



SCL/6000-09/2023/132

26<sup>th</sup> May 2023

To,  
Ministry of Environment, Forest and Climate Change,  
Eastern Regional Office (EZ),  
A/3, Chandrasekharapur,  
Bhubaneswar- 751023  
E-mail: [roez.bsr-mef@nic.in](mailto:roez.bsr-mef@nic.in)

**Sub : Half yearly Compliance report of Khatkurbahal Limestone & Dolomite mine for the period October-2022 to March-2023.**

**Ref: 1) Environmental Clearance No: F.NO. 37895/62-MINB1/11-2021, Dt: 11.03.2022**

Dear Sir,

With reference to the above-mentioned letters for the said subject matter, please find enclosed herewith the compliance to the conditions stipulated in the letters for the period October-2022 - March-2023 for your kind reference. The Said Period compliance is also being E-mailed on [roez.bsr-mef@nic.in](mailto:roez.bsr-mef@nic.in).

Soft copy of this Compliance Report as well as the Environment data month wise are also uploaded in our official website: [www.shivacement.com](http://www.shivacement.com).

Thanking you,  
Yours Faithfully,

FOR M/S SHIVA CEMENT LIMITED

  
(ANIL MISHRA)  
UNIT HEAD



Encl: As above

- 1) HY Compliance report with Supportive Annexures
- 2) Environment Monitoring data for the period October-2022 to March-2023

Copy to:

- 1) Zonal Office, Central Pollution Control Board, Southern Conclave, Block 502, 5th & 6th Floors, 1582 Rajdanga Main Road, Kolkata - 700 107 (W. B.)
- 2) The Member Secretary, State Pollution Control Board, Odisha, Parivesh Bhawan, A/118, Unit 8, Nilakantha Nagar, Nayapalli, Bhubneswar-751012.
- 3) The Regional Officer State Pollution Control Board, Odisha, Sector-5, Rourkela, Sundergarh- 756019

**SHIVA CEMENT LIMITED**

CIN L26942OR1985PLC001557

Registered Office address- Village Telighana, PO: Birangatoli, Tehsil-Kutra, District-Sundargarh, Odisha- 770018.

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**ENVIRONMENT CLEARANCE COMPLIANCE  
STATUS  
REPORT OF KHATKURBAHAL LIMESTONE &  
DOLOMITE MINES OF M/s SHIVA CEMENT LIMITED  
PERIOD: Oct' 2022 to Mar' 2023**

**(Unit-Shiva Cement Limited)**

**Address**

**VILLAGE: KHATKURBAHAL, PO/TEHSIL. KUTRA, DIST.  
SUNDARGARH (ODISHA)**

# Compliance Report

<b>Name of Project</b>	Khatkurbahal-Limestone & Dolomite Mine (ML Area-72:439 ha) with Expansion in Production Capacity from 0.3475 Million TPA to 1.50 Million TPA Limestone (Including Sub-grade), 0.20 Million m3 per annum OB/Waste/SB/IB/Low grade Dolomite and 0.108 Million m3 per annum Top Soil with mobile crusher with screen of 500 TPH Capacity Near Villages- Khatkurbahal & Kulenbahal, Tehsil — Kurta, District- Sundergarh (Odisha)
<b>Clearance Letter No.</b>	37895/62-MINB1/11-2021
<b>EC Identification No.</b>	EC22B001OR123294
<b>Period of Compliance Report</b>	October' 2022 to March' 2023

## Compliance report of conditions stipulated in the Environment clearance

- ENVIRONMENT CLEARANCE NO 37895/62-MINB1/11-2021 dated 11.03.2022**

<b>A. Specific Conditions</b>		
<b>Sl. No.</b>	<b>Conditions</b>	<b>Compliance</b>
1	The proponent shall implement the Pollution Control Measures and safeguards as proposed in the Environment Management Plan (EMP) of project report.	All the pollution control measures have been implemented.
2	The proponent shall implement an appropriate technology for control of fluoride below the permissible limits after identifying its source. The fluoride concentrations in and around the mine shall be monitored periodically.	No fluoride source has been found inside as well as the outside the mine area. However, fluoride monitoring is being carried out in & around the mine periodically by a NABL accredited Consultants. The Monitoring report is attached as <b>Annexure-I.</b>
3	Separate road shall be constructed (as proposed) with definite time frame for transportation of mineral to avoid traffic congestion in existing haulage road.	Noted & agreed
4	Haulage road shall be developed and maintained perennially and perpetually by the proponent in consultation with the concerned authority of the Govt.	Complied. Haulage road are developed and maintained perennially and perpetually.
5	The mining authority shall assess the impact of blasting by carrying out a few trial blasts in the beginning through an institution/organization having the domain expertise and the optimum blasting parameters should be established in order to avoid any adverse impact.	Complied. Trial blast was carried out through CMFRI Dhanbad and NIT Rourkela to assess the impact of blasting in the beginning and optimum parameters are established to avoid any adverse impact.
6	As per EIA report in project description, Bench width,	Noted.

	height and angle is indicated along with Quarry slope and the Proponent shall follow it as per approved mining plan and so also blasting procedure.	The physical parameters like Height, bench width and angle of slope are maintained for existing production capacity & same will be maintained during production enhancement as per the approved mining plan.
7	This Environmental Clearance is issued without prejudice to the legal cases if pending in the different Court.	Noted.
8	Approval/permission of CGWA/SGWA shall be obtained before drawing ground water for the project activities. State Pollution Control Board (SPCB) concerned shall not issue Consent to Operate (CTO) till the project proponent obtains such permission.	Complied. CGWA permission has been obtain on dated 07.07.2021 having NOC no. CGWA/NOC/MIN/ORIG/2021/12245 for drawing of ground water for the project activities. The copy of the permission letter is attached as <b>Annexure-II</b>
9	Proper R&R plan has to be implemented in time bound manner by the project proponent which is also the main issue raised in public hearing, because displacement of people is a major environmental issue and without proper land based rehabilitation the outsees become environmental refugees.	Noted & agreed to implement the R&R plan as soon as land acquisition is initiated.
10	The amount proposed under Corporate Environment Responsibility (CER) head Should be kept in a separate bank account and should be audited annually. The PP should annually submit the audited Statement and details of implementation of CER activities along with proof of activities viz. photographs (before & after with geolocation date & time), purchase documents, photographs & Geo-location of the infrastructures/facilities developed, etc. to the Regional Office of MoEF&CC, Bhubaneswar and SEIAA, Odisha before 1 <sup>st</sup> July of every year for the activities carried out during previous year.	Noted & agreed Separate bank accounts is in place and the details are enclosed as Annexure-. Annual audited statement along with photographs of CER activities shall be submitted at the end of year.
11	The amount (except occupational health) proposed under Environmental Management Plan (EMP) head should be kept in a separate bank account and should be audited annually. The PP. should annually submit the audited statement and detailed environment monitoring report along. with proof of activities viz. photographs (before & after with geo-location date & time), purchase documents, sampling reports, photographs& Geo-location of the infrastructures/facilities developed, details of persons engaged in Environment Management Cell etc. to the Regional Office of MoEF&CC, Bhubaneswar and SEIAA, Odisha before 1 <sup>st</sup> July of every year for the activities carried out during previous year.	Noted & agreed Separate bank accounts is in place and the details are enclosed as Annexure-. Annual audited statement along with photographs of EMP activities shall be submitted at the end of year.
12	The amount proposed under Occupational Health plan head should be kept in a Separate bank account and should be audited annually. The PP should annually submit the audited statement and detailed environment monitoring report along with proof of activities viz.	Noted & agreed. Separate bank account is in place and the details are enclosed as Annexure-. Annual audited statement alongwith photographs of CER activities shall be

	photographs (before & after with geo-location date & time), purchase documents, sampling reports, photographs & Geo-location of the infrastructures/facilities developed, details of persons engaged in Environment Management Cell etc. to the Regional Office of MoEF&CC, Bhubaneswar and SEIAA, Odisha before 1 <sup>st</sup> July of every year for the activities carried out during previous year.	submitted at the end of year.
13	The Project Proponent shall set up an Environmental Management Cell comprises of persons having qualification and experience in the field of environment along with supporting staff. The details of the same needs to be submitted to the SEIAA, Odisha within 3 months of the grant of EC.	Complied. A separate Environmental management cell with suitable qualified personnel is already set-up under the control of a Senior Executive, who is directly reporting to the Head of the Organization.
14	The project proponent shall give an undertaking by way of affidavit to comply with all the statutory requirements and judgment of Hon'ble Supreme Court dated the and August 2017 in Writ Petition (Civil) No. 114 of 2014 in the matter of Common Cause versus Union of India and Ors. before grant of ToR/ EC. The undertaking inter-alia include commitment of the PP not to repeat any such violation in future.	Copy of undertaking is enclosed as <b>Annexure-III</b>
15	In case of violation of above undertaking, the ToR/Environmental Clearance shall be liable to be terminated forthwith.	Noted
16	The Environmental Clearance will not be operational till such time the Project Proponent complies with all the statutory requirements and judgment of Hon'ble Supreme Court dated the 2nd August 2017 in Writ Petition (Civil) No. 114 of 2014 in the matter of Common Cause versus Union of India and Ors.	Noted.
17	State Government concerned shall ensure that mining operation shall not commence 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 the 2nd August 2017 in Writ Petition (Civil) No. 114 of 2014 in the matter of Common Cause versus Union of India and Ors.	Shiva cement has paid all the compensation as per demand note of Deptt of Mining & Geology and is in strict compliance of judgment of Hon'ble Supreme Court dated the 2nd August 2017 in Writ Petition (Civil) No. 114 of 2014 in the matter of Common Cause versus Union of India and Ors.
18	The Project Proponent shall keep a record of each blasting viz. location, number of holes, delay assigned of each hole, explosive quantity of each hole, blasting pattern etc.	Complied The record of each blasting viz. location, number of holes, delay assigned of each hole, explosive quantity of each hole, blasting pattern etc. are available. The details are attached as <b>Annexure-IV</b>
<b>B</b>	<b>Standards Conditions</b>	<b>Compliance</b>
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,	We are abiding by the said condition and order issued by the competent authority with due compliance from

	Common Cause Conditions as may be applicable.	time to time.
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.	We are abiding by the said condition based on 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.
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.	Shiva cement has paid all the compensation as per demand note of Deptt of Mining & Geology and is in strict compliance of judgment of Hon'ble Supreme Court dated the 2nd August 2017 in Writ Petition (Civil) No. 114 of 2014 in the matter of Common Cause versus Union of India and Ors.
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.	The NOC from NBWL is not applicable for this project.
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.	The mining area is not fall under the forest area. A copy of the letter to this effect has been issued by DFO, Sundargarh and the same is attached as <b>Annexure-V</b>
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.	Consent to Establish has been obtained from OSPCB Vide letter no.5838 IND-II-NOC-6602 dated 07.04.2022. The copy of the same is attached as <b>Annexure-VI</b> . Consent to Operate has been obtained from OSPCB Vide letter no.4938 IND-I-CON-1904 dated 28.03.2023. The copy of the same is attached as <b>Annexure-VII</b> .
7	The Project Proponent shall adhere to the provision of the Mines Act, 1952, Mines and Mineral (Development & 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.	We are abiding by the said condition.
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.
9	The Project Proponent shall follow the mitigation measures provided in MoEF&CC's Office Memorandum No. Z-11013/57/2014-1A.    (M), dated 29th October, 2014, titled "Impact of mining activities on Habitations-	Noted & agreed to comply

	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'.	
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.	Ground water NOC has been obtained from CGWA vide NOC no-CGWA/NOC/MIN/ORIG/2021/12245. The copy is attached as <b>Annexure-II</b> No surface water will be used for the project.
11	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 the clearance letter has been submitted to Panchayat Executive Officer, Khatkurbahal Panchayat vide letter dated 17.03.2022. The received copy is attached as <b>Annexure-VIII</b>
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/ Tahasildar's Office for 30 days.	
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 MoEF & CC Regional Office for compliance and record.	EC has been published in English daily The Pioneer on 17.03.2022 and in Odia daily The Prameya on 15.03.2022 Mentioning a copy of the clearance letter is available with the State Pollution Control Board and also at web site of the Ministry. The copy of the same is attached as <b>Annexure-IX</b> .
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 para 11 of EIA Notification, 2006 as amended from time to time.	Noted.
15	It shall be mandatory for the project management to submit six (06) monthly compliance reports on post environmental monitoring in respect of the stipulated terms and conditions in this Environmental Clearance to the State Environment Impact Assessment Authority (SEIAA), Odisha, SPCB & Regional Office of the Ministry of Environment & Forest, Odisha in hard and soft copies on 1 <sup>st</sup> June and 1 <sup>st</sup> December of each calendar year. The proponent shall also upload the compliance report including results of monitored data, as applicable in the website of the Ministry for monitoring of EC Conditions.	Complied. Six Monthly compliance report is being submitted to the State Environment Impact Assessment Authority (SEIAA), Odisha, SPCB & Regional Office of the Ministry of Environment & Forest, Odisha regularly. Last Six monthly compliance report was submitted vide letter no. <b>SCL/MINES/ENV./2022-23/111 dated 21.11.2022</b>
<b>Air Quality Monitoring &amp; Preservation</b>		
16	The Project Proponent shall install a minimum of 3 (three) online Ambient Air Quality Monitoring Stations	3 nos of CAAQMS have already been installed one upwind and two in



	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. PM 10, PM2.5, NOx, CO and SO2 etc. as per the methodology mentioned in NAAQS Notification No. B-29016/20/90/PCI/I, dated 18.11.2009 covering the aspects of transportation and use of heavy machinery in the impact zone. The ambient air quality shall also be monitored at prominent places like office building, canteen etc. as per the site condition to ascertain the exposure characteristics at specific places. The above data shall be digitally displayed within 03 months in front of the main Gate of the mine site.	downwind direction.  Ambient Air Quality monitoring in the existing mine is regularly carried out by an NABL accredited laboratory and reports are submitted to the board regularly. The Monitoring reports are attached as <b>Annexure-I</b>
17	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 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 MoEF&CC/ Central Pollution Control Board.	4 nos. of dedicated water tanker are deployed for regular water sprinkling in the haulage road as well in the dust prone area. Also fixed water sprinkler are placed to control dust emission. The Water tanker and water sprinkler photograph are attached as <b>Annexure- X</b> .  Dust suppression system will be installed in transfer points, loading & in unloading points.  Fugitive emission monitoring is being carried out on quarterly basis for existing mines & report is submitted to concerned authority on regular basis. The Same will be continued for expansion also. The Environmental monitoring Report is attached as <b>Annexure-I</b> .
<b>Water Quality Monitoring &amp; Preservation</b>		
18	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 hydrogeological study of the area.	Complied. Ground water NOC has been obtained from CGWA vide NOC no-CGWA/NOC/MIN/ORIG/2021/12245.
19	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	Regular monitoring of the flow rate of the springs and perennial nallahs is carried out. The Environmental Monitoring Report is attached as <b>Annexure-I</b> .

	<p>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 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.</p>	<p>The natural water bodies and or streams which are flowing in and around the village, are not disturbed due to mining activity.</p>
20	<p>The 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.</p> <p>The Report on changes in Ground water level and quality shall be submitted on six monthly basis to the Regional Office of the Ministry, CGWA and State Groundwater Department / State Pollution Control Board.</p>	<p>Ground water level &amp; quality are regularly monitored in and around the mine lease area by an NABL accredited laboratory. Piezometer is being installed in the mine operational area.</p> <p>Ground water quality monitoring is carried out periodically in &amp; around the mine lease area &amp; the reports are submitted to concerned authority on regular basis. The Environmental Monitoring Report is attached as <b>Annexure-I</b></p>
21	<p>The Project Proponent shall undertake regular monitoring of natural water course/ water resources/ springs and perennial nallahs existing/ flowing in and around the mine lease 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 &amp; 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 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.</p>	<p>Regular monitoring of water quality of the springs and perennial nallahs is carried out four times in a year viz. pre- monsoon (April- May), monsoon (August), post-monsoon (November) and winter (January) for mines. The monitored data are sent to Concerned authority on regular basis. The Environmental Monitoring Report is attached as <b>Annexure-I</b>.</p>

	Clearly showing the trend analysis on six-monthly basis.	
22	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.	The mines run-off water quality is monitored on quarterly basis and analysis results are well within the prescribed limit. The monitoring report is attached as <b>Annexure-I</b> .  The monitoring report are uploaded in the company website & also displayed in the mine main gate for public view.
23	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.	Noted. One No. of pond has been constructed outside the mine lease area which can harvest approx. 65205 cum of water. In addition, rainwater is also collected in mine pit which is subjected to gainful utilization such as spray on haul roads, plantation and irrigation purpose. Details of the amount of water collected and recharged is enclosed as <b>Annexure-XI</b>
24	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.	Not Applicable. Presently there is no workshop inside the mine lease area. In future also there is no plan for workshop inside the mine lease area.
25	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.	Since our groundwater with drawl for domestic purposes is only 12 m <sup>3</sup> /day, water audit as per CGWA guidelines is not applicable.
<b>Noise &amp; vibration Monitoring and prevention</b>		
26	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 The peak particle velocity is being monitored regularly as per the applicable DGMS guideline. The PPV report is attached as <b>Annexure-XII</b> .
27	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	Presently the mining operation is not carried out during the night time. The Noise monitoring is being carried out on regular basis by a NABL accredited Laboratory. The noise results are well within the prescribed limit. The Noise monitoring report is attached as <b>Annexure-I</b>

	and keeping the noise levels well within the prescribed limits for day /night hours.	
28	The Project Proponent shall take measures for control of noise levels below 85 dBA in the work environment. The workers engaged in operations of HEMM, etc. should be provided with ear plugs /muffs. All personnel including laborers working in dusty areas shall be provided with protective respiratory devices along with adequate training, awareness and information on safety and health aspects. The PP shall be held responsible in case it has been found that workers/ personals/ laborers are working without personal protective equipment.	Noise level monitoring is being carried out in our existing mines by NABL accredited laboratory. The monitoring results are submitted to concerned authority on regular basis. The monitoring report is attaches as <b>Annexure-I</b>
<b>Mining Plan</b>		
29	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. All mining activity will be carried out as per the approved mining plan.
30	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, Change Forest and Climate for record and verification.	Will be complied before the mine closure.
31	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-a-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 MoEF & CC and its concerned Regional Office.	Noted.
<b>Land Reclamation</b>		
32	The Overburden (O.B.) generated during the mining	Generated overburdens are stacked

	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.	at earmarked OB dump sites. The physical parameters like Height, width and angle of slope are maintained as per the approved mining plan.  The topsoil is used for & plantation purpose.
33	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.	Generated reject/waste during the mining operations is stacked at earmarked OB dump sites. The physical parameters like Height, width and angle of slope are maintained as per the approved mining plan.
34	The reclamation of waste dump sites shall be done in scientific manner as per the Approved Mining Plan cum Progressive Mine Closure Plan.	Noted & agreed
35	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/ geomembranes / clay liners / Bentonite etc. shall be undertaken for stabilization of the dump.	Noted & will be complied after stabilization of the OB.
36	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.	Not applicable. Presently the dump height is below 30 meters. However, slope stability study will be carried out as and when the dump height exceeds 30 meter and the report will be submitted to MoEF&CC.
37	Catch drains, settling tanks and siltation ponds of appropriate size shall be constructed around the mine working, mineral yards and Top Soil/OBA/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.	Settling tank are constructed around mineral yards and Top Soil/OBA/waste dumps to prevent run off of water and flow of sediments directly into the water bodies (Nallah/ River/ Pond etc.).
38	Check dams of appropriate size, gradient and length shall be constructed around mine pit and OB dumps to	Check dam of appropriate size are provided to all corner of the garland

	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.	drains thereby allowing proper settling of sediments/ silt material.
39	The top soil, if any, shall temporarily be stored at earmarked site(s) within 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 The top soil is temporarily stored at earmarked site(s) within the mine lease. The physical parameters of the top soil dumps like height, width and angle of slope are maintained as per the approved Mining Plan.
40	The mining lease holders shall, after ceasing mining operations, undertake regressing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc.	Noted
41	Slope study by an expert of repute of water dumps to be done and submitted within six months from the date of issue of EC to SEAC / SEIAA	Not applicable. Presently as the dump height is below 30 meters. However, slope stability study will be carried out as and when required.
<b>Transportation</b>		
42	No Transportation of the minerals shall be allowed in case of roads passing through villages/ habitations. In such cases, PP shall construct a 'bypass' road for the purpose of transportation of the minerals leaving an adequate gap (say at least 200 meters) so that the adverse impact of sound and dust along with chances of accidents could be mitigated. All costs resulting from widening and strengthening of existing public road network shall be borne by the PP in consultation with nodal State Govt. Department. Transportation of minerals through road movement in case of existing village/ rural roads shall be allowed in consultation with nodal State Govt. Department only after required strengthening such that the carrying capacity of roads is increased to handle the traffic load.	Noted & agreed
43	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.	Mineral carrying trucks are not allowed to go out of the lease area without tarpaulin cover and is being monitored by security personnel at the exit gate. Vehicular emissions shall be regularly monitored. Security personnel also

		not allow the vehicles to enter into the mines without having valid PUC.
44	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.	Dedicated water tankers have been engaged for sprinkling of water on the haul road of the mines area. Dust Suppression System (Dry fog system) are provided at all appropriate places of mineral handling plants (crusher & screening plant) and other areas. Same are being maintained for proper dust control.
45	Haulage road shall be developed and maintained perennially and perpetually by the proponent in construction with the concerned authority of the Govt. and to this effect, the proponent shall submit an undertaking in form of a legal affidavit	Haulage road is being developed and maintained perennially and perpetually.
46	Traffic density study if not done by domain expert, then the expert to be ratified / authenticated by domain expert and submitted within a month time.	Complied. The traffic density study is attached as <b>Annexure-XIII.</b>
<b>Greenbelt</b>		
47	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.	2700 no's of sapling have been planted covering OB dump area, Haulage Road, safety zone area, nearby villages and avenue plantation of Mines Road. The plantation Photograph are attached as <b>Annexure-XIV.</b>
48	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.	2700 no's of sapling have been planted covering OB dump area, Haulage Road, safety zone area, nearby villages and avenue plantation of Mines Road. The plantation Photograph are attached as <b>Annexure-XIV.</b>
49	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	Noted Will be complied as and when any grazing land is used for mining purposes.

	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.	
50	The Project Proponent shall undertake all precautionary measures for conservation and protection of endangered flora and fauna and Schedule-1 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.	Not Applicable. There is no Schedule-1 species in the project area as well as in the buffer zone 10 km radius area.
51	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
<b>Public hearing and human health issues:</b>		
52	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 MoEF & CC Regional Office and DGMS on half-yearly basis.	Complied Periodical medical examination of the workers engaged in the mining activities are carried out. The report is attached as <b>Annexure-XV</b> .
53	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 there after every five years.	Complied. The Health Risk Assessment (HRA) report is attached as <b>Annexure-XV</b> .
54	The Proponent shall carry out Occupational health surveillance which be a part of HRA and include Biological	Complied. The Occupational health surveillance



	<p>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 XRay will be accepted for record purposes and not the digital one). X-Ray must meet ILO criteria (17 x14 inches and of good quality).</p>	<p>report is attached as <b>Annexure-XV</b>.</p>
<p>55</p>	<p>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 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 XRay will be accepted for record purposes and not the digital one). X-Ray must meet ILO criteria (17 x14 inches and of good quality). 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, MoEF &amp; CC annually along with</p>	<p>Complied. The Occupational health surveillance report is attached as <b>Annexure-XV</b>.</p>

	details of the relief and compensation paid to workers having above indications.	
56	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.	Personnel working in the dusty areas are provided with respiratory devices & provided with adequate training/awareness inline to safety & health aspects.
57	Project Proponent shall make provision for the housing for workers/labors or shall construct labor camps within/outside (company owned land) with necessary basic infrastructure/ facilities like fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, 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.	Noted & is being complied.
58	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.	The activities proposed in the Action Plan are being implemented. Status report will be submitted to MoEF&CC.
59	The proponent shall implement the mitigative measures as suggested in the Study Report on effect of chromite mines to nearest human habitation.	Not Applicable.
60	Occupational health check-up shall be done by occupational health expert periodically for employees as well as nearby villagers.	Complied.
61	issues raised and recorded in proceedings of public hearing w.r.t. environment / pollution / CER shall be complied by the Mining Authority as per OM F. No. 22-65/2017-IA.II], dated 30.09.2020 of MoEF&CC, Govt. of India.	Noted & will be complied.
<b>Corporate Environment Responsibility (CER):</b>		
62	The activities and budget earmarked for Corporate Environmental Responsibility (CER) as per Ministry's dated 30.09.2020 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.	Separate bank account has been opened. Details of the activities carried out during the period Oct-22 to Mar-23 is attached as <b>Annexure-XVI</b> .  Annual report of implementation of the same along with all documentary proof will be submitted to Regional Office MoEF & CC annually .
63	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 funds should be reported to the MoEF & CC and its concerned	Separate bank account has been opened. The year wise expenditure of such fund will be reported to MoEF & CC & concerned regional office.

	Regional Office.	
<b>Miscellaneous:</b>		
64	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, Bhubaneswar and SEIAA, Odisha.	Noted & agreed.
65	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.	Date of final approval of the project is 11.03.2022. Date of start of land development work (for expansion) is 16.11.2022
66	The Project Proponent shall submit six monthly compliance reports on the status of the implementation of the stipulated environmental safeguards to the MOEF&CC & its concerned Regional Office, Central Pollution Control Board and State Pollution Control Board.	Noted and complied
67	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, Bhubaneswar and SEIAA, Odisha.	A separate Environmental management cell with suitable qualified personnel is already set-up under the control of a Senior Executive, who is directly reporting to the Head of the Organization Cell of our mines and attached as <b>Annexure-XVII</b> .
68	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.	
69	In pursuant to Ministry's O.M No 22-34/2018-IA III dated 16.01.2020 to comply with the direction made by Hon'ble Supreme Court on 8.01.2020 in WP. (Civil) No 114/2014 in the matter Common Cause vs Union of India, the mining lease holder Shall after ceasing mining operations, undertake regrassing the mining area and any other area which may have been disturbed due: to other mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc.	Noted and agreed to comply at the end of mine life.
70	The SEIAA, Odisha or any other competent authority may alter/modify the above conditions or stipulate any further condition in the interest of environment protection.	Noted and agreed to comply if any new or modified condition is imposed from time to time.
71	Concealing factual data or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.	Noted
72	The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974. the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act,	Noted



	1986 and the Public Liability Insurance Act, 1991 along with their amendments and rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/ High Court and any other Court of Law relating to the subject matter.	
73	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
74	Any appeal against this environmental clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.	Noted



For M/s. SHIVA CEMENT LIMITED

(AUTHORISED SIGNATORY)





## **List of Annexure**

<b>Sl. No.</b>	<b>Annexure No.</b>	<b>Particulars</b>
1	<b>Annexure-I</b>	Environmental Monitoring Report
2	<b>Annexure-II</b>	NOC for Ground water withdrawal
3	<b>Annexure-III</b>	Copy of Undertaking
4	<b>Annexure-IV</b>	Details of blasting
5	<b>Annexure-V</b>	Permission letter from Forest department
6	<b>Annexure-VI</b>	Consent to Establish
7	<b>Annexure-VII</b>	Consent to Operate
8	<b>Annexure-VIII</b>	Submission of EC letter to Panchayat Office
9	<b>Annexure-IX</b>	EC Advertisement clip
10	<b>Annexure-X</b>	Water Tanker Photograph
11	<b>Annexure-XI</b>	Details of Rain Water Harvesting
12	<b>Annexure-XII</b>	Peak Particle Velocity Report
13	<b>Annexure-XIII</b>	Traffic density study report
14	<b>Annexure-XIV</b>	Greenbelt Photograph
15	<b>Annexure-XV</b>	Occupational health surveillance report
16	<b>Annexure-XVI</b>	Action plan on CER implementation
17	<b>Annexure-XVII</b>	CSR Activity
18	<b>Annexure-XVIII</b>	Organization Structure

19	<b>Annexure-XIX</b>	Environment Management Cost Expenditure
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# Cleenviron Private Limited

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



## TEST REPORT FOR AMBIENT AIR QUALITY MONITORING

FORMAT NO: CPL/PM2.5

ULR - TC681622000002674F

REPORT NO: CPL/RAAQ/NOV-22/5

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

REPORT ISSUE DATE: 02.11.2022

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sampling Method : **IS: 5182 (Part - 2) & (Part - 6), EN12341**  
 Location of Monitoring : **Near Mines Office Area**  
 Monitoring Station Code : **A1**

Environmental Conditions During Monitoring : Min Temp.:17.3°C Max Temp.:32.6°C Min RH:38% Max RH:100%

Sample ID No	CPL/AAQ/OCT-22/72	CPL/AAQ/OCT-22/87	CPL/AAQ/OCT-22/172	CPL/AAQ/OCT-22/244
Date of Sampling	04.10.2022 - 05.10.2022	07.10.2022 - 08.10.2022	11.10.2022 - 12.10.2022	16.10.2022 - 17.10.2022
Sampling Period	0810 - 0822 Hrs	0740 - 0803 Hrs	0902 - 0913 Hrs	0805 - 0812 Hrs
Time of Sampling	24.12 Hrs	24.23 Hrs	24.11 Hrs	24.07 Hrs
Sample Received on	05.10.2022	08.10.2022	12.10.2022	17.10.2022
Date of Test	06.10.2022	10.10.2022	13.10.2022	18.10.2022

Sample ID No	CPL/AAQ/OCT-22/256	CPL/AAQ/OCT-22/270	CPL/AAQ/OCT-22/345	CPL/AAQ/OCT-22/365
Date of Sampling	18.10.2022 - 19.10.2022	21.10.2022 - 22.10.2022	26.10.2022 - 27.10.2022	29.10.2022 - 30.10.2022
Sampling Period	0745 - 0753 Hrs	0740 - 0750 Hrs	0800 - 0735 Hrs	0800 - 0810 Hrs
Time of Sampling	24.08 Hrs	24.10 Hrs	23.35 Hrs	24.10 Hrs
Sample Received on	19.10.2022	22.10.2022	27.10.2022	29.10.2022
Date of Test	20.10.2022	24.10.2022	28.10.2022	31.10.2022

Sl No	Sample ID	Parameters			
		PM <sub>2.5</sub>	PM <sub>10</sub>	SO <sub>2</sub>	NO <sub>2</sub>
Units		µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>
Method of Analysis		CPL/SON/PM2.5 (Issue No: 94, dt: 23.10.2017)	EN 12341, 1996 Low Volume Sampler	IS:5182 (Part - 2) 2007, RA 1517	IS: 5182 (Part - 6) 2006, RA 1617
1.	CPL/AAQ/OCT-22/72	20	56	08	21
2.	CPL/AAQ/OCT-22/87	13	42	12	34
3.	CPL/AAQ/OCT-22/172	16	51	08	20
4.	CPL/AAQ/OCT-22/244	17	53	05	19
5.	CPL/AAQ/OCT-22/256	23	63	10	33
6.	CPL/AAQ/OCT-22/270	21	57	05	22
7.	CPL/AAQ/OCT-22/345	14	40	10	26
8.	CPL/AAQ/OCT-22/365	20	57	08	22
National Ambient Air Quality Standards, CPCB Notification New Delhi, 19 <sup>th</sup> November, 2009 for Industrial, Residential, Rural & Other Area		60 (24 Hours Average)	100 (24 Hours Average)	80 (24 Hours Average)	80 (24 Hours Average)

P. Sarsene  
Test Done By

Verified By



Authorized Signatory  
Subhanga Praharaj  
Managing Director

\*\*\*\*\*END OF TEST REPORT\*\*\*\*\*  
Page 1 of 1

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Registered Office:

D/316, KOELNAGAR, ROURKELA - 769014, Dist. SUNDARGARH, ODISHA

Branch Office & Laboratory:

D/124, 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 AMBIENT AIR QUALITY MONITORING

FORMAT NO: CPL/PMST

REPORT NO: CPL/R/AAQ/NOV-22/5N

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

REPORT ISSUE DATE: 02.11.2022

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Location of Monitoring : **Near Mines Office Area**  
 Monitoring Station Code : **A1**

Environmental Conditions During Monitoring	:	Min Temp.:17.3°C	Max Temp.:32.6°C	Min RH:38%	Max RH:100%
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Sl No	Date of Monitoring	Time of Monitoring	Carbon Monoxide (as CO)
			Electrochemical Sensor
			Method of Analysis
1	03.10.2022	1510 – 1610 Hrs	< 0.1
2	07.10.2022	0800 – 0900 Hrs	< 0.1
3	10.10.2022	0915 – 1015 Hrs	< 0.1
4	13.10.2022	1100 – 1200 Hrs	< 0.1
5	15.10.2022	1000 – 1100 Hrs	< 0.1
6	20.10.2022	1500 – 1600 Hrs	< 0.1
7	22.10.2022	0930 – 1030 Hrs	< 0.1
8	28.10.2022	0930 – 1030 Hrs	< 0.1
National Ambient Air Quality Standards, CPCB Notification 18 <sup>th</sup> November 2009			04 (1 Hour Average)

*P. Saseeni*  
Test Done By

*[Signature]*  
Certified By



*[Signature]*  
Authorized Signatory  
Subhanga Prabara  
Managing Director

\*\*\*\*END OF TEST REPORT\*\*\*\*

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# Cleenviron Private Limited

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



## TEST REPORT FOR AMBIENT AIR QUALITY MONITORING

FORMAT NO: CPLFM18A

ULR - TC68162200002675F

REPORT NO: CPL/R/AAQ/NOV-22/6

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

REPORT ISSUE DATE: 02.11.2022

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sampling Method : **IS: 5182**  
 Location of Monitoring : **Near Mine Main Gate**  
 Monitoring Station Code : **A2**

Environmental Conditions During Monitoring	: Min Temp.:15.5°C	Max Temp.:32.6°C	Min RH:33%	Max RH:100%
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Sample ID No	: CPL/AAQ/OCT-22/73	CPL/AAQ/OCT-22/86	CPL/AAQ/OCT-22/171	CPL/AAQ/OCT-22/247
Date of Sampling	: 04.10.2022 - 05.10.2022	07.10.2022 - 08.10.2022	11.10.2022 - 12.10.2022	16.10.2022 - 17.10.2022
Sampling Period	: 0840 - 0850 Hrs	0816 - 0821 Hrs	0925 - 0934 Hrs	0815 - 0826 Hrs
Time of Sampling	: 24.10 Hrs	24.05 Hrs	24.09 Hrs	24.11 Hrs
Sample Received on	: 05.10.2022	08.10.2022	12.10.2022	17.10.2022
Date of Test	: 06.10.2022	09.10.2022	13.10.2022	18.10.2022

Sample ID No	: CPL/AAQ/OCT-22/254	CPL/AAQ/OCT-22/271	CPL/AAQ/OCT-22/344	CPL/AAQ/OCT-22/366
Date of Sampling	: 18.10.2022 - 19.10.2022	21.10.2022 - 22.10.2022	26.10.2022 - 27.10.2022	28.10.2022 - 29.10.2022
Sampling Period	: 0815 - 0822 Hrs	0750 - 0800 Hrs	0810 - 0745 Hrs	0810 - 0740 Hrs
Time of Sampling	: 24.07 Hrs	24.10 Hrs	23.35 Hrs	23.30 Hrs
Sample Received on	: 19.10.2022	22.10.2022	27.10.2022	29.10.2022
Date of Test	: 20.10.2022	23.10.2022	28.10.2022	30.10.2022

Sl No	Sample ID	Parameters			
		PM <sub>2.5</sub> µg/m <sup>3</sup>	PM <sub>10</sub> µg/m <sup>3</sup>	SO <sub>2</sub> µg/m <sup>3</sup>	NO <sub>2</sub> µg/m <sup>3</sup>
	Units				
	Method of Analysis	CPL/OPM1/PM2.5, Issue No: 04, dttd: 23.10.2017	EN 12361, 1999 Low Volume Sampler	IS:5182 (Part - 2) 2001, RA 2017	IS: 5182 (Part - 1) 2006, RA 2017
1.	CPL/AAQ/OCT-22/73	21	55	05	24
2.	CPL/AAQ/OCT-22/86	15	45	08	33
3.	CPL/AAQ/OCT-22/171	27	76	07	18
4.	CPL/AAQ/OCT-22/247	25	66	08	30
5.	CPL/AAQ/OCT-22/254	24	62	05	24
6.	CPL/AAQ/OCT-22/271	27	77	12	29
7.	CPL/AAQ/OCT-22/344	24	59	04	16
8.	CPL/AAQ/OCT-22/366	26	70	06	19
National Ambient Air Quality Standards, CPCB Notification New Delhi, 18 <sup>th</sup> November, 2009 for Industrial, Residential, Rural & Other Area		60 (24 Hours Average)	100 (24 Hours Average)	80 (24 Hours Average)	80 (24 Hours Average)

*P. Sathari*  
Test Done By

*[Signature]*  
Verified By



*[Signature]*  
Authorized Signatory  
Subhanga Praharaj  
Managing Director

\*\*\*\* END OF TEST REPORT \*\*\*\*  
Page 1 of 1

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Branch Office & Laboratory:  
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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 AMBIENT AIR QUALITY MONITORING

FORMAT NO: CPLFMST

REPORT NO: CPLR/AAQ/NOV-22/6N

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

REPORT ISSUE DATE: 02.11.2022

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Location of Monitoring : **Near Mine Main Gate**  
 Monitoring Station Code : **A2**

Environmental Conditions During Monitoring	:	Min Temp.:15.5°C	Max Temp.:32.6°C	Min RH:33%	Max RH:100%
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Sl No	Date of Monitoring	Time of Monitoring	Carbon Monoxide (as CO)	
			Method of Analysis	Electrochemical Sensor
1	03.10.2022	1300 – 1400 Hrs		< 0.1
2	07.10.2022	1100 – 1200 Hrs		< 0.1
3	10.10.2022	0830 – 0930 Hrs		< 0.1
4	13.10.2022	1100 – 1200 Hrs		< 0.1
5	15.10.2022	0900 – 1000 Hrs		< 0.1
6	20.10.2022	1200 – 1300 Hrs		< 0.1
7	22.10.2022	1300 – 1400 Hrs		< 0.1
8	28.10.2022	0930 – 1030 Hrs		< 0.1
National Ambient Air Quality Standards, CPCB Notification 18 <sup>th</sup> November 2009				04 (1 Hour Average)

*P. Saseeni*  
 Test Done By

*[Signature]*  
 Verified By



*[Signature]*  
 Authorized Signatory  
 Subhanga Preharaj  
 Managing Director

\*\*\*\*END OF TEST REPORT\*\*\*\*

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# Cleenviron Private Limited

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



## TEST REPORT FOR AMBIENT AIR QUALITY MONITORING

FORMAT NO: CPL/FR37A

ULR - TC68162200002676F

REPORT NO: CPL/IAAQ/NOV-22/7

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

REPORT ISSUE DATE: 02.11.2022

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sampling Method : **IS: 5182 (Part - 2) & (Part - 6), EN12341**  
 Location of Monitoring : **Near Mine Pit - 1**  
 Monitoring Station Code : **A3**

Environmental Conditions During Monitoring	: Min Temp.:15.5°C	Max Temp.:32.6°C	Min RH:33%	Max RH:100%
--	--------------------	------------------	------------	-------------

Sample ID No	: CPL/IAAQ/OCT-22/74	CPL/IAAQ/OCT-22/88	CPL/IAAQ/OCT-22/173	CPL/IAAQ/OCT-22/245
Date of Sampling	: 04.10.2022 - 05.10.2022	07.10.2022 - 08.10.2022	11.10.2022 - 12.10.2022	16.10.2022 - 17.10.2022
Sampling Period	: 0825 - 0830 Hrs	0758 - 0810 Hrs	0912 - 0923 Hrs	0827 - 0838 Hrs
Time of Sampling	: 24.05 Hrs	24.12 Hrs	24.11 Hrs	24.11 Hrs
Sample Received on	: 05.10.2022	08.10.2022	12.10.2022	17.10.2022
Date of Test	: 06.10.2022	09.10.2022	13.10.2022	18.10.2022

Sample ID No	: CPL/IAAQ/OCT-22/257	CPL/IAAQ/OCT-22/272	CPL/IAAQ/OCT-22/346	CPL/IAAQ/OCT-22/367
Date of Sampling	: 18.10.2022 - 19.10.2022	21.10.2022 - 22.10.2022	26.10.2022 - 27.10.2022	28.10.2022 - 29.10.2022
Sampling Period	: 0803 - 0812 Hrs	0805 - 0820 Hrs	0815 - 0805 Hrs	0820 - 0830 Hrs
Time of Sampling	: 24.09 Hrs	24.15 Hrs	23.50 Hrs	24.10 Hrs
Sample Received on	: 19.10.2022	22.10.2022	27.10.2022	29.10.2022
Date of Test	: 20.10.2022	23.10.2022	28.10.2022	30.10.2022

Sl No	Sample ID	Parameters			
		PM <sub>2.5</sub> µg/m <sup>3</sup>	PM <sub>10</sub> µg/m <sup>3</sup>	SO <sub>2</sub> µg/m <sup>3</sup>	NO <sub>2</sub> µg/m <sup>3</sup>
	Units				
	Method of Analysis	CPL/ISO/6181/PM2.5, Issue No: 04, dated 23.10.2017	EN 12341, 1999 Low Volume Sampler	IS:5182 (Part-2)2001, RA 2017	IS: 5182 (Part-6)2008, RA 2017
1.	CPL/IAAQ/OCT-22/74	22	62	05	18
2.	CPL/IAAQ/OCT-22/88	18	49	09	25
3.	CPL/IAAQ/OCT-22/173	20	50	11	32
4.	CPL/IAAQ/OCT-22/245	24	68	06	25
5.	CPL/IAAQ/OCT-22/257	27	74	08	23
6.	CPL/IAAQ/OCT-22/272	25	67	06	22
7.	CPL/IAAQ/OCT-22/346	16	44	05	24
8.	CPL/IAAQ/OCT-22/367	15	45	03	12
National Ambient Air Quality Standards, CPCB Notification New Delhi, 13 <sup>th</sup> November, 2009 for Industrial, Residential, Rural & Other Area		60 (24 Hours Average)	100 (24 Hours Average)	80 (24 Hours Average)	80 (24 Hours Average)

*P. Sareni*  
Test Done By

*[Signature]*  
Verified By



*[Signature]*  
Authorized Signatory  
Subhanga Praharaj  
Managing Director

\*\*\*\*END OF TEST REPORT\*\*\*\*  
Page 1 of 1

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# Cleenviron Private Limited

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

## TEST REPORT FOR AMBIENT AIR QUALITY MONITORING

FORMAT NO. CPL/PMAT

REPORT NO: CPL/R/AAQ/NOV-22/7N

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

REPORT ISSUE DATE: 02.11.2022

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Location of Monitoring : **Near Mine Pit - 1**  
 Monitoring Station Code : **A3**

Environmental Conditions During Monitoring	:	Min Temp.:15.5°C	Max Temp.:32.6°C	Min RH:33%	Max RH:100%
--	---	------------------	------------------	------------	-------------

Sl No	Date of Monitoring	Time of Monitoring	Carbon Monoxide (as CO)
			Electrochemical Sensor
Method of Analysis →			
1	03.10.2022	1300 - 1400 Hrs	< 0.1
2	08.10.2022	0900 - 1000 Hrs	< 0.1
3	09.10.2022	0800 - 0900 Hrs	< 0.1
4	10.10.2022	1100 - 1200 Hrs	< 0.1
5	13.10.2022	0900 - 1000 Hrs	< 0.1
6	15.10.2022	1200 - 1300 Hrs	< 0.1
7	20.10.2022	1300 - 1400 Hrs	< 0.1
8	22.10.2022	0930 - 1030 Hrs	< 0.1
9	28.10.2022	0800 - 0900 Hrs	< 0.1
National Ambient Air Quality Standards, CPCB Notification 18 <sup>th</sup> November 2009			04 (1 Hour Average)

*P. Saseni*  
Test Done By



*Subhanga Prasharaj*  
Authorized Signatory  
Subhanga Prasharaj  
Managing Director

\*\*\*\*\*END OF TEST REPORT\*\*\*\*\*

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# Cleenviron Private Limited

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## TEST REPORT FOR AMBIENT AIR QUALITY MONITORING

FORMAT NO: CPL/MSA

ULR – TC68162200002677F  
REPORT NO: CPL/R/AAQ/NOV-22/8

REPORT ISSUE DATE: 02.11.2022

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sampling Method : **IS: 5182 (Part – 2) & (Part – 6), EN12341**  
 Location of Monitoring : **Near Mine Pit – 2**  
 Monitoring Station Code : **A4**

Environmental Conditions During Monitoring	: Min Temp.:15.5°C	Max Temp.:32.6°C	Min RH:33%	Max RH:100%
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Sample ID No	: CPL/AAQ/OCT-22/75	CPL/AAQ/OCT-22/89	CPL/AAQ/OCT-22/174	CPL/AAQ/OCT-22/246
Date of Sampling	: 04.10.2022 - 05.10.2022	07.10.2022 - 08.10.2022	11.10.2022 - 12.10.2022	16.10.2022 - 17.10.2022
Sampling Period	: 0900 – 0917 Hrs	0832 – 0845 Hrs	0940 – 0952 Hrs	0843 – 0855 Hrs
Time of Sampling	: 24.17 Hrs	24.13 Hrs	24.08 Hrs	24.12 Hrs
Sample Received on	: 05.10.2022	08.10.2022	12.10.2022	17.10.2022
Date of Test	: 06.10.2022	09.10.2022	13.10.2022	18.10.2022

Sample ID No	: CPL/AAQ/OCT-22/255	CPL/AAQ/OCT-22/273	CPL/AAQ/OCT-22/343	CPL/AAQ/OCT-22/368
Date of Sampling	: 18.10.2022 - 19.10.2022	21.10.2022 - 22.10.2022	26.10.2022 - 27.10.2022	28.10.2022 - 29.10.2022
Sampling Period	: 0835 – 0844 Hrs	0820 – 0830 Hrs	0840 – 0830 Hrs	0830 – 0850 Hrs
Time of Sampling	: 24.09 Hrs	24.10 Hrs	23.50 Hrs	24.20 Hrs
Sample Received on	: 19.10.2022	22.10.2022	27.10.2022	29.10.2022
Date of Test	: 20.10.2022	23.10.2022	28.10.2022	30.10.2022

Sl No	Sample ID	Parameters			
		PM <sub>2.5</sub> µg/m <sup>3</sup>	PM <sub>10</sub> µg/m <sup>3</sup>	SO <sub>2</sub> µg/m <sup>3</sup>	NO <sub>2</sub> µg/m <sup>3</sup>
	Units				
	Method of Analysis	CPL/SOP/PM2.5 Issue No: 04, dt: 22.10.2017	EN 12341, 1998 Low Volume Sampler	IS:5182 (Part – 2) 2001, RA 2017	IS: 5182 (Part – 6) 2006, RA 2017
1.	CPL/AAQ/OCT-22/75	21	57	04	17
2.	CPL/AAQ/OCT-22/89	27	70	09	30
3.	CPL/AAQ/OCT-22/174	16	51	08	26
4.	CPL/AAQ/OCT-22/246	25	69	05	30
5.	CPL/AAQ/OCT-22/255	24	62	11	29
6.	CPL/AAQ/OCT-22/273	27	75	05	13
7.	CPL/AAQ/OCT-22/343	25	63	03	17
8.	CPL/AAQ/OCT-22/368	21	56	08	26
National Ambient Air Quality Standards, CPCB Notification New Delhi, 18 <sup>th</sup> November, 2009 for Industrial, Residential, Rural & Other Area		60 (24 Hours Average)	100 (24 Hours Average)	80 (24 Hours Average)	80 (24 Hours Average)

*P. Saseni*  
Test Done By

*[Signature]*  
Verified By



*[Signature]*  
Authorized Signatory  
Subfanga Prakaraj  
Managing Director

\*\*\*END OF TEST REPORT\*\*\*  
Page 1 of 1

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# Cleenviron Private Limited

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

## TEST REPORT FOR AMBIENT AIR QUALITY MONITORING

FORMAT NO. CPL/FIN/07

REPORT NO: CPL/R/AAQ/NOV-22/8N

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

REPORT ISSUE DATE: 02.11.2022

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Location of Monitoring : **Near Mine Pit - 2**  
 Monitoring Station Code : **A4**

Environmental Conditions During Monitoring	:	Min Temp.:15.5°C	Max Temp.:32.6°C	Min RH:33%	Max RH:100%
--	---	------------------	------------------	------------	-------------

Sl No	Date of Monitoring	Time of Monitoring	Carbon Monoxide (as CO)
Method of Analysis			Electrochemical sensor
1	03.10.2022	1000 - 1100 Hrs	< 0.1
2	07.10.2022	0915 - 1015 Hrs	< 0.1
3	10.10.2022	1100 - 1200 Hrs	< 0.1
4	13.10.2022	1100 - 1200 Hrs	< 0.1
5	15.10.2022	1125 - 1225 Hrs	< 0.1
6	20.10.2022	1200 - 1300 Hrs	< 0.1
7	22.10.2022	1300 - 1400 Hrs	< 0.1
8	28.10.2022	0930 - 1030 Hrs	< 0.1
National Ambient Air Quality Standards, CPCB Notification 13 <sup>th</sup> November 2009			04 (1 Hour Average)

*P. Caseni*  
 Test Done By

*[Signature]*  
 Verified By



*[Signature]*  
 Authorized Signatory  
 Subhanga Pishara  
 Managing Director

\*\*\*\*END OF TEST REPORT\*\*\*\*

Page 1 of 1

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# Cleenviron Private Limited

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

## TEST REPORT FOR AMBIENT AIR QUALITY MONITORING

FORMAT NO: CPL/MSA

REPORT NO: CPL/R/AAQ/DEC-22/12N

REPORT ISSUE DATE: 01.12.2022

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sampling Method : **IS: 5182 (Part - 2) & (Part - 6), EN12341**  
 Location of Monitoring : **Near Mines Office Area**  
 Monitoring Station Code : **A1**

Sample ID No	CPL/AAQ/NOV-22/139	CPL/AAQ/NOV-22/150	CPL/AAQ/NOV-22/165	CPL/AAQ/NOV-22/178
Date of Sampling	03.11.2022 - 04.11.2022	05.11.2022 - 06.11.2022	09.11.2022 - 10.11.2022	12.11.2022 - 13.11.2022
Sampling Period	0810 - 0822 Hrs	0802 - 0810 Hrs	0905 - 0915 Hrs	0853 - 0902 Hrs
Time of Sampling	24.12 Hrs	24.08 Hrs	24.10 Hrs	24.09 Hrs
Sample Received on	12.11.2022	12.11.2022	12.11.2022	14.11.2022
Date of Test	13.11.2022	13.11.2022	13.11.2022	15.11.2022

Sample ID No	CPL/AAQ/NOV-22/285	CPL/AAQ/NOV-22/301	CPL/AAQ/NOV-22/320	CPL/AAQ/NOV-22/347
Date of Sampling	15.11.2022 - 16.11.2022	18.11.2022 - 19.11.2022	22.11.2022 - 23.11.2022	26.11.2022 - 27.11.2022
Sampling Period	0815 - 0828 Hrs	0815 - 0820 Hrs	0902 - 0910 Hrs	0815 - 0824 Hrs
Time of Sampling	24.13 Hrs	24.05 Hrs	24.08 Hrs	24.09 Hrs
Sample Received on	19.11.2022	19.11.2022	24.11.2022	28.11.2022
Date of Test	20.11.2022	20.11.2022	25.11.2022	29.11.2022

Sl No	Sample ID	Parameters			
		PM <sub>2.5</sub> µg/m <sup>3</sup>	PM <sub>10</sub> µg/m <sup>3</sup>	SO <sub>2</sub> µg/m <sup>3</sup>	NO <sub>2</sub> µg/m <sup>3</sup>
	Units				
	Method of Analysis	CPL/MSA/PNLS, Issue No: 64, dt: 23.10.2017	EN12341, 1916 Low Volume Sampler	IS:5182 (Part-2), 2001, RA 2017	IS: 5182 (Part-6) 2006, RA 2017
1.	CPL/AAQ/NOV-22/139	17	52	09	25
2.	CPL/AAQ/NOV-22/150	15	49	12	33
3.	CPL/AAQ/NOV-22/165	21	60	11	35
4.	CPL/AAQ/NOV-22/178	27	69	05	19
5.	CPL/AAQ/NOV-22/285	27	77	05	16
6.	CPL/AAQ/NOV-22/301	19	58	04	20
7.	CPL/AAQ/NOV-22/320	26	74	09	24
8.	CPL/AAQ/NOV-22/347	23	67	05	18
National Ambient Air Quality Standards, CPCB Notification New Delhi, 16 <sup>th</sup> November, 2009 for Industrial, Residential, Rural & Other Area		60 (24 Hours Average)	100 (24 Hours Average)	80 (24 Hours Average)	80 (24 Hours Average)

Test Done By

Verified By



Authorized Signatory  
Subhanga Praharaj  
Managing Director

\*\*\*\*END OF TEST REPORT\*\*\*\*  
Page 1 of 1

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Tel: Fax: 0661 - 2475746, email: cleenviron@gmail.com



# Cleenviron Private Limited

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

## TEST REPORT FOR AMBIENT AIR QUALITY MONITORING

FORMAT NO: CPL/MISA

REPORT NO: CPL/R/AAQ/DEC-22/12N

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

REPORT ISSUE DATE: 01.12.2022

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Location of Monitoring : **Near Mines Office Area**  
 Monitoring Station Code : **A1**

Sl No	Date of Monitoring	Time of Monitoring	Carbon Monoxide (as CO)
			Electrochemical Sensor
			Method of Analysis →
1	03.11.2022	1510 – 1610 Hrs	< 0.1
2	05.11.2022	0800 – 0900 Hrs	< 0.1
3	10.11.2022	0915 – 1015 Hrs	< 0.1
4	13.11.2022	1100 – 1200 Hrs	< 0.1
5	15.11.2022	1000 – 1100 Hrs	< 0.1
6	18.11.2022	1500 – 1600 Hrs	< 0.1
7	22.11.2022	0930 – 1030 Hrs	< 0.1
8	26.11.2022	0930 – 1030 Hrs	< 0.1
National Ambient Air Quality Standards, CPCB Notification 19 <sup>th</sup> November 2009			04 (1 Hour Average)

Test Done By

Verified By



Authorized Signatory  
Subhanga Praharaj  
Managing Director

END OF TEST REPORT

Page 1 of 1

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Branch Office & Laboratory:

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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 AMBIENT AIR QUALITY MONITORING

FORMAT NO: CPLFMS1A

REPORT NO: CPL/AAQ/DEC-22/13N

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

REPORT ISSUE DATE: 01.12.2022

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sampling Method : **IS: 5182**  
 Location of Monitoring : **Near Mine Main Gate**  
 Monitoring Station Code : **A2**

Sample ID No	CPL/AAQ/NOV-22/138	CPL/AAQ/NOV-22/151	CPL/AAQ/NOV-22/164	CPL/AAQ/NOV-22/181
Date of Sampling	03.11.2022 - 04.11.2022	05.11.2022 - 06.11.2022	09.11.2022 - 10.11.2022	12.11.2022 - 13.11.2022
Sampling Period	0840 - 0850 Hrs	0814 - 0820 Hrs	0925 - 0934 Hrs	0905 - 0913 Hrs
Time of Sampling	24.10 Hrs	24.06 Hrs	24.09 Hrs	24.08 Hrs
Sample Received on	12.11.2022	12.11.2022	12.11.2022	14.11.2022
Date of Test	14.11.2022	14.11.2022	14.11.2022	15.11.2022

Sample ID No	CPL/AAQ/NOV-22/288	CPL/AAQ/NOV-22/300	CPL/AAQ/NOV-22/318	CPL/AAQ/NOV-22/349
Date of Sampling	15.11.2022 - 16.11.2022	18.11.2022 - 19.11.2022	22.11.2022 - 23.11.2022	26.11.2022 - 27.11.2022
Sampling Period	0830 - 0838 Hrs	0830 - 0840 Hrs	0930 - 0940 Hrs	0828 - 0839 Hrs
Time of Sampling	24.08 Hrs	24.10 Hrs	24.10 Hrs	24.11 Hrs
Sample Received on	19.11.2022	19.11.2022	24.11.2022	28.11.2022
Date of Test	21.11.2022	21.11.2022	25.11.2022	29.11.2022

Sl No	Sample ID	Parameters			
		PM <sub>2.5</sub> µg/m <sup>3</sup>	PM <sub>10</sub> µg/m <sup>3</sup>	SO <sub>2</sub> µg/m <sup>3</sup>	NO <sub>2</sub> µg/m <sup>3</sup>
	Units				
	Method of Analysis	CPL/SP/1/FMS/5, Issue No: 04, dt: 23.10.2017	EN 12341, 1918 Low Volume Sampler	IS: 5182 (Part - 2) 2001, RA 2017	IS: 5182 (Part - 1) 2001, RA 2017
1.	CPL/AAQ/NOV-22/138	23	56	03	11
2.	CPL/AAQ/NOV-22/151	24	76	05	19
3.	CPL/AAQ/NOV-22/164	19	53	08	22
4.	CPL/AAQ/NOV-22/181	24	65	06	23
5.	CPL/AAQ/NOV-22/288	27	69	04	15
6.	CPL/AAQ/NOV-22/300	26	60	05	19
7.	CPL/AAQ/NOV-22/318	16	44	14	35
8.	CPL/AAQ/NOV-22/349	25	58	04	17
National Ambient Air Quality Standards, CPCB Notification New Delhi, 18 <sup>th</sup> November, 2009 for Industrial, Residential, Rural & Other Area		60 (24 Hours Average)	100 (24 Hours Average)	80 (24 Hours Average)	80 (24 Hours Average)

Test Done By

Verified By



Authorized Signatory  
Suhanga Prahara  
Managing Director

\*\*\*\*END OF TEST REPORT\*\*\*\*  
Page 1 of 1

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Registered Office:

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Branch Office & Laboratory:

D/124, KOELNAGAR, ROURKELA - 769014, Dist: SUNDARGARH, ODISHA

Tel: Fax: 0661 - 2475746, email: cleenviron@gmail.com



# Cleenviron Private Limited

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

## TEST REPORT FOR AMBIENT AIR QUALITY MONITORING

FORMAT NO: CPL/MSA

REPORT NO: CPL/R/AAQ/DEC-22/13N

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

REPORT ISSUE DATE: 01.12.2022

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Location of Monitoring : **Near Mine Main Gate**  
 Monitoring Station Code : **A2**

Sl No	Date of Monitoring	Time of Monitoring	Carbon Monoxide (as CO)
			Electrochemical Sensor
Method of Analysis			
1	03.11.2022	1300 – 1400 Hrs	< 0.1
2	05.11.2022	1100 – 1200 Hrs	< 0.1
3	10.11.2022	0830 – 0930 Hrs	< 0.1
4	13.11.2022	1100 – 1200 Hrs	< 0.1
5	15.11.2022	0900 – 1000 Hrs	< 0.1
6	18.11.2022	1200 – 1300 Hrs	< 0.1
7	22.11.2022	1300 – 1400 Hrs	< 0.1
8	26.11.2022	0930 – 1030 Hrs	< 0.1
National Ambient Air Quality Standards, CPCB Notification 13 <sup>th</sup> November 2009			04 (1 Hour Average)

Test Done By

Verified By



Authorized Signatory  
Subhanga Praharaj  
Managing Director

\*\*\*\*END OF TEST REPORT\*\*\*\*

Page 1 of 1

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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 AMBIENT AIR QUALITY MONITORING

FORMAT NO: CPL/PM25A

REPORT NO: CPL/AAQ/DEC-22/14N

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

REPORT ISSUE DATE: 01.12.2022

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sampling Method : **IS: 5182 (Part - 2) & (Part - 6), EN12341**  
 Location of Monitoring : **Near Mine Pit - 1**  
 Monitoring Station Code : **A3**

Sample ID No	CPL/AAQ/NOV-22/141	CPL/AAQ/NOV-22/152	CPL/AAQ/NOV-22/166	CPL/AAQ/NOV-22/180
Date of Sampling	03.11.2022 - 04.11.2022	05.11.2022 - 06.11.2022	09.11.2022 - 10.11.2022	12.11.2022 - 13.11.2022
Sampling Period	0825 - 0830 Hrs	0830 - 0840 Hrs	0912 - 0923 Hrs	0916 - 0925 Hrs
Time of Sampling	24.05 Hrs	24.10 Hrs	24.11 Hrs	24.09 Hrs
Sample Received on	12.11.2022	12.11.2022	12.11.2022	14.11.2022
Date of Test	13.11.2022	13.11.2022	13.11.2022	15.11.2022

Sample ID No	CPL/AAQ/NOV-22/286	CPL/AAQ/NOV-22/302	CPL/AAQ/NOV-22/319	CPL/AAQ/NOV-22/345
Date of Sampling	15.11.2022 - 16.11.2022	18.11.2022 - 19.11.2022	22.11.2022 - 23.11.2022	26.11.2022 - 27.11.2022
Sampling Period	0840 - 0855 Hrs	0837 - 0850 Hrs	0915 - 0930 Hrs	0837 - 0850 Hrs
Time of Sampling	24.15 Hrs	24.13 Hrs	24.15 Hrs	24.13 Hrs
Sample Received on	19.11.2022	19.11.2022	24.11.2022	28.11.2022
Date of Test	21.11.2022	21.11.2022	25.11.2022	29.11.2022

Sl No	Sample ID	Parameters			
		PM <sub>2.5</sub> µg/m <sup>3</sup>	PM <sub>10</sub> µg/m <sup>3</sup>	SO <sub>2</sub> µg/m <sup>3</sup>	NO <sub>2</sub> µg/m <sup>3</sup>
	Units				
	Method of Analysis	CPL/SRV31/FNO.5, Issue No: 04, dt: 23.10.2017	EN 12341, 1918 Low Volume Sampler	IS: 5182 (Part - 2) 2001, RA 2017	IS: 5182 (Part - 6) 2001, RA 2017
1.	CPL/AAQ/NOV-22/141	21	67	08	24
2.	CPL/AAQ/NOV-22/152	14	50	08	21
3.	CPL/AAQ/NOV-22/166	24	72	07	22
4.	CPL/AAQ/NOV-22/180	21	64	07	26
5.	CPL/AAQ/NOV-22/286	28	77	04	17
6.	CPL/AAQ/NOV-22/302	25	79	05	21
7.	CPL/AAQ/NOV-22/319	21	58	06	17
8.	CPL/AAQ/NOV-22/345	23	67	13	36
National Ambient Air Quality Standards, CPCB Notification New Delhi, 18 <sup>th</sup> November, 2009 for Industrial, Residential, Rural & Other Area		60 (24 Hours Average)	100 (24 Hours Average)	80 (24 Hours Average)	80 (24 Hours Average)

Test Done By



Authorized Signatory  
Subhanga Praharaj  
Managing Director

\*\*\*\*END OF TEST REPORT\*\*\*\*  
Page 1 of 1

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# Cleenviron Private Limited

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

## TEST REPORT FOR AMBIENT AIR QUALITY MONITORING

FORMAT NO: CPL/MSDA

REPORT NO: CPL/RAAQ/DEC-22/14N

SAMPLE DRAWN BY CLEENVIRO PRIVATE LIMITED

REPORT ISSUE DATE: 01.12.2022

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Location of Monitoring : **Near Mine Pit - 1**  
 Monitoring Station Code : **A3**

