MINERALS & MINERALS LIMITED

Regd. Office- Court Road, P.O. & Distt.-Lohardaga, Jharkhand-835302 Tel.-06526-223163

CIN NO. U26990JH1970PLC000875

Ref.:	Date
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M&M/LHD/ENV/MoEF&CC/063

Date: 16th May 2025

To,

The Dy. Director General of Forest (C)
Ministry of Environment, Forests and Climate Changes
2nd Floor, Headquarter-Jharkhand State Housing Board
Harmu Chowk, Ranchi, Jharkhand-834002

Sub: Six Monthly EC Compliance Report for Pakhar (109.507 Ha) Bauxite Mining project of M/s Minerals & Minerals Limited, Lohardaga Jharkhand for the period from October 2024 to March 2025.

Ref: Environmental Clearance Letter No. J-11015/518/2008-IA II (M) dated 21st October 2010.

Dear Sir,

With reference to the above, we are submitting herewith the Compliance status report of EC conditions for **Pakhar (109.507 Ha) Bauxite Mining project of M/s Minerals & Minerals Limited**, Lohardaga Jharkhand for the period from **October 2024 to March 2025** for your kind perusal please.

The lease details are below:

Lease area (ha)	Production Capacity (MT)	Lease Period
109.507	280000	26.07.2008 to 25.07.2058

Hope you will find the same in order.

Thanking You

Yours faithfully,

For Minerals & Minerals Limited

Basadev Gangopadhyay

AVP (Planning, Environment & Compliance)

Enclosure: - As Above

CC: <u>ro.ranchi-mef@gov.in</u>, <u>mef@ori.nic.in</u>, <u>mef@nic.in</u>, <u>mef.or@nic.in</u>, <u>mscb.cpcb@nic.in</u>, <u>zokolkatta.cpcb@nic.in</u>, <u>ranchijspcb@gmail.com</u>, <u>roranchi47@gmail.com</u>

: Pakhar Bauxite Mine (109.507 ha) Name of the Project

M/s Minerals & Minerals Limited

Environment Clearance No. & date : J-11015/518/2008-IA.II(M), dated 21.10.2010

Period of compliance Report : From 1st October 2024 to 31st March 2025

Specific Conditions

Condition i: - The project proponent shall obtain Consent to Establish and Consent to Operate from the Jharkhand State Pollution Control Board and effectively implement all the conditions stipulated therein.

Reply: - Implementations of stipulated conditions in NOC are fulfilled post which consent to operate has been granted by SPCB from time to time. The existing consent to operate is valid up to 31.03.2026. Productions of bauxite are within limits specified in consent to operate.

Condition ii: - The environmental clearance is subject to approval of the state land use Department, Government of Jharkhand for diversion of agricultural land for nonagricultural use.

Reply: - Land acquisition is being done with permission of competent authority of State Government i.e. concerned Deputy Commissioner (D.C.) under CNT Act. The land lease agreement is being done with raiyat (Landowner) after permission of State Govt with provision of returning the land as per the norms set by D.C. The compensation and facilities are being provided as per norms set in agreement. Thus, land acquisition has the approval of State Government.

Condition iii: - The mining operation shall be confined to the hill tops only and restricted to above ground water table and it should not intersect the ground water table. In case of working below ground water table, prior approval of the Ministry of Environment & Forests and Central Ground Water Authority shall be obtained, for which a detailed hydro - geological study shall be carried out.

Reply: - Since shallow depth mining is being carried out, hence there is no intersection with the groundwater table. In future also, working zones will be restricted to above ground water table. We undertake that no mining is/was carried out below ground water table and the same status will be maintained in future also.

Moreover, we are regularly monitoring the groundwater table through the installation of a piezometer. A copy of the water level report is attached herewith as **Annexure-1**.

As the water table is not intersected during mining operations, a detailed hydro-geological study is not applicable for this mine.

Condition iv: - The project proponent shall ensure that no natural watercourse and/or water resources are obstructed due to any mining operations. Adequate measures shall be taken for protection of seasonal channels, if any emanating from the mine lease, during the course of mining operation.

Reply: - There is no natural watercourse and / or water resources within the mining lease area. Shallow depth mining methodology is adopted for mining process. Hence, there is no impact of mining operation on natural water course.

Condition v: - The topsoil shall temporarily be stored at earmarked site (s) only and it should not be kept unutilized for long. The topsoil shall be used for land reclamation and plantation.

Reply: - Topsoil is being stacked temporally properly with proper slope as and when required. Sequential backfilling and reclamation of mined out area are being exercised for which topsoil is being spread on backfilled area for reclamation of area. The mining is being carried out as per the approved mining plan. Monitoring and management of rehabilitated areas is being done through effective supervision.

Condition vi: - The over burden (OB) generated shall be temporarily stacked in the earmarked area for a period of one year and thereafter concurrently backfilled. There shall be no external overburden dump. The backfilled area shall be progressively afforested. Monitoring and management of rehabilitated areas should continue until the vegetation becomes self-sustaining. Compliance status should be submitted to the Ministry of Environment & Forests and its Regional Office located at Bhubaneshwar on six monthly basis.

Reply: - Overburden and waste rock are being used for concurrent backfilling, and topsoil is being spread on the backfilled area for reclamation. Currently, there is no OB dump present in the mine lease area. Monitoring and management of rehabilitated areas continues until vegetation becomes self-sustaining through supervision. Data pertaining to backfilling is enclosed as **Annexure 4.** Six monthly compliance reports are being submitted to MoEF&CC regularly.

Condition vii: - The void left unfilled in an area of 0.41 ha shall be converted into water body. The higher benches of excavated void/ mining pits shall be terraced and plantation done to stabilize the slopes. The slopes of higher benches shall be made gentler for easy accessibility by local people to use the water body. Peripheral fencing shall be carried out along the excavated area.

Reply: - Implementation of conditions is in progress. Mining is being carried out in a scientific manner. Rainwater harvesting ponds have been constructed on more than 0.41 hectares of area, and proper fencing has been provided. Necessary measures have been implemented for easy accessibility by local people to use this harvested water.



Rainwater Harvesting Pond

Condition viii: - Catch drains and siltation ponds of appropriate size should be constructed around the mine working, soil and mineral dumps to prevent run off of water and flow of sediments directly into the agricultural fields, the Kisko Nadi, the Sankh Nadi, the Surang River, the Chaupat Nadi and other water bodies. The water so collected should be utilized for watering the mine area, roads, green belt development etc. The drains should be regularly desilted, particularly after monsoon and maintained properly. Garland drain, settling tanks and check dams of appropriate size, gradient and length shall be constructed around the mine pit, topsoil, dumps and the mineral dumps to prevent runoff water and flow sediments directly into the agricultural fields, the Kisko Nadi, the Sankh Nadi, the Surang River, the Chaupat Nadi and other water bodies and sump capacity should be designed keeping 50% safety margin over and above peak sudden rainfall (based on 50 years data) and maximum discharge in the area adjoining the mine site. Sump capacity should also provide adequate retention period to allow proper setting of silt material. Sedimentation pits should be constructed at the corners of the garland drains and desilted at regular intervals.

Reply: - To collect & manage rainwater during monsoon, part of mined out area is used as settling tank for the runoff. Rainwater stored is being used for watering the mine area, roads, green belt development and sprinkling as necessary. Catch drains, Garland drains of appropriate size are being constructed in both around the mine pit to prevent runoff of water and flow of sediments directly into the agricultural field and water bodies, if applicable. Sump of adequate capacity is being provided and maintained as required. The photographs of the same are attached below.





Garland drains

Condition ix: - Dimension of the retaining wall at the toe of the OB benches within the mine to check run-off and siltation should be based on the rainfall data.

Reply: - There is no temporary dump within the mining lease area. However, dimensions of the retaining wall of temporary OB dumps will be maintained based on average rain fall, if required.

Condition x: - Plantation shall be raised in an area of 6.3 ha including a 7.5 m. wide statutory barrier all around the mining lease, reclaimed and rehabilitated areas, around water body, etc. by planting the native species in consultation with the local DFO / Agriculture Department. The density of the trees should be around 2000 plants per ha. Greenbelt shall be developed all along the mine lease area in a phased manner and shall be completed within first five years.

Reply: - Progressive plantation of native species is being carried out in consultation with the local forest department within the safety zone and mining lease. During FY 2024-25, a total of 4950 nos. of saplings have been planted within the mining lease. Cumulative 15.06 ha areas have been planted till date. In addition to these agricultural activities are going on reclaimed land as per consent from landowners.





Plantation at Mines

Condition xi: - Regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of SPM and RSPM such as around crushing and screening plant, loading and unloading point and all transfer points. Extensive water sprinkling shall be carried out on haul roads. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.

Reply:- Regular water sprinkling is being carried out on haul road and in critical areas prone to air pollution. Regular Ambient Air Quality (AAQ) monitoring is being carried out by NABL accredited Laboratory and all parameters are found within the prescribed limit. Monitoring report of AAQ is attached herewith as **Annexure-2.** Photographs of Water Tanker is attached below.



Water Tanker

Condition xii: - 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 maintained.

Reply: - Spring water is being monitored regularly, and Analysis report is attached as **Annexure 2.**

Condition xiii: - The project authority should implement suitable conservation measures to augment ground water resources in the area in consultation with the Regional Director, Central Ground Water Board.

Reply: - Effective measures have already been implemented. A detailed rainwater harvesting plan to augment ground water has been prepared and suitable measures like water harvesting pond etc. are created for augmentation of ground water in the area in consultation with the Central Ground Water Board. The photograph of Rainwater Harvesting Pond is already attached above.

