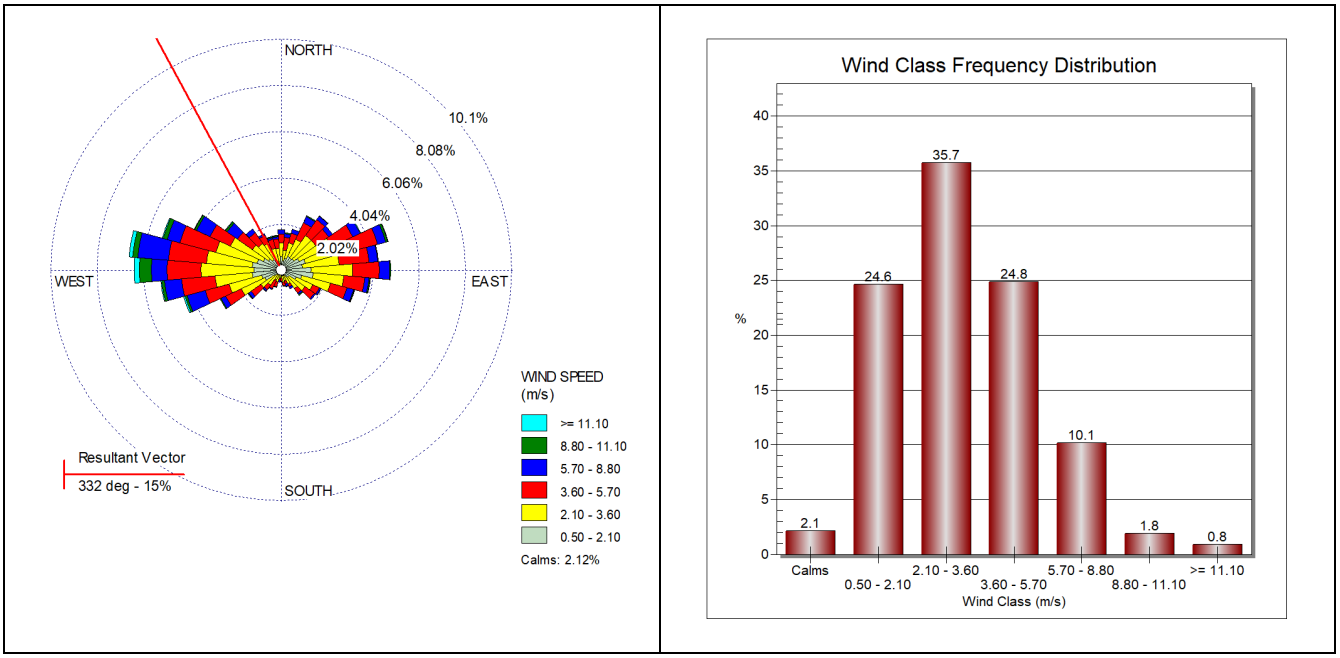

Figure No: 1.2 Wind Rose Diagram from 06 – 14 Hours

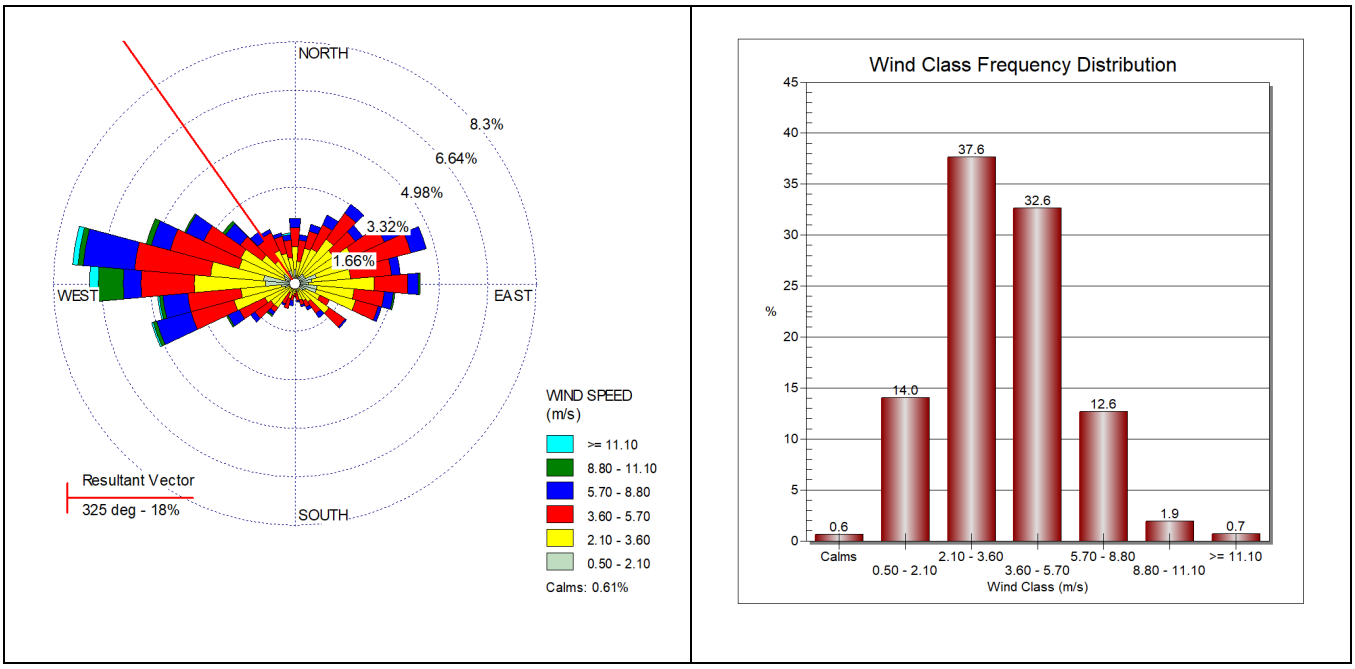

Figure No: 1.3 **Wind Rose Diagram from 14 – 22 Hours**

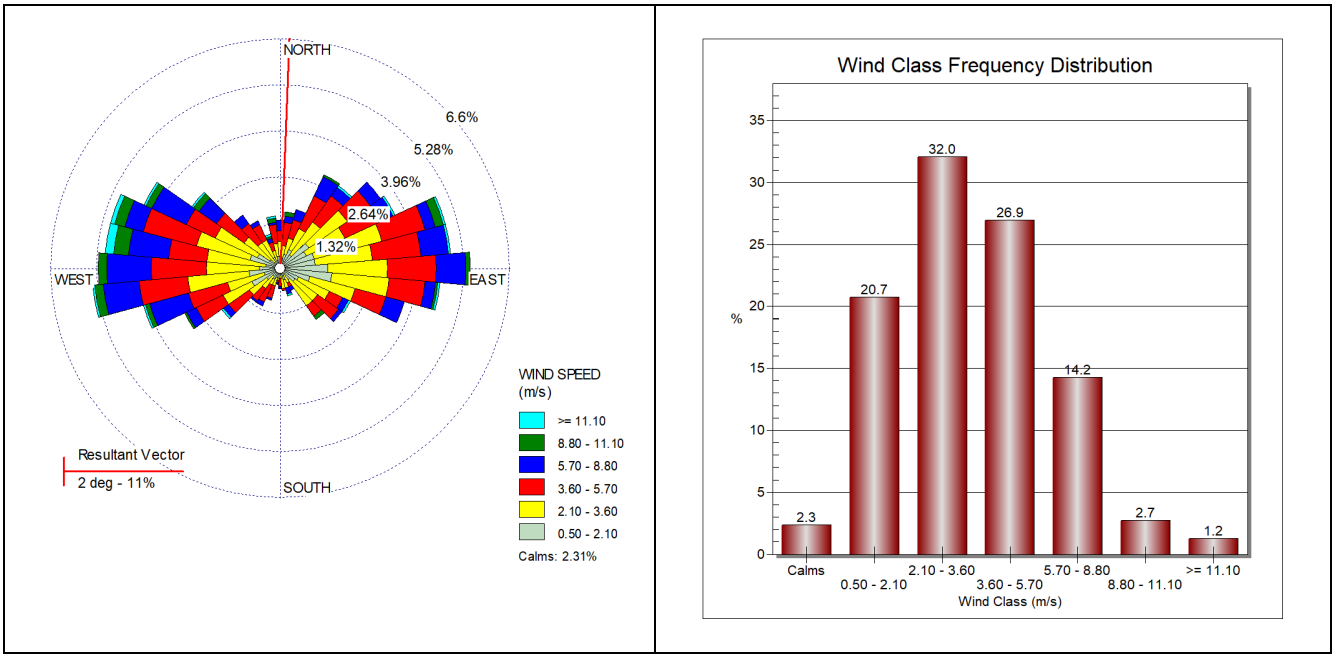

Figure No: 1.4 **Wind Rose Diagram from 22 – 06 Hours**

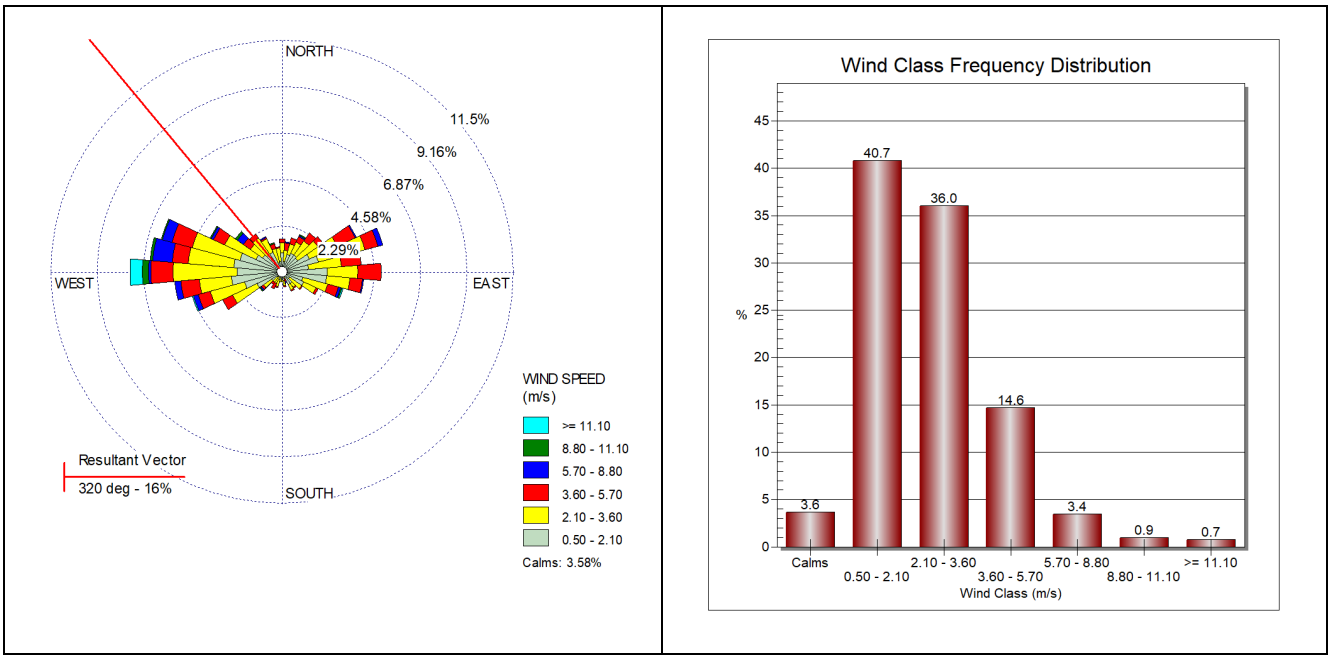

Table No: 1.2

AMBIENT AIR QUALITY DATA

From 01.04.2023 to 30.09.2023

Station: A-1 (HEMM Workshop Area)

Months	PM2.5 µg/m³	PM10 µg/m³	SO_2 µg/m³	NO_2 µg/m³	CO mg/m³
April	24	67	14	34	< 0.1
	18	50	9	31	< 0.1
	23	62	11	37	< 0.1
	25	70	8	28	< 0.1
	23	66	6	18	< 0.1
	26	76	5	16	< 0.1
	23	62	7	29	< 0.1
	24	66	6	16	< 0.1
	22	64	5	20	< 0.1
May	22	69	4	14	< 0.1
	20	62	10	15	< 0.1
	22	64	4	14	< 0.1
	21	69	8	25	< 0.1
	23	62	4	15	< 0.1
	21	59	6	19	< 0.1
	23	67	6	13	< 0.1
	21	63	5	16	< 0.1
	22	56	4	26	< 0.1
June	28	83	4	17	< 0.1
	28	80	10	25	< 0.1
	29	85	8	28	< 0.1
	23	68	7	26	< 0.1
	27	77	7	23	< 0.1
	31	85	11	18	< 0.1
	22	63	7	21	< 0.1
	9	24	12	22	< 0.1
July	26	72	8	24	< 0.1
	10	31	4	15	< 0.1
	13	41	4	18	< 0.1
	24	68	13	29	< 0.1
	18	57	9	29	< 0.1
	18	50	5	22	< 0.1
	28	77	6	23	< 0.1
	24	70	3	12	< 0.1
	14	39	5	9	< 0.1
August	16	48	3	12	< 0.1
	22	62	4	14	< 0.1
	15	43	8	29	< 0.1
	20	44	6	12	< 0.1
	12	36	6	20	< 0.1
	22	63	8	27	< 0.1
	22	64	4	12	< 0.1
	21	60	5	18	< 0.1
	23	68	3	12	< 0.1

Months	PM2.5 µg/m³	PM10 µg/m³	SO_2 µg/m³	NO_2 µg/m³	CO mg/m³
September	19	60	6	21	< 0.1
	13	37	9	31	< 0.1