Sl No	Date of Monitoring	Time of Monitoring	Carbon Monoxide (as CO)
	Method of Analysis		Electrochemical Sensor
1	03.11.2022	1300 - 1400 Hrs	< 0.1
2	06.11.2022	0900 - 1000 Hrs	< 0.1
3	09.11.2022	0800 - 0900 Hrs	< 0.1
4	13.11.2022	1100 - 1200 Hrs	< 0.1
5	15.11.2022	0900 - 1000 Hrs	< 0.1
6	18.11.2022	1200 - 1300 Hrs	< 0.1
7	22.11.2022	1300 - 1400 Hrs	< 0.1
8	26.11.2022	0930 - 1030 Hrs	< 0.1
National Ambient Air Quality Standards, CPCB Notification 18 <sup>th</sup> November 2009			04 (1 Hour Average)

Test Done By

Verified By



Authorized Signatory  
Subhanga Prabhraj  
Managing Director

\*\*\*\*END OF TEST REPORT\*\*\*\*

Page 1 of 1

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Tel: Fax: 0661 - 2475746, email: cleenviron@gmail.com



# Cleenviron Private Limited

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

## TEST REPORT FOR AMBIENT AIR QUALITY MONITORING

FORMAT NO: CPL/MSIA

REPORT NO: CPL/R/AAQ/DEC-22/15N

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

REPORT ISSUE DATE: 01.12.2022

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sampling Method : **IS: 5182 (Part - 2) & (Part - 6), EN12341**  
 Location of Monitoring : **Near Mine Pit - 2**  
 Monitoring Station Code : **A4**

Sample ID No	CPL/AAQ/NOV-22/140	CPL/AAQ/NOV-22/153	CPL/AAQ/NOV-22/167	CPL/AAQ/NOV-22/179
Date of Sampling	03.11.2022 - 04.11.2022	05.11.2022 - 06.11.2022	09.11.2022 - 10.11.2022	12.11.2022 - 13.11.2022
Sampling Period	0900 - 0917 Hrs	0847 - 0855 Hrs	0940 - 0952 Hrs	0843 - 0855 Hrs
Time of Sampling	24.17 Hrs	24.08 Hrs	24.12 Hrs	24.12 Hrs
Sample Received on	12.11.2022	12.11.2022	12.11.2022	14.11.2022
Date of Test	13.11.2022	13.11.2022	13.11.2022	15.11.2022

Sample ID No	CPL/AAQ/NOV-22/287	CPL/AAQ/NOV-22/303	CPL/AAQ/NOV-22/321	CPL/AAQ/NOV-22/346
Date of Sampling	15.11.2022 - 16.11.2022	18.11.2022 - 19.11.2022	22.11.2022 - 23.11.2022	26.11.2022 - 27.11.2022
Sampling Period	0857 - 0908 Hrs	0850 - 0908 Hrs	0945 - 0958 Hrs	0850 - 0905 Hrs
Time of Sampling	24.11 Hrs	24.18 Hrs	24.13 Hrs	24.15 Hrs
Sample Received on	19.11.2022	19.11.2022	24.11.2022	28.11.2022
Date of Test	21.11.2022	21.11.2022	25.11.2022	29.11.2022

Sl No	Sample ID	Parameters			
		PM <sub>2.5</sub> µg/m <sup>3</sup>	PM <sub>10</sub> µg/m <sup>3</sup>	SO <sub>2</sub> µg/m <sup>3</sup>	NO <sub>2</sub> µg/m <sup>3</sup>
	Units				
	Method of Analysis	CPL/SCPM/PM2.5, Issue No: 04, dt: 23.10.2017	EN 12341, 1918 Low Volume Sampler	IS:5182 (Part - 2) 2001, RA 2017	IS: 5182 (Part - 6) 2006, RA 2017
1.	CPL/AAQ/NOV-22/140	24	60	04	14
2.	CPL/AAQ/NOV-22/153	29	73	06	26
3.	CPL/AAQ/NOV-22/167	27	70	09	30
4.	CPL/AAQ/NOV-22/179	20	56	09	26
5.	CPL/AAQ/NOV-22/287	19	57	04	16
6.	CPL/AAQ/NOV-22/303	26	87	05	21
7.	CPL/AAQ/NOV-22/321	22	68	05	18
8.	CPL/AAQ/NOV-22/346	22	72	05	20
National Ambient Air Quality Standards, CPCB Notification New Delhi, 18 <sup>th</sup> November, 2009 for Industrial, Residential, Rural & Other Area		60 (24 Hours Average)	100 (24 Hours Average)	80 (24 Hours Average)	80 (24 Hours Average)

Test Done By

Verified By



Authorized Signatory  
Subhanga Praharaj  
Managing Director

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# Cleenviron Private Limited

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

## TEST REPORT FOR AMBIENT AIR QUALITY MONITORING

FORMAT NO: CPL/MSA

REPORT NO: CPL/IAAQ/DEC-22/16N

REPORT ISSUE DATE: 01.12.2022

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sampling Method : **IS: 5182 (Part - 2) & (Part - 6), EN12341**  
 Location of Monitoring : **Khatkurbahal Village Area (Buffer Zone)**  
 Monitoring Station Code : **A5**

Sample ID No	CPL/AAQ/NOV-22/253	CPL/AAQ/NOV-22/284	CPL/AAQ/NOV-22/289	CPL/AAQ/NOV-22/304
Date of Sampling	09.11.2022 - 10.11.2022	12.11.2022 - 13.11.2022	15.11.2022 - 16.11.2022	18.11.2022 - 19.11.2022
Sampling Period	0802 - 0800 Hrs	0832 - 0844 Hrs	0915 - 0930 Hrs	0918 - 0930 Hrs
Time of Sampling	23.98 Hrs	24.12 Hrs	24.15 Hrs	24.12 Hrs
Sample Received on	11.11.2022	19.11.2022	19.11.2022	19.11.2022
Date of Test	12.11.2022	21.11.2022	21.11.2022	21.11.2022

Sample ID No	CPL/AAQ/NOV-22/322	CPL/AAQ/NOV-22/348	CPL/AAQ/NOV-22/363	CPL/AAQ/DEC-22/1
Date of Sampling	22.11.2022 - 23.11.2022	26.11.2022 - 27.11.2022	28.11.2022 - 29.11.2022	30.11.2022 - 01.12.2022
Sampling Period	0850 - 0900 Hrs	0803 - 0810 Hrs	0815 - 0810 Hrs	0830 - 0820 Hrs
Time of Sampling	24.10 Hrs	24.07 Hrs	23.55 Hrs	23.50 Hrs
Sample Received on	24.11.2022	28.11.2022	30.11.2022	01.12.2022
Date of Test	25.11.2022	29.11.2022	01.12.2022	02.12.2022

Sl No	Sample ID	Parameters			
		PM <sub>2.5</sub> µg/m <sup>3</sup>	PM <sub>10</sub> µg/m <sup>3</sup>	SO <sub>2</sub> µg/m <sup>3</sup>	NO <sub>2</sub> µg/m <sup>3</sup>
	<b>Units</b>				
	<b>Method of Analysis</b>	CPL/SOP/PM2.5, Issue No:04, dt: 23.09.2017	EN 12341, 1998 Low Volume Sampler	IS:5182 (Part-2), 2001, IS: 5182	IS: 5182 (Part-4), 2001, IS: 5182
1.	CPL/AAQ/NOV-22/253	23	54	05	18
2.	CPL/AAQ/NOV-22/284	26	69	04	17
3.	CPL/AAQ/NOV-22/289	20	52	05	16
4.	CPL/AAQ/NOV-22/304	18	54	05	23
5.	CPL/AAQ/NOV-22/322	20	58	07	33
6.	CPL/AAQ/NOV-22/348	22	55	06	20
7.	CPL/AAQ/NOV-22/363	24	59	05	22
8.	CPL/AAQ/DEC-22/1	21	55	06	20
National Ambient Air Quality Standards, CPCB Notification New Delhi, 18 <sup>th</sup> November, 2009 for Industrial, Residential, Rural & Other Area		60 (24 Hours Average)	100 (24 Hours Average)	60 (24 Hours Average)	60 (24 Hours Average)

Test Done By

Verified By



Authorized Signatory  
Subhanga Praharaj  
Managing Director

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# Cleenviron Private Limited

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

## TEST REPORT FOR AMBIENT AIR QUALITY MONITORING

FORMAT NO: CPL/1857A

REPORT NO: CPL/IAAQ/DEC-22/16N

SAMPLE DRAWN BY CLEENVIRO PRIVATE LIMITED

REPORT ISSUE DATE: 01.12.2022

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Location of Monitoring : **Khatkurbahal Village Area (Buffer Zone)**  
 Monitoring Station Code : **A5**

Sl No	Date of Monitoring	Time of Monitoring	Carbon Monoxide (as CO)
			Electrochemical Sensor
			Method of Analysis
1	09.11.2022	0900 – 1000 Hrs	< 0.1
2	13.11.2022	0915 – 1015 Hrs	< 0.1
3	15.11.2022	1100 – 1200 Hrs	< 0.1
4	18.11.2022	1100 – 1200 Hrs	< 0.1
5	22.11.2022	1125 – 1225 Hrs	< 0.1
6	26.11.2022	1200 – 1300 Hrs	< 0.1
7	28.11.2022	1300 – 1400 Hrs	< 0.1
8	30.11.2022	1300 – 1400 Hrs	< 0.1
National Ambient Air Quality Standards, CPCB Notification 18 <sup>th</sup> November 2009			<b>04</b> (1 Hour Average)

Test Done By

Verified By



Authorized Signatory  
Subhanga Praharaj  
Managing Director

====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/TKM

REPORT NO: CPL/R/W/DEC-22/1N

REPORT ISSUE DATE: 01.12.2022

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sample ID No : **CPL/W/NOV-22/27**  
 Date of Sampling : **18.11.2022**  
 Sample Description : **Ground Water**  
 Location of Sampling : **Bore well Near Mines Office**  
 Sampling Method : **APHA 23<sup>rd</sup> 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 : **Wide mouth Plastic Bottles**  
 Sample Received on : **19.11.2022**  
 Date of Test : **19.11.2022 – 25.11.2022**

Sl No	Parameter	Method of Analysis	Results Obtained	Unit	Acceptable Limit as per IS 10500: 2012
1	Turbidity	APHA 23 <sup>rd</sup> Edition, 2130 B	0.30	NTU	1.0
2	pH Value	APHA 23 <sup>rd</sup> Edition, 4500 H+B	7.30	-	6.5 – 8.5
3	Total Hardness (as CaCO <sub>3</sub> )	APHA 23 <sup>rd</sup> Edition, 2340 C	307.5	mg/l	200
4	Iron (as Fe)	APHA 23 <sup>rd</sup> Edition, 3500 Fe B	0.18	mg/l	0.3
5	Chlorides (as Cl)	APHA 23 <sup>rd</sup> Edition, 4500 Cl B	57.98	mg/l	250
6	Total Dissolved Solids	APHA 23 <sup>rd</sup> Edition, 2540 B	400	mg/l	500
7	Electrical Conductivity	APHA 23 <sup>rd</sup> Edition, 2510 B	633	µS/cm	-
8	Calcium (as Ca)	APHA 23 <sup>rd</sup> Edition, 3500 Ca B	90.38	mg/l	75
9	Magnesium (as Mg)	APHA 23 <sup>rd</sup> Edition, 3500 Mg B	19.93	mg/l	30
10	Copper (as Cu)	APHA 23 <sup>rd</sup> Edition, 3111 B	< 0.10	mg/l	0.05
11	Manganese (as Mn)	APHA 23 <sup>rd</sup> Edition, 3500 Mn B	< 0.05	mg/l	0.1
12	Sulfate (as SO <sub>4</sub> )	APHA 23 <sup>rd</sup> Edition, 4500 SO <sub>4</sub> E	10.06	mg/l	200
13	Total Nitrate (as NO <sub>3</sub> )	APHA 23 <sup>rd</sup> Edition, 4500 NO <sub>3</sub> B	6.31	mg/l	45
14	Total Alkalinity (as CaCO <sub>3</sub> )	APHA 23 <sup>rd</sup> Edition, 2320 B	176	mg/l	200
15	Acidity	APHA 23 <sup>rd</sup> Edition, 2310 B	10	mg/l	-
16	Sulphide (as H <sub>2</sub> S)	APHA 23 <sup>rd</sup> Edition, 4500 S <sup>2-</sup> D	< 0.02	mg/l	0.05
17	Sodium (as Na)	APHA 23 <sup>rd</sup> Edition, 3500 Na B	28.10	mg/l	-
18	Potassium (as K)	APHA 23 <sup>rd</sup> Edition, 3500 K B	14.32	mg/l	-
19	Fluoride (as F)	APHA 23 <sup>rd</sup> Edition, 4500 F D	< 0.05	mg/l	1.0

*Chakrabarti*  
Test Done By



Verified By

*Subhanga Praharaj*  
Authorized Signatory  
Subhanga Praharaj  
Managing Director

Page 1 of 2

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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/001

REPORT NO: CPL/RW/DEC-22/1N

REPORT ISSUE DATE: 01.12.2022

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sample ID No : **CPL/W/NOV-22/27**  
 Date of Sampling : **18.11.2022**  
 Sample Description : **Ground Water**  
 Location of Sampling : **Bore well Near Mines Office**  
 Sampling Method : **APHA 23<sup>rd</sup> 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 : **Wide mouth Plastic Bottles**  
 Sample Received on : **19.11.2022**  
 Date of Test : **19.11.2022 – 25.11.2022**

Sl No	Parameter	Method of Analysis	Results Obtained	Unit	Acceptable Limit as per IS 10500: 2012
20	Cadmium (as Cd)	APHA 23 <sup>rd</sup> Edition, 3111 B	ND	mg/l	0.003
21	Lead (as Pb)	APHA 23 <sup>rd</sup> Edition, 3111 B	ND	mg/l	0.01
22	Arsenic (as As)	APHA 23 <sup>rd</sup> Edition, 3114 B	ND	mg/l	0.01
23	Mercury (as Hg)	APHA 23 <sup>rd</sup> Edition, 3112 B	ND	mg/l	0.001
24	Selenium (as Se)	APHA 23 <sup>rd</sup> Edition, 3114 C	ND	mg/l	0.01
25	Nickel (as Ni)	APHA 23 <sup>rd</sup> Edition, 3111 B	ND	mg/l	0.02
26	Zinc (as Zn)	APHA 23 <sup>rd</sup> Edition, 3111 B	ND	mg/l	5.0
27	Total Chromium (as Cr)	APHA 23 <sup>rd</sup> Edition, 3111 B	ND	mg/l	0.05

ND: Non Detectable.

*C. Kesavaiah*  
Test Done By

*[Signature]*  
Verified By



*[Signature]*  
Authorized Signatory  
Subhanga Praharaj  
Managing Director

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

Page 2 of 2.

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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/FWS3


REPORT NO: CPL/R/W/DEC-22/1N

REPORT ISSUE DATE: 01.12.2022

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sample ID No : **CPL/W/NOV-22/27**  
 Date of Sampling : **18.11.2022**  
 Sample Description : **Ground Water**  
 Location of Sampling : **Bore well Near Mines Office**  
 Sampling Method : **APHA 23<sup>rd</sup> 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 : **Wide mouth Plastic Bottles**  
 Sample Received on : **19.11.2022**  
 Date of Test : **19.11.2022 – 25.11.2022**

Sl No	Parameter	Method of Analysis	Results Obtained	Unit	Acceptable Limit as per IS 10501: 2012
1	Colour	APHA 23 <sup>rd</sup> Edition, 2120 B	< 5	Hazen	5
2	Odour	APHA 23 <sup>rd</sup> Edition, 2150 B	Agreeable	-	Agreeable
3	Taste	APHA 23 <sup>rd</sup> Edition, 2160 B	Agreeable	-	Agreeable
4	Temperature	APHA 23 <sup>rd</sup> Edition, 2550 B	24.4	°C	-
5	Residual Free Chlorine	MERCK	0.03	mg/l	0.2 (min)
6	Total Bacterial Count	RAKIRO	Absent	Nos/100ml	Absent
7	E coli	RAKIRO	Absent	Nos/100ml	Absent

  
 Test Done By

  
 Verified By



  
 Authorized Signatory  
 Subhanga Praharaj  
 Managing Director

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

Page 1 of 1

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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/W98

REPORT NO: CPL/R/WIDEC-22/2N

REPORT ISSUE DATE: 01.12.2022

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sample ID No : **CPL/W/NOV-22/28**  
 Date of Sampling : **18.11.2022**  
 Sample Description : **Ground Water**  
 Location of Sampling : **Tube well Village Khaikurbahal**  
 Sampling Method : **APHA 23<sup>rd</sup> 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 : **Wide mouth Plastic Bottles**  
 Sample Received on : **19.11.2022**  
 Date of Test : **19.11.2022 - 25.11.2022**

Sl No	Parameter	Method of Analysis	Results Obtained	Unit	Acceptable Limit as per IS 10500: 2012
1	Turbidity	APHA 23 <sup>rd</sup> Edition, 2130 B	2.4	NTU	1.0
2	pH Value	APHA 23 <sup>rd</sup> Edition, 4500 H+B	7.40	-	6.5 - 8.5
3	Total Hardness (as CaCO <sub>3</sub> )	APHA 23 <sup>rd</sup> Edition, 2340 C	246	mg/l	200
4	Iron (as Fe)	APHA 23 <sup>rd</sup> Edition, 3500 Fe B	0.18	mg/l	0.3
5	Chlorides (as Cl)	APHA 23 <sup>rd</sup> Edition, 4500 Cl B	13.99	mg/l	250
6	Total Dissolved Solids	APHA 23 <sup>rd</sup> Edition, 2540 B	311	mg/l	500
7	Electrical Conductivity	APHA 23 <sup>rd</sup> Edition, 2510 B	478	µS/cm	-
8	Calcium (as Ca)	APHA 23 <sup>rd</sup> Edition, 3500 Ca B	44.37	mg/l	75
9	Magnesium (as Mg)	APHA 23 <sup>rd</sup> Edition, 3500 Mg B	32.87	mg/l	30
10	Copper (as Cu)	APHA 23 <sup>rd</sup> Edition, 3111 B	< 0.10	mg/l	0.05
11	Manganese (as Mn)	APHA 23 <sup>rd</sup> Edition, 3500 Mn B	< 0.05	mg/l	0.1
12	Sulfate (as SO <sub>4</sub> )	APHA 23 <sup>rd</sup> Edition, 4500 SO <sub>4</sub> <sup>2-</sup> E	2.17	mg/l	200
13	Total Nitrate (as NO <sub>3</sub> )	APHA 23 <sup>rd</sup> Edition, 4500 NO <sub>3</sub> B	4.23	mg/l	45
14	Total Alkalinity (as CaCO <sub>3</sub> )	APHA 23 <sup>rd</sup> Edition, 2320 B	192	mg/l	200
15	Acidity	APHA 23 <sup>rd</sup> Edition, 2310 B	06	mg/l	-
16	Sulphide (as H <sub>2</sub> S)	APHA 23 <sup>rd</sup> Edition, 4500 S <sup>2-</sup> D	< 0.02	mg/l	0.05
17	Sodium (as Na)	APHA 23 <sup>rd</sup> Edition, 3500 Na B	17.86	mg/l	-
18	Potassium (as K)	APHA 23 <sup>rd</sup> Edition, 3500 K B	10.02	mg/l	-
19	Fluoride (as F)	APHA 23 <sup>rd</sup> Edition, 4500 F D	< 0.05	mg/l	1.0

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Test Done By

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Verified By



*[Signature]*  
Authorized Signatory  
Subhanga Praharaj  
Managing Director

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## TEST REPORT FOR WATER QUALITY ANALYSIS

FORMAT NO: CPL/WM2

REPORT NO: CPL/R/WIDEC-22/2N

REPORT ISSUE DATE: 01.12.2022

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sample ID No : **CPLW/NOV-22/28**  
 Date of Sampling : **18.11.2022**  
 Sample Description : **Ground Water**  
 Location of Sampling : **Tube well Village Khatkurbahal**  
 Sampling Method : **APHA 23<sup>rd</sup> 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 : **Wide mouth Plastic Bottles**  
 Sample Received on : **19.11.2022**  
 Date of Test : **19.11.2022 – 25.11.2022**

Sl No	Parameter	Method of Analysis	Results Obtained	Unit	Acceptable Limit as per IS 10500: 2012
20	Cadmium (as Cd)	APHA 23 <sup>rd</sup> Edition, 3111 B	ND	mg/l	0.003
21	Lead (as Pb)	APHA 23 <sup>rd</sup> Edition, 3111 B	ND	mg/l	0.01
22	Arsenic (as As)	APHA 23 <sup>rd</sup> Edition, 3114 B	ND	mg/l	0.01
23	Mercury (as Hg)	APHA 23 <sup>rd</sup> Edition, 3112 B	ND	mg/l	0.001
24	Selenium (as Se)	APHA 23 <sup>rd</sup> Edition, 3114 C	ND	mg/l	0.01
25	Nickel (as Ni)	APHA 23 <sup>rd</sup> Edition, 3111 B	ND	mg/l	0.02
26	Zinc (as Zn)	APHA 23 <sup>rd</sup> Edition, 3111 B	ND	mg/l	5.0
27	Total Chromium (as Cr)	APHA 23 <sup>rd</sup> Edition, 3111 B	ND	mg/l	0.05

ND: Non Detectable.

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Test Done By

*[Signature]*  
Verified By



*[Signature]*  
Authorized Signatory  
Subhanga Praharaj  
Managing Director

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

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# Cleenviron Private Limited

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## TEST REPORT FOR WATER QUALITY ANALYSIS

FORMAT NO: CPL/WR

REPORT NO: CPL/RW/DEC-22/2N

REPORT ISSUE DATE: 01.12.2022

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sample ID No : **CPL/W/NOV-22/28**  
 Date of Sampling : **18.11.2022**  
 Sample Description : **Ground Water**  
 Location of Sampling : **Tube well Village Khatkurbahal**  
 Sampling Method : **APHA 23<sup>rd</sup> 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: **Wide mouth Plastic Bottles**  
 Sample Received on : **19.11.2022**  
 Date of Test : **19.11.2022 – 25.11.2022**

S No	Parameter	Method of Analysis	Results Obtained	Unit	Acceptable Limit as per IS 10500: 2012
1	Colour	APHA 23 <sup>rd</sup> Edition, 2120 B	< 5	Hazen	5
2	Odour	APHA 23 <sup>rd</sup> Edition, 2150 B	Agreeable	-	Agreeable
3	Taste	APHA 23 <sup>rd</sup> Edition, 2160 B	Agreeable	-	Agreeable
4	Temperature	APHA 23 <sup>rd</sup> Edition, 2550 B	24.3	°C	-
5	Residual Free Chlorine	MERCK	0.06	mg/l	0.2 (min)
6	Total Bacterial Count	RAKIRO	Absent	Nos/100ml	Absent
7	E.coli	RAKIRO	Absent	Nos/100ml	Absent

  
 Test Done By

  
 Verified By



  
 Authorized Signatory  
 Subhanga Prharaj  
 Managing Director

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## TEST REPORT FOR WATER QUALITY ANALYSIS

FORMAT NO: CPL/RW/6

REPORT NO: CPL/RW/DEC-22/3N

REPORT ISSUE DATE: 01.12.2022

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sample ID No : **CPLW/NOV-22/26**  
 Date of Sampling : **18.11.2022**  
 Sample Description : **Ground Water**  
 Location of Sampling : **Tube well Village Kullen Bahal**  
 Sampling Method : **APHA 23<sup>rd</sup> 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 : **Wide mouth Plastic Bottles**  
 Sample Received on : **19.11.2022**  
 Date of Test : **19.11.2022 – 25.11.2022**

Sl No	Parameter	Method of Analysis	Results Obtained	Unit	Acceptable Limit as per IS 10500: 2012
1	Turbidity	APHA 23 <sup>rd</sup> Edition, 2130 B	1.20	NTU	1.0
2	pH Value	APHA 23 <sup>rd</sup> Edition, 4500 H+B	6.93	-	6.5 – 8.5
3	Total Hardness (as CaCO <sub>3</sub> )	APHA 23 <sup>rd</sup> Edition, 2340 C	45.1	mg/l	200
4	Iron (as Fe)	APHA 23 <sup>rd</sup> Edition, 3500 Fe B	0.22	mg/l	0.3
5	Chlorides (as Cl)	APHA 23 <sup>rd</sup> Edition, 4500 Cl B	13.99	mg/l	250
6	Total Dissolved Solids	APHA 23 <sup>rd</sup> Edition, 2540 B	70	mg/l	500
7	Electrical Conductivity	APHA 23 <sup>rd</sup> Edition, 2510 B	108.9	µS/cm	-
8	Calcium (as Ca)	APHA 23 <sup>rd</sup> Edition, 3500 Ca B	8.22	mg/l	75
9	Magnesium (as Mg)	APHA 23 <sup>rd</sup> Edition, 3500 Mg B	5.98	mg/l	30
10	Copper (as Cu)	APHA 23 <sup>rd</sup> Edition, 3111 B	< 0.10	mg/l	0.05
11	Manganese (as Mn)	APHA 23 <sup>rd</sup> Edition, 3500 Mn B	< 0.05	mg/l	0.1
12	Sulfate (as SO <sub>4</sub> )	APHA 23 <sup>rd</sup> Edition, 4500 SO <sub>4</sub> E	1.63	mg/l	200
13	Total Nitrate (as NO <sub>3</sub> )	APHA 23 <sup>rd</sup> Edition, 4500 NO <sub>3</sub> B	< 2.20	mg/l	45
14	Total Alkalinity (as CaCO <sub>3</sub> )	APHA 23 <sup>rd</sup> Edition, 2320 B	24	mg/l	200
15	Acidity	APHA 23 <sup>rd</sup> Edition, 2310 B	02	mg/l	-
16	Sulphide (as H <sub>2</sub> S)	APHA 23 <sup>rd</sup> Edition, 4500 S <sup>2-</sup> D	< 0.02	mg/l	0.05
17	Sodium (as Na)	APHA 23 <sup>rd</sup> Edition, 3500 Na B	9.86	mg/l	-
18	Potassium (as K)	APHA 23 <sup>rd</sup> Edition, 3500 K B	5.46	mg/l	-
19	Fluoride (as F)	APHA 23 <sup>rd</sup> Edition, 4500 F D	< 0.05	mg/l	1.0

*[Signature]*  
Test Done By



Verified By

*[Signature]*  
Authorized Signatory  
Subhanga Praharaj  
Managing Director

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

## TEST REPORT FOR WATER QUALITY ANALYSIS

FORM NO: CPL/WR3

REPORT NO: CPL/R/W/DEC-22/3N

REPORT ISSUE DATE: 01.12.2022

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sample ID No : **CPL/W/NOV-22/26**  
 Date of Sampling : **18.11.2022**  
 Sample Description : **Ground Water**  
 Location of Sampling : **Tube well Village Kullen Bahal**  
 Sampling Method : **APHA 23<sup>rd</sup> 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 : **Wide mouth Plastic Bottles**  
 Sample Received on : **19.11.2022**  
 Date of Test : **19.11.2022 – 25.11.2022**

Sl No	Parameter	Method of Analysis	Results Obtained	Unit	Acceptable Limit as per IS 10500: 2012
20	Cadmium (as Cd)	APHA 23 <sup>rd</sup> Edition, 3111 B	ND	mg/l	0.003
21	Lead (as Pb)	APHA 23 <sup>rd</sup> Edition, 3111 B	ND	mg/l	0.01
22	Arsenic (as As)	APHA 23 <sup>rd</sup> Edition, 3114 B	ND	mg/l	0.01
23	Mercury (as Hg)	APHA 23 <sup>rd</sup> Edition, 3112 B	ND	mg/l	0.001
24	Selenium (as Se)	APHA 23 <sup>rd</sup> Edition, 3114 C	ND	mg/l	0.01
25	Nickel (as Ni)	APHA 23 <sup>rd</sup> Edition, 3111 B	ND	mg/l	0.02
26	Zinc (as Zn)	APHA 23 <sup>rd</sup> Edition, 3111 B	ND	mg/l	5.0
27	Total Chromium (as Cr)	APHA 23 <sup>rd</sup> Edition, 3111 B	ND	mg/l	0.05

ND: Non Detectable.

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Test Done By

*[Signature]*  
Verified By



*[Signature]*  
Authorized Signatory  
Subhanga Praharaj  
Managing Director

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

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## TEST REPORT FOR WATER QUALITY ANALYSIS

FORMAT NO: CPL/MS1

REPORT NO: CPL/RW/DEC-22/3N

REPORT ISSUE DATE: 01.12.2022

SAMPLE DRAWN BY: CLEENVIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sample ID No : **CPL/W/NOV-22/26**  
 Date of Sampling : **18.11.2022**  
 Sample Description : **Ground Water**  
 Location of Sampling : **Tube well Village Kullen Bahal**  
 Sampling Method : **APHA 23<sup>rd</sup> 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: **Wide mouth Plastic Bottles**  
 Sample Received on : **19.11.2022**  
 Date of Test : **19.11.2022 – 25.11.2022**

Sl No	Parameter	Method of Analysis	Results Obtained	Unit	Acceptable Limit as per IS 10500: 2012
1	Colour	APHA 23 <sup>rd</sup> Edition, 2120 B	< 5	Hazen	5
2	Odour	APHA 23 <sup>rd</sup> Edition, 2150 B	Agreeable	-	Agreeable
3	Taste	APHA 23 <sup>rd</sup> Edition, 2160 B	Agreeable	-	Agreeable
4	Temperature	APHA 23 <sup>rd</sup> Edition, 2550 B	24.2	°C	-
5	Residual Free Chlorine	MERCK	0.04	mg/l	0.2 (min)
6	Total Bacterial Count	RAKIRO	Absent	Nos/100ml	Absent
7	E coli	RAKIRO	Absent	Nos/100ml	Absent

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Test Done By

*Ms/*  
Verified By



*Subhanga Prahara*  
Authorized Signatory  
Subhanga Prahara  
Managing Director

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

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# Cleenviron Private Limited

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

## GROUND WATER LEVEL MONITORING REPORT

PROJECT SITE: **KHATKURBAHAL LIMESTONE & DOLOMITE MINES**

CLIENT: **M/s SHIVA CEMENT LIMITED, VIII: TELEGHANA, A: BRINGATOLI, KUTRA, DIST: SUNDARGARH: 770018, ODISHA**

Ground Water Levels are measured from existing Wells on 18<sup>th</sup> November 2022 for the Fourth 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 Khatkurbahal Dug Well 22° 16' 47.7" N – 84° 28' 41.8" E	0.50	11.0	5.80	261.8	256.2
2	Village Kulenbahal Dug Well 22° 16' 25.9" N – 84° 27' 11.8" E	0.00	9.0	4.23	178.3	174.07

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  
For Cleenviron Private Limited



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Tel: 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/WR2

REPORT NO: CPL/R/WIDEC-22/4N

REPORT ISSUE DATE: 01.12.2022

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sample ID No : **CPL/W/NOV-22/31**  
 Sample Description : **Surface Water**  
 Date of Sampling : **18.11.2022**  
 Location of Sampling : **Jharia Nala After ML Area**  
 Sampling Method : **APHA 23<sup>rd</sup> 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 : **Wide Mouth Plastic Bottles**  
 Sample Received on : **19.11.2022**  
 Date of Test : **19.11.2022 – 25.11.2022**

Sl No	Parameters	Method of Analysis	Results Obtained	Unit	Surface Water Quality Standard as per IS: 2296 (Class C)
1.	pH Value	APHA 23 <sup>rd</sup> Edition, 4500 H+B	7.94	-	6.5 – 8.5
2.	Electrical Conductivity	APHA 23 <sup>rd</sup> Edition, 2510 B	303	µS/cm	-
3.	Total Dissolved Solids	APHA 23 <sup>rd</sup> Edition, 2540 B	182	mg/l	1500
4.	Total Hardness (as CaCO <sub>3</sub> )	APHA 23 <sup>rd</sup> Edition, 2340 C	172.2	mg/l	-
5.	Chlorides (as Cl)	APHA 23 <sup>rd</sup> Edition, 4500 Cl B	8.99	mg/l	600
6.	Sulfate (as SO <sub>4</sub> )	APHA 23 <sup>rd</sup> Edition, 4500 SO <sub>4</sub> <sup>2</sup> E	1.69	mg/l	400
7.	Total Nitrate (as NO <sub>3</sub> )	APHA 23 <sup>rd</sup> Edition, 4500 NO <sub>3</sub> B	< 2.20	mg/l	50
8.	Fluoride (as F)	APHA 23 <sup>rd</sup> Edition, 4500 F D	< 0.05	mg/l	1.5
9.	Calcium (as Ca)	APHA 23 <sup>rd</sup> Edition, 3500 Ca B	34.51	mg/l	-
10.	Magnesium (as Mg)	APHA 23 <sup>rd</sup> Edition, 3500 Mg B	20.92	mg/l	-
11.	Copper (as Cu)	APHA 23 <sup>rd</sup> Edition, 3111 B	< 0.10	mg/l	1.5
12.	Iron (as Fe)	APHA 23 <sup>rd</sup> Edition, 3500 Fe B	0.28	mg/l	50
13.	Manganese (as Mn)	APHA 23 <sup>rd</sup> Edition, 3500 Mn B	< 0.05	mg/l	-
14.	Zinc (as Zn)	APHA 23 <sup>rd</sup> Edition, 3111 B	< 0.02	mg/l	15
15.	Total Arsenic (as As)	APHA 23 <sup>rd</sup> Edition, 3114 B	< 0.002	mg/l	0.2
16.	Mercury (as Hg)	APHA 23 <sup>rd</sup> Edition, 3112 B	< 0.01	mg/l	-
17.	Lead (as Pb)	APHA 23 <sup>rd</sup> Edition, 3111 B	< 0.10	mg/l	0.1
18.	Cadmium (as Cd)	APHA 23 <sup>rd</sup> Edition, 3111 B	< 0.05	mg/l	0.01
19.	Hex. Chromium (as Cr <sup>6+</sup> )	APHA 23 <sup>rd</sup> Edition, 3500 Cr B	< 0.01	mg/l	0.05
20.	Selenium (as Se)	APHA 23 <sup>rd</sup> Edition, 3114 C	< 0.01	mg/l	0.05
21.	Total Suspended Solids	APHA 23 <sup>rd</sup> Edition, 2540 D	6.2	mg/l	-

*[Signature]*  
Test Done By

*[Signature]*  
Verified By



*[Signature]*  
Authorized Signatory  
Subhanga Prharaj  
Managing Director

\*\*\*\*End of Test Report\*\*\*\*  
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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/MSB

REPORT NO: CPL/RW/DEC-22/4N

REPORT ISSUE DATE: 01.12.2022

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sample ID No : **CPLW/NOV-22/31**  
 Sample Description : **Surface Water**  
 Date of Sampling : **18.11.2022**  
 Location of Sampling : **Jharia Nala After ML Area**  
 Sampling Method : **APHA 23<sup>rd</sup> 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 : **Wide Mouth Plastic Bottles**  
 Sample Received on : **19.11.2022**  
 Date of Test : **19.11.2022 - 25.11.2022**

Sl No	Parameters	Method of Analysis	Results Obtained	Unit	Surface Water Quality Standard as per IS: 2296 (Class C)
1.	Colour	APHA 23 <sup>rd</sup> Edition, 2120 B	< 5	Hazen	300
2.	Odour	APHA 23 <sup>rd</sup> Edition, 2150 B	Agreeable	-	-
3.	Taste	APHA 23 <sup>rd</sup> Edition, 2160 B	Agreeable	-	-
4.	Dissolved Oxygen (Min.)	IS: 3025 (Part 38) 1989, RA 2019	6.1	mg/l	4
5.	BOD 5 days at 20°C	APHA 23 <sup>rd</sup> Edition, 5210 D	< 01	mg/l	3
6.	Oil & Grease	IS: 3025 (Part 39) 1991, RA 2019	< 0.10	mg/l	0.1
7.	Free Carbon Dioxide (as CO <sub>2</sub> )	APHA 23 <sup>rd</sup> Edition, 4500 CO <sub>2</sub> C	3.52	mg/l	-
8.	Free Ammonia (as NH <sub>3</sub> )	MERCK	< 0.012	mg/l	-
9.	Cyanide (as CN)	MERCK	< 0.002	mg/l	0.05
10.	Phenolic Compounds (as C <sub>6</sub> H <sub>5</sub> OH)	MERCK	< 0.002	mg/l	0.005
11.	Anionic Detergents (as MBAS)	MERCK	< 0.05	mg/l	1.0
12.	Total Coliforms	RAKIRO	10	Nos/100ml	5000

*Chiranjit*  
 Test Done By



*Subhanja*  
 Authorized Signatory  
 Subhanja Prabhara  
 Managing Director

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

Page 1 of 1

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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/RM50

REPORT NO: CPL/RW/DEC-22/5N

REPORT ISSUE DATE: 01.12.2022

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sample ID No : **CPLW/NOV-22/30**  
 Sample Description : **Surface Water**  
 Date of Sampling : **18.11.2022**  
 Location of Sampling : **Tambu Nala After ML Area**  
 Sampling Method : **APHA 23<sup>rd</sup> 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 : **Wide Mouth Plastic Bottles**  
 Sample Received on : **19.11.2022**  
 Date of Test : **19.11.2022 – 25.11.2022**

Sl No	Parameters	Method of Analysis	Results Obtained	Unit	Surface Water Quality Standard as per IS: 2298 (Class C)
1.	pH Value	APHA 23 <sup>rd</sup> Edition, 4500 H+B	7.89	-	6.5 – 8.5
2.	Electrical Conductivity	APHA 23 <sup>rd</sup> Edition, 2510 B	228	µS/cm	-
3.	Total Dissolved Solids	APHA 23 <sup>rd</sup> Edition, 2540 B	137	mg/l	1500
4.	Total Hardness (as CaCO <sub>3</sub> )	APHA 23 <sup>rd</sup> Edition, 2340 C	106.6	mg/l	-
5.	Chlorides (as Cl)	APHA 23 <sup>rd</sup> Edition, 4500 Cl B	8.99	mg/l	600
6.	Sulfate (as SO <sub>4</sub> )	APHA 23 <sup>rd</sup> Edition, 4500 SO <sub>4</sub> 2-E	4.15	mg/l	400
7.	Total Nitrate (as NO <sub>3</sub> )	APHA 23 <sup>rd</sup> Edition, 4500 NO <sub>3</sub> B	< 2.20	mg/l	50
8.	Fluoride (as F)	APHA 23 <sup>rd</sup> Edition, 4500 F D	< 0.05	mg/l	1.5
9.	Calcium (as Ca)	APHA 23 <sup>rd</sup> Edition, 3500 Ca B	23.01	mg/l	-
10.	Magnesium (as Mg)	APHA 23 <sup>rd</sup> Edition, 3500 Mg B	11.96	mg/l	-
11.	Copper (as Cu)	APHA 23 <sup>rd</sup> Edition, 3111 B	< 0.10	mg/l	1.5
12.	Iron (as Fe)	APHA 23 <sup>rd</sup> Edition, 3500 Fe B	0.32	mg/l	50
13.	Manganese (as Mn)	APHA 23 <sup>rd</sup> Edition, 3500 Mn B	< 0.05	mg/l	-
14.	Zinc (as Zn)	APHA 23 <sup>rd</sup> Edition, 3111 B	< 0.02	mg/l	15
15.	Total Arsenic (as As)	APHA 23 <sup>rd</sup> Edition, 3114 B	< 0.002	mg/l	0.2
16.	Mercury (as Hg)	APHA 23 <sup>rd</sup> Edition, 3112 B	< 0.01	mg/l	-
17.	Lead (as Pb)	APHA 23 <sup>rd</sup> Edition, 3111 B	< 0.10	mg/l	0.1
18.	Cadmium (as Cd)	APHA 23 <sup>rd</sup> Edition, 3111 B	< 0.05	mg/l	0.01
19.	Hex. Chromium (as Cr <sup>VI</sup> )	APHA 23 <sup>rd</sup> Edition, 3500 Cr B	< 0.01	mg/l	0.05
20.	Selenium (as Se)	APHA 23 <sup>rd</sup> Edition, 3114 C	< 0.01	mg/l	0.05
21.	Total Suspended Solids	APHA 23 <sup>rd</sup> Edition, 2540 D	4.2	mg/l	-

*Eusabon*  
Test Done By

*[Signature]*  
Verified By



*[Signature]*  
Authorized Signatory  
Subhanga Praharaj  
Managing Director

\*\*\*\*End of Test Report\*\*\*\*  
Page 1 of 1

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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/WR

REPORT NO: CPL/R/W/DEC-22/5N

REPORT ISSUE DATE: 01.12.2022

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sample ID No : **CPL/W/NOV-22/30**  
 Sample Description : **Surface Water**  
 Date of Sampling : **18.11.2022**  
 Location of Sampling : **Tambu Nala After ML Area**  
 Sampling Method : **APHA 23<sup>rd</sup> 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 : **Wide Mouth Plastic Bottles**  
 Sample Received on : **19.11.2022**  
 Date of Test : **19.11.2022 – 25.11.2022**

Sl No	Parameters	Method of Analysis	Results Obtained	Unit	Surface Water Quality Standard as per IS: 2296 (Class C)
1.	Colour	APHA 23 <sup>rd</sup> Edition, 2120 B	< 5	Hazen	300
2.	Odour	APHA 23 <sup>rd</sup> Edition, 2150 B	Agreeable	-	-
3.	Taste	APHA 23 <sup>rd</sup> Edition, 2100 B	Agreeable	-	-
4.	Dissolved Oxygen (Min.)	IS: 3025 (Part 38) 1989, RA 2019	6.2	mg/l	4
5.	BOD 5 days at 20°C	APHA 23 <sup>rd</sup> Edition, 5210 D	01	mg/l	3
6.	Oil & Grease	IS: 3025 (Part 39) 1991, RA 2019	< 0.10	mg/l	0.1
7.	Free Carbon Dioxide (as CO <sub>2</sub> )	APHA 23 <sup>rd</sup> Edition, 4500 CO <sub>2</sub> C	5.28	mg/l	-
8.	Free Ammonia (as NH <sub>3</sub> )	MERCK	< 0.012	mg/l	-
9.	Cyanide (as CN)	MERCK	< 0.002	mg/l	0.05
10.	Phenolic Compounds (as C <sub>6</sub> H <sub>5</sub> OH)	MERCK	< 0.002	mg/l	0.005
11.	Anionic Detergents (as MBAS)	MERCK	< 0.05	mg/l	1.0
12.	Total Coliforms	RAKIRO	10	Nos/100ml	5000

*Chandrag*  
Test Done By



*[Signature]*  
Authorized Signatory  
Subhanga Pratihara  
Managing Director

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

Page 1 of 1

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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/FW/93

REPORT NO: CPL/R/W/DEC-22/6N

REPORT ISSUE DATE: 01.12.2022

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sample ID No : **CPL/W/NOV-22/29**  
 Sample Description : **Surface Water**  
 Date of Sampling : **18.11.2022**  
 Location of Sampling : **Sankh River After ML Area**  
 Sampling Method : **APHA 23<sup>rd</sup> 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 : **Wide Mouth Plastic Bottles**  
 Sample Received on : **19.11.2022**  
 Date of Test : **19.11.2022 – 25.11.2022**

Sl No	Parameters	Method of Analysis	Results Obtained	Unit	Surface Water Quality Standard as per IS: 2296 (Class C)
1.	pH Value	APHA 23 <sup>rd</sup> Edition, 4500 H+B	8.04	-	6.5 – 8.5
2.	Electrical Conductivity	APHA 23 <sup>rd</sup> Edition, 2510 B	173.3	µS/cm	-
3.	Total Dissolved Solids	APHA 23 <sup>rd</sup> Edition, 2540 B	104	mg/l	1500
4.	Total Hardness (as CaCO <sub>3</sub> )	APHA 23 <sup>rd</sup> Edition, 2340 C	57.4	mg/l	-
5.	Chlorides (as Cl)	APHA 23 <sup>rd</sup> Edition, 4500 Cl B	9.99	mg/l	600
6.	Sulfate (as SO <sub>4</sub> )	APHA 23 <sup>rd</sup> Edition, 4500 SO <sub>4</sub> <sup>2-</sup> E	2.26	mg/l	400
7.	Total Nitrate (as NO <sub>3</sub> )	APHA 23 <sup>rd</sup> Edition, 4500 NO <sub>3</sub> B	< 2.20	mg/l	50
8.	Fluoride (as F)	APHA 23 <sup>rd</sup> Edition, 4500 F D	< 0.05	mg/l	1.5
9.	Calcium (as Ca)	APHA 23 <sup>rd</sup> Edition, 3500 Ca B	16.30	mg/l	-
10.	Magnesium (as Mg)	APHA 23 <sup>rd</sup> Edition, 3500 Mg B	3.98	mg/l	-
11.	Copper (as Cu)	APHA 23 <sup>rd</sup> Edition, 3111 B	< 0.10	mg/l	1.5
12.	Iron (as Fe)	APHA 23 <sup>rd</sup> Edition, 3500 Fe B	0.30	mg/l	50
13.	Manganese (as Mn)	APHA 23 <sup>rd</sup> Edition, 3500 Mn B	< 0.05	mg/l	-
14.	Zinc (as Zn)	APHA 23 <sup>rd</sup> Edition, 3111 B	< 0.02	mg/l	15
15.	Total Arsenic (as As)	APHA 23 <sup>rd</sup> Edition, 3114 B	< 0.002	mg/l	0.2
16.	Mercury (as Hg)	APHA 23 <sup>rd</sup> Edition, 3112 B	< 0.01	mg/l	-
17.	Lead (as Pb)	APHA 23 <sup>rd</sup> Edition, 3111 B	< 0.10	mg/l	0.1
18.	Cadmium (as Cd)	APHA 23 <sup>rd</sup> Edition, 3111 B	< 0.05	mg/l	0.01
19.	Hex. Chromium (as Cr <sup>6+</sup> )	APHA 23 <sup>rd</sup> Edition, 3500 Cr B	< 0.01	mg/l	0.05
20.	Selenium (as Se)	APHA 23 <sup>rd</sup> Edition, 3114 C	< 0.01	mg/l	0.05
21.	Total Suspended Solids	APHA 23 <sup>rd</sup> Edition, 2540 D	10.4	mg/l	-

*Cuscha*  
Test Done By

*[Signature]*  
Verified By



*[Signature]*  
Authorized Signatory  
Subhanga Prabhakar  
Managing Director

\*\*\*\*End of Test Report\*\*\*\*  
Page 1 of 1

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

## TEST REPORT FOR WATER QUALITY ANALYSIS

FORMAT NO: CPL/THN

REPORT NO: CPL/R/WIDEC-22/6N

REPORT ISSUE DATE: 01.12.2022

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL, LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sample ID No : **CPL/W/NOV-22/29**  
 Sample Description : **Surface Water**  
 Date of Sampling : **18.11.2022**  
 Location of Sampling : **Sankh River After ML Area**  
 Sampling Method : **APHA 23<sup>rd</sup> 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: **Wide Mouth Plastic Bottles**  
 Sample Received on : **19.11.2022**  
 Date of Test : **19.11.2022 – 25.11.2022**

Sl No	Parameters	Method of Analysis	Results Obtained	Unit	Surface Water Quality Standard as per IS: 2296 (Class C)
1.	Colour	APHA 23 <sup>rd</sup> Edition, 2120 B	< 5	Hazen	300
2.	Odour	APHA 23 <sup>rd</sup> Edition, 2150 B	Agreeable	-	-
3.	Taste	APHA 23 <sup>rd</sup> Edition, 2160 B	Agreeable	-	-
4.	Dissolved Oxygen (Min.)	IS: 3025 (Part 38) 1989, RA 2019	6.4	mg/l	4
5.	BOD 5 days at 20°C	APHA 23 <sup>rd</sup> Edition, 5210 D	< 01	mg/l	3
6.	Oil & Grease	IS: 3025 (Part 39) 1991, RA 2019	< 0.10	mg/l	0.1
7.	Free Carbon Dioxide (as CO <sub>2</sub> )	APHA 23 <sup>rd</sup> Edition, 4500 CO <sub>2</sub> C	1.76	mg/l	-
8.	Free Ammonia (as NH <sub>3</sub> )	MERCK	< 0.012	mg/l	-
9.	Cyanide (as CN)	MERCK	< 0.002	mg/l	0.05
10.	Phenolic Compounds(as C <sub>6</sub> H <sub>5</sub> OH)	MERCK	< 0.002	mg/l	0.005
11.	Anionic Detergents (as MBAS)	MERCK	< 0.05	mg/l	1.0
12.	Total Coliforms	RAKIRO	Absent	Nos/100ml	5000

  
 Test Done By



Authorized Signatory   
 Subhanga Praharaj  
 Managing Director

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

Page 1 of 1

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

## TEST REPORT FOR WATER QUALITY ANALYSIS

FORMAT NO: CPL/RSB

REPORT NO: CPL/R/W/DEC-22/7N

REPORT ISSUE DATE: 01.12.2022

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sample ID No : **CPL/W/NOV-22/24**  
 Sample Description : **Surface Water**  
 Date of Sampling : **18.11.2022**  
 Location of Sampling : **Kanti Jharia Nala After ML Area**  
 Sampling Method : **APHA 23<sup>rd</sup> 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 : **Wide Mouth Plastic Bottles**  
 Sample Received on : **19.11.2022**  
 Date of Test : **19.11.2022 – 25.11.2022**

Sl No	Parameters	Method of Analysis	Results Obtained	Unit	Surface Water Quality Standard as per IS: 2296 (Class C)
1.	pH Value	APHA 23 <sup>rd</sup> Edition, 4500 H+B	7.70	-	6.5 – 8.5
2.	Electrical Conductivity	APHA 23 <sup>rd</sup> Edition, 2510 B	374	µS/cm	-
3.	Total Dissolved Solids	APHA 23 <sup>rd</sup> Edition, 2540 B	224	mg/l	1500
4.	Total Hardness (as CaCO <sub>3</sub> )	APHA 23 <sup>rd</sup> Edition, 2340 C	192.7	mg/l	-
5.	Chlorides (as Cl)	APHA 23 <sup>rd</sup> Edition, 4500 Cl B	13.99	mg/l	600
6.	Sulfate (as SO <sub>4</sub> )	APHA 23 <sup>rd</sup> Edition, 4500 SO <sub>4</sub> <sup>2-</sup> E	1.61	mg/l	400
7.	Total Nitrate (as NO <sub>3</sub> )	APHA 23 <sup>rd</sup> Edition, 4500 NO <sub>3</sub> B	< 2.20	mg/l	50
8.	Fluoride (as F)	APHA 23 <sup>rd</sup> Edition, 4500 F D	< 0.05	mg/l	1.5
9.	Calcium (as Ca)	APHA 23 <sup>rd</sup> Edition, 3500 Ca B	49.29	mg/l	-
10.	Magnesium (as Mg)	APHA 23 <sup>rd</sup> Edition, 3500 Mg B	16.24	mg/l	-
11.	Copper (as Cu)	APHA 23 <sup>rd</sup> Edition, 3111 B	< 0.10	mg/l	1.5
12.	Iron (as Fe)	APHA 23 <sup>rd</sup> Edition, 3500 Fe B	0.16	mg/l	50
13.	Manganese (as Mn)	APHA 23 <sup>rd</sup> Edition, 3500 Mn B	< 0.05	mg/l	-
14.	Zinc (as Zn)	APHA 23 <sup>rd</sup> Edition, 3111 B	< 0.02	mg/l	15
15.	Total Arsenic (as As)	APHA 23 <sup>rd</sup> Edition, 3114 B	< 0.002	mg/l	0.2
16.	Mercury (as Hg)	APHA 23 <sup>rd</sup> Edition, 3112 B	< 0.01	mg/l	-
17.	Lead (as Pb)	APHA 23 <sup>rd</sup> Edition, 3111 B	< 0.10	mg/l	0.1
18.	Cadmium (as Cd)	APHA 23 <sup>rd</sup> Edition, 3111 B	< 0.05	mg/l	0.01
19.	Hex. Chromium (as Cr <sup>6+</sup> )	APHA 23 <sup>rd</sup> Edition, 3500 Cr B	< 0.01	mg/l	0.05
20.	Selenium (as Se)	APHA 23 <sup>rd</sup> Edition, 3114 C	< 0.01	mg/l	0.05
21.	Total Suspended Solids	APHA 23 <sup>rd</sup> Edition, 2540 D	5.5	mg/l	-

*[Signature]*  
Test Done By

*[Signature]*  
Verified By



*[Signature]*  
Authorized Signatory  
Subhange Praharaj  
Managing Director

\*\*\*\*End of Test Report\*\*\*\*  
Page 1 of 1

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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/WR

REPORT NO: CPL/R/W/DEC-22/7N

REPORT ISSUE DATE: 01.12.2022

SAMPLE DRAWN BY CLEENIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sample ID No : **CPL/W/NOV-22/24**  
 Sample Description : **Surface Water**  
 Date of Sampling : **18.11.2022**  
 Location of Sampling : **Kanti Jharia Nala After ML Area**  
 Sampling Method : **APHA 23<sup>rd</sup> 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 : **Wide Mouth Plastic Bottles**  
 Sample Received on : **19.11.2022**  
 Date of Test : **19.11.2022 – 25.11.2022**

Sl No	Parameters	Method of Analysis	Results Obtained	Unit	Surface Water Quality Standard as per IS: 2291 (Class C)
1.	Colour	APHA 23 <sup>rd</sup> Edition, 2120 B	< 5	Hazen	300
2.	Odour	APHA 23 <sup>rd</sup> Edition, 2150 B	Agreeable	-	-
3.	Taste	APHA 23 <sup>rd</sup> Edition, 2160 B	Agreeable	-	-
4.	Dissolved Oxygen (Min.)	IS: 3025 (Part 38) 1989, RA 2019	6.0	mg/l	4
5.	BOD 5 days at 20°C	APHA 23 <sup>rd</sup> Edition, 5210 D	01	mg/l	3
6.	Oil & Grease	IS: 3025 (Part 39) 1991, RA 2019	< 0.10	mg/l	0.1
7.	Free Carbon Dioxide (as CO <sub>2</sub> )	APHA 23 <sup>rd</sup> Edition, 4500 CO <sub>2</sub> C	3.52	mg/l	-
8.	Free Ammonia (as NH <sub>3</sub> )	MERCK	< 0.012	mg/l	-
9.	Cyanide (as CN)	MERCK	< 0.002	mg/l	0.05
10.	Phenolic Compounds(as C <sub>6</sub> H <sub>5</sub> OH)	MERCK	< 0.002	mg/l	0.005
11.	Anionic Detergents (as MBAS)	MERCK	< 0.05	mg/l	1.0
12.	Total Coliforms	RAKIRO	10	Noc/100ml	5000

*Chakras*  
Test Done By



Verified By

*Subhanga Pralharaj*  
Authorized Signatory  
Subhanga Pralharaj  
Managing Director

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

Page 1 of 1

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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: CPLR/003

REPORT NO: CPLR/W/DEC-22/8N

REPORT ISSUE DATE: 01.12.2022

SAMPLE DRAWN BY: CLEENVIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sample ID No : **CPL/W/NOV-22/25**  
 Sample Description : **Surface Water**  
 Date of Sampling : **18.11.2022**  
 Location of Sampling : **Nakti Jor Nala After ML Area**  
 Sampling Method : **APHA 23<sup>rd</sup> 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: **Wide Mouth Plastic Bottles**  
 Sample Received on : **19.11.2022**  
 Date of Test : **19.11.2022 – 25.11.2022**

Sl No	Parameters	Method of Analysis	Results Obtained	Unit	Surface Water Quality Standard as per IS: 2296 (Class C)
1.	pH Value	APHA 23 <sup>rd</sup> Edition, 4500 H+B	7.58	-	6.5 – 8.5
2.	Electrical Conductivity	APHA 23 <sup>rd</sup> Edition, 2510 B	383	µS/cm	-
3.	Total Dissolved Solids	APHA 23 <sup>rd</sup> Edition, 2540 B	230	mg/l	1500
4.	Total Hardness (as CaCO <sub>3</sub> )	APHA 23 <sup>rd</sup> Edition, 2340 C	205	mg/l	-
5.	Chlorides (as Cl)	APHA 23 <sup>rd</sup> Edition, 4500 Cl B	6.99	mg/l	600
6.	Sulfate (as SO <sub>4</sub> )	APHA 23 <sup>rd</sup> Edition, 4500 SO <sub>4</sub> <sup>2-</sup> E	2.16	mg/l	400
7.	Total Nitrate (as NO <sub>3</sub> )	APHA 23 <sup>rd</sup> Edition, 4500 NO <sub>3</sub> B	< 2.20	mg/l	50
8.	Fluoride (as F)	APHA 23 <sup>rd</sup> Edition, 4500 F D	< 0.05	mg/l	1.5
9.	Calcium (as Ca)	APHA 23 <sup>rd</sup> Edition, 3500 Ca B	39.44	mg/l	-
10.	Magnesium (as Mg)	APHA 23 <sup>rd</sup> Edition, 3500 Mg B	25.90	mg/l	-
11.	Copper (as Cu)	APHA 23 <sup>rd</sup> Edition, 3111 B	< 0.10	mg/l	1.5
12.	Iron (as Fe)	APHA 23 <sup>rd</sup> Edition, 3500 Fe B	0.14	mg/l	50
13.	Manganese (as Mn)	APHA 23 <sup>rd</sup> Edition, 3500 Mn B	< 0.05	mg/l	-
14.	Zinc (as Zn)	APHA 23 <sup>rd</sup> Edition, 3111 B	< 0.02	mg/l	15
15.	Total Arsenic (as As)	APHA 23 <sup>rd</sup> Edition, 3114 B	< 0.002	mg/l	0.2
16.	Mercury (as Hg)	APHA 23 <sup>rd</sup> Edition, 3112 B	< 0.01	mg/l	-
17.	Lead (as Pb)	APHA 23 <sup>rd</sup> Edition, 3111 B	< 0.10	mg/l	0.1
18.	Cadmium (as Cd)	APHA 23 <sup>rd</sup> Edition, 3111 B	< 0.05	mg/l	0.01
19.	Hex. Chromium (as Cr <sup>6+</sup> )	APHA 23 <sup>rd</sup> Edition, 3500 Cr B	< 0.01	mg/l	0.05
20.	Selenium (as Se)	APHA 23 <sup>rd</sup> Edition, 3114 C	< 0.01	mg/l	0.05
21.	Total Suspended Solids	APHA 23 <sup>rd</sup> Edition, 2540 D	8.8	mg/l	-

*Chasechou*  
Test Done By



Verified By

*Subhanga Prabhakar*  
Authorized Signatory  
Subhanga Prabhakar  
Managing Director

\*\*\*End of Test Report\*\*\*  
Page 1 of 1

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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/RWB

REPORT NO: CPL/R/W/DEC-22/8N

REPORT ISSUE DATE: 01.12.2022

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sample ID No : **CPL/W/NOV-22/25**  
 Sample Description : **Surface Water**  
 Date of Sampling : **18.11.2022**  
 Location of Sampling : **Nakti Jor Nala After ML Area**  
 Sampling Method : **APHA 23<sup>rd</sup> 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: **Wide Mouth Plastic Bottles**  
 Sample Received on : **19.11.2022**  
 Date of Test : **19.11.2022 – 25.11.2022**

Sl No	Parameters	Method of Analysis	Results Obtained	Unit	Surface Water Quality Standard as per IS: 2296 (Class C)
1.	Colour	APHA 23 <sup>rd</sup> Edition, 2120 B	< 5	Hazen	300
2.	Odour	APHA 23 <sup>rd</sup> Edition, 2150 B	Agreeable	-	-
3.	Taste	APHA 23 <sup>rd</sup> Edition, 2160 B	Agreeable	-	-
4.	Dissolved Oxygen (Min.)	IS: 3025 (Part 38) 1989, RA 2019	6.0	mg/l	4
5.	BOD 5 days at 20°C	APHA 23 <sup>rd</sup> Edition, 5210 D	< 01	mg/l	3
6.	Oil & Grease	IS: 3025 (Part 39) 1991, RA 2019	< 0.10	mg/l	0.1
7.	Free Carbon Dioxide (as CO <sub>2</sub> )	APHA 23 <sup>rd</sup> Edition, 4500 CO <sub>2</sub> C	3.52	mg/l	-
8.	Free Ammonia (as NH <sub>3</sub> )	MERCK	< 0.012	mg/l	-
9.	Cyanide (as CN)	MERCK	< 0.002	mg/l	0.05
10.	Phenolic Compounds(as C <sub>6</sub> H <sub>5</sub> OH)	MERCK	< 0.002	mg/l	0.005
11.	Anionic Detergents (as MBAS)	MERCK	< 0.05	mg/l	1.0
12.	Total Coliforms	RAKIRO	10	Nos/100ml	5000

*[Signature]*  
 Test Done By

Verified By



*[Signature]*  
 Authorized Signatory  
 Subhanga Prathara  
 Managing Director

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

Page 1 of 1

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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/FMS

REPORT NO: CPL/RW/DEC-22/22N

REPORT ISSUE DATE: 02.12.2022

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sample ID No : **CPL/W/NOV-22/32**  
 Sample Description : **Surface Water**  
 Date of Sampling : **18.11.2022**  
 Location of Sampling : **Mine Pit - 1**  
 Sampling Method : **APHA 23<sup>rd</sup> 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: **Wide Mouth Plastic Bottles**  
 Sample Received on : **19.11.2022**  
 Date of Test : **19.11.2022 - 25.11.2022**

Sl No	Parameters	Method of Analysis	Results Obtained	Unit	Surface Water Quality Standard as per IS: 2296 (Class C)
1.	pH Value	APHA 23 <sup>rd</sup> Edition, 4500 H+B	7.32	-	6.5 - 8.5
2.	Electrical Conductivity	APHA 23 <sup>rd</sup> Edition, 2510 B	421	µS/cm	-
3.	Total Dissolved Solids	APHA 23 <sup>rd</sup> Edition, 2540 B	253	mg/l	1500
4.	Total Hardness (as CaCO <sub>3</sub> )	APHA 23 <sup>rd</sup> Edition, 2340 C	196.8	mg/l	-
5.	Chlorides (as Cl)	APHA 23 <sup>rd</sup> Edition, 4500 Cl B	28.99	mg/l	600
6.	Sulfate (as SO <sub>4</sub> )	APHA 23 <sup>rd</sup> Edition, 4500 SO <sub>4</sub> <sup>2-</sup> E	13.59	mg/l	400
7.	Total Nitrate (as NO <sub>3</sub> )	APHA 23 <sup>rd</sup> Edition, 4500 NO <sub>3</sub> B	< 2.20	mg/l	50
8.	Fluoride (as F)	APHA 23 <sup>rd</sup> Edition, 4500 F D	< 0.05	mg/l	1.5
9.	Calcium (as Ca)	APHA 23 <sup>rd</sup> Edition, 3500 Ca B	50.94	mg/l	-
10.	Magnesium (as Mg)	APHA 23 <sup>rd</sup> Edition, 3500 Mg B	16.94	mg/l	-
11.	Copper (as Cu)	APHA 23 <sup>rd</sup> Edition, 3111 B	< 0.10	mg/l	1.5
12.	Iron (as Fe)	APHA 23 <sup>rd</sup> Edition, 3500 Fe B	0.39	mg/l	50
13.	Manganese (as Mn)	APHA 23 <sup>rd</sup> Edition, 3500 Mn B	< 0.05	mg/l	-
14.	Zinc (as Zn)	APHA 23 <sup>rd</sup> Edition, 3111 B	< 0.02	mg/l	15
15.	Total Arsenic (as As)	APHA 23 <sup>rd</sup> Edition, 3114 B	< 0.002	mg/l	0.2
16.	Mercury (as Hg)	APHA 23 <sup>rd</sup> Edition, 3112 B	< 0.01	mg/l	-
17.	Lead (as Pb)	APHA 23 <sup>rd</sup> Edition, 3111 B	< 0.10	mg/l	0.1
18.	Cadmium (as Cd)	APHA 23 <sup>rd</sup> Edition, 3111 B	< 0.05	mg/l	0.01
19.	Hex. Chromium (as Cr <sup>+6</sup> )	APHA 23 <sup>rd</sup> Edition, 3500 Cr B	< 0.01	mg/l	0.05
20.	Selenium (as Se)	APHA 23 <sup>rd</sup> Edition, 3114 C	< 0.01	mg/l	0.05
21.	Total Suspended Solids	APHA 23 <sup>rd</sup> Edition, 2540 D	20.7	mg/l	-

*Chandra*  
Test Done By

*Subhanga*  
Verified By



*Subhanga*  
Authorized Signatory  
Subhanga Prharaj  
Managing Director

\*\*\*\*End of Test Report\*\*\*\*  
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Consultant and Engineers in Environmental Pollution Control & Monitoring with Laboratory Facility.