Condition xiv: - Regular monitoring of ground water level and quality should be carried out by establishing a network of existing wells and constructing new piezometers during the mining operation. The periodic monitoring [(at least four times in a year – premonsoon (April-May), monsoon (August), post-monsoon (November) and winter (January) once in each season)] shall be carried out in consultation with the State Ground Water Board/ Central Ground water Authority and the data thus collected may be sent regularly to the Ministry of Environment and Forests and its Regional office Bhubaneshwar, The Central Ground Water Authority and the Regional Director, Central Ground Water Board. If at any stage, it is observed that the ground water table is getting depleted due to the mining activity, necessary corrective measures shall be carried out.

Reply: - We are not using ground water for any mining purpose. Since, Shallow depth mining is being carried out, hence there is no intersection of ground water table during the mining operation at present and in future also. A Piezometer has been installed for monitoring of ground water level. Water level and water quality reports are being sent regular to regional office of Ministry, CGWA/CGWB and JSPCB. The same is attached herewith as **Annexure 1 & 2**. Now, Regional office of MoEF&CC is in Ranchi.



Piezometer

Condition xv: - Appropriate mitigative measures shall be taken to prevent pollution of the Kisko Nadi, the Sankh Nadi, the Surang River, the Chaupat Nadi in consultation with the State Pollution Control Board.

Reply: - We are not discharging any water outside mine lease area. Appropriate mitigative measures have been taken to prevent pollution of nearby water bodies. The drainage system in the mining lease area is designed to collect all rainwater within the lease into the pit/ rainwater harvesting pond only and ensure that water does not flow outside the boundaries of the mine lease under any circumstances.

Condition xvi: - The project proponent shall obtain necessary prior permission of the competent authorities for drawl of requisite quantity of surface water (from natural spring) required for the project.

Reply: - We are not using any water from natural streams/ ground water for mining operation. Rainwater harvesting ponds with proper fencing have been already constructed in the mine premises. Rainwater harvested during the rainy season is being used for sprinkling on haul roads and raising plantation.

However, we have already obtained NOC for extraction of ground water from CGWA/ CGWB for drinking purpose only. The copy of the same NOC and photograph of rainwater harvesting pond are attached below.



NOC for Ground water



Rainwater Harvesting Pond

Condition xvii: - Suitable rainwater harvesting measures on long term basis shall be planned and implemented in consultation with the Regional Director, Central Ground Water Board.

Reply: - Suitable rainwater harvesting measures like harvesting pond have been constructed on long term basis for augmentation of ground water in the area, in consultation with Central Ground Water Board. The photograph of Rainwater Harvesting Pond is attached above.

Condition xviii: - Vehicular emissions shall be kept under control and regularly monitored. Measures shall be taken for maintenance of vehicles used in mining operations and in transportation of mineral within the mine lease up to the stock yard. The mineral transportation within the mine lease shall be carried out through the covered trucks only and the vehicles carrying the mineral shall not be overloaded.

Reply: - To keep vehicular emissions under control, vehicles are periodically checked & repaired. All measures are being taken to control vehicular emission. All vehicles are covered with tarpaulins, and non-overloading guidelines are being followed during transportation of mineral.



Tarpaulins Covered vehicle

Condition xix: - Blasting operation should be carried out only during the daytime. Controlled blasting shall be practiced. The mitigative measures for control of ground vibration and to arrest fly rocks and boulders should be implemented.

Reply: - Blasting time is fixed during Lunch Time i.e. 1.00 PM-2.00 PM. We have control blasting permission. Controlled blasting method is in practice. Ground vibration study has been conducted periodically. Efforts and mitigative measures are being taken to mitigate the impact of the blast.

Condition xx: - Drills shall either be operated with dust extractors or equipped with water injection system.

Reply: - Wet drilling is in practice.



Condition xxi: - Mineral handling area shall be provided with adequate number of high efficiency dust extraction system. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.

Reply: - Water sprinkling is being carried out regularly at mineral handling area, loading and unloading areas to control the dust.

Condition xxii: - Sewage treatment plant should be installed for the colony. ETP shall also be provided for the workshop and wastewater generated during the mining operations.

Reply: - As of now there is no colony within the lease hold. However, Domestic Wastewater generated from mine office area is being collected through individual Septic Tank and followed by Soak Pit.

No wastewater is generated from our mining operation. However, only negligible amount of effluent is being generated from workshop and Oil & grease trap system is already installed for Pakhar group of mines to treat this effluent. The treated water is in close circuit and being reused for washing of vehicle in the workshop. We are not discharging any wastewater outside the mine lease area.

Furthermore, the quality of this treated water is being monitored regularly and the monitoring report is attached herewith as **Annexure 2**.

Condition xxiii: - The project authorities should undertake sample survey to generate data on pre-project community health status within a radius of 1 Km. from proposed mine.

Reply: - As a part of Community Health status check we regularly conduct medical camp in nearby areas.

Condition xxiv: - Pre-placement medical examination and periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly.

Reply: -As a company, we are truly concerned about the health and safety of our on-site workers and in consideration to that, the health examination camps are being setup/scheduled on regularly basis.

Condition xxv: - The land Outsees and land losers/ affected people shall be compensated/ rehabilitation as per the National Policy of Resettlement and Rehabilitation of project Affected Families (NPRR)

Reply: - Land acquisition is being done with the permission of competent authority of State Government i.e. concerned Deputy Commissioner (D.C.) under CNT Act. The land lease agreement is being done with raiyat (Landowner) after permission of State Govt with provision of returning the land as per the norms set by D.C. The compensation and facilities are being provided as per norms set in agreement. Thus, land acquisition has the approval of the State Government.

Condition xxvi: - Door to door sample survey should be undertaken within the impact zone to assess the family-based need of the tribals and it should be appropriately addressed in the CSR activities to be undertaken in the area. An action plan in this regard should be prepared and submitted.

Reply: - As a company, we are deeply committed to enhancing the quality of life for people living in the impact zone area. Therefore, the company's CSR team conducts regular assessments of the family-based needs of the tribals and ensures that their problems are properly addressed.

Condition xxvii: - Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, creche etc. The housing may be in the form of the temporary structures to be removed after the completion of the project.

Reply: - We believe that the wellbeing of all the labours working within the site should be taken care of on a priority basis, so that they can work in a stress-free environment. Therefore, all the necessary infrastructure and basic facilities are being taken care of. Safe drinking water and medical facilities are already provided.

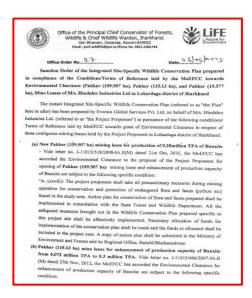
Condition xxviii: - The project proponent shall take all precautionary measures during mining operation for conservation and protection of endangered flora and fauna (python etc.) found in the study area. Action plan for conservation of flora and fauna prepared shall be implemented in consultation with the State Forest and Wildlife Department. All the safeguard measured brought out in the Wildlife conservation plan prepared specific to this project site shall be effectively implemented. Necessary allocation of funds for implementation of the conservation plan shall be made and the funds so allocated shall be included in the project cost. A copy of action plan shall be submitted to the Regional Office of the Ministry of Environment and Forests, Bhubaneswar.

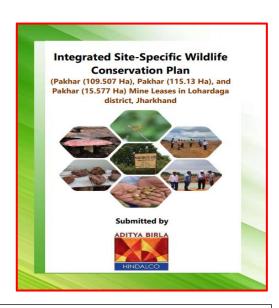
Reply: - Safeguard Measures already implemented and being implemented as suggested by forest department are as follows:

- 1. Minimum level of Noise during Mining.
- 2. Permanent pillars are established within in the mine lease area at 7.5m from the forest boundary.

- 3. Daily water sprinkling on haul road.
- 4. Transportation is carried out during daytime only.
- 5. Maintenance of mineral transportation road is being done regularly.
- 6. Social activities are being undertaken in nearby areas etc.

We have also prepared Integrated Site-specific Wildlife Conservation in consultation with State Forest Department and obtained approval letter from Principal Chief Conservator of Forest, Wildlife & Chief Wildlife Warden, Jharkhand via Office Order No.27 dated 26.05.2023 for conservation and protection of flora and fauna in the core and buffer zone for Pakhar Group of Mines.





Integrated Site-specific Wildlife Conservation for Pakhar Group of Mines

Condition xxix: - The critical parameters such as RSPM (Particulate matter with size less than 10 μm (i.e. PM_{10}) and NO_x in the ambient air within the impact zone, peak particle velocity at 300 m. distance or within the nearest habitation, whichever is closer shall be monitored periodically. Further, quality of discharge water shall also be monitored [(TDS, DO, PH and Total Suspended Solids (TSS)], The monitored data shall be uploaded on the website of the Company as well as displayed on a display board at the project site at a suitable location near the main gate of the Company in Public domain. The Circular no. J-20012/1/2006-IA.II (M) dated 27.05.2009 issued by Ministry of Environment and Forests, which is available on the website of the Ministry www.envfor.nic.in shall also be referred in this regard for its compliance.

Reply: - Noted and being adhered. We have established four ambient air quality monitoring stations in the core zone as well as buffer zone. Monitoring of Ambient Air Quality and Treated Water is being carried out by NABL accredited Laboratory and reported to the concerned authorities. The Monitoring Report is attached herewith as **Annexure 2.** Half-yearly EC compliance along with Environmental monitoring reports is being uploaded on company website regularly.