	25	73	5	18	< 0.1
	15	43	3	12	< 0.1
	24	66	5	25	< 0.1
	17	50	4	23	< 0.1
	21	59	4	20	< 0.1
	23	65	8	25	< 0.1

Table No: 1.3

AMBIENT AIR QUALITY DATA

From 01.04.2023 to 30.09.2023

Station: A-2 (Magazine Hill Top Area)

Months	PM2.5 µg/m³	PM10 µg/m³	SO_2 µg/m³	NO_2 µg/m³	CO mg/m³
April	19	56	4	16	< 0.1
	15	44	9	31	< 0.1
	13	41	5	18	< 0.1
	14	42	9	33	< 0.1
	12	38	5	16	< 0.1
	14	41	5	17	< 0.1
	19	58	5	23	< 0.1
	16	50	5	24	< 0.1
	20	57	7	28	< 0.1
May	21	60	7	17	< 0.1
	16	49	9	31	< 0.1
	19	58	8	29	< 0.1
	18	51	4	13	< 0.1
	17	49	7	23	< 0.1
	18	50	8	14	< 0.1
	19	58	10	32	< 0.1
	21	60	9	27	< 0.1
	17	31	7	25	< 0.1
June	22	61	3	11	< 0.1
	19	61	3	13	< 0.1
	17	49	4	15	< 0.1
	13	37	3	12	< 0.1
	20	67	4	21	< 0.1
	17	48	3	11	< 0.1
	19	52	8	13	< 0.1
	16	42	10	21	< 0.1
July	21	50	4	11	< 0.1
	15	44	3	13	< 0.1
	19	58	7	24	< 0.1
	14	40	5	25	< 0.1
	13	30	8	24	< 0.1
	10	29	3	11	< 0.1

Months	PM2.5 µg/m³	PM10 µg/m³	SO_2 µg/m³	NO_2 µg/m³	CO mg/m³
	21	55	6	21	< 0.1
	15	43	8	25	< 0.1
	13	26	3	12	< 0.1
August	18	51	9	21	< 0.1
	10	29	6	22	< 0.1
	14	42	4	15	< 0.1
	24	69	10	18	< 0.1
	15	46	10	30	< 0.1
	17	50	11	34	< 0.1
	20	57	3	13	< 0.1
	16	43	3	20	< 0.1
	12	35	< 3	10	< 0.1
September	17	55	9	29	< 0.1
	16	48	3	9	< 0.1
	19	58	7	24	< 0.1
	10	29	3	11	< 0.1
	17	50	5	21	< 0.1
	19	55	3	12	< 0.1
	10	31	4	14	< 0.1
	15	43	6	21	< 0.1

Table No: 1.4

AMBIENT AIR QUALITY DATA

From 01.04.2023 to 30.09.2023

Station: A-3 (Near Old Brick Plant Colony Area)