## TEST REPORT FOR WATER QUALITY ANALYSIS

FORMAT NO: CLR/FORM

REPORT NO: CPLRW/DEC-22/22N

REPORT ISSUE DATE: 02.12.2022

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sample ID No : **CPL/W/NOV-22/32**  
 Sample Description : **Surface Water**  
 Date of Sampling : **18.11.2022**  
 Location of Sampling : **Mine Pit - 1**  
 Sampling Method : **APHA 23<sup>rd</sup> 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: **Wide Mouth Plastic Bottles**  
 Sample Received on : **19.11.2022**  
 Date of Test : **19.11.2022 - 25.11.2022**

Sl No	Parameters	Method of Analysis	Results Obtained	Unit	Surface Water Quality Standard as per IS: 2296 (Class C)
1.	Colour	APHA 23 <sup>rd</sup> Edition, 2120 B	< 5	Hazen	300
2.	Odour	APHA 23 <sup>rd</sup> Edition, 2150 B	Agreeable	-	-
3.	Taste	APHA 23 <sup>rd</sup> Edition, 2160 B	Agreeable	-	-
4.	Dissolved Oxygen (Min.)	IS: 3025 (Part 38) 1989, RA 2019	6.2	mg/l	4
5.	BOD 5 days at 20°C	APHA 23 <sup>rd</sup> Edition, 5210 D	< 01	mg/l	3
6.	Oil & Grease	IS: 3025 (Part 39) 1991, RA 2019	< 0.10	mg/l	0.1
7.	Free Carbon Dioxide (as CO <sub>2</sub> )	APHA 23 <sup>rd</sup> Edition, 4500 CO <sub>2</sub> C	1.76	mg/l	-
8.	Free Ammonia (as NH <sub>3</sub> )	MERCK	< 0.012	mg/l	-
9.	Cyanide (as CN)	MERCK	< 0.002	mg/l	0.05
10.	Phenolic Compounds(as C <sub>6</sub> H <sub>5</sub> OH)	MERCK	< 0.002	mg/l	0.005
11.	Anionic Detergents (as MBAS)	MERCK	< 0.05	mg/l	1.0
12.	Total Coliforms	RAKIRO	Absent	Nos/100ml	5000

*Claretha*  
Test Done By

Verified By



*Subhanga Prahara*  
Authorized Signatory  
Subhanga Prahara/  
Managing Director

\*\*\*\*\*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/IR/02

REPORT NO: CPL/RW/DEC-22/23N

REPORT ISSUE DATE: 02.12.2022

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sample ID No : **CPL/W/NOV-22/33**  
 Sample Description : **Surface Water**  
 Date of Sampling : **18.11.2022**  
 Location of Sampling : **Mine Pit - 2**  
 Sampling Method : **APHA 23<sup>rd</sup> 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 : **Wide Mouth Plastic Bottles**  
 Sample Received on : **19.11.2022**  
 Date of Test : **19.11.2022 - 25.11.2022**

S/No	Parameters	Method of Analysis	Results Obtained	Unit	Surface Water Quality Standard as per IS: 2295 (Class C)
1.	pH Value	APHA 23 <sup>rd</sup> Edition, 4500 H+B	6.38	-	6.5 - 8.5
2.	Electrical Conductivity	APHA 23 <sup>rd</sup> Edition, 2510 B	309	µS/cm	-
3.	Total Dissolved Solids	APHA 23 <sup>rd</sup> Edition, 2540 B	185	mg/l	1500
4.	Total Hardness (as CaCO <sub>3</sub> )	APHA 23 <sup>rd</sup> Edition, 2340 C	114.8	mg/l	-
5.	Chlorides (as Cl)	APHA 23 <sup>rd</sup> Edition, 4500 Cl B	34.99	mg/l	600
6.	Sulfate (as SO <sub>4</sub> )	APHA 23 <sup>rd</sup> Edition, 4500 SO <sub>4</sub> <sup>2-</sup> E	1.69	mg/l	400
7.	Total Nitrate (as NO <sub>3</sub> )	APHA 23 <sup>rd</sup> Edition, 4500 NO <sub>3</sub> B	< 2.20	mg/l	50
8.	Fluoride (as F)	APHA 23 <sup>rd</sup> Edition, 4500 F D	< 0.05	mg/l	1.5
9.	Calcium (as Ca)	APHA 23 <sup>rd</sup> Edition, 3500 Ca B	34.51	mg/l	-
10.	Magnesium (as Mg)	APHA 23 <sup>rd</sup> Edition, 3500 Mg B	6.97	mg/l	-
11.	Copper (as Cu)	APHA 23 <sup>rd</sup> Edition, 3111 B	< 0.10	mg/l	1.5
12.	Iron (as Fe)	APHA 23 <sup>rd</sup> Edition, 3500 Fe B	0.18	mg/l	50
13.	Manganese (as Mn)	APHA 23 <sup>rd</sup> Edition, 3500 Mn B	< 0.05	mg/l	-
14.	Zinc (as Zn)	APHA 23 <sup>rd</sup> Edition, 3111 B	< 0.02	mg/l	15
15.	Total Arsenic (as As)	APHA 23 <sup>rd</sup> Edition, 3114 B	< 0.002	mg/l	-
16.	Mercury (as Hg)	APHA 23 <sup>rd</sup> Edition, 3112 B	< 0.01	mg/l	-
17.	Lead (as Pb)	APHA 23 <sup>rd</sup> Edition, 3111 B	< 0.10	mg/l	0.1
18.	Cadmium (as Cd)	APHA 23 <sup>rd</sup> Edition, 3111 B	< 0.05	mg/l	0.01
19.	Hex. Chromium (as Cr <sup>VI</sup> )	APHA 23 <sup>rd</sup> Edition, 3500 Cr B	< 0.01	mg/l	0.05
20.	Selenium (as Se)	APHA 23 <sup>rd</sup> Edition, 3114 C	< 0.01	mg/l	0.05
21.	Total Suspended Solids	APHA 23 <sup>rd</sup> Edition, 2540 D	3.9	mg/l	-

*C. Sahoo*  
Test Done By

*[Signature]*  
Verified By



*[Signature]*  
Authorized Signatory  
Subhanga Prharaj  
Managing Director

\*\*\*\*End of Test Report\*\*\*\*  
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Consultant and Engineers in Environmental Pollution Control & Monitoring with Laboratory Facility.

## TEST REPORT FOR WATER QUALITY ANALYSIS

FORMAT NO: CPL/WM

REPORT NO: CPL/R/WIDEC-22/23N

REPORT ISSUE DATE: 02.12.2022

SAMPLE DRAWN BY CLEENVIIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sample ID No : **CPL/W/NOV-22/33**  
 Sample Description : **Surface Water**  
 Date of Sampling : **18.11.2022**  
 Location of Sampling : **Mine Pit - 2**  
 Sampling Method : **APHA 23<sup>rd</sup> 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: **Wide Mouth Plastic Bottles**  
 Sample Received on : **19.11.2022**  
 Date of Test : **19.11.2022 - 25.11.2022**

Sl No	Parameters	Method of Analysis	Results Obtained	Unit	Surface Water Quality Standard as per IS: 2291 (Class C)
1.	Colour	APHA 23 <sup>rd</sup> Edition, 2120 B	< 5	Hazen	300
2.	Odour	APHA 23 <sup>rd</sup> Edition, 2150 B	Agreeable	-	-
3.	Taste	APHA 23 <sup>rd</sup> Edition, 2160 B	Agreeable	-	-
4.	Dissolved Oxygen (Min.)	IS: 3025 (Part 38) 1989, RA 2019	6.2	mg/l	4
5.	BOD 5 days at 20°C	APHA 23 <sup>rd</sup> Edition, 5210 D	01	mg/l	3
6.	Oil & Grease	IS: 3025 (Part 39) 1991, RA 2019	< 0.10	mg/l	0.1
7.	Free Carbon Dioxide (as CO <sub>2</sub> )	APHA 23 <sup>rd</sup> Edition, 4500 CO <sub>2</sub> C	7.04	mg/l	-
8.	Free Ammonia (as NH <sub>3</sub> )	MERCK	< 0.012	mg/l	-
9.	Cyanide (as CN)	MERCK	< 0.002	mg/l	0.05
10.	Phenolic Compounds(as C <sub>6</sub> H <sub>5</sub> OH)	MERCK	< 0.002	mg/l	0.005
11.	Anionic Detergents (as MBAS)	MERCK	< 0.05	mg/l	1.0
12.	Total Coliforms	RAKIRO	Absent	Nos/100ml	5000

*Chasahoo*  
 Test Done By



*Subhanga Praharaj*  
 Authorized Signatory  
 Subhanga Praharaj  
 Managing Director

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

Page 1 of 1

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# Cleenviron Private Limited

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

## STREAM FLOW MEASUREMENT DATA

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTOME & DOLOMITE MINES,  
 VILL: TELEGHANA, PO: BRINGATOLI, DIST: SUNDARGARH - 770018,  
 ODISHA**

Flow Measurement was carried out from the JHARIA NALA from the following points and data thus recorded is as follows:

Location : **JHARIA NALA**      Width of the Stream : **3.2 m**  
 Coordinates : **Lat: 22° 18' 3"N to Long: 84° 29' 36"E**      Elevation: **151m AMSL**  
 Date of Monitoring : **18.11.2022**

Cross Section	0m (Left Bank)	1.0m	2.0m	3.0m	3.2m (Right Bank)
Water Depth (m)	0.01	0.22	0.41	0.21	0.01
Surface Flow (m/s)					
1st	0.769	0.769	0.769	0.909	0.909
2nd	0.667	0.667	0.667	1.11	1.11
3rd	0.714	0.714	0.714	0.833	0.833
Average Flow (m/s)	0.717	0.717	0.717	0.951	0.951

Water Discharge (m <sup>3</sup> /s)	0.082	0.226	0.222	0.021
Total Discharge of Water through the Cross-section (m <sup>3</sup> /s)	0.551			
(m <sup>3</sup> /h)	1984.49			
(m <sup>3</sup> /D)	47627.8			

  
 Authorized Signatory  
 For Cleenviron Private Limited



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

## STREAM FLOW MEASUREMENT DATA

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES,  
 VILL: TELEGHANA, PO: BRINGATOLI, DIST: SUNDARGARH - 770018,  
 ODISHA**

Flow Measurement was carried out from the JHARIA NALA from the following points and data thus recorded is as follows:

Location **KANTI JHARIA NALA** Width of the Stream **6.1 m**  
 Coordinates **Lat: 22° 13' 12"N to Long: 84° 29' 22"E** Elevation **164m AMSL**  
 Date of Monitoring **18.11.2022**

Cross Section	0m (Left Bank)	1.0m	2.0m	3.0m	4.0m	5.0m	6.0m	6.1m (Right Bank)
Water Depth (m)	0.020	0.350	0.330	0.300	0.280	0.200	0.028	0.010
Surface Flow (m/s)								
1st	0.324	0.324	0.324	0.324	0.308	0.308	0.308	0.308
2nd	0.344	0.344	0.344	0.344	0.289	0.289	0.289	0.289
3rd	0.354	0.354	0.354	0.354	0.296	0.296	0.296	0.296
Average Flow (m/s)	0.341	0.341	0.341	0.341	0.298	0.298	0.298	0.298

Water Discharge (m <sup>3</sup> /s)	0.063	0.116	0.107	0.069	0.071	0.034	0.001	
Total Discharge of Water through the Cross-section (m <sup>3</sup> /s)	0.461							
(m <sup>3</sup> /h)	1660.52							
(m <sup>3</sup> /D)	39852.4							

  
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## STREAM FLOW MEASUREMENT DATA


Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTOME & DOLOMITE MINES,  
 VILL: TELEGHANA, PO: BRINGATOLI, DIST: SUNDARGARH - 770018,  
 ODISHA**

Flow Measurement was carried out from the NAKTIJOR NALA from the following points and data thus recorded is as follows:

Location : **NAKTIJOR NALA** Width of the Stream : **2.2 m**  
 Coordinates : **Lat: 22° 12' 5"N to Long: 84° 26' 35"E** Elevation: **183m AMSL**  
 Date of Monitoring : **18.11.2022**

Cross Section	0m (Left Bank)	1.0m	2.0m	2.2m (Right Bank)
Water Depth (m)	0	0.32	0.36	0.01
Surface Flow (m/s)				
1st	0.376	0.376	0.376	0.376
2nd	0.421	0.421	0.421	0.421
3rd	0.399	0.399	0.399	0.399
<b>Average Flow (m/s)</b>	<b>0.399</b>	<b>0.399</b>	<b>0.399</b>	<b>0.399</b>

Water Discharge (m <sup>3</sup> /s)	0.064	0.136	0.015
Total Discharge of Water through the Cross-section (m <sup>3</sup> /s)	0.214		
(m <sup>3</sup> /h)	770.70		
(m <sup>3</sup> /D)	18496.9		

  
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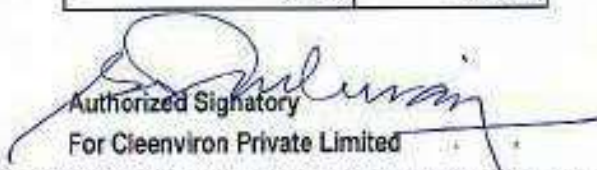
## STREAM FLOW MEASUREMENT DATA

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTOME & DOLOMITE MINES,  
 VILL: TELEGHANA, PO: BRINGATOLI, DIST: SUNDARGARH  
 ODISHA - 770018**

Flow Measurement was carried out from the JHARIA NALA from the following points and data thus recorded is as follows:

Location : **TAMBU NALA**  
 Width of the Stream : **7.3 m**  
 Coordinates : **Lat: 22° 19' 35"N to Long: 84° 28' 24"E**      **Elevatic 129m AMSL**  
 Date of Monitoring : **18.11.2022**

	0m (Left Bank)	1.0m	2.0m	3.0m	4.0m	5.0m	6.0m	7.0m
Cross Section								
Water Depth (m)	0.01	0.36	0.44	0.48	0.42	0.31	0.405	0.21
Surface Flow (m/s)								
1st	0.114	0.114	0.114	0.114	0.175	0.175	0.175	0.133
2nd	0.128	0.128	0.128	0.128	0.154	0.154	0.154	0.128
3rd	0.122	0.122	0.122	0.122	0.162	0.162	0.162	0.142
Average Flow (m/s)	0.121	0.121	0.121	0.121	0.164	0.164	0.164	0.134
Cross Section	7.3m (Right Bank)							
Water Depth (m)	0.01							
Surface Flow (m/s)								
1st	0.133							
2nd	0.128							
3rd	0.142							
Average Flow (m/s)	0.134							
Water Discharge (m <sup>3</sup> /s)	0.022	0.049	0.056	0.038	0.060	0.059	0.050	0.004
Total Discharge of Water through the Cross-section (m <sup>3</sup> /s)	0.338							
(m <sup>3</sup> /h)	1216.88							
(m <sup>3</sup> /D)	29205.2							

  
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# Cleenviron Private Limited

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## TEST REPORT FOR NOISE LEVEL MONITORING

FORMAT NO: CPL/PM2

REPORT NO: CPL/R/N/DEC-22/2N

REPORT ISSUE DATE: 01.12.2022

MONITORING DONE BY CLEENVIRON PRIVATE LIMITED

Name of the Customer  
Address of the Customer  
Instrument Used

**M/s SHIVA CEMENT LIMITED**  
KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA  
Sound Level Meter (LUTRON: SL 4001)

Station No	N1	N2	N3
Sample ID	CPL/N/NOV-22/10	CPL/N/NOV-22/11	CPL/N/NOV-22/17
Date of Monitoring	09.11.2022 – 10.11.2022	12.11.2022 – 13.11.2022	15.11.2022 – 16.11.2022
Location of Monitoring	NEAR MINES MAIN GATE	NEAR MINES OFFICE AREA	NEAR MINES PIT-1

SL NO	STATION NO	$L_{eq}$ DAY TIME (6:00AM – 10:00PM) dB(A)	$L_{eq}$ NIGHT TIME (10:00PM – 6:00AM) dB(A)	$L_{max}$ dB(A)	$L_{min}$ dB(A)
1.	N1	58.2	46.6	65.3	44.3
2.	N2	63.6	48.7	68.8	44.1
3.	N3	64.8	45.6	72.4	43.6

Station No	N4	N5
Sample ID	CPL/N/NOV-22/16	CPL/N/NOV-22/42
Date of Monitoring	18.11.2022 – 19.11.2022	22.11.2022 – 23.11.2022
Location of Monitoring	NEAR MINES PIT-2	KHATKURBAHAL VILLAGE AREA

SL NO	STATION NO	$L_{eq}$ DAY TIME (6:00AM – 10:00PM) dB(A)	$L_{eq}$ NIGHT TIME (10:00PM – 6:00AM) dB(A)	$L_{max}$ dB(A)	$L_{min}$ dB(A)
3.	N4	65.6	48.3	72.4	44.1
4.	N5	61.0	46.1	68.4	44.1

Test Done By



Authorized Signatory  
Subhanga Prahara  
Managing Director

### AMBIENT AIR QUALITY STANDARDS IN RESPECT OF NOISE AS PER CPCB

Area Code	Category of Area/Zone	Limits in dB (A) Leq.	
		Day Time	Night Time
A	Industrial Area	75	70
B	Commercial Area	65	55
C	Residential Area	55	45
D	Sience Zone	50	40

\*\*\*\*END OF TEST REPORT\*\*\*\*

Page 1 of 1

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## TEST REPORT FOR AMBIENT AIR QUALITY MONITORING

FORMAT NO: CPL/MSA

ULR – TC68162300000049F

REPORT NO: CPL/RAAQ/JAN-23/14

REPORT ISSUE DATE: 05.01.2023

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sampling Method : **IS: 5182 (Part – 2) & (Part – 6), EN12341**  
 Location of Monitoring : **Near Mines Office Area**  
 Monitoring Station Code : **A1**

Sample ID No	CPL/AAQ/DEC-22/39	CPL/AAQ/DEC-22/59	CPL/AAQ/DEC-22/124	CPL/AAQ/DEC-22/143
Date of Sampling	02.12.2022 - 03.12.2022	06.12.2022 - 07.12.2022	08.12.2022 - 09.12.2022	13.12.2022 - 14.12.2022
Sampling Period	0821 – 0832 Hrs	0918 – 0925 Hrs	0810 – 0818 Hrs	0815 – 0825 Hrs
Time of Sampling	24.11 Hrs	24.07 Hrs	24.08 Hrs	24.10 Hrs
Sample Received on	03.12.2022	07.12.2022	09.12.2022	14.12.2022
Date of Test	05.12.2022	08.12.2022	10.12.2022	15.12.2022

Sample ID No	CPL/AAQ/DEC-22/164	CPL/AAQ/DEC-22/291	CPL/AAQ/DEC-22/313	CPL/AAQ/DEC-22/384	CPL/AAQ/DEC-22/394
Date of Sampling	16.12.2022 - 17.12.2022	20.12.2022 - 21.12.2022	23.12.2022 - 24.12.2022	27.12.2022 - 28.12.2022	29.12.2022 - 30.12.2022
Sampling Period	0802 – 0413 Hrs	0850 – 0902 Hrs	0748 – 0405 Hrs	0823 – 0840 Hrs	0806 – 0813 Hrs
Time of Sampling	20.11 Hrs	24.12 Hrs	20.17 Hrs	24.17 Hrs	24.07 Hrs
Sample Received on	16.12.2022	21.12.2022	24.12.2022	28.12.2022	30.12.2022
Date of Test	17.12.2022	22.12.2022	26.12.2022	29.12.2022	31.12.2022

Sl No.	Sample ID	Parameters			
		PM <sub>2.5</sub> µg/m <sup>3</sup>	PM <sub>10</sub> µg/m <sup>3</sup>	SO <sub>2</sub> µg/m <sup>3</sup>	NO <sub>2</sub> µg/m <sup>3</sup>
	<b>Units</b>				
	<b>Method of Analysis</b>	CPL/SO/R/1/PWLS, Issue No: 04, dt: 23.10.2017	EN 12341, 1989 Low Volume Sampler	IS-5182 (Part – 2) 2008, RA 2017	IS-5182 (Part – 6) 2008, RA 2017
1.	CPL/AAQ/DEC-22/39	21	52	03	11
2.	CPL/AAQ/DEC-22/59	14	36	09	24
3.	CPL/AAQ/DEC-22/124	24	64	06	18
4.	CPL/AAQ/DEC-22/143	22	57	06	17
5.	CPL/AAQ/DEC-22/164	22	59	05	17
6.	CPL/AAQ/DEC-22/291	20	55	08	23
7.	CPL/AAQ/DEC-22/313	17	47	05	20
8.	CPL/AAQ/DEC-22/384	25	66	07	22
9.	CPL/AAQ/DEC-22/394	21	57	05	16
National Ambient Air Quality Standards, CPCB Notification New Delhi, 18 <sup>th</sup> November, 2009 for Industrial, Residential, Rural & Other Area		60 (24 Hours Average)	100 (24 Hours Average)	80 (24 Hours Average)	80 (24 Hours Average)

Test Done By



Verified By

Authorized Signatory  
Subhangra Pradhan  
Managing Director

\*\*\*\*END OF TEST REPORT\*\*\*\*  
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## TEST REPORT FOR AMBIENT AIR QUALITY MONITORING

FORMAT NO: CPL/MS7

REPORT NO: CPL/R/AAQJAN-23/14N

REPORT ISSUE DATE: 05.01.2023

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Location of Monitoring : **Near Mines Office Area**  
 Monitoring Station Code : **A1**

Sl No	Date of Monitoring	Time of Monitoring	Carbon Monoxide (as CO)
Method of Analysis			Electrochemical Sensor
1	02.12.2022	1300 – 1400 Hrs	< 0.1
2	06.12.2022	1000 – 1100 Hrs	< 0.1
3	08.12.2022	0900 – 1000 Hrs	< 0.1
4	13.12.2022	1100 – 1200 Hrs	< 0.1
5	16.12.2022	0900 – 1000 Hrs	< 0.1
6	20.12.2022	1200 – 1300 Hrs	< 0.1
7	23.12.2022	1300 – 1400 Hrs	< 0.1
8	27.12.2022	0930 – 1030 Hrs	< 0.1
9	29.12.2022	0900 – 1000 Hrs	< 0.1
National Ambient Air Quality Standards, CPCB Notification 18 <sup>th</sup> November 2009			04 (1 Hour Average)

Test Done By

P. Sareni  
Verified By



Authorized Signatory  
Subhanga Praharaj  
Managing Director

\*\*\*\*\*END OF TEST REPORT\*\*\*\*\*

Page 1 of 1

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## TEST REPORT FOR AMBIENT AIR QUALITY MONITORING

FORMAT NO: CPL/PM2.5

ULR - TC68162300000050F  
REPORT NO: CPL/IR/AAQ/JAN-23/15

REPORT ISSUE DATE: 05.01.2023

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sampling Method : **IS: 5182 (Part - 2) & (Part - 6), EN12341**  
 Location of Monitoring : **Near Mine Main Gate**  
 Monitoring Station Code : **A2**

Sample ID No	CPL/AAQ/DEC-22/38	CPL/AAQ/DEC-22/60	CPL/AAQ/DEC-22/125	CPL/AAQ/DEC-22/142
Date of Sampling	02.12.2022 - 03.12.2022	06.12.2022 - 07.12.2022	08.12.2022 - 09.12.2022	13.12.2022 - 14.12.2022
Sampling Period	0832 - 0840 Hrs	0927 - 0936 Hrs	0815 - 0830 Hrs	0823 - 0830 Hrs
Time of Sampling	24.08 Hrs	24.09 Hrs	24.15 Hrs	24.07 Hrs
Sample Received on	03.12.2022	07.12.2022	09.12.2022	14.12.2022
Date of Test	05.12.2022	08.12.2022	10.12.2022	15.12.2022

Sample ID No	CPL/AAQ/DEC-22/163	CPL/AAQ/DEC-22/292	CPL/AAQ/DEC-22/314	CPL/AAQ/DEC-22/382	CPL/AAQ/DEC-22/393
Date of Sampling	16.12.2022 - 17.12.2022	20.12.2022 - 21.12.2022	23.12.2022 - 24.12.2022	27.12.2022 - 28.12.2022	29.12.2022 - 30.12.2022
Sampling Period	0813 - 0422 Hrs	0901 - 0912 Hrs	0756 - 0416 Hrs	0834 - 0850 Hrs	0815 - 0830 Hrs
Time of Sampling	20.09 Hrs	24.11 Hrs	21.40 Hrs	24.16 Hrs	24.15 Hrs
Sample Received on	17.12.2022	21.12.2022	24.12.2022	28.12.2022	30.12.2022
Date of Test	18.12.2022	22.12.2022	26.12.2022	29.12.2022	31.12.2022

Sl No	Sample ID	Parameters			
		PM <sub>2.5</sub> µg/m <sup>3</sup>	PM <sub>10</sub> µg/m <sup>3</sup>	SO <sub>2</sub> µg/m <sup>3</sup>	NO <sub>2</sub> µg/m <sup>3</sup>
	Units				
	Method of Analysis	CPL/SCP/01/PM2.5, Issue No: SA, Vol. 23.10.2017	EN 12341, 1916 Low Volume Sampler	IS: 5182 (Part - 2) 2001, RA 2017	IS: 5182 (Part - 6) 2008, RA 2017
1.	CPL/AAQ/DEC-22/38	28	68	06	31
2.	CPL/AAQ/DEC-22/60	27	73	06	20
3.	CPL/AAQ/DEC-22/125	25	75	06	17
4.	CPL/AAQ/DEC-22/142	25	66	04	15
5.	CPL/AAQ/DEC-22/163	22	57	07	18
6.	CPL/AAQ/DEC-22/292	23	63	06	18
7.	CPL/AAQ/DEC-22/314	24	72	04	21
8.	CPL/AAQ/DEC-22/382	19	59	08	22
9.	CPL/AAQ/DEC-22/393	26	70	07	25
National Ambient Air Quality Standards, CPCB Notification New Delhi, 18 <sup>th</sup> November, 2009 for Industrial, Residential, Rural & Other Area		60 (24 Hours Average)	100 (24 Hours Average)	80 (24 Hours Average)	80 (24 Hours Average)

*Daha*  
Test Done By

*P. Saseen*  
Verified By



*Subhanga Pradhan*  
Authorized Signatory  
Subhanga Pradhan  
Managing Director

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## TEST REPORT FOR AMBIENT AIR QUALITY MONITORING

FORMAT NO: CPL/PMST

REPORT NO: CPL/IR/AAQJAN-23/15N

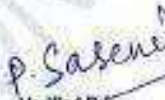
SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

REPORT ISSUE DATE: 05.01.2023

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
Location of Monitoring : **Near Mine Main Gate**  
Monitoring Station Code: **A2**

S No	Date of Monitoring	Time of Monitoring	Carbon Monoxide (as CO)
	Method of Analysis		Electrochemical Sensor
1	02.12.2022	1300 – 1400 Hrs	< 0.1
2	06.12.2022	1000 – 1100 Hrs	< 0.1
3	08.12.2022	0900 – 1000 Hrs	< 0.1
4	13.12.2022	1100 – 1200 Hrs	< 0.1
5	16.12.2022	0900 – 1000 Hrs	< 0.1
6	20.12.2022	1200 – 1300 Hrs	< 0.1
7	23.12.2022	1300 – 1400 Hrs	< 0.1
8	27.12.2022	0930 – 1030 Hrs	< 0.1
9	29.12.2022	0900 – 1000 Hrs	< 0.1
National Ambient Air Quality Standards, CPCB Notification 18 <sup>th</sup> November 2009			04 (1 Hour Average)

  
Test Done By

  
Verified By



  
Authorized Signatory  
Subhanga Praharaj  
Managing Director

\*\*\*\*END OF TEST REPORT\*\*\*\*

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## TEST REPORT FOR AMBIENT AIR QUALITY MONITORING

FORMAT NO: CPL/PM7A

ULR – TC68162300000051F

REPORT NO: CPL/AAQ/JAN-23/16

REPORT ISSUE DATE: 05.01.2023

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sampling Method : **IS: 5182 (Part – 2) & (Part – 6), EN12341**  
 Location of Monitoring : **Near Mine Pit – 1**  
 Monitoring Station Code : **A3**

Sample ID No	CPL/AAQ/DEC-22/40	CPL/AAQ/DEC-22/61	CPL/AAQ/DEC-22/123	CPL/AAQ/DEC-22/144
Date of Sampling	02.12.2022 - 03.12.2022	06.12.2022 - 07.12.2022	08.12.2022 - 09.12.2022	13.12.2022 - 14.12.2022
Sampling Period	0841 – 0852 Hrs	0947 – 0958 Hrs	0825 – 0836 Hrs	0830 – 0840 Hrs
Time of Sampling	24.11 Hrs	24.11 Hrs	24.11 Hrs	24.10 Hrs
Sample Received on	03.12.2022	07.12.2022	09.12.2022	14.12.2022
Date of Test	05.12.2022	08.12.2022	10.12.2022	15.12.2022

Sample ID No	CPL/AAQ/DEC-22/165	CPL/AAQ/DEC-22/293	CPL/AAQ/DEC-22/315	CPL/AAQ/DEC-22/385	CPL/AAQ/DEC-22/391
Date of Sampling	16.12.2022 - 17.12.2022	20.12.2022 - 21.12.2022	23.12.2022 - 24.12.2022	27.12.2022 - 28.12.2022	29.12.2022 - 30.12.2022
Sampling Period	0826 – 0437 Hrs	0910 – 0921 Hrs	0808 – 0426 Hrs	0843 – 0857 Hrs	0826 – 0838 Hrs
Time of Sampling	20.11 Hrs	24.11 Hrs	20.18 Hrs	24.14 Hrs	24.12 Hrs
Sample Received on	17.12.2022	21.12.2022	24.12.2022	28.12.2022	30.12.2022
Date of Test	19.12.2022	22.12.2022	26.12.2022	29.12.2022	31.12.2022

Sl No	Sample ID	Parameters			
		PM <sub>2.5</sub> µg/m <sup>3</sup>	PM <sub>10</sub> µg/m <sup>3</sup>	SO <sub>2</sub> µg/m <sup>3</sup>	NO <sub>2</sub> µg/m <sup>3</sup>
	Units				
	Method of Analysis	CPL/SCPM/PM2.5, Issue No: 04, dt: 23.10.2017	EN 12341, 1918 Low Volume Sampler	IS:5182 (Part – 2) 2001, RA 2017	IS: 5182 (Part – 6) 2006, RA 2017
1.	CPL/AAQ/DEC-22/40	24	68	04	29
2.	CPL/AAQ/DEC-22/61	25	78	07	22
3.	CPL/AAQ/DEC-22/123	28	82	06	23
4.	CPL/AAQ/DEC-22/144	23	64	07	21
5.	CPL/AAQ/DEC-22/165	21	53	04	15
6.	CPL/AAQ/DEC-22/293	28	79	04	18
7.	CPL/AAQ/DEC-22/315	23	56	06	19
8.	CPL/AAQ/DEC-22/385	24	72	06	18
9.	CPL/AAQ/DEC-22/391	26	74	06	19
National Ambient Air Quality Standards, CPCB Notification New Delhi, 18 <sup>th</sup> November, 2009 for Industrial, Residential, Rural & Other Area		60 (24 Hours Average)	100 (24 Hours Average)	80 (24 Hours Average)	80 (24 Hours Average)

Test Done By



Authorized Signatory  
Subhanga Praharaj  
Managing Director

END OF TEST REPORT

Page 1 of 1

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# Cleenviron Private Limited

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

## TEST REPORT FOR AMBIENT AIR QUALITY MONITORING

FORMAT NO: CPL/FA57

REPORT NO: CPL/IAAQ/JAN-23/16N

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

REPORT ISSUE DATE: 05.01.2023

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Location of Monitoring : **Near Mine Pit - 1**  
 Monitoring Station Code : **A3**

S No	Date of Monitoring	Time of Monitoring	Carbon Monoxide (as CO)
			Electrochemical Sensor
			Method of Analysis
1	02.12.2022	1300 - 1400 Hrs	< 0.1
2	06.12.2022	1000 - 1100 Hrs	< 0.1
3	08.12.2022	0900 - 1000 Hrs	< 0.1
4	13.12.2022	1100 - 1200 Hrs	< 0.1
5	16.12.2022	0900 - 1000 Hrs	< 0.1
6	20.12.2022	1200 - 1300 Hrs	< 0.1
7	23.12.2022	1300 - 1400 Hrs	< 0.1
8	27.12.2022	0930 - 1030 Hrs	< 0.1
9	29.12.2022	0900 - 1000 Hrs	< 0.1
National Ambient Air Quality Standards, CPCB Notification 18 <sup>th</sup> November 2009			04 (1 Hour Average)

*Chh*  
Test Done By

*P. Saseeni*  
Verified By



*S. Subhanga*  
Authorized Signatory  
Subhanga Praharaj  
Managing Director

\*\*\*\*END OF TEST REPORT\*\*\*\*

Page 1 of 1

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# Cleenviron Private Limited

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## TEST REPORT FOR AMBIENT AIR QUALITY MONITORING

FORMAT NO: CPL/RES/3A

ULR – TC681623000000052F

REPORT NO: CPL/AAQ/JAN-23/17

REPORT ISSUE DATE: 05.01.2023

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sampling Method : **IS: 5182 (Part – 2) & (Part – 6), EN12341**  
 Location of Monitoring : **Near Mine Pit – 2**  
 Monitoring Station Code : **A4**

Sample ID No	CPL/AAQ/DEC-22/41	CPL/AAQ/DEC-22/62	CPL/AAQ/DEC-22/126	CPL/AAQ/DEC-22/145
Date of Sampling	02.12.2022 - 03.12.2022	06.12.2022 - 07.12.2022	08.12.2022 - 09.12.2022	13.12.2022 - 14.12.2022
Sampling Period	0857 – 0908 Hrs	0905 – 0912 Hrs	0838 – 0847 Hrs	0845 – 0854 Hrs
Time of Sampling	24.11 Hrs	24.07 Hrs	24.09 Hrs	24.09 Hrs
Sample Received on	03.12.2022	07.12.2022	09.12.2022	14.12.2022
Date of Test	05.12.2022	08.12.2022	10.12.2022	15.12.2022

Sample ID No	CPL/AAQ/DEC-22/166	CPL/AAQ/DEC-22/294	CPL/AAQ/DEC-22/316	CPL/AAQ/DEC-22/383	CPL/AAQ/DEC-22/392
Date of Sampling	16.12.2022 - 17.12.2022	20.12.2022 - 21.12.2022	23.12.2022 - 24.12.2022	27.12.2022 - 28.12.2022	29.12.2022 - 30.12.2022
Sampling Period	0845 – 0457 Hrs	0924 – 0935 Hrs	0822 – 0440 Hrs	0812 – 0820 Hrs	0750 – 0802 Hrs
Time of Sampling	20.12 Hrs	24.11 Hrs	20.18 Hrs	24.08 Hrs	24.12 Hrs
Sample Received on	17.12.2022	20.12.2022	24.12.2022	28.12.2022	30.12.2022
Date of Test	18.12.2022	21.12.2022	26.12.2022	29.12.2022	31.12.2022

Sl No	Sample ID	Parameters			
		PM <sub>2.5</sub> µg/m <sup>3</sup>	PM <sub>10</sub> µg/m <sup>3</sup>	SO <sub>2</sub> µg/m <sup>3</sup>	NO <sub>2</sub> µg/m <sup>3</sup>
	Units				
	Method of Analysis	CPL/SOP/PM2.5, Issue No: 04, dt: 23.09.2017	EN 12341, 1816 Low Volume Sampler	IS 5182 (Part – 2), 2001, RA 2017	IS 5182 (Part – 6) 2006, RA 2017
1.	CPL/AAQ/DEC-22/41	27	75	05	18
2.	CPL/AAQ/DEC-22/62	24	67	08	18
3.	CPL/AAQ/DEC-22/126	14	48	05	20
4.	CPL/AAQ/DEC-22/145	22	57	05	16
5.	CPL/AAQ/DEC-22/166	25	74	07	26
6.	CPL/AAQ/DEC-22/294	21	64	07	23
7.	CPL/AAQ/DEC-22/316	26	74	05	25
8.	CPL/AAQ/DEC-22/383	26	78	07	21
9.	CPL/AAQ/DEC-22/392	22	63	07	22
National Ambient Air Quality Standards, CPCB Notification New Delhi, 15 <sup>th</sup> November, 2009 for Industrial, Residential, Rural & Other Area		60 (24 Hours Average)	100 (24 Hours Average)	80 (24 Hours Average)	80 (24 Hours Average)

TEST Done By

Verified By *P. Saseena*

Authorized Signatory  
*Subhanga Praharaj*  
 Managing Director

\*\*\*\*END OF TEST REPORT\*\*\*\*

Page 1 of 1

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Tele Fax: 9661 – 2475746, email: cleenviron@gmail.com



# Cleenviron Private Limited

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

## TEST REPORT FOR AMBIENT AIR QUALITY MONITORING

FORMAT NO: CPL/MS7

REPORT NO: CPL/AAQJAN-23/17N

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

REPORT ISSUE DATE: 05.01.2023


Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
Location of Monitoring : **Near Mine Pit – 2**  
Monitoring Station Code : **A4**

Sl. No	Date of Monitoring	Time of Monitoring	Carbon Monoxide (as CO)	
			Method of Analysis	Electrochemical Sensor
1	02.12.2022	1300 – 1400 Hrs		< 0.1
2	06.12.2022	1000 – 1100 Hrs		< 0.1
3	08.12.2022	0900 – 1000 Hrs		< 0.1
4	13.12.2022	1100 – 1200 Hrs		< 0.1
5	16.12.2022	0900 – 1000 Hrs		< 0.1
6	20.12.2022	1200 – 1300 Hrs		< 0.1
7	23.12.2022	1300 – 1400 Hrs		< 0.1
8	27.12.2022	0930 – 1030 Hrs		< 0.1
9	29.12.2022	0900 – 1000 Hrs		< 0.1
National Ambient Air Quality Standards, CPCB Notification 18 <sup>th</sup> November 2009				04 (1 Hour Average)

  
Test Done By

  
Verified By



  
Authorized Signatory  
Subhanga Prathara  
Managing Director

\*\*\*\*\*END OF TEST REPORT\*\*\*\*\*

Page 1 of 1

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# Cleenviron Private Limited

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



## TEST REPORT FOR AMBIENT AIR QUALITY MONITORING

FORMAT NO: CPL/MS7A

ULR - TC68162300000053F

REPORT NO: CPL/RI/AAQJAN-23/18

REPORT ISSUE DATE: 05.01.2023

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sampling Method : **IS: 5182 (Part - 2) & (Part - 6), EN12341**  
 Location of Monitoring : **Khatkurbahal Village Area (Buffer Zone)**  
 Monitoring Station Code : **A5**

Sample ID No	CPL/AAQ/DEC-22/42	CPL/AAQ/DEC-22/63	CPL/AAQ/DEC-22/127	CPL/AAQ/DEC-22/146
Date of Sampling	02.12.2022 - 03.12.2022	06.12.2022 - 07.12.2022	08.12.2022 - 09.12.2022	13.12.2022 - 14.12.2022
Sampling Period	0807 - 0815 Hrs	0900 - 0912 Hrs	0801 - 0810 Hrs	0805 - 0812 Hrs
Time of Sampling	24.08 Hrs	24.12 Hrs	24.09 Hrs	24.07 Hrs
Sample Received on	03.12.2022	07.12.2022	09.12.2022	14.12.2022
Date of Test	05.12.2022	08.12.2022	10.12.2022	15.12.2022

Sample ID No	CPL/AAQ/DEC-22/167	CPL/AAQ/DEC-22/290	CPL/AAQ/DEC-22/317	CPL/AAQ/DEC-22/386	CPL/AAQ/DEC-22/395
Date of Sampling	16.12.2022 - 17.12.2022	20.12.2022 - 21.12.2022	23.12.2022 - 24.12.2022	27.12.2022 - 28.12.2022	29.12.2022 - 30.12.2022
Sampling Period	0750 - 0404 Hrs	0836 - 0845 Hrs	0737 - 0352 Hrs	0801 - 0812 Hrs	0741 - 0752 Hrs
Time of Sampling	20.46 Hrs	24.09 Hrs	20.15 Hrs	24.11 Hrs	24.11 Hrs
Sample Received on	17.12.2022	21.12.2022	24.12.2022	28.12.2022	30.12.2022
Date of Test	19.12.2022	22.12.2022	26.12.2022	29.12.2022	31.12.2022

Sl No	Sample ID	Parameters			
		PM <sub>2.5</sub> µg/m <sup>3</sup>	PM <sub>10</sub> µg/m <sup>3</sup>	SO <sub>2</sub> µg/m <sup>3</sup>	NO <sub>2</sub> µg/m <sup>3</sup>
	<b>Units</b>				
	<b>Method of Analysis</b>	CPL/SOP/01/PM2.5, Issue No: 04, dt: 22.10.2017	EN 12041, 1996 Low Volume Sampler	IS-5182 (Part - 2) 2021, RA 2017	IS: 5182 (Part - 6) 2005, RA 2017
1.	CPL/AAQ/DEC-22/42	19	57	15	40
2.	CPL/AAQ/DEC-22/63	24	63	05	18
3.	CPL/AAQ/DEC-22/127	20	53	06	23
4.	CPL/AAQ/DEC-22/146	20	57	06	18
5.	CPL/AAQ/DEC-22/167	17	52	04	15
6.	CPL/AAQ/DEC-22/290	25	66	05	18
7.	CPL/AAQ/DEC-22/317	14	35	04	17
8.	CPL/AAQ/DEC-22/386	17	56	05	20
9.	CPL/AAQ/DEC-22/395	23	65	06	18
National Ambient Air Quality Standards, CPCB Notification New Delhi, 18 <sup>th</sup> November, 2009 for Industrial, Residential, Rural & Other Area		60 (24 Hours Average)	100 (24 Hours Average)	80 (24 Hours Average)	80 (24 Hours Average)

Test Done By

Verified By



Authorized Signatory  
Subhanga Prharaj  
Managing Director

\*\*\*\* END OF TEST REPORT \*\*\*\*  
Page 1 of 1

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Tel: Fax: 0661 - 2475746, email: cleenviron@gmail.com





# Cleenviron Private Limited

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

## TEST REPORT FOR AMBIENT AIR QUALITY MONITORING

FORMAT NO: CPL/RM/57

REPORT NO: CPL/R/AAQ/JAN-23/18N

REPORT ISSUE DATE: 05.01.2023

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Location of Monitoring : **Khatkurbahal Village Area (Buffer Zone)**  
 Monitoring Station Code : **A5.**

Sl No	Date of Monitoring	Time of Monitoring	Carbon Monoxide (as CO)	
			Method of Analysis	Electrochemical Sensor
1	02.12.2022	1300 – 1400 Hrs		< 0.1
2	06.12.2022	1000 – 1100 Hrs		< 0.1
3	08.12.2022	0900 – 1000 Hrs		< 0.1
4	13.12.2022	1100 – 1200 Hrs		< 0.1
5	16.12.2022	0900 – 1000 Hrs		< 0.1
6	20.12.2022	1200 – 1300 Hrs		< 0.1
7	23.12.2022	1300 – 1400 Hrs		< 0.1
8	27.12.2022	0930 – 1030 Hrs		< 0.1
9	29.12.2022	0900 – 1000 Hrs		< 0.1
National Ambient Air Quality Standards, CPCB Notification 16 <sup>th</sup> November 2009				04 (1 Hour Average)

*[Signature]*  
Test Done By

*[Signature]*  
Verified By



*[Signature]*  
Authorized Signatory  
Subhanga Prathara  
Managing Director

\*\*\*\*\*END OF TEST REPORT\*\*\*\*\*

Page 1 of 1

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# Cleenviron Private Limited

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



## TEST REPORT FOR FUGITIVE DUST EMISSION MONITORING

FORMAT NO. CPL/FMB

LILR - TC68162300000054F  
REPORT NO: CPL/R/FG/JAN-23/4

REPORT ISSUE DATE: 05.01.2023

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
Sampling Method : **IS: 5182 (Part - 23)**

Sample ID No	CPL/FG/DEC-22/194	CPL/FG/DEC-22/196	CPL/FG/DEC-22/195
Station No	F1	F2	F3
Date of Sampling	21.12.2022	21.12.2022	21.12.2022
Sampling Period	1232 - 1643 Hrs	0832 - 1243 Hrs	0820 - 1230 Hrs
Time of Sampling	04.11 Hrs	04.11 Hrs	04.10 Hrs
Sample Received on	26.12.2022	26.12.2022	26.12.2022
Date of Test	26.12.2022 - 27.12.2022		
Method of Analysis	IS: 5182 (Part - 23)		

Sl No	Station No	Location of Sampling	Parameters
			PM <sub>10</sub> in µg/m <sup>3</sup>
1.	F1	HAULAGE ROAD	253
2.	F2	DRILLING AREA	325
3.	F3	WEIGH BRIDGE	253

Test Done By

Verified By



Authorized Signatory  
Subhanga Praharaj  
Managing Director

\*\*\*\*\*END OF TEST REPORT\*\*\*\*\*

Page 1 of 1

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# Cleenviron Private Limited

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



## TEST REPORT FOR NOISE LEVEL MONITORING

FORMAT NO: CPL/1992

ULR - TC68162300000062F  
REPORT NO: CPL/R/NIJAN-23/5

REPORT ISSUE DATE: 05.01.2023

MONITORING DONE BY CLEENVIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Instrument Used : **Sound Level Meter (LUTRON: SL 4001)**

Station No	N1	N2	N3
Sample ID	CPL/N/DEC-22/42	CPL/N/DEC-22/49	CPL/N/DEC-22/50
Date of Monitoring	02.12.2022	06.12.2022	08.12.2022
Location of Monitoring	NEAR MINES OFFICE AREA	NEAR WEIGH BRIDGE	NEAR DRILL SITE

SL NO	STATION NO	$L_{eq}$ dB(A)	$L_{max}$ dB(A)	$L_{min}$ dB(A)
1.	N1	64.5	69.4	56.4
2.	N2	68.8	74.9	56.9
3.	N3	82.2	87.6	70.9

*Bismah Seno*  
Test Done By



*Subhanga Praharaj*  
 Authorized Signatory  
 Subhanga Praharaj  
 Managing Director

PERMISSIBLE EXPOSURE IN CASE OF CONTINUOUS NOISE as per OSHA

TOTAL TIME OF EXPOSURE Per Day (in hours)	SOUND PRESSURE LEVEL (in dB(A))
8	90
6	92
4	95
3	97
2	100
1 <sup>1/2</sup>	102
1	105
3/4	107
1/2	110
1/4	115

No Exposure in excess of 115 dB (A) is permitted

\*\*\*\*END OF TEST REPORT\*\*\*\*

Page 1 of 1

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# Cleenviron Private Limited

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



## TEST REPORT FOR SOIL QUALITY ANALYSIS

FORMAT NO. CPL/R/03

ULR - TC68162300000063F  
REPORT NO: CPL/R/S/JAN-23/2

REPORT ISSUE DATE: 05.01.2023

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

Name of the Customer :  
Address of the Customer :

**M/s SHIVA CEMENT LIMITED**  
KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA

Sample ID No	CPL/SO/DEC-22/2	CPL/SO/DEC-22/3	CPL/SO/DEC-22/4	CPL/SO/DEC-22/5
Sample Description	Soil (1.5ft below surface)	Soil (1.5ft below surface)	Soil (1.5ft below surface)	Soil (1.5ft below surface)
Location of Sampling	Kulenbahal Village Area	Khatkurbahal Village Area	Mines Pit 1	Mines Pit 2
Station No	S1	S2	S3	S4
Date of Sampling	16.12.2022	16.12.2022	16.12.2022	16.12.2022
Sample Received on	16.12.2022	16.12.2022	16.12.2022	16.12.2022
Appearance of Sample	Brownish	Dark Brown	Greyish	Dark Brown
Date of Test	16.12.2022 - 26.12.2022			

Sl. No.	Parameter	Method of Analysis	Unit	S1	S2	S3	S4
1.	pH (1:2 Suspension)	IS:2720 (Part 26): 1987, RA 2016	-	5.80	6.37	7.31	7.15
2.	Electrical Conductivity	IS 14787: 2000, RA 2016	µS/cm	171	184	192	246
3.	Available Nitrogen (as N)	CPL/SOP/03/N, Issue No: 03, Dtd.: 23.10.2017	Kg/ha	125.44	125.44	37.63	12.54
4.	Available Phosphorous (as P <sub>2</sub> O <sub>5</sub> )	CPL/SOP/03/P, Issue No: 03, Dtd.: 23.10.2017	Kg/ha	12.464	11.048	< 5 (3.048)	< 5 (3.608)
5.	Available Potassium (as K <sub>2</sub> O)	CPL/SOP/03/K, Issue No: 03, Dtd.: 23.10.2017	Kg/ha	412.8	110.16	71.52	136.2
6.	Organic Carbon	IS 2720 (Part 22): 1972, RA 2015	%	0.27	0.17	0.07	0.07

*C. S. Chohan*  
Test Done By

*M. K. Mishra*  
Verified By



*Subhanga Praharaj*  
Authorized Signatory  
Subhanga Praharaj  
Managing Director

\*\*\*\*\*END OF TEST REPORT\*\*\*\*\*

Page 1 of 1

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# Cleenviron Private Limited

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

## TEST REPORT FOR SOIL QUALITY ANALYSIS

FORMAT NO: CFLFWS3

REPORT NO: CPL/R/S/JAN-23/2N

REPORT ISSUE DATE: 05.01.2023

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**

Sample ID No	CPL/SO/DEC-22/2	CPL/SO/DEC-22/3	CPL/SO/DEC-22/4	CPL/SO/DEC-22/5
Sample Description	Soil (1.5ft below surface)	Soil (1.5ft below surface)	Soil (1.5ft below surface)	Soil (1.5ft below surface)
Location of Sampling	Kulenbahal Village Area	Khatkurbahal Village Area	Mines Pit 1	Mines Pit 2
Station No	S1	S2	S3	S4
Date of Sampling	16.12.2022	16.12.2022	16.12.2022	16.12.2022
Sample Received on	16.12.2022	16.12.2022	16.12.2022	16.12.2022
Appearance of Sample	Brownish	Dark Brown	Greyish	Dark Brown
Date of Test	16.12.2022 - 26.12.2022			

Sl. No.	Parameter	Method of Analysis	Unit	S1	S2	S3	S4
1	Organic Matter	IS 2720 (Part 22) - 1972, RA 2015	%	0.47	0.29	0.12	0.12

*Chasehon*  
Test Done By

*M. S. ...*  
Verified By



*Subhanga Prahara*  
Authorized Signatory  
Subhanga Prahara  
Managing Director

\*\*\*\*\*END OF TEST REPORT\*\*\*\*\*

Page 1 of 1

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Tel: Fax: 0661 - 2475746, email: cleenviron@gmail.com



# Cleenviron Private Limited

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



## TEST REPORT FOR AMBIENT AIR QUALITY MONITORING

FORMAT NO: CPL/MSA

ULR - TC681623000000244F

REPORT NO: CPL/AAQ/FEB-23/11

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

REPORT ISSUE DATE: 04.02.2023

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sampling Method : **IS: 5182 (Part - 2) & (Part - 6), EN12341**  
 Location of Monitoring : **Near Mines Office Area**  
 Monitoring Station Code : **A1**

Sample ID No	CPL/AAQ/JAN-23/81	CPL/AAQ/JAN-23/97	CPL/AAQ/JAN-23/169	CPL/AAQ/JAN-23/215
Date of Sampling	03.01.2023 - 04.01.2023	05.01.2023 - 06.01.2023	11.01.2023 - 12.01.2023	14.01.2023 - 15.01.2023
Sampling Period	0820 - 0833 Hrs	0820 - 0835 Hrs	0822 - 0835 Hrs	0822 - 0834 Hrs
Time of Sampling	24.13 Hrs	24.15 Hrs	24.13 Hrs	24.12 Hrs
Sample Received on	06.01.2023	06.01.2023	12.01.2023	16.01.2023
Date of Test	07.01.2023	07.01.2023	13.01.2023	17.01.2023

Sample ID No	CPL/AAQ/JAN-23/237	CPL/AAQ/JAN-23/315	CPL/AAQ/JAN-23/398	CPL/AAQ/JAN-23/413	CPL/AAQ/JAN-23/428
Date of Sampling	17.01.2023 - 18.01.2023	20.01.2023 - 21.01.2023	24.01.2023 - 25.01.2023	26.01.2023 - 27.01.2023	28.01.2023 - 29.01.2023
Sampling Period	0818 - 0831 Hrs	0802 - 0814 Hrs	0818 - 0830 Hrs	0842 - 0854 Hrs	0817 - 0830 Hrs
Time of Sampling	24.13 Hrs	24.12 Hrs	24.12 Hrs	24.12 Hrs	24.17 Hrs
Sample Received on	18.01.2023	21.01.2023	25.01.2023	27.01.2023	29.01.2023
Date of Test	19.01.2023	23.01.2023	27.01.2023	28.01.2023	30.01.2023

Sl No	Sample ID	Parameters			
		PM <sub>2.5</sub> µg/m <sup>3</sup>	PM <sub>10</sub> µg/m <sup>3</sup>	SO <sub>2</sub> µg/m <sup>3</sup>	NO <sub>2</sub> µg/m <sup>3</sup>
	Units				
	Method of Analysis	CPL/SOP/PM2.5, Issue No 04, dt: 22/10/2017	EN 12341, 1996 Low Volume Sampler	IS: 5182 (Part - 2), 2001, RA 2017	IS: 5182 (Part - 6), 2006, RA 2017
1	CPL/AAQ/JAN-23/81	27	61	05	21
2	CPL/AAQ/JAN-23/97	26	58	04	21
3	CPL/AAQ/JAN-23/169	28	66	11	35
4	CPL/AAQ/JAN-23/215	27	70	08	27
5	CPL/AAQ/JAN-23/237	29	69	12	27
6	CPL/AAQ/JAN-23/315	25	56	04	17
7	CPL/AAQ/JAN-23/398	29	64	04	15
8	CPL/AAQ/JAN-23/413	30	71	10	29
9	CPL/AAQ/JAN-23/428	29	63	13	47
National Ambient Air Quality Standards, CPCB Notification New Delhi, 18 <sup>th</sup> November, 2009 for Industrial, Residential, Rural & Other Area		60 (24 Hours Average)	100 (24 Hours Average)	80 (24 Hours Average)	80 (24 Hours Average)

Chakrabarti  
Test Done By

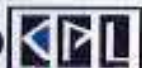


P. Sasaki  
Verified By

Subhanga Prharaj  
Managing Director

END OF TEST REPORT  
Page 1 of 1

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# Cleenviron Private Limited

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

## TEST REPORT FOR AMBIENT AIR QUALITY MONITORING

FORMAT NO: CPLFMST

REPORT NO: CPLR/AAQ/FEB-23/11N

SAMPLE DRAWN BY CLEENVIIRON PRIVATE LIMITED

REPORT ISSUE DATE: 04.02.2023

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Location of Monitoring : **Near Mines Office Area**  
 Monitoring Station Code: **A1**

Sl No	Date of Monitoring	Time of Monitoring	Carbon Monoxide (as CO)
Method of Analysis			Electrochemical Sensor
1	03.01.2023	1300 – 1400 Hrs	< 0.1
2	05.01.2023	1000 – 1100 Hrs	< 0.1
3	11.01.2023	0900 – 1000 Hrs	< 0.1
4	14.01.2023	1100 – 1200 Hrs	< 0.1
5	17.01.2023	0900 – 1000 Hrs	< 0.1
6	20.01.2023	1200 – 1300 Hrs	< 0.1
7	24.01.2023	1300 – 1400 Hrs	< 0.1
8	27.01.2023	0930 – 1030 Hrs	< 0.1
9	29.01.2023	0900 – 1000 Hrs	< 0.1
National Ambient Air Quality Standards, CPCB Notification 18 <sup>th</sup> November 2008			04 (1 Hour Average)

*P. Prakash*  
Test Done By

*P. Sareni*  
Verified By

*S. Subhanga*  
Authorized Signatory  
Subhanga Praharaj  
Managing Director



\*\*\*\*END OF TEST REPORT\*\*\*\*  
Page 1 of 1

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Registered Office:

00218, KOELNAGAR, ROURKELA – 769014, Dist: SUNDARGARH, ODISHA

Branch Office & Laboratory:

DH24, KOELNAGAR, ROURKELA – 769014, Dist: SUNDARGARH, ODISHA

Tel: Fax: 0661 – 2475766, email: cleenviron@gmail.com



# Cleenviron Private Limited

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



## TEST REPORT FOR AMBIENT AIR QUALITY MONITORING

FORMAT NO: CPL/FM/STA

ULR - TC681623000000245F

REPORT NO: CPLIR/AAQ/FEB-23/12

SAMPLE DRAWN BY CLEENVIIRON PRIVATE LIMITED

REPORT ISSUE DATE: 04.02.2023

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sampling Method : **IS: 5182 (Part - 2) & (Part - 6), EN12341**  
 Location of Monitoring : **Near Mine Main Gate**  
 Monitoring Station Code : **A2**

Sample ID No	CPL/AAQ/JAN-23/82	CPL/AAQ/JAN-23/98	CPL/AAQ/JAN-23/171	CPL/AAQ/JAN-23/216
Date of Sampling	03.01.2023 - 04.01.2023	05.01.2023 - 06.01.2023	11.01.2023 - 12.01.2023	14.01.2023 - 15.01.2023
Sampling Period	0830 - 0842 Hrs	0832 - 0844 Hrs	0833 - 0842 Hrs	0831 - 0840 Hrs
Time of Sampling	24.12 Hrs	24.12 Hrs	24.09 Hrs	24.09 Hrs
Sample Received on	06.01.2023	06.01.2023	12.01.2023	16.01.2023
Date of Test	07.01.2023	07.01.2023	13.01.2023	17.01.2023

Sample ID No	CPL/AAQ/JAN-23/236	CPL/AAQ/JAN-23/316	CPL/AAQ/JAN-23/399	CPL/AAQ/JAN-23/414	CPL/AAQ/JAN-23/429
Date of Sampling	17.01.2023 - 18.01.2023	20.01.2023 - 21.01.2023	24.01.2023 - 25.01.2023	26.01.2023 - 27.01.2023	28.01.2023 - 29.01.2023
Sampling Period	0826 - 0832 Hrs	0810 - 0823 Hrs	0823 - 0841 Hrs	0853 - 0905 Hrs	0829 - 0841 Hrs
Time of Sampling	24.06 Hrs	24.13 Hrs	24.18 Hrs	24.12 Hrs	24.12 Hrs
Sample Received on	18.01.2023	21.01.2023	25.01.2023	27.01.2023	29.01.2023
Date of Test	19.01.2023	23.01.2023	27.01.2023	28.01.2023	30.01.2023

Sl No	Sample ID	Parameters			
		PM <sub>2.5</sub> µg/m <sup>3</sup>	PM <sub>10</sub> µg/m <sup>3</sup>	SO <sub>2</sub> µg/m <sup>3</sup>	NO <sub>2</sub> µg/m <sup>3</sup>
	Units				
	Method of Analysis	CPL/SOP/11/PM2.5 Issue No: 04, dt: 23.10.2017	EN 12341, 1998 Low Volume Sampler	IS: 5182 (Part - 2) 2001, RA 2017	IS: 5182 (Part - 6) 2006, RA 2017
1.	CPL/AAQ/JAN-23/82	28	67	10	27
2.	CPL/AAQ/JAN-23/98	27	59	08	24
3.	CPL/AAQ/JAN-23/171	30	71	06	25
4.	CPL/AAQ/JAN-23/216	26	66	10	24
5.	CPL/AAQ/JAN-23/236	28	60	08	28
6.	CPL/AAQ/JAN-23/316	26	58	08	25
7.	CPL/AAQ/JAN-23/399	25	70	12	30
8.	CPL/AAQ/JAN-23/414	26	57	04	19
9.	CPL/AAQ/JAN-23/429	27	64	07	18
National Ambient Air Quality Standards, CPCB Notification New Delhi, 18 <sup>th</sup> November, 2009 for Industrial, Residential, Rural & Other Area		60 (24 Hours Average)	100 (24 Hours Average)	80 (24 Hours Average)	80 (24 Hours Average)



P. Sasoni  
Verified By

Authorized Signatory  
Subhanga Praharaj  
Managing Director

\*\*\*\*\*END OF TEST REPORT\*\*\*\*\*  
Page 1 of 1

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# Cleenviron Private Limited

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

## TEST REPORT FOR AMBIENT AIR QUALITY MONITORING

FORMAT NO.: CPL/R/ST

REPORT NO: CPL/R/AAQ/FEB-23/12N

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

REPORT ISSUE DATE: 04.02.2023

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Location of Monitoring : **Near Mine Main Gate**  
 Monitoring Station Code : **A2**

Sl No	Date of Monitoring	Time of Monitoring	Carbon Monoxide (as CO)
			Electrochemical Sensor
Method of Analysis			
1	03.01.2023	1300 - 1400 Hrs	< 0.1
2	05.01.2023	1000 - 1100 Hrs	< 0.1
3	11.01.2023	0900 - 1000 Hrs	< 0.1
4	14.01.2023	1100 - 1200 Hrs	< 0.1
5	17.01.2023	0900 - 1000 Hrs	< 0.1
6	20.01.2023	1200 - 1300 Hrs	< 0.1
7	24.01.2023	1300 - 1400 Hrs	< 0.1
8	27.01.2023	0930 - 1030 Hrs	< 0.1
9	29.01.2023	0900 - 1000 Hrs	< 0.1
National Ambient Air Quality Standards, CPCB Notification 18 <sup>th</sup> November 2009			04 (1 Hour Average)

*C. Acharya*  
Test Done By

*P. Saini*  
Verified By

*S. Prashar*  
Authorized Signatory  
Subhanga Prashar  
Managing Director



END OF TEST REPORT

Page 1 of 1

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# Cleenviron Private Limited

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



## TEST REPORT FOR AMBIENT AIR QUALITY MONITORING

FORMAT NO: CPL/PM2.5A

ULR - TC68162300000246F

REPORT NO: CPL/AAQ/FEB-23/13

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

REPORT ISSUE DATE: 04.02.2023

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sampling Method : **IS: 5182 (Part - 2) & (Part - 6), EN12341**  
 Location of Monitoring : **Near Mine Pit - 1**  
 Monitoring Station Code : **A3**

Sample ID No	CPL/AAQ/JAN-23/79	CPL/AAQ/JAN-23/94	CPL/AAQ/JAN-23/168	CPL/AAQ/JAN-23/218
Date of Sampling	03.01.2023 - 04.01.2023	05.01.2023 - 06.01.2023	11.01.2023 - 12.01.2023	14.01.2023 - 15.01.2023
Sampling Period	0842 - 0856 Hrs	0842 - 0815 Hrs	0845 - 0857 Hrs	0842 - 0856 Hrs
Time of Sampling	24.14 Hrs	24.13 Hrs	24.13 Hrs	24.14 Hrs
Sample Received on	06.01.2023	06.01.2023	12.01.2023	16.01.2023
Date of Test	07.01.2023	07.01.2023	13.01.2023	17.01.2023