A Display board is already installed near the mine gate office. We have also installed an online PM10 analyzer at mine site.

Condition xxx: - A Final Mine Closure plan along with details of Corpus Fund should be submitted to the Ministry of Environment & Forest 5 years in advance of final mine closure for approval.

Reply: - Mining Plan along with progressive mine closure plan has been approved by Indian Bureau of Mines. Final Mine Closure Plan will be submitted in due time as per applicable guideline and timelines mentioned in MCDR/IBM guideline who are competent authority to approve the same. Based on present resource estimate and peak rated production capacity mentioned in EC, Mining operation is being carried out.

General Conditions:-

Condition i: - No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment & Forests.

Reply: - Noted.

Condition ii: - No change in the calendar plan including excavation, quantum of mineral bauxite and waste should be made.

Reply: - Calendar plan including excavation, quantum of mineral bauxite and waste is being done as per IBM approved mining scheme and in scientific manner. Data pertaining to excavation, quantum of mineral bauxite etc. are mentioned in report attached as **Annexure 4.**

Condition iii: - At least four ambient air quality-monitoring station should be established in the core zone as well as in the buffer zone for RSPM (Particulate matter with size less than $10~\mu m$ (i.e. PM_{10}) & NO_X monitoring. Location of the stations should be decided based on the metrological data, topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board.

Reply: - We have already established four ambient air quality monitoring stations in the core zone as well as buffer zone. Monitoring is being carried out and reported to the concerned authorities. Monitoring Report is attached as **Annexure 2.**

Condition iv: - Data on ambient air quality RSPM [(Particulate matter with size less than 10 μm i.e. PM_{10} & NO_X] should be regularly submitted to the Ministry including its Regional office located at Bhubneshwar and the State Pollution Control Board / Central pollution Control Board once in six months.

Reply: - Being adhered to. Monitoring Reports for the reporting period are attached as **Annexure-2**. Now, the Regional office of MoEF&CC is in Ranchi.

Condition v: - Fugitive dust emission from all the sources should be controlled regularly. Water spraying arrangements on haul roads, loading and unloading and at transfer points should be provided and properly maintained.

Reply: - Mobile water tanker with sprinkling facility has been provided along haul roads, at loading and unloading areas, and at transfer points to control dust emissions.

Condition vi: - Measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in operation of HEMM, etc. should be provided with ear plug / muffs.

Reply: - Measures are being taken for control of noise levels below 85 dB (A) in the work environment. Workers engaged in operation of HEMM, etc. has been provided with ear plug / muffs. The noise level monitoring is being conducted at a regular interval. The noise level is within the prescribed norms. The report has been attached as **Annexure 2**.

Condition vii: - Industrial wastewater (workshops and wastewater from the mine) Should be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May, 1993 and 31st December,1993 or as amended from time to time. Oil and grease trap should be installed before discharge of workshop effluents.

Reply: - No wastewater is generated from our mining operation. However, only negligible amount of effluent is being generated from workshop and Oil & grease trap system is already installed for Pakhar group of mines to treat this effluent. The treated water is in close circuit and being reused for washing of vehicle in the workshop. We are not discharging any wastewater outside the mine lease area.

Furthermore, the quality of this treated water is being monitored regularly and the monitoring report is attached herewith as **Annexure 2**.

Condition viii: - Personnel working in dusty areas should wear protective respiratory devices and they should also provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.

Reply:- All the workers have been provided with PPEs including dust mask and dust respirators. Apart from PPEs distribution to all workers, we are also providing adequate safety training and conducting awareness session on Safety and health aspects on regular basis. Periodical Occupational health surveillance program of the workers is being carried out and records maintained as per statute.

Condition ix: - 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.

Reply: - A separate environmental management cell with suitable qualified personnel has been set up under the control of a Senior Executive, who is reporting directly to the Head of the Organization. The same is being attached herewith as **Annexure 3**.

Condition x: - The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry and its Regional Office located at Bhubaneshwar.

Reply: - Every year, the funds earmarked for environmental protection measures is being budgeted separately and its expenditure is being reported to the Ministry. The copy of the same is attached as **Annexure 5**. Now, the Regional Office of MoEF&CC is in Ranchi.

Condition xi: - The project authorities should inform to the Regional Office located at Bhubneshwar regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.

Reply: This is an operating mine and hence the provision related to financial closure is not applicable. Now, the Regional office of MoEF&CC is in Ranchi.

Condition xii: - The Regional Office of this Ministry located at Bhubneshwar shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information / monitoring reports.

Reply: - Noted and Agreed. Now, the Regional Office of MoEF&CC is in at Ranchi.

Condition xiii: - The project proponent shall submit six monthly report on the status of the compliance of the stipulated environmental Clearance conditions including results of monitoring data (both in hard copies as well as by e-mail) to the Ministry of Environment and Forests, its Regional Officer, Bhubaneshwar, the respective Zonal office of Central Pollution Control Board the State Pollution Control Board. The proponent shall upload the status of compliance of the Environmental Clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the Ministry of Environment and Forests, Bhubaneshwar, the respective Zonal Office of Central Pollution Control Board and State Pollution Control Board.

Reply: - Six monthly reports on status of compliance of the stipulated environmental clearance conditions including monitoring report are being submitted to the MoEFCC, Zonal office of CPCB & JSPCB, Ranchi and also uploaded on the website of the Hindalco's website. Now, the Regional Office of MoEF&CC is in Ranchi.

Condition xiv: - A copy of clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parisad/ Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the Company by the proponent.

Reply: - Complied. A copy of the clearance letter has already been submitted.

Condition xv: - State Pollution Control Board should display a copy of the clearance letter at the Regional office, District Industry Center and Collector's office / Tehsildar's Office for 30 days.

Reply: - Noted. The EC Letter has been submitted to JSPCB for display of same at its Regional office and other government offices.

Condition xvi: - The environmental statement for each financial year ending $31^{\rm st}$ March in Form – V as is mandated to be submitted by the project proponent to the concerned Stated pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of the compliance of environmental clearance conditions and shall also be

sent to the Regional Office of the Ministry of Environment and Forests, Bhubaneswar by e-mail.

Reply: - Environment statement is being submitted regularly to Member Secretary, JSPCB. Also, the status of compliance of EC conditions is uploaded on the website of the company on a regular basis.

Condition xvii: - The project authorities should advertise at least in two local newspapers widely circulated, one of which locality concerned, within 7days of the issue of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and also at web site of the Ministry of Environment and Forests at http://envfor.nic.in and a copy of the same should be forwarded to the Regional Office of this Ministry located at Bhubaneshwar.

Reply: - Noted and complied. The information on grant of the EC has been published in two local newspapers. The copy of the advertisement has already been submitted to the Regional Office of the MoEF&CC. Now, the Regional office of MoEF&CC is in Ranchi.

Piezometer Monitoring Report

Mine: Pakhar Bauxite Mine (109.507 Ha)

S No	Month	Ground Water Level (BGL) in meter
1	Oct-24	38.78
2	Nov-24	38.87
3	Dec-24	38.9
4	Jan-25	38.65
5	Feb-25	38.77
6	Mar-25	38.80

ENVIRONMENTAL LABORATORIES & ENGINEERING SERVICES PVT. LTD.

Plot No.30, Mansarovar Enclave, Tupudana, Hatia, Ranchi-834003, Jharkhand.

Pakhar (109.507) Bauxite Mine-Environmental Monitoring Report

October 2024



CONTENT

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3	Near Mine Quarry No-K5	
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3	Near Utkarmit Rajkiya Prathmik Vidyalaya Bunglapart Village	
4	Near Utkarmit Rajkiya Prathmik Vidyalaya Dumrapart Village	





PLOT NO-30, MANSAROVAR ENCLAYE, TUPUDANA HATTA, RANCHI-834003 (JHARKHAND) GST NO:- 20A4ECE9713D124

ENGINEERING SERVICES PVT. LTD.

Email: info@elespl.co.in , eles.ranchi@gmail.com

Phone no.: 0651-2290103 Website: www.elespl.co.in



10-13087

TEST REPORT

Test Report No.	: ELES/RNC/2024/6313	Report Release Date	: 26.10.2024	
Work Order No.	: RP/MJB/MM/24/0088/01	Work Order Date	: 30.03.2024	
ULR No.	: TC135872400004196F			

CUSTOMER DET	AILS	SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/7363 : Near Mine Quarry No-K7 Pakhar (109-507 ha) Bauxite Mine
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 18,10,2024 to 19,10,2024 : 21,10,2024 : Ambient Air
Mines Status	: Operational	Type of Sample Sampling Procedure Sampling Done By	: ELES/DOC/SMPL/02 : ELES Pvt. Ltd.
Period of Analysis	: 21.10.2024 to 26.10.2024	Sample Condition	: Sealed & Preserved

MI	ETEOROLOGICAL INFORMATION			
1	Average Temperature (°C) : 29	2	Barometric Pressure (mml-	ig) : 742
	Relative Humidity (%) : 60	/4	Weather Condition	: Clear

Discipline : Chemic	al	Group:	Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	μg/m ³	IS 5182 (Part- 23): 2022	62	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	1S 5182 (Part- 24): 2019	31	60 (24hrs)	
Sulphur Di-Oxide (SO ₂)	µg/m³	(S 5182 (Part- 2/Sec1): 2023	7.9	80 (24hrs)	
Nitrogen Di-Oxide (NO ₂)	μg/m³	IS 5182 (Part- 6): 2022	22.6	80 (24hrs)	
Ozone (O ₃)	μg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)	
Ammonia (NH ₃)	μg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)	
Lead (Pb)	μg/m²	IS 5182 (Part- 22): 2019	0.018	1 (24hrs)	
Nickel (Ni)	ng/m³	IS 5182 (Part- 26); 2020	<6.0	20 (Annual)	
Arsenic (As)	ng/m³	ELES/AIR/SOP/01; 2021	<2.0	06 (Annual)	
Benzene (C ₆ H ₆)	µg/m³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)	
Benzo-(a)-Pyrene	ng/m³	ELES/GC/SOP/05; 2023	<0.5	01(Annual)	

Reviewed by Akash Kumar Quality Manager

****End of Report****

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Authorised Signatory

Dr. Deependra Kumar Sinha

Ph. D. Environmental Engg.