Months	PM2.5 µg/m³	PM10 µg/m³	SO_2 µg/m³	NO_2 µg/m³	CO mg/m³
April	21	42	5	23	< 0.1
	20	58	7	21	< 0.1
	17	42	6	22	< 0.1
	19	59	5	22	< 0.1
	16	40	6	19	< 0.1
	17	48	5	18	< 0.1
	21	55	5	21	< 0.1
	13	40	7	22	< 0.1
	21	59	5	18	< 0.1
May	17	47	3	11	< 0.1
	13	40	8	26	< 0.1
	17	49	< 3	10	< 0.1
	20	57	5	18	< 0.1
	19	51	< 3	10	< 0.1
	12	38	6	23	< 0.1
	26	74	8	26	< 0.1
	25	70	10	35	< 0.1
	27	81	5	24	< 0.1
June	23	67	8	24	< 0.1
	25	69	4	18	< 0.1

Months	PM2.5 µg/m³	PM10 µg/m³	SO_2 µg/m³	NO_2 µg/m³	CO mg/m³
	23	71	6	25	< 0.1
	18	55	4	13	< 0.1
	21	59	8	34	< 0.1
	26	83	5	9	< 0.1
	16	31	12	27	< 0.1
	13	44	4	13	< 0.1
July	27	74	< 3	7	< 0.1
	14	40	9	20	< 0.1
	10	26	8	25	< 0.1
	28	79	5	14	< 0.1
	16	47	6	35	< 0.1
	14	40	7	25	< 0.1
	8	30	< 3	13	< 0.1
	18	56	4	21	< 0.1
	19	63	7	24	< 0.1
August	15	44	6	14	< 0.1
	15	42	< 3	12	< 0.1
	18	55	8	26	< 0.1
	25	73	12	38	< 0.1
	18	50	12	36	< 0.1
	14	43	4	21	< 0.1
	19	59	5	19	< 0.1
	15	44	8	26	< 0.1
	28	79	3	25	< 0.1
September	16	45	10	24	< 0.1
	13	40	6	22	< 0.1
	16	47	6	19	< 0.1
	17	55	5	19	< 0.1
	15	45	5	18	< 0.1
	16	59	8	26	< 0.1
	21	59	5	21	< 0.1
	14	42	3	10	< 0.1

Table No: 1.5

AMBIENT AIR QUALITY DATA

From 01.04.2023 to 30.09.2023

Station: A-4 (Village Bihabandh)

Months	PM2.5 µg/m³	PM10 µg/m³	SO_2 µg/m³	NO_2 µg/m³	CO mg/m³
April	17	49	3	11	< 0.1
	16	39	13	26	< 0.1
	13	38	9	32	< 0.1
	15	47	8	32	< 0.1
	18	45	6	17	< 0.1
	20	52	5	16	< 0.1
	19	55	6	36	< 0.1
	15	48	3	28	< 0.1
	17	51	8	35	< 0.1

Months	PM2.5 µg/m³	PM10 µg/m³	SO_2 µg/m³	NO_2 µg/m³	CO mg/m³
May	18	54	4	7	< 0.1
	17	50	3	10	< 0.1
	13	40	6	19	< 0.1
	14	42	5	17	< 0.1
	14	46	3	12	< 0.1
	14	43	< 03	13	< 0.1
	13	37	3	10	< 0.1
	18	55	4	22	< 0.1
	15	49	< 03	15	< 0.1
June	20	55	3	12	< 0.1
	22	64	6	12	< 0.1
	20	62	6	14	< 0.1
	16	48	6	20	< 0.1
	13	38	3	7	< 0.1
	19	58	4	13	< 0.1
	15	45	5	27	< 0.1
	18	48	5	8	< 0.1
July	15	42	4	9	< 0.1
	18	55	6	14	< 0.1
	22	60	9	31	< 0.1
	14	41	5	27	< 0.1
	13	35	< 3	13	< 0.1
	16	44	4	16	< 0.1
	7	21	< 3	14	< 0.1
	14	38	< 3	10	< 0.1
	15	43	< 3	14	< 0.1
August	16	31	5	12	< 0.1
	21	59	7	24	< 0.1
	21	57	10	30	< 0.1
	17	57	3	14	< 0.1
	19	54	12	47	< 0.1
	15	42	< 3	12	< 0.1
	13	42	7	21	< 0.1
	14	40	4	15	< 0.1
	13	47	5	15	< 0.1
September	16	42	8	29	< 0.1
	11	31	5	18	< 0.1
	12	34	5	23	< 0.1
	15	44	9	31	< 0.1
	19	53	7	21	< 0.1
	17	50	12	32	< 0.1
	22	64	8	33	< 0.1
	18	52	6	24	< 0.1

Table No 1.6:

STACK EMISSION MONITORING DATA

Sl No	Month	Particulate Matter Concentration in mg/Nm^3
1	April	78
2	May	75
3	June	80
4	July	90
5	August	84
6	September	91

Table No 1.7:

QUARRY – 1 DISCHARGE WATER QUALITY DATA

Sl No	Parameters	Results Obtained						Unit	General Standards As per Schedule - VI of EPA, G.S.R.422(E), 1993
		April	May	June	July	August	September		
1.	Total Suspended Solids	< 2.5	< 2.5	10.6	11.1	4.6	5.2	mg/l	200
2.	pH Value	7.54	7.62	7.42	7.16	7.69	7.68	-	5.5 – 9.0
3.	Oil & Grease	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	mg/l	10
4.	BOD (5 days at 20°C)	01	01	03	03	02	01	mg/l	100
5.	COD	4.084	4.102	13.62	9.101	5.8	< 4.0	mg/l	-

Table No 1.8:

QUARRY – 2 DISCHARGE WATER QUALITY DATA

Sl No	Parameters	Results Obtained						Unit	General Standards As per Schedule - VI of EPA, G.S.R.422(E), 1993
		April	May	June	July	August	September		
1.	Total Suspended Solids	< 2.5	3.2	9.5	< 2.5	< 2.5	< 2.5	mg/l	200
2.	pH Value	7.48	7.89	7.93	7.89	7.75	7.90	-	5.5 – 9.0
3.	Oil & Grease	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	mg/l	10
4.	BOD (5 days at 20°C)	01	02	05	06	03	04	mg/l	100
5.	COD	4.62	6.261	16.086	12.21	11.2	11.8	mg/l	-

Table No 1.9:

QUARRY – 3 DISCHARGE WATER QUALITY DATA

Sl No	Parameters	Results Obtained						Unit	General Standards As per Schedule - VI of EPA, G.S.R.422(E), 1993
		April	May	June	July	August	September		
1.	Total Suspended Solids	< 2.5	4.2	16.1	< 2.5	< 2.5	< 2.5	mg/l	200
2.	pH Value	7.64	7.57	7.71	7.63	7.79	6.94	-	5.5 – 9.0
3.	Oil & Grease	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	mg/l	10
4.	BOD (5 days at 20°C)	01	02	04	05	02	03	mg/l	100
5.	COD	4.302	5.106	13.118	14.61	6.8	10.1	mg/l	-

Table No 1.10:

QUARRY – 6 DISCHARGE WATER QUALITY DATA

Sl No	Parameters	Results Obtained						Unit	General Standards As per Schedule - VI of EPA, G.S.R.422(E), 1993
		April	May	June	July	August	September		
1.	Total Suspended Solids	< 2.5	< 2.5	11	7.0	6.5	6.9	mg/l	200
2.	pH Value	7.58	7.86	7.64	7.62	7.35	7.92	-	5.5 – 9.0
3.	Oil & Grease	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	mg/l	10
4.	BOD (5 days at 20°C)	02	03	05	04	02	03	mg/l	100
5.	COD	6.84	10.121	17.112	10.61	7.2	8.6	mg/l	-

Table No 1.11:

GROUND WATER QUALITY RESULT FOR THE MONTH OF MAY 2023

Sl No	Parameter	Results Obtained					Unit	Permissible Limit in absence of Alternate Source as per IS 10500: 2012
		Dhauradha Dugwell	Lanjiberna Dug well	Katang Dug Well	Brick Plant Dug well	Kheramuta Dug well		
1	Turbidity	0.10	0.10	0.10	0.60	0.10	NTU	5.0
2	pH Value	8.02	7.61	7.08	7.19	7.36	-	6.5 – 8.5
3	Total Hardness (as $CaCO_3$)	341.63	271.66	403.36	473.34	251.08	mg/l	600
4	Iron (as Fe)	0.01	0.12	0.11	0.24	0.27	mg/l	0.3
5	Chlorides (as Cl)	24.99	18.99	57.98	18.99	71.98	mg/l	1000
6	Total Dissolved Solids	434	372	563	611	476	mg/l	2000
7	Electrical Conductivity	668	572	865	940	733	µS/cm	-
8	Calcium (as Ca)	62.69	42.89	84.13	117.13	67.64	mg/l	200
9	Magnesium (as Mg)	45.0	40.0	47.01	44.0	20.0	mg/l	100
10	Copper (as Cu)	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	mg/l	1.5
11	Manganese (as Mn)	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	mg/l	0.3
12	Sulfate (as SO_4)	114.15	14.39	59.31	161.37	28.93	mg/l	400
13	Total Nitrate (as NO_3)	< 2.20	2.65	56.55	7.25	< 2.20	mg/l	45
14	Total Alkalinity (as $CaCO_3$)	208	272	272	312	244	mg/l	600
15	Acidity	< 01	10	18	18	14	mg/l	-
16	Sulphide (as H_2S)	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	mg/l	0.05
17	Sodium (as Na)	13.86	18.11	27.79	10.22	46.73	mg/l	-
18	Potassium (as K)	4.10	10.57	2.16	2.50	10.82	mg/l	-
19	Fluoride (as F)	0.9	1.0	1.0	1.0	1.0	mg/l	1.5
20	Cadmium (as Cd)	ND	ND	ND	ND	ND	mg/l	0.003
21	Lead (as Pb)	ND	ND	ND	ND	ND	mg/l	0.01
22	Arsenic (as As)	ND	ND	ND	ND	ND	mg/l	0.05
23	Mercury (as Hg)	ND	ND	ND	ND	ND	mg/l	0.001
24	Selenium (as Se)	ND	ND	ND	ND	ND	mg/l	0.01
25	Nickel (as Ni)	ND	ND	ND	ND	ND	mg/l	0.02
26	Zinc (as Zn)	ND	ND	ND	ND	ND	mg/l	15.0
27	Total Chromium (as Cr)	ND	ND	ND	ND	ND	mg/l	0.05
29	Colour	< 5	< 5	< 5	< 5	< 5	Hazen	15
30	Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	-	Agreeable
31	Taste	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	-	Agreeable
32	Temperature	29.0	29.3	29.6	30.8	29.9	oC	-
33	Residual Free Chlorine	0.11	0.11	0.13	0.16	0.11	mg/l	1.0 (min)
34	Total Bacterial Count	Absent	Absent	Absent	Absent	Absent	Nos/100ml	Absent
35	E coli	Absent	Absent	Absent	Absent	Absent	Nos/100ml	Absent

Table No 1.12:

GROUND WATER QUALITY RESULT FOR THE MONTH OF JUNE 2023

Sl No	Parameter	Results Obtained					Unit	Permissible Limit in absence of Alternate Source as per IS 10500: 2012
		Dhauradha Dugwell	Lanjiberna Dug well	Katang Dug Well	Kheramuta Dug well	Lanjiberna Dug well		
1	Turbidity	0.3	0.1	0.1	0.6	0.1	NTU	5.0
2	pH Value	7.80	7.35	6.52	7.13	6.64	-	6.5 – 8.5
3	Total Hardness (as $CaCO_3$)	314.16	248.88	375.36	232.56	306	mg/l	600
4	Iron (as Fe)	0.01	0.10	0.11	0.36	0.01	mg/l	0.3

Sl No	Parameter	Results Obtained					Unit	Permissible Limit in absence of Alternate Source as per IS 10500: 2012
		Dhauradha Dugwell	Lanjiberna Dug well	Katang Dug Well	Kheramuta Dug well	Lanjiberna Dug well		
5	Chlorides (as Cl)	27.99	15.99	57.98	48.98	26.99	mg/l	1000
6	Total Dissolved Solids	385	315	517	330	377	mg/l	2000
7	Electrical Conductivity	631	537	795	597	608	µS/cm	-
8	Calcium (as Ca)	55.59	55.59	81.76	60.50	60.50	mg/l	200
9	Magnesium (as Mg)	42.63	26.77	41.64	19.83	37.67	mg/l	100
10	Copper (as Cu)	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	mg/l	1.5
11	Manganese (as Mn)	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	mg/l	0.3
12	Sulfate (as SO_4)	116.40	8.61	54.09	21.14	66.22	mg/l	400
13	Total Nitrate (as NO_3)	< 2.20	2.50	54.59	2.38	5.69	mg/l	45
14	Total Alkalinity (as $CaCO_3$)	124	220	296	200	208	mg/l	600
15	Acidity	< 1.0	04	16	04	12	mg/l	-
16	Sulphide (as H_2S)	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	mg/l	0.05
17	Sodium (as Na)	12.26	17.62	26.21	34.18	12.60	mg/l	-
18	Potassium (as K)	4.11	9.56	11.93	11.79	6.53	mg/l	-
19	Fluoride (as F)	0.9	1.0	1.0	1.0	0.7	mg/l	1.5
20	Cadmium (as Cd)	ND	ND	ND	ND	ND	mg/l	0.003
21	Lead (as Pb)	ND	ND	ND	ND	ND	mg/l	0.01
22	Arsenic (as As)	ND	ND	ND	ND	ND	mg/l	0.05
23	Mercury (as Hg)	ND	ND	ND	ND	ND	mg/l	0.001
24	Selenium (as Se)	ND	ND	ND	ND	ND	mg/l	0.01
25	Nickel (as Ni)	ND	ND	ND	ND	ND	mg/l	0.02
26	Zinc (as Zn)	ND	ND	ND	ND	ND	mg/l	15.0
27	Total Chromium (as Cr)	ND	ND	ND	ND	ND	mg/l	0.05
29	Colour	< 5	< 5	< 5	< 5	< 5	Hazen	15
30	Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	-	Agreeable
31	Taste	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	-	Agreeable
32	Temperature	29.0	29.3	29.6	30.8	29.9	°C	-
33	Residual Free Chlorine	0.11	0.11	0.13	0.16	0.11	mg/l	1.0 (min)
34	Total Bacterial Count	Absent	Absent	Absent	Absent	Absent	Nos/100ml	Absent
35	E coli	Absent	Absent	Absent	Absent	Absent	Nos/100ml	Absent

Table No 1.13:

GROUND WATER QUALITY RESULT FOR THE MONTH OF JULY 2023

Sl No	Parameter	Results Obtained					Unit	Permissible Limit in absence of Alternate Source as per IS 10500: 2012
		Dhauradha Dugwell	Lanjiberna Dug well	Katang Dug Well	Kheramuta Dug well	Lanjiberna Dug well		
1	Turbidity	0.20	0.10	0.10	0.10	0.10	NTU	5.0
2	pH Value	7.69	7.53	6.72	7.13	6.89	-	6.5 – 8.5
3	Total Hardness (as $CaCO_3$)	306	236.64	350.88	252.96	310.08	mg/l	600
4	Iron (as Fe)	0.09	0.19	0.24	0.28	0.09	mg/l	0.3
5	Chlorides (as Cl)	23.65	13.79	52.23	107.45	25.62	mg/l	1000
6	Total Dissolved Solids	418	300	519	554	400	mg/l	2000
7	Electrical Conductivity	649	495	805	873	644	µS/cm	-
8	Calcium (as Ca)	49.06	44.15	57.23	62.14	49.06	mg/l	200
9	Magnesium (as Mg)	44.61	30.73	50.56	23.79	45.06	mg/l	100
10	Copper (as Cu)	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	mg/l	1.5
11	Manganese (as Mn)	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	mg/l	0.3
12	Sulfate (as SO_4)	111.26	8.54	53.06	87.95	62.84	mg/l	400
13	Total Nitrate (as NO_3)	6.98	6.23	59.25	53.05	6.36	mg/l	45
14	Total Alkalinity (as $CaCO_3$)	164	212	220	148	220	mg/l	600
15	Acidity	< 1.0	10	22	18	16	mg/l	-
16	Sulphide (as H_2S)	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	mg/l	0.05
17	Sodium (as Na)	12.98	16.0	24.05	68.49	12.93	mg/l	-
18	Potassium (as K)	3.85	1.22	1.75	1.84	0.39	mg/l	-
19	Fluoride (as F)	0.90	1.0	1.0	1.0	0.90	mg/l	1.5
20	Cadmium (as Cd)	ND	ND	ND	ND	ND	mg/l	0.003
21	Lead (as Pb)	ND	ND	ND	ND	ND	mg/l	0.01
22	Arsenic (as As)	ND	ND	ND	ND	ND	mg/l	0.05
23	Mercury (as Hg)	ND	ND	ND	ND	ND	mg/l	0.001
24	Selenium (as Se)	ND	ND	ND	ND	ND	mg/l	0.01
25	Nickel (as Ni)	ND	ND	ND	ND	ND	mg/l	0.02
26	Zinc (as Zn)	ND	ND	ND	ND	ND	mg/l	15.0