Sample ID No	CPL/AAQ/JAN-23/234	CPL/AAQ/JAN-23/317	CPL/AAQ/JAN-23/400	CPL/AAQ/JAN-23/415	CPL/AAQ/JAN-23/430
Date of Sampling	17.01.2023 - 18.01.2023	20.01.2023 - 21.01.2023	24.01.2023 - 25.01.2023	26.01.2023 - 27.01.2023	28.01.2023 - 29.01.2023
Sampling Period	0834 - 0842 Hrs	0823 - 0840 Hrs	0842 - 0857 Hrs	0830 - 0841 Hrs	0839 - 0852 Hrs
Time of Sampling	24.08 Hrs	24.07 Hrs	24.15 Hrs	24.11 Hrs	24.13 Hrs
Sample Received on	18.01.2023	21.01.2023	25.01.2023	27.01.2023	29.01.2023
Date of Test	19.01.2023	23.01.2023	27.01.2023	28.01.2023	30.01.2023

Sl No	Sample ID	Parameters			
		PM <sub>2.5</sub>	PM <sub>10</sub>	SO <sub>2</sub>	NO <sub>2</sub>
Units		µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>
Method of Analysis		CPL/SOP/PM2.5, Issue No: 04, dt: 21.10.2017	EN 12341, 1038 Low Volume Sampler	IS:5182 (Part - 2) 2001, RA 2017	IS: 5182 (Part - 1) 2004, RA 2017
1	CPL/AAQ/JAN-23/79	30	67	08	22
2	CPL/AAQ/JAN-23/94	29	59	08	17
3	CPL/AAQ/JAN-23/168	25	74	08	25
4	CPL/AAQ/JAN-23/218	27	65	11	29
5	CPL/AAQ/JAN-23/234	29	68	07	24
6	CPL/AAQ/JAN-23/317	26	63	07	33
7	CPL/AAQ/JAN-23/400	33	84	08	24
8	CPL/AAQ/JAN-23/415	25	67	06	25
9	CPL/AAQ/JAN-23/430	22	63	10	25
National Ambient Air Quality Standards, CPCB Notification New Delhi, 18 <sup>th</sup> November, 2009 for Industrial, Residential, Rural & Other Area		60 (24 Hours Average)	100 (24 Hours Average)	80 (24 Hours Average)	80 (24 Hours Average)

Test Done By



Verified By

Authorized Signatory  
Subhanga Praharaj  
Managing Director

END OF TEST REPORT  
Page 1 of 1

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# Cleenviron Private Limited

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

## TEST REPORT FOR AMBIENT AIR QUALITY MONITORING

FORMAT NO: CPLPMS1

REPORT NO: CPLIR/AAQ/FEB-23/13N

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

REPORT ISSUE DATE: 04.02.2023

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Location of Monitoring : **Near Mine Pit - 1**  
 Monitoring Station Code : **A3**

Sl No	Date of Monitoring	Time of Monitoring	Carbon Monoxide (as CO)
Method of Analysis			Electro-chemical Sensor
1	03.01.2023	1300 - 1400 Hrs	< 0.1
2	05.01.2023	1000 - 1100 Hrs	< 0.1
3	11.01.2023	0900 - 1000 Hrs	< 0.1
4	14.01.2023	1100 - 1200 Hrs	< 0.1
5	17.01.2023	0900 - 1000 Hrs	< 0.1
6	20.01.2023	1200 - 1300 Hrs	< 0.1
7	24.01.2023	1300 - 1400 Hrs	< 0.1
8	27.01.2023	0930 - 1030 Hrs	< 0.1
9	29.01.2023	0900 - 1000 Hrs	< 0.1
National Ambient Air Quality Standards, CPCB Notification 18 <sup>th</sup> November 2009			04 (1 Hour Average)

*Subhanga*  
Test Done By

*P. Sareni*  
Verified By

*Subhanga*  
Authorized Signatory  
Subhanga Praharaj  
Managing Director



\*\*\*\*\*END OF TEST REPORT\*\*\*\*\*

Page 1 of 1

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# Cleenviron Private Limited

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



## TEST REPORT FOR AMBIENT AIR QUALITY MONITORING

FORMAT NO: CPL/MSA

ULR - TC68162300000247F

REPORT NO: CPL/AAQ/FEB-23/14

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

REPORT ISSUE DATE: 04.02.2023

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA  
 Sampling Method : IS: 5182 (Part - 2) & (Part - 6), EN12341  
 Location of Monitoring : **Near Mine Pit - 2**  
 Monitoring Station Code : **A4**

Sample ID No	CPL/AAQ/JAN-23/80	CPL/AAQ/JAN-23/95	CPL/AAQ/JAN-23/170	CPL/AAQ/JAN-23/219
Date of Sampling	03.01.2023 - 04.01.2023	05.01.2023 - 06.01.2023	11.01.2023 - 12.01.2023	14.01.2023 - 15.01.2023
Sampling Period	0809 - 0815 Hrs	0809 - 0815 Hrs	0812 - 0821 Hrs	0810 - 0818 Hrs
Time of Sampling	24.06 Hrs	24.06 Hrs	24.09 Hrs	24.18 Hrs
Sample Received on	06.01.2023	06.01.2023	12.01.2023	16.01.2023
Date of Test	07.01.2023	07.01.2023	13.01.2023	17.01.2023

Sample ID No	CPL/AAQ/JAN-23/235	CPL/AAQ/JAN-23/314	CPL/AAQ/JAN-23/401	CPL/AAQ/JAN-23/416	CPL/AAQ/JAN-23/431
Date of Sampling	17.01.2023 - 18.01.2023	20.01.2023 - 21.01.2023	24.01.2023 - 25.01.2023	26.01.2023 - 27.01.2023	28.01.2023 - 29.01.2023
Sampling Period	0805 - 0814 Hrs	0745 - 0802 Hrs	0807 - 0815 Hrs	0817 - 0825 Hrs	0802 - 0811 Hrs
Time of Sampling	24.09 Hrs	24.17 Hrs	24.08 Hrs	24.08 Hrs	24.09 Hrs
Sample Received on	18.01.2023	21.01.2023	25.01.2023	27.01.2023	29.01.2023
Date of Test	19.01.2023	23.01.2023	27.01.2023	28.01.2023	30.01.2023

Sl. No.	Sample ID	Parameters			
		PM <sub>2.5</sub> µg/m <sup>3</sup>	PM <sub>10</sub> µg/m <sup>3</sup>	SO <sub>2</sub> µg/m <sup>3</sup>	NO <sub>2</sub> µg/m <sup>3</sup>
	Units				
	Method of Analysis	CPL/MSA/19/002.3, Issue No: 84, dtd: 23.10.2017	EN 12341, 1991 Low Volume Sampler	IS 5182 (Part - 2) 2001, RA 2017	IS: 5182 (Part - 6) 2006, RA 2017
1.	CPL/AAQ/JAN-23/80	26	62	10	25
2.	CPL/AAQ/JAN-23/95	26	65	09	27
3.	CPL/AAQ/JAN-23/170	30	78	10	28
4.	CPL/AAQ/JAN-23/219	27	70	07	23
5.	CPL/AAQ/JAN-23/235	29	75	10	35
6.	CPL/AAQ/JAN-23/314	24	68	11	29
7.	CPL/AAQ/JAN-23/401	29	59	05	27
8.	CPL/AAQ/JAN-23/416	27	65	08	23
9.	CPL/AAQ/JAN-23/431	22	55	12	27
National Ambient Air Quality Standards, CPCB Notification New Delhi, 19 <sup>th</sup> November, 2009 for Industrial, Residential, Rural & Other Area		60 (24 Hours Average)	100 (24 Hours Average)	80 (24 hours Average)	80 (24 Hours Average)



P. Saini  
Verified By

Authorized Signatory  
Subhanga Praharaj  
Managing Director

\*\*\*\*END OF TEST REPORT\*\*\*\*  
Page 1 of 1

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# Cleenviron Private Limited

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

## TEST REPORT FOR AMBIENT AIR QUALITY MONITORING

FORMAT NO: CPL/FMS7

REPORT NO: CPL/R/AAQ/FEB-23/14N

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

REPORT ISSUE DATE: 04.02.2023

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Location of Monitoring : **Near Mine Pit - 2**  
 Monitoring Station Code : **A4**

Sl No	Date of Monitoring	Time of Monitoring	Carbon Monoxide (as CO)
			Electrochemical Sensor
			Method of Analysis
1	03.01.2023	1300 - 1400 Hrs	< 0.1
2	05.01.2023	1000 - 1100 Hrs	< 0.1
3	11.01.2023	0900 - 1000 Hrs	< 0.1
4	14.01.2023	1100 - 1200 Hrs	< 0.1
5	17.01.2023	0900 - 1000 Hrs	< 0.1
6	20.01.2023	1200 - 1300 Hrs	< 0.1
7	24.01.2023	1300 - 1400 Hrs	< 0.1
8	27.01.2023	0930 - 1030 Hrs	< 0.1
9	29.01.2023	0900 - 1000 Hrs	< 0.1
National Ambient Air Quality Standards, CPCB Notification 18 <sup>th</sup> November 2009			04 (1 Hour Average)

*C. Sahas*  
Test Done By

*P. Saseeni*  
Verified By

*Subhanga Pratihara*  
Authorized Signatory  
Subhanga Pratihara  
Managing Director



\*\*\*\*\*END OF TEST REPORT\*\*\*\*\*

Page 1 of 1

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

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



# Cleenviron Private Limited

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



## TEST REPORT FOR AMBIENT AIR QUALITY MONITORING

FORMAT NO: CPL/MS7A

ULR - TC68162300000248F  
REPORT NO: CPL/AAQ/FEB-23/15

REPORT ISSUE DATE: 04.02.2023

SAMPLE DRAWN BY CLEENVIIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sampling Method : **IS: 5182 (Part - 2) & (Part - 6), EN12341**  
 Location of Monitoring : **Khatkurbahal Village Area (Buffer Zone)**  
 Monitoring Station Code : **A5**

Sample ID No	CPL/AAQ/JAN-23/83	CPL/AAQ/JAN-23/96	CPL/AAQ/JAN-23/172	CPL/AAQ/JAN-23/217
Date of Sampling	03.01.2023 - 04.01.2023	05.01.2023 - 06.01.2023	11.01.2023 - 12.01.2023	14.01.2023 - 15.01.2023
Sampling Period	0750 - 0803 Hrs	0750 - 0802 Hrs	0805 - 0810 Hrs	0752 - 0805 Hrs
Time of Sampling	24.13 Hrs	24.12 Hrs	24.05 Hrs	24.13 Hrs
Sample Received on	06.01.2023	06.01.2023	12.01.2023	16.01.2023
Date of Test	07.01.2023	07.01.2023	13.01.2023	17.01.2023

Sample ID No	CPL/AAQ/JAN-23/238	CPL/AAQ/JAN-23/318	CPL/AAQ/JAN-23/402	CPL/AAQ/JAN-23/417	CPL/AAQ/JAN-23/432
Date of Sampling	17.01.2023 - 18.01.2023	20.01.2023 - 21.01.2023	24.01.2023 - 25.01.2023	26.01.2023 - 27.01.2023	28.01.2023 - 29.01.2023
Sampling Period	0750 - 0804 Hrs	0737 - 0730 Hrs	0750 - 0802 Hrs	0802 - 0814 Hrs	0745 - 0757 Hrs
Time of Sampling	20.14 Hrs	23.53 Hrs	24.12 Hrs	24.12 Hrs	24.12 Hrs
Sample Received on	18.01.2023	21.01.2023	25.01.2023	27.01.2023	29.01.2023
Date of Test	19.01.2023	23.01.2023	27.01.2023	28.01.2023	30.01.2023

Sl No	Sample ID	Parameters			
		PM <sub>2.5</sub> µg/m <sup>3</sup>	PM <sub>10</sub> µg/m <sup>3</sup>	SO <sub>2</sub> µg/m <sup>3</sup>	NO <sub>2</sub> µg/m <sup>3</sup>
	Units				
	Method of Analysis	CPL/CPA/01/PM2.5, Issue No. 04, Ed. 23.10.2017	EN 12341, 1998 Low Volume Sampler	IS:502 (Part - 2) 2001, RA 2017	IS: 5182 (Part - 6) 2006, RA 2017
1	CPL/AAQ/JAN-23/83	22	55	07	28
2	CPL/AAQ/JAN-23/96	24	59	11	30
3	CPL/AAQ/JAN-23/172	21	54	05	30
4	CPL/AAQ/JAN-23/217	24	61	07	30
5	CPL/AAQ/JAN-23/238	22	55	07	20
6	CPL/AAQ/JAN-23/318	26	66	03	18
7	CPL/AAQ/JAN-23/402	26	61	05	16
8	CPL/AAQ/JAN-23/417	27	63	04	19
9	CPL/AAQ/JAN-23/432	25	60	10	26
National Ambient Air Quality Standards, CPCB Notification New Delhi, 18 <sup>th</sup> November, 2009 for Industrial, Residential, Rural & Other Area		60 (24 Hours Average)	100 (24 Hours Average)	80 (24 Hours Average)	80 (24 Hours Average)

Test Done By



Verified By

Authorized Signatory  
Subhanga Prabhara  
Managing Director

END OF TEST REPORT  
Page 1 of 1

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# Cleenviron Private Limited

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

## TEST REPORT FOR AMBIENT AIR QUALITY MONITORING

FORMAT NO: CPL/MSF

REPORT NO: CPL/R/AAQ/FEB-23/15N

SAMPLE DRAWN BY CLEENVIIRON PRIVATE LIMITED

REPORT ISSUE DATE: 04.02.2023

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Location of Monitoring : **Khatkurbahal Village Area (Buffer Zone)**  
 Monitoring Station Code : **A5**

Sl No	Date of Monitoring	Time of Monitoring	Carbon Monoxide (as CO)
			Electrochemical Sensor
			Method of Analysis →
1	03.01.2023	1300 – 1400 Hrs	< 0.1
2	05.01.2023	1000 – 1100 Hrs	< 0.1
3	11.01.2023	0900 – 1000 Hrs	< 0.1
4	14.01.2023	1100 – 1200 Hrs	< 0.1
5	17.01.2023	0900 – 1000 Hrs	< 0.1
6	20.01.2023	1200 – 1300 Hrs	< 0.1
7	24.01.2023	1300 – 1400 Hrs	< 0.1
8	27.01.2023	0930 – 1030 Hrs	< 0.1
9	29.01.2023	0900 – 1000 Hrs	< 0.1
National Ambient Air Quality Standards, CPCB Notification 18 <sup>th</sup> November 2009			04 (1 Hour Average)

*Chetankar*  
Test Done By

*P. Saseeni*  
Verified By

*Subhanga Praharaj*  
Authorized Signatory  
Subhanga Praharaj  
Managing Director



\*\*\*\*END OF TEST REPORT\*\*\*\*

Page 1 of 1

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# Cleenviron Private Limited

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## TEST REPORT FOR WATER QUALITY ANALYSIS

FORMAT NO: CPL/PM/89

ULR - TC68162300000213F  
REPORT NO: CPL/R/W/JAN-23/45

REPORT ISSUE DATE: 30.01.2023

SAMPLE DRAWN BY: CLEENVIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sample ID No : **CPL/W/JAN-23/29**  
 Date of Sampling : **14.01.2023**  
 Sample Description : **Ground Water**  
 Location of Sampling : **Bore well Near Mines Office**  
 Sampling Method : **APHA 23<sup>rd</sup> 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 : **Wide mouth Plastic Bottles**  
 Sample Received on : **16.01.2023**  
 Date of Test : **16.01.2023 - 23.01.2023**

Sl No	Parameter	Method of Analysis	Results Obtained	Unit	Acceptable Limit as per IS 10500, 2012
1	Turbidity	APHA 23 <sup>rd</sup> Edition, 2130 B	0.30	NTU	1.0
2	pH Value	APHA 23 <sup>rd</sup> Edition, 4500 H+B	7.42	-	6.5 - 8.5
3	Total Hardness (as CaCO <sub>3</sub> )	APHA 23 <sup>rd</sup> Edition, 2340 C	300	mg/l	200
4	Iron (as Fe)	APHA 23 <sup>rd</sup> Edition, 3500 Fe B	0.29	mg/l	0.3
5	Chlorides (as Cl)	APHA 23 <sup>rd</sup> Edition, 4500 Cl B	55.98	mg/l	250
6	Total Dissolved Solids	APHA 23 <sup>rd</sup> Edition, 2540 B	390	mg/l	500
7	Electrical Conductivity	APHA 23 <sup>rd</sup> Edition, 2510 B	636	µS/cm	-
8	Calcium (as Ca)	APHA 23 <sup>rd</sup> Edition, 3500 Ca B	86.57	mg/l	75
9	Magnesium (as Mg)	APHA 23 <sup>rd</sup> Edition, 3500 Mg B	20.41	mg/l	30
10	Copper (as Cu)	APHA 23 <sup>rd</sup> Edition, 3111 B	< 0.10	mg/l	0.05
11	Manganese (as Mn)	APHA 23 <sup>rd</sup> Edition, 3500 Mn B	< 0.05	mg/l	0.1
12	Sulfate (as SO <sub>4</sub> )	APHA 23 <sup>rd</sup> Edition, 4500 SO <sub>4</sub> 2 E	10.48	mg/l	200
13	Total Nitrate (as NO <sub>3</sub> )	APHA 23 <sup>rd</sup> Edition, 4500 NO <sub>3</sub> B	6.31	mg/l	45
14	Total Alkalinity (as CaCO <sub>3</sub> )	APHA 23 <sup>rd</sup> Edition, 2320 B	204	mg/l	200
15	Acidity	APHA 23 <sup>rd</sup> Edition, 2310 B	28	mg/l	-
16	Sulphide (as H <sub>2</sub> S)	APHA 23 <sup>rd</sup> Edition, 4500 S <sup>2-</sup> D	< 0.02	mg/l	0.05
17	Sodium (as Na)	APHA 23 <sup>rd</sup> Edition, 3500 Na B	20.56	mg/l	-
18	Potassium (as K)	APHA 23 <sup>rd</sup> Edition, 3500 K B	6.61	mg/l	-
19	Fluoride (as F)	APHA 23 <sup>rd</sup> Edition, 4500 F D	< 0.05	mg/l	1.0

*[Signature]*  
Test Done By



*[Signature]*  
Verified By

*[Signature]*  
Authorized Signatory  
Subhanga Prahara  
Managing Director

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## TEST REPORT FOR WATER QUALITY ANALYSIS

FORMAT NO: CPLRWS

QILR - TC681623000000213F

REPORT NO: CPLR/W/JAN-23/45

REPORT ISSUE DATE: 30.01.2023

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sample ID No : **CPL/W/JAN-23/29**  
 Date of Sampling : **14.01.2023**  
 Sample Description : **Ground Water**  
 Location of Sampling : **Bore well Near Mines Office**  
 Sampling Method : **APHA 23<sup>rd</sup> Edition, 1060**  
 Sampling Deviation (if any) : **Nil**  
 Condition of Sample while receipt : **Ssealed**  
 Appearance of Sample while receipt : **Clear**  
 Type of Container used for sampling : **Wide mouth Plastic Bottles**  
 Sample Received on : **16.01.2023**  
 Date of Test : **16.01.2023 - 23.01.2023**

Sl No	Parameter	Method of Analysis	Results Obtained	Unit	Acceptable Limit as per IS 10500: 2012
20	Cadmium (as Cd)	APHA 23 <sup>rd</sup> Edition, 3111 B	ND	mg/l	0.003
21	Lead (as Pb)	APHA 23 <sup>rd</sup> Edition, 3111 B	ND	mg/l	0.01
22	Arsenic (as As)	APHA 23 <sup>rd</sup> Edition, 3114 B	ND	mg/l	0.01
23	Mercury (as Hg)	APHA 23 <sup>rd</sup> Edition, 3112 B	ND	mg/l	0.001
24	Selenium (as Se)	APHA 23 <sup>rd</sup> Edition, 3114 C	ND	mg/l	0.01
25	Nickel (as Ni)	APHA 23 <sup>rd</sup> Edition, 3111 B	ND	mg/l	0.02
26	Zinc (as Zn)	APHA 23 <sup>rd</sup> Edition, 3111 B	ND	mg/l	5.0
27	Total Chromium (as Cr)	APHA 23 <sup>rd</sup> Edition, 3111 B	ND	mg/l	0.05

ND: Non Detectable.

*C. Sahas*  
Test Done By

*M. P. Prasad*  
Verified By

*S. Prasad*  
Authorized Signatory  
Subhanga Praharaj  
Managing Director



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

Page 2 of 2

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Registered Office:

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D/124, KOELNAGAR, ROURKELA - 769014, Dist: SUNDARGARH, ODISHA



# Cleenviron Private Limited

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

## TEST REPORT FOR WATER QUALITY ANALYSIS

FORMAT NO: CPL/RSB

REPORT NO: CPLR/W/JAN-23/45N

REPORT ISSUE DATE: 30.01.2023

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sample ID No : **CPL/W/JAN-23/29**  
 Date of Sampling : **14.01.2023**  
 Sample Description : **Ground Water**  
 Location of Sampling : **Bore well Near Mines Office**  
 Sampling Method : **APHA 23<sup>rd</sup> 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 : **Wide mouth Plastic Bottles**  
 Sample Received on : **16.01.2023**  
 Date of Test : **16.01.2023 – 23.01.2023**

Sl No	Parameter	Method of Analysis	Results Obtained	Unit	Acceptable Limit as per IS 10500: 2012
1	Colour	APHA 23 <sup>rd</sup> Edition, 2120 B	< 5	Hazen	5
2	Odour	APHA 23 <sup>rd</sup> Edition, 2150 B	Agreeable	-	Agreeable
3	Taste	APHA 23 <sup>rd</sup> Edition, 2160 B	Agreeable	-	Agreeable
4	Temperature	APHA 23 <sup>rd</sup> Edition, 2550 B	22.1	°C	-
5	Residual Free Chlorine	MERCK	0.07	mg/l	0.2 (min)
6	Total Bacterial Count	RAKIRO	Absent	Nos/100ml	Absent
7	E coli	RAKIRO	Absent	Nos/100ml	Absent

*Cusachon*  
Test Done By



*Subhanga*  
Verified By

*Subhanga*  
Authorized Signatory  
Subhanga Praharaj  
Managing Director

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

Page 1 of 1

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# Cleenviron Private Limited

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## TEST REPORT FOR WATER QUALITY ANALYSIS

FORMAT NO: CPWFMS

ULR - TC68162300000214F  
REPORT NO: CPL/R/W/JAN-23/46

REPORT ISSUE DATE: 30.01.2023

SAMPLE DRAWN BY CLEENVIIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sample ID No : **CPL/W/JAN-23/45**  
 Date of Sampling : **20.01.2023**  
 Sample Description : **Ground Water**  
 Location of Sampling : **Tube well Village Khatkurbahal**  
 Sampling Method : **APHA 23<sup>rd</sup> 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 : **Wide mouth Plastic Bottles**  
 Sample Received on : **20.01.2023**  
 Date of Test : **20.01.2023 - 27.01.2023**

Sl No	Parameter	Method of Analysis	Results Obtained	Unit	Acceptable Limit as per IS 10500: 2012
1	Turbidity	APHA 23 <sup>rd</sup> Edition, 2130 B	1.8	NTU	1.0
2	pH Value	APHA 23 <sup>rd</sup> Edition, 4500 H+B	6.88	-	6.5 - 8.5
3	Total Hardness (as CaCO <sub>3</sub> )	APHA 23 <sup>rd</sup> Edition, 2340 C	272	mg/l	200
4	Iron (as Fe)	APHA 23 <sup>rd</sup> Edition, 3500 Fe B	0.21	mg/l	0.3
5	Chlorides (as Cl)	APHA 23 <sup>rd</sup> Edition, 4500 Cl B	13.99	mg/l	250
6	Total Dissolved Solids	APHA 23 <sup>rd</sup> Edition, 2540 B	319	mg/l	500
7	Electrical Conductivity	APHA 23 <sup>rd</sup> Edition, 2510 B	490	µS/cm	-
8	Calcium (as Ca)	APHA 23 <sup>rd</sup> Edition, 3500 Ca B	57.72	mg/l	75
9	Magnesium (as Mg)	APHA 23 <sup>rd</sup> Edition, 3500 Mg B	31.10	mg/l	30
10	Copper (as Cu)	APHA 23 <sup>rd</sup> Edition, 3111 B	< 0.10	mg/l	0.05
11	Manganese (as Mn)	APHA 23 <sup>rd</sup> Edition, 3500 Mn B	< 0.05	mg/l	0.1
12	Sulfate (as SO <sub>4</sub> )	APHA 23 <sup>rd</sup> Edition, 4500 SO <sub>4</sub> <sup>2-</sup> E	2.96	mg/l	200
13	Total Nitrate (as NO <sub>3</sub> )	APHA 23 <sup>rd</sup> Edition, 4500 NO <sub>3</sub> B	4.06	mg/l	45
14	Total Alkalinity (as CaCO <sub>3</sub> )	APHA 23 <sup>rd</sup> Edition, 2320 B	200	mg/l	200
15	Acidity	APHA 23 <sup>rd</sup> Edition, 2310 B	10	mg/l	-
16	Sulphide (as H <sub>2</sub> S)	APHA 23 <sup>rd</sup> Edition, 4500 S <sup>2-</sup> D	< 0.02	mg/l	0.05
17	Sodium (as Na)	APHA 23 <sup>rd</sup> Edition, 3500 Na B	14.86	mg/l	-
18	Potassium (as K)	APHA 23 <sup>rd</sup> Edition, 3500 K B	7.40	mg/l	-
19	Fluoride (as F)	APHA 23 <sup>rd</sup> Edition, 4500 F D	< 0.05	mg/l	1.0

Test Done By



Verified By

Authorized Signatory  
Subhanga Praharaj  
Managing Director

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Branch Office & Laboratory:

D/124, KOELNAGAR, ROURKELA - 769014, Dist: SUNDARGARH, ODISHA

Tel: Fax: 0661 - 2425245, 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/WM

JLR - TC68162300000214F  
REPORT NO: CPL/RW/JAN-23/45

REPORT ISSUE DATE: 30.01.2023

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sample ID No : **CPL/W/JAN-23/45**  
 Date of Sampling : **20.01.2023**  
 Sample Description : **Ground Water**  
 Location of Sampling : **Tube well Village Khatkurbahal**  
 Sampling Method : **APHA 23<sup>rd</sup> 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 : **Wide mouth Plastic Bottles**  
 Sample Received on : **20.01.2023**  
 Date of Test : **20.01.2023 - 27.01.2023**

Sl No	Parameter	Method of Analysis	Results Obtained	Unit	Acceptable Limit as per IS 10500: 2012
20	Cadmium (as Cd)	APHA 23 <sup>rd</sup> Edition, 3111 B	ND	mg/l	0.003
21	Lead (as Pb)	APHA 23 <sup>rd</sup> Edition, 3111 B	ND	mg/l	0.01
22	Arsenic (as As)	APHA 23 <sup>rd</sup> Edition, 3114 B	ND	mg/l	0.01
23	Mercury (as Hg)	APHA 23 <sup>rd</sup> Edition, 3112 B	ND	mg/l	0.001
24	Selenium (as Se)	APHA 23 <sup>rd</sup> Edition, 3114 C	ND	mg/l	0.01
25	Nickel (as Ni)	APHA 23 <sup>rd</sup> Edition, 3111 B	ND	mg/l	0.02
26	Zinc (as Zn)	APHA 23 <sup>rd</sup> Edition, 3111 B	ND	mg/l	5.0
27	Total Chromium (as Cr)	APHA 23 <sup>rd</sup> Edition, 3111 B	ND	mg/l	0.05

ND: Non Detectable.

*Cusahor*  
Test Done By



*Subhanga*  
Verified By

*Subhanga*  
Authorized Signatory  
Subhanga Praharaj  
Managing Director

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

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## TEST REPORT FOR WATER QUALITY ANALYSIS

FORMAT NO: CPL/FMS

REPORT NO: CPL/R/WIJAN-23/46N

REPORT ISSUE DATE: 30.01.2023

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sample ID No : **CPLW/IJAN-23/45**  
 Date of Sampling : **20.01.2023**  
 Sample Description : **Ground Water**  
 Location of Sampling : **Tube well Village Khatkurbahal**  
 Sampling Method : **APHA 23<sup>rd</sup> 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 : **Wide mouth Plastic Bottles**  
 Sample Received on : **20.01.2023**  
 Date of Test : **20.01.2023 - 27.01.2023**

Sl No	Parameter	Method of Analysis	Results Obtained	Unit	Acceptable Limit as per IS 10500: 2012
1	Colour	APHA 23 <sup>rd</sup> Edition, 2120 B	< 5	Hazen	5
2	Odour	APHA 23 <sup>rd</sup> Edition, 2150 B	Agreeable	-	Agreeable
3	Taste	APHA 23 <sup>rd</sup> Edition, 2160 B	Agreeable	-	Agreeable
4	Temperature	APHA 23 <sup>rd</sup> Edition, 2550 B	24.1	°C	-
5	Residual Free Chlorine	MERCK	0.16	mg/l	0.2 (min)
6	Total Bacterial Count	RAKIRO	Absent	Nos/100ml	Absent
7	E coli	RAKIRO	Absent	Nos/100ml	Absent

*C. Prasad*  
Test Done By



*[Signature]*  
Verified By

*[Signature]*  
Authorized Signatory  
Subhanga Praharaj  
Managing Director

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

Page 1 of 1

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Branch Office & Laboratory:

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Tele Fax: 0661 - 2475746, email: cleenviron@rediffmail.com



# Cleenviron Private Limited

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## TEST REPORT FOR WATER QUALITY ANALYSIS

FORMAT NO: CPL/R/W

ULR - TC68162300000215F

REPORT NO: CPL/R/W/JAN-23/47

REPORT ISSUE DATE: 30.01.2023

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sample ID No : **CPL/W/JAN-23/46**  
 Date of Sampling : **20.01.2023**  
 Sample Description : **Ground Water**  
 Location of Sampling : **Tube well Village Kullen Bahal**  
 Sampling Method : **APHA 23<sup>rd</sup> 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 : **Wide mouth Plastic Bottles**  
 Sample Received on : **20.01.2023**  
 Date of Test : **20.01.2023 - 27.01.2023**

Sl No	Parameter	Method of Analysis	Results Obtained	Unit	Acceptable Limit as per IS 10500: 2012
1	Turbidity	APHA 23 <sup>rd</sup> Edition, 2130 B	1.0	NTU	1.0
2	pH Value	APHA 23 <sup>rd</sup> Edition, 4500 H+B	6.49	-	6.5 - 8.5
3	Total Hardness (as CaCO <sub>3</sub> )	APHA 23 <sup>rd</sup> Edition, 2340 C	32	mg/l	200
4	Iron (as Fe)	APHA 23 <sup>rd</sup> Edition, 3500 Fe B	0.19	mg/l	0.3
5	Chlorides (as Cl)	APHA 23 <sup>rd</sup> Edition, 4500 Cl B	4.99	mg/l	250
6	Total Dissolved Solids	APHA 23 <sup>rd</sup> Edition, 2540 B	58	mg/l	500
7	Electrical Conductivity	APHA 23 <sup>rd</sup> Edition, 2510 B	95.1	µS/cm	-
8	Calcium (as Ca)	APHA 23 <sup>rd</sup> Edition, 3500 Ca B	8.02	mg/l	75
9	Magnesium (as Mg)	APHA 23 <sup>rd</sup> Edition, 3500 Mg B	2.92	mg/l	30
10	Copper (as Cu)	APHA 23 <sup>rd</sup> Edition, 3111 B	< 0.10	mg/l	0.05
11	Manganese (as Mn)	APHA 23 <sup>rd</sup> Edition, 3500 Mn B	< 0.05	mg/l	0.1
12	Sulfate (as SO <sub>4</sub> )	APHA 23 <sup>rd</sup> Edition, 4500 SO <sub>4</sub> <sup>2-</sup> E	5.19	mg/l	200
13	Total Nitrate (as NO <sub>3</sub> )	APHA 23 <sup>rd</sup> Edition, 4500 NO <sub>3</sub> B	4.06	mg/l	45
14	Total Alkalinity (as CaCO <sub>3</sub> )	APHA 23 <sup>rd</sup> Edition, 2320 B	28	mg/l	200
15	Acidity	APHA 23 <sup>rd</sup> Edition, 2310 B	04	mg/l	-
16	Sulphide (as H <sub>2</sub> S)	APHA 23 <sup>rd</sup> Edition, 4500 S <sup>2-</sup> D	< 0.02	mg/l	0.05
17	Sodium (as Na)	APHA 23 <sup>rd</sup> Edition, 3500 Na B	4.65	mg/l	-
18	Potassium (as K)	APHA 23 <sup>rd</sup> Edition, 3500 K B	2.51	mg/l	-
19	Fluoride (as F)	APHA 23 <sup>rd</sup> Edition, 4500 F D	< 0.05	mg/l	1.0

Test Done By



Verified By

Authorized Signatory  
 Subhanga Prahara  
 Managing Director

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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/FMS

JLR - TC68162300000215F  
REPORT NO: CPL/R/W/JAN-23/47

REPORT ISSUE DATE: 30.01.2023

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sample ID No : **CPL/W/JAN-23/46**  
 Date of Sampling : **20.01.2023**  
 Sample Description : **Ground Water**  
 Location of Sampling : **Tube well Village Kullen Bahal**  
 Sampling Method : **APHA 23<sup>rd</sup> 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 : **Wide mouth Plastic Bottles**  
 Sample Received on : **20.01.2023**  
 Date of Test : **20.01.2023 - 27.01.2023**

Sl No	Parameter	Method of Analysis	Results Obtained	Unit	Acceptable Limit as per IS 10500: 2012
20	Cadmium (as Cd)	APHA 23 <sup>rd</sup> Edition, 3111 B	ND	mg/l	0.003
21	Lead (as Pb)	APHA 23 <sup>rd</sup> Edition, 3111 B	ND	mg/l	0.01
22	Arsenic (as As)	APHA 23 <sup>rd</sup> Edition, 3114 B	ND	mg/l	0.01
23	Mercury (as Hg)	APHA 23 <sup>rd</sup> Edition, 3112 B	ND	mg/l	0.001
24	Selenium (as Se)	APHA 23 <sup>rd</sup> Edition, 3114 C	ND	mg/l	0.01
25	Nickel (as Ni)	APHA 23 <sup>rd</sup> Edition, 3111 B	ND	mg/l	0.02
26	Zinc (as Zn)	APHA 23 <sup>rd</sup> Edition, 3111 B	ND	mg/l	5.0
27	Total Chromium (as Cr)	APHA 23 <sup>rd</sup> Edition, 3111 B	ND	mg/l	0.05

ND: Non Detectable.

*Puresh*  
Test Done By

*[Signature]*  
Verified By

*[Signature]*  
Authorized Signatory  
Subhanga Praharaj  
Managing Director



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

Page 2 of 2

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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/FORM

REPORT NO: CPL/R/W/JAN-23/47N

REPORT ISSUE DATE: 30.01.2023

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sample ID No : **CPL/W/JAN-23/46**  
 Date of Sampling : **20.01.2023**  
 Sample Description : **Ground Water**  
 Location of Sampling : **Tube well Village Kullen Bahal**  
 Sampling Method : **APHA 23<sup>rd</sup> 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 : **Wide mouth Plastic Bottles**  
 Sample Received on : **20.01.2023**  
 Date of Test : **20.01.2023 - 27.01.2023**

Sl No	Parameter	Method of Analysis	Results Obtained	Unit	Acceptable Limit as per IS 10500: 2012
1	Colour	APHA 23 <sup>rd</sup> Edition, 2120 B	< 5	Hazen	5
2	Odour	APHA 23 <sup>rd</sup> Edition, 2150 B	Agreeable	-	Agreeable
3	Taste	APHA 23 <sup>rd</sup> Edition, 2160 B	Agreeable	-	Agreeable
4	Temperature	APHA 23 <sup>rd</sup> Edition, 2550 B	24.1	°C	-
5	Residual Free Chlorine	MERCK	0.08	mg/l	0.2 (min)
6	Total Bacterial Count	RAKIRO	Absent	Nos/100ml	Absent
7	E coli	RAKIRO	Absent	Nos/100ml	Absent

*C. Saha*  
Test Done By

*[Signature]*  
Verified By

*[Signature]*  
Authorized Signatory  
Subhanga Praharaj  
Managing Director



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

Page 1 of 1

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# Cleenviron Private Limited

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

## GROUND WATER LEVEL MONITORING REPORT

PROJECT SITE: **KHATKURBAHAL LIMESTONE & DOLOMITE MINES**

CLIENT: **M/s SHIVA CEMENT LIMITED, VIII: TELEGHANA, At: BRINGATOLI, KUTRA, DIST: SUNDARGARH: 770018, ODISHA**

Ground Water Levels are measured from existing Wells on 28<sup>th</sup> January 2023 for the 1<sup>st</sup> 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 Khatkurbahal Dug Well 22° 16' 47.7" N – 84° 28' 41.8" E	0.50	11.0	6.81	261.8	254.99
2	Village Kulenbahal Dug Well 22° 16' 25.9" N – 84° 27' 11.8" E	0.00	9.0	5.27	178.3	173.03

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  
For Cleenviron Private Limited



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Registered Office:

V318, KOELNAGAR, ROURKELA – 769014, Dist: SUNDARGARH, ODISHA

Branch Office & Laboratory:

D/124, KOELNAGAR, ROURKELA – 769014, Dist: SUNDARGARH, ODISHA

Tel: Fax: 9661 – 3475746, 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: CPLFW98

ULR - TC681623000000208F

REPORT NO: CPL/R/W/JAN-23/40

REPORT ISSUE DATE: 30.01.2023

SAMPLE DRAWN BY CLEENVIRO PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sample ID No : **CPL/W/JAN-23/26**  
 Sample Description : **Surface Water**  
 Date of Sampling : **14.01.2023**  
 Location of Sampling : **Jharia Nala Down Stream**  
 Sampling Method : **APHA 23<sup>rd</sup> 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 : **Wide Mouth Plastic Bottles**  
 Sample Received on : **16.01.2023**  
 Date of Test : **16.01.2023 - 23.01.2023**

Sl No	Parameters	Method of Analysis	Results Obtained	Unit	Surface Water Quality Standard as per IS: 2296 (Class C)
1.	pH Value	APHA 23 <sup>rd</sup> Edition, 4500 H+B	7.58	-	6.5 - 8.5
2.	Electrical Conductivity	APHA 23 <sup>rd</sup> Edition, 2510 B	308	µS/cm	-
3.	Total Dissolved Solids	APHA 23 <sup>rd</sup> Edition, 2540 B	185	mg/l	1500
4.	Total Hardness (as CaCO <sub>3</sub> )	APHA 23 <sup>rd</sup> Edition, 2340 C	176	mg/l	-
5.	Chlorides (as Cl)	APHA 23 <sup>rd</sup> Edition, 4500 Cl B	5.99	mg/l	600
6.	Sulfate (as SO <sub>4</sub> )	APHA 23 <sup>rd</sup> Edition, 4500 SO <sub>4</sub> 2-E	1.60	mg/l	400
7.	Total Nitrate (as NO <sub>3</sub> )	APHA 23 <sup>rd</sup> Edition, 4500 NO <sub>3</sub> B	< 2.20	mg/l	50
8.	Fluoride (as F)	APHA 23 <sup>rd</sup> Edition, 4500 F D	< 0.05	mg/l	1.5
9.	Calcium (as Ca)	APHA 23 <sup>rd</sup> Edition, 3500 Ca B	38.47	mg/l	-
10.	Magnesium (as Mg)	APHA 23 <sup>rd</sup> Edition, 3500 Mg B	23.33	mg/l	-
11.	Copper (as Cu)	APHA 23 <sup>rd</sup> Edition, 3111 B	< 0.10	mg/l	1.5
12.	Iron (as Fe)	APHA 23 <sup>rd</sup> Edition, 3500 Fe B	0.30	mg/l	50
13.	Manganese (as Mn)	APHA 23 <sup>rd</sup> Edition, 3500 Mn B	< 0.05	mg/l	-
14.	Zinc (as Zn)	APHA 23 <sup>rd</sup> Edition, 3111 B	< 0.02	mg/l	15
15.	Total Arsenic (as As)	APHA 23 <sup>rd</sup> Edition, 3114 B	< 0.002	mg/l	0.2
16.	Mercury (as Hg)	APHA 23 <sup>rd</sup> Edition, 3112 B	< 0.01	mg/l	-
17.	Lead (as Pb)	APHA 23 <sup>rd</sup> Edition, 3111 B	< 0.10	mg/l	0.1
18.	Cadmium (as Cd)	APHA 23 <sup>rd</sup> Edition, 3111 B	< 0.05	mg/l	0.01
19.	Hex. Chromium (as Cr <sup>+6</sup> )	APHA 23 <sup>rd</sup> Edition, 3500 Cr B	< 0.01	mg/l	0.05
20.	Selenium (as Se)	APHA 23 <sup>rd</sup> Edition, 3114 C	< 0.01	mg/l	0.05

Test Done By



Verified By

Authorized Signatory  
Subhanga Prabhara  
Managing Director

\*\*\*\*End of Test Report\*\*\*\*  
Page 1 of 1

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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/RW/03

REPORT NO: CPL/RW/JAN-23/40N

REPORT ISSUE DATE: 30.01.2023

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sample ID No : **CPLW/JAN-23/26**  
 Sample Description : **Surface Water**  
 Date of Sampling : **14.01.2023**  
 Location of Sampling : **Jharia Nala Down Stream**  
 Sampling Method : **APHA 23<sup>rd</sup> 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 : **Wide Mouth Plastic Bottles**  
 Sample Received on : **16.01.2023**  
 Date of Test : **16.01.2023 - 23.01.2023**

Sl No	Parameters	Method of Analysis	Results Obtained	Unit	Surface Water Quality Standard as per IS: 2296 (Class C)
1.	Colour	APHA 23 <sup>rd</sup> Edition, 2120 B	< 5	Hazen	300
2.	Odour	APHA 23 <sup>rd</sup> Edition, 2150 B	Agreeable	-	-
3.	Taste	APHA 23 <sup>rd</sup> Edition, 2160 B	Agreeable	-	-
4.	Dissolved Oxygen (Min.)	IS: 3025 (Part 38) 1989, RA 2019	6.2	mg/l	4
5.	BOD 5 days at 20°C	APHA 23 <sup>rd</sup> Edition, 5210 D	< 01	mg/l	3
6.	Oil & Grease	IS: 3025 (Part 39) 1991, RA 2019	< 0.10	mg/l	0.1
7.	Free Carbon Dioxide (as CO <sub>2</sub> )	APHA 23 <sup>rd</sup> Edition, 4500 CO <sub>2</sub> C	17.6	mg/l	-
8.	Free Ammonia (as NH <sub>3</sub> )	MERCK	< 0.012	mg/l	-
9.	Cyanide (as CN)	MERCK	< 0.002	mg/l	0.05
10.	Phenolic Compounds(as C <sub>6</sub> H <sub>5</sub> OH)	MERCK	< 0.002	mg/l	0.005
11.	Anionic Detergents (as MBAS)	MERCK	< 0.05	mg/l	1.0
12.	Total Coliforms	RAKIRO	Absent	Nos/100ml	5000

*C. Sahoo*  
Test Done By



*[Signature]*  
Verified By

*[Signature]*  
Authorized Signatory  
Subhanga Praharaj  
Managing Director

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

Page 1 of 1

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# Cleenviron Private Limited

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## TEST REPORT FOR WATER QUALITY ANALYSIS

FORMAT NO: CPL/MSO

ULR - TC68162300000209F  
REPORT NO: CPL/R/W/JAN-23/41

REPORT ISSUE DATE: 30.01.2023

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

Name of the Customer :  
 Address of the Customer :  
 Sample ID No :  
 Sample Description :  
 Date of Sampling :  
 Location of Sampling :  
 Sampling Method :  
 Sampling Deviation (if any) :  
 Condition of Sample while receipt :  
 Appearance of Sample while receipt :  
 Type of Container used for sampling :  
 Sample Received on :  
 Date of Test :

**M/s SHIVA CEMENT LIMITED**  
 KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA  
**CPL/W/JAN-23/31**  
 Surface Water  
 14.01.2023  
 Tambu Nala Down Stream  
 APHA 23<sup>rd</sup> Edition, 1060  
 Nil  
 Sealed  
 Clear  
 Wide Mouth Plastic Bottles  
 16.01.2023  
 16.01.2023 - 23.01.2023

Sl No	Parameters	Method of Analysis	Results Obtained	Unit	Surface Water Quality Standard as per IS: 2296 (Class C)
1.	pH Value	APHA 23 <sup>rd</sup> Edition, 4500 H+B	7.37	-	6.5 - 8.5
2.	Electrical Conductivity	APHA 23 <sup>rd</sup> Edition, 2510 B	219	µS/cm	-
3.	Total Dissolved Solids	APHA 23 <sup>rd</sup> Edition, 2540 B	131	mg/l	1500
4.	Total Hardness (as CaCO <sub>3</sub> )	APHA 23 <sup>rd</sup> Edition, 2340 C	104	mg/l	-
5.	Chlorides (as Cl)	APHA 23 <sup>rd</sup> Edition, 4500 Cl B	6.99	mg/l	600
6.	Sulfate (as SO <sub>4</sub> )	APHA 23 <sup>rd</sup> Edition, 4500 SO <sub>4</sub> 2-E	4.56	mg/l	400
7.	Total Nitrate (as NO <sub>3</sub> )	APHA 23 <sup>rd</sup> Edition, 4500 NO <sub>3</sub> B	< 2.20	mg/l	50
8.	Fluoride (as F)	APHA 23 <sup>rd</sup> Edition, 4500 F D	< 0.05	mg/l	1.5
9.	Calcium (as Ca)	APHA 23 <sup>rd</sup> Edition, 3500 Ca B	24.05	mg/l	-
10.	Magnesium (as Mg)	APHA 23 <sup>rd</sup> Edition, 3500 Mg B	10.69	mg/l	-
11.	Copper (as Cu)	APHA 23 <sup>rd</sup> Edition, 3111 B	< 0.10	mg/l	1.5
12.	Iron (as Fe)	APHA 23 <sup>rd</sup> Edition, 3500 Fe B	0.59	mg/l	50
13.	Manganese (as Mn)	APHA 23 <sup>rd</sup> Edition, 3500 Mn B	< 0.05	mg/l	-
14.	Zinc (as Zn)	APHA 23 <sup>rd</sup> Edition, 3111 B	< 0.02	mg/l	15
15.	Total Arsenic (as As)	APHA 23 <sup>rd</sup> Edition, 3114 B	< 0.002	mg/l	0.2
16.	Mercury (as Hg)	APHA 23 <sup>rd</sup> Edition, 3112 B	< 0.01	mg/l	-
17.	Lead (as Pb)	APHA 23 <sup>rd</sup> Edition, 3111 B	< 0.10	mg/l	0.1
18.	Cadmium (as Cd)	APHA 23 <sup>rd</sup> Edition, 3111 B	< 0.05	mg/l	0.01
19.	Hex. Chromium (as Cr <sup>6+</sup> )	APHA 23 <sup>rd</sup> Edition, 3500 Cr B	< 0.01	mg/l	0.05
20.	Selenium (as Se)	APHA 23 <sup>rd</sup> Edition, 3114 C	< 0.01	mg/l	0.05

Test Done By



Verified By

Authorized Signatory  
Subhanga Prabhara  
Managing Director

\*\*\*\*End of Test Report\*\*\*\*  
Page 1 of 1

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Registered Office:

D/318, KOELNAGAR, ROURKELA - 769014, Dist: SUNDARGARH, ODISHA

Branch Office & Laboratory:

D/124, KOELNAGAR, ROURKELA - 769014, Dist: SUNDARGARH, ODISHA



# Cleenviron Private Limited

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

## TEST REPORT FOR WATER QUALITY ANALYSIS

FORMAT NO: CPL/WRK

REPORT NO: CPL/R/W/JAN-23/41N

REPORT ISSUE DATE: 30.01.2023

SAMPLE DRAWN BY: CLEENVIIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sample ID No : **CPL/W/JAN-23/31**  
 Sample Description : **Surface Water**  
 Date of Sampling : **14.01.2023**  
 Location of Sampling : **Tambu Nala Down Stream**  
 Sampling Method : **APHA 23<sup>rd</sup> 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 : **Wide Mouth Plastic Bottles**  
 Sample Received on : **16.01.2023**  
 Date of Test : **16.01.2023 – 23.01.2023**

Sl No	Parameters	Method of Analysis	Results Obtained	Unit	Surface Water Quality Standard as per IS: 2296 (Class C)
1.	Colour	APHA 23 <sup>rd</sup> Edition, 2120 B	< 5	Hazen	300
2.	Odour	APHA 23 <sup>rd</sup> Edition, 2150 B	Agreeable	-	-
3.	Taste	APHA 23 <sup>rd</sup> Edition, 2160 B	Agreeable	-	-
4.	Dissolved Oxygen (Min.)	IS: 3025 (Part 38) 1989, RA 2019	5.2	mg/l	4
5.	BOD 5 days at 20°C	APHA 23 <sup>rd</sup> Edition, 5210 D	01	mg/l	3
6.	Oil & Grease	IS: 3025 (Part 39) 1991, RA 2019	< 0.10	mg/l	0.1
7.	Free Carbon Dioxide (as CO <sub>2</sub> )	APHA 23 <sup>rd</sup> Edition, 4500 CO <sub>2</sub> C	7.04	mg/l	-
8.	Free Ammonia (as NH <sub>3</sub> )	MERCK	< 0.012	mg/l	-
9.	Cyanide (as CN)	MERCK	< 0.002	mg/l	0.05
10.	Phenolic Compounds (as C <sub>6</sub> H <sub>5</sub> OH)	MERCK	< 0.002	mg/l	0.005
11.	Anionic Detergents (as MBAS)	MERCK	< 0.05	mg/l	1.0
12.	Total Coliforms	RAKIRO	Absent	Nos/100ml	5000

*Asachar*  
Test Done By



*Subhanga*  
Verified By

*Subhanga Prabaraj*  
Authorized Signatory  
Subhanga Prabaraj  
Managing Director

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

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Registered Office:

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Branch Office & Laboratory:

D/124, KOELNAGAR, ROURKELA - 769014, Dist: SUNDARGARH, ODISHA.



# Cleenviron Private Limited

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



## TEST REPORT FOR WATER QUALITY ANALYSIS

FORMAT NO: CPL/RRS

ULR - TC681623000000211F  
REPORT NO: CPL/R/W/JAN-23/43

REPORT ISSUE DATE: 30.01.2023

SAMPLE DRAIN BY CLEENVIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sample ID No : **CPL/W/JAN-23/22**  
 Sample Description : **Surface Water**  
 Date of Sampling : **13.01.2023**  
 Location of Sampling : **Kanti Jharla Nala Down Stream**  
 Sampling Method : **APHA 23<sup>rd</sup> 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 : **Wide Mouth Plastic Bottles**  
 Sample Received on : **13.01.2023**  
 Date of Test : **13.01.2023 - 19.01.2023**

Sl No	Parameters	Method of Analysis	Results Obtained	Unit	Surface Water Quality Standard as per IS: 2296 (Class C)
1.	pH Value	APHA 23 <sup>rd</sup> Edition, 4500 H+B	6.69	-	6.5 - 8.5
2.	Electrical Conductivity	APHA 23 <sup>rd</sup> Edition, 2510 B	436	µS/cm	-
3.	Total Dissolved Solids	APHA 23 <sup>rd</sup> Edition, 2540 B	270	mg/l	1500
4.	Total Hardness (as CaCO <sub>3</sub> )	APHA 23 <sup>rd</sup> Edition, 2340 C	232	mg/l	-
5.	Chlorides (as Cl)	APHA 23 <sup>rd</sup> Edition, 4500 Cl B	9.99	mg/l	600
6.	Sulfate (as SO <sub>4</sub> )	APHA 23 <sup>rd</sup> Edition, 4500 SO <sub>4</sub> 2-E	0.79	mg/l	400
7.	Total Nitrate (as NO <sub>3</sub> )	APHA 23 <sup>rd</sup> Edition, 4500 NO <sub>3</sub> B	< 2.20	mg/l	50
8.	Fluoride (as F)	APHA 23 <sup>rd</sup> Edition, 4500 F D	< 0.05	mg/l	1.5
9.	Calcium (as Ca)	APHA 23 <sup>rd</sup> Edition, 3500 Ca B	56.11	mg/l	-
10.	Magnesium (as Mg)	APHA 23 <sup>rd</sup> Edition, 3500 Mg B	22.35	mg/l	-
11.	Copper (as Cu)	APHA 23 <sup>rd</sup> Edition, 3111 B	< 0.10	mg/l	1.5
12.	Iron (as Fe)	APHA 23 <sup>rd</sup> Edition, 3500 Fe B	0.39	mg/l	50
13.	Manganese (as Mn)	APHA 23 <sup>rd</sup> Edition, 3500 Mn B	< 0.05	mg/l	-
14.	Zinc (as Zn)	APHA 23 <sup>rd</sup> Edition, 3111 B	< 0.02	mg/l	15
15.	Total Arsenic (as As)	APHA 23 <sup>rd</sup> Edition, 3114 B	< 0.002	mg/l	0.2
16.	Mercury (as Hg)	APHA 23 <sup>rd</sup> Edition, 3112 B	< 0.01	mg/l	-
17.	Lead (as Pb)	APHA 23 <sup>rd</sup> Edition, 3111 B	< 0.10	mg/l	0.1
18.	Cadmium (as Cd)	APHA 23 <sup>rd</sup> Edition, 3111 B	< 0.05	mg/l	0.01
19.	Hex. Chromium (as Cr <sup>6+</sup> )	APHA 23 <sup>rd</sup> Edition, 3500 Cr B	< 0.01	mg/l	0.05
20.	Selenium (as Se)	APHA 23 <sup>rd</sup> Edition, 3114 C	< 0.01	mg/l	0.05

*Chandha*  
Test Done By



*Subhanga*  
Verified By

*Subhanga*  
Authorized Signatory  
Subhanga Praharaj  
Managing Director

\*\*\*\*End of Test Report\*\*\*\*  
Page 1 of 1

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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/FWS

REPORT NO: CPL/R/WIJAN-23/43N

REPORT ISSUE DATE: 30.01.2023

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sample ID No : **CPL/W/JAN-23/22**  
 Sample Description : **Surface Water**  
 Date of Sampling : **13.01.2023**  
 Location of Sampling : **Kanti Jharia Nala Down Stream**  
 Sampling Method : **APHA 23<sup>rd</sup> 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 : **Wide Mouth Plastic Bottles**  
 Sample Received on : **13.01.2023**  
 Date of Test : **13.01.2023 - 19.01.2023**

Sl No	Parameters	Method of Analysis	Results Obtained	Unit	Surface Water Quality Standard as per IS: 2296 (Class C)
1.	Colour	APHA 23 <sup>rd</sup> Edition, 2120 B	< 5	Hazen	300
2.	Odour	APHA 23 <sup>rd</sup> Edition, 2150 B	Agreeable	-	-
3.	Taste	APHA 23 <sup>rd</sup> Edition, 2160 B	Agreeable	-	-
4.	Dissolved Oxygen (Min.)	IS: 3025 (Part 38) 1989, RA 2019	6.2	mg/l	4
5.	BOD 5 days at 20°C	APHA 23 <sup>rd</sup> Edition, 5210 D	01	mg/l	3
6.	Oil & Grease	IS: 3025 (Part 39) 1991, RA 2019	< 0.10	mg/l	0.1
7.	Free Carbon Dioxide (as CO <sub>2</sub> )	APHA 23 <sup>rd</sup> Edition, 4500 CO <sub>2</sub> C	3.52	mg/l	-
8.	Free Ammonia (as NH <sub>3</sub> )	MERCK	< 0.012	mg/l	-
9.	Cyanide (as CN)	MERCK	< 0.002	mg/l	0.05
10.	Phenolic Compounds(as C <sub>6</sub> H <sub>5</sub> OH)	MERCK	< 0.002	mg/l	0.005
11.	Anionic Detergents (as MBAS)	MERCK	< 0.05	mg/l	1.0
12.	Total Coliforms	RAKIRO	Absent	Nos/100ml	5000

*Lusahoo*  
Test Done By



*S. B.*  
Verified By

*S. Prabhakar*  
Authorized Signatory  
Subhanga Prabhara  
Managing Director

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

Page 1 of 1

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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/FWS

ULR - TC68162300000212F

REPORT NO: CPL/R/W/JAN-23/44

REPORT ISSUE DATE: 30.01.2023

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sample ID No : **CPL/W/JAN-23/23**  
 Sample Description : **Surface Water**  
 Date of Sampling : **13.01.2023**  
 Location of Sampling : **Nakti Jor Nala Down Stream**  
 Sampling Method : **APHA 23<sup>rd</sup> 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 : **Wide Mouth Plastic Bottles**  
 Sample Received on : **13.01.2023**  
 Date of Test : **13.01.2023 - 19.01.2023**

Sl No	Parameters	Method of Analysis	Results Obtained	Unit	Surface Water Quality Standard as per IS: 2296 (Class C)
1.	pH Value	APHA 23 <sup>rd</sup> Edition, 4500 H+B	7.29	-	6.5 - 8.5
2.	Electrical Conductivity	APHA 23 <sup>rd</sup> Edition, 2510 B	433	µS/cm	-
3.	Total Dissolved Solids	APHA 23 <sup>rd</sup> Edition, 2540 B	286	mg/l	1500
4.	Total Hardness (as CaCO <sub>3</sub> )	APHA 23 <sup>rd</sup> Edition, 2340 C	252	mg/l	-
5.	Chlorides (as Cl)	APHA 23 <sup>rd</sup> Edition, 4500 Cl B	8.99	mg/l	600
6.	Sulfate (as SO <sub>4</sub> )	APHA 23 <sup>rd</sup> Edition, 4500 SO <sub>4</sub> 2-E	< 0.50	mg/l	400
7.	Total Nitrate (as NO <sub>3</sub> )	APHA 23 <sup>rd</sup> Edition, 4500 NO <sub>3</sub> B	< 2.20	mg/l	50
8.	Fluoride (as F)	APHA 23 <sup>rd</sup> Edition, 4500 F D	< 0.05	mg/l	1.5
9.	Calcium (as Ca)	APHA 23 <sup>rd</sup> Edition, 3500 Ca B	40.08	mg/l	-
10.	Magnesium (as Mg)	APHA 23 <sup>rd</sup> Edition, 3500 Mg B	36.94	mg/l	-
11.	Copper (as Cu)	APHA 23 <sup>rd</sup> Edition, 3111 B	< 0.10	mg/l	1.5
12.	Iron (as Fe)	APHA 23 <sup>rd</sup> Edition, 3500 Fe B	0.26	mg/l	50
13.	Manganese (as Mn)	APHA 23 <sup>rd</sup> Edition, 3500 Mn B	< 0.05	mg/l	-
14.	Zinc (as Zn)	APHA 23 <sup>rd</sup> Edition, 3111 B	< 0.02	mg/l	15
15.	Total Arsenic (as As)	APHA 23 <sup>rd</sup> Edition, 3114 B	< 0.002	mg/l	0.2
16.	Mercury (as Hg)	APHA 23 <sup>rd</sup> Edition, 3112 B	< 0.01	mg/l	-
17.	Lead (as Pb)	APHA 23 <sup>rd</sup> Edition, 3111 B	< 0.10	mg/l	0.1
18.	Cadmium (as Cd)	APHA 23 <sup>rd</sup> Edition, 3111 B	< 0.05	mg/l	0.01
19.	Hex. Chromium (as Cr <sup>VI</sup> )	APHA 23 <sup>rd</sup> Edition, 3500 Cr B	< 0.01	mg/l	0.05
20.	Selenium (as Se)	APHA 23 <sup>rd</sup> Edition, 3114 C	< 0.01	mg/l	0.05

Test Done By



Verified By

Authorized Signatory  
Subhanga Praharaj  
Managing Director

\*\*\*\*End of Test Report\*\*\*\*  
Page 1 of 1

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Registered Office:

D/318, KOELNAGAR, ROURKELA - 769014, Dist: SUNDARGARH, ODISHA

Branch Office & Laboratory:

D/124, KOELNAGAR, ROURKELA - 769014, Dist: SUNDARGARH, ODISHA





# Cleenviron Private Limited

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

## TEST REPORT FOR WATER QUALITY ANALYSIS

FORMAT NO: CPL/FNW

REPORT NO: CPL/RW/JAN-23/44N

REPORT ISSUE DATE: 30.01.2023

SAMPLE DRAWN BY CLEENIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sample ID No : **CPL/W/JAN-23/23**  
 Sample Description : **Surface Water**  
 Date of Sampling : **13.01.2023**  
 Location of Sampling : **Nakti Jor Nala After ML Area**  
 Sampling Method : **APHA 23<sup>rd</sup> 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 : **Wide Mouth Plastic Bottles**  
 Sample Received on : **13.01.2023**  
 Date of Test : **13.01.2023 – 19.01.2023**

Sl No	Parameters	Method of Analysis	Results Obtained	Unit	Surface Water Quality Standard as per IS: 2296 (Class C)
1.	Colour	APHA 23 <sup>rd</sup> Edition, 2120 B	< 5	Hazen	300
2.	Odour	APHA 23 <sup>rd</sup> Edition, 2150 B	Agreeable	-	-
3.	Taste	APHA 23 <sup>rd</sup> Edition, 2160 B	Agreeable	-	-
4.	Dissolved Oxygen (Min.)	IS: 3025 (Part 38) 1989, RA 2019	6.4	mg/l	4
5.	BOD 5 days at 20°C	APHA 23 <sup>rd</sup> Edition, 5210 D	01	mg/l	3
6.	Oil & Grease	IS: 3025 (Part 39) 1991, RA 2019	< 0.10	mg/l	0.1
7.	Free Carbon Dioxide (as CO <sub>2</sub> )	APHA 23 <sup>rd</sup> Edition, 4500 CO <sub>2</sub> C	3.52	mg/l	-
8.	Free Ammonia (as NH <sub>3</sub> )	MERCK	< 0.012	mg/l	-
9.	Cyanide (as CN)	MERCK	< 0.002	mg/l	0.05
10.	Phenolic Compounds(as C <sub>6</sub> H <sub>5</sub> OH)	MERCK	< 0.002	mg/l	0.005
11.	Anionic Detergents (as MBAS)	MERCK	< 0.05	mg/l	1.0
12.	Total Coliforms	RAKIRO	Absent	Nosi/100ml	5000

Test Done By



Verified By

Authorized Signatory  
Subhanga Praharaj  
Managing Director

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

Page 1 of 1

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# Cleenviron Private Limited

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## TEST REPORT FOR WATER QUALITY ANALYSIS

FORMAT NO: CPLRW03

ULR - TC68162300000210F  
REPORT NO: CPLR/W/JAN-23/42

REPORT ISSUE DATE: 30.01.2023

SAMPLE DRAWN BY CLEENVRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sample ID No : **CPL/W/JAN-23/30**  
 Sample Description : **Surface Water**  
 Date of Sampling : **14.01.2023**  
 Location of Sampling : **Sankh River Down Stream**  
 Sampling Method : **APHA 23<sup>rd</sup> 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 : **Wide Mouth Plastic Bottles**  
 Sample Received on : **16.01.2023**  
 Date of Test : **16.01.2023 - 23.01.2023**