Page 1 of 1 Technical Manager

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TC-1988

TEST REPORT

Test Report No.	: ELES/RNC/2024/6314	Report Release Date	: 26.10.2024	
Work Order No.	: RP/MJB/MM/24/0088/01	Work Order Date	: 30.03.2024	
ULR No.	: TC135872400004197F			

CUSTOMER DET	AILS	SAMPLE DETAILS		
Customer Name	: Minerals & Minerals Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/7364 : Near Mine Quarry No-K9 Pakhar (109.507 ha) Bauxite Mine	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample	: 18.10.2024 to 19.10.2024 : 21.10.2024 : Ambient Air : ELES/DOC/SMPL/02	
Mines Status	: Operational	Sampling Procedure Sampling Done By	: ELES/DOC/SMFL/02	
Period of Analysis	: 21.10.2024 to 26.10.2024	Sample Condition	: Sealed & Preserved	

MI	ETEOROLOGICAL INFORMATION				
23.55	Average Temperature (°C) : 29	2	Barometric Pressure (mmH	g) : 742	
_	Relative Humidity (%) : 60	4	Weather Condition	: Clear	

Discipline : Chemic	al	Group:	Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	µg/m³	IS 5182 (Part- 23): 2022	60	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	29	60 (24hrs)	
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part- 2/Sec1): 2023	7.3	80 (24hrs)	
Nitrogen Di-Oxide (NO ₁)	μg/m³	1S 5182 (Part- 6): 2022	22.8	80 (24hrs)	
Ozone (O ₁)	µg/m³	1S 5182 (Part- 9): 2019	<20.0	100 (8hrs)	
Ammonia (NH ₂)	µg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m³	1S 5182 (Part- 10); 2019 (NDIR Method)	<1.0	2 (8hrs)	
Lead (Pb)	μg/m³	IS 5182 (Part- 22): 2019	< 0.002	1 (24hrs)	
Nickel (Ni)	ng/m³	IS 5182 (Part- 26); 2020	<6.0	20 (Annual)	
Arsenic (As)	ng/m³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)	
Benzene (C ₆ H ₆)	μg/m³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)	
Benzo-(a)-Pyrene	ng/m³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)	

Akash Kumil by Quality Manager

****End of Report****

Authorised Signatory Dr. Deependra Kumar Sinha

Ph. D. Environmental Engo

Page 1 of 1

Technical Manager

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75-1988

TEST REPORT

Test Report No.	: ELES/RNC/2024/6315	Report Release Date	: 26.10.2024	
Work Order No.	: RP/MJB/MM/24/0088/01	Work Order Date	: 30.03.2024	
ULR No.	: TC135872400004198F			

CUSTOMER DET	CUSTOMER DETAILS		
Customer Name	: Minerals & Minerals Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/7365 : Near Mine Quarry No-K5 Pakhar (109.507 ha) Bauxite Mine
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 18.10.2024 to 19.10.2024 : 21.10.2024
Mines Status	: Operational	Type of Sample Sampling Procedure	: Ambient Air : ELES/DOC/SMPL/02
Period of Analysis	: 21.10.2024 to 26.10.2024	Sampling Done By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved

M	ETEOROLOGICAL INFORMATION			
1	Average Temperature (°C) : 29	2	Barometric Pressure (mm)	lg) : 742
_	Relative Humidity (%) : 60	4	Weather Condition	Clear

Discipline : Chemic	al	Group:	Group: Atmospheric Pollution		
Parameter Unit		Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	μg/m³	IS 5182 (Part- 23): 2022	54	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	29	60 (24hrs)	
Sulphur Di-Oxide (SO ₂)	µg/m³	IS 5182 (Part-2/Sec1): 2023	6.3	80 (24hrs)	
Nitrogen Di-Oxide (NO ₂)	μg/m³	IS 5182 (Part- 6): 2022	17.1	80 (24hrs)	
Ozone (O ₁)	μg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)	
Ammonia (NH ₁)	µg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part- 10); 2019 (NDIR Method)	<1.0	2 (Shrs)	
Lead (Pb)	ug/m³	IS 5182 (Part- 22): 2019	0.011	1 (24hrs)	
Nickel (Ni)	ng/m³	15 5182 (Part- 26): 2020	<6.0	20 (Annual)	
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)	
Benzene (C ₆ H ₆)	µg/m³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)	
Benzo-(a)-Pyrene	ng/m³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)	

Reviewed by Akash Kumar

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Authorised Signatory Dr. Deependra Kumar Sinha

Ph. D. Environmental Enga

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Technical Manager

The Discoverst stated as East Report, is record by the Laboratory under General Lermo and Conditions, only on Company Jetter head in pro-approved former. The results shown in the Ton Report reflects the findings done by the Laboratory at the time of insufcement only and refer or valence only as the job interpretation. The Laboratory only. The information waters on the Test Report reflects the facilities down by the Laboratory is respectable for all the information or does provided on the report, except the information which is provided by the cheer. The Report sources he reproduced groups in full and any part of the report is not taken and of content, without prior written approved of the Laboratory. The Report is full or as part shall not be published, advertise, used for any legal actions inflies perior permanent has been secured from the Management of the Laboratory. Attention is drawn to the limitation of the law. All the samples are increased abstractor at Substitution of the committee approaches of the Test Report is unlawful and offendors may be presented to the full set extent of the law. All the samples are retained for Melaya from the Date of Substitution of the Committee approaches to be retained for Melaya from the Date of Fast Report released from the latter within 15 days from the Date of Test Report released from the time period stand before, no compliants will be accepted. The committee and the manifestation and N. A. (Not Applicable). HIM (Below Direction Limit) I.D. (Lower Outcation Limit).



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TEST REPORT

Test Report No.	: ELES/RNC/2024/6316	Report Release Date	: 26.10.2024
Work Order No.	: RP/MJB/MM/24/0088/01	Work Order Date	: 30.03,2024
ULR No.	: TC135872400004199F		

CUSTOMER DET	AILS	SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/7366 : Pakhar Loading Area Pakhar (109.307 ha) Bauxite Mine
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample	: 18.10.2024 to 19.10.2024 : 21.10.2024 : Ambient Air
Mines Status	: Operational	Sampling Procedure	: ELES/DOC/SMPL/02 : ELES Pvt. Ltd.
Period of Analysis	: 21.10.2024 to 26.10.2024	Sampling Done By Sample Condition	: Sealed & Preserved

M	ETEOROLOGICAL INFORMATION			
1	Average Temperature (°C) : 29	2	Barometric Pressure (mm	Hg) : 742
_	Relative Humidity (%) : 60	4	Weather Condition	: Clear

Discipline : Chemic	al	Group :	Group : Atmospheric Pollution		
Parameter Unit		Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	μg/m³	IS 5182 (Part- 23): 2022	69	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	37	60 (24hrs)	
Sulphur Di-Oxide (SO ₂)	µg/m³	IS 5182 (Part-2/Sec1): 2023	10.3	80 (24hrs)	
Nitrogen Di-Oxide (NO ₂)	μg/m ³	IS 5182 (Part- 6): 2022	15.6	80 (24hrs)	
Ozone (O ₁)	µg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)	
Ammonia (NH ₃)	µg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m	IS 5182 (Part- 10); 2019 (NDIR Method)	<1.0	2 (8hrs)	
Lead (Pb)	µg/m³	IS 5182 (Part- 22): 2019	< 0.002	1 (24hrs)	
Nickel (Ni)	ng/m³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)	
Arsenic (As)	ng/m³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)	
Benzene (C ₆ H ₆)	µg/m²	ELES/GC/SOP/06: 2023	<2.5	05(Annual)	
Benzo-(a)-Pyrene	ng/m³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)	

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Quality Manager

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Ph. D. Environmental Engg.