Sl No	Parameter	Results Obtained					Unit	Permissible Limit in absence of Alternate Source as per IS 10500: 2012
		Dhauradha Dugwell	Lanjiberna Dug well	Katang Dug Well	Kheramuta Dug well	Lanjiberna Dug well		
27	Total Chromium (as Cr)	ND	ND	ND	ND	ND	mg/l	0.05
29	Colour	< 5	< 5	< 5	< 5	< 5	Hazen	15
30	Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	-	Agreeable
31	Taste	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	-	Agreeable
32	Temperature	30.8	30.6	30.7	30.8	30.5	°C	-
33	Residual Free Chlorine	0.14	0.12	0.14	0.13	0.12	mg/l	1.0 (min)
34	Total Bacterial Count	Absent	Absent	Absent	Absent	Absent	Nos/100ml	Absent
35	E coli	Absent	Absent	Absent	Absent	Absent	Nos/100ml	Absent

Table No 1.14:

GROUND WATER QUALITY RESULT FOR THE MONTH OF AUGUST 2023

Sl No	Parameter	Results Obtained					Unit	Permissible Limit in absence of Alternate Source as per IS 10500: 2012
		Litibeda Tube Well	Bihabandh Chowk Tube Well	Gyanpali Tube Well	Laxmiposh Tube well	Kesarmal Tube well		
1	Turbidity	3.2	1.6	2.5	2.0	3.6	NTU	5.0
2	pH Value	6.54	6.53	6.59	6.57	6.91	-	6.5 – 8.5
3	Total Hardness (as $CaCO_3$)	223.52	36.58	138.18	390.14	288.54	mg/l	600
4	Iron (as Fe)	0.17	0.18	0.29	0.21	0.26	mg/l	0.3
5	Chlorides (as Cl)	64.05	22.66	12.81	65.04	33.51	mg/l	1000
6	Total Dissolved Solids	390	98	200	540	425	mg/l	2000
7	Electrical Conductivity	638	162.1	320	845	685	µS/cm	-
8	Calcium (as Ca)	37.46	8.14	34.21	114.02	70.04	mg/l	200
9	Magnesium (as Mg)	31.60	3.95	12.84	25.68	27.15	mg/l	100
10	Copper (as Cu)	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	mg/l	1.5
11	Manganese (as Mn)	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	mg/l	0.3
12	Sulfate (as SO_4)	9.29	0.74	7.02	60.02	76.14	mg/l	400
13	Total Nitrate (as NO_3)	32.31	18.52	12.01	20.42	< 2.20	mg/l	45
14	Total Alkalinity (as $CaCO_3$)	192	28	112	236	220	mg/l	600
15	Acidity	46	28	28	32	24	mg/l	-
16	Sulphide (as H_2S)	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	mg/l	0.05
17	Sodium (as Na)	19.05	13.03	15.12	18.11	16.31	mg/l	-
18	Potassium (as K)	3.95	0.36	8.20	9.05	0.69	mg/l	-
19	Fluoride (as F)	0.60	0.40	0.80	0.90	1.0	mg/l	1.5
20	Cadmium (as Cd)	ND	ND	ND	ND	ND	mg/l	0.003
21	Lead (as Pb)	ND	ND	ND	ND	ND	mg/l	0.01
22	Arsenic (as As)	ND	ND	ND	ND	ND	mg/l	0.05
23	Mercury (as Hg)	ND	ND	ND	ND	ND	mg/l	0.001
24	Selenium (as Se)	ND	ND	ND	ND	ND	mg/l	0.01
25	Nickel (as Ni)	ND	ND	ND	ND	ND	mg/l	0.02
26	Zinc (as Zn)	ND	ND	ND	ND	ND	mg/l	15.0
27	Total Chromium (as Cr)	ND	ND	ND	ND	ND	mg/l	0.05
29	Colour	< 5	< 5	< 5	< 5	< 5	Hazen	15
30	Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	-	Agreeable
31	Taste	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	-	Agreeable
32	Temperature	28.9	30.2	30.2	30.2	29.1	°C	-
33	Residual Free Chlorine	0.14	0.10	0.14	0.16	0.11	mg/l	1.0 (min)
34	Total Bacterial Count	Absent	Absent	Absent	Absent	Absent	Nos/100ml	Absent
35	E coli	Absent	Absent	Absent	Absent	Absent	Nos/100ml	Absent

Table No 1.15:

GROUND WATER QUALITY RESULT FOR THE MONTH OF SEPTEMBER 2023

Sl No	Parameter	Results Obtained					Unit	Permissible Limit in absence of Alternate Source as per IS 10500: 2012
		Kunumura Tube Well	Gariamunda Tube Well	Badgudiali Tube Well	Jharbeda Tube Well	Kukudamunda Tube Well		
1	Turbidity	0.10	0.10	0.10	0.60	0.10	NTU	5.0
2	pH Value	6.53	6.51	6.59	6.89	6.97	-	6.5 – 8.5

Sl No	Parameter	Results Obtained					Unit	Permissible Limit in absence of Alternate Source as per IS 10500: 2012
		Kunumura Tube Well	Gariamunda Tube Well	Badgudiali Tube Well	Jharbeda Tube Well	Kukudamunda Tube Well		
3	Total Hardness (as $CaCO_3$)	56	436	220	292	488	mg/l	600
4	Iron (as Fe)	0.22	0.14	0.30	0.22	0.23	mg/l	0.3
5	Chlorides (as Cl)	26.61	97.57	65.04	68.99	86.72	mg/l	1000
6	Total Dissolved Solids	104	712	431	460	600	mg/l	2000
7	Electrical Conductivity	160.9	1099	673	709	984	µS/cm	-
8	Calcium (as Ca)	11.22	113.83	59.32	68.94	88.18	mg/l	200
9	Magnesium (as Mg)	6.80	36.94	17.49	29.16	65.12	mg/l	100
10	Copper (as Cu)	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	mg/l	1.5
11	Manganese (as Mn)	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	mg/l	0.3
12	Sulfate (as SO_4)	3.69	112.38	47.16	73.59	44.41	mg/l	400
13	Total Nitrate (as NO_3)	19.32	31.29	31.51	4.76	34.65	mg/l	45
14	Total Alkalinity (as $CaCO_3$)	28	256	156	168	252	mg/l	600
15	Acidity	20	46	32	24	30	mg/l	-
16	Sulphide (as H_2S)	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	mg/l	0.05
17	Sodium (as Na)	6.64	60.92	47.08	45.22	24.50	mg/l	-
18	Potassium (as K)	0.35	2.05	6.18	0.18	3.43	mg/l	-
19	Fluoride (as F)	0.60	0.90	0.80	0.40	0.90	mg/l	1.5
20	Cadmium (as Cd)	ND	ND	ND	ND	ND	mg/l	0.003
21	Lead (as Pb)	ND	ND	ND	ND	ND	mg/l	0.01
22	Arsenic (as As)	ND	ND	ND	ND	ND	mg/l	0.05
23	Mercury (as Hg)	ND	ND	ND	ND	ND	mg/l	0.001
24	Selenium (as Se)	ND	ND	ND	ND	ND	mg/l	0.01
25	Nickel (as Ni)	ND	ND	ND	ND	ND	mg/l	0.02
26	Zinc (as Zn)	ND	ND	ND	ND	ND	mg/l	15.0
27	Total Chromium (as Cr)	ND	ND	ND	ND	ND	mg/l	0.05
28	Colour	< 5	< 5	< 5	< 5	< 5	Hazen	15
29	Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	-	Agreeable
30	Taste	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	-	Agreeable
31	Temperature	29.2	29.3	28.3	29.3	29.2	°C	-
32	Residual Free Chlorine	0.12	0.16	0.18	0.20	0.24	mg/l	1.0 (min)
33	Total Bacterial Count	Absent	Absent	Absent	Absent	Absent	Nos/100ml	Absent
34	E coli	Absent	Absent	Absent	Absent	Absent	Nos/100ml	Absent

Table No 1.16:

DRINKING WATER QUALITY RESULT FOR THE MONTH OF MAY 2023

Sl No	Parameter	Results Obtained		Unit	Permissible Limit in absence of Alternate Source as per IS 10500: 2012
		Lanjiberna Colony Drinking Water	Mines Office & Canteen Drinking Water		
1	Turbidity	0.10	0.10	NTU	5.0
2	pH Value	6.93	7.64	-	6.5 – 8.5
3	Total Hardness (as $CaCO_3$)	304.58	259.31	mg/l	600
4	Iron (as Fe)	0.01	0.06	mg/l	0.3
5	Chlorides (as Cl)	23.99	10.99	mg/l	1000
6	Total Dissolved Solids	393	308	mg/l	2000
7	Electrical Conductivity	605	474	µS/cm	-
8	Calcium (as Ca)	70.94	57.74	mg/l	200
9	Magnesium (as Mg)	31.0	28.0	mg/l	100
10	Copper (as Cu)	< 0.10	< 0.10	mg/l	1.5
11	Manganese (as Mn)	< 0.05	< 0.05	mg/l	0.3
12	Sulfate (as SO_4)	62.64	20.29	mg/l	400
13	Total Nitrate (as NO_3)	5.74	6.02	mg/l	45
14	Total Alkalinity (as $CaCO_3$)	220	216	mg/l	600
15	Acidity	12	08	mg/l	-
16	Sulphide (as H_2S)	< 0.02	< 0.02	mg/l	0.05
17	Sodium (as Na)	14.24	5.55	mg/l	-
18	Potassium (as K)	0.56	2.32	mg/l	-
19	Fluoride (as F)	0.8	1.0	mg/l	1.5
20	Cadmium (as Cd)	ND	ND	mg/l	0.003
21	Lead (as Pb)	ND	ND	mg/l	0.01
22	Arsenic (as As)	ND	ND	mg/l	0.05

Sl No	Parameter	Results Obtained		Unit	Permissible Limit in absence of Alternate Source as per IS 10500: 2012
		Lanjiberna Colony Drinking Water	Mines Office & Canteen Drinking Water		
23	Mercury (as Hg)	ND	ND	mg/l	0.001
24	Selenium (as Se)	ND	ND	mg/l	0.01
25	Nickel (as Ni)	ND	ND	mg/l	0.02
26	Zinc (as Zn)	ND	ND	mg/l	15.0
27	Total Chromium (as Cr)	ND	ND	mg/l	0.05
29	Colour	< 5	< 5	Hazen	15
30	Odour	Agreeable	Agreeable	-	Agreeable
31	Taste	Agreeable	Agreeable	-	Agreeable
32	Temperature	30.4	29.8	°C	-
33	Residual Free Chlorine	0.10	0.09	mg/l	1.0 (min)
34	Total Bacterial Count	Absent	Absent	Nos/100ml	Absent
35	E coli	Absent	Absent	Nos/100ml	Absent

Table No 1.17:

DRINKING WATER QUALITY RESULT FOR THE MONTH OF JUNE 2023

Sl No	Parameter	Results Obtained		Unit	Permissible Limit in absence of Alternate Source as per IS 10500: 2012
		Lanjiberna New Drinking Water Point	HEMM Work Shop Drinking Water Point		
1	Turbidity	0.1	0.1	NTU	5.0
2	pH Value	6.58	7.82	-	6.5 – 8.5
3	Total Hardness (as $CaCO_3$)	301.92	199.92	mg/l	600
4	Iron (as Fe)	0.09	0.07	mg/l	0.3
5	Chlorides (as Cl)	27.99	14.99	mg/l	1000
6	Total Dissolved Solids	378	258	mg/l	2000
7	Electrical Conductivity	610	430	µS/cm	-
8	Calcium (as Ca)	53.94	44.15	mg/l	200
9	Magnesium (as Mg)	40.65	21.81	mg/l	100
10	Copper (as Cu)	< 0.10	< 0.10	mg/l	1.5
11	Manganese (as Mn)	< 0.05	< 0.05	mg/l	0.3
12	Sulfate (as SO_4)	65.09	59.84	mg/l	400
13	Total Nitrate (as NO_3)	5.10	5.10	mg/l	45
14	Total Alkalinity (as $CaCO_3$)	260	112	mg/l	600
15	Acidity	08	02	mg/l	-
16	Sulphide (as H_2S)	< 0.02	< 0.02	mg/l	0.05
17	Sodium (as Na)	13.11	5.63	mg/l	-
18	Potassium (as K)	0.53	2.21	mg/l	-
19	Fluoride (as F)	0.8	0.7	mg/l	1.5
20	Cadmium (as Cd)	ND	ND	mg/l	0.003
21	Lead (as Pb)	ND	ND	mg/l	0.01
22	Arsenic (as As)	ND	ND	mg/l	0.05
23	Mercury (as Hg)	ND	ND	mg/l	0.001
24	Selenium (as Se)	ND	ND	mg/l	0.01
25	Nickel (as Ni)	ND	ND	mg/l	0.02
26	Zinc (as Zn)	ND	ND	mg/l	15.0
27	Total Chromium (as Cr)	ND	ND	mg/l	0.05
29	Colour	< 5	< 5	Hazen	15
30	Odour	Agreeable	Agreeable	-	Agreeable
31	Taste	Agreeable	Agreeable	-	Agreeable
32	Temperature	30.4	29.8	°C	-
33	Residual Free Chlorine	0.10	0.09	mg/l	1.0 (min)
34	Total Bacterial Count	Absent	Absent	Nos/100ml	Absent
35	E coli	Absent	Absent	Nos/100ml	Absent

Table No 1.18:

DRINKING WATER QUALITY RESULT FOR THE MONTH OF JULY 2023

Sl No	Parameter	Results Obtained		Unit	Permissible Limit in absence of Alternate Source as per IS 10500: 2012
		Crusher Plant – 2 Drinking Water	Mines Office Main Gate Drinking Water		
1	Turbidity	0.3	0.40	NTU	5.0
2	pH Value	7.56	7.69	-	6.5 – 8.5
3	Total Hardness (as $CaCO_3$)	171.36	244.8	mg/l	600
4	Iron (as Fe)	0.26	0.26	mg/l	0.3
5	Chlorides (as Cl)	28.99	65.98	mg/l	1000
6	Total Dissolved Solids	262	298	mg/l	2000
7	Electrical Conductivity	434	490	µS/cm	-
8	Calcium (as Ca)	42.52	45.79	mg/l	200
9	Magnesium (as Mg)	16.85	31.73	mg/l	100
10	Copper (as Cu)	< 0.10	< 0.10	mg/l	1.5
11	Manganese (as Mn)	< 0.05	< 0.05	mg/l	0.3
12	Sulfate (as SO_4)	43.06	80.82	mg/l	400
13	Total Nitrate (as NO_3)	2.31	3.05	mg/l	45
14	Total Alkalinity (as $CaCO_3$)	108	76	mg/l	600
15	Acidity	06	04	mg/l	-
16	Sulphide (as H_2S)	< 0.02	< 0.02	mg/l	0.05
17	Sodium (as Na)	14.41	4.76	mg/l	-
18	Potassium (as K)	5.02	2.78	mg/l	-
19	Fluoride (as F)	0.60	0.80	mg/l	1.5
20	Cadmium (as Cd)	ND	ND	mg/l	0.003
21	Lead (as Pb)	ND	ND	mg/l	0.01
22	Arsenic (as As)	ND	ND	mg/l	0.05
23	Mercury (as Hg)	ND	ND	mg/l	0.001
24	Selenium (as Se)	ND	ND	mg/l	0.01
25	Nickel (as Ni)	ND	ND	mg/l	0.02
26	Zinc (as Zn)	ND	ND	mg/l	15.0
27	Total Chromium (as Cr)	ND	ND	mg/l	0.05
29	Colour	< 5	< 5	Hazen	15
30	Odour	Agreeable	Agreeable	-	Agreeable
31	Taste	Agreeable	Agreeable	-	Agreeable
32	Temperature	30.4	30.4	°C	-
33	Residual Free Chlorine	0.10	0.09	mg/l	1.0 (min)
34	Total Bacterial Count	Absent	Absent	Nos/100ml	Absent
35	E coli	Absent	Absent	Nos/100ml	Absent

Table No 1.19:

DRINKING WATER QUALITY RESULT FOR THE MONTH OF AUGUST 2023

Sl No	Parameter	Results Obtained		Unit	Permissible Limit in absence of Alternate Source as per IS 10500: 2012
		Mines Canteen Drinking Water	HEMM Work Shop Drinking Water		
1	Turbidity	0.5	3.0	NTU	5.0
2	pH Value	7.58	7.61	-	6.5 – 8.5
3	Total Hardness (as $CaCO_3$)	195.07	178.82	mg/l	600
4	Iron (as Fe)	0.22	0.21	mg/l	0.3
5	Chlorides (as Cl)	8.86	8.86	mg/l	1000
6	Total Dissolved Solids	240	239	mg/l	2000
7	Electrical Conductivity	388	366	µS/cm	-
8	Calcium (as Ca)	43.98	43.97	mg/l	200
9	Magnesium (as Mg)	20.74	16.64	mg/l	100
10	Copper (as Cu)	< 0.10	< 0.10	mg/l	1.5
11	Manganese (as Mn)	< 0.05	< 0.05	mg/l	0.3
12	Sulfate (as SO_4)	37.82	63.65	mg/l	400

Sl No	Parameter	Results Obtained		Unit	Permissible Limit in absence of Alternate Source as per IS 10500: 2012
		Mines Canteen Drinking Water	HEMM Work Shop Drinking Water		
13	Total Nitrate (as NO_3)	3.59	6.52	mg/l	45
14	Total Alkalinity (as $CaCO_3$)	128	92	mg/l	600
15	Acidity	06	< 2	mg/l	-
16	Sulphide (as H_2S)	< 0.02	< 0.02	mg/l	0.05
17	Sodium (as Na)	5.56	4.05	mg/l	-
18	Potassium (as K)	1.76	1.57	mg/l	-
19	Fluoride (as F)	0.9	0.8	mg/l	1.5
20	Cadmium (as Cd)	ND	ND	mg/l	0.003
21	Lead (as Pb)	ND	ND	mg/l	0.01
22	Arsenic (as As)	ND	ND	mg/l	0.05
23	Mercury (as Hg)	ND	ND	mg/l	0.001
24	Selenium (as Se)	ND	ND	mg/l	0.01
25	Nickel (as Ni)	ND	ND	mg/l	0.02
26	Zinc (as Zn)	ND	ND	mg/l	15.0
27	Total Chromium (as Cr)	ND	ND	mg/l	0.05
29	Colour	< 5	< 5	Hazen	15
30	Odour	Agreeable	Agreeable	-	Agreeable
31	Taste	Agreeable	Agreeable	-	Agreeable
32	Temperature	30.4	30.4	^oC	-
33	Residual Free Chlorine	0.10	0.09	mg/l	1.0 (min)
34	Total Bacterial Count	Absent	Absent	Nos/100ml	Absent
35	E coli	Absent	Absent	Nos/100ml	Absent

Table No 1.20:

DRINKING WATER QUALITY RESULT FOR THE MONTH OF SEPTEMBER 2023

Sl No	Parameter	Results Obtained		Unit	Permissible Limit in absence of Alternate Source as per IS 10500: 2012
		Crusher Plant – 2 Drinking Water	Mines Office Main Gate Drinking Water		
1	Turbidity	0.30	0.60	NTU	5.0
2	pH Value	7.94	7.86	-	6.5 – 8.5
3	Total Hardness (as $CaCO_3$)	172	180	mg/l	600
4	Iron (as Fe)	0.26	0.29	mg/l	0.3
5	Chlorides (as Cl)	7.88	8.87	mg/l	1000
6	Total Dissolved Solids	223	222	mg/l	2000
7	Electrical Conductivity	346	361	µS/cm	-
8	Calcium (as Ca)	40.08	28.89	mg/l	200
9	Magnesium (as Mg)	17.49	1.94	mg/l	100
10	Copper (as Cu)	< 0.10	< 0.10	mg/l	1.5
11	Manganese (as Mn)	< 0.05	< 0.05	mg/l	0.3
12	Sulfate (as SO_4)	49.59	38.08	mg/l	400
13	Total Nitrate (as NO_3)	2.46	3.05	mg/l	45
14	Total Alkalinity (as $CaCO_3$)	100	152	mg/l	600
15	Acidity	< 2.0	< 2.0	mg/l	-
16	Sulphide (as H_2S)	< 0.02	< 0.02	mg/l	0.05
17	Sodium (as Na)	6.07	8.75	mg/l	-
18	Potassium (as K)	1.27	2.76	mg/l	-
19	Fluoride (as F)	0.50	0.70	mg/l	1.5
20	Cadmium (as Cd)	ND	ND	mg/l	0.003
21	Lead (as Pb)	ND	ND	mg/l	0.01
22	Arsenic (as As)	ND	ND	mg/l	0.05
23	Mercury (as Hg)	ND	ND	mg/l	0.001
24	Selenium (as Se)	ND	ND	mg/l	0.01
25	Nickel (as Ni)	ND	ND	mg/l	0.02
26	Zinc (as Zn)	ND	ND	mg/l	15.0
27	Total Chromium (as Cr)	ND	ND	mg/l	0.05
29	Colour	< 5	< 5	Hazen	15
30	Odour	Agreeable	Agreeable	-	Agreeable
31	Taste	Agreeable	Agreeable	-	Agreeable

Sl No	Parameter	Results Obtained		Unit	Permissible Limit in absence of Alternate Source as per IS 10500: 2012
		Crusher Plant – 2 Drinking Water	Mines Office Main Gate Drinking Water		
32	Temperature	27.9	28.0	°C	-
33	Residual Free Chlorine	0.11	0.10	mg/l	1.0 (min)
34	Total Bacterial Count	Absent	Absent	Nos/100ml	Absent
35	E coli	Absent	Absent	Nos/100ml	Absent

Table No 1.21:

EFFLUENT WATER QUALITY RESULT OF WORKSHOP INLET & OUTLET

Sl No	Parameters	Results Obtained of Inlet					Unit
		MAY	JUNE	JULY	AUGUST	SEPTEMBER	
1	pH Value	8.49	5.61	7.61	7.30	8.05	-
2.	Total Suspended Solids	26.6	58.5	34.4	32.2	30.4	mg/l
3.	Oil & Grease	2.4	2.6	13.5	8.2	4.2	mg/l

Sl No	Parameters	Results Obtained of Outlet					Permissible Limit as per Schedule 6 of EPA 1986, (GSR – 422E, Rule 1998)	Unit
		MAY	JUNE	JULY	AUGUST	SEPTEMBER		
1	pH Value	7.66	7.14	8.19	7.73	8.02	5.5 – 9.0	-
2.	Total Suspended Solids	5.6	15.6	21.5	< 2.5	< 2.5	200	mg/l
3.	Oil & Grease	< 2.0	< 2.0	5.9	2.4	2.2	10	mg/l

Table No 1.22:

SOIL QUALITY RESULT FOR THE MONTH OF MAY 2023

Sl. No.	Parameter	Unit	Magazine Hill top	Village Bihabandh	Colony Area	Workshop Area
1.	Colour	-	Brownish	Greyish	Reddish	Greyish
2.	Type of Soil	-	Fine Grained Soil	Fine Grained Soil	Fine Grained Soil	Fine Grained Soil
3.	Texture	-	Loamy	Sandy Clay Loam	Silty Clay Loam	Silty Loam
4.	Bulk Density	gm/cm^3	1.7	1.9	1.5	1.7
5.	pH (1:2 Suspension)	-	7.98	7.79	7.75	7.78
6.	Iron	mg/kg	7.21	8.27	4.60	3.26
7.	Calcium	mg/kg	134	150	242	183
8.	Available Potassium (as K_2O)	Kg/ha	222.1	195.12	63.24	111
9.	Organic Carbon	%	0.25	0.46	1.43	1.52
10.	Available Nitrogen (as N)	Kg/ha	100.352	150.53	150.53	175.62
11.	Manganese	mg/kg	11.69	12.69	5.69	5.20
12.	Infiltration Rate	cm/hr	6.71	6.85	7.23	7.45
13.	Porosity	mg/m^3	0.224	0.3240	0.3676	0.4687
14.	Moisture Content	%	14.34	16.32	17.87	18.32
16.	Chloride	mg/kg	0.11	0.15	0.35	0.25
17.	Sulphate	mg/kg	0.6	0.6	0.8	0.9

Table No 1.23:

SOIL QUALITY RESULT FOR THE MONTH OF JUNE 2023

Sl. No.	Parameter	Unit	Crusher Plant Area	Near Store HW Area	Near Dispensary	Near ETP
1.	Colour	-	Greyish	Brownish	Brownish	Brownish
2.	Type of Soil	-	Fine Grained Soil	Fine Grained Soil	Fine Grained Soil	Fine Grained Soil
3.	Texture	-	Loamy	Clay Loam	Silty Clay Loam	Silty
4.	Bulk Density	gm/cm^3	1.9	1.7	1.6	1.5
5.	pH (1:2 Suspension)	-	8.48	8.11	7.85	7.92
6.	Iron	mg/kg	5.17	5.84	7.05	7.21
7.	Calcium	mg/kg	180	198	179	216
8.	Available Potassium (as K_2O)	Kg/ha	402.84	253.08	367.04	177.84
9.	Organic Carbon	%	< 0.5	< 0.5	0.54	0.81
10.	Available Nitrogen (as N)	Kg/ha	175.62	125.44	150.53	188.16
11.	Manganese	mg/kg	10.58	9.54	9.54	11.23
12.	Infiltration Rate	cm/hr	4.62	5.58	5.34	7.62
13.	Porosity	mg/m^3	0.2125	0.2321	0.2458	0.2876
14.	Moisture Content	%	18.34	18.88	16.43	15.73
16.	Chloride	mg/kg	0.09	0.10	0.14	0.27
17.	Sulphate	mg/kg	0.5	0.5	0.7	0.9

Table No 1.24:

SOIL QUALITY RESULT FOR THE MONTH OF JULY 2023

Sl. No.	Parameter	Unit	Crusher Plant Area	Near Store HW Area	Near Dispensary	Near ETP
1.	Colour	-	Greyish	Brownish	Brownish	Brownish
2.	Type of Soil	-	Fine Grained Soil	Fine Grained Soil	Fine Grained Soil	Fine Grained Soil
3.	Texture	-	Loamy	Clay Loam	Silty Clay Loam	Silty
4.	Bulk Density	gm/cm^3	1.4	1.3	1.3	1.20
5.	pH (1:2 Suspension)	-	7.98	7.39	7.59	7.67
6.	Iron	mg/kg	5.27	4.21	4.18	3.88
7.	Calcium	mg/kg	165	173	210	194
8.	Available Potassium (as K_2O)	Kg/ha	176.64	228.12	71.04	37.68
9.	Organic Carbon	%	< 0.5	0.56	< 0.5	< 0.5
10.	Available Nitrogen (as N)	Kg/ha	137.98	75.26	112.9	75.26
11.	Manganese	mg/kg	10.22	8.81	9.43	10.04
12.	Infiltration Rate	cm/hr	3.42	5.62	6.15	5.84
13.	Porosity	mg/m^3	0.2210	0.1947	0.2415	0.1992
14.	Moisture Content	%	20.34	21.16	22.78	20.54
16.	Chloride	mg/kg	0.10	0.29	0.21	0.15
17.	Sulphate	mg/kg	0.41	0.36	0.64	0.74

Table No 1.25:

SOIL QUALITY RESULT FOR THE MONTH OF AUGUST 2023

Sl. No.	Parameter	Unit	Crusher Plant Area	Near Store HW Area	Near Dispensary	Near ETP
1.	Colour	-	Greyish	Brownish	Brownish	Brownish
2.	Type of Soil	-	Fine Grained Soil	Fine Grained Soil	Fine Grained Soil	Fine Grained Soil
3.	Texture	-	Loamy	Clay Loam	Silty Clay Loam	Silty
4.	Bulk Density	gm/cm^3	1.53	1.40	1.47	1.38

Sl. No.	Parameter	Unit	Crusher Plant Area	Near Store HW Area	Near Dispensary	Near ETP
5.	pH (1:2 Suspension)	-	8.04	8.25	8.13	8.35
6.	Iron	mg/kg	5.27	4.21	4.18	3.88
7.	Calcium	mg/kg	165	173	210	194
8.	Available Potassium (as K_2O)	Kg/ha	315	238.04	52.44	345.44
9.	Organic Carbon	%	< 0.5	1.07	1.47	0.84
10.	Available Nitrogen (as N)	Kg/ha	50.17	188.16	238.33	37.63
11.	Manganese	mg/kg	10.22	8.81	9.43	10.04
12.	Infiltration Rate	cm/hr	5.21	6.72	7.23	6.48
13.	Porosity	mg/m^3	0.24	0.19	0.24	0.19
14.	Moisture Content	%	28.34	29.16	25.78	27.45
16.	Chloride	mg/kg	1.10	0.87	0.76	1.15
17.	Sulphate	mg/kg	0.22	0.17	0.54	0.44

Table No 1.26:

SOIL QUALITY RESULT FOR THE MONTH OF SEPTEMBER 2023

Sl. No.	Parameter	Unit	Village Bihabandh	Village Kheramuta	Village Katang	Village Dhauradha
1.	Colour	-	Greyish	Brownish	Brownish	Brownish
2.	Type of Soil	-	Fine Grained Soil	Fine Grained Soil	Fine Grained Soil	Fine Grained Soil
3.	Texture	-	Loamy	Clay Loam	Silty Clay Loam	Silty
4.	Bulk Density	gm/cm^3	1.53	1.40	1.47	1.38
5.	pH (1:2 Suspension)	-	7.36	7.81	7.49	7.44
6.	Iron	mg/kg	5.27	4.21	4.18	3.88
7.	Calcium	mg/kg	165	173	210	194
8.	Available Potassium (as K_2O)	Kg/ha	94.8	758.4	375.6	242.4
9.	Organic Carbon	%	0.76	0.94	1.20	0.88
10.	Available Nitrogen (as N)	Kg/ha	125.44	62.72	163.07	150.52
11.	Manganese	mg/kg	10.22	8.81	9.43	10.04
12.	Infiltration Rate	cm/hr	5.21	6.72	7.23	6.48
13.	Porosity	mg/m^3	0.24	0.19	0.24	0.19
14.	Moisture Content	%	28.34	29.16	25.78	27.45
16.	Chloride	mg/kg	1.10	0.87	0.76	1.15
17.	Sulphate	mg/kg	0.22	0.17	0.54	0.44

Table No: 1.27

NOISE LEVEL MONITORING DATA

From 01.04.2023 to 30.09.2023

Station: N-1 (Mines View Point)

Month	L_{eq} dB(A) Day Time	L_{eq} dB(A) Night Time	L_{max} dB(A)	L_{min} dB(A)
May	54.1	40.9	62.7	39.1
June	65.6	53.8	70.7	50.8
July	65.8	64.6	74.1	59.7
August	64.8	61.5	70.6	58.3
September	65.8	64.6	75.1	59.7

Table No: 1.28

NOISE LEVEL MONITORING DATA
From 01.04.2023 to 30.09.2023
Station: N-2 (Limestone Crusher Plant – 2)

Month	L_{eq} dB(A) Day Time	L_{eq} dB(A) Night Time	L_{max} dB(A)	L_{min} dB(A)
May	67.5	42.2	74.1	40.2
June	72.1	68.6	74.2	67.5
July	68.4	68.8	71.0	62.1
August	69.9	67.3	73.6	61.0
September	68.4	68.8	71.0	62.1

Table No: 1.29

NOISE LEVEL MONITORING DATA
From 01.04.2023 to 30.09.2023
Station: N-3 (Mines Colony Area)

Month	L_{eq} dB(A) Day Time	L_{eq} dB(A) Night Time	L_{max} dB(A)	L_{min} dB(A)
May	43.1	38.9	48.4	30.2
June	53.9	42.7	55.9	40.8
July	49.0	44.2	51.6	44.0
August	49.9	43.8	54.8	40.1
September	50.4	41.7	67.8	32.4

Table No: 1.30

NOISE LEVEL MONITORING DATA
From 01.04.2023 to 30.09.2023
Station: N-4 (Mines Office Area)

Month	L_{eq} dB(A) Day Time	L_{eq} dB(A) Night Time	L_{max} dB(A)	L_{min} dB(A)
May	46.7	40.7	52.4	39.1
June	56.5	53.8	62.1	50.1
July	55.6	49.8	60.0	47.5
August	54.6	48.0	62.1	45.0
September	55.6	49.8	60.0	47.5

Table No: 1.31

NOISE LEVEL MONITORING DATA
From 01.04.2023 to 30.09.2023
Station: N-5 (Magazine Hill Top)

Month	L_{eq} dB(A) Day Time	L_{eq} dB(A) Night Time	L_{max} dB(A)	L_{min} dB(A)
May	45.1	39.7	50.1	37.3
June	54.6	43.1	57.7	40.4
July	49.2	41.2	55.7	40.5
August	43.6	38.5	49.2	36.2
September	54.1	53.4	67.8	31.7