Sl No	Parameters	Method of Analysis	Results Obtained	Unit	Surface Water Quality Standard as per IS: 2296 (Class C)
1.	pH Value	APHA 23 <sup>rd</sup> Edition, 4600 H+B	7.50	-	6.5 - 8.5
2.	Electrical Conductivity	APHA 23 <sup>rd</sup> Edition, 2510 B	153.5	µS/cm	-
3.	Total Dissolved Solids	APHA 23 <sup>rd</sup> Edition, 2540 B	92	mg/l	1500
4.	Total Hardness (as CaCO <sub>3</sub> )	APHA 23 <sup>rd</sup> Edition, 2340 C	68	mg/l	-
5.	Chlorides (as Cl)	APHA 23 <sup>rd</sup> Edition, 4500 Cl B	9.99	mg/l	600
6.	Sulfate (as SO <sub>4</sub> )	APHA 23 <sup>rd</sup> Edition, 4500 SO <sub>4</sub> <sup>2-</sup> E	2.06	mg/l	400
7.	Total Nitrate (as NO <sub>3</sub> )	APHA 23 <sup>rd</sup> Edition, 4500 NO <sub>3</sub> B	< 2.20	mg/l	50
8.	Fluoride (as F)	APHA 23 <sup>rd</sup> Edition, 4500 F D	< 0.05	mg/l	1.5
9.	Calcium (as Ca)	APHA 23 <sup>rd</sup> Edition, 3500 Ca B	16.03	mg/l	-
10.	Magnesium (as Mg)	APHA 23 <sup>rd</sup> Edition, 3500 Mg B	6.80	mg/l	-
11.	Copper (as Cu)	APHA 23 <sup>rd</sup> Edition, 3111 B	< 0.10	mg/l	1.5
12.	Iron (as Fe)	APHA 23 <sup>rd</sup> Edition, 3500 Fe B	0.31	mg/l	50
13.	Manganese (as Mn)	APHA 23 <sup>rd</sup> Edition, 3500 Mn B	< 0.05	mg/l	-
14.	Zinc (as Zn)	APHA 23 <sup>rd</sup> Edition, 3111 B	< 0.02	mg/l	15
15.	Total Arsenic (as As)	APHA 23 <sup>rd</sup> Edition, 3114 B	< 0.002	mg/l	0.2
16.	Mercury (as Hg)	APHA 23 <sup>rd</sup> Edition, 3112 B	< 0.01	mg/l	-
17.	Lead (as Pb)	APHA 23 <sup>rd</sup> Edition, 3111 B	< 0.10	mg/l	0.1
18.	Cadmium (as Cd)	APHA 23 <sup>rd</sup> Edition, 3111 B	< 0.05	mg/l	0.01
19.	Hex. Chromium (as Cr <sup>6+</sup> )	APHA 23 <sup>rd</sup> Edition, 3500 Cr B	< 0.01	mg/l	0.05
20.	Selenium (as Se)	APHA 23 <sup>rd</sup> Edition, 3114 C	< 0.01	mg/l	0.05

*Cusachos*  
Test Done By



*[Signature]*  
Verified By

*[Signature]*  
Authorized Signatory  
Subhanga Praharaj  
Managing Director

\*\*\*\*\*End of Test Report\*\*\*\*\*  
Page 1 of 1

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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/MS

REPORT NO: CPL/RW/JAN-23/42N

REPORT ISSUE DATE: 30.01.2023

SAMPLE DRAWN BY CLEENVIRO PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sample ID No : **CPL/W/JAN-23/30**  
 Sample Description : **Surface Water**  
 Date of Sampling : **14.01.2023**  
 Location of Sampling : **Sankh River Down Stream**  
 Sampling Method : **APHA 23<sup>rd</sup> 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 : **Wide Mouth Plastic Bottles**  
 Sample Received on : **16.01.2023**  
 Date of Test : **16.01.2023 – 23.01.2023**

Sl No	Parameters	Method of Analysis	Results Obtained	Unit	Surface Water Quality Standard as per IS: 2296 (Class C)
1.	Colour	APHA 23 <sup>rd</sup> Edition, 2120 B	< 5	Hazen	300
2.	Odour	APHA 23 <sup>rd</sup> Edition, 2150 B	Agreeable	-	-
3.	Taste	APHA 23 <sup>rd</sup> Edition, 2160 B	Agreeable	-	-
4.	Dissolved Oxygen (Min.)	IS: 3025 (Part 38) 1989, RA 2019	6.4	mg/l	4
5.	BOD 5 days at 20°C	APHA 23 <sup>rd</sup> Edition, 5210 D	< 0.1	mg/l	3
6.	Oil & Grease	IS: 3025 (Part 38) 1991, RA 2019	< 0.10	mg/l	0.1
7.	Free Carbon Dioxide (as CO <sub>2</sub> )	APHA 23 <sup>rd</sup> Edition, 4500 CO <sub>2</sub> C	5.28	mg/l	-
8.	Free Ammonia (as NH <sub>3</sub> )	MERCK	< 0.012	mg/l	-
9.	Cyanide (as CN)	MERCK	< 0.002	mg/l	0.05
10.	Phenolic Compounds(as C <sub>6</sub> H <sub>5</sub> OH)	MERCK	< 0.002	mg/l	0.005
11.	Anionic Detergents (as MBAS)	MERCK	< 0.05	mg/l	1.0
12.	Total Coliforms	RAKIRO	Absent	Nos/100ml	5000

Test Done By



Verified By

Authorized Signatory  
Subhanga Prshara  
Managing Director

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

Page 1 of 1

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Registered Office:

D/318, KOELNAGAR, ROURKELA - 769014, Dist. SUNDARGARH, ODISHA

Branch Office & Laboratory:

D/124, KOELNAGAR, ROURKELA - 769014, Dist. SUNDARGARH, ODISHA



# Cleenviron Private Limited

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

## STREAM FLOW MEASUREMENT DATA

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES,  
 VILL: TELEGHANA, PO: BRINGATOLI, DIST: SUNDARGARH  
 ODISHA - 770018**

Flow Measurement was carried out from the JHARIA NALA from the following points and data thus recorded is as follows:

Location : **TAMBU NALA**      Width of the Stream : **6.9 m**  
 Coordinates : **Lat: 22° 19' 35"N to Long: 84° 28' 24"E**      Elevation: **129m AMSL**  
 Date of Monitoring : **20.01.2023**

Cross Section	0m (Left Bank)	1.0m	2.0m	3.0m	4.0m	5.0m	6.0m	6.9m (Right Bank)
Water Depth (m)	0.009	0.32	0.41	0.43	0.39	0.29	0.382	0.18
Surface Flow (m/s)								
1st	0.102	0.102	0.102	0.102	0.166	0.166	0.166	0.166
2nd	0.114	0.114	0.114	0.114	0.15	0.15	0.15	0.15
3rd	0.12	0.12	0.12	0.12	0.16	0.16	0.16	0.16
Average Flow (m/s)	0.112	0.112	0.112	0.112	0.159	0.159	0.159	0.159
Cross Section								
Water Depth (m)								
Surface Flow (m/s)								
1st								
2nd								
3rd								
Average Flow (m/s)								
Water Discharge (m <sup>3</sup> /s)	0.018	0.041	0.047	0.032	0.054	0.053	0.040	
Total Discharge of Water through the Cross-section (m <sup>3</sup> /s)	0.286							
(m <sup>3</sup> /h)	1029.14							
(m <sup>3</sup> /D)	24699.5							



*[Signature]*  
 Authorized Signatory  
 For Cleenviron Private Limited

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# Cleenviron Private Limited

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

## STREAM FLOW MEASUREMENT DATA

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
Address of the Customer : **KHATKURBAHAL LIFESTOME & DOLOMITE MINES,  
VILL: TELEGHANA, PO: BRINGATOLI, DIST: SUNDARGARH - 770018,  
ODISHA**


Flow Measurement was carried out from the NAKTIJOR NALA from the following points and data thus recorded is as follows:

Location : **NAKTIJOR NALA** Width of the Stream : **2.1 m**  
Coordinates : **Lat: 22° 12' 5"N to Long: 84° 26' 35"E** Elevation: **183m AMSL**  
Date of Monitoring : **20.01.2023**

Cross Section	0m (Left Bank)	1.0m	2.0m	2.1m (Right Bank)
Water Depth (m)	0	0.29	0.32	0.012
Surface Flow (m/s)				
1st	0.345	0.345	0.345	0.345
2nd	0.389	0.389	0.389	0.389
3rd	0.388	0.388	0.388	0.388
Average Flow (m/s)	0.374	0.374	0.374	0.374

Water Discharge (m <sup>3</sup> /s)	0.054	0.114	0.006
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Total Discharge of Water through the Cross-section (m <sup>3</sup> /s)	0.175
(m <sup>3</sup> /h)	628.23
(m <sup>3</sup> /D)	15077.5

  
Authorized Signatory  
For Cleenviron Private Limited



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# Cleenviron Private Limited

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

## STREAM FLOW MEASUREMENT DATA

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTOME & DOLOMITE MINES,  
 VILL: TELEGHANA, PO: BRINGATOLI, DIST: SUNDARGARH - 770018,  
 ODISHA**

Flow Measurement was carried out from the JHARIA NALA from the following points and data thus recorded is as follows:

Location Width of the Stream  
**KANTI JHARIA NALA 5.4 m**  
 Coordinates Lat: 22° 13' 12"N to Long: 84° 29' 22"E Elevation 164m AMSL  
 Date of Monitoring 20.01.2023

Cross Section	0m (Left Bank)	1.0m	2.0m	3.0m	4.0m	5.0m	5.4m (Right)
Water Depth (m)	0.018	0.278	0.291	0.298	0.256	0.186	0.022
Surface Flow (m/s)							
1st	0.265	0.265	0.265	0.265	0.234	0.234	0.234
2nd	0.245	0.245	0.245	0.245	0.223	0.223	0.223
3rd	0.282	0.282	0.282	0.282	0.218	0.218	0.218
Average Flow (m/s)	0.264	0.264	0.264	0.264	0.225	0.225	0.225

Water Discharge (m <sup>3</sup> /s)	0.039	0.075	0.078	0.051	0.050	0.009	
-------------------------------------	-------	-------	-------	-------	-------	-------	--

Total Discharge of Water through the Cross-section (m <sup>3</sup> /s)	0.302
(m <sup>3</sup> /h)	1087.93
(m <sup>3</sup> /D)	26110.3

  
 Authorized Signatory  
 For Cleenviron Private Limited



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# Cleenviron Private Limited

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

## STREAM FLOW MEASUREMENT DATA

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
Address of the Customer : **KHATKURBAHAL LIMESTOME & DOLOMITE MINES,  
VILL: TELEGHANA, PO: BRINGATOLI, DIST: SUNDARGARH - 770018,  
ODISHA**

Flow Measurement was carried out from the JHARIA NALA from the following points and data thus recorded is as follows:

Location : JHARIA NALA      Width of the Stream : 2.6 m  
Coordinates : Lat: 22° 18' 3"N to Long: 84° 29' 36"E      Elevation: 151m AMSL  
Date of Monitoring : 20.01.2023

Cross Section	0m (Left Bank)	1.0m	2.0m	2.6m (Right Bank)
Water Depth (m)	0	0.19	0.27	0.17
Surface Flow (m/s)				
1st	0.456	0.456	0.456	0.456
2nd	0.376	0.376	0.376	0.376
3rd	0.424	0.424	0.424	0.424
Average Flow (m/s)	0.419	0.419	0.419	0.419

Water Discharge (m <sup>3</sup> /s)	0.040	0.096	0.055	
Total Discharge of Water through the Cross-section (m <sup>3</sup> /s)	0.191			
(m <sup>3</sup> /h)	688.79			
(m <sup>3</sup> /D)	16531.0			

  
Authorized Signatory  
For Cleenviron Private Limited



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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/PM/9

ULR – TC68152300000186F  
REPORT NO: CPL/R/W/JAN-23/34

REPORT ISSUE DATE: 25.01.2023

SAMPLE DRAWN BY: CLEENVIRONPRIVATELIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sample ID No : **CPL/W/JAN-23/27**  
 Sample Description : **Surface Water**  
 Date of Sampling : **14.01.2023**  
 Location of Sampling : **Mine Pit – 1**  
 Sampling Method : **APHA 23<sup>rd</sup> 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 : **Wide Mouth Plastic Bottles**  
 Sample Received on : **16.01.2023**  
 Date of Test : **16.01.2023 – 22.01.2023**

Sl No	Parameters	Method of Analysis	Results Obtained	Unit	Surface Water Quality Standard as per IS: 2296 (Class C)
1.	pH Value	APHA 23 <sup>rd</sup> Edition, 4500 H+B	7.63	-	6.5 – 8.5
2.	Electrical Conductivity	APHA 23 <sup>rd</sup> Edition, 2510 B	415	µS/cm	-
3.	Total Dissolved Solids	APHA 23 <sup>rd</sup> Edition, 2540 B	249	mg/l	1500
4.	Total Hardness (as CaCO <sub>3</sub> )	APHA 23 <sup>rd</sup> Edition, 2340 C	200	mg/l	-
5.	Chlorides (as Cl)	APHA 23 <sup>rd</sup> Edition, 4500 Cl B	27.99	mg/l	600
6.	Sulfate (as SO <sub>4</sub> )	APHA 23 <sup>rd</sup> Edition, 4500 SO <sub>4</sub> <sup>2-</sup> E	12.49	mg/l	400
7.	Total Nitrate (as NO <sub>3</sub> )	APHA 23 <sup>rd</sup> Edition, 4500 NO <sub>3</sub> B	< 2.20	mg/l	50
8.	Fluoride (as F)	APHA 23 <sup>rd</sup> Edition, 4500 F D	< 0.05	mg/l	1.5
9.	Calcium (as Ca)	APHA 23 <sup>rd</sup> Edition, 3500 Ca B	38.47	mg/l	-
10.	Magnesium (as Mg)	APHA 23 <sup>rd</sup> Edition, 3500 Mg B	25.27	mg/l	-
11.	Copper (as Cu)	APHA 23 <sup>rd</sup> Edition, 3111 B	< 0.10	mg/l	1.5
12.	Iron (as Fe)	APHA 23 <sup>rd</sup> Edition, 3500 Fe B	0.48	mg/l	50
13.	Manganese (as Mn)	APHA 23 <sup>rd</sup> Edition, 3500 Mn B	< 0.05	mg/l	-
14.	Zinc (as Zn)	APHA 23 <sup>rd</sup> Edition, 3111 B	< 0.02	mg/l	15
15.	Total Arsenic (as As)	APHA 23 <sup>rd</sup> Edition, 3114 B	< 0.002	mg/l	0.2
16.	Mercury (as Hg)	APHA 23 <sup>rd</sup> Edition, 3112 B	< 0.01	mg/l	-
17.	Lead (as Pb)	APHA 23 <sup>rd</sup> Edition, 3111 B	< 0.10	mg/l	0.1
18.	Cadmium (as Cd)	APHA 23 <sup>rd</sup> Edition, 3111 B	< 0.05	mg/l	0.01
19.	Hex. Chromium (as Cr <sup>VI</sup> )	APHA 23 <sup>rd</sup> Edition, 3500 Cr B	< 0.01	mg/l	0.05
20.	Selenium (as Se)	APHA 23 <sup>rd</sup> Edition, 3114 C	< 0.01	mg/l	0.05
21.	Total Suspended Solids	APHA 23 <sup>rd</sup> Edition, 2540 D	< 2.5	mg/l	-

*Cusechoo*  
Test Done By



*[Signature]*  
Verified By

*[Signature]*  
Authorized Signatory  
Subhanga Praharaj  
Managing Director

\*\*\*\*End of Test Report\*\*\*\*  
Page 1 of 1

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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: CPLFWR

REPORT NO: CPLR/WIJAN-23/34N

REPORT ISSUE DATE: 25.01.2023

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sample ID No : **CPL/WIJAN-23/27**  
 Sample Description : **Surface Water**  
 Date of Sampling : **14.01.2023**  
 Location of Sampling : **Mine Pit - 1**  
 Sampling Method : **APHA 23<sup>rd</sup> 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 : **Wide Mouth Plastic Bottles**  
 Sample Received on : **16.01.2023**  
 Date of Test : **16.01.2023 - 22.01.2023**

Sl No	Parameters	Method of Analysis	Results Obtained	Unit	Surface Water Quality Standard as per IS: 2296 (Class C)
1.	Colour	APHA 23 <sup>rd</sup> Edition, 2120 B	< 5	Hazen	300
2.	Odour	APHA 23 <sup>rd</sup> Edition, 2150 B	Agreeable	-	-
3.	Taste	APHA 23 <sup>rd</sup> Edition, 2160 B	Agreeable	-	-
4.	Dissolved Oxygen (Min.)	IS: 3025 (Part 38) 1989, RA 2019	6.2	mg/l	4
5.	BOD 5 days at 20°C	APHA 23 <sup>rd</sup> Edition, 5210 D	01	mg/l	3
6.	Oil & Grease	IS: 3025 (Part 39) 1991, RA 2019	< 0.10	mg/l	0.1
7.	Free Carbon Dioxide (as CO <sub>2</sub> )	APHA 23 <sup>rd</sup> Edition, 4500 CO <sub>2</sub> C	7.04	mg/l	-
8.	Free Ammonia (as NH <sub>3</sub> )	MERCK	< 0.012	mg/l	-
9.	Cyanide (as CN)	MERCK	< 0.002	mg/l	0.05
10.	Phenolic Compounds (as C <sub>6</sub> H <sub>5</sub> OH)	MERCK	< 0.002	mg/l	0.005
11.	Anionic Detergents (as MBAS)	MERCK	< 0.05	mg/l	1.0
12.	Total Coliforms	RAKIRO	Absent	Nos/100ml	5000

*Chirachos*  
Test Done By



*[Signature]*  
Verified By

*[Signature]*  
Authorized Signatory  
Subhanga Prishara  
Managing Director

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

Page 1 of 1

This report refers to the values obtained at the time of testing and results related to the item tested. This report may not be reproduced in part or full without written permission of the Company.

Registered Office:

10318, KOELNAGAR, ROURKELA - 769014, Dist: SUNDARGARH, ODISHA

Branch Office & Laboratory:

D/12A, KOELNAGAR, ROURKELA - 769014, Dist: SUNDARGARH, ODISHA



# Cleenviron Private Limited

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



## TEST REPORT FOR WATER QUALITY ANALYSIS

FORMAT NO. CPL/FB/60

ULR - TC68162300000189F  
REPORT NO: CPL/R/W/JAN-23/35

REPORT ISSUE DATE: 25.01.2023

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sample ID No : **CPL/W/JAN-23/28**  
 Sample Description : **Surface Water**  
 Date of Sampling : **14.01.2023**  
 Location of Sampling : **Mine Pit - 2**  
 Sampling Method : **APHA 23<sup>rd</sup> 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 : **Wide Mouth Plastic Bottles**  
 Sample Received on : **16.01.2023**  
 Date of Test : **16.01.2023 - 22.01.2023**

Sl No	Parameters	Method of Analysis	Results Obtained	Unit	Surface Water Quality Standard as per IS: 2296 (Class C)
1.	pH Value	APHA 23 <sup>rd</sup> Edition, 4500 H+B	7.28	-	6.5 - 8.5
2.	Electrical Conductivity	APHA 23 <sup>rd</sup> Edition, 2510 B	470	µS/cm	-
3.	Total Dissolved Solids	APHA 23 <sup>rd</sup> Edition, 2540 B	282	mg/l	1500
4.	Total Hardness (as CaCO <sub>3</sub> )	APHA 23 <sup>rd</sup> Edition, 2340 C	236	mg/l	-
5.	Chlorides (as Cl)	APHA 29 <sup>th</sup> Edition, 4500 Cl B	17.99	mg/l	600
6.	Sulfate (as SO <sub>4</sub> )	APHA 23 <sup>rd</sup> Edition, 4500 SO <sub>4</sub> 2 E	1.94	mg/l	400
7.	Total Nitrate (as NO <sub>3</sub> )	APHA 23 <sup>rd</sup> Edition, 4500 NO <sub>3</sub> B	< 2.20	mg/l	50
8.	Fluoride (as F)	APHA 23 <sup>rd</sup> Edition, 4500 F D	< 0.05	mg/l	1.5
9.	Calcium (as Ca)	APHA 23 <sup>rd</sup> Edition, 3500 Ca B	72.14	mg/l	-
10.	Magnesium (as Mg)	APHA 23 <sup>rd</sup> Edition, 3500 Mg B	13.61	mg/l	-
11.	Copper (as Cu)	APHA 23 <sup>rd</sup> Edition, 3111 B	< 0.10	mg/l	1.5
12.	Iron (as Fe)	APHA 23 <sup>rd</sup> Edition, 3500 Fe B	0.21	mg/l	50
13.	Manganese (as Mn)	APHA 23 <sup>rd</sup> Edition, 3500 Mn B	< 0.05	mg/l	-
14.	Zinc (as Zn)	APHA 23 <sup>rd</sup> Edition, 3111 B	< 0.02	mg/l	15
15.	Total Arsenic (as As)	APHA 23 <sup>rd</sup> Edition, 3114 B	< 0.002	mg/l	0.2
16.	Mercury (as Hg)	APHA 23 <sup>rd</sup> Edition, 3112 B	< 0.01	mg/l	-
17.	Lead (as Pb)	APHA 23 <sup>rd</sup> Edition, 3111 B	< 0.10	mg/l	0.1
18.	Cadmium (as Cd)	APHA 23 <sup>rd</sup> Edition, 3111 B	< 0.05	mg/l	0.01
19.	Hex. Chromium (as Cr <sup>6+</sup> )	APHA 23 <sup>rd</sup> Edition, 3500 Cr B	< 0.01	mg/l	0.05
20.	Selenium (as Se)	APHA 23 <sup>rd</sup> Edition, 3114 C	< 0.01	mg/l	0.05
21.	Total Suspended Solids	APHA 23 <sup>rd</sup> Edition, 2540 D	< 2.5	mg/l	-

Test Done By



Verified By

Authorized Signatory  
Subhanga Praharaj  
Managing Director

\*\*\*\*End of Test Report\*\*\*\*  
Page 1 of 1

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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: CPLFM6

REPORT NO: CPL/R/W/JAN-23/35N

REPORT ISSUE DATE: 25.01.2023

SAMPLE DRAWN BY: CLEENVIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sample ID No : **CPL/W/JAN-23/28**  
 Sample Description : **Surface Water**  
 Date of Sampling : **14.01.2023**  
 Location of Sampling : **Mine Pit - 2**  
 Sampling Method : **APHA 23<sup>rd</sup> 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 : **Wide Mouth Plastic Bottles**  
 Sample Received on : **16.01.2023**  
 Date of Test : **16.01.2023 - 22.01.2023**

Sl No	Parameters	Method of Analysis	Results Obtained	Unit	Surface Water Quality Standard as per IS- 2296 (Class C)
1.	Colour	APHA 23 <sup>rd</sup> Edition, 2120 B	< 5	Hazen	300
2.	Odour	APHA 23 <sup>rd</sup> Edition, 2150 B	Agreeable	-	-
3.	Taste	APHA 23 <sup>rd</sup> Edition, 2160 B	Agreeable	-	-
4.	Dissolved Oxygen (Min.)	IS: 3025 (Part 38) 1989, RA 2019	6.2	mg/l	4
5.	BOD 5 days at 20°C	APHA 23 <sup>rd</sup> Edition, 5210 D	01	mg/l	3
6.	Oil & Grease	IS: 3025 (Part 39) 1991, RA 2019	< 0.10	mg/l	0.1
7.	Free Carbon Dioxide (as CO <sub>2</sub> )	APHA 23 <sup>rd</sup> Edition, 4500 CO <sub>2</sub> C	14.04	mg/l	-
8.	Free Ammonia (as NH <sub>3</sub> )	MERCK	< 0.012	mg/l	-
9.	Cyanide (as CN)	MERCK	< 0.002	mg/l	0.05
10.	Phenolic Compounds (as C <sub>6</sub> H <sub>5</sub> OH)	MERCK	< 0.002	mg/l	0.005
11.	Anionic Detergents (as MBAS)	MERCK	< 0.05	mg/l	1.0
12.	Total Coliforms	RAKIRO	Absent	Nos/100ml	5000

*Subhanga Pradhan*  
Test Done By



*Subhanga Pradhan*  
Verified By

*Subhanga Pradhan*  
Authorized Signatory  
Subhanga Pradhan  
Managing Director

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

Page 1 of 1

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Registered Office:

0318, KOELNAGAR, ROURKELA - 769014, Dist: SUNDARGARH, ODISHA

Branch Office & Laboratory:

D/124, KOELNAGAR, ROURKELA - 769014, Dist: SUNDARGARH, ODISHA



# Cleenviron Private Limited

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



## TEST REPORT FOR AMBIENT AIR QUALITY MONITORING

FORMAT NO: CPL/RM/9A

ULR - TC681623000000513F  
REPORT NO: CPL/R/AAQ/MAR-23/1

REPORT ISSUE DATE: 03.03.2023

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sampling Method : **IS: 5182 (Part - 2) & (Part - 6), EN12341**  
 Location of Monitoring : **Near Mines Office Area**  
 Monitoring Station Code : **A1**

Sample ID No	CPL/AAQ/FEB-23/155	CPL/AAQ/FEB-23/182	CPL/AAQ/FEB-23/159	CPL/AAQ/FEB-23/174
Date of Sampling	02.02.2023 - 03.02.2023	04.02.2023 - 05.02.2023	07.02.2023 - 08.02.2023	09.02.2023 - 10.02.2023
Sampling Period	08:20 - 08:33 Hrs	08:46 - 08:57 Hrs	08:32 - 08:40 Hrs	08:30 - 08:42 Hrs
Time of Sampling	24.13 Hrs	24.11 Hrs	24.08 Hrs	24.12 Hrs
Sample Received on	03.02.2023	06.02.2023	09.02.2023	09.02.2023
Date of Test	04.02.2023	07.02.2023	10.02.2023	10.02.2023

Sample ID No	CPL/AAQ/FEB-23/222	CPL/AAQ/FEB-23/238	CPL/AAQ/FEB-23/331	CPL/AAQ/FEB-23/346	CPL/AAQ/MAR-23/2
Date of Sampling	14.02.2023 - 15.02.2023	17.02.2023 - 18.02.2023	22.02.2023 - 23.02.2023	24.02.2023 - 25.02.2023	25.02.2023 - 01.03.2023
Sampling Period	08:26 - 08:40 Hrs	08:14 - 08:24 Hrs	07:40 - 07:10 Hrs	08:20 - 16:35 Hrs	07:30 - 07:45 Hrs
Time of Sampling	24.12 Hrs	24.12 Hrs	23.30 Hrs	08.15 Hrs	24.15 Hrs
Sample Received on	17.02.2023	18.02.2023	23.02.2023	25.02.2023	01.03.2023
Date of Test	18.02.2023	20.02.2023	24.02.2023	27.02.2023	02.03.2023

Sl No	Sample ID	Parameters			
		PM <sub>2.5</sub>	PM <sub>10</sub>	SO <sub>2</sub>	NO <sub>2</sub>
Units		µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>
Method of Analysis		CPL/SOP/1/PM2.5, Issue No: 04, dt: 23.10.2017	EN 12341, 1688 Low Volume Sampler	IS:5182 (Part-2) 2001, RA 2017	IS: 5182 (Part - 6) 2006, RA 2017
1.	CPL/AAQ/FEB-23/155	26	62	05	17
2.	CPL/AAQ/FEB-23/182	24	65	09	30
3.	CPL/AAQ/FEB-23/159	20	66	04	12
4.	CPL/AAQ/FEB-23/174	15	45	07	19
5.	CPL/AAQ/FEB-23/222	09	26	06	18
6.	CPL/AAQ/FEB-23/238	18	51	08	20
7.	CPL/AAQ/FEB-23/331	29	72	06	17
8.	CPL/AAQ/FEB-23/346	16	47	05	13
9.	CPL/AAQ/MAR-23/2	27	69	05	19
National Ambient Air Quality Standards, CPCB Notification New Delhi, 15 <sup>th</sup> November, 2009 for Industrial, Residential, Rural & Other Area		60 (24 Hours Average)	100 (24 Hours Average)	80 (24 Hours Average)	80 (24 Hours Average)

Test Done By



P. Sarani  
Verified By

Authorized Signatory  
Subhanga Prabhara  
Managing Director

\*\*\*\*\*END OF TEST REPORT\*\*\*\*\*  
Page 1 of 1

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# Cleenviron Private Limited

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

## TEST REPORT FOR AMBIENT AIR QUALITY MONITORING

FORM NO: CPL/MS7

REPORT NO: CPLR/AAQ/MAR-23/1N

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

REPORT ISSUE DATE: 03.03.2023

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Location of Monitoring : **Near Mines Office Area**  
 Monitoring Station Code : **A1**

Sl No	Date of Monitoring	Time of Monitoring	Carbon Monoxide (as CO)
			Electrochemical Sensor
Method of Analysis			
1	02.02.2023	13:00 - 14:00 Hrs	< 0.1
2	04.02.2023	10:00 - 11:00 Hrs	< 0.1
3	07.02.2023	09:00 - 10:00 Hrs	< 0.1
4	09.02.2023	11:00 - 12:00 Hrs	< 0.1
5	17.02.2023	09:00 - 10:00 Hrs	< 0.1
6	20.02.2023	12:00 - 13:00 Hrs	< 0.1
7	24.02.2023	13:00 - 14:00 Hrs	< 0.1
8	27.02.2023	09:30 - 10:30 Hrs	< 0.1
9	28.02.2023	09:00 - 10:00 Hrs	< 0.1
National Ambient Air Quality Standards, CPCB Notification 13 <sup>th</sup> November 2009			04 (1 Hour Average)

Test Done By



P. Sani  
Verified By

Authorized Signatory  
Subhanga Praharaj  
Managing Director

\*\*\*\*\*END OF TEST REPORT\*\*\*\*\*  
Page 1 of 1

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# Cleenviron Private Limited

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



## TEST REPORT FOR AMBIENT AIR QUALITY MONITORING

FORMAT NO: CPL/FMS/24

ULR - TC68162300000514F  
REPORT NO: CPL/R/AAQ/MAR-23/2

REPORT ISSUE DATE: 03.03.2023

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sampling Method : **IS: 5182 (Part - 2) & (Part - 6), EN12341**  
 Location of Monitoring : **Near Mine Main Gate**  
 Monitoring Station Code : **A2**

Sample ID No	CPL/AAQ/FEB-23/63	CPL/AAQ/FEB-23/79	CPL/AAQ/FEB-23/160	CPL/AAQ/FEB-23/173
Date of Sampling	02.02.2023 - 03.02.2023	04.02.2023 - 05.02.2023	07.02.2023 - 08.02.2023	09.02.2023 - 10.02.2023
Sampling Period	08:29 - 08:35 Hrs	08:37 - 08:46 Hrs	08:40 - 08:52 Hrs	08:48 - 08:52 Hrs
Time of Sampling	24.13 Hrs	24.09 Hrs	24.12 Hrs	24.04 Hrs
Sample Received on	03.02.2023	06.02.2023	09.02.2023	10.02.2023
Date of Test	04.02.2023	07.02.2023	10.02.2023	11.02.2023

Sample ID No	CPL/AAQ/FEB-23/223	CPL/AAQ/FEB-23/237	CPL/AAQ/FEB-23/330	CPL/AAQ/FEB-23/345	CPL/AAQ/MAR-23/1
Date of Sampling	14.02.2023 - 15.02.2023	17.02.2023 - 18.02.2023	22.02.2023 - 23.02.2023	24.02.2023 - 25.02.2023	28.02.2023 - 01.03.2023
Sampling Period	08:35 - 08:42 Hrs	08:25 - 08:37 Hrs	08:15 - 08:00 Hrs	08:30 - 07:15 Hrs	07:40 - 07:52 Hrs
Time of Sampling	24.07 Hrs	24.12 Hrs	23.45 Hrs	22.45 Hrs	24.12 Hrs
Sample Received on	17.02.2023	18.02.2023	23.02.2023	25.02.2023	01.03.2023
Date of Test	18.02.2023	20.02.2023	24.02.2023	27.02.2023	02.03.2023

Sl No	Sample ID	Parameters			
		PM <sub>2.5</sub> µg/m <sup>3</sup>	PM <sub>10</sub> µg/m <sup>3</sup>	SO <sub>2</sub> µg/m <sup>3</sup>	NO <sub>2</sub> µg/m <sup>3</sup>
	Units				
	Method of Analysis	CPL/SC/P13/PWLS, Issue No. 04, dtd. 23.10.2017	IS 12341, 1988 Low Volume Sampler	IS 5182 (Part - 2) 2001, RA 2317	IS 5182 (Part - 6) 2001, RA 2317
1.	CPL/AAQ/FEB-23/63	19	52	05	14
2.	CPL/AAQ/FEB-23/79	13	41	09	29
3.	CPL/AAQ/FEB-23/160	17	49	12	28
4.	CPL/AAQ/FEB-23/173	18	51	07	23
5.	CPL/AAQ/FEB-23/223	16	44	07	19
6.	CPL/AAQ/FEB-23/237	21	48	05	15
7.	CPL/AAQ/FEB-23/330	21	53	08	22
8.	CPL/AAQ/FEB-23/345	20	58	06	18
9.	CPL/AAQ/MAR-23/1	18	66	07	19
National Ambient Air Quality Standards, CPCB Notification New Delhi, 18 <sup>th</sup> November, 2009 for Industrial, Residential, Rural & Other Area		60 (24 Hours Average)	100 (24 Hours Average)	80 (24 Hours Average)	80 (24 Hours Average)

Test Done By



P. Sareni  
Verified By

Authorized Signatory  
Subhanga Praharaj  
Managing Director

\*\*\*\*\*END OF TEST REPORT\*\*\*\*\*  
Page 1 of 1

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# Cleenviron Private Limited

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

## TEST REPORT FOR AMBIENT AIR QUALITY MONITORING

FORMAT NO: CPL/MS7

REPORT NO: CPL/R/AAQ/MAR-23/2N

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

REPORT ISSUE DATE: 03.03.2023

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Location of Monitoring : **Near Mine Main Gate**  
 Monitoring Station Code : **A2**

Sl No	Date of Monitoring	Time of Monitoring	Carbon Monoxide (as CO)
Method of Analysis			Electrochemical Sensor
1	03.02.2023	13:00 – 14:00 Hrs	< 0.1
2	05.02.2023	10:00 – 11:00 Hrs	< 0.1
3	11.02.2023	09:00 – 10:00 Hrs	< 0.1
4	14.02.2023	11:00 – 12:00 Hrs	< 0.1
5	17.02.2023	09:00 – 10:00 Hrs	< 0.1
6	20.02.2023	12:00 – 13:00 Hrs	< 0.1
7	24.02.2023	13:00 – 14:00 Hrs	< 0.1
8	27.02.2023	09:30 – 10:30 Hrs	< 0.1
9	28.02.2023	09:00 – 10:00 Hrs	< 0.1
National Ambient Air Quality Standards, CPCB Notification 19 <sup>th</sup> November 2009			04 (1 Hour Average)

*Doh*  
Test Done By



*P. Sateni*  
Verified By

*S. Prakash*  
Authorized Signatory  
Sobhanga Prakash  
Managing Director

\*\*\*\* END OF TEST REPORT \*\*\*\*

Page 1 of 1

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Registered Office:

D/315, KOELNAGAR, ROURKELA – 769014, Dist: SUNDARGARH, ODISHA

Branch Office & Laboratory:

D/124, KOELNAGAR, ROURKELA – 769014, Dist: SUNDARGARH, ODISHA

Tele Fax: 9661 – 2475740, email: cleenviron@gmail.com



# Cleenviron Private Limited

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



## TEST REPORT FOR AMBIENT AIR QUALITY MONITORING

FORMAT NO: CPL/MS2A

ULR - TC681623000000515F  
REPORT NO: CPL/R/AAQ/MAR-23/3

REPORT ISSUE DATE: 03.03.2023

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sampling Method : **IS: 5182 (Part - 2) & (Part - 6), EN12341**  
 Location of Monitoring : **Near Mine Pit - 1**  
 Monitoring Station Code : **A3**

Sample ID No	CPL/AAQ/FEB-23/86	CPL/AAQ/FEB-23/81	CPL/AAQ/FEB-23/161	CPL/AAQ/FEB-23/176
Date of Sampling	02.02.2023 - 03.02.2023	04.02.2023 - 05.02.2023	07.02.2023 - 08.02.2023	09.02.2023 - 10.02.2023
Sampling Period	08:40 - 08:52 Hrs	08:27 - 08:40 Hrs	08:53 - 09:06 Hrs	08:47 - 08:55 Hrs
Time of Sampling	24.12 Hrs	24.13 Hrs	24.13 Hrs	24.08 Hrs
Sample Received on	03.02.2023	06.02.2023	09.02.2023	10.02.2023
Date of Test	04.02.2023	07.02.2023	10.02.2023	11.02.2023

Sample ID No	CPL/AAQ/FEB-23/224	CPL/AAQ/FEB-23/239	CPL/AAQ/FEB-23/332	CPL/AAQ/FEB-23/347	CPL/AAQ/MAR-23/3
Date of Sampling	14.02.2023 - 15.02.2023	17.02.2023 - 18.02.2023	22.02.2023 - 23.02.2023	24.02.2023 - 25.02.2023	28.02.2023 - 01.03.2023
Sampling Period	08:44 - 08:50 Hrs	08:34 - 08:40 Hrs	08:30 - 07:47 Hrs	08:45 - 07:10 Hrs	07:30 - 07:40 Hrs
Time of Sampling	24.06 Hrs	24.06 Hrs	23.17 Hrs	22.25 Hrs	24.10 Hrs
Sample Received on	17.02.2023	18.02.2023	23.02.2023	25.02.2023	01.03.2023
Date of Test	18.02.2023	20.02.2023	24.02.2023	27.02.2023	02.03.2023

Sl No	Sample ID	Parameters			
		PM <sub>2.5</sub>	PM <sub>10</sub>	SO <sub>2</sub>	NO <sub>2</sub>
Units		µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>
Method of Analysis		CPL/SPM/PM2.5, Issue No: 04, dt: 23.03.2017	EN 12341, 1999 Low Volume Sampler	IS 5182 (Part - 2) 2006, RA 2017	IS 5182 (Part - 5) 2003, RA 2017
1	CPL/AAQ/FEB-23/86	23	56	05	13
2	CPL/AAQ/FEB-23/81	24	69	04	16
3	CPL/AAQ/FEB-23/161	27	67	09	28
4	CPL/AAQ/FEB-23/176	20	57	11	27
5	CPL/AAQ/FEB-23/224	16	58	05	13
6	CPL/AAQ/FEB-23/239	21	57	07	19
7	CPL/AAQ/FEB-23/332	18	53	07	18
8	CPL/AAQ/FEB-23/347	17	51	05	14
9	CPL/AAQ/MAR-23/3	28	56	08	24
National Ambient Air Quality Standards, CPCB Notification New Delhi, 18 <sup>th</sup> November, 2009 for Industrial, Residential, Rural & Other Area		60 (24 Hours Average)	100 (24 Hours Average)	80 (24 Hours Average)	80 (24 Hours Average)

Test Done By



P. Sareni  
Verified By

Authorized Signatory  
Subhanga Prasheraj  
Managing Director

\*\*\*\*END OF TEST REPORT\*\*\*\*  
Page 1 of 1

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# Cleenviron Private Limited

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

## TEST REPORT FOR AMBIENT AIR QUALITY MONITORING

FORMAT NO: CPL/FMS7

REPORT NO: CPL/R/AAQ/MAR-23/3N

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

REPORT ISSUE DATE: 03.03.2023

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
Location of Monitoring : **Near Mine Pit - 1**  
Monitoring Station Code : **A3**

Sl No	Date of Monitoring	Time of Monitoring	Carbon Monoxide (as CO)
	Method of Analysis		Electrochemical Sensor
1	03.02.2023	13:00 - 14:00 Hrs	< 0.1
2	05.02.2023	10:00 - 11:00 Hrs	< 0.1
3	11.02.2023	09:00 - 10:00 Hrs	< 0.1
4	14.02.2023	11:00 - 12:00 Hrs	< 0.1
5	17.02.2023	09:00 - 10:00 Hrs	< 0.1
6	20.02.2023	12:00 - 13:00 Hrs	< 0.1
7	24.02.2023	13:00 - 14:00 Hrs	< 0.1
8	27.02.2023	09:30 - 10:30 Hrs	< 0.1
9	28.02.2023	09:00 - 10:00 Hrs	< 0.1
National Ambient Air Quality Standards, CPCB Notification 18 <sup>th</sup> November 2009			04 (1 Hour Average)

Test Done By



Verified By

Authorized Signatory  
Subhanga Praharaj  
Managing Director

\*\*\*\*END OF TEST REPORT\*\*\*\*

Page 1 of 1

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# Cleenviron Private Limited

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



## TEST REPORT FOR AMBIENT AIR QUALITY MONITORING

FORMAT NO: CPL/RAQA

ULR - TC68162300000516F  
REPORT NO: CPL/RAQA/MAR-23/4

REPORT ISSUE DATE: 03.03.2023

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sampling Method : **IS: 5182 (Part - 2) & (Part - 6), EN12341**  
 Location of Monitoring : **Near Mine Pit - 2**  
 Monitoring Station Code : **A4**

Sample ID No	CPL/AAQ/FEB-23/54	CPL/AAQ/FEB-23/78	CPL/AAQ/FEB-23/162	CPL/AAQ/FEB-23/175
Date of Sampling	02.02.2023 - 03.02.2023	04.02.2023 - 05.02.2023	07.02.2023 - 08.02.2023	09.02.2023 - 10.02.2023
Sampling Period	08:07 - 08:15 Hrs	08:15 - 08:28 Hrs	08:15 - 08:22 Hrs	08:15 - 08:30 Hrs
Time of Sampling	24.08 Hrs	24.13 Hrs	24.07 Hrs	24.15 Hrs
Sample Received on	03.02.2023	06.02.2023	09.02.2023	10.02.2023
Date of Test	04.02.2023	07.02.2023	10.02.2023	11.02.2023

Sample ID No	CPL/AAQ/FEB-23/225	CPL/AAQ/FEB-23/240	CPL/AAQ/FEB-23/333	CPL/AAQ/FEB-23/348	CPL/AAQ/MAR-23/4
Date of Sampling	14.02.2023 - 15.02.2023	17.02.2023 - 18.02.2023	22.02.2023 - 23.02.2023	24.02.2023 - 25.02.2023	28.02.2023 - 01.03.2023
Sampling Period	08:15 - 08:27 Hrs	08:03 - 08:10 Hrs	08:05 - 07:10 Hrs	08:10 - 16:30 Hrs	07:10 - 07:20 Hrs
Time of Sampling	24.12 Hrs	24.07 Hrs	23.05 Hrs	08.20 Hrs	24.10 Hrs
Sample Received on	17.02.2023	18.02.2023	23.02.2023	25.02.2023	01.03.2023
Date of Test	18.02.2023	20.02.2023	24.02.2023	27.02.2023	02.03.2023

Sl No	Sample ID	Parameters			
		PM <sub>2.5</sub>	PM <sub>10</sub>	SO <sub>2</sub>	NO <sub>2</sub>
Units		µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>
Method of Analysis		CPL/ISO15187/PM2.5, Issue No: 04, dtd: 23-10-2017	EN 12341, 1993 Low Volume Sampler	IS:5182 (Part - 2) 2006, RA 2017	IS: 5182 (Part - 6) 2006, RA 2017
1.	CPL/AAQ/FEB-23/54	20	50	06	17
2.	CPL/AAQ/FEB-23/78	18	53	04	10
3.	CPL/AAQ/FEB-23/162	20	58	04	15
4.	CPL/AAQ/FEB-23/175	18	50	05	14
5.	CPL/AAQ/FEB-23/225	19	56	05	16
6.	CPL/AAQ/FEB-23/240	20	57	08	19
7.	CPL/AAQ/FEB-23/333	17	48	06	16
8.	CPL/AAQ/FEB-23/348	18	53	05	15
9.	CPL/AAQ/MAR-23/4	14	40	09	27
National Ambient Air Quality Standards, CPCB Notification New Delhi, 18 <sup>th</sup> November, 2009 for Industrial, Residential, Rural & Other Area		60 (24 Hours Average)	100 (24 Hours Average)	80 (24 Hours Average)	80 (24 Hours Average)

Debi  
Test Done By



P. Sareni  
Verified By

Authorized Signatory  
Subhanga Prakash  
Managing Director

END OF TEST REPORT  
Page 1 of 1

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# Cleenviron Private Limited

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

## TEST REPORT FOR AMBIENT AIR QUALITY MONITORING

FORMAT NO: CPL/FWS7

REPORT NO: CPL/R/AAQ/MAR-23/4N

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

REPORT ISSUE DATE: 03.03.2023

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Location of Monitoring : **Near Mine Pit - 2**  
 Monitoring Station Code : **A4**

Sl No	Date of Monitoring	Time of Monitoring	Carbon Monoxide (as CO)
Method of Analysis			Electrochemical Sensor
1	03.02.2023	13:00 - 14:00 Hrs	< 0.1
2	05.02.2023	10:00 - 11:00 Hrs	< 0.1
3	11.02.2023	09:00 - 10:00 Hrs	< 0.1
4	14.02.2023	11:00 - 12:00 Hrs	< 0.1
5	17.02.2023	09:00 - 10:00 Hrs	< 0.1
6	20.02.2023	12:00 - 13:00 Hrs	< 0.1
7	24.02.2023	13:00 - 14:00 Hrs	< 0.1
8	27.02.2023	10:30 - 11:30 Hrs	< 0.1
9	28.02.2023	09:00 - 10:00 Hrs	< 0.1
National Ambient Air Quality Standards, CPCB Notification 13 <sup>th</sup> November 2009			04 (1 Hour Average)

*Doh*  
Test Done By



*P. Sareni*  
Verified By

*Subhanga Prabhakar*  
Authorized Signatory  
Subhanga Prabhakar  
Managing Director

\*\*\*\*\*END OF TEST REPORT\*\*\*\*\*

Page 1 of 1

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# Cleenviron Private Limited

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## TEST REPORT FOR AMBIENT AIR QUALITY MONITORING

FORMAT NO: CPL/IN/31A

ULR - TC681623000000517F  
REPORT NO: CPL/IR/AAQ/MAR-23/5

REPORT ISSUE DATE: 03.03.2023

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sampling Method : **IS: 5182 (Part - 2) & (Part - 6), EN12341**  
 Location of Monitoring : **Khatkurbahal Village Area (Buffer Zone)**  
 Monitoring Station Code : **A5**

Sample ID No	CPL/AAQ/FEB-23/87	CPL/AAQ/FEB-23/80	CPL/AAQ/FEB-23/163	CPL/AAQ/FEB-23/177
Date of Sampling	02.02.2023 - 03.02.2023	04.02.2023 - 05.02.2023	07.02.2023 - 08.02.2023	09.02.2023 - 10.02.2023
Sampling Period	07:46 - 07:58 Hrs	07:50 - 08:07 Hrs	07:58 - 08:12 Hrs	08:00 - 08:20 Hrs
Time of Sampling	24.12 Hrs	24.17 Hrs	24.14 Hrs	24.20 Hrs
Sample Received on	03.02.2023	05.02.2023	09.02.2023	10.02.2023
Date of Test	04.02.2023	06.02.2023	10.02.2023	11.02.2023

Sample ID No	CPL/AAQ/FEB-23/226	CPL/AAQ/FEB-23/241	CPL/AAQ/FEB-23/334	CPL/AAQ/FEB-23/349	CPL/AAQ/MAR-23/5
Date of Sampling	14.02.2023 - 15.02.2023	17.02.2023 - 18.02.2023	22.02.2023 - 23.02.2023	24.02.2023 - 25.02.2023	28.02.2023 - 01.03.2023
Sampling Period	07:56 - 08:20 Hrs	07:42 - 07:56 Hrs	07:15 - 07:20 Hrs	07:00 - 17:15 Hrs	07:15 - 08:08 Hrs
Time of Sampling	24.24 Hrs	24.14 Hrs	24.05 Hrs	10.15 Hrs	24.53 Hrs
Sample Received on	17.02.2023	18.02.2023	23.02.2023	25.02.2023	01.03.2023
Date of Test	18.02.2023	19.02.2023	24.02.2023	27.02.2023	02.03.2023

Sl No	Sample ID	Parameters			
		PM <sub>2.5</sub>	PM <sub>10</sub>	SO <sub>2</sub>	NO <sub>2</sub>
	Units	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>
	Method of Analysis	CPL/SDP/1/PM2.5 Issue No: 04, dtd: 23-10-2017	EN 12341, 1996 Low Volume Sampler	IS 5182 (Part - 2) 2001, RA 2017	IS 5182 (Part - 6) 2002, RA 2017
1.	CPL/AAQ/FEB-23/87	17	49	05	13
2.	CPL/AAQ/FEB-23/80	20	42	09	37
3.	CPL/AAQ/FEB-23/163	17	48	09	24
4.	CPL/AAQ/FEB-23/177	20	56	05	22
5.	CPL/AAQ/FEB-23/226	19	54	05	16
6.	CPL/AAQ/FEB-23/241	23	67	07	22
7.	CPL/AAQ/FEB-23/334	37	73	04	13
8.	CPL/AAQ/FEB-23/349	18	52	04	11
9.	CPL/AAQ/MAR-23/5	16	49	04	23
National Ambient Air Quality Standards, CPCB Notification New Delhi, 18 <sup>th</sup> November, 2009 for Industrial, Residential, Rural & Other Area		60 (24 Hours Average)	100 (24 Hours Average)	80 (24 Hours Average)	80 (24 Hours Average)



Test Done By

P. Saren  
Verified By

Authorized Signatory  
Subhanga Prabharej  
Managing Director

\*\*\*\*END OF TEST REPORT\*\*\*\*  
Page 1 of 1

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# Cleenviron Private Limited

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

## TEST REPORT FOR AMBIENT AIR QUALITY MONITORING

FORMAT NO: CPL/FRST

REPORT NO: CPL/RAAQ/MAR-23/5N

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

REPORT ISSUE DATE: 03.03.2023

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Location of Monitoring : **Khatkurbahal Village Area (Buffer Zone)**  
 Monitoring Station Code : **A5**

Sl No	Date of Monitoring	Time of Monitoring	Carbon Monoxide (as CO)
Method of Analysis			Electrochemical Sensor
1	03.02.2023	13:00 – 14:00 Hrs	< 0.1
2	05.02.2023	10:00 – 11:00 Hrs	< 0.1
3	11.02.2023	09:00 – 10:00 Hrs	< 0.1
4	14.02.2023	11:00 – 12:00 Hrs	< 0.1
5	17.02.2023	09:00 – 10:00 Hrs	< 0.1
6	20.02.2023	12:00 – 13:00 Hrs	< 0.1
7	24.02.2023	13:00 – 14:00 Hrs	< 0.1
8	27.02.2023	09:30 – 10:30 Hrs	< 0.1
9	29.02.2023	09:00 – 10:00 Hrs	< 0.1
National Ambient Air Quality Standards, CPCB Notification 13 <sup>th</sup> November 2009			04 (1 Hour Average)

Test Done By



Verified By

Authorized Signatory  
Subhanga Prahara  
Managing Director

\*\*\*\*\*END OF TEST REPORT\*\*\*\*\*

Page 1 of 1

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Registered Office:

D/315, KOELNAGAR, ROURKELA - 769014, Dist: SUNDARGARH, ODISHA

Branch Office & Laboratory:

D/124, 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 NABL Accredited Laboratory.



## TEST REPORT FOR NOISE LEVEL MONITORING

FORMAT NO: CPL/INR2

ULR - TC681623000000571F

REPORT NO: CPL/IN/MAR-23/8

REPORT ISSUE DATE: 03.03.2023

MONITORING DONE BY CLEENVIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Instrument Used : **Sound Level Meter (LUTRON: SL 4001)**

Station No	N1	N2	N3
Sample ID	CPL/N/FEB-23/67	CPL/N/FEB-23/66	CPL/N/FEB-23/69
Date of Monitoring	16.02.2023 - 17.02.2023	17.02.2023 - 18.02.2023	14.02.2023 - 15.02.2023
Location of Monitoring	NEAR MINES MAIN GATE	NEAR MINES OFFICE AREA	NEAR MINES PIT-1

SL NO	STATION NO	L <sub>DAY</sub> TIME (6:00AM - 10:00PM) dB(A)	L <sub>NIGHT</sub> TIME (10:00PM - 6:00AM) dB(A)	L <sub>max</sub> dB(A)	L <sub>min</sub> dB(A)
1.	N1	56.7	46.7	63.9	43.2
2.	N2	55.9	47.3	62.7	43.9
3.	N3	55.2	45.0	62.7	43.2

Station No	N4	N5
Sample ID	CPL/N/FEB-23/68	CPL/N/FEB-23/65
Date of Monitoring	15.02.2023 - 16.02.2023	18.02.2023 - 19.02.2023
Location of Monitoring	NEAR MINES PIT-2	KHATKURBAHAL VILLAGE AREA

SL NO	STATION NO	L <sub>DAY</sub> TIME (6:00AM - 10:00PM) dB(A)	L <sub>NIGHT</sub> TIME (10:00PM - 6:00AM) dB(A)	L <sub>max</sub> dB(A)	L <sub>min</sub> dB(A)
4.	N4	59.1	45.9	65.9	43.7
5.	N5	56.4	45.5	64.9	43.2

Test Done By



Authorized Signatory  
Subhanga Praharaj  
Managing Director

### AMBIENT AIR QUALITY STANDARDS IN RESPECT OF NOISE AS PER CPCB

Area Code	Category of Area/Zone	Limits in dB (A) Leq	
		Day Time	Night Time
A	Industrial Area	75	70
B	Commercial Area	65	55
C	Residential Area	55	45
D	Silence Zone	50	40

END OF TEST REPORT

Page 1 of 1

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Registered Office:

D/315, KOELNAGAR, ROURKELA - 769014, Dist: SUNDARGARH, ODISHA

Branch Office & Laboratory:

D/124, 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 NABL Accredited Laboratory.



## TEST REPORT FOR AMBIENT AIR QUALITY MONITORING

FORMAT NO: CPL/PRESTA

ULR - TC68162300000920F

REPORT NO: CPL/R/AAQ/APR-23/23

REPORT ISSUE DATE: 10.04.2023

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sampling Method : **IS: 5182 (Part - 2) & (Part - 6), EN12341**  
 Location of Monitoring : **Near Mines Office Area**  
 Monitoring Station Code : **A1**

Sample ID No	CPL/AAQ/MAR-23/100	CPL/AAQ/MAR-23/116	CPL/AAQ/MAR-23/191	CPL/AAQ/MAR-23/207
Date of Sampling	04.03.2023 - 05.03.2023	07.03.2023 - 08.03.2023	11.03.2023 - 12.03.2023	14.03.2023 - 15.03.2023
Sampling Period	08:12 - 08:20 Hrs	08:21 - 08:32 Hrs	08:23 - 08:35 Hrs	08:34 - 08:42 Hrs
Time of Sampling	24.08 Hrs	24.11 Hrs	24.12 Hrs	24.08 Hrs
Sample Received on	05.03.2023	09.03.2023	13.03.2023	15.03.2023
Date of Test	06.03.2023	10.03.2023	14.03.2023	16.03.2023

Sample ID No	CPL/AAQ/MAR-23/279	CPL/AAQ/MAR-23/309	CPL/AAQ/MAR-23/320	CPL/AAQ/MAR-23/417	CPL/AAQ/MAR-23/433
Date of Sampling	18.03.2023 - 19.03.2023	21.03.2023 - 22.03.2023	23.03.2023 - 24.03.2023	28.03.2023 - 29.03.2023	30.03.2023 - 31.03.2023
Sampling Period	08:32 - 08:44 Hrs	08:21 - 08:34 Hrs	08:23 - 08:34 Hrs	08:23 - 08:35 Hrs	08:32 - 08:40 Hrs
Time of Sampling	24.12 Hrs	24.13 Hrs	24.11 Hrs	24.12 Hrs	24.08 Hrs
Sample Received on	20.03.2023	23.03.2023	24.03.2023	29.03.2023	31.03.2023
Date of Test	21.03.2023	24.03.2023	25.03.2023	30.03.2023	01.04.2023

Sl. No.	Sample ID	Parameter			
		PM <sub>2.5</sub>	PM <sub>10</sub>	SO <sub>2</sub>	NO <sub>2</sub>
Units		µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>
Method of Analysis		CPLSDP01/PM2.5, Issue No: 04, dt: 23.10.2017	EN 12341, 1563 Low Volume Sampler	IS: 5182 (Part - 2) 2001, RA 2017	IS: 5182 (Part - 6) 2001, RA 2017
1.	CPL/AAQ/MAR-23/100	22	48	08	25
2.	CPL/AAQ/MAR-23/116	25	55	04	27
3.	CPL/AAQ/MAR-23/191	27	59	06	19
4.	CPL/AAQ/MAR-23/207	22	51	04	17
5.	CPL/AAQ/MAR-23/279	30	64	06	18
6.	CPL/AAQ/MAR-23/309	18	47	06	19
7.	CPL/AAQ/MAR-23/320	28	53	06	19
8.	CPL/AAQ/MAR-23/417	32	66	05	16
9.	CPL/AAQ/MAR-23/433	24	52	06	17
National Ambient Air Quality Standards, CPCB Notification New Delhi, 18 <sup>th</sup> November, 2009 for Industrial, Residential, Rural & Other Area		60 (24 Hours Average)	100 (24 Hours Average)	80 (24 Hours Average)	80 (24 Hours Average)

Test Done By



P. Saseeni  
Verified By

Authorized Signatory  
Subhanga Prashara  
Managing Director

\*\*\*\*END OF TEST REPORT\*\*\*\*  
Page 1 of 1

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# Cleenviron Private Limited

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

## TEST REPORT FOR AMBIENT AIR QUALITY MONITORING

FORMAT NO: CPL/MS1A

REPORT NO: CPL/IAAQ/APR-23/23N

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

REPORT ISSUE DATE: 10.04.2023

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
Location of Monitoring : **Near Mines Office Area**  
Monitoring Station Code : **A1**

Sl No	Date of Monitoring	Time of Monitoring	Carbon Monoxide (as CO)
Method of Analysis			Electrode type Sensor
1	04.03.2023	13:00 - 14:00 Hrs	< 0.1
2	07.03.2023	10:00 - 11:00 Hrs	< 0.1
3	11.03.2023	09:00 - 10:00 Hrs	< 0.1
4	14.03.2023	11:00 - 12:00 Hrs	< 0.1
5	18.03.2023	09:00 - 10:00 Hrs	< 0.1
6	21.03.2023	12:00 - 13:00 Hrs	< 0.1
7	23.03.2023	13:00 - 14:00 Hrs	< 0.1
8	28.03.2023	09:30 - 10:30 Hrs	< 0.1
9	30.03.2023	09:00 - 10:00 Hrs	< 0.1
National Ambient Air Quality Standards, CPCB Notification 18th November 2009			04 (1 Hour Average)

Test Done By

Verified By



Authorized Signatory  
Subhanga Prharaj  
Managing Director

\*\*\*\*\*END OF TEST REPORT\*\*\*\*\*  
Page 1 of 1

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Registered Office:

D/318, KOELNAGAR, ROURKELA - 769014, Dist: SUNDARGARH, ODISHA

Branch Office & Laboratory:

D/124, 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 NABL Accredited Laboratory.