Page 1 of 1

Technical Manager

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TEST REPORT

Test Report No.	: ELES/RNC/2024/6301	Report Release Date	: 26.10.2024	
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024	
ULR No.	: TC135872400004184F			

CUSTOMER DET	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/7351 : Near Bunglapart Village Pakhar Bauxite Mine
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample	: 19.10.2024 to 20.10.2024 : 21.10.2024 : Ambient Air
Mines Status	: Operational	Sampling Procedure	: ELES/DOC/SMPL/02
Period of Analysis	: 21.10.2024 to 26.10.2024	Sampling Done By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved

METEOROLOGICAL INFORMATION			
Average Temperature (*C) : 29	2	Barometric Pressure (mmHg)	: 740
3 Relative Humidity (%) : 58	4	Weather Condition	Clear

Discipline : Chemic	eni in	Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	jug/m ³	IS 5182 (Part- 23): 2022	55	100 (24hrs)	
Particulate Matter (PM2.5)	µg/m²	IS 5182 (Part- 24): 2019	27	60 (24hrs)	
Sulphur Di-Oxide (SO ₂)	µg/m³	IS 5182 (Part-2/Sec1): 2023	8.1	80 (24hrs)	
Nitrogen Di-Oxide (NO ₂)	µg/m²	IS 5182 (Part-6): 2022	19.7	80 (24hrs)	
Ozone (O ₂)	hā/m ₁	1S 5182 (Part- 9): 2019	<20.0	100 (Shrs)	
Ammonia (NH ₃)	μη/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)	
Carbun Monoxide (CO)	mg/m³	IS 5182 (Part-10): 2019 (NDIR Mothod)	<1.0	2 (8hm)	
Lead (Pb)	µg/m²	IS 5182 (Part-22): 2019	0.011	I (24hm)	
Nickel (Ni)	ng/m³	IS 5182 (Part- 26): 2020	< 6.0	20 (Annual)	
Arsenia (As)	ag/m²	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)	
Benzene (C.H.)	jug/m²	ELES/GC/SOP/06: 2023	<2.5	05(Annual)	
Beron-(a)-Pyrene	us,m _p	ELES/GC/SOP/05: 2023	<0.5	03(Annual)	

Seriered by

Axash Kumar Quality Manistras

****End of Report****

Authorised Signatory Dr. Deependra Kumar Sinha ph D Environmental Engg.

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TEST REPORT

Test Report No.	: ELES/RNC/2024/6302	Report Release Date	: 26.10.2024	
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024	
ULR No.	: TC135872400004185F			

CUSTOMER DET	TAILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/7352 : Yatri Shed (Near K-10) Pakhar Baixcite Mine
Address	: Lohardaga, Jharkhand-835392	Sampling Date Sample Received Date Type of Sample	: 19.10.2024 to 20.10.2024 : 21.10.2024 : Ambient Air
Mines Status	: Operational	Sampling Procedure	: ELES/DOC/SMPL/02 : ELES Pvt. Ltd.
Period of Analysis	: 21.10.2024 to 26.10.2024	Sampling Done By Sample Condition	: Sealed & Preserved

M	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 29	2	Barometric Pressure (mmHg)	: 740
3	Relative Humidity (%)	: 58	4	Weather Condition	Clear

Discipline : Chemic	ini ini	Group:	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit			
Particulate Matter (PM10)	pg/m ³	IS 5182 (Part- 23): 2022	59	100 (24hrs)			
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	28	60 (24hrs)			
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2/Sec1): 2023	7.4	89 (24hrs)			
Nitrogen Di-Oxide (NO ₂)	µg/m³	IS 5182 (Part- 6): 2022	19.1	80 (24hrs)			
Ozone (O ₂)	ug/m1	IS 5182 (Part- 9): 2019	<20.0	100 (Sirs)			
Ammonia (NH ₃)	µg/m ⁵	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)			
Carbon Monoxide (CG)	mg/m³	IS 5182 (Part- 10): 2019 (ND)R Method)	<1.0	2 (8hm)			
Lend (Pb)	µg/m²	1S 5182 (Part- 22): 2019	<0.002	I (24hn)			
Nickel (Ni)	ng/m	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)			
Amenic (As)	ngimi	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)			
Benzene (C ₄ H ₄)	µg/m²	ELES/GC/SOP/06: 2023	<2.5	05(Annial)			
Benzo-(a)-Pyrene	hig/m	ELES/GC/SOP/05: 2023	<0.5	Ø1(Annuel)			

AKSSYRUHLIV Quality Manager

****End of Report****

Dr. Deependra Kumar Sinha Ph. D. Environmental Engg.

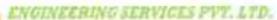
Technical Manager

Page 1 of 1

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TEST REPORT

Test Report No.	: ELES/RNC/2024/6303	Report Release Date	: 26.10,2024
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC135872400004186F		

CUSTOMER DET	AILS	SAMPLE DETAILS	
Customer Name	: Flindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/7353 : Near Utkarmit Rajkiya Prathmik Vidyalaya Bunglapurt Village Pakhir Bauxite Mine
Address	: Lohardaya, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample Sampling Procedure	: 19.10.2024 to 20.10.2024 : 21.10.2024 : Ambient Air : ELES/DOC/SMPL/02
Mines Status	: Operational	Sampling Done By	: ELES Pvt. Ltd.
Period of Analysis	: 21.10.2024 to 26.10.2024	Sample Condition	Sealed & Preserved

METEOROLOGICAL INFOR	MATION			
1 Average Temperature (°C)	:29	-2	Barcametric Pressurt (mmHg)	:740
3 Relative Humidity (%)	: 58	4	Weather Condition	: Clear

Discipline: Chemic	cai	Group:	Atmospheric)	Pollution
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	hitan _i	IS 5182 (Part- 23); 2022	52	100 (24hrs)
Particulate Matter (PM2.5)	µg/m³	IS 5182 (Part-24): 2019	31	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m³	IS 5182 (Part- 2/Sec1): 2023	7.3	80 (24hrs)
Nivogen Di-Oxide (NO ₂)	µg/m³	18 5182 (Purt- 6): 2022	18.7	80 (24hm)
Ozune (O ₃)	milyu ₂	IS 5182 (Part- 9): 2019	<20.0	(00 (8hrs)
Ammonia (NH ₃)	µg/m²	15 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ²	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8105)
Lend (Pb)	μ <u>i</u> y/m³	IS 5182 (Part-22): 2019	0.001	1 (24hrs)
Nicial (Ni)	11g/m³	15.5182 (Part- 26): 2020	<6.0	20 (Annual)
Amenic (As)	reg/m²	ELES/AIR/SOP/01: 2021	<2.6	06 (Annual)
Berzene (C _i H ₄)	µg/m²	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(x)-Pyrane	ng/m³	ELES/GC/SOP/05: 2023	<0.5	Ø1(Annual)

Reviewed by Alcash Kumar

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARRHAND) 337 NOV-300485087180124



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19-mt

TEST REPORT

Test Report No.	: ELES/RNC/2024/6304	Report Release Date	: 26.10.2024	
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024	
ULR No.	: TC135872400004187F			

CUSTOMER DET		SAMPLE DETAILS	
Customer Name	: Hindulco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/7354 : Near Utkarmit Rajkiya Prathmik Vidyalaya Dumrapart Village Pakhar Bauxite Mine
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample	: 19.10.2024 to 20.10.2024 : 21.10.2024 : Ambient Air
Mines Stanzs	: Operational	Sampling Procedure	: ELES/DOC/SMPL/02
Period of Analysis	: 21.10.2024 to 26.10,2024	Sampling Done By Sample Condition	: ELES Pvt. Ltd. : Senled & Preserved

M	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 29	2	Barometric Pressure (mmHg)	: 740
3	Relative Humidity (%)	: 58	4	Weather Condition	: Clear

Discipline : Chemic	lar	Group:	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit			
Particulate Matter (PM10)	µg/m ¹	IS 5182 (Part- 23): 2022	57	100 (24hrs)			
Particulate Matter (PM2.5)	µg/m²	IS 5182 (Part- 24): 2019	29	60 (24hrs)			
Sulphur Di-Oxide (SO ₂)	µg/m³	IS 5182 (Part- 2/Sec1): 2023	6.8	80 (24hrs)			
Nitrogen Di-Oxide (NO ₂)	11g/m ³	IS 5182 (Part- 6): 2022	18.2	80 (24hm)			
Ozoite (O ₁)	μ <u>ψ</u> /π. ^t	IS 5182 (Part- 9): 2019	<20.0	100 (Shrs)			
Anunonia (NH ₃)	pg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hni)			
Carbon Monoxide (CO)	mg/m ²	IS 5182 (Part- (0): 2019 (NDIR Method)	<1.0	2 (8hrs)			
Losif (Pb)	ug/m	IS 5182 (Part- 22): 2019	0.012	1 (24hrs)			
Nickel (Ni)	rug/m²	IS 5182 (Pert- 26): 2020	<6.8	20 (Annual)			
Arsenic (As)	numin'	ELES/AIR/SOP/01: 2021	<.0	06 (Annual)			
Bennene (C,FL)	pg/m*	ELES/GC/SOP/06: 2023	<2.5	05(Annual)			
Benzo-(a)-Pyrene	ng/m ^a	ELES/GD/SOPA%: 2023	<0.5	01(Annual)			



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Figs 1 of 1

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ENVIRONMENTAL LABORATORIES & ENGINEERING SERVICES PVT. LTD.

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Plot No.30, Mansarovar Enclave, Tupudana, Hatia, Ranchi-834003, Jharkhand.

Pakhar (109.507) Bauxite Mine-Environmental Monitoring Report

November 2024



CONTENT

	Minerals & Minerals : Pakhar (109,507) Environmental Monitoring Report	November 2024
	Pakhar (109.507)	
	AMBIENT AIR QUALITY- CORE ZONE	
1	Near Mine Quarry No-K7	
2	Near Mine Quarry No-K9	
3	Near Mine Quarry No-K5	
4	Pakhar Loading Area	
	AMBIENT AIR QUALITY- BUFFER ZONE	
1	Near Bunglapart Village	
2	Yatri Shed (Near K-10)	A -
3	Near Utkarmit Rajkiya Prathmik Vidyalaya Bunglapart Village	
4	Near Utkarmit Rajkiya Prathmik Vidyalaya Dumrapart Village	
	Drinking Water	





PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:-20AAECE9713D1Z4

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TEST REPORT

Test Report No.	: ELES/RNC/2024/7153	Report Release Date	: 04.12.2024	
Work Order No.	: RP/MJB/MM/24/0088/01	Work Order Date	: 30.03.2024	
ULR No.	: TC135872400005019F			

CUSTOMER DET	AILS	SAMPLE DETAILS		
Customer Name	: Minerals & Minerals Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/8288 : Near Mine Quarry No-K7	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	Pakhar (109.507 ha) Bauxite Mine : 24.11.2024 to 25.11.2024 : 28.11.2024	
Mines Status	: Operational	Type of Sample Sampling Procedure	: Ambient Air : ELES/DOC/SMPL/02	
Period of Analysis	: 28.11.2024 to 04.12.2024	Sampling Done By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved	

MI	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	; 22	2	Barometric Pressure (mmHg)	: 740
3	Relative Humidity (%)	: 49	4	Weather Condition	: Clear

Discipline : Chemie	cal	Group:	Group: Atmospheric Pollution		
Parameter Unit		Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	μg/m³	IS 5182 (Part- 23): 2022	67	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	39	60 (24hrs)	
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2/Sec1): 2023	12.3	80 (24hrs)	
Nitrogen Di-Oxide (NO ₂)	μg/m ³	IS 5182 (Part- 6): 2022	25.8	80 (24hrs)	
Ozone (O ₃)	μg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)	
Ammonia (NH ₃)	μg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part- 10): 2019 (NDIR Method)	1.22	2 (8hrs)	
Lead (Pb)	μg/m ³	IS 5182 (Part- 22): 2019	0.029	1 (24hrs)	
Nickel (Ni)	ng/m³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)	
Arsenic (As)	ng/m³	ELES/AIR/SOP/01; 2021	<2.0	06 (Annual)	
Benzene (C ₆ H ₆)	μg/m³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)	
Benzo-(a)-Pyrene	ng/m³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)	

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Reviewed by

****End of Report****

Authorised Signatory

Akash Kumar

Page 1 of 1

Page 1 of 1

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TC-13687

TEST REPORT

Test Report No.	: ELES/RNC/2024/7154	Report Release Date	: 04.12.2024	
Work Order No.	: RP/MJB/MM/24/0088/01	Work Order Date	: 30.03.2024	
ULR No.	: TC135872400005020F			

CUSTOMER DET	AILS	SAMPLE DETAILS		
Customer Name	: Minerals & Minerals Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/8289 : Near Mine Quarry No-K9 Pakhar (109.507 ha) Bauxite Mine	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 24.11.2024 to 25.11.2024 : 28.11.2024	
Mines Status	: Operational	Type of Sample Sampling Procedure	: Ambient Air : ELES/DOC/SMPL/02	
Period of Analysis	: 28.11.2024 to 04.12.2024	Sampling Done By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved	

M	METEOROLOGICAL INFORMATION					
1	Average Temperature (*C) : 22	2	Barometric Pressure (mmHg)	: 740		
3	Relative Humidity (%) : 49	4	Weather Condition	: Clear		

Discipline : Chemic	cal	Group:	Atmospheric	Pollution
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	μg/m³	IS 5182 (Part- 23): 2022	78	100 (24hrs)
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	42	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part- 2/Sec1): 2023	13.7	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	μg/m³	IS 5182 (Part- 6): 2022	32.3	80 (24hrs)
Ozone (O ₁)	µg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₂)	µg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part- 10): 2019 (NDIR Method)	1.09	2 (8hrs)
Lead (Pb)	μg/m³	IS 5182 (Part- 22): 2019	0.016	1 (24hrs)
Nickel (Ni)	ng/m³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m²	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

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****End of Report****

Authorised Signatory Akush Kumar

enality. Manager

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TC-13887

TEST REPORT

Test Report No.	: ELES/RNC/2024/7155	Report Release Date	: 04.12.2024	
Work Order No.	: RP/MJB/MM/24/0088/01	Work Order Date	: 30.03.2024	
ULR No.	: TC135872400005021F			

CUSTOMER DET	AILS	SAMPLE DETAILS		
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2024/AA/8290	
		Location	: Near Mine Quarry No-K5 Pakhar (109,507 ha) Bauxite Mine	
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 24.11.2024 to 25.11.2024	
		Sample Received Date	: 28.11.2024	
		Type of Sample	: Ambient Air	
Mines Status	: Operational	Sampling Procedure	: ELES/DOC/SMPL/02	
Period of Analysis	- 29 11 2024 04 12 2024	Sampling Done By	: ELES Pvt. Ltd.	
renod of Analysis	: 28.11.2024 to 04.12.2024	Sample Condition	: Sealed & Preserved	

M	METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 22	2	Barometric Pressure (mmHg)	: 740	
3	Relative Humidity (%)	: 49	4	Weather Condition	Clear	

Discipline : Chemic	cal	Group:	Group: Atmospheric Pollution		
Parameter Unit		Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	μg/m³	IS 5182 (Part- 23); 2022	69	100 (24hrs)	
Particulate Matter (PM2.5)	µg/m³	IS 5182 (Part- 24): 2019	38	60 (24hrs)	
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part- 2/Sec1): 2023	12,4	80 (24hrs)	
Nitrogen Di-Oxide (NO ₂)	μg/m³	IS 5182 (Part- 6): 2022	33.1	80 (24hrs)	
Ozone (O ₃)	µg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)	
Ammonia (NH ₃)	μg/m²	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m³	1S 5182 (Part- 10): 2019 (NDIR Method)	1.26	2 (8hrs)	
Lead (Pb)	µg/m³	IS 5182 (Part- 22): 2019	0.021	1 (24hrs)	
Nickel (Ni)	ng/m³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)	
Arsenic (As)	ng/m³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)	
Benzene (C _s H _s)	µg/m³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)	
Benzo-(a)-Pyrene	ng/m³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)	

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Akash Kumar

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The formation which is provided on the report, except the atformation which is provided by the claim. The Report control be reported out of the angle of the Laboratory. The Report in full and any part of the report is not taken out of centeral, without price sortion approval of the Laboratory. The Report in the limitation of liability, compensation and produces to the Control of t returned for Mileys from the Date of referencement of the Tool Report. The samples from Regulatory bodies are to be retained as specified. Any type of Observations or Complaints capaciting the Reports shall be done within 15days from the Date of Test Report relaxabilities of Cast Report is no 3 flower format. Abbreviation used NA (Not Applicable), BDL (Below Detection Limit), LDL (Lower Detection Limit).



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TC-13587

TEST REPORT

Test Report No.	: ELES/RNC/2024/7156	Report Release Date	: 04.12.2024	
Work Order No.	: RP/MJB/MM/24/0088/01	Work Order Date	: 30.03.2024	
ULR No.	: TC135872400005022F			

CUSTOMER DET		SAMPLE DETAILS		
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2024/AA/8291	
		Location	: Pakhar Loading Area	
	Au		Pakhar (109.507 ha) Bauxite Mine	
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 24.11.2024 to 25.11.2024	
		Sample Received Date	; 28.11.2024	
		Type of Sample	: Ambient Air	
Mines Status	: Operational	Sampling Procedure	: ELES/DOC/SMPL/02	
Posind of Australia	- 28 11 2024 - 04 12 2024	Sampling Done By	: ELES Pvt. Ltd.	
Period of Analysis	: 28.11.2024 to 04.12.2024	Sample Condition	: Sealed & Preserved	

MI	ETEOROLOGICAL INFOR	RMATION			
1	Average Temperature (°C)	: 22	2	Barometric Pressure (mmHg)	: 740
3	Relative Humidity (%)	: 49	4	Weather Condition	: Clear

Discipline: Chemic	enl	Group:	Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	μg/m³	IS 5182 (Part- 23); 2022	76	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	43	60 (24hrs)	
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part- 2/Sec1): 2023	13.7	80 (24hrs)	
Nitrogen Di-Oxide (NO ₂)	μg/m³	IS 5182 (Part- 6): 2022	28.2	80 (24hrs)	
Ozone (O ₁)	μg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)	
Ammonia (NH ₃)	μg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part- 10): 2019 (NDIR Method)	1.15	2 (8hrs)	
Lead (Pb)	μg/m³	IS 5182 (Part- 22): 2019	0.019	1 (24hrs)	
Nickel (Ni)	ng/m³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)	
Arsenic (As)	ng/m³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)	
Benzene (C ₆ H ₆)	µg/m³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)	
Benzo-(a)-Pyrene	ng/m³	ELES/GC/SOP/05: 2023	<0.5	OI(Annual)	

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****End of Report****

Authorised Signatory Axash Kumar

Contity Manager

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PLOT NO-30, MANSAROVAE SVIZAVE, TUPLIDANA HATIA, RANCHI-834003 (JHARKKAND) GSY NO:- 20AAECE97130124

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TEST REPORT

Test Report No.	: ELES/RNC/2024/7041	Report Release Date	: 02.12.2024
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC135872400004910F		

CUSTOMER DET	AILS	SAMPLE DETAILS	
Customer Name	: Hindeleo Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/8247 : Near Bunglapart Village Pakhar Bauxite Mine
Address	: Lohardage, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample	: 23.11.2024 to 24.11.2024 : 25.11.2024 : Ambient Air
Mines Status	: Operational	Sampling Procedure	: ELES/DOC/SMPL/02
Period of Analysis	: 25.11.2024 to 02.12.2024	Sampling Done By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved

MI	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (9C)	:25	2	Barometric Pressure (mntHg	3) : 740
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear

Discipline: Chemic	cal	Group:	Atmospheric !	Pollution
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Paniculare (visues (PM10)	µg/m	15 J 182 (Pmt-25): 2022	άü	100 (24105)
Particulate Matter (PM2.5)	μg/m³	IS-5182 (Part- 24): 2019	32	60 (24hrs)
Suiphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2/Sec1); 2023	11.4	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m³	IS 5182 (Part- 6): 2022	22,8	80 (24hrs)
Ozone (O ₁)	pg/m ³	IS 5182 (Part- 9); 2019	<20.6	100 (8hrs)
Ammonia (NH ₂)	μg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24brs)
Carbon Monoxide (CO)	mg/m²	IS 5182 (Part-10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m³	IS 5182 (Part- 22): 2019	0.016	I (24hrs)
Nickel (Ni)	ng/m³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenie (As)	ng/m³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C ₄ H ₄)	µg/m²	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m³	ELES/GC/SOP/05: 2023	< 0.5	01(Annual)

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****End of Report****

Authorised Signatory Akaon Kumar

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Page 1 of 1

The Decement stand as Test agent, or well a results of the control estimated for Millings from the Diagram of referentiation of the National Support. The varieties from Regulatory Station are to be intermed as specified. After type of Observations or Complaints organizing the Report which be since within 1 May a from the Day of Ton Report relational data the time gravital stated before, no complaints will be accepted. The same Time schedule monitorial in Test Report to in 2 Record Format Advantation and No. A Observation BDL (Refers Detection Lines), LDL (Leoner Detection Lines).