## TEST REPORT FOR AMBIENT AIR QUALITY MONITORING

FORMAT NO: CPL/MP/A

ULR - TC681623000000921F  
REPORT NO: CPL/IAAQ/APR-23/24

REPORT ISSUE DATE: 10.04.2023

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sampling Method : **IS: 5182 (Part - 2) & (Part - 6), EN12341**  
 Location of Monitoring : **Near Mine Main Gate**  
 Monitoring Station Code : **A2**

Sample ID No	: CPL/AAQ/MAR-23/98	CPL/AAQ/MAR-23/117	CPL/AAQ/MAR-23/190	CPL/AAQ/MAR-23/208
Date of Sampling	: 04.03.2023 - 05.03.2023	07.03.2023 - 08.03.2023	11.03.2023 - 12.03.2023	14.03.2023 - 15.03.2023
Sampling Period	: 08:20 - 08:32 Hrs	08:30 - 08:42 Hrs	08:34 - 08:43 Hrs	08:42 - 08:54 Hrs
Time of Sampling	: 24.12 Hrs	24.12 Hrs	24.09 Hrs	24.12 Hrs
Sample Received on	: 05.03.2023	09.03.2023	13.03.2023	15.03.2023
Date of Test	: 06.03.2023	10.03.2023	14.03.2023	16.03.2023

Sample ID No	: CPL/AAQ/MAR-23/280	CPL/AAQ/MAR-23/311	CPL/AAQ/MAR-23/317	CPL/AAQ/MAR-23/420	CPL/AAQ/MAR-23/432
Date of Sampling	: 18.03.2023 - 19.03.2023	21.03.2023 - 22.03.2023	23.03.2023 - 24.03.2023	28.03.2023 - 29.03.2023	30.03.2023 - 31.03.2023
Sampling Period	: 08:42 - 08:56 Hrs	08:33 - 08:41 Hrs	08:30 - 08:41 Hrs	08:33 - 08:50 Hrs	08:40 - 08:52 Hrs
Time of Sampling	: 24.14 Hrs	24.08 Hrs	24.11 Hrs	24.17 Hrs	24.12 Hrs
Sample Received on	: 20.03.2023	23.03.2023	24.03.2023	29.03.2023	31.03.2023
Date of Test	: 21.03.2023	24.03.2023	25.03.2023	30.03.2023	01.04.2023

Sl. No.	Sample ID	Parameters			
		PM <sub>2.5</sub>	PM <sub>10</sub>	SO <sub>2</sub>	NO <sub>2</sub>
Units		µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>
Method of Analysis		CPL/SOP/PPW/3, Issue No: 04, dtd: 23.10.2017	EN 12341, 1990 Low Volume Sampler	IS:5182 (Part - 2), 2001, RA 2017	IS: 5182 (Part - 6) 2004, RA 2017
1	CPL/AAQ/MAR-23/98	32	67	06	33
2	CPL/AAQ/MAR-23/117	24	54	11	38
3	CPL/AAQ/MAR-23/190	27	56	06	18
4	CPL/AAQ/MAR-23/208	25	52	06	18
5	CPL/AAQ/MAR-23/280	27	61	06	20
6	CPL/AAQ/MAR-23/311	24	55	05	18
7	CPL/AAQ/MAR-23/317	33	70	06	18
8	CPL/AAQ/MAR-23/420	23	49	05	16
9	CPL/AAQ/MAR-23/432	27	58	06	17
National Ambient Air Quality Standards, CPCB Notification New Delhi, 15 <sup>th</sup> November, 2009 for Industrial, Residential, Rural & Other Area		60 (24 Hours Average)	100 (24 Hours Average)	60 (24 Hours Average)	80 (24 Hours Average)

Test Done By



P. Saxena  
Verified By

Authorized Signatory  
Subhangra Prakash  
Managing Director

\*\*\*END OF TEST REPORT\*\*\*  
Page 1 of 1

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# Cleenviron Private Limited

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

## TEST REPORT FOR AMBIENT AIR QUALITY MONITORING

FORMAT NO: CPL/RM/A

REPORT NO: CPL/R/AAQ/APR-23/24N

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

REPORT ISSUE DATE: 10.04.2023

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Location of Monitoring : **Near Mine Main Gate**  
 Monitoring Station Code : **A2**

Sl No	Date of Monitoring	Time of Monitoring	Carbon Monoxide (as CO)
			Electrochemical Sensor
Method of Analysis			
1	04.03.2023	13:00 - 14:00 Hrs	< 0.1
2	07.03.2023	10:00 - 11:00 Hrs	< 0.1
3	11.03.2023	09:00 - 10:00 Hrs	< 0.1
4	14.03.2023	11:00 - 12:00 Hrs	< 0.1
5	16.03.2023	09:00 - 10:00 Hrs	< 0.1
6	21.03.2023	12:00 - 13:00 Hrs	< 0.1
7	23.03.2023	13:00 - 14:00 Hrs	< 0.1
8	28.03.2023	09:30 - 10:30 Hrs	< 0.1
9	30.03.2023	09:00 - 10:00 Hrs	< 0.1
National Ambient Air Quality Standards, CPCB Notification 13 <sup>th</sup> November 2009			04 (1 Hour Average)

*Dh*  
Test Done By

*P. Sareni*  
Verified By

*S. Prabhara*  
Authorized Signatory  
Subhanga Prabhara  
Managing Director



\*\*\*\*\*END OF TEST REPORT\*\*\*\*\*

Page 1 of 1

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 Tele Fax: 0661 - 2475746, email: cleenviron@gmail.com



# Cleenviron Private Limited

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



## TEST REPORT FOR AMBIENT AIR QUALITY MONITORING

FORMAT NO: CPL/ENVTA

ULR - TC681623000000922F  
REPORT NO: CPL/IR/AAQ/APR-23/25

REPORT ISSUE DATE: 10.04.2023

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sampling Method : **IS: 5182 (Part - 2) & (Part - 6), EN12341**  
 Location of Monitoring : **Near Mine Pit - 1**  
 Monitoring Station Code : **A3**

Sample ID No	CPL/AAQ/MAR-23/96	CPL/AAQ/MAR-23/115	CPL/AAQ/MAR-23/192	CPL/AAQ/MAR-23/209
Date of Sampling	04.03.2023 - 05.03.2023	07.03.2023 - 08.03.2023	11.03.2023 - 12.03.2023	14.03.2023 - 15.03.2023
Sampling Period	08:31 - 08:45 Hrs	08:46 - 08:57 Hrs	08:43 - 08:54 Hrs	08:52 - 09:05 Hrs
Time of Sampling	24.14 Hrs	24.11 Hrs	24.11 Hrs	24.13 Hrs
Sample Received on	05.03.2023	09.03.2023	13.03.2023	15.03.2023
Date of Test	06.03.2023	10.03.2023	14.03.2023	16.03.2023

Sample ID No	CPL/AAQ/MAR-23/281	CPL/AAQ/MAR-23/310	CPL/AAQ/MAR-23/318	CPL/AAQ/MAR-23/421	CPL/AAQ/MAR-23/435
Date of Sampling	18.03.2023 - 19.03.2023	21.03.2023 - 22.03.2023	23.03.2023 - 24.03.2023	28.03.2023 - 29.03.2023	30.03.2023 - 31.03.2023
Sampling Period	08:50 - 09:12 Hrs	08:40 - 08:55 Hrs	08:39 - 08:56 Hrs	08:41 - 08:58 Hrs	08:49 - 09:02 Hrs
Time of Sampling	24.22 Hrs	24.15 Hrs	24.17 Hrs	24.15 Hrs	24.13 Hrs
Sample Received on	20.03.2023	23.03.2023	24.03.2023	29.03.2023	31.03.2023
Date of Test	21.03.2023	24.03.2023	25.03.2023	30.03.2023	01.04.2023

Sl. No.	Sample ID	Parameters			
		PM <sub>2.5</sub>	PM <sub>10</sub>	SO <sub>2</sub>	NO <sub>2</sub>
Units		µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>
Method of Analysis		CPL/ISO15187/PM2.5, Issue No: 04, dt: 22.10.2017	IS 12341, 1500 Low Volume Sampler	IS 5182 (Part - 2) 2001, RA 2017	IS 5182 (Part - 6) 2006, RA 2017
1.	CPL/AAQ/MAR-23/96	24	57	11	39
2.	CPL/AAQ/MAR-23/115	27	66	07	29
3.	CPL/AAQ/MAR-23/192	22	51	05	18
4.	CPL/AAQ/MAR-23/209	27	57	06	18
5.	CPL/AAQ/MAR-23/281	28	62	06	18
6.	CPL/AAQ/MAR-23/310	21	55	06	17
7.	CPL/AAQ/MAR-23/318	20	52	07	20
8.	CPL/AAQ/MAR-23/421	27	61	05	17
9.	CPL/AAQ/MAR-23/435	26	59	05	17
National Ambient Air Quality Standards, CPCB Notification New Delhi, 13 <sup>th</sup> November, 2009 for Industrial, Residential, Rural & Other Area		60 (24 Hours Average)	100 (24 Hours Average)	80 (24 Hours Average)	80 (24 Hours Average)

Test Done By



Verified By

P. Sareni

Authorized Signatory  
Subhanga Prakash  
Managing Director

*Subhanga Prakash*

END OF TEST REPORT  
Page 1 of 1

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# Cleenviron Private Limited

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

## TEST REPORT FOR AMBIENT AIR QUALITY MONITORING

FORMAT NO: CPL/RM2A

REPORT NO: CPL/R/AAQ/APR-23/25N

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

REPORT ISSUE DATE: 10.04.2023

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Location of Monitoring : **Near Mine Pit - 1**  
 Monitoring Station Code : **A3**

Sl No.	Date of Monitoring	Time of Monitoring	Carbon Monoxide (as CO)
			Electrochemical Sensor
Method of Analysis			
1	04.03.2023	13:00 - 14:00 Hrs	< 0.1
2	07.03.2023	10:00 - 11:00 Hrs	< 0.1
3	11.03.2023	09:00 - 10:00 Hrs	< 0.1
4	14.03.2023	11:00 - 12:00 Hrs	< 0.1
5	18.03.2023	09:00 - 10:00 Hrs	< 0.1
6	21.03.2023	12:00 - 13:00 Hrs	< 0.1
7	23.03.2023	13:00 - 14:00 Hrs	< 0.1
8	28.03.2023	09:30 - 10:30 Hrs	< 0.1
9	30.03.2023	09:00 - 10:00 Hrs	< 0.1
National Ambient Air Quality Standards, CPCB Notification 18 <sup>th</sup> November 2009			04 (1 Hour Average)

*[Signature]*  
Test Done By

*[Signature]*  
Verified By

*[Signature]*  
Authorized Signatory  
Subhanga Prabhara  
Managing Director



\*\*\*\*END OF TEST REPORT\*\*\*\*

Page 1 of 1

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# Cleenviron Private Limited

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



## TEST REPORT FOR AMBIENT AIR QUALITY MONITORING

FORMAT NO: CPL/MAQA

ULR - TC681623000006923F  
REPORT NO: CPLR/AAQ/APR-23/26

REPORT ISSUE DATE: 10.04.2023

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sampling Method : **IS: 5182 (Part - 2) & (Part - 6), EN12341**  
 Location of Monitoring : **Near Mine Pit - 2**  
 Monitoring Station Code : **A4**

Sample ID No	CPL/AAQ/MAR-23/97	CPL/AAQ/MAR-23/118	CPL/AAQ/MAR-23/193	CPL/AAQ/MAR-23/210
Date of Sampling	04.03.2023 - 05.03.2023	07.03.2023 - 08.03.2023	11.03.2023 - 12.03.2023	14.03.2023 - 15.03.2023
Sampling Period	07:49 - 07:57 Hrs	08:12 - 08:14 Hrs	08:12 - 08:20 Hrs	08:20 - 08:33 Hrs
Time of Sampling	24.08 Hrs	24.02 Hrs	24.08 Hrs	24.13 Hrs
Sample Received on	05.03.2023	09.03.2023	13.03.2023	15.03.2023
Date of Test	06.03.2023	10.03.2023	14.03.2023	16.03.2023

Sample ID No	CPL/AAQ/MAR-23/282	CPL/AAQ/MAR-23/308	CPL/AAQ/MAR-23/319	CPL/AAQ/MAR-23/418	CPL/AAQ/MAR-23/434
Date of Sampling	18.03.2023 - 19.03.2023	21.03.2023 - 22.03.2023	23.03.2023 - 24.03.2023	26.03.2023 - 29.03.2023	30.03.2023 - 31.03.2023
Sampling Period	08:18 - 08:25 Hrs	08:10 - 08:21 Hrs	08:13 - 08:25 Hrs	08:12 - 08:24 Hrs	08:15 - 08:26 Hrs
Time of Sampling	24.07 Hrs	24.11 Hrs	24.12 Hrs	24.12 Hrs	24.11 Hrs
Sample Received on	20.03.2023	23.03.2023	24.03.2023	29.03.2023	31.03.2023
Date of Test	21.03.2023	24.03.2023	25.03.2023	30.03.2023	01.04.2023

Sl. No.	Sample ID	Parameters			
		PM <sub>2.5</sub>	PM <sub>10</sub>	SO <sub>2</sub>	NO <sub>2</sub>
Units		µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>
Method of Analysis		CPL/OPD/PRD25, Issac No: 85, dt: 23.10.2017	DN 12341, 1998 Low Volume Sampler	IS 5182 (Part - 2), 2001, RA 2017	IS 5182 (Part - 6), 2001, RA 2017
1.	CPL/AAQ/MAR-23/97	25	55	10	32
2.	CPL/AAQ/MAR-23/118	26	61	05	34
3.	CPL/AAQ/MAR-23/193	22	48	06	20
4.	CPL/AAQ/MAR-23/210	24	56	05	17
5.	CPL/AAQ/MAR-23/282	27	60	06	19
6.	CPL/AAQ/MAR-23/308	21	52	05	16
7.	CPL/AAQ/MAR-23/319	24	59	06	20
8.	CPL/AAQ/MAR-23/418	25	60	05	17
9.	CPL/AAQ/MAR-23/434	24	51	06	17
National Ambient Air Quality Standards, CPCB Notification New Delhi, 18 <sup>th</sup> November, 2009 for Industrial, Residential, Rural & Other Area		80 (24 Hours Average)	100 (24 Hours Average)	80 (24 Hours Average)	80 (24 Hours Average)

Test Done By



Verified By

Authorized Signatory  
Subhanga Prharaj  
Managing Director

\*\*\*\*END OF TEST REPORT\*\*\*\*  
Page 1 of 1

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# Cleenviron Private Limited

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

## TEST REPORT FOR AMBIENT AIR QUALITY MONITORING

FORMAT NO: CPL/FA/2A

REPORT NO: CPL/RJAAQ/APR-23/26N

SAMPLE DRAWN BY: CLEENVIRON PRIVATE LIMITED

REPORT ISSUE DATE: 10.04.2023

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Location of Monitoring : **Near Mine Pit - 2**  
 Monitoring Station Code : **A4**

Sl. No.	Date of Monitoring	Time of Monitoring	Carbon Monoxide (as CO)
Method of Analysis			Electrochemical Sensor
1	04.03.2023	13:00 - 14:00 Hrs	< 0.1
2	07.03.2023	10:00 - 11:00 Hrs	< 0.1
3	11.03.2023	09:00 - 10:00 Hrs	< 0.1
4	14.03.2023	11:00 - 12:00 Hrs	< 0.1
5	18.03.2023	09:00 - 10:00 Hrs	< 0.1
6	21.03.2023	12:00 - 13:00 Hrs	< 0.1
7	23.03.2023	13:00 - 14:00 Hrs	< 0.1
8	28.03.2023	10:30 - 11:30 Hrs	< 0.1
9	30.03.2023	09:00 - 10:00 Hrs	< 0.1
National Ambient Air Quality Standards, CPCB Notification 18 <sup>th</sup> November 2008			04 (1 Hour Average)

*D. S. Das*  
 Test Done By

*P. S. Sanyal*  
 Verified By

*S. Subhangra*  
 Authorized Signatory  
 Subhangra Prabhakar  
 Managing Director



END OF TEST REPORT

Page 1 of 1

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Registered Office: D/318, KOELNAGAR, ROURKELA - 769014, Dist: SUNDARGARH, ODISHA | Branch Office & Laboratory: D/124, KOELNAGAR, ROURKELA - 769014, Dist: SUNDARGARH, ODISHA  
 Tele Fax: 0661 - 2475745; email: cleenviron@gmail.com



# Cleenviron Private Limited

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



## TEST REPORT FOR AMBIENT AIR QUALITY MONITORING

FORMAT NO: CPL/RAQA

ULR - TC68162300000924F  
REPORT NO: CPL/RAAQ/APR-23/27

REPORT ISSUE DATE: 10.04.2023

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sampling Method : **IS: 5182 (Part - 2) & (Part - 6), EN12341**  
 Location of Monitoring : **Khatkurbahal Village Area (Buffer Zone)**  
 Monitoring Station Code : **A5**

Sample ID No	CPL/AAQ/MAR-23/99	CPL/AAQ/MAR-23/119	CPL/AAQ/MAR-23/194	CPL/AAQ/MAR-23/211
Date of Sampling	04.03.2023 - 05.03.2023	07.03.2023 - 08.03.2023	11.03.2023 - 12.03.2023	14.03.2023 - 15.03.2023
Sampling Period	07:34 - 07:50 Hrs	07:57 - 08:10 Hrs	07:56 - 08:10 Hrs	08:05 - 08:12 Hrs
Time of Sampling	24.16 Hrs	24.13 Hrs	24.14 Hrs	24.07 Hrs
Sample Received on	05.03.2023	09.03.2023	13.03.2023	15.03.2023
Date of Test	06.03.2023	10.03.2023	14.03.2023	16.03.2023

Sample ID No	CPL/AAQ/MAR-23/283	CPL/AAQ/MAR-23/307	CPL/AAQ/MAR-23/316	CPL/AAQ/MAR-23/419	CPL/AAQ/MAR-23/436
Date of Sampling	18.03.2023 - 19.03.2023	21.03.2023 - 22.03.2023	23.03.2023 - 24.03.2023	26.03.2023 - 29.03.2023	30.03.2023 - 31.03.2023
Sampling Period	07:56 - 08:18 Hrs	07:55 - 08:10 Hrs	07:56 - 08:10 Hrs	07:52 - 08:10 Hrs	07:56 - 08:10 Hrs
Time of Sampling	24.22 Hrs	24.15 Hrs	24.14 Hrs	24.18 Hrs	24.14 Hrs
Sample Received on	20.03.2023	23.03.2023	24.03.2023	29.03.2023	31.03.2023
Date of Test	21.03.2023	24.03.2023	25.03.2023	30.03.2023	01.04.2023

Sample ID	Parameters			
	PM <sub>2.5</sub>	PM <sub>10</sub>	SO <sub>2</sub>	NO <sub>2</sub>
Units	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>
Method of Analysis	CPL/ISOP/SP/PRD.5, Issue No. 15, dtc 23.0.2017	IS 12341, 1995 Low Volume Sampler	IS 5182 (Part - 2) 2001, RA 2017	IS 5182 (Part - 6) 2004, RA 2017
1. CPL/AAQ/MAR-23/99	20	47	10	31
2. CPL/AAQ/MAR-23/119	23	51	11	39
3. CPL/AAQ/MAR-23/194	26	58	05	17
4. CPL/AAQ/MAR-23/211	20	49	05	14
5. CPL/AAQ/MAR-23/283	25	61	06	18
6. CPL/AAQ/MAR-23/307	24	53	05	18
7. CPL/AAQ/MAR-23/316	32	68	06	19
8. CPL/AAQ/MAR-23/419	19	46	04	18
9. CPL/AAQ/MAR-23/436	20	53	05	18
National Ambient Air Quality Standards, CPCB Notification New Delhi, 13 <sup>th</sup> November, 2002 for Industrial, Residential, Rural & Other Area	60 (24 Hours Average)	100 (24 Hours Average)	80 (24 Hours Average)	80 (24 Hours Average)

Test Done By



Verified By P. Saloni

Authorized Signatory Subhanga Prharaj Managing Director

END OF TEST REPORT Page 1 of 1

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# Cleenviron Private Limited

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

## TEST REPORT FOR AMBIENT AIR QUALITY MONITORING

FORMAT NO: CPU/BR/24

REPORT NO: CPL/RIA/QI/PR-23/27N

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

REPORT ISSUE DATE: 10.04.2023

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Location of Monitoring : **Khatkurbahal Village Area (Buffer Zone)**  
 Monitoring Station Code : **A5**

S/No	Date of Monitoring	Time of Monitoring	Carbon Monoxide (as CO)
Method of Analysis			Barochemical Sensor
1	03.03.2023	13:00 - 14:00 Hrs	< 0.1
2	05.03.2023	10:00 - 11:00 Hrs	< 0.1
3	11.03.2023	09:00 - 10:00 Hrs	< 0.1
4	14.03.2023	11:00 - 12:00 Hrs	< 0.1
5	17.03.2023	09:00 - 10:00 Hrs	< 0.1
6	20.03.2023	12:00 - 13:00 Hrs	< 0.1
7	24.03.2023	13:00 - 14:00 Hrs	< 0.1
8	27.03.2023	09:30 - 10:30 Hrs	< 0.1
9	29.03.2023	09:00 - 10:00 Hrs	< 0.1
National Ambient Air Quality Standards, CPCB Notification 19 <sup>th</sup> November 2009			04 (1 Hour Average)

*Dha*  
Test Done By

*P. Sarani*  
Verified By

*Subhanga Prasad*  
Authorized Signatory  
Subhanga Prasad  
Managing Director



\*\*\*\*END OF TEST REPORT\*\*\*\*

Page 1 of 1

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# Cleenviron Private Limited

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



## TEST REPORT FOR AMBIENT AIR QUALITY MONITORING

FORMAT NO: CPL/BSIA

ULR - TC68162300000925F  
REPORT NO: CPL/R/AAQ/APR-23/29

REPORT ISSUE DATE: 10.04.2023

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL Limestone & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Sampling Method : **IS: 5182 (Part - 2), (Part - 6) & EN12341**

Sample ID No	CPL/AAQ/MAR-23/320	CPL/AAQ/MAR-23/317	CPL/AAQ/MAR-23/318	CPL/AAQ/MAR-23/319	CPL/AAQ/MAR-23/316
Station No	A1	A2	A3	A4	A5
Date of Sampling	23.03.2023 - 24.03.2023	23.03.2023 - 24.03.2023	23.03.2023 - 24.03.2023	23.03.2023 - 24.03.2023	23.03.2023 - 24.03.2023
Sampling Period	08:23 Hrs - 08:34 Hrs	08:30 Hrs - 08:41 Hrs	08:39 - 08:50 Hrs	08:13 Hrs - 08:25 Hrs	07:56 Hrs - 08:10 Hrs
Time of Sampling	24:11 Hrs	24:11 Hrs	24:17 Hrs	24:12 Hrs	24:14 Hrs
Sample Received on	24.03.2023	24.03.2023	24.03.2023	24.03.2023	24.03.2023
Date of Test	25.03.2022	25.03.2022	25.03.2022	25.03.2022	25.03.2022

Sl No	Station No	Location of Sampling	Parameters					
			PM2.5	PM10	SO <sub>2</sub>	NO <sub>2</sub>	NH <sub>3</sub>	O <sub>3</sub>
Units			µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>
Method of Analysis			IS:5182 (Part - 2), 2018	IS:5182 (Part - 2), 2018 RA 2017 & EN12341, 2008 Lab Protocol Specified	IS:5182 (Part - 2), 2018, RA 2017	IS: 5182 (Part - 1), 2005, RA 2017	IS:5182 (Part - 2), 2018	IS:5182 (Part - 9), 1914, RA 2019
1.	A1	NEAR MINES OFFICE	26	53	06	19	49	21
2.	A2	NEAR MINE MAIN GATE	33	70	06	18	50	20
3.	A3	NEAR MINES PIT - 1	20	52	07	20	47	21
4.	A4	NEAR MINES PIT - 2	24	59	06	20	49	23
5.	A5	VILLAGE KHATKURBAHAL	32	68	06	19	49	< 20
National Ambient Air Quality Standards, CPCB Notification New Delhi, 18 <sup>th</sup> November, 2009 for Industrial, Residential, Rural & Other Area			60 (24 Hours Average)	100 (24 Hours Average)	80 (24 Hours Average)	80 (24 Hours Average)	400 (24 Hours Average)	180 (1 Hour Average)

*Deba*  
Test Done By

*P. Sarseni*  
Verified By

*Subhanga Praharaj*  
Authorized Signatory  
Subhanga Praharaj  
Managing Director



\*\*\*\*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 AMBIENT AIR QUALITY MONITORING

FORMAT NO: CPL/MS/2

REPORT NO: CPL/IR/AAQ/APR-23/28N

REPORT ISSUE DATE: 10.04.2023

SAMPLE DRAWN BY CLEENVIIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL Limestone & Dolomite Mines, Sundargarh, Odisha**  
 Sampling Method : **IS: 5182**

Sample ID No	CPL/AAQ/MAR-23/320	CPL/AAQ/MAR-23/317	CPL/AAQ/MAR-23/318	CPL/AAQ/MAR-23/319	CPL/AAQ/MAR-23/316
Station No	A1	A2	A3	A4	A5
Date of Sampling	23.03.2023 - 24.03.2023	23.03.2023 - 24.03.2023	23.03.2023 - 24.03.2023	23.03.2023 - 24.03.2023	23.03.2023 - 24.03.2023
Sampling Period	08:23 Hrs - 08:34 Hrs	08:30 Hrs - 08:41 Hrs	08:39 - 08:56 Hrs	08:13 Hrs - 08:25 Hrs	07:56 Hrs - 08:10 Hrs
Time of Sampling	24:11 Hrs	24:11 Hrs	24:17 Hrs	24:12 Hrs	24:14 Hrs
Sample Received on	24.03.2023	24.03.2023	24.03.2023	24.03.2023	24.03.2023
Date of Test	25.03.2022	25.03.2022	25.03.2022	25.03.2022	25.03.2022

Sl No	Station No	Location of Sampling	Parameters					
			CO	Lead (Pb)	Arsenic (As)	Nickel (Ni)	Benzene (C <sub>6</sub> H <sub>6</sub> )	Benzo(a)pyrene (BaP) - Particulate Phase only
Units			mg/m <sup>3</sup>	µg/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	µg/m <sup>3</sup>	ng/m <sup>3</sup>
Method of Analysis			Electro-chemical Sensor	IS 5182 (Part - 23): 2004, RA 2014	CPL/MS/01/13s, Issue No: 02, dtd: 23/10/2017	CPL/MS/01/13s, Issue No: 02, dtd: 23/10/2017	IS 5182 (Part - 11): 2005, RA 2017	IS 5182 (Part - 12)
1.	A1	NEAR MINES OFFICE	< 0.1	< 0.4	< 0.2	< 12	< 0.5	< 0.1
2.	A2	NEAR MINE MAIN GATE	< 0.1	< 0.4	< 0.2	< 12	< 0.5	< 0.1
3.	A3	NEAR MINES PIT - 1	< 0.1	< 0.4	< 0.2	< 12	< 0.5	< 0.1
4.	A4	NEAR MINES PIT - 2	< 0.1	< 0.4	< 0.2	< 12	< 0.5	< 0.1
5.	A5	VILLAGE KHATKURBAHAL	< 0.1	< 0.4	< 0.2	< 12	< 0.5	< 0.1
National Ambient Air Quality Standards, CPCB Notification New Delhi, 18 <sup>th</sup> November, 2009 for Industrial, Residential, Rural & Other Area			4 (1 Hour Average)	1.0 (24 Hours Average)	06 (Annual Average)	20 (Annual Average)	05 (Annual Average)	01 (Annual Average)

Test Done By



P. Sareni  
Verified By

Authorized Signatory  
Subhanga Praharaj  
Managing Director

\*\*\*\*END OF TEST REPORT\*\*\*\*

Page 1 of 1

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Registered Office:

D/314, KOELNAGAR, ROURKELA - 769014, Dist: SUNDARGARH, ODISHA

Branch Office & Laboratory:

D/124, 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 NABL Accredited Laboratory.



## TEST REPORT FOR FUGITIVE DUST EMISSION MONITORING

FORMAT NO: CPL/FG/19

ULR - TC68162300000927F  
REPORT NO: CPL/R/FG/APR -23/26

REPORT ISSUE DATE: 10.04.2023

SAMPLE DRAWN BY CLEENVIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
Sampling Method : **IS: 5182 (Part - 23)**

Sample ID No	CPL/FG/MAR-23/160	CPL/FG/MAR-23/159	CPL/FG/MAR-23/161
Station No	F1	F2	F3
Date of Sampling	13.03.2023	13.03.2023	13.03.2023
Sampling Period	08:50 - 12:50 Hrs	0900 - 1332 Hrs	0820 - 1230 Hrs
Time of Sampling	04.00 Hrs	04.32 Hrs	04.10 Hrs
Sample Received on	13.03.2023	13.03.2023	13.03.2023
Date of Test	13.03.2023 - 14.03.2023		
Method of Analysis	IS: 5182 (Part - 23)		

Sl No	Station No	Location of Sampling	Parameters
			PM <sub>10</sub> in µg/m <sup>3</sup>
1.	F1	HAULAGE ROAD	445
2.	F2	DRILLING AREA	1424
3.	F3	WEIGH BRIDGE	376

*Daha*  
Test Done By

*P. Sareni*  
Verified By

*Subhanga Praharaj*  
Authorized Signatory  
Subhanga Praharaj  
Managing Director



\*\*\*\*END OF TEST REPORT\*\*\*\*

Page 1 of 1

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Registered Office: 0318, KOELNAGAR, ROURKELA - 769014, Dist: SUNDARGARH, ODISHA | Branch Office & Laboratory: 03124, KOELNAGAR, ROURKELA - 769014, Dist: SUNDARGARH, ODISHA  
Tele Fax: 0681 - 2475746, email: cleenviron@gmail.com



# Cleenviron Private Limited

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



## TEST REPORT FOR NOISE LEVEL MONITORING

FORMAT NO: CPL/PM2

ULR - TC68162300000926F  
REPORT NO: CPL/R/NIAPR-23/19

REPORT ISSUE DATE: 10.04.2023

MONITORING DONE BY CLEENVIRON PRIVATE LIMITED

Name of the Customer : **M/s SHIVA CEMENT LIMITED**  
 Address of the Customer : **KHATKURBAHAL LIMESTONE & DOLOMITE MINES, SUNDARGARH, ODISHA**  
 Instrument Used : **Sound Level Meter (LUTRON: SL 4001)**

Station No	N1	N2	N3
Sample ID	CPL/N/MAR-23/38	CPL/N/MAR-23/39	CPL/N/MAR-23/40
Date of Monitoring	18.03.2023	18.03.2023	21.03.2023
Location of Monitoring	NEAR MINES OFFICE AREA	NEAR WEIGH BRIDGE	NEAR DRILL SITE

SL. NO.	STATION NO	$L_{min}$ (dB(A))	$L_{max}$ (dB(A))	$L_{eq}$ (dB(A))
1.	N1	57.4	62.7	46.9
2.	N2	56.7	61.7	48.2
3.	N3	67.0	72.3	49.4

*Sinash*  
Test Done By



*Subhanga Praharej*  
 Authorized Signatory  
 Subhanga Praharej  
 Managing Director

PERMISSIBLE EXPOSURE IN CASE OF CONTINUOUS NOISE as per OSHA

TOXIC TIME PERIODS/REPER DOWN PERIODS	SOUND PRESSURE LEVELS IN DB(A)
8	90
6	92
4	95
3	97
2	100
1 1/2	102
1	105
3/4	107
1/2	110
1/4	115

No Exposure in excess of 115 dB (A) is permitted

END OF TEST REPORT

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## ANNEXURE-II



भारत सरकार  
जल शक्ति मंत्रालय  
जल संसाधन, नदी विकास  
और गंगा संरक्षण विभाग  
केन्द्रीय भूमि जल प्राधिकरण  
Government of India  
Ministry of Jal Shakti  
Department of Water Resources,  
River Development & Ganga Rejuvenation  
Central Ground Water Authority

(भूजल निकासी हेतु अनापत्ति प्रमाण पत्र)

**NO OBJECTION CERTIFICATE (NOC) FOR GROUND WATER ABSTRACTION**

Project Name:	Proposed Expansion Of Khatkurbahal Limestone And Dolomite Mine_ml Area-72.439 Ha		
Project Address:	Khatkurbahal, Kutra, Sundargarh		
Village:	Khatkhur Bahal	Block:	Kutra
District:	Sundargarh	State:	Odisha
Pin Code:			
Communication Address:	Ravi Chandra Chikatimalla, Jsw Cement Limited, 3rd Floor, Jsw Centre, Bandra Kurla Complex, Mumbai, Mumbai, Maharashtra - 400051		
Address of CGWB Regional Office :	Central Ground Water Board South Eastern Region, Bhujal Bhawan, Khandagiri Square, Nh-5, Bhubaneshwar, Khordha, Odisha - 750001		

1. NOC No.:	CGWA/NOC/MIN/ORIG/2021/12245											
2. Application No.:	21-4/2696/OR/MIN/2021	3. Category: (GWRE 2017)	Safe									
4. Project Status:	New Project	5. NOC Type:	New									
6. Valid from:	07/07/2021	7. Valid up to:	06/07/2023									
8. Ground Water Abstraction Permitted:												
	Fresh Water		Saline Water									
	Dewatering		Total									
	m <sup>3</sup> /day	m <sup>3</sup> /year	m <sup>3</sup> /day									
	m <sup>3</sup> /day	m <sup>3</sup> /year	m <sup>3</sup> /day									
	12.00	3600.00	1148.00									
			344400.00									
9. Details of ground water abstraction /Dewatering structures												
	Total Existing No.:0						Total Proposed No.:3					
	DW	DCB	BW	TW	MP	MPu	DW	DCB	BW	TW	MP	MPu
Abstraction Structure*	0	0	0	0	0	0	0	0	1	0	0	0
Dewatering Structure*	0	0	0	0	0	0	0	0	0	0	2	0
*DW- Dug Well; DCB-Dug-cum-Bore Well; BW-Bore Well; TW-Tube Well; MP-Mine Pit;MPu-Mine Pumps												
10. Ground Water Abstraction/Restoration Charges paid (Rs.):	1740000.00											
11. Number of Piezometers(Observation wells) to be constructed/ monitored & Monitoring mechanism.	No. of Piezometers						Monitoring Mechanism					
							Manual	DWLR**	DWLR With Telemetry			
**DWLR - Digital Water Level Recorder	2						0	1	1			

(Compliance Conditions given overleaf)

This is an auto generated document &amp; need not to be signed.

18/11, जामनगर हाउस, मानसिंह रोड, नई दिल्ली - 110011 / 18/11, Jamnagar House, Mansingh Road, New Delhi-110011

Phone: (011) 23383561 Fax: 23382051, 23386743

Website: cgwa-noc.gov.in

पानी बचाये - जीवन बचाये  
SAVE WATER - SAVE LIFE

**Validity of this NOC shall be subject to compliance of the following conditions:**

**Mandatory conditions:**

- 1) Installation of tamper proof digital water flow meter with telemetry on all the abstraction structure(s) shall be mandatory for all users seeking No Objection Certificate and intimation regarding their installation shall be communicated to the CGWA within 30 days of grant of No Objection Certificate.
- 2) Proponents shall mandatorily get water flow meter calibrated from an authorized agency once in a year.
- 3) Construction of purpose-built observation wells (piezometers) for ground water level monitoring shall be mandatory as per Section 14 of Guidelines. Water level data shall be made available to CGWA through web portal. Detailed guidelines for construction of piezometers are given in Annexure-II of the guidelines.
- 4) Proponents shall monitor quality of ground water from the abstraction structure(s) once in a year. Water samples from bore wells/ tube wells / dug wells shall be collected during April/May every year and analysed in NABL accredited laboratories for basic parameters (cations and anions), heavy metals, pesticides/ organic compounds etc. Water quality data shall be made available to CGWA through the web portal.
- 5) In case of mining projects, additional key wells shall be established in consultation with the Regional Director, CGWB for ground water level monitoring four (4) times a year (January, May, August and November) in core as well as buffer zones of the mine.
- 6) In case of mining project the firm shall submit water quality report of mine discharge/ seepage from Govt. approved/ NABL accredited lab.
- 7) The firm shall report compliance of the NOC conditions online in the website ([www.cgwa-noc.gov.in](http://www.cgwa-noc.gov.in)) within one year from the date of issue of this NOC.
- 8) Industries abstracting ground water in excess of 100 m<sup>3</sup>/d shall undertake annual water audit through certified auditors and submit audit reports within three months of completion of the same to CGWA. All such industries shall be required to reduce their ground water use by at least 20% over the next three years through appropriate means.
- 9) Application for renewal can be submitted online from 90 days before the expiry of NOC. Ground water withdrawal, if any, after expiry of NOC shall be illegal & liable for legal action as per provisions of Environment (Protection) Act, 1986.
- 10) This NOC is subject to prevailing Central/State Government rules/laws/norms or Court orders related to construction of tube well/ground water abstraction structure / recharge or conservation structure/discharge of effluents or any such matter as applicable.

**General conditions:**

- 11) No additional ground water abstraction and/or de-watering structures shall be constructed for this purpose without prior approval of the Central Ground Water Authority (CGWA).
- 12) The proponent shall seek prior permission from CGWA for any increase in quantum of groundwater abstraction (more than that permitted in NOC for specific period).
- 13) Proponents shall install roof top rain water harvesting in the premise as per the existing building bye laws in the premise.
- 14) The project proponent shall take all necessary measures to prevent contamination of ground water in the premises failing which the firm shall be responsible for any consequences arising thereupon.
- 15) In case of industries that are likely to contaminate the ground water, no recharge measures shall be taken up by the firm inside the plant premises. The runoff generated from the rooftop shall be stored and put to beneficial use by the firm.
- 16) Wherever feasible, requirement of water for greenbelt (horticulture) shall be met from recycled / treated waste water.
- 17) Wherever the NOC is for abstraction of saline water and the existing wells (s) is /are yielding fresh water, the same shall be sealed and new tubewell(s) tapping saline water zone shall be constructed within 3 months of the issuance of NOC. The firm shall also ensure safe disposal of saline residue, if any.
- 18) Unexpected variations in inflow of ground water into the mine pit, if any, shall be reported to the concerned Regional Director, Central Ground Water Board.
- 19) In case of violation of any NOC conditions, the applicant shall be liable to pay the penalties as per Section 16 of Guidelines.
- 20) This NOC does not absolve the proponents of their obligation / requirement to obtain other statutory and administrative clearances from appropriate authorities.
- 21) The issue of this 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 take decisions independently of the NOC.
- 22) In case of change of ownership, new owner of the industry will have to apply for incorporation of necessary changes in the No Objection Certificate with documentary proof within 60 days of taking over possession of the premises.
- 23) This NOC is being issued without any prejudice to the directions of the Hon'ble NGT/court orders in cases related to ground water or any other related matters.
- 24) Proponents, who have installed/constructed artificial recharge structures in compliance of the NOC granted to them previously and have availed rebate of upto 50% (fifty percent) in the ground water abstraction charges/ground water restoration charges, shall continue to regularly maintain artificial recharge structures.
- 25) Industries which are likely to cause ground water pollution e.g. Tanning, Slaughter Houses, Dye, Chemical/ Petrochemical, Coal washeries, pharmaceutical, other hazardous units etc. (as per CPCE list) need to undertake necessary well head protection measures to ensure prevention of ground water pollution as per Annexure III of the guidelines.
- 26) In case of new infrastructure projects having ground water abstraction of more than 20 m<sup>3</sup>/day, the firm/entity shall ensure implementation of dual water supply system in the projects.
- 27) In case of infrastructure projects, paved/parking area must be covered with interlocking/perforated tiles or other suitable measures to ensure groundwater infiltration/harvesting.
- 28) In case of coal and other base metal mining projects, the project proponent shall use the advance dewatering technology (by construction of series of dewatering abstraction structures) to avoid contamination of surface water.
- 29) The NOC issued is conditional subject to the conditions mentioned in the Public notice dated 27.01.2021 failing which penalty/EC/cancellation of NOC shall be imposed as the case may be.
- 30) This NOC is issued subject to the clearance of Expert Appraisal Committee (EAC) (if applicable).

**(Non-compliance of the conditions mentioned above is likely to result in the cancellation of NOC and legal action against the proponent.)**



ଓଡ଼ିଶା ODISHA

BEFORE SRI M. K. SAHOO  
NOTARY : RAJGANGPUR

L 546624

**AFFIDAVIT**

Project of "Proposed expansion in Limestone (Including sub-grade) Production Capacity from 0.3475 Million TPA to 1.50 Million TPA, Topsoil 0.108 Million m<sup>3</sup> per annum (0.1296 Million TPA) & OB/Waste/SB/IB/Low grade Dolomite 0.20 Million m<sup>3</sup> per annum (0.26 Million TPA) (Total excavation 1.8896 says 1.89 Million TPA) with mobile crusher with screen of 500 TPH in Khatkurbahal Limestone & Dolomite Mine (ML Area – 72.439 ha) Near Villages- Khatkurbahal and Kulenbahal, Tehsil – Kurta, District- Sundergarh (Odisha) M/s Shiva Cement Limited"

I, Anil Kumar Mishra, Authorized Signatory of the above Project "Khatkurbahal Limestone & Dolomite Mine" of M/s Shiva Cement Limited do hereby solemnly state as follows:

1. The company undertake by affidavit, that it will comply with all the statutory requirement & judgment of Hon'ble Supreme court dated the 2<sup>nd</sup> August 2017 in writ Petition (civil) No. 114 of 2014 in the matter of common cause versus Union of India & Ors before grant of ToR/ EC and also commit not to repeat any such violations in future.

2. The company, hereby also undertaken in case of violation, if any, mentioned in above undertaking, the ToR /Environmental Clearance shall be liable to be terminated forthwith.

3. The company hereby undertake by affidavit that the Environmental Clearance will not be operational till such time that the company complies with all statutory requirement & judgment of Hon'ble Supreme court dated the 2<sup>nd</sup> August 2017 in writ Petition (civil) No. 114 of 2014 in the matter of common cause versus Union of India & Ors as applicable.

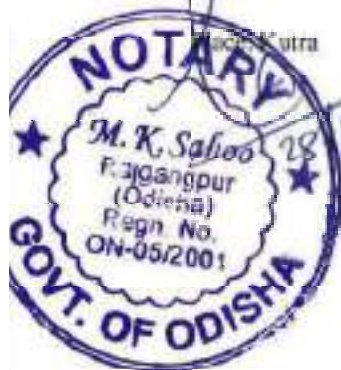
Contd.... P/2

AK

4. Demand Notice was issued to Shiva Cement Limited dated 30.07.2020 whereby it has been directed to pay an amount of Rs. 18,57,73,619 purportedly towards compensation under Section 21(5) of the MMDR Act for production as per the judgment of Hon'ble Supreme court dated the 2nd August 2017 in writ Petition (civil) No. 114 of 2014 in the matter of common cause versus Union of India & Ors as applicable.
5. Company has challenged the Demand Notice dated 30.07.2020 before the Central Government (Ministry of Mines), New Delhi on 05-10-2020 by Application No. RA/22/22/2020-RC-1 under Rule 35 of the Minerals (Other than Atomic and Hydro Carbons Energy Minerals) Concession Rules, 2016 ("Revision Application") and the interim protection was granted to company vide order dated 24.02.2021.
6. The matter was last heard on 26.10.2021 and the Mines Tribunal, New Delhi directed the State Govt. to provide clarifications in this matter.
7. The Revision Application is pending before the Central Government (Ministry of Mines), New Delhi. Final outcome of the issue under adjudication shall be followed by the company.

The company, further undertake that the contents of this declaration are true and correct to best of my knowledge and belief, that nothing has been concealed.

Date: 28-10-2021



(Signature of PP with Postal address)

Anil Kumar Mishra  
(Authorized Signatory)  
Shiva Cement Limited

Village: Telighana, P.O : Biringatoli, Tehsil: Kutra  
District : Sundargarh, Odisha- 770018

Solemnly affirmed & declare  
before me on Identification by  
Advocate

M.K. SAHOO  
NOTARY, RAJGANGPUR



**Date/Time** Long at 16:36:14 November 19, 2022  
**Trigger Source** Geo: 0.500 mm/s, Mic: 2.000 pa.(L)  
**Range** Geo: 254.0 mm/s  
**Record Time** 4.0 sec (Auto=3Sec) at 4096 sps  
**Job Number:** 3  
**Operator/Setup:** Operator/factory.MMB

**Serial Number** UM20047 V 10-90GC Micromate ISEE  
**Battery Level** 3.8 Volts  
**Unit Calibration** October 1, 2022 by UES New Delhi  
**File Name** UM20047\_20221119163614.IDFW  
**Scaled Distance** 365.1 (200.0 m, 0.3 kg)

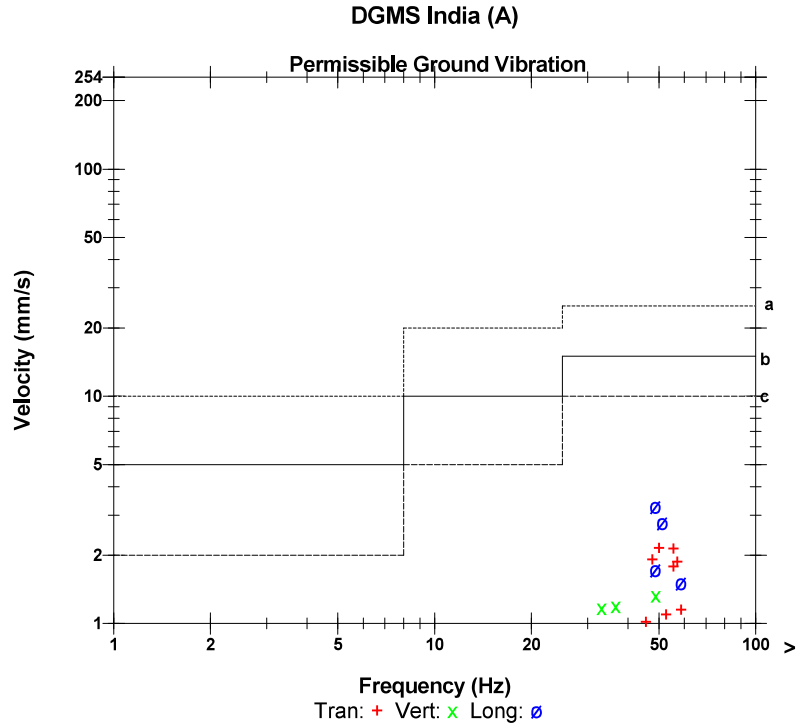
**Notes**

**Location:** PIT -1 OLD OFFICE  
**Client:**  
**User Name:** SHIVA CEMENT LIMITED  
**General:**

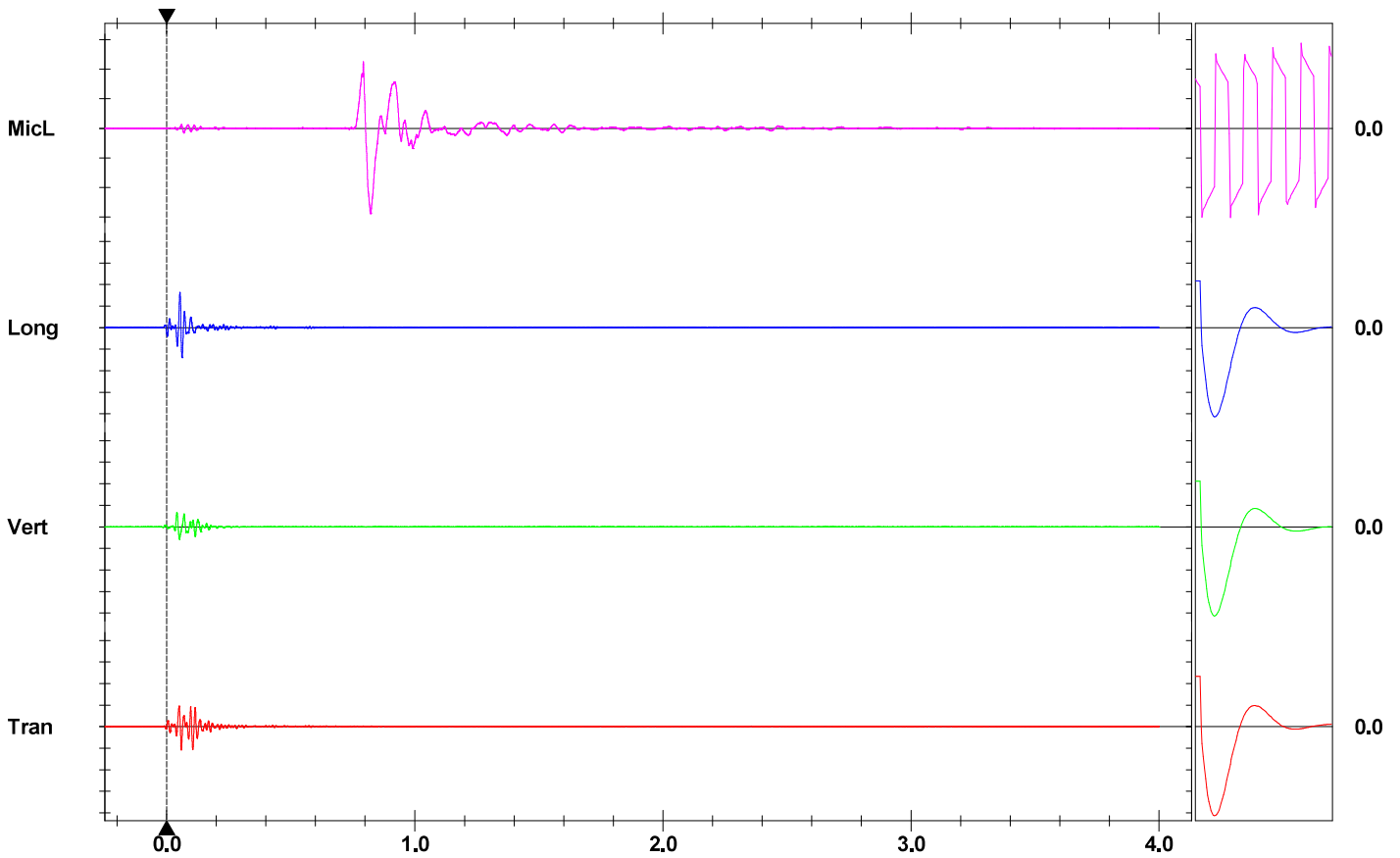
**Microphone** Linear Weighting  
**PSPL** 14.52 pa.(L) at 0.823 sec  
**ZC Freq** 9.6 Hz  
**Channel Test** Passed (Freq = 20.5 Hz Amp = 1217 mv )

	Tran	Vert	Long	
PPV	2.152	1.332	3.287	mm/s
ZC Freq	50	49	49	Hz
Time (Rel. to Trig)	0.059	0.041	0.053	sec
Peak Acceleration	0.079	0.049	0.115	g
Peak Displacement	0.007	0.005	0.010	mm
Sensor Check	Passed	Passed	Passed	
Frequency	7.3	7.1	7.1	Hz
Overswing Ratio	4.2	4.8	4.4	

**Peak Vector Sum** 3.613 mm/s at 0.052 sec



- a) Industrial Buildings
- b) Domestic houses/structures
- c) Historic objects, sensitive structures



**Time Scale:** 0.20 sec/div **Amplitude Scale:** Geo: 2.000 mm/s/div Mic: 5.000 pa.(L)/div  
**Trigger** =

Sensor Check

**Date/Time** Vert at 16:35:44 November 24, 2022  
**Trigger Source** Geo: 0.500 mm/s, Mic: 100.00 dB(L)  
**Range** Geo: 254.0 mm/s  
**Record Time** 4.384 sec (Auto=3Sec) at 4096 sps  
**Job Number:** 3  
**Operator/Setup:** Operator/factory.MMB

**Serial Number** UM20047 V 10-90GC Micromate ISEE  
**Battery Level** 3.8 Volts  
**Unit Calibration** October 1, 2022 by UES New Delhi  
**File Name** UM20047\_20221124163544.IDFW  
**Scaled Distance** 45.3 (200.0 m, 19.5 kg)

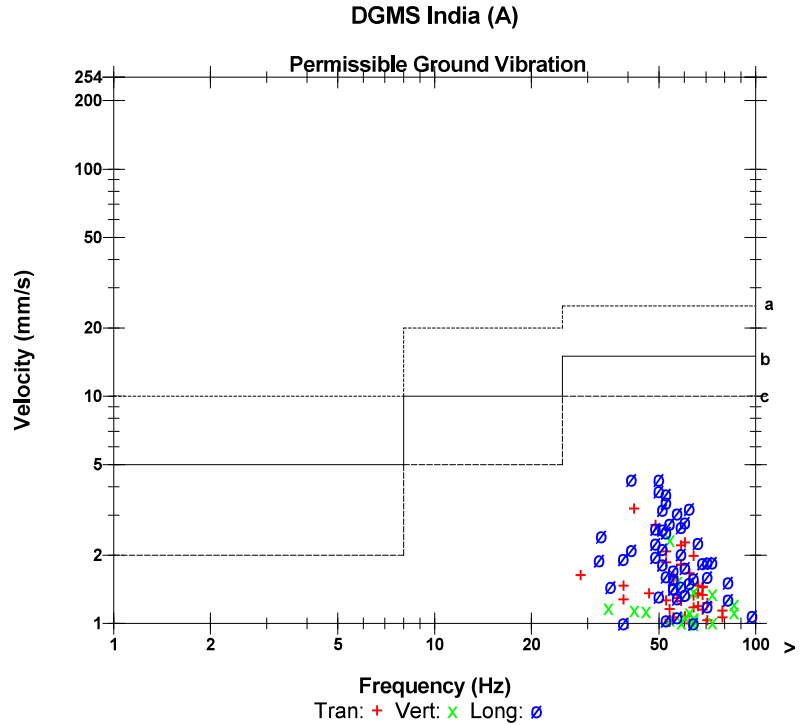
**Notes**

**Location:** PIT -1 OLD OFFICE  
**Client:**  
**User Name:** SHIVA CEMENT LIMITED  
**General:**

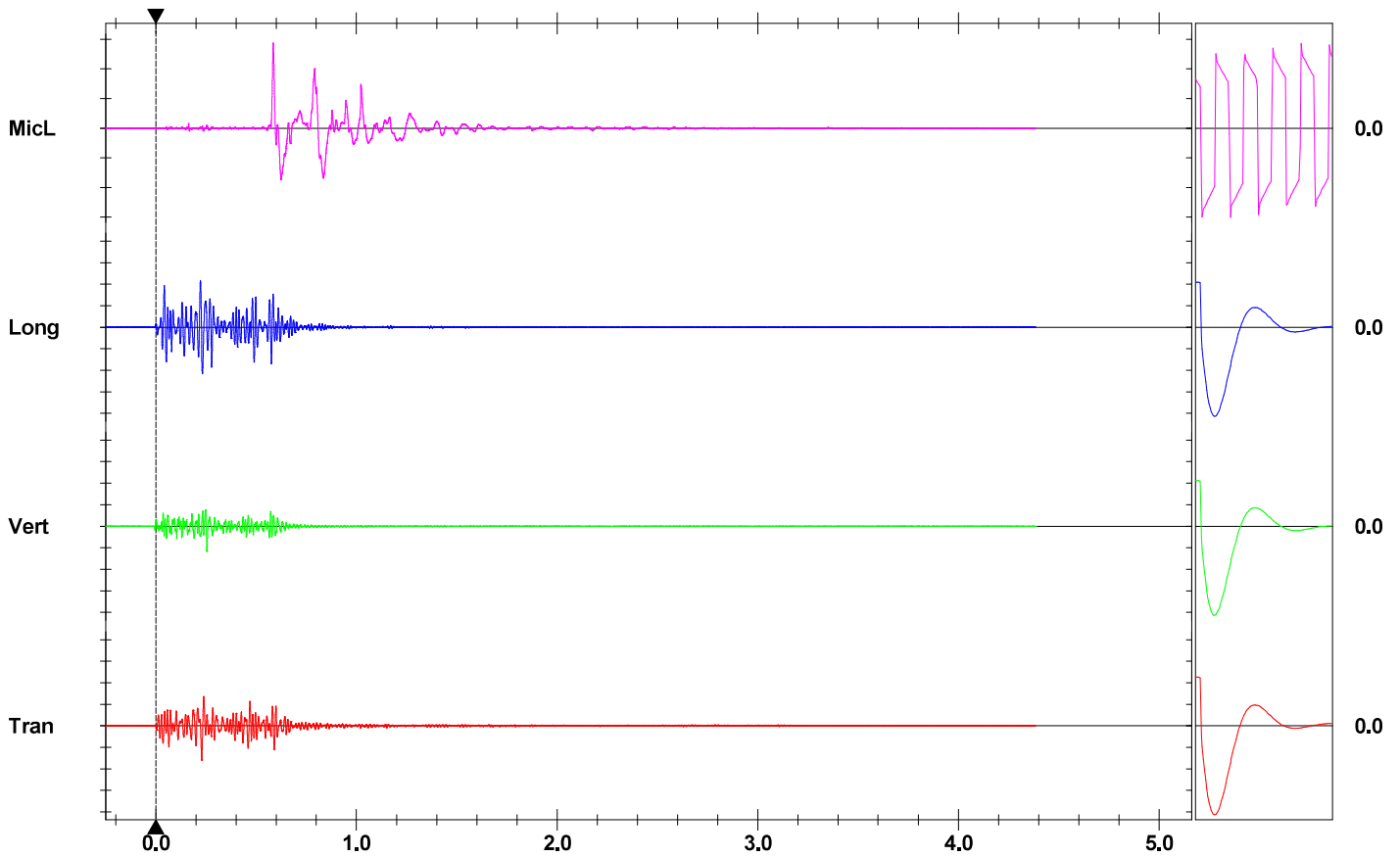
**Microphone** Linear Weighting  
**PSPL** 123.2 dB(L) at 0.585 sec  
**ZC Freq** 13.9 Hz  
**Channel Test** Passed (Freq = 20.5 Hz Amp = 1222 mv )

	Tran	Vert	Long	
PPV	3.208	2.349	4.327	mm/s
ZC Freq	42	54	41	Hz
Time (Rel. to Trig)	0.229	0.255	0.232	sec
Peak Acceleration	0.145	0.135	0.197	g
Peak Displacement	0.012	0.006	0.016	mm
Sensor Check	Passed	Passed	Passed	
Frequency	7.3	7.1	7.3	Hz
Overswing Ratio	4.2	4.8	4.5	

**Peak Vector Sum** 4.764 mm/s at 0.232 sec



- a) Industrial Buildings
- b) Domestic houses/structures
- c) Historic objects, sensitive structures



**Time Scale:** 0.20 sec/div  
**Trigger** =

**Amplitude Scale:** Geo: 2.000 mm/s/div Mic: 10.000 pa.(L)/div

Sensor Check

**Date/Time** Vert at 13:14:03 January 28, 2023  
**Trigger Source** Geo: 0.500 mm/s, Mic: 100.00 dB(L)  
**Range** Geo: 254.0 mm/s  
**Record Time** 3.0 sec at 2048 sps  
**Operator/Setup:** Operator/factory.MMB

**Serial Number** UM20047 V 10-90GC Micromate ISEE  
**Battery Level** 3.8 Volts  
**Unit Calibration** October 1, 2022 by UES New Delhi  
**File Name** UM20047\_20230128131403.IDFW  
**Scaled Distance** 46.7 (220.0 m, 22.2 kg)

**Notes**

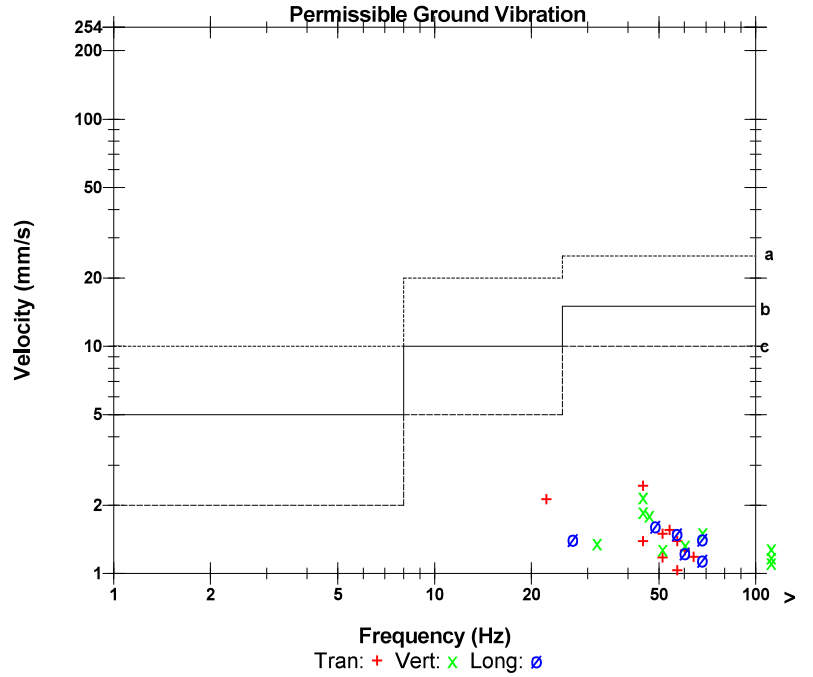
**Location:** PIT-2  
**Client:**  
**User Name:** SHIVA CEMENT LIMITED  
**General:**

**Microphone** Linear Weighting  
**PSPL** 106.0 dB(L) at 0.489 sec  
**ZC Freq** 14.2 Hz  
**Channel Test** Passed (Freq = 20.5 Hz Amp = 1167 mv)

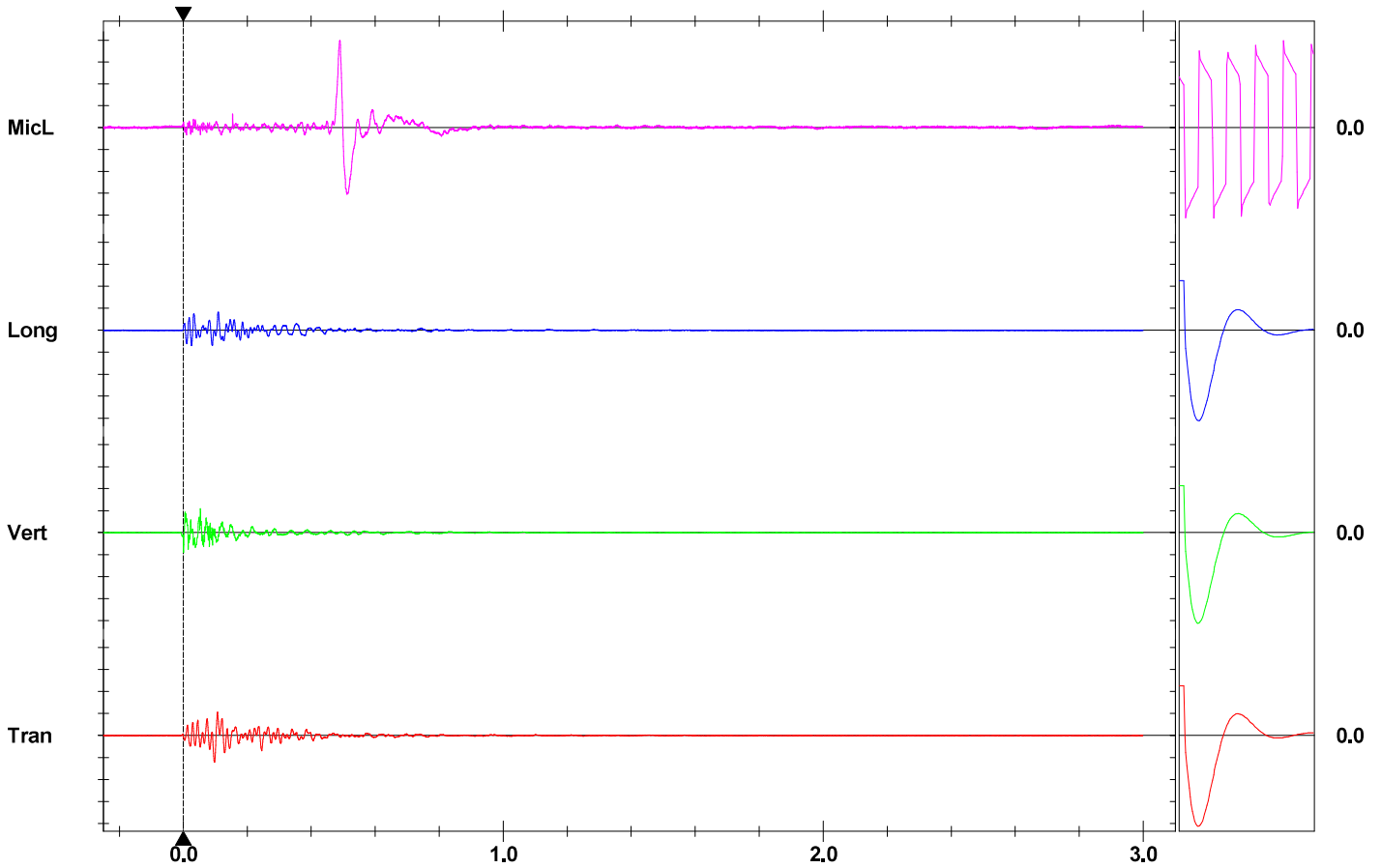
	Tran	Vert	Long	
PPV	2.428	2.175	1.624	mm/s
ZC Freq	45	45	49	Hz
Time (Rel. to Trig)	0.097	0.053	0.109	sec
Peak Acceleration	0.086	0.179	0.061	g
Peak Displacement	0.012	0.006	0.006	mm
Sensor Check	Passed	Passed	Passed	
Frequency	7.3	7.1	7.1	Hz
Overswing Ratio	4.2	4.8	4.4	

Peak Vector Sum 2.510 mm/s at 0.107 sec

**DGMS India (A)**



- a) Industrial Buildings
- b) Domestic houses/structures
- c) Historic objects, sensitive structures



Sensor Check

**Date/Time** Vert at 13:14:24 March 28, 2023  
**Trigger Source** Geo: 0.500 mm/s  
**Range** Geo: 254.0 mm/s  
**Record Time** 3.0 sec at 4096 sps  
**Operator/Setup:** Operator/factory.MMB

**Serial Number** UM20047 V 10-90GC Micromate ISEE  
**Battery Level** 3.6 Volts  
**Unit Calibration** October 1, 2022 by UES New Delhi  
**File Name** UM20047\_20230328131424.IDFW  
**Scaled Distance** 51.6 (200.0 m, 15.0 kg)

**Notes**

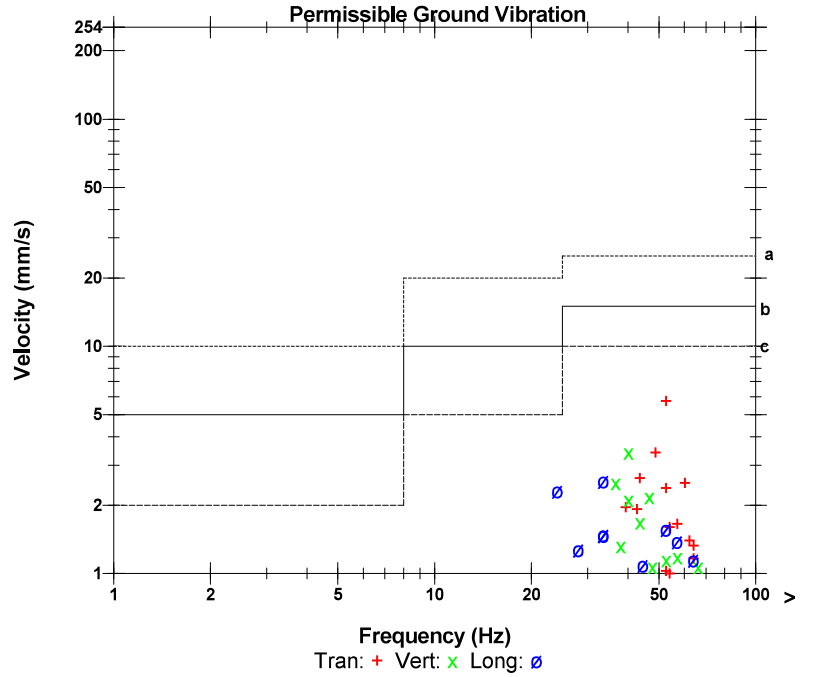
**Location:** PIT-2  
**Client:**  
**User Name:** SHIVA CEMENT LIMITED  
**General:**

**Microphone** Linear Weighting  
**PSPL** 98.78 dB(L) at 0.604 sec  
**ZC Freq** 15.4 Hz  
**Channel Test** Passed (Freq = 20.5 Hz Amp = 1158 mv)

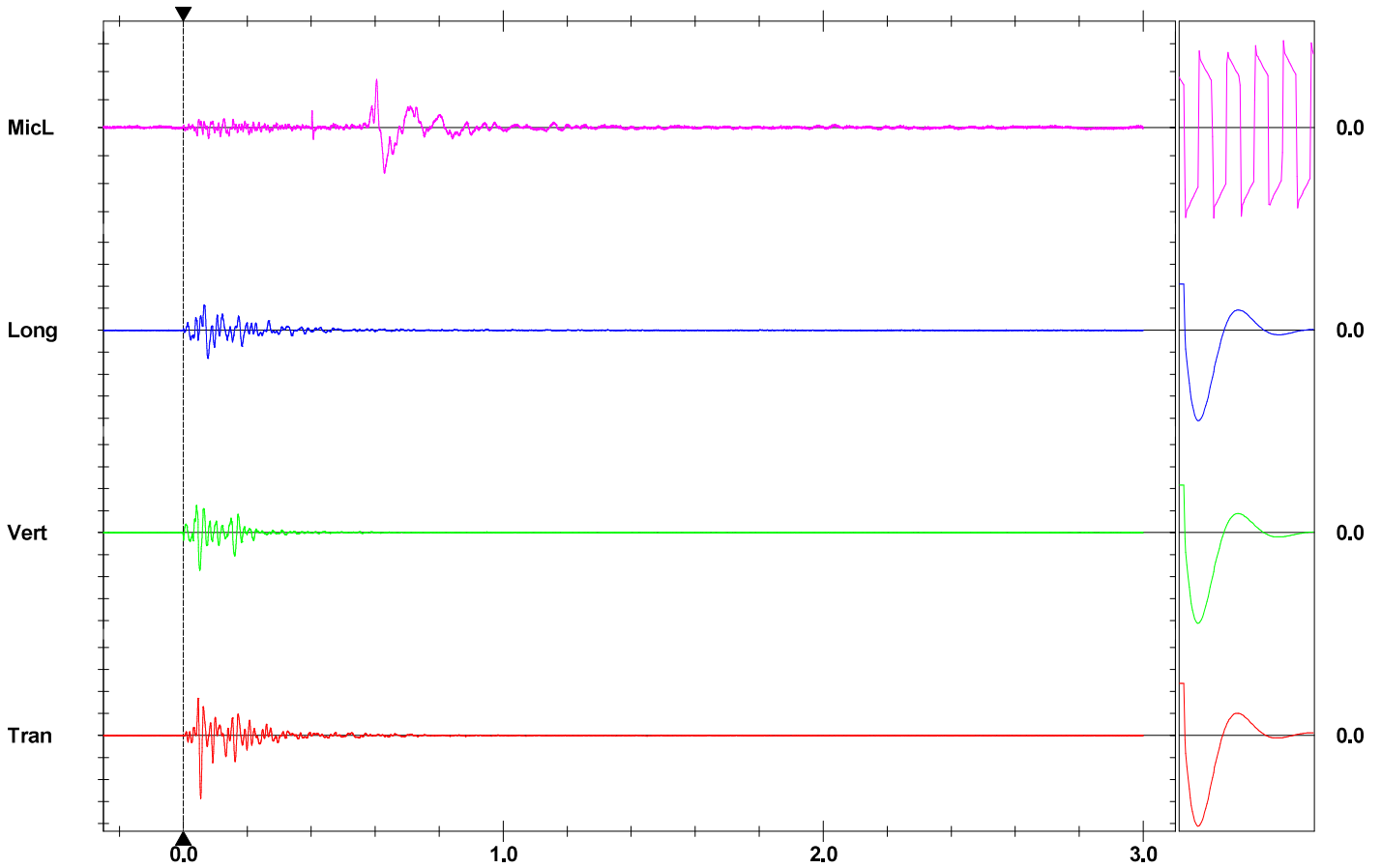
	Tran	Vert	Long	
PPV	5.746	3.421	2.562	mm/s
ZC Freq	53	40	33.6	Hz
Time (Rel. to Trig)	0.054	0.052	0.076	sec
Peak Acceleration	0.184	0.132	0.086	g
Peak Displacement	0.017	0.013	0.012	mm
<b>Sensor Check</b>	Passed	Passed	Passed	
Frequency	7.3	7.1	7.1	Hz
Overswing Ratio	4.1	4.8	4.5	

Peak Vector Sum 6.442 mm/s at 0.054 sec

**DGMS India (A)**



- a) Industrial Buildings
- b) Domestic houses/structures
- c) Historic objects, sensitive structures



**Time Scale:** 0.20 sec/div **Amplitude Scale:** Geo: 2.000 mm/s/div Mic: 1.000 pa.(L)/div  
**Trigger =**

Sensor Check



**ବନଖଣ୍ଡ ଅଧିକାରୀଙ୍କ କାର୍ଯ୍ୟାଳୟ ସୁନ୍ଦରଗଡ଼ : ସୁନ୍ଦରଗଡ଼ ବନଖଣ୍ଡ**

**OFFICE OF THE DIVISIONAL FOREST OFFICER, SUNDARGARH FOREST DIVISION.**  
(Phone-06622-272243, FAX-06622-274967, email- dfo.sng@vsnl.com)

Memo No. 4824 /4F (Misc)/2021 Dated: 29 /09/2021

To

The Regional Chief Conservator of Forests,  
Rourkela Circle, Rourkela.