PLOTING-BIL MANSAROVAR ENCLAVE, TUPLICANA HATIA, RANCHI-B3400\$ [JHARKHAND] 65T NO:- 20AAECE973BD1ZA

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TEST REPORT

Test Report No.	: ELES/RNC/2024/7042	Report Release Date	: 02.12.2024
Work Order No.	: 13612312113	Work Order Date	: 28.63.2024
ULR No.	: TC135872400004911F		

CUSTOMER DET	AILS	SAMPLE DETAILS	
Customer Name	: Hindulco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/8248 : Yatri Shed (Near K-10) Pakhar Bauxite Mine
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample	: 23,11,2024 to 24,11,2024 : 25,11,2024 : Ambient Air
Mines Status	: Operational	Sampling Procedure	: ELES/DOC/SMPL/02
Period of Analysis	: 25.11.2024 to 02.12.2024	Sampling Done By Sample Condition	ELES Pvt. Lad. Sealed & Preserved

METEOROLOGICAL INFORMATION Average Temperature (°C) : 25 Barometric Pressure (mmHg) :740 Relative Humidity (%) 4 Weather Condition : 48 : Clear

Discipline : Chemic	catl	Group:	Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Paniculme Maner (PMT0)	µgm¹	IS 5182 (Part-23): 2022	04	100 (24lus)	
Particulate Matter (PM2.5)	µg/m³	1S 5182 (Part- 24); 2019	32	60 (24hrs)	
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part- 2/Sec1): 2023	10.8	80 (24hrs)	
Nitrogen Di-Oxide (NO ₂)	µg/m³	IS 5182 (Part- 6): 2022	22.2	80 (24hrs)	
Ozone (O ₃)	µg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)	
Ammonia (NH ₂)	μg/m³	IS 5182 (Part- 25); 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part- 10): 2019 (NDIR Method)	1.68	2 (8hrs)	
Lead (Pb)	µg/m	1S 5182 (Part- 22): 2019	<0.002	1 (24hrs)	
Nickel (Ni)	ng/m ³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)	
Arsenic (As)	ng/m*	ELES/AJR/SOP/01: 2021	<2.0	06 (Annual)	
Benzene (C ₅ H _E)	μg/m³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)	
Benzo-(a)-Pyrene	ng/m ³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)	

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****End of Report****

Authorised Signatory

Akush Kumar

Page Lef 1

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ENVIRONMENTAL LABORA

FEOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834069 (JHARICHAND) GST NO:- 20AAECEST130120

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PE UPONOPHISTER FORESTS

TEST REPORT

Test Report No.	: ELES/RNC/2024/7043	Report Release Date	: 02.12.2024	
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024	
ULR No.	: TCI35872400004912F			

CUSTOMER DET	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/A.A/8249 : Neur Utkarmit Rajkiya Prathmik Vidyalaya Bunglapart Village Pakhar Bassite Mine	
Address Mines Status	: Lohardaga, Jharkhand-835392 : Operational	Sampling Date Sample Received Date Type of Sample Sampling Procedure	: 23.11.2024 to 24.11.2024 : 25.11.2024 : Ambient Air : ELES/DOC/SMPL/02	
C17772000-11715A	L'III CICLIADAN	- Sampling Done By	: ELES Pvt. Ltd. : Sealed & Preserved	
Period of Analysis	: 25.11.2024 to 02.12.2024	Sample Condition		

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BARRY STATE	74734267	CRETTER STATE	LINFORM	A THEFT AND T
TREES & GA	JIPCCHI.	J.PL+13Pk1	L. 2747 4 224 W.	PL 1.15.114

3177	TOTAL STREET OF THE STREET OF				
, 1	Average Temperature (°C) : 25	2	Barometric Pressure (mmHg)	: 740	
3	Relative Humidity (%) : 48	-4	Weather Condition	: Clear	

Discipline : Chemic	al	Group: Atmospheric Pollution			
Perameter	Telf	Test Protocol	Denti	Regulatory Limit	
Particulate Matter (PM10)	μg/m ³	IS 5182 (Part-23): 2022	63	100 (24hrs)	
Particulate Matter (PM2.5)	µg/m³	IS 5182 (Part- 24): 2019	35	60 (24hrs)	
Sulphur Di-Oxide (SO ₁)	μg/m³	IS 5182 (Part- 2/Sec1); 2023	9.7	80 (24hrs)	
Nitrogen Di-Oxide (NO ₂)	μg/m³	IS 5182 (Part- 6): 2022	22.1	80 (24hrs)	
Ozone (O ₁)	µg/m³	IS 5182 (Part-9): 2019	<20.0	100 (8hrs)	
Ammonia (NH ₅)	µg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m	1S 5182 (Part- 10); 2019 (NDIR Method)	<1.0	2 (8hrs)	
Lead (Pb)	µg/m [®]	15 5182 (Part- 22): 2019	0.008	1 (24hrs)	
Nickel (Ni)	ng/m³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)	
Arsenic (As)	ng/m³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)	
Benzene (C ₆ H ₆)	μg/m ¹	ELES/GC/SOP/06: 2023	<2.5	05(Annual)	
Berizo-(a)-Pyrene	ng/m³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)	

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****End of Report****

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Page 1 of 1

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TEST REPORT

Test Report No.	: ELES/RNC/2014/7044	Report Release Date	: 02.12.2024	
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024	
ULR No.	: TC135872400004913F			

CUSTOMER DET		SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/8250 : Near Utkarmit Rajkiya Prathmik Vidyalaya Dumrapart Village Pakhar Bauxite Mine	
Address	: Lohardaga, Harkhand-835302	Sampling Date Sample Received Date Type of Sample	: 23.11.2024 to 24.11.2024 : 25.11.2024 : Ambient Air	
Mines Status	Sampling Done By		ELES/DOC/SMPL/02	
Period of Analysis		: ELES Pvt. Ltd. : Sealed & Preserved		

METEOROLOGICAL INFORMATION

1793	A DATE OF THE PARTY OF THE PART			
1	Average Temperature (°C) : 25	2	Barometric Pressure (mm)	lg) : 740
3.	Relative Hamidity (%) :48	4	Weather Condition	: Clear

Discipline: Chemic	al	Group:	Atmospheric	Pollution
Parameter	Unit	Test Protects	Recutt	Regulatory Limit
Particulate Matter (PM10)	µg/m³	IS 5182 (Part- 23): 2022	66	100 (24hrs)
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	38	60 (24hrs)
Sulphur Di-Oxide (SO ₅)	μg/m³	IS 5182 (Part- 2/Sec1): 2023	9.7	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	μg/m³	IS 5182 (Part- 6); 2022	20.2	80 (24hrs)
Ozone (O ₅)	μg/m ⁸	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	μg/m ³	IS 5182 (Part-25); 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m³	1S 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m³	IS 5182 (Part- 22): 2019	0.009	I (24hrs)
Nickel (Ni)	ng/m³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C ₆ H _d)	μg/m ³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

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****End of Report****

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Alcouly Kumar

Page Lof I

Quality Manager

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TEST REPORT

Test Report No.	: ELES/RNC/2024/7175	Report Release Date	: 05,12,2024	
Work Order No.	: RP/MJB/MM/24/0088/01	Work Order Date	: 30.03.2024	
ULR No.	: TC135872400005039F			

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Minerals & Minerals Limited	Sample Ref. No. Sampling Date Sample Received Date Type of Sample	: ELES/RNC/2024/DW/8300 : 25.11.2024 : 28.11.2024 : Drinking Water	
Address	: Lohardaga, Jharkhand-835302	Source of Sample Location of Sample	: Tap Water : Mines Site	
Mines Status	: Operational	Sampling Procedure	Pakhar Bauxite Mine (109.507ha) : ELES/DOC/SMPL/01	
Period of Analysis	: 28.11.2024 to 04.12.2024	Sampling Done By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved	

Discipline : Chemical		Group:	Water		ory Limit
Parameter	Unit	Test Protocol	Result	Acceptable Limit	10500:2012 Permissible Limit
pH (at 24.8 °C)	,tt	APHA 24th Ed.2023, 4500-H	6.79	6.5-8.5	No Relaxation
Turbidity	NTU	APHA 24th Ed.2023, 2130 B	0.10	1.0	5.0
Taste	· ·	APHA 24th Ed.2023, 2160 C	Agreeable	Agreeable	Agreeable
Odour	·*:	IS 3025 (Part-5) :2018	Agreeable	Agrecable	Agreeable
Colour	Hazen	APHA 24th Ed.2023, 2120B&D	1.5	5.0	15
Total Dissolved Solids (TDS)	mg/L	APHA 24th Ed.2023, 2540B,C&D	68.6	500	2000
Chloride (as Cl)	mg/L	APHA 24th Ed.2023, 4500 CI B	12.6	250	1000
Fluoride (as F)	mg/L	APHA 24th Ed.2023, 4500 F-D	BDL (DL: 0.1)	1.0	1.5
Total Alkalinity (as CaCO ₃)	mg/L	APHA 24 th Ed.2023, 2320 B	28.8	200	600
Total Hardness (as CaCO ₃)	mg/L	APHA 24th Ed.2023, 2340 C	74.0	200	600
Sulphate (as SO _i)	mg/L	APHA 24th Ed.2023, 4500 SO ₄ -2-E	5.20	200	400
Nitrate (as NO ₃)	mg/L	APHA 24th Ed.2023, 4500 NO ₃ -B	2.16	45	No Relaxation

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TO A SERT

TEST REPORT

Test Report No. : ELES/RNC/2024/7175 Report Release Date : 05.12.2024

Work Order No. : RP/MJB/MM/24/0088/01 Work Order Date : 30.03.2024

ULR No. : TC135872400005039F

Discipline: Chemic	al	Gree	up: Water	The second secon	ory Limit 10500:2012
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
Phenolic Compound (as C ₆ H ₅ OH)	mg/L	IS 3025 (Part 43/Sec1); 2022	BDL (DL: 0.001)	0.001	0.002
Free Residual Chlorine (RFC)	mg/L	IS 3025 (Part-26): 2021	BDL (DL: 0.1)	0.2(Min)	1.0(Min)
Calcium (as Ca)	mg/L	APHA 24th Ed.2023, 3500 Ca B	3.82	75	200
Anionic Surfactants (as MBAS)	mg/L	APHA 24 th Ed.2023, 5540-C	BDL (DL: 0.025)	0.2	1.0
Discipline: Chemic	cal	Gr	oup : Residues i	n Water	
Aluminum (as Al)	mg/L	IS 3025 (Part-55) :2003; RA2019	BDL (DL: 0.02)	0.03	0,2
Arsenic (as As)	mg/L	IS 3025 (Part-37): 2022	BDL (DL: 0.005)	0.01	No Relaxation
Boron (as B)	mg/L	IS 3025 (Part-57): 2021	BDL (DL: 0.2)	0.5	1.0
Cadmium (as Cd)	mg/L	APHA 24th Ed.2023; 3111B	BDL (DL: 0.003)	0.003	No Relaxation
Total Chromium (as Cr)	mg/L	APHA 24th Ed.2023; 3111B	BDL (DL: 0.03)	0.05	No Relaxation
Copper (as Cu)	mg/L	APHA 24th Ed.2023; 3111B	BDL (DL: 0.03)	0.05	1.5
Cyanide (as CN)	mg/L	APHA 24th Ed.2023, 4500 CN-E	BDL (DL: 0.012)	0.65	No Relaxation
Iron (as Fe)	mg/L	APHA 24th Ed.2023; 3111B	0.068	1,0	No Relaxation
Lead (as Pb)	mg/L	APHA 24th Ed.2023; 3111B	BDL (DL: 0.01)	0.01	No Relaxation
Manganese (as Mn)	mg/L	APHA 24th Ed.2023; 3111B	BDL (DL: 0.05)	0.1	0.3
Mercury (as Hg)	mg/L	IS 3025 (Part-48): 2019	BDL (DL: 0.001)	0.001	No Relaxation
Selenium (as Se)	mg/L	IS 3025 (Part-56): 2019	BDL (DL: 0.01)	0.01	No Relaxation

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TC-13567

TEST REPORT

Test Report No. : ELES/RNC/2024/7175 Report Release Date : 05.12.2024

Work Order No. : RP/MJB/MM/24/0088/01 Work Order Date : 30.03.2024

ULR No. : TC135872400005039F

Discipline : Chemical		Group: Resid	lues in Water	The second secon	ory Limit 10500:2012
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
Zinc (as Zn)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.1)	5.0	15
Polynuclear Aromatic Hydrocarbons (PAH)	ng/L	ELES/GC/SOP/04: 2023	BDL (DL: 0.05)	0.1	No Relaxation
Polychlorinated biphenyls (PCB)	μg/L	ELES/GC/SOP/03: 2023	BDL (DL: 0.1)	0.5	No Relaxation
Pesticides				Li	mit
Alachlor	μg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	-2	20
Atrazine	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	2	.0
Butachlor	μg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	1	25
Chlorpyriphos	μg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	30	
Ethion	μg/L.	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	3.0	
Malathion	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	190	
Methyl parathion	μg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.1)	0.	30
Monocrotophos	μg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	1	,0
Phorate	μg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	2	.0
Phorate Sulphone	μg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)		-
Dieldrin	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.01)	0.	03
Alpha HCH	μg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.006)	0.	01
Beta HCH	μg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.02)	0.	04

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Circ U74900JW2018PTC011125

TEST REPORT

Test Report No.	: ELES/RNC/2024/7175	Report Release Date	: 05.12.2024	
Work Order No.	: RP/MJB/MM/24/0088/01	Work Order Date	: 30.03.2024	

ULR No. : TC135	872400005039F
-----------------	---------------

Pesticides					
Parameter	Unit	Test Protocol	Result	Limit	
Delta HCH	μg/L	ELES/GC/SOP/02: 2023	BDL (DL; 0.02)	0.04	
Gamma HCH (Lindane)	μg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.02)	2.0	
Endosulfan (alpha, beta and sulphate)	μg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.05)	0.40	
DDT(o,p and p,p-isomers of DDT) (DDE and DDD)	μg/L	ELES/GC/SOP/02: 2023	BDL. (DL: 0.05)	1.0	
Discipline : Biological		Grou	p: Water	1	
Total Coliform (Qualitative)	Per 100 mL	IS 15185: 2021	Not Detected	Shall and by descript	
Escherichia coli (Qualitative)	Per 100 mL	IS 15185: 2021	Not Detected	Shall not be detecte	

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Akash Kumar Quality Manager ****End of Report****

Authorised Signatory

Dr. Deependra Kumar Sinha Ph. D. Environmental Engg.

Technical Manager

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TEST REPORT

Test Report No.	: ELES/RNC/2024/7175	Report Release Date	: 05.12.2024	
Work Order No.	: RP/MJB/MM/24/0088/01	Work Order Date	: 30.03.2024	

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Minerals & Minerals Limited	Sample Ref. No. Sampling Date Sample Received Date Type of Sample	: ELES/RNC/2024/DW/8300 : 25.11.2024 : 28.11.2024 : Drinking Water	
Address	: Lohardaga, Jharkhand-835302	Source of Sample Location of Sample	: Tap Water : Mines Site	
Mines Status	: Operational	Sampling Procedure	Pakhar Bauxite Mine (109.507ha) : ELES/DOC/SMPL/01	
Period of Analysis	: 28.11.2024 to 05.12.2024	Sampling Done By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved	

Discipline : Chemical Group :		Discipline : Chemical		Group: Wa	ter	Company with the	ory Limit 10500:2012
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit		
Mineral Oil*	mg/L	IS 3025 (Part-39): 2021, Clause 6 Infrared Spectroscopic method.	BDL (DL: 0.01)	0.5	No Relaxation		

Remarks: (*) Parameters are outsourced to other Lab.

Reviewed by

Gustity Manager

****End of Report****

Authorised Signatory

Dr. Deependra Kulling Sinha

Ph. D. Environmental Engg.

Technical Manager

Page I of I

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ENVIRONMENTAL LABORATORIES & ENGINEERING SERVICES PVT. LTD.

Plot No.30, Mansarovar Enclave, Tupudana, Hatia, Ranchi-834003, Jharkhand

Pakhar (109.507) Bauxite Mine-Environmental Monitoring Report

December 2024

CONTENT

175	Minerals & Minerals: Pakhar (109.507) Environmental Monitoring Report	t December 2024
	Pakhar (109,507)	0.00
	AMBIENT AIR QUALITY- CORE ZONE	
1	Near Mine Quarry No-K7	
2	Near Mine Quarry No-K9	
3	Near Mine Quarry No-K5	
4	Pakhar Loading Area	
	AMBIENT AIR QUALITY-BUFFER ZONE	
I	Near Bunglapart Village	
2	Yatri Shed (Near K-10)	
3	Near Utkarmit Rajkiya Prathmik Vidyalaya Bunglapart Village	
4	Near Utkarmit Rajkiya Prashmik Vidyalaya Dumrapart Village	E



PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D124

ENGINEERING SERVICES PVT. LTD.

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TC-1356T

TEST REPORT

Test Report No.	: ELES/RNC/2024/7681	Report Release Date	: 25.12.2024	
Work Order No.	: RP/MJB/MM/24/0088/01	Work Order Date	: 30.03.2024	
ULR No.	: TC135872400005533F	-		

CUSTOMER DET	AILS	SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2024/AA/8999
	all across the Control	I,ocation	: Near Mine Quarry No-K7 Pakhar (109.507 ha) Bauxite Mine
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 18.12.2024 to 19.12.2024
		Sample Received Date	: 20.12.2024
		Type of Sample	: Ambient Air
Mines Status	: Operational	Sampling Procedure