Subs -

Authenticated list of flora and fauna in 10 km radius of the study area as well as non-existence of national park, biosphere reserves, sanctuary, elephant reserve/ tiger reserves, migratory bird/ wildlife corridor in the 10 km radius of Khatkurbahal Limestone mine (ML area: 72.439 Ha) and Khatkurbahal North Block Limestone mine (ML Area: 156.43 Ha) and Cement Plant and non-involvement of forest land in the applied area located in Kutra Tahasil, Dist. Sundargarh, Odisha

Received in  
3 sets.

*[Signature]*  
Ref: 02/10/2021

- 1) ToRNo.37895/23-MINB1/03-2020, dt. 14-08-2020 issued by SEIAA, Odisha
- 2) ToRF.No. J-11015/47/2020-IA.II (M), dt. 19-11-2020 issued by MoEF&CC
- 3) ToRNo.J-11011/84/2008-IA.II(T), dt. 21-11-2020 issued by MoEF&CC
- 4) Letter No. SCL/Mines Expn/Forest/2020-21-03, dt. 05-11-2020 of M/s Shiva Cement Ltd.

With reference to the memo no. cited above, the list of flora fauna with their Botanical / Zoological names generally found within buffer zone and core zone (within 10 km radius of the mining lease & cement plant area) and non-involvement of forest land in the applied area located in KutraTahasil, Dist. Sundargarh under this division are enclosed herewith after due authentication by the undersigned.

After examining the location map of the above cited mining lease areas and cement plant area submitted by M/s Shiva Cement Ltd., it is found that there is no National Park/ Sanctuary/Biosphere Reserve/ Elephant Reserve/ Tiger Reserve & Wildlife corridors. As per report of the Range Officer, Bargaon no forest land is involved in the applied area of above mining lease and cement plant.

This is for favour of information & necessary action.

Encl:-As above.

*[Signature]*  
29.09.2021  
Divisional Forest Officer  
Sundargarh Forest Division

Memo No. 4824 /4F (Misc)/ /2021 Dt. 29.09.2021

Copy forwarded to the Principal Chief Conservator of Forests (Wildlife) & Chief Wild Life Warden, Orissa, Bhubaneswar for favour of information and necessary action.

*[Signature]*  
29.09.2021  
Divisional Forest Officer  
Sundargarh Forest Division



Tel : 2564033/2563924  
 EPABX : 2561909/2562547  
 E-mail: paribesh1@ospcboard.org  
 Web site : www.ospcboard.org

OFFICE OF THE  
**STATE POLLUTION CONTROL BOARD, ODISHA**  
 (FOREST, ENVIRONMENT & CLIMATE CHANGE DEPARTMENT, GOVERNMENT OF ODISHA)  
 Paribesh Bhawan, A/118, Nilakantha Nagar, Unit - VIII  
 Bhubaneswar - 751 012, INDIA



By Speed Post /  
 Through online

No. 5838 /

IND-II-NOC- 6602

Date 07.04.2022 /

**CONSENT TO ESTABLISH ORDER**

In consideration of the online application no. 3752298 for obtaining Consent to Establish for **Khatkurbahal Limestone and Dolomite Mine of M/s Shiva Cement Ltd.**, the State Pollution Control Board is pleased to convey its Consent to Establish under Section 25 of Water (Prevention & Control of Pollution) Act, 1974 and under Section 21 of Air (Prevention & Control of Pollution) Act, 1981 for expansion of Production of **Limestone Capacity from 0.3475 Million TPA to 1.50 Million TPA (including Sub grade) with mobile crusher with screen of 500 TPH over lease hold area of 72.439 ha, At villages Khatkurbahal & Kulenbahal, Tahasil-Kutra in the district of Sundargarh** with the following conditions.

**GENERAL CONDITIONS:**

1. This Consent to Establish is valid for the product, method of mining and capacity mentioned in the application form. This order is valid for five years. The proponent shall do substantial mining activities for the proposal within a period of five years from the date of issue of this Consent to Establish order. If the proponent fails to do substantial mining activities for the proposal within five years then a renewal of this Consent to Establish shall be sought by the proponent.
2. The mine shall apply for grant of Consent to Operate under Section 25/26 of Water (Prevention & Control of Pollution) Act, 1974 & under Section 21 of Air (Prevention & Control of Pollution) Act, 1981 at least 3 (three) months before the commencement of production and obtain Consent to Operate from this Board.
3. No change in mining technology and scope of working shall be made without prior approval of the Board.
4. This Consent to Establish is subject to statutory and other clearances from Govt. of Odisha and/or Govt. of India, as and when applicable.

**SPECIAL CONDITIONS:**

**GENERAL:**

1. The proponent shall obtain Environmental Clearance for the proposal as per EIA Notification, 2006 and amendment thereafter. Mining activity for the proposal shall commence after obtaining Environmental Clearance.

2. The mine shall implement the Pollution Control Measures and safeguards as proposed in the Environment Management Plan (EMP) of Environment Impact Assessment (EIA) report.
3. No change in mining technology and scope of working shall be made without prior approval of the Board.
4. The proponent shall obtain requisite permission from the Water Resources Department, Govt. of Odisha for drawl of ground/ surface water.
5. The unit shall obtain NOC from CGWA for using of ground water for getting Consent to Operate of State Pollution Control Board, Odisha.
6. The proponent shall explore the possibility of providing conveyor system for transportation of limestone from mines to Cement Plant.
7. A green belt of adequate width and density preferably with local species along the periphery of the mine, inactive dumps, backfilled area, vacant area, colony and any other vacant area shall be raised so as to provide protection against particulates and noise to ameliorate the environment. The density of the trees should be around 2500 saplings per hectare. A detailed plantation programme in this regard shall be prepared and submitted at the time of making application for Consent to Operate for assessment.
8. A separate environmental management cell with suitable qualified personnel should be set up under the control of a Senior Executive, who will report directly to the Head of the organization.
9. The proponent shall comply to the provisions of E-Waste (Management) Rules, 2016 and amendment thereafter and shall handover e-waste to authorized collection centers/ register dismantlers/ recyclers for proper disposal of e-waste.
10. The Board may impose further conditions or modify the conditions stipulated in this order during installation and/or at the time of obtaining consent to operate and may revoke this clearance in case the stipulated conditions are not implemented.
11. The above conditions will be enforced, inter-alia, under the provisions of the water (Prevention & Control of pollution) Act, 1974 and Air (Prevention & Control of Prevention) Act, 1981 and Environment (Protection) Act, 1986 and the Public Liability Insurance Act, 1991 along with their amendments and Rule

#### **WATER POLLUTION:**

12. The domestic wastewater generated from the mine shall be treated in Sewage Treatment Plant to meet the following standards as notified by the MoEF&CC, Govt. of India vide G.S.R. 1265 (E), dated 13.10.2017. The treated water shall be reused for gardening and plantation. Under no circumstances there shall be any discharge of treated waste water to outside the premises.

Sl. No.	Parameters	Standards
1.	pH	6.5-9.0
2.	BOD (mg/l)	30
3.	TSS (mg/l)	<100
4.	Fecal Coliform (MPN/100ml)	< 1000

13. The project proponent shall construct adequate nos. of garland drains around the OB Dump and Solid waste disposal areas and settling ponds shall be constructed in series at proper locations for management and treatment of surface runoff / mine drainage water.
14. Garland drains along with settling pit shall be provided around the ore fines stock yard to control washout of fines from the stockyard along with surface runoff.
15. Surface run-off from OB dump area, mineral stock yard, top soil storage area and rain water to be pumped from quarry, shall be routed through adequate settling pond (designed maximum hourly rain fall basis) to meet prescribed standard of SS - 100 mg/l and Oil & Grease-10 mg/l before discharge into natural stream/water courses during monsoon.
16. At stockpile and loading plant area, a network of drains shall be constructed at a depth of 1.5 meter below the lowest level on the sites parallel to the stockpile area with interconnected box culverts. The sloping of surface shall be given inward to the stockpiles so that surface water will only infiltrate in to the drain

#### **AIR POLLUTION:**

17. Drill shall be wet operated or with dust extractors and controlled blasting shall be practices. Pre-wetting of blasting site shall be practiced.
18. Four Ambient Air Quality Monitoring Stations for 24 hours operation shall be established in the core zone as well as in the buffer zone for PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>x</sub> and CO monitoring. Location of the stations should be decided in consultation with the State Pollution Control Board. Data on ambient air quality (PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>x</sub> and CO) should be submitted to the State Pollution Control Board once in six months.
19. The proponent shall install Online Continuous Ambient Air Quality Monitoring Stations (CAAQMS) in transportation routes and inside the mining lease area to monitor PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>x</sub>, CO and other important parameters for online real time data transmission through GPRS system to SPCB RTDAS server and also upload data to CPCB.
20. The primary crusher, screen and secondary crusher shall be placed in covered shed. All the conveyor shall be covered with corrugated GI Sheets.
21. Both dust suppression (dry fog) and extraction (bag filter) system shall be provided at all dust generating sources such as Crushing, Screening & material transfer points etc. to control fugitive dust emission.
22. The suction points of dust extraction system shall be provided at all dust generating sources. This system shall be connected to bag filters so that particulate matter emission from the stack shall not exceed 100 mg/Nm<sup>3</sup>.
23. Adequate measures shall be taken for control of noise levels in the work environment of mine area so that noise levels at the boundary line of mining lease area shall not exceed 75 dB (A) during day time (06:00 AM to 9:00 PM) and 70 dB(A) during night time (9:00 PM to 06:00 AM).



24. Adequate noise barriers shall be provided surrounding the crushing and screening plants to control noise pollution and avoid impact on wildlife due to operation of crushing and screening plants during night hours.
25. Online noise monitoring system shall be installed to monitor noise level during night hours.
26. The mine shall make provision to collect the fine products in hopper instead of heaping by free falling to avoid the dust nuisance. The ore fines shall be stacked properly and systematically with retaining wall at the toe to avoid washings during rain. Ore fine transportation shall be done in covered truck.
27. Fixed auto sprinklers shall be provided in the stock yard of product, at the crushing and screening plant area and along the haul road of the mine.
28. Dust suppression on mine haul roads, active OB dumps and mine working benches shall be done by spraying water through water sprinklers along with chemical binders/wetting agents at frequent interval in order to reduce water consumption and to improve retention and re-absorption capacity of water. Water sprinklers of fixed type shall also be provided at the mine HEMM maintenance shop, other service centers and approach roads from mines to raw material handling & product handling area to prevent the generation of dust to be air borne.
29. **The vehicular emission level shall be monitored regularly and that should be under norm.**

**SOLID AND HAZARDOUS WASTE:**

30. Top soil shall be stacked separately with proper slope at earmarked site (s) with adequate measures and shall be used for reclamation and rehabilitation of mined out areas.
31. At stockpile and loading plant area, a network of drains shall be constructed at a depth of 1.5 meter below the lowest level on the sites parallel to the stockpile area with interconnected box culverts. The sloping of surface shall be given inward to the stockpiles so that surface water will only infiltrate in to the drain.
32. The OB/waste dumps shall be properly dressed benched stopped at low angle (30°) with terracing and bamboo barricades in the slopes making retaining walls stone barriers at the toe of the dumps gully plugging etc. to prevent the solid erosion during monsoon, besides establishing vegetation on dump top as well as its slope surface. In difficult cases, hydro-seeding technique or use of geo-tiles mat embedded with seeds shall be adopted.
33. The proponent shall segregate organic waste and segregated organic waste shall be converted to manure through organic waste converter. The proponent shall store the organic waste in closed shed inside the township before use the same in organic waste converter.
34. Regular collection of spilled over raw material from haul roads shall be practiced to prevent the generation of dust due to movement of dumpers /truck.



35. The proponent shall comply to the provisions of Hazardous and Other Wastes (Management and Trans boundary Movement) Rules, 2016 and amended thereafter.

  
MEMBER SECRETARY

To,

The Whole Time Director  
Khatkurbahal Limestone & Dolomite Mines of  
M/s Shiva Cement Ltd.  
At: Khatkurbahal, Ps: Kutra,  
Dist. - Sundargarh.

Memo No. 5839 /Date 07.04.2022,

Copy forwarded to:

1. The Collector & District Magistrate, **Sundargarh**.
2. The Director, Directorate of Mines, Govt. of Odisha, Bhubaneswar
3. The Regional Officer, SPC Board, **Rourkela**
4. The DFO, **Sundargarh**.
5. Copy to HSM Cell, SPC Board, Bhubaneswar
6. Consent to Operate Section, SPC Board, Bhubaneswar.
7. Copy to Guard file

  
6/4/2022  
ADDL. CHIEF ENV. ENGINEER





BY REGD. POST WITH AD

**STATE POLLUTION CONTROL BOARD, ODISHA**

[DEPARTMENT OF FOREST, ENVIRONMENT &amp; CLIMATE CHANGE, GOVERNMENT OF ODISHA]

A/118, Nilakantha Nagar, Unit-VIII, Bhubaneswar-751012

Phone-2561909, Fax: 2562822, 2560955 E-mail: [paribesh1@ospboard.org](mailto:paribesh1@ospboard.org), Website: [www.ospboard.org](http://www.ospboard.org)**CONSENT ORDER**No. 4938 /

IND-I-CON-1904

Dt. 28.03.2023 /**CONSENT ORDER NO. 943**

**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. 4610297, Dated 11-01-2023.

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: **KHATKURBAHAL LIMESTONE AND DOLOMITE MINES OF M/S. SHIVA CEMENT LTD.**

Name of the Occupier & Designation: **SRI MANOJ KUMAR RUSTAGI, WHOLE TIME DIRECTOR**

Address: **AT: KHATKURBAHAL, PO: BIRINGATOLI, PS: KUTRA, DIST: SUNDARGARH, PIN-770018**

This consent order is valid for the period up to 31.03.2024.

*This consent order supersedes the earlier consent order issued vide letter No.21166, dated 16.11.2022.*

**Details of Products Manufactured:**

Sl. No	Product	Quantity
1.	Limestone including sub-grade	1.5 MTPA

**Details of Mineral Handling Plants /Units:**

01	Operation of Mobile Crusher with Screen of capacity 500 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.



A. Discharge permitted through the following outlet subject to the standard

Out let No.	Description of outlet	Point of discharge	Quantity of discharge KLD or KL/hr	Prescribed Standard			
				pH	TSS (mg/l)	O & G (mg/l)	BOD (mg/l)
01	Septic tank outlet (Domestic effluent)	Soak pit	--	5.5 to 9.0	200	--	100
02	Mine drainage water / surface runoff / other wastewater	On land / inland surface water body	40(Max.)	5.5 to 9.0	100	10	--

B. Emission permitted through the following stack subject to the prescribed standard

Chimney Stack No.	Description of Stack	Stack height (m)	Quantity of emission	Prescribed Standard		
				PM (mg/Nm <sup>3</sup> )	SO <sub>2</sub>	NO <sub>x</sub>
			--	--	--	--

C. Disposal of solid waste permitted in the following manner

Sl. No.	Type of Solid waste	Quantity generated (TPD)	Quantity to be reused on site(TPD)	Quantity to be reused off site(TPD)	Quantity disposed off (TPD)	Description of disposal site.
01	Top soil / overburden	As per approved mining plan	--	--	--	As per approved mining plan



#### D. GENERAL CONDITIONS FOR ALL UNITS

1. The consent is given by the Board in consideration of the particulars given in the application. Any change or alteration or deviation made in actual practice from the particulars furnished in the application will also be the ground liable for review/variation/revocation of the consent order under section 27 of the Act of Water (Prevention & Control of Pollution) Act, 1974 and section 21 of Air (Prevention & Control of Pollution) Act, 1981 and to make such variations as deemed fit for the purpose of the Acts.
2. The industry would immediately submit revised application for consent to operate to this Board in the event of any change in the quantity and quality of raw material / and products / manufacturing process or quantity / quality of the effluent rate of emission / air pollution control equipment / system etc.
3. The applicant shall not change or alter either the quality or quantity or the rate of discharge or temperature or the route of discharge without the previous written permission of the Board.
4. The application shall comply with and carry out the directives/orders issued by the Board in this consent order and at all subsequent times without any negligence on his part. In case of non-compliance of any order/directives issued at any time and/or violation of the terms and conditions of this consent order, the applicant shall be liable for legal action as per the provisions of the Law/Act.
5. The applicant shall make an application for grant of fresh consent at least 60 days before the date of expiry of this consent order.
6. The issuance of this consent does not convey any property right in either real or personal property or any exclusive privileges nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Central, State laws or regulation.
7. This consent does not authorize or approve the construction of any physical structure or facilities or the undertaking of any work in any natural water course.
8. The applicant shall display this consent granted to him in a prominent place for perusal of the public and inspecting officers of this Board.
9. An inspection book shall be opened and made available to Board's Officers during the visit to the factory.
10. The applicant shall furnish to the visiting officer of the Board any information regarding the construction, installation or operation of the plant or of effluent treatment system / air pollution control system / stack monitoring system any other particulars as may be pertinent to preventing and controlling pollution of Water / Air.
11. Meters must be affixed at the entrance of the water supply connection so that such meters are easily accessible for inspection and maintenance and for other purposes of the Act provided that the place where it is affixed shall in no case be at a point before which water has been tapped by the consumer for utilization for any purposes whatsoever.
12. Separate meters with necessary pipe-line for assessing the quantity of water used for each of the purposes mentioned below:
  - a) Industrial cooling, spraying in mine pits or boiler feed,
  - b) Domestic purpose
  - c) Process.
13. The applicant shall display suitable caution board at the place where the effluent is entering into any water-body or any other place to be indicated by the Board, indicating therein that the area into which the effluents are being discharged is not fit for the domestic use/bathing.
14. Storm water shall not be allowed to mix with the trade and/or domestic effluent on the upstream of the terminal manholes where the flow measuring devices will be installed.
15. The applicant shall maintain good house-keeping both within the factory and the premises. All pipes, valves, sewers and drains shall be leak-proof. Floor washing shall be admitted into the effluent collection system only and shall not be allowed to find their way in storm drains or open areas.
16. The applicant shall at all times maintain in good working order and operate as efficiently as possible all treatment or control facilities or systems installed or used by him to achieve with the term(s) and conditions of the consent.
17. Care should be taken to keep the anaerobic lagoons, if any, biologically active and not utilized as mere stagnation ponds. The anaerobic lagoons should be fed with the required nutrients for effective digestion. Lagoons should be constructed with sides and bottom made impervious.
18. The utilization of treated effluent on factory's own land, if any, should be completed and there should be no possibility of the effluent gaining access into any drainage channel or other water courses either directly or by overflow.
19. The effluent disposal on land, if any, should be done without creating any nuisance to the surroundings or inundation of the lands at any time.
20. If at any time the disposal of treated effluent on land becomes incomplete or unsatisfactory or create any problem or becomes a matter of dispute, the industry must adopt alternate satisfactory treatment and disposal measures.
21. The sludge from treatment units shall be dried in sludge drying beds and the drained liquid shall be taken to equalization tank.



## CONSENT ORDER

KHATKURBAHAL LIVESTONE AND VOLCANITE MINES OF M/s. SHIVA CEMENT LTD.

22. The effluent treatment units and disposal measures shall become operative at the time of commencement of production.
23. The applicant shall provide port holes for sampling the emissions and access platform for carrying out stack sampling and provide electrical outlet points and other arrangements for chimneys/stacks and other sources of emissions so as to collect samples of emission by the Board or the applicant at any time in accordance with the provision of the Act or Rules made therein.
24. The applicant shall provide all facilities and tender required assistance to the Board staff for collection of samples / stack monitoring / inspection.
25. The applicant shall not change or alter either the quality or quantity or rate of emission or install, replace or alter the air pollution control equipment or change the raw material or manufacturing process resulting in any change in quality and/or quantity of emissions, without the previous written permission of the Board.
26. No control equipments or chimney shall be altered or replaced or as the case may be erected or re-erected except with the previous approval of the Board.
27. The liquid effluent arising out of the operation of the air pollution control equipment shall be treated in the manner and to ion of standards prescribed by the Board in accordance with the provisions of Water (Prevention and Control of Pollution) Act, 1974 (as amended).
28. The stack monitoring system employed by the applicant shall be opened for inspection to this Board at any time.
29. There shall not be any fugitive or episodic discharge from the premises.
30. In case of such episodic discharge/emissions the industry shall take immediate action to bring down the emission within the limits prescribed by the Board in conditions/top the operation of the plant. Report of such accidental discharge/emission shall be brought to the notice of the Board within 24 hours of occurrence.
31. The applicant shall keep the premises of the industrial plant and air pollution control equipments clean and make all roads, pipes, valves, stacks/chimneys leak proof. The air pollution control equipments, location, inspection chambers, sampling port holes shall be made easily accessible at all times.
32. Any upset condition in any of the plants/plants of the factory which is likely to result in increased effluent discharge/emission of air pollutants and / or result in violation of the standards mentioned above shall be reported to the Headquarters and Regional Office of the Board by fax / speed post within 24 hours of its occurrence.
33. The industry has to ensure that minimum three varieties of trees are planted at the density of not less than 1000 trees per acre. The trees may be planted along boundaries of the industries or industrial premises. This plantation is stipulated over and above the bulk plantation of trees in that area.
34. The solid waste such as sweeping, waste/packages, empty containers, residues, sludge including that from air pollution control equipments collected within the premises of the industrial plants shall be disposed of scientifically to the satisfaction of the Board, so as not to cause fugitive emission, dust problems through leaching etc., of any kind.
35. All solid wastes arising in the premises shall be properly disposed and disposed off to the satisfaction of the Board by:
  - i) Land fill in case of inert material, care being taken to ensure that the material does not give rise to leachate which may percolate into ground water or carried away with storm run-off.
  - ii) Controlled incineration, wherever possible in case of combustible organic material.
  - iii) Composting, in case of bio-degradable material.
36. Any toxic material shall be detoxicated if possible, otherwise be sealed in steel drums and buried in protected areas after obtaining approval of this Board in writing. The detoxication or sealing and burying shall be carried out in the presence of Board's authorized persons only. Letter of authorization shall be obtained for handling and disposal of hazardous wastes.
37. If due to any technological improvement or otherwise this Board is of opinion that all or any of the conditions referred to above requires variation (including the change of any control equipment either in whole or in part) this Board shall after giving the applicant an opportunity of being heard, vary all or any of such condition and thereupon the applicant shall be bound to comply with the conditions so varied.
38. The applicant, his/her legal representatives or assignees shall have no claim whatsoever to the condition or renewal of this consent after the expiry period of this consent.
39. The Board reserves the right to review, impose additional conditions or condition, revoke change or alter the terms and conditions of this consent.
40. Notwithstanding anything contained in this conditional letter of consent, the Board reserves to it the right and power under section 27(2) of the Water (Prevention & Control of Pollution) Act, 1974 to review any and/or all the conditions imposed herein above and to make such variations as deemed fit for the purpose of the Act by the Board.
41. The conditions imposed as above shall continue to be in force until revoked under section 27(2) of the Water (Prevention & Control of Pollution) Act, 1974 and section 21 A of Air (Prevention & Control of Pollution) Act, 1981.
42. In case the consent fee is revised upward during this period, the industry shall pay the differential fees to the Board (for the remaining years) to keep the consent order in force, if they fail to pay the amount within the period stipulated by the Board the consent order will be revoked without prior notice.
43. The Board reserves the right to revoke/renew consent to operate at any time during period for which consent is granted in case any violation is observed and to modify/repeal additional conditions as deemed appropriate.



GENERAL CONDITIONS FOR UNITS WITH INVESTMENT OF MORE THAN Rs 50 CRORES, AND 17 CATEGORIES OF HIGHLY POLLUTING INDUSTRIES (RED A).

1. The applicant shall analyse the emissions every month for the parameters indicated in TABLE B & C as mentioned in this order and shall furnish the report thereof to the Board by the 10<sup>th</sup> of the succeeding month.
2. The applicant shall provide and maintain at his own cost three ambient air quality monitoring stations for monitoring Suspended Particulate Matter, Sulphur Dioxide, Oxides of Nitrogen, Hydro-Carbon, Carbon-Monoxide and monitor the same once in a day/week/fortnight/month. The data collected shall be maintained in a register and a monthly extract be furnished to the Board.
3. The applicant shall provide and maintain at his own cost a meteorological station to collect the data on wind velocity, direction, temperature, humidity, rainfall, etc. and the daily reading shall be recorded and the extract sent to the Board once in a month.
4. The applicant shall forward the following information to the Member Secretary, State Pollution Control Board, Odisha, Bhubaneswar regularly.
  - a. Report of analysis of stack monitoring, ambient air quality monitoring meteorological data as required every month.
  - b. Progress on planting of trees quarterly.
5. The applicant shall install mechanical composite sampling equipment and continuous flow measuring / recording devices on the effluent drains of trade as well as domestic effluent. A record of daily discharge shall be maintained.
6. The following information shall be forwarded to the Member Secretary on or before 10<sup>th</sup> of every month.
  - a. Performance / progress of the treatment plant.
  - b. Monthly statement of daily discharge of domestic and/or trade effluent.
7. Non-compliance with effluent limitations
  - a) If for any reason the applicant does not comply with or is unable to comply with any effluent limitations specified in this consent, the applicant shall immediately notify the consent issuing authority by telephone and provide the consent issuing authority with the following information in writing within 5 days of such notification.
    - i. Causes of non-compliance
    - ii. A description of the non-compliance discharge including its impact on the receiving waters.
    - iii. Anticipated time of continuance of non-compliance if expected to continue or if such condition has been corrected the duration or period of non-compliance.
    - iv. Steps taken by the applicant to reduce and eliminate the non-complying discharge and
    - v. Steps to be taken by the applicant to prevent the condition of non-compliance.
  - b) The applicant shall take all reasonable steps to minimize any adverse impact to natural waters resulting from non-compliance with any effluent limitation specified in this consent including such accelerated or additional monitoring as necessary to determine the nature and impact of the non-complying discharge.
  - c) Nothing in this consent shall be construed to relieve the applicant from civil or criminal penalties for non-compliance whether or not such non-compliance is due to factors beyond his control, such as break-down, electric failure, accident or natural disaster.
8. The applicant shall at his own cost get the effluent samples collected both before and after treatment and get them analysed at an approved laboratory every month for the parameters indicated in Part-D and shall submit in duplicate the report thereof to the Board.
9. The addition of various treatment chemicals should be done only with mechanical dosers and proper equipment for regulation of correct dosages determined daily and for proper uniform feeding. Crude practices such as dumping of chemicals in drains or sumps or trickling of acids or alkalis arbitrarily and utilizing poles for stirring etc. should not be resorted to.
10. In the disposal of treated effluent on land for irrigation, the industry shall keep in view of the need for;
  - a. Rotation of crops
  - b. Change of point of application of effluent on land
  - c. A portion of land kept fallow.
11. The adoption of those would avoid soil becoming stick or saline, the industry may ensure this in consultation with the Agriculture Department.
12. It is the sole responsibility of the industry to ensure that there are no complaints at any time from the royals in the surrounding area as a result of discharge of sewage or trade effluent if any.
13. Proper housekeeping shall be maintained by a dedicated team.
14. The industry must constitute a team of responsible and technically qualified personnel who will ensure continuous operation of all pollution control devices round the clock (including night hours) and should be in a position to explain the status of operation of the pollution control measures to the inspecting officers of the Board at any point of time. The name of those persons with their contact telephone numbers shall be intimated to the concerned Regional Officer and Head Office of the Board and in case of any change in the team it shall be intimated to the Board immediately.



**E. SPECIAL CONDITIONS :**

- 1) Mining operation is subject to availability of all other statutory clearances.
  - 2) This consent to operate order is subject to without prejudice to the legal cases if pending in the different court.
  - 3) The Pollution Control Measures shall be augmented to address the pollution problem of the expansion project.
  - 4) Drills shall either be operated with dust extractors or equipped with water injection system to minimize dust generation in the work environment.
  - 5) Controlled blasting shall be practiced to minimize generation of dust and fly rocks.
  - 6) Regular water sprinkling shall be carried out in critical areas prone to air pollution such as around crushing and screening plant. Water sprinkling shall also be carried out on haul roads at frequent interval so that it should always remain in wet condition. Haulage roads shall be devoid of ruts and pullholes and shall be maintained properly to avoid generation of dust during movement of vehicles. Additional dust suppression measures through fog cannons shall be provided on internal road and approach road to bring down the PM<sub>10</sub> concentration within permissible limit.
  - 7) Fixed sprinklers in stockyard and crushing plant area shall be installed.
  - 8) Dust suppression measures (preferably dry fog system) shall be provided at all appropriate places of mineral handling plants (crusher & screening plant). Loading and unloading areas including all the transfer points shall also have efficient dust suppression arrangements (dry fog system). These shall be properly maintained and operated.
  - 9) The vehicles carrying ore for transportation from the mine shall be covered with tarpaulin (both bottom & top).
  - 10) Mechanized wheel washing facility for the ore transport vehicles shall be provided at the exit point of the mine. The wheel washing facility shall be integrated with complete recirculation system.
  - 11) Speed of the ore carrying vehicles shall be limited to 10 Km/hr while passing through the nearby village and road shall be properly maintained and kept under dust suppression programme.
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- 12) Regular water sprinkling on mineral transportation roads passing through the habitation area as well as other strategic point on the National Highway shall be done jointly by the mining lessees in consultation with the Regional Officer.
  - 13) Ambient air quality of the mine shall meet the prescribed standards of the Board for industrial area.
  - 14) Four Ambient Air Quality Monitoring Stations shall be established in core zone and buffer zone for monitoring of ambient air quality and location of the stations shall be decided in consultation with the Regional Officer, State Pollution Control Board based on the metrological data, topographical features and environmentally and ecologically sensitive targets.
  - 15) The monitoring of ambient air quality shall be carried out twice in a week (24 hourly) at a particular site and the consolidated data shall be submitted to the State Pollution Control Board, once in a year.
  - 16) Action shall be taken for installation of one continuous real time ambient air quality monitoring stations (CAAQMS), with data transfer facility to SPCB server in core zone as per stipulation in Consent to Establish dated 07.04.2022. The location of the station shall be decided in consultation with the Regional Officer, State Pollution Control Board, based on metrological data, topographical features and environmentally and ecologically sensitive targets.
  - 17) Retention wall shall be constructed at the toe of topsoil dump and OB dump. Garland drain shall be constructed around topsoil dumps, over burden dumps and mineral stack yards terminating at settling pit to prevent direct disposal of runoff to nearby water bodies.
  - 18) Garland drain and sedimentation pit shall be de-silted after monsoon or as and when required. The runoff discharge quality from runoff management system shall meet the prescribed standards as stated in Part A (Sl. No. 2) of the consent order.
  - 19) The mine drainage water shall be adequately treated before disposal to outside environment and the treated water quality shall meet the standards as stated in Part A (Sl. No. 2) of the consent order. Effort shall be made to use the mine drainage water for various mining activities.
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- 20) The top soil shall be removed separately and stored in separate heaps for future use duly covered with grass and vegetal cover or utilized for reclamation of mined out land.
- 21) Overburden / waste rock shall be stacked in the earmarked areas approved by IBM and shall be suitably terraced and stabilized through vegetative cover or shall be utilized for backfilling of mined out areas.
- 22) Restoration and rehabilitation of the mine shall be done in accordance with approved mine closure plan.
- 23) Domestic effluents shall be treated in a sewage treatment plant (STP) and or shall be discharged to soak pit via septic tank constructed as BIS specification. The treated wastewater quality of STP shall remain within the following standards and shall be used for plantation:

pH	-	6.5 -9.0
TSS	-	<100 mg/l
BOD	-	30 mg/l
Fecal Coliform	-	<1000 MPN/100 ml.

- 24) Service centers i.e. auto shops, HEMM shops, and other areas, wherein, water pollution due to wash outs of oil and grease and suspended solids are expected, effluent treatment plant shall be installed, if any. The quality of the treated wastewater shall remain within the following standards and shall be re-used for washing of vehicles:


pH	-	6.5 -8.5
TSS	-	50 mg/l
COD	-	150 mg/l
Oil & grease	-	10 mg/l

- 25) Adequate measures shall be taken for control of noise levels in the work environment of mine area so that noise levels at the boundary line of mining lease area shall not exceed 75 dB(A) during day time (6.00 AM to 9.00 PM) and 70 dB(A) during night time (9.00 PM to 6 AM).
  - 26) Online noise monitoring system shall be installed to monitor noise level during night hours.
  - 27) Monitoring data (ambient air quality, noise quality and wastewater quality) of the mine shall be displayed electronically at the entry point of the mine or at suitable place of the mine lease hold area for public view.
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- 28) Plantation of trees shall be undertaken in the colony/ township, over top soil dumps, OB dumps, back filled areas, along the side of haul road and in other areas of the mines not being utilized for mining activities. The mine shall take up avenue plantation and plantation in nearby village areas in consultation with DFO/Horticulture Department. The plantation details shall be submitted to the Board before end of April every year.
- 29) A copy of the annual return (annual return submitted to IBM, Govt. of India/ Directorate of Mines, Govt. of Odisha) shall be submitted to this Board every year.
- 30) The environmental statement report for the financial year ending 31<sup>st</sup> March shall be submitted to the Board in Form-V on or before 30<sup>th</sup> September every year.



  
MEMBER SECRETARY  
STATE POLLUTION CONTROL BOARD, ODISHA


To,

**SRI MANOJ KUMAR RUSTAGI, WHOLE TIME DIRECTOR  
KHATKURBAHAL LIMESTONE AND DOLOMITE MINES  
OF M/S. SHIVA CEMENT LTD.,  
AT: KHATKURBAHAL, PO: BIRINGATOLI, P.S. KUTRA,  
DIST: SUNDARGARH, PIN-770018.**

Memo No. 4929 /Dt. 28.02.2023

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) Chief Env. Scientist, Central Lab. SPCB, Bhubaneswar
- viii) Addl. Chief Env. Engineer, (Hazardous Waste Management Cell)
- ix) Consent Register

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

OK  
FA



**GENERAL STANDARDS FOR DISCHARGE OF  
ENVIRONMENTAL POLLUTANTS**

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**GENERAL STANDARDS FOR DISCHARGE OF  
ENVIRONMENTAL POLLUTANTS PART -A : EFFLUENTS**

Sl. No.	Parameters	Standards			
		Inland surface	Public sewers	Land for irrigation	Marine Coastal Areas
		(a)	(b)	(c)	(d)
1.	Colour & odour	Colourless/Odourless as far as practicable	-----	See 6 of Annex-1	See 6 of Annex-1
2.	Suspended Solids (mg/l)	100	600	200	a. For process wastewater – 100 b. For cooling water effluent 10% above total suspended matter of influent.
3.	Particular size of SS	Shall pass 850	-----	-----	-----
5.	pH value	5.5 to 9.0	5.5 to 9.0	5.5 to 9.0	5.5 to 9.0
6.	Temperature	Shall not exceed 6°C above the receiving water temperature	-----	-----	Shall not exceed 5°C above the receiving water temperature
7.	Oil & Grease mg/l max.	10	20	10	20
8.	Total residual chlorine	1.0	---	-----	1.0
9.	Ammonical nitrogen (as N) mg/l max.	50	50	-----	50
10.	Total Kjeldahl nitrogen (as NH <sub>3</sub> ) mg/l max.	100	---	-----	100
11.	Free ammonia (as NH <sub>3</sub> ) mg/l max.	5.0	---	-----	5.0
12.	Biochemical Oxygen Demand (5 days at 20°C) mg/l max.	30	350	100	100
13.	Chemical Oxygen Demand, mg/l max.	250	---	-----	250
14.	Arsenic (as As) mg/l max.	0.2	0.2	0.2	0.2
15.	Mercury (as Hg) mg/l max.	0.01	0.01	-----	0.001
16.	Lead (as pb) mg/l max.	01.	1.0	-----	2.0
17.	Cadmium (as Cd) mg/l max.	2.0	1.0	-----	2.0



Sl. No.	Parameters	Standards			
		Inland surface	Public sewers	Land for irrigation	Marine Costal Areas
		(a)	(b)	(c)	(d)
18.	Hexavalent Chromium (as Cr + 6) mg/l max.	0.1	2.0	-----	1.0
19.	Total Chromium (as Cr) mg/l max.	2.0	2.0	-----	2.0
20.	Copper (as Cu) mg/l max.	3.0	3.0	-----	3.0
21.	Zinc (as Zn) mg/l max.	5.0	15	-----	15
22.	Selenium (as Se) mg/l max.	0.05	0.05	-----	0.05
23.	Nickel (as Ni) mg/l max.	3.0	3.0	-----	5.0
24.	Cyanide (as CN) mg/l max.	0.2	2.0	0.2	0.02
25.	Fluoride ( as F) mg/l max.	2.0	15	-----	15
26.	Dissolved Phosphates (as P) mg/l max.	5.0	-----	-----	-----
27.	Sulphide (as S) mg/l max.	2.0	-----	-----	5.0
28.	Phenolic compounds as (C <sub>6</sub> H <sub>5</sub> OH) mg/l max.	1.0	5.0	-----	5.0
29.	Radioactive materials a. Alpha emitter micro curie/ml. b. Beta emitter micro curie/ml.	10 <sup>7</sup> 10 <sup>6</sup>	10 <sup>7</sup> 10 <sup>6</sup>	10 <sup>3</sup> 10 <sup>7</sup>	10 <sup>7</sup> 10 <sup>6</sup>
30.	Bio-assay test	90% survival of fish after 96 hours in 100% effluent	90% survival of fish after 96 hours in 100% effluent	90% survival of fish after 96 hours in 100% effluent	90% survival of fish after 96 hours in 100% effluent
31.	Manganese (as Mn)	2 mg/l	2 mg/l	-----	2 mg/l
32.	Iron (Fe)	3 mg/l	3 mg/l	-----	3 mg/l
33.	Vanadium (as V)	0.2 mg/l	0.2 mg/l	-----	0.2 mg/l
34.	Nitrate Nitrogen	10 mg/l	-----	-----	20 mg/l



NATIONAL AMBIENT AIR QUALITY STANDARDS

Sl. No.	Pollutants	Time Weighed Average	Concentrate of Ambient Air		
			Industrial Residential, Rural and other Area	Ecologically Sensitive Area (notified by Central Government)	Methods of Measurement
(1)	(2)	(3)	(4)	(5)	(6)
1.	Sulphur Dioxide (SO <sub>2</sub> ), $\mu\text{g}/\text{m}^3$	Annual * 24 Hours **	50 80	20 50	-Improved west and Gaeke - Ultraviolet fluorescence
2.	Nitrogen Dioxide (NO <sub>2</sub> ), $\mu\text{g}/\text{m}^3$	Annual * 24 Hours **	40 80	30 80	- Modified Jacob & Hochheiser (Na-Arsenite) - Chemiluminescence
3.	Particulate Matter (size less than 10 $\mu\text{m}$ ) or PM <sub>10</sub> , $\mu\text{g}/\text{m}^3$	Annual * 24 Hours **	60 100	50 100	-Gravimetric - TOEM - Beta Attenuation
4.	Particulate Matter (size less than 2.5 $\mu\text{m}$ ) or PM <sub>2.5</sub> , $\mu\text{g}/\text{m}^3$	Annual * 24 Hours **	40 60	40 80	-Gravimetric - TOEM - Beta Attenuation
5.	Ozone (O <sub>3</sub> ), $\mu\text{g}/\text{m}^3$	8 Hours ** 1 Hours **	100 180	100 180	- UV Photometric - Chemiluminescence - Chemical Method
6.	Lead (Pb), $\mu\text{g}/\text{m}^3$	Annual * 24 Hours **	0.50 1.0	0.50 1.0	-AAS/ICP method after sampling on EMP 2000 or equivalent filter paper. - ED-XRF using Teflon filter
7.	Carbon Monoxide (CO), $\text{mg}/\text{m}^3$	8 Hours ** 1 Hours **	02 04	02 04	- Non Dispersive Infra Red (NDIR) Spectroscopy
8.	Ammonia (NH <sub>3</sub> ), $\mu\text{g}/\text{m}^3$	Annual* 24 Hours**	100 400	100 400	-Chemiluminescence - Indophenol Blue Method
9.	Benzene (C <sub>6</sub> H <sub>6</sub> ), $\mu\text{g}/\text{m}^3$	Annual *	05	05	-Gas Chromatography based continuous analyzer - Adsorption and Desorption followed by GC analysis
10.	Benzo (a) Pyrene (BaP)-Particulate phase only, $\text{ng}/\text{m}^3$	Annual*	01	01	-Solvent extraction followed by HPLC/GC analysis
11.	Arsenic (As), $\text{ng}/\text{m}^3$	Annual*	06	06	-AAS/ICP method after sampling on EPM 2000 or equivalent filter paper
12.	Nickel (Ni), $\text{ng}/\text{m}^3$	Annual*	20	20	-AAS/ICP method after sampling on EPM 2000 or equivalent filter paper

\* Annual arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals.

\*\* 24 hourly or 08 hourly or 01 hourly monitored values, as applicable, shall be complied with 98% of the time in a year, 2% of the time, they may exceed the limits but not on two consecutive days of monitoring.

**SHIVA**

CIN: L26942OR1985PLC001557

**SHIVA  
CEMENT  
LIMITED**

AT : TELUGHANA  
 P.O. : BIRINGATOLI  
 TEHSIL : KUTRA  
 DIST. : SUNDARGARH  
 ODISHA, INDIA,  
 PIN-770018  
 Dt: 17.03.2022

Shiva/Existing Mines/EC/2022

To,  
 The Sarpanch,  
 Khatkurbahal  
 Dist-Sundargarh, Odisha  
 Pin-770018

Subject: Environment Clearance of Khatkurbahal Limestone & Dolomite Mine (ML Area- 72.439 ha) with Expansion in Production Capacity from 0.3475 Million TPA to 1.50 Million TPA Limestone with mobile crusher with screen of 500 TPH capacity located at Villages Khatkurbahal & Kulenbahal, Tehsil Kutra, District Sundargarh, Odisha of M/s Shiva Cement Limited - Submission of copy of Environment Clearance reg.

Ref: Environment clearance issued by SEIAA, Odisha vide letter No. File No. - 37895/62-MINB1/11-2021 Date of Issue EC - 11/03/2022.

Dear Sir,

With reference to the aforesaid subject, we would like to inform you that the Environment Clearance for the above cited project has been issued by SEIAA, Odisha vide letter No. File No. - 37895/62-MINB1/11-2021 Date of Issue EC - 11/03/2022.

We are hereby submitting herewith a copy of the same for your reference and record.

Please acknowledge the receipt of the document.

1. Copy of Environment Clearance letter Issued by SEIAA

Thanking you,

Yours faithfully,  
 For Shiva Cement Ltd.

  
 Anil Mishra  
 (Authorized Signatory)

Encl.: As above

*Jhadi Dhanwar*  
 JHADI DHAN WAR  
 SARPANCH  
 KHAT KUR BAHAL GP  
 DIST-SUNDARGARH  
 17/3/22



**BHUBANESWAR, THURSDAY, MARCH 17, 2022**

**THE PIONEER**

**PUBLIC INFORMATION**

This is to inform the public that M/s Shiva Cement Limited has been accorded Environment Clearance (EC) by the State Environment Impact Assessment Authority (SEIAA), Odisha vide letter No. 37895/62-MINB1/11-2021, dated 11-03-2022 in accordance with S.O.1533 (E) dated 14th Sept, 2006 of Govt for Khatkurbahal Limestone & Dolomite Mine (ML Area - 72.439 Ha) with expansion in production capacity from 0.3475 MTPA Limestone (including Sub-grade), 0.20 Million M3 per annum OB/Waste/SB/IB/Low Grade Dolomite and 0.108 Million M3 per annum Top Soil with mobile crusher of 500 TPH capacity near villages- Khatkurbahal & Kulenbahal, Tehasil Kutra, District Sundergarh, Odisha by Shiva Cement Limited. Copy of the EC letter is available with the State Pollution Control Board, Odisha and website of the Ministry of Environment, Forests & Climate Change ([www.parivesh.nic.in](http://www.parivesh.nic.in)) and also on the website of M/s Shiva Cement Limited ([www.shivacement.com](http://www.shivacement.com)).

**TUESDAY, MARCH 15, 2022**

**PRAMEYA**

**ପାବିକରୀର ସୂଚନା**

ଏହି ଜନସାଧାରଣକୁ ଅବଗତ କରିବା ପାଇଁ ଚାହା ପରିବେଶ ଉପରେ ପ୍ରଭାବର ମୂଲ୍ୟାଙ୍କନ (SEIAA) ପ୍ରକ୍ରିୟାର ଉତ୍ତର ଦିଏ ନମ୍ବର 37895/62-MINB1/11-2021 ତାରିଖ 11-03-2022 ମଧ୍ୟ ଶିବା ସିମେଣ୍ଟ ଲିମିଟେଡ୍ ପରିବେଶ ସ୍ୱଚ୍ଛତା (EC) ପ୍ରଦାନ କରାଯାଇଛି । S.O.1533 (E) ତାରିଖ 14 ଫେବୃଆରୀ 2006 ଓଡ଼ିଶା ରାଜ୍ୟ ସରକାରଙ୍କଦ୍ୱାରା ପ୍ରଦତ୍ତ ଏହି ଉଦ୍ଦେଶ୍ୟରେ ନିର୍ଦ୍ଦେଶ (ML କ୍ଷେତ୍ର - 72.439 ହେକ୍ଟର) ପାଇଁ 0.3475 MTPA ଲୁଗାପତା (ଏକ-ସ୍ତରୀୟ ଅର୍ଦ୍ଧ-ସ୍ତରୀୟ ଭଳି) ଏବଂ ସମ୍ପୂର୍ଣ୍ଣ ଉତ୍ପାଦନ ପାଇଁ ଶିବା ସିମେଣ୍ଟ ଲିମିଟେଡ୍ ଦ୍ୱାରା ବାର୍ଷିକ 0.20 ମିଲିଅନ M3 ଓଡ଼ିଶା କ୍ଷେତ୍ର ସମ୍ପୂର୍ଣ୍ଣ ଉତ୍ପାଦନ ଏବଂ ବାର୍ଷିକ 0.108 ମିଲିଅନ M3 ଗ୍ରହଣ କରିବା 500 ଟିପି-ଏଚ୍ ପ୍ରକାରର ମୋବାଇଲ୍ କ୍ରାଶର ନିକଟରେ ଥିବା ଗ୍ରାମାଞ୍ଚଳ କ୍ଷେତ୍ରରେ ଥିବା ଅନୁରାଧାପୁର ଏବଂ କୁଲେନବାହାଲ, ଚାଟୁରୀ-କୁଟ୍ରା, କିଲ୍ଲା-କୁଟ୍ରା ଜିଲ୍ଲା, ଓଡ଼ିଶା ରାଜ୍ୟରେ । ଚାହା ପ୍ରକୃତ ନିର୍ଦ୍ଦେଶ ଲେଟର, ପ୍ରକ୍ରିୟା ଏବଂ ପରିବେଶ, ଉତ୍ତର ଏବଂ ଉପରାଜ୍ୟ ପରିବେଶ ନିର୍ଦ୍ଦେଶନା ସ୍ୱଚ୍ଛତା ([www.parivesh.nic.in](http://www.parivesh.nic.in)) ଏବଂ M/s ଶିବା ସିମେଣ୍ଟ ଲିମିଟେଡ୍ ([www.shivacement.com](http://www.shivacement.com)) ଓ EC ଲିଟର କପି ଉପଲବ୍ଧ ଅଛି ।

## Water Tanker Photograph

### Water Tanker-1



### Water Tanker-2



### Water Tanker-3



### 1) Proposed Rainwater harvesting measures

Shiva Cement will adopt artificial recharge of water in the village ponds within the same watershed present outside the lease area in the northern part at about 1.5 KM and southern part adjacent to the lease area. The pond will be rejuvenated by widening and deepening it. It is logical that any recharge activity implemented in an area will surely benefit abstraction structures i.e. dug wells and bore wells in the surrounding as well as downstream area.

There will be 3 season of fillings. Slope of storm water drains shall be maintained in such a way that it facilitates natural flow to RWH pond. The harvested water (Evaporation and other handling losses account to 20% reduction) may be utilized for greenbelt development, domestic, sanitation and also for increasing the ground water recharge.

The details of the village ponds proposed for recharge are given in the below table:

**Details of Proposed Pond for Rainwater Harvesting in Mining area**

S. No.	Particulars	RWH Pond 1	RWH Pond 2	RWH Pond 3
1	Village	KhatkhurBahal		
2	Area (ha)	0.66	0.92	1.58
3	Distance	Outside the lease area		
4	Direction	North	South	
5	Latitude	22.2828	22.2783	22.2782
6	Longitude	84.4683	84.4665	84.4682
7	Area (Sq.m)	6600	9200	15800
8	Depth (m)	3	3	3
9	Storage Capacity (cum)	19800	27600	47400
10	No of fillings	3	3	3
11	Total accumulation (cum)	59400	82800	142200
12	Total Water Harvested (cum)	<b>284400</b>		
13	Net recharge (30%)	17820	24840	42660
14	Total Recharge (cum)	<b>85320</b>		
15	Evaporation loss (20%)	11880	16560	28440
16	Total evaporation loss (cum)	<b>56880</b>		
17	Net water available for use (cum)	<b>193392</b>		



**RWH plan showing water harvesting and recharge through ponds**

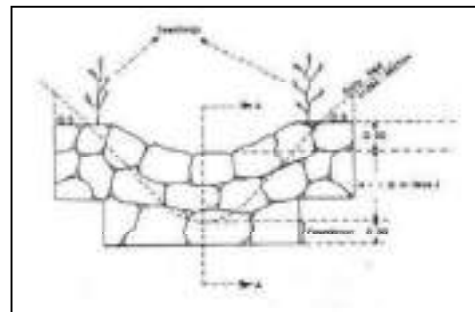
In addition to this, the mine is surrounded by surface water bodies within its 10 km study area. Therefore, few additional conservation structures have been proposed for the surface water bodies. The details of the conservation structures proposed within the study area are as follows:

#### **CHECK DAMS:**

The check dams or in-stream storage structures with or without gated arrangements are capable of safely releasing the anticipated design flood without affecting the safety of the structures with minimum afflux in the upstream. Water can be stored in such a pond / reservoir towards the end of monsoon.

#### **Designs:**

Check dams upto a height of 2.0m will be constructed across small tributaries / nallah / drainage channel/ deltaic rivers within the banks and in hill streams. These storage schemes will be low cost structures and will be primarily used for the purpose of irrigation through lift, re-charging of ground water and providing drinking water facility to nearby villages. The sites will be selected after detail survey & investigation. The height of these structures will be normally within 2.0 m. These structures are to be constructed in series to make them more effective by storing more water.



#### **LOOSE BOULDERS:**

The loose boulder structures are larger than gully plugs. These are proposed on the sub streams of our project area which will reduce the erosion. Dry stone/ loose boulder check dams are usually constructed up to about 1.25 m height and about 2.5 m length. The foundation of the check dams should be dug out from 0.3

m - 0.5 m and the keying into stable portion of banks is also kept from 0.3 m - 0.6 m. Top width of the check dam is kept from 0.5m with the sides sloping at a low angle.

### EARTHEN BUNDS

A bund constructed out of local soil across the stream to check soil erosion, to store water and to drain out excess water by using spillway is called as Earthen Nallah Bund (ENB). Some guidelines are considered while construction of Earthen nallah bund.

The Earthen Nallah Bunds are used to store water, to cut the velocity of flow of water so as to reduce soil erosion.



The impact of conservation structures are as follows:

- Improve the quality of ground water through dilution when recharged and also to provide self-sufficiency in terms of water supply
- Protect the river banks by keeping the flow away along a desired course by attracting, deflecting or repelling the flow.
- Reduce soil erosion & flooding in and around the 10km radius of the study area.
- Increase future scope for development of infrastructure such as bathing, washing, fishing, recreational facilities and so on depending on location and feasibility.

### 2) Water accumulation in mine pits through seepage and rainwater and subsequent dewatering:

#### Summary of Pit wise water accumulation up to Plan Period

Year	Depth of pit (m)	Area of pit (Sq.m)	Rainwater accumulation	Groundwater seepage (Cum)	Total water in mine pit (Cum)	Recharge + Evaporation loss (50%)	Net water available in pit (per annum)	Net water available in pit (KLD)
			( Cum)					
I	18	103500	120789.7	26079.4	146869.1	73434.5	73434.5	307
	18	22100	25791.81	11505.6	37297.41	18648.7	18648.7	
II	24	135200	157785.2	45751.7	203536.9	101768.4	101768.4	481.2
	24	50400	58819.32	26395.2	85214.52	42607.3	42607.3	
III	36	140400	163853.8	79411.2	243265	121632.5	121632.5	622.9
	36	67600	78892.58	51617.3	130509.9	65254.9	65254.9	
IV	48	156000	182059.8	120289.9	302349.7	151174.9	151174.9	786.2
	48	78000	91029.9	78328.3	169358.2	84679.1	84679.1	
V	60	182000	212403.1	173260.8	385663.9	192832.0	192832.0	1043.6
	60	104000	121373.2	119116.8	240490	120245.0	120245.0	

Average Rainfall: 1373mm

After 1<sup>st</sup> year of mining operations, seepage & rainwater accumulated in mine pits shall be sufficient to meet the overall water requirement after reduction of annual losses.

The summary of mine seepage is given below:

- ❖ The total seepage calculated during the 5 year plan period is 313077 M<sup>3</sup>/annum 1043.6 KLD
- ❖ 1043.6 KLD of seepage to take place in pre and post monsoon season in the mine pit in the plan period has been calculated for 300 days.

#### **MINE DEWATERING - GAINFUL UTILIZATION OF PUMPED WATER**

The total ground water requirement for mining operations (except drinking & domestic) will be fulfilled from proposed mines pit from 1<sup>st</sup> year onwards. Total volume of groundwater seepage in excavated mine pits during next 5-year plan period which shall be pumped out works out to be about 313077 cum.

Out of 1044 KLD of pumped water through dewatering, about 553 KLD will be utilized in the cement plant of M/s. Shiva Cement Limited by laying a pipeline of about 8.7 kms. Therefore, with successive mining ground water consumption will be reduced and it will have a positive impact to restore the water level of the area. The pumped water will be utilized to meet daily mine water requirement including Greenbelt/Plantation, Mine workshop, Dust Suppression and the surplus water will be supplied to nearby villagers for agriculture and irrigation Details have been elaborated below:

#### *Utilization of pumped out water from mine pits after the present plan period*

Year	Total water accumulation (M <sup>3</sup> /day)	Irrigation (M <sup>3</sup> /day)	Greenbelt (M <sup>3</sup> /day)	Dust suppression (M <sup>3</sup> /day)	Cement Plant (M <sup>3</sup> /day)
I	307.0	245.0	12	50	0
II	481.2	419.2	12	50	0
III	622.9	360.9	12	50	200
IV	786.2	324.2	12	50	400
V	1043.6	581.6	12	50	400

M/s Shiva Cement has obtained NOC for from Central Ground Water Authority for mine dewatering vide NOC No. CGWA/NOC/MIN/ORIG/2021/12245 which is valid from 07-07-2021 to 06-07-2023.

#### **a) Rainwater harvesting through pond constructed by SCL near Khatkurbahal mine**

Dimensions of pond = 115 x 60 x 6 M

Storage capacity of pond = (115 x 60 x 6) = 43470 cum

No. of fillings = 3

Total water accumulation = 130410 cum

Total water recharge = 39123 cum

Total loss due to evaporation = 26082 cum

Net water available (less recharge & evaporation) = **65205 cum**

**Date/Time** Long at 16:36:14 November 19, 2022  
**Trigger Source** Geo: 0.500 mm/s, Mic: 2.000 pa.(L)  
**Range** Geo: 254.0 mm/s  
**Record Time** 4.0 sec (Auto=3Sec) at 4096 sps  
**Job Number:** 3  
**Operator/Setup:** Operator/factory.MMB

**Serial Number** UM20047 V 10-90GC Micromate ISEE  
**Battery Level** 3.8 Volts  
**Unit Calibration** October 1, 2022 by UES New Delhi  
**File Name** UM20047\_20221119163614.IDFW  
**Scaled Distance** 365.1 (200.0 m, 0.3 kg)

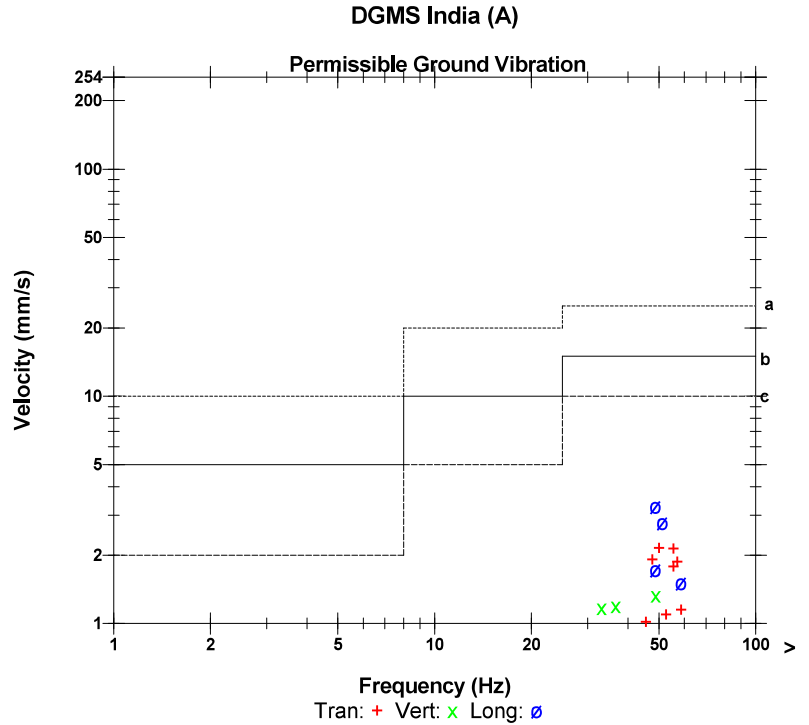
**Notes**

**Location:** PIT -1 OLD OFFICE  
**Client:**  
**User Name:** SHIVA CEMENT LIMITED  
**General:**

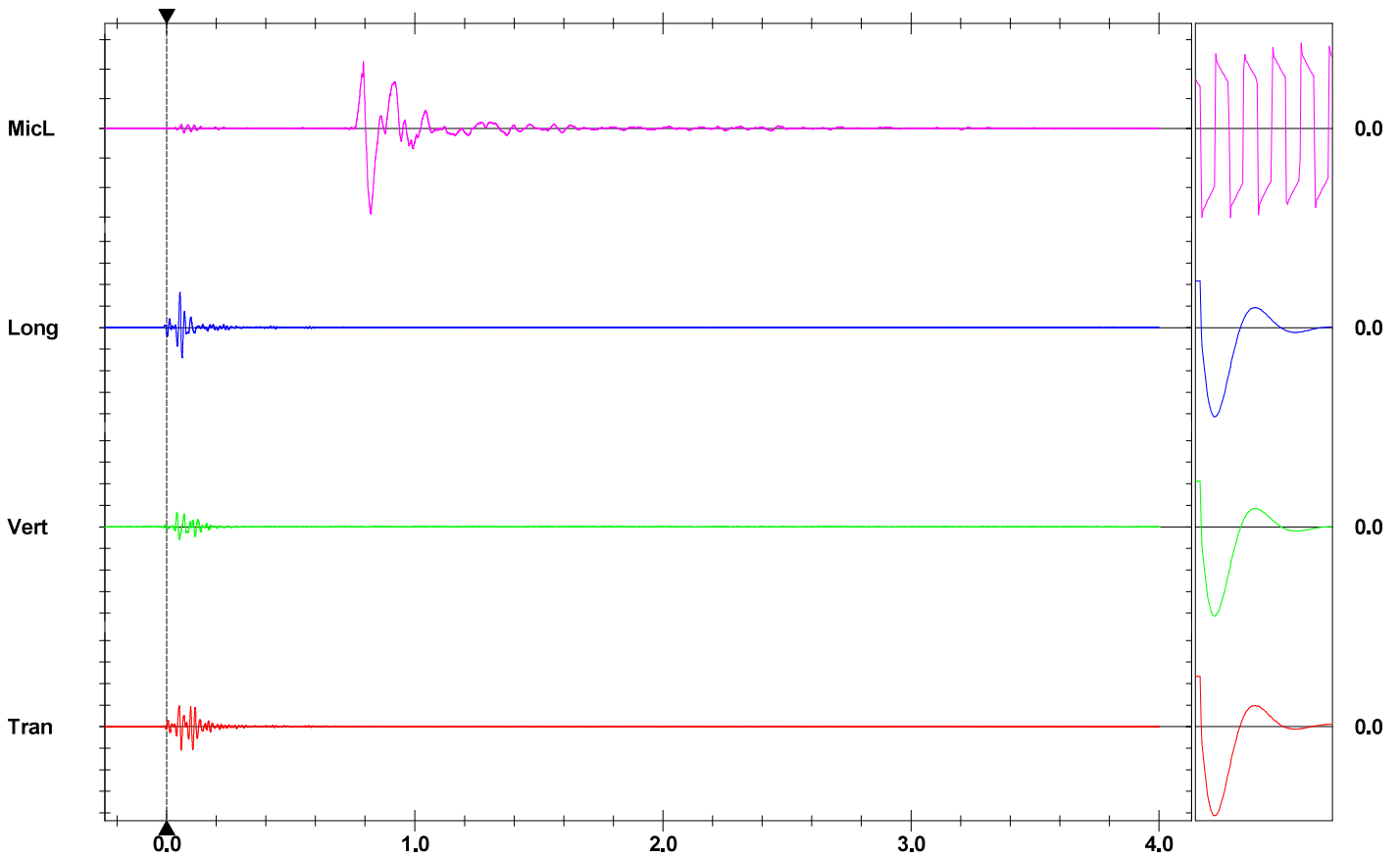
**Microphone** Linear Weighting  
**PSPL** 14.52 pa.(L) at 0.823 sec  
**ZC Freq** 9.6 Hz  
**Channel Test** Passed (Freq = 20.5 Hz Amp = 1217 mv )

	Tran	Vert	Long	
PPV	2.152	1.332	3.287	mm/s
ZC Freq	50	49	49	Hz
Time (Rel. to Trig)	0.059	0.041	0.053	sec
Peak Acceleration	0.079	0.049	0.115	g
Peak Displacement	0.007	0.005	0.010	mm
Sensor Check	Passed	Passed	Passed	
Frequency	7.3	7.1	7.1	Hz
Overswing Ratio	4.2	4.8	4.4	

**Peak Vector Sum** 3.613 mm/s at 0.052 sec



- a) Industrial Buildings
- b) Domestic houses/structures
- c) Historic objects, sensitive structures



Sensor Check



**Date/Time** Vert at 16:35:44 November 24, 2022  
**Trigger Source** Geo: 0.500 mm/s, Mic: 100.00 dB(L)  
**Range** Geo: 254.0 mm/s  
**Record Time** 4.384 sec (Auto=3Sec) at 4096 sps  
**Job Number:** 3  
**Operator/Setup:** Operator/factory.MMB

**Serial Number** UM20047 V 10-90GC Micromate ISEE  
**Battery Level** 3.8 Volts  
**Unit Calibration** October 1, 2022 by UES New Delhi  
**File Name** UM20047\_20221124163544.IDFW  
**Scaled Distance** 45.3 (200.0 m, 19.5 kg)

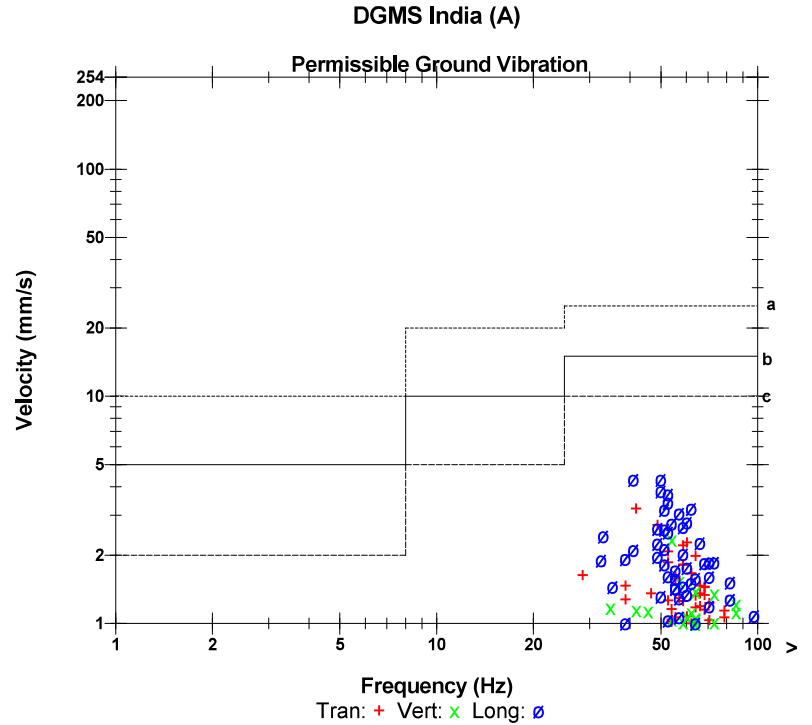
**Notes**

**Location:** PIT -1 OLD OFFICE  
**Client:**  
**User Name:** SHIVA CEMENT LIMITED  
**General:**

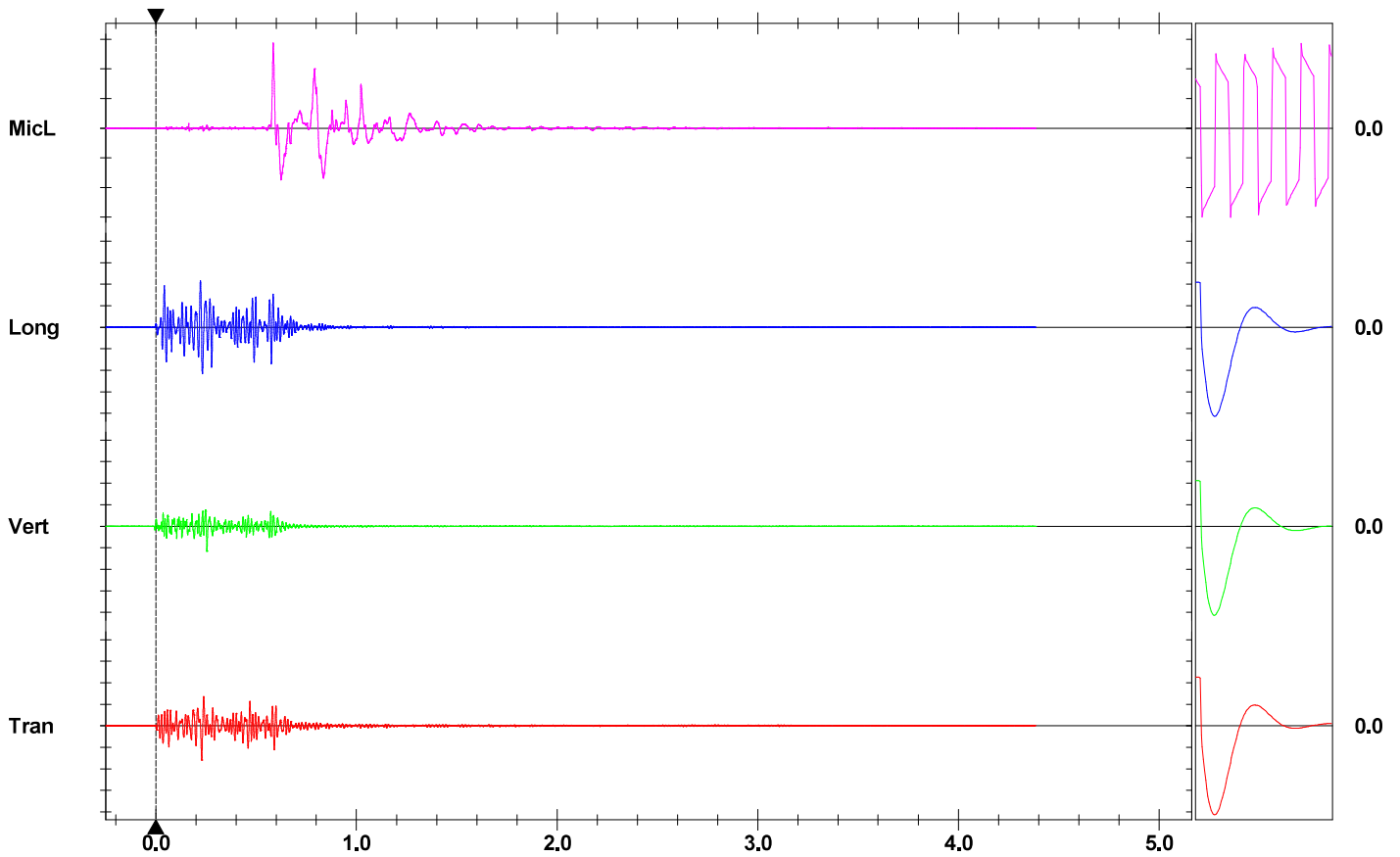
**Microphone** Linear Weighting  
**PSPL** 123.2 dB(L) at 0.585 sec  
**ZC Freq** 13.9 Hz  
**Channel Test** Passed (Freq = 20.5 Hz Amp = 1222 mv )

	Tran	Vert	Long	
PPV	3.208	2.349	4.327	mm/s
ZC Freq	42	54	41	Hz
Time (Rel. to Trig)	0.229	0.255	0.232	sec
Peak Acceleration	0.145	0.135	0.197	g
Peak Displacement	0.012	0.006	0.016	mm
Sensor Check	Passed	Passed	Passed	
Frequency	7.3	7.1	7.3	Hz
Overswing Ratio	4.2	4.8	4.5	

**Peak Vector Sum** 4.764 mm/s at 0.232 sec



- a) Industrial Buildings
- b) Domestic houses/structures
- c) Historic objects, sensitive structures



**Time Scale:** 0.20 sec/div **Amplitude Scale:** Geo: 2.000 mm/s/div Mic: 10.000 pa.(L)/div  
**Trigger =**

Sensor Check

**Date/Time** Vert at 13:14:03 January 28, 2023  
**Trigger Source** Geo: 0.500 mm/s, Mic: 100.00 dB(L)  
**Range** Geo: 254.0 mm/s  
**Record Time** 3.0 sec at 2048 sps  
**Operator/Setup:** Operator/factory.MMB

**Serial Number** UM20047 V 10-90GC Micromate ISEE  
**Battery Level** 3.8 Volts  
**Unit Calibration** October 1, 2022 by UES New Delhi  
**File Name** UM20047\_20230128131403.IDFW  
**Scaled Distance** 46.7 (220.0 m, 22.2 kg)

**Notes**

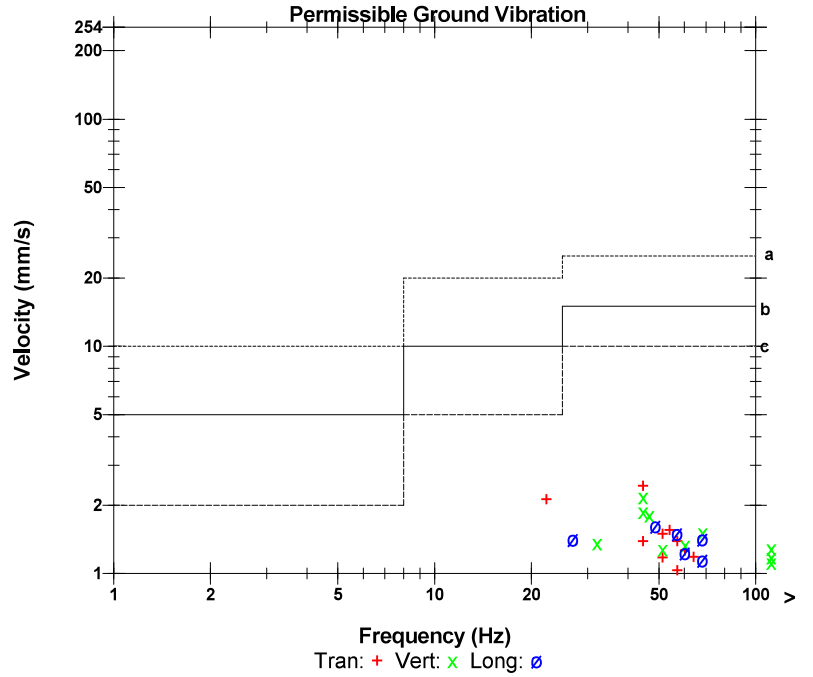
**Location:** PIT-2  
**Client:**  
**User Name:** SHIVA CEMENT LIMITED  
**General:**

**Microphone** Linear Weighting  
**PSPL** 106.0 dB(L) at 0.489 sec  
**ZC Freq** 14.2 Hz  
**Channel Test** Passed (Freq = 20.5 Hz Amp = 1167 mv)

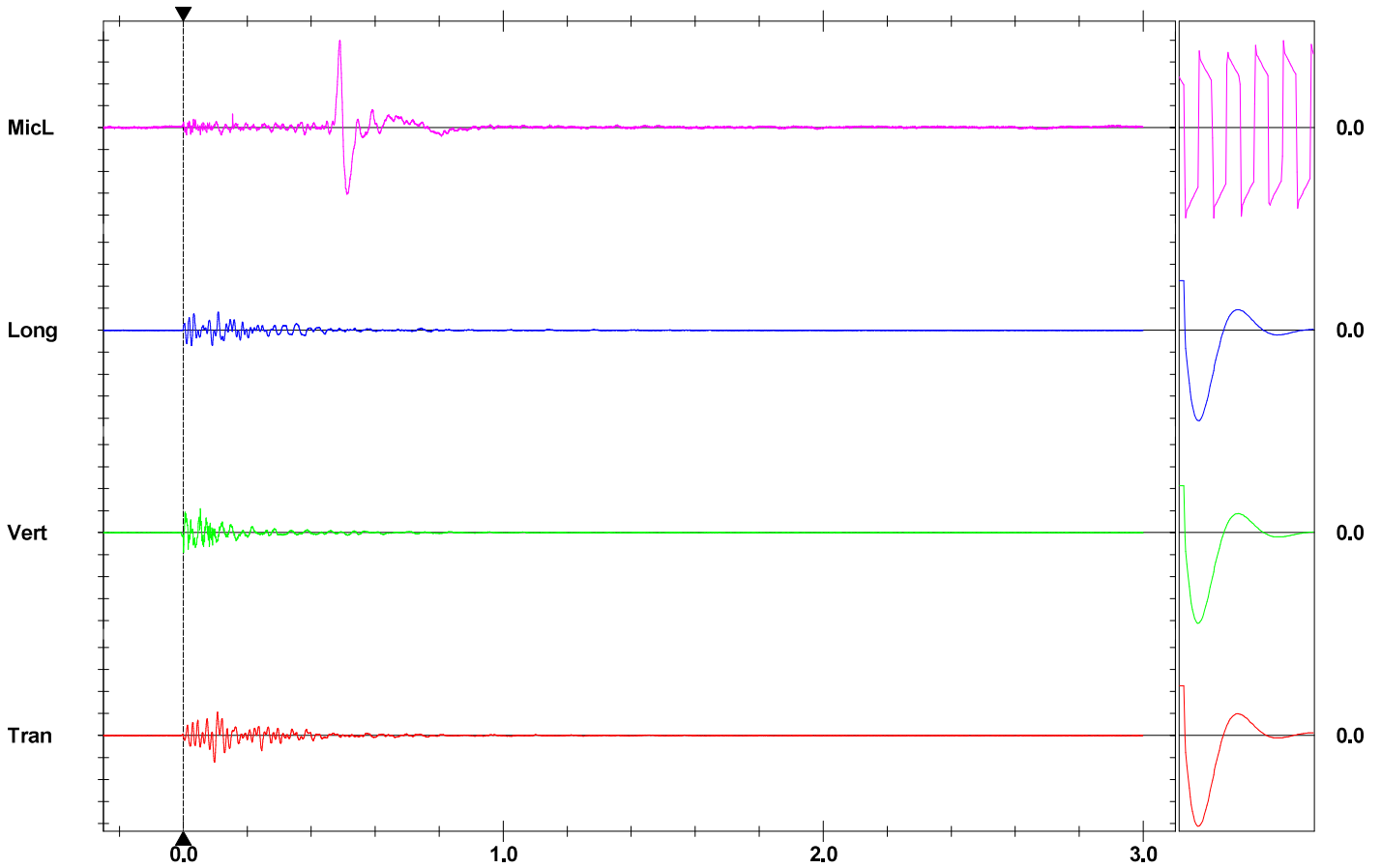
	Tran	Vert	Long	
PPV	2.428	2.175	1.624	mm/s
ZC Freq	45	45	49	Hz
Time (Rel. to Trig)	0.097	0.053	0.109	sec
Peak Acceleration	0.086	0.179	0.061	g
Peak Displacement	0.012	0.006	0.006	mm
Sensor Check	Passed	Passed	Passed	
Frequency	7.3	7.1	7.1	Hz
Overswing Ratio	4.2	4.8	4.4	

Peak Vector Sum 2.510 mm/s at 0.107 sec

**DGMS India (A)**



- a) Industrial Buildings
- b) Domestic houses/structures
- c) Historic objects, sensitive structures



Sensor Check

**Date/Time** Vert at 13:14:24 March 28, 2023  
**Trigger Source** Geo: 0.500 mm/s  
**Range** Geo: 254.0 mm/s  
**Record Time** 3.0 sec at 4096 sps  
**Operator/Setup:** Operator/factory.MMB

**Serial Number** UM20047 V 10-90GC Micromate ISEE  
**Battery Level** 3.6 Volts  
**Unit Calibration** October 1, 2022 by UES New Delhi  
**File Name** UM20047\_20230328131424.IDFW  
**Scaled Distance** 51.6 (200.0 m, 15.0 kg)

**Notes**

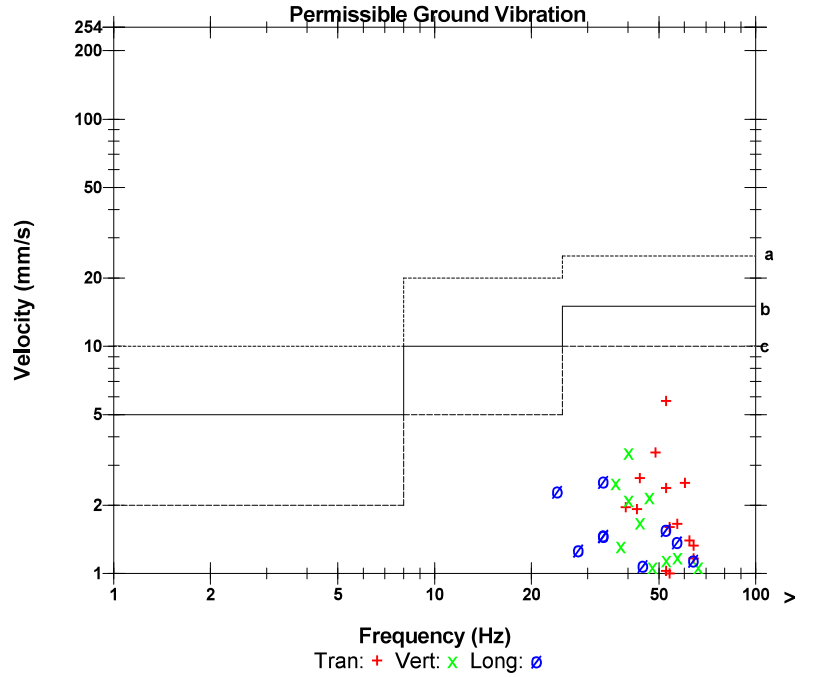
**Location:** PIT-2  
**Client:**  
**User Name:** SHIVA CEMENT LIMITED  
**General:**

**Microphone** Linear Weighting  
**PSPL** 98.78 dB(L) at 0.604 sec  
**ZC Freq** 15.4 Hz  
**Channel Test** Passed (Freq = 20.5 Hz Amp = 1158 mv)

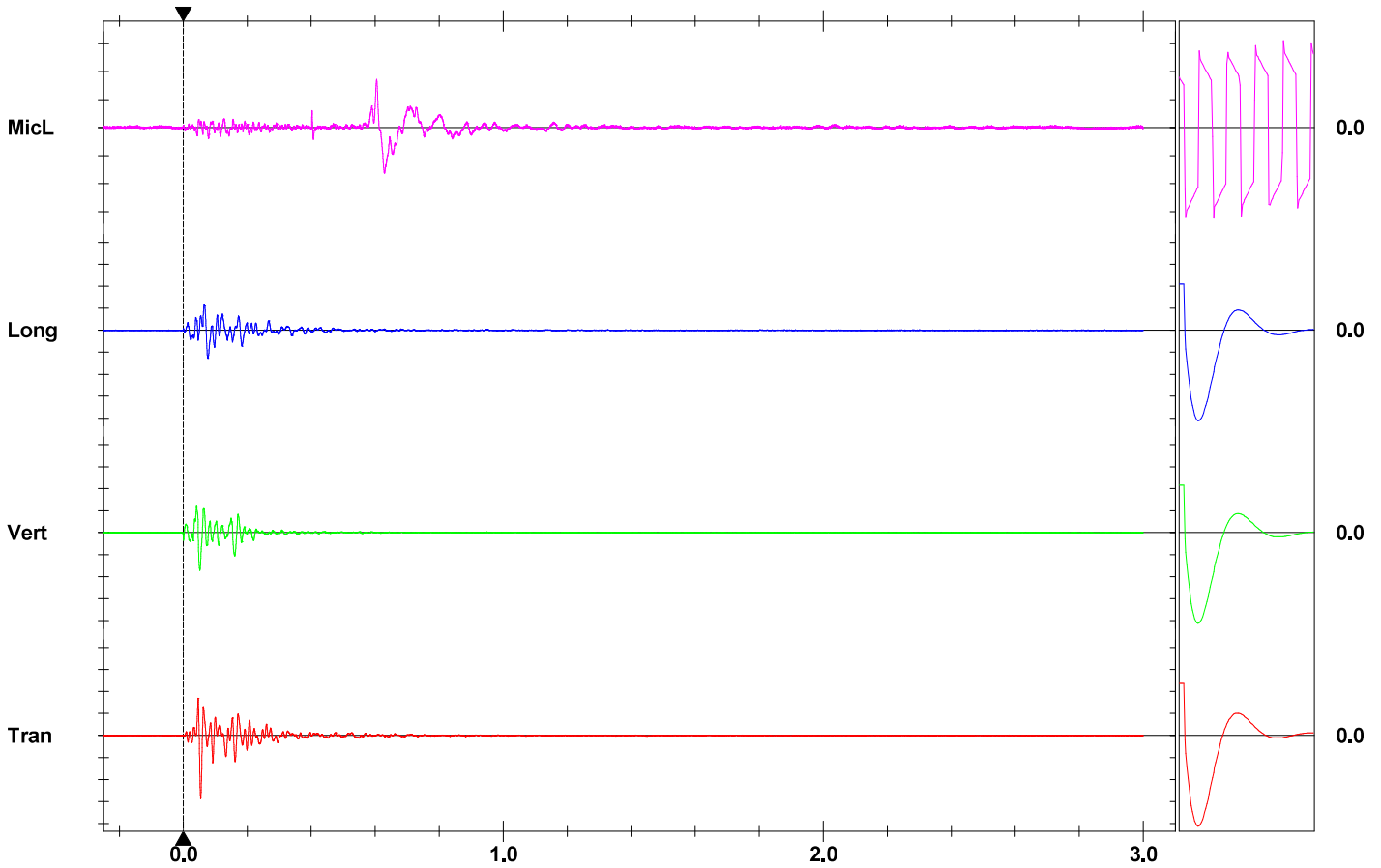
	Tran	Vert	Long	
PPV	5.746	3.421	2.562	mm/s
ZC Freq	53	40	33.6	Hz
Time (Rel. to Trig)	0.054	0.052	0.076	sec
Peak Acceleration	0.184	0.132	0.086	g
Peak Displacement	0.017	0.013	0.012	mm
<b>Sensor Check</b>	Passed	Passed	Passed	
Frequency	7.3	7.1	7.1	Hz
Overswing Ratio	4.1	4.8	4.5	

Peak Vector Sum 6.442 mm/s at 0.054 sec

**DGMS India (A)**



- a) Industrial Buildings
- b) Domestic houses/structures
- c) Historic objects, sensitive structures



**Time Scale:** 0.20 sec/div **Amplitude Scale:** Geo: 2.000 mm/s/div Mic: 1.000 pa.(L)/div  
**Trigger =**

Sensor Check

## TRAFFIC DENSITY STUDY REPORT

### IMPACT ON LOCAL TRANSPORT INFRASTRUCTURE

About 5000 Tonnes per day of Limestone after mining will be transported to the cement plant (after crushing) of the lessee at a distance of ~19.2 km at Village Telighana. P.O Bringatoli, Kutra, District Sundargarh, Odisha through 25 tonne capacity tippers.

Traffic survey has been done for mine at the survey point marked on Transportation route map given below as figure 4.5. Details of the roads being used for transportation of limestone are given in the Table below:

#### **Details of the roads proposed to be used for transportation of Limestone**

S. No.	Road Name	Distance (in km)	Type of Road
1.	Village Road (including 0.5 km proposed road by SCL) (From mine to Kutra Road)	~3.5	Village Road-Pucca & SCL Private Road
2.	Kutra Road	~9.2	MDR
3.	SH-10	~4.5	State Highway
	Village Road-From SH10 to Shiva Cement Plant	~2.0	Village Road-Kaccha

#### **Details of Traffic Survey points**

Survey point no.	Stretches	Survey point	Coordinates
1	Mine to Kutra Road	Near Village Chhatian	N 22°16'34.69" E 84°30'47.79"
2	Kutra Road	Near Village Khatang-Bus Stop	N 22°14'13.84" E 84°29'29.00"
3	SH-10	Near Police Station	N 22°13'37.71" E 84°26'19.74"
4	SH-10 to Cement Plant	Near Plant colony Gate	N 22°13'42.63" E 84°25'21.42"

*Source: Field Survey*



**No of Vehicles per hour for traffic survey point  
Near Village Chhatian**

S.No	Vehicle Type	No. of Vehicle/day	Passenger Car Unit (PCU) factor	TOTAL NUMBER OF VEHICLE (PCU)/Day
1.	Cycle	301	0.5	150.5
2.	Motor Cycle /Scooter	833	0.5	416.5
3.	Passenger Car/Van/ AutoRickshaw	481	1.0	481
4.	Tractors	124	1.5	186
5.	Trucks	173	3.0	519
6.	Buses	10	3.0	30
7.	Trailer	-	4.5	-
Total		<b>1922</b>	-	<b>1783</b>
				<b>1783/24=74.29</b>

**No of Vehicles per hour for traffic survey point  
Near Khatang Village Bus Stop**

S.No	Vehicle Type	No. of Vehicle/day	Passenger Car Unit (PCU) factor	TOTAL NUMBER OF VEHICLE (PCU)/Day
1.	Cycle	379	0.5	189.5
2.	Motor Cycle /Scooter	1082	0.5	541
3.	Passenger Car/Van/ AutoRickshaw	725	1.0	725
4.	Tractors	313	1.5	469.5
5.	Trucks	1047	3.0	3141
6.	Buses	20	3.0	60
7.	Trailer	150	4.5	675
Total		<b>3716</b>	-	<b>5801</b>
				<b>5801/24=241.71</b>

**No of Vehicles per hour for traffic survey point**  
*Near Police Station (SH-10)*

<b>S.No</b>	<b>Vehicle Type</b>	<b>No of vehicle /day</b>	<b>Passenger Car Unit (PCU) factor</b>	<b>TOTAL No of vehicle (PCU)/Day</b>
1.	<b>Cycle</b>	506	0.5	253
2.	<b>Motor Cycle /Scooter</b>	1746	0.5	873
3.	<b>Passenger Car/Van/ Auto Rickshaw</b>	1367	1.0	1367
4.	<b>Tractors</b>	203	1.5	304.5
5.	<b>Trucks</b>	1329	3.0	3987
6.	<b>Buses</b>	158	3.0	474
7.	<b>Trailer</b>	694	4.5	3123
<b>Total</b>		<b>6003</b>	<b>-</b>	<b>10381.5</b>
				<b>10381.5/24=432.56</b>

**No of Vehicles per hour for traffic survey point  
Near Plant Colony Gate**

S.No	Vehicle Type	No. of Vehicle/day	Passenger Car Unit (PCU) factor	TOTAL NUMBER OF VEHICLE (PCU)/Day
1.	Cycle	57	0.5	28.5
2.	Motor Cycle /Scooter	142	0.5	71
3.	Passenger Car/Van/ AutoRickshaw	40	1.0	40
4.	Tractors	06	1.5	09
5.	Trucks	66	3.0	198
6.	Buses	02	3.0	6.0
7.	Trailer	-	4.5	-
<b>Total</b>		<b>313</b>	<b>-</b>	<b>352.5</b>
				<b>352.5/24=14.68</b>

**Total traffic Count on all 4 Count Stations on Route**

S.No	Vehicle Type	No. of Vehicle/day	Passenger Car Unit (PCU) factor	TOTAL NUMBER OF VEHICLE (PCU)/Day
1.	Cycle	1243	0.5	621.5
2.	Motor Cycle /Scooter	2108	0.5	1054
3.	Passenger Car/Van/ AutoRickshaw	2613	1.0	2613
4.	Tractors	646	1.5	969
5.	Trucks	2615	3.0	7845
6.	Buses	190	3.0	570
7.	Trailer	844	4.5	3798
<b>Total</b>		<b>4662</b>	<b>-</b>	<b>17470.5</b>
				<b>17470.5/24=728</b>

**Existing Traffic Scenario and LOS**

ROAD	V (VOLUME IN PCU/HR)	C (Capacity in PCU/Hr.)	EXISTING V/C RATIO	LOS
Mine to Kutra Road	75	625	0.12	A



<b>Kutra Road</b>	242	625	0.3	B
<b>SH-10</b>	433	1458	0.2	A
<b>SH-10 to Cement Plant</b>	15	625	0.02	A

**DSV for 2 lanes: 15000 = 15000/24= 625**

**DSV for 4 lanes: 35000 = 35000/24 = 1458**

### Capacity

V/C	Level of Service (LOS)	PERFORMANCE
0.0-0.2	A	Excellent
0.2-0.4	B	Very Good
0.4-0.6	C	Good/Average/Fair
0.6-0.8	D	Poor
0.8-1.0	E	Very Poor

*V= Volume in  
PCU's/hr C =  
Capacity in  
PCU's/hr LOS =  
Level of Service*

### PROPOSED TRAFFIC DENSITY ON ROUTE FROM MINE TO CEMENT PLANT

- Transportation via 25 tonner capacity of dumper
- Transportation of Limestone from Proposed Mine: 5000 Tonnes/day
- No. of trips (filled) – 200
- No. of trips of tipper deployed/ day (to & from) – 200x 2 = 400
- Working hours per day: 24 hours (for transportation)
- Frequency of tipper deployed/hour – 400/24 = 17
- Increase in PCU's per hour- 17 x 3= 51
- The transportation will be done on the above mention route.

<b>ROAD</b>	<b>Increases PCU's</b>	<b>V (FINAL VOLUME IN PCU/HR)</b>	<b>RECOMMENDED SERVICE VOLUME (PCU/HR)</b>	<b>EXISTING V/C RATIO</b>	<b>LOS</b>
<b>Mine to Kutra Road</b>	51	75+51= 126	625	0.2	A
<b>Kutra Road</b>	51	242+51= 293	625	0.4	B
<b>SH-10</b>	51	433+51= 484	1458	0.3	B
<b>SH-10 to Cement Plant</b>	51	15+51= 66	625	0.1	A

## **CONCLUSION**

Detailed traffic studies have been carried out for assessment of traffic density in the proposed transportation route. The existing and expected traffic has been estimated by conducting traffic surveys. From the findings, it is observed that the existing road network will be adequate to accommodate the additional traffic load and complied with IRC guidelines.

## **MEASURES FOR TRANSPORTATION**

However, following mitigation measures will be adopted while transportation of material to the Cement Plant:

- Prevention of spillage of material by engaging covered tippers.
- Vehicle with valid PUC will be used for transportation.
- Speed limit of 25km/hr will be maintained on road.
- Speed Governor will be deployed in Vehicle.
- Regular maintenance of HEMMs & transportation vehicles will be carried out.
- Personal protective equipment provided to all the workers.
- Training will be given to all drivers about safe and environment friendly driving.



**Plantation details for the Period Apr'22 to Mar'23**

Sl. No	Common Name	Botanical Name	Total no.
1	Chhatian	Alstonia scholaris	450
2	Krushnachuda	Delonix regia	384
3	Radhachuda	Peltophorum petrocarpum	417
4	Sirsa	Albizia lebbeck	103
5	Neem	Azadirachta indica	230
6	Chakunda	Senna tora	440
7	Karanj	Millettia pinnata	82
8	Jamun	Syzygium cumini	20
9	Kadamba	Neolamarckia cadamba	254
10	Arjun	Terminalia arjuna	47
11	Simuli	Bombax ceiba	49
12	Mahaneem	Melia azedacha	60
13	Ashoka	Saraca asoca	21
14	Patuli	Largestomia indica	51
15	Piasala	Pertocarpous sp	57
16	Baula	Mimusops elengi	3
17	Anla	Phyllanthus emblica	32
<b>Total</b>			<b>2700</b>

**Photograph**



**(FORM - O)**

(See rule 29F (2) and 29L)

**Report of Medical Examination under rule 29B  
(To be issued in Triplicate)**

Certificate No 94  
certified that Shri/Shrimati\* Abneger Key mines.  
employed as Helper in \_\_\_\_\_  
Form A No 06 has been examined for an Initial / Periodical medical  
examination. He/she\* appears to be 41 years of age. The findings of the examining authority are  
given in the attached sheet. It is considered that Shri/Shrimati\* Abneger Key

(a)\* is medically fit for any employment/graduate/technician apprentice training in mines,

(b)\* is suffering from \_\_\_\_\_ and is medically unfit for

- (1) any employment in mine ; or
- (2) any employment below ground ; or
- (3) 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.



*[Handwritten Signature]*  
**Dr. Arabinda Satpathy**  
Signature of the Examining Authority  
MSE, DPHA, DMCH  
Raidi, Cuttack, Odisha  
Sambalpur  
F. No. 12605/ECMR/75  
Dr ARABINDA SATPATHY  
(Name and Designation in Block letters)

Place :  
Date : 24/8/22

\* Delete whatever is applicable.  
\*\* One copy of the certificate shall be handed over to the person concerned and another copy shall be sent to the \_\_\_\_\_ shall be retained by the examining authority.

## Report of the Examining Authority

(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. 94  
Identification Mark

as result of medical examination on 24/08/22  
Left thumb impression of the candidate



A Blm below on eye

1. General Development : Good/Fair/Poor

2. Height 158 CMS

3. Weight 54 Kg

4. Eyes :

(i) Visual Actuality - Distant vision (with or without glasses)

Right Eye 6/6 Left Eye 6/6

(ii) Any Organic Disease of Eyes :

(iii) Night Blindness :

(iv) Color Blindness :

(v) Squint\*

(\* to be tested in special case)

No

5. Ears :

(i) Hearing Right Ear 15 (dm) Left Ear 20 (dm)

(ii) Any Organic Disease : No

6. Respiratory System :

Chest Measurement

(i) After Full Inspiration 83 cms

(ii) After Full Expiration 78 cms

7. Circulatory System :

Blood Pressure : 118/72 mm/Hg.

Pulse : 76 /min

8. Abdomen :

- Tenderness No
- Liver normal
- Spleen normal
- Tumor No

9. Nervous System :

- History of Fits or epilepsy No
- Paralysis No
- Mental Health

10. Locomotor System : normal

11. Skin :

12. Hernia :

13. Hydrocele : No

14. Any Other Abnormality :

15. Urines :

- Reaction Acidic
- Albumin Nil
- Sugar Nil

16. Skiagram of Chest : WNL

17. Any other "C" test considered necessary by the examining authority. No

18. Any opinion of Specialist considered necessary : No

Dr. Arabinda Satpathy  
MBBS, DPHA, DIH, DMCH

(Signature of the Examining Authority)

Report of Medical Examination Under Mines Rule 29B  
(To be used in continuation with Form 'O')

Certificate No. : 94

Name : Abnagon Xesi

Identification Marks : A Blm bellow on eye brow

Result of Lung Function Test (Spirometry)

Parameters	Predicted Value	Performed Value	% of Predicted
Forced Vital Capacity (FEV)	2.84	2.64	93
Forced Vital Capacity (FEV)	2.33	2.47	106
FEV1/FVC	82.04	93.57	114
Peak Expiratory Flow	2.96	5.07	64

Spirometry Report submitted 4/3

Signature of the Examination Authority

Dr. Arabinda Satpathy

MBBS, DPH, DIH, DMCH

Retd. SHO-MCL, Burla

Sambalpur

Regd. No. 12605/BCMR/75



**Report of Medical Examination as per the recommendations of  
National Safety Conferences in Mines  
(To be used in continuation with Form O)**

Ce  
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5

Certificate No. : 94

Name : Abnayer Key

Identification Marks : A 15 B 1 m on the bellow eye

**1. Cardio Logical Assessment :**

Auscultation	S1	Normal
	S2	Normal
	Additional Sound	nil
Electrocardiograph (12 leads) findings :		Normal / Abnormal

Enclosed ECG *yes*

**2. Neurological Assessment :**

Findings	Normal / Abnormal
Superficial Reflexes	Normal
Deep Reflexes	Normal
Peripheral Circulation	Normal
Vibrational Syndromes	nil

**3. ILO Classification of Chest Radiograph :**

Profusion of Pneumoconiosis opacities Present / Absent	Grade 0/0	Type
---	--------------	------

Enclosed Chest Radiograph *yes*

**4. Audiometry Findings :**

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

Enclosed Audiometry Report *yes*

**5. Pathological / Microbiological Investigations :**

Sl. 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. *yes*

**6. Special Tests for MN exposure :**

Behavioral Disturbances	Present / Not Present	
Speech Defect	Present / Not Present	
Neurological Disturbances	Tremor	Present / Not Present
	Adiadocokinesia	Present / Not Present
	Emotional Changes	Present / Not Present

7. Any other Special Test Required : *NR*

**Dr. Arabinda Satpathy**  
Signature of the Ex. DMCH  
Retd. CMO, MCL, Burla

(FORM - O)

(See rule 29F (2) and 29L.)

Report of Medical Examination under rule 29B

(To be issued in Triplicate)

Certificate No. 85  
 Certified that Shri/Shrimati\* Prabina K. Banik  
 employed as Supervisor in Khatkulabat L&D mines.  
 Form A No. 06 has been examined for an Initial / Periodical medical  
 examination. He/she\* appears to be 43 years of age. The findings of the examining authority are  
 given in the attached sheet. It is considered that Shri/Shrimati\* Prabina K. Banik

- (a)\* is medically fit for any employment/graduate/technician apprentice training in mines,  
 (b)\* is suffering from ..... and is medically unfit for
- (1) any employment in mine or
  - (2) any employment below ground, or
  - (3) 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)*  
 Dr. Arabinda Satpathy  
 Signature of the Examining Authority  
 Reto. ...  
 Bhopalpur  
 Regd. No. 126081BCMR15  
DR. ARABINDA SATPATHY  
 (Name and Designation in Block letters)

Place :  
 Date : 24/8/22

\* Delete whatever is 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.

## Report of the Examining Authority

(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. 85

as result of medical examination on 24.12.22

Identification Mark

Left thumb impression of the candidate

i. A cut mark on L-hand palm



ii. 1. General Development : Good/Fair/Poor

2. Height.....170 CMS

3. Weight.....70 Kg

4. Eyes :

(i) Visual Actuality - Distant vision (with or without <sup>S</sup>glasses).

Right Eye.....6/6 Left Eye.....6/6

(ii) Any Organic Disease of Eyes :

(iii) Night Blindness :

(iv) Color Blindness :

(v) Squint\*

(\* to be tested in special case)

} no

5. Ears :

(i) Hearing Right Ear.....20 (dB) Left Ear 25 dB

(ii) Any Organic Disease :

no

6. Respiratory System :

Chest Measurement

(i) After Full Inspiration.....98 cms

(ii) After Full Expiration.....91 cms

7. Circulatory System :

Blood Pressure : 118/86 mm/Hg

Pulse : 86/min

8. Abdomen :

• Tenderness no

• Liver normal

• Spleen normal

• Tumor no

9. Nervous System :

• History of Fits or epilepsy no

• Paralysis no

• Mental Health

10. Locomotor System :

} normal

11. Skin :

12. Hernia :

13. Hydrocele :

14. Any Other Abnormality :

} no

15. Urines :

• Reaction Acidic

• Albumin Nil

• Sugar Nil

16. Skiagram of Chest : WNL

17. Any other "C" test considered necessary by the examining authority. no

18. Any opinion of Specialist considered necessary : no

Dr. Arabinda Satpathy  
MBBS, DPH, DH, DMCH

(Signature of the Examining Authority)

Place :

**Report of Medical Examination Under Mines Rule 29B**  
(To be used in continuation with Form 'O')

Certificate No. : 85

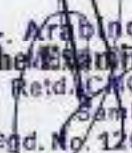
Name : Prabirra Ku Borrick

Identification Marks : H Cent mark on L5 hand palm

**Result of Lung Function Test (Spirometry)**

Parameters	Predicted Value	Performed Value	% of Predicted
Forced Vital Capacity (FEV)	3.41	2.93	86
Forced Vital Capacity 1 FEV1	2.77	2.67	96
FEV1/FVC	81.23	91.13	112
Peak Expiratory Flow	8.74	6.98	80

Spirometry Report enclosed 4/5

  
Signature of the Examination Authority  
Retd. J.C.O.-M.C.L., Burla  
Sambalpur  
Regd. No. 12605/BCMR/75

**Report of Medical Examination as per the recommendations of  
National Safety Conferences in Mines  
(To be used in continuation with Form O)**

Certificate No. : 85

Name : Prabina Ku Barick

Identification Marks : A cut mark on L hand palm

**1. Cardio Logical Assessment :**

Auscultation	S1	normal
	S2	normal
	Additional Sound	nil
Electrocardiograph (12 leads) findings :		Normal / Abnormal

Enclosed ECG *yes*

**2. Neurological Assessment :**

Findings	Normal / Abnormal
Superficial Reflexes	normal
Deep Reflexes	normal
Peripheral Circulation	normal
Vibrational Syndromes	nil

**3. ILO Classification of Chest Radiograph :**

Profusion of Pneumoconiosis opacities	Grade	Types
Present / Absent	0/0	

Enclosed Chest Radiograph *yes*

**4. Audiometry Findings :**

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

Enclosed Audiometry Report *yes*

**5. Pathological / Microbiological Investigations :**

Sl. 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. *yes*

**6. Special tests for MN exposure :**

Behavioral Disturbances		Present / Not Present
Speech Defect		Present / Not Present
Neurological Disturbances	Tremor	Present / Not Present
	Adiadocokinesia	Present / Not Present
	Emotional Changes	Present / Not Present

**7. Any other Special Test Required :** *no*

Dr. Arabinda Satpathy  
MBS, OPA, DIH, DMCH  
Signature of the Ex  
Burla

**Details action plant and budget allocation for CER activities**

Concerns raised during PH	Physical activity & action plan	Particulars	Year of implementation			Total budget
			1 <sup>st</sup> year	2 <sup>nd</sup> year	3 <sup>rd</sup> year	
Issue of displacement and R&R	Mining will not be done in the habited area and therefore no displacement is involved. Land and other compensation will be done as per Land Acquisition Act	Physical Target:				-
		Budget: Rs. Lakh	Budget for Land =Rs. 14.52 Crore Other R&R budget (resettlement allowance, annuity, subsistence etc.) = Rs. 2.37 Crore  Total Budget allocated = Rs. 16.89 Crore  Included in R&R cost			
Regarding employment to local people	Top most priority will be given to the local people based on their academic qualification and eligibility. In addition, skill development (SD) for unemployed local youths through National Skill Development Corporation and Odisha Skill Development Authority. Construction of SD Centre with the necessary infrastructure	Physical target:	Construction of Skill Development Centre/ Vocational training centre building with 6 AC rooms near plant premises. Installation of 20 nos of sewing machines, 10 nos of computer systems, 10 nos of machines for making hand craft items along with necessary raw materials, organizing 6 workshops annually for practical training, provision of qualified trainers, approved course contents, independent 3 <sup>rd</sup> party assessment, equipment, machinery and necessary consumables/ raw materials based on the need of the local people			
		Budget Rs. Lakh	Rs. 150 Lakh (allocated in cement plant PH issue action plan). The skill development centre will be common for cement plant and mines. Bus facility will also be made available for commuting the candidates from mines to plant.			
Regarding appointment of doctor in the health centre and 2 teachers	SCL will ensure availability of doctor in the health centre and will appoint 2	Physical Target:	Company will ensure regular visit of doctor, nurse and mobile health care van to	Appointment of 2 teachers in local school in agreement with state	-	

(Odia & Hindi) in the local private school	teachers in the local school		Kahtkurbahal, Kulenbahal, Phalsakani, Sonbarsa, Gairbahal villages	education deptt.			
		Budget Rs. Lakh	Rs. 20 Lakh	As per requirement	-	<b>Rs. 20 Lakh</b>	
Regarding peripheral development	Establishment of ATM	Physical Target:	Establishment of ATM in village Khatkurbahal	-	-		
		Budget Rs. Lakh	Rs. 5 Lakh	-	-	<b>Rs. 5 Lakh</b>	
	Construction of school	Physical Target:	Construction of 2 schools (middle school and high school) in Khatkurbahal Village				
		Budget Rs. Lakh	Rs. 250 Lakh	Rs. 250 Lakh	-	<b>Rs. 500 Lakh</b>	
	Construction of hospital	Physical Target:	SCL will construct a 20 bed hospital near its cement plant (Telighan) with all the required facilities, doctors, paramedical staff, ambulance and mobile health van etc. The hospital will be open for all.				
		Budget Rs. Lakh	Rs. 300 Lakh Included in cement plant PH issues				
	Construction of public park	Physical Target:	Construction of public park in Panchayat land in village Khatkurbahal. Plantation and garden development, concrete benches and a fountain.				
		Budget Rs. Lakh	Rs. 5 Lakh	Rs. 5 Lakh	Rs. 10 Lakh	<b>Rs. 20 Lakh</b>	
	Village road development	Physical Target:	Construction of cemented road from Patratoli to Phalsakhani main road	Repairing of main village road of 1 km in village Khatkurbahal	Repairing of main village road of 600 M in Kulenbahal		
		Budget Rs. Lakh	Rs. 50 Lakh	Rs. 30 Lakh	Rs. 12 Lakh	<b>Rs. 92 Lakh</b>	
	Providing Bus facility for girls	Physical Target:	25 seater bus for girls of village Khatkurbahal, Kulenbahal, Phalsakani, Sonbarsa and Gairbahal				
		Budget Rs. Lakh	Rs. 20 Lakh	-	-	<b>Rs. 20 Lakh</b>	
	Providing Solar street lights	Physical Target:	10 nos of solar street lights each in village Phalsakani, and Gairbahal (Total 20 nos)	10 nos of solar street lights each in village Khatkurbahal, Kulenbahal (Total 20 nos)	10 nos of solar street lights in village Sonbarsa		
		Budget Rs. Lakh	Rs. 10 Lakh	Rs. 10 Lakh	Rs. 5 Lakh	<b>Rs. 25 Lakh</b>	

	Sanitation	Physical Target:	Construction of public toilets with water facility, 4 nos each in village Khatkurbahal, Kulenbahal (Total 8 nos)	Construction of public toilets with water facility, 4 nos each in village Phalsakani, Sonbarsa and (Total 8 nos)	Construction of public toilets with water facility, 4 nos in village Gairbahal	
		Budget Rs. Lakh	Rs. 4 Lakh	Rs. 4 Lakh	Rs. 2 Lakh	<b>Rs. 10 Lakh</b>
	Drinking water facility in the affected villages	Physical Target:	Construction of 1 bore well with solar pump in Kulenbahal village	Construction of 1 bore well with solar pump in Phalsakani village	Construction of 1 bore well with solar pump in Gairbahal village	
		Budget Rs. Lakh	Rs. 4 Lakh	Rs. 4 Lakh	Rs. 4 Lakh	<b>Rs. 12 Lakh</b>
Regarding separate road for mineral transportation	Company has planned to construct a dedicated road for minerals transportation and its construction will be started soon.	Physical Target:	Construction of concrete road of approx. length 1.5 km connecting mine lease to Kutra road			
		Budget Rs. Lakh	Rs. 400 Lakh (included in EMP cost)			
Regarding difficulty in grazing due to land acquisition by SCL	Company will develop a separate grazing land in the nearby area for grazing of cattle	Physical Target:	Identification and acquisition of suitable land (4 to 5 acres) with the help of Tehsildar and development of grazing land in nearby area i) Fencing of the land area ii) Development of trees and grass			
		Budget Rs. Lakh	Rs. 162 Lakh		<b>Rs. 162 Lakh</b>	
Regarding increase in level of pollution, Poisonous gas emission, respiratory illness, Cement Dust deposits over houses and in agricultural lands, Los of soil fertility	<ul style="list-style-type: none"> <li>• Wet drilling will be adopted</li> <li>• Control blasting will be adopted to reduce vibration</li> <li>• Rocks breakers will be used to avoid secondary blasting</li> </ul>	Physical Target:	The physical targets for the entire activities shall be achieved in 3 years			
		Budget:	Rs. 382 Lakh and recurring cost Rs. 58 Lakh/ annum (included in EMP cost) Included in EMP cost.		-	



<p>and crop productivity, water and noise pollution etc.</p>	<ul style="list-style-type: none"> <li>• Regular water sprinkling will be carried out in dust prone areas</li> <li>• Greenbelt will be developed in and around the lease area</li> <li>• Retaining wall, garland drains and settling pits will be constructed to control water pollution and soil erosion</li> <li>• Surface runoff will be collected in low lying areas, which will be allowed to percolate for ground water recharge.</li> </ul> <p>Adequate dust extraction/ suppression systems will be provided in Crusher Regular monitoring of dust &amp; noise will be done</p>			
<p>Regarding noise and dust pollution due to blasting</p>	<p>Controlled blasting will be done to keep dust, noise and vibrations under control. Rock breaker will be used to avoid secondary Blasting. Blasting will be</p>	<p>Physical target:</p>	<p>All the activities related to blasting and control of dust and noise pollution will be implemented before start of mining. Plantation along the periphery will be developed within 3 years.</p>	
		<p>Budget:</p>	<p>Included in EMP</p>	

	done in day time only.  In addition, a thick greenbelt will be developed around the mine periphery to attenuate the noise levels					
Regarding ground water depletion and water scarcity in the locality due to deep mining and withdrawal of groundwater	Fresh water requirement for drinking and domestic purposes will be only 20 M3/day. Remaining water requirement for plantation and dust suppression will be met from the mine pit water. Company will undertake rainwater harvesting inside and outside lease area.	Physical target:	Rooftop rainwater harvesting at mines office and crusher building	a) deepening of 2 ponds in Khatkurbahal and Phalsakani b) Construction of Roof top RWH structures in 2 school, Anganbadi and Panchayat buildings of Village Khatkurbahal		
		Budget: Rs Lakh	Included in EMP cost	Rs. 10 Lakh	<b>Rs. 10 Lakh</b>	
	Supply of drinking water during summer	Physical target:	Drinking water supply through tankers in nearby villages as per their requirement			
		Budget:	As per requirement			
	Development of drinking water facility	Physical target:	Bore well construction and provision of solar pumps in 3 villages			
		Budget:	Included in Peripheral development			
	Supply of mine pit water to conserve groundwater	Physical target:	Surplus mine pit water will be supplied to villagers for agriculture and cattle			
		Budget:	Included in project cost		-	
			<b>Total budget:</b>			<b>Rs. 876 Lakh</b>

CSR Report of Shiva Cement Ltd.					
S. No.	Activities	Budget	YTD	Achievements	Remarks
	Targeted	(Rs. Lakh)	Spend	Oct'22 to Mar'23	
			(Rs.Lakh)		
<b>A</b>	<b>EDUCATION</b>	<b>20.00</b>	<b>20.00</b>		
A.1	Infrastructure development in Schools	10.00	10.00	200 beds were provided to Girls students of Sarbati Women's College and 100 beds to the Gomardhi girls' Hostel. Inauguration program organized with block & District administration.	Activity completed
A.2	Observing special days	5.00	5.00	Organized Block level and 6 school-level Science, math, and Environment exhibitions to enhance students' knowledge and skills. 570 new project models were developed by the students.	
A.3	Study Material Kit to student	5.00	5.00	Distributed study kits in 5 schools covering 489 students.	Activity completed
<b>B</b>	<b>HEALTHCARE</b>	<b>23.00</b>	<b>23.00</b>		
B.1	Infrastructure development at Hospital	10.00	10.00	Support to Kutra CHC for advanced laboratory lab out, side shade & patient toilet.	Activity completed
B.2	Anti malarial Fogging in DIZ Villages	3.00	3.00		Activity completed
B.3	Mobile Health Camps/Blood Donation Camps	10.00	10.00	Health awareness camps organized in 4 DIZ Village. Around 1023 villagers took the benefit of health check-ups and free medicine from the event. Organized world heart day, 70 elderly people participated in free health checks, BP, and blood sugar tests.	Activity completed
<b>C</b>	<b>LIVELIHOOD</b>	<b>23.00</b>	<b>23.00</b>		
C.1	Providing training on tailoring	6.00	6.00	6 new girls enrolled in embroidery training were provided to 15 new girls.	Activity completed
C.2	Pond cleaning and Fish farming	7.00	7.00	Fish farming with 12 farmers of DIZ village.	Activity completed
C.3	Training, Capacity building and Handholding support to the farmers	6.00	6.00	70 farmers ensured vegetable farming through Drip irrigation	Activity completed
C.4	Mushroom cultivation/Leaf Plate making unit	4.00	4.00	4 SHG members are continuing Mushroom cultivation.	Activity completed
<b>D</b>	<b>RURAL DEVELOPMENT</b>	<b>87.00</b>	<b>87.00</b>		
D.2	Construction of Rural roads & Drainages	10.00	10.00		Activity completed
D.3	Construction of Community Hall	27.00	27.00	One community hall with a kitchen constructed at Bringatoli village.	Activity completed
D.4	Solar water supply	30.00	30.00	05 numbers of tube wells and 5 solar water supplies have been installed in 5 villages, plants, and mines. This project provides benefits to more than 3000 people in the respective village.	Activity completed
D.5	Solar street lights	20.00	20.00	Installed 140 nos. of solar street lights in 25 villages of 6 Gram Panchayats covering plants, mines, and railway siding locations. 3000 people can access the road at night.	Activity completed
<b>E</b>	<b>SPORTS PROMOTION</b>	<b>10.00</b>	<b>10.00</b>		
E.1	Provide sports equipment to rural youth	4.00	4.00	Block-level 15 football championships are organized at High School, Kutra to encourage local young people to showcase their inherent talent. More than 1400 students and youths participated and showed their talent.	Activity completed
E.2	Conduct inter District/ village sports competitions	6.00	6.00	Organized panchayat level Junior and senior Hockey & football trunaments. Support was provided for 25 school annual sports to increase confidence, mental alertness, and self-esteem. Around 7500 students participated and 2000 students were rewarded for their contribution to sports.	Activity completed
<b>F</b>	<b>OVERHEADS</b>	<b>3.00</b>	<b>3.00</b>		
	<b>TOTAL</b>	<b>166.00</b>	<b>166.00</b>		



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# **CSR Update (Apr-2022 to March 2023)**

**Shiva Cement Ltd**

## Activities

- Need assessment of DIZ villages is done
- Support to TB patients in “Pradhan Mantri TB Mukta Bharat Abhiyan”
- “Blood Donation Camp” was organized at Kutra and Telighana
- Support to Kutra CHC for the “Mega Health Mela” program
- “World Heart Day” was organized at Telighana Mangapada
- Free “Eye Care Camps” was Organized at 4 panchayats of Kutra Block and 2 Panchayats of Rajgangpur block
- Advanced Laboratory at Kutra CHC
- Support to 300 beds with mattresses for girls’ school and college students
- “International Literacy Day” was celebrated at 2 schools.
- Observed “Independence Day” at 2 schools and felicitated the Merit Students
- Plantation drive initiated at schools and villages
- Observed “Children’s Day” in 2 school students.
- Support to “Block Level Science and Environment Exhibition”
- Ensure high-value Vegetable cultivation with 80 farmers on 150 acres of land.
- Farmers Mela was organized with our farmers and facilitated good farmers
- Jalachatra is arranged at Kutra and Khatkurbahal markets for providing safe drinking water during summer
- 16 New students enrolled in the tailoring Center and classes are going on
- Strengthen SHG groups through different livelihood Activities like fisheries, tailoring training, and mushroom farming training.

## Activities

- Solar Light was installed in different DIZ villages
- Borewell dug with solar structure facilities for drinking and household use purposes
- Deep Borewell drugged for agriculture purposes
- Cooler cum Freezer installed at Kutra Science and Kandeimunda Panchayat office.
- District Level Boys and Girls Football Tournament was supported by JSW at Kutra high school.
- Support to Panchayat level Hockey and Football tournament
- Support to District level Divyang Cricket Tournament was conducted at Rajgangpur 15 no teams participated
- Support for School annual sports of our DIZ villages.
- Support for different Local Cultural and Traditional Functions

## Meetings with villagers



## Health Activities





## Health Activities



## Education



## Education



## Livelihood Activities



## Activities Photographs



## Activities Photographs



## Activities Photographs



## Farmer Mela





## Rural Development



## Borewell Digging for Drinking and Agriculture



Sanbarsha Makhapada agriculture borewell



Makhapada Agriculture borewell



Sapling distribution AWW



Agriculture Borewell digging



Sanbarsha Patratoli Agriculture Borewell

## Activities photographs



## Fruits Bearing Sapling Distribution



## Livelihood Activities



## Activities photographs



## Glimpses of Sport



Inter-school football tournament



Inter state Dibyang cricket  
Championship Interstate



Inter-school football tournament



Local team grooming



School level sports tournament



Panchayat-level Hockey and football tournament



## Activities Photographs







# Glimpses of Media Coverage



Dainik Bhaskar



Dainik Jagaran



Prabhat Khabar



Dainik Bhaskar



Odisha Today

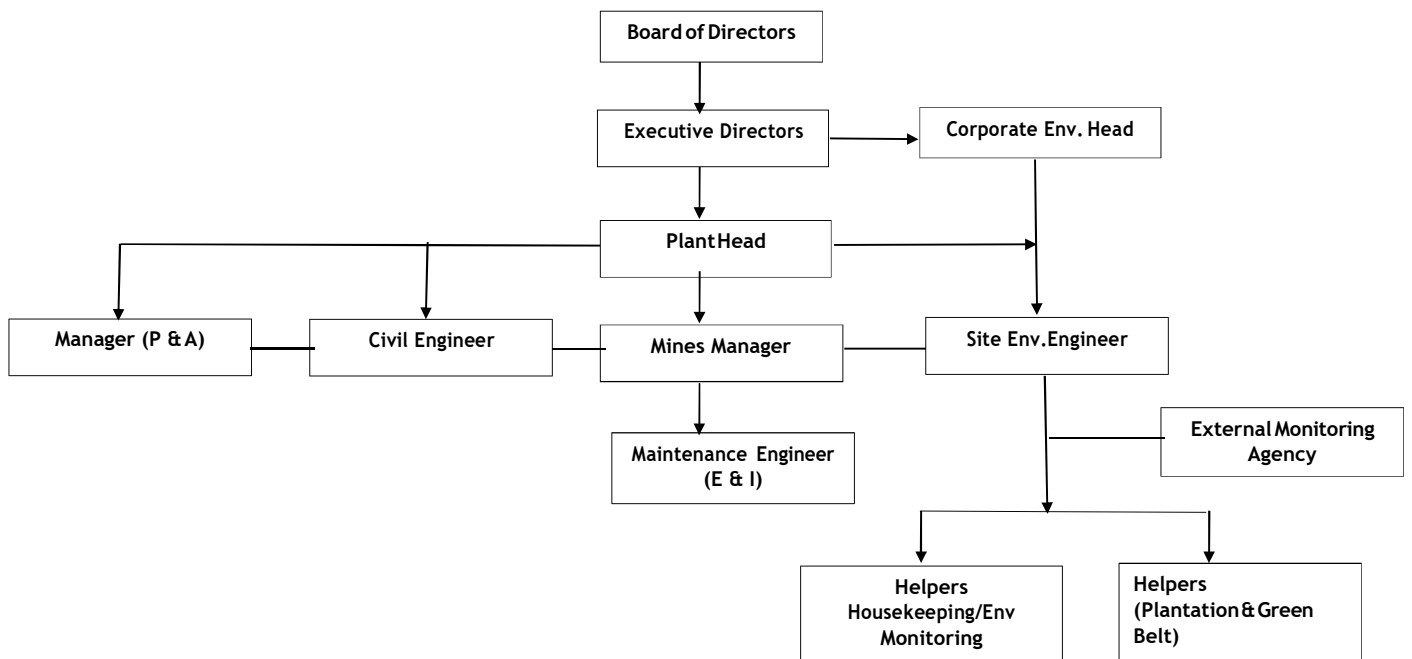


Dharitri



 **THANK YOU**

## ORGANIZATION STRUCTURE OF EMC - Shiva Cement Ltd.



**Annexure-XIX**

**Environment Management Cost Expenditure (Oct'22 to Mar'23)**

<b>Sl. No</b>	<b>Particulars</b>	<b>Expenditure in lacs</b>
1	Electronic display board	3.0
2	Water Tanker for dust suppression	8.4
3	Environmental Monitoring	4.75
4	Housekeeping	5.95
5	Horticulture Expenses	4.46
6	Settling tank, retaining Wall, garland drain etc	8.4
7	Water Sprinkler	15.53
<b>Total</b>		<b>50.49</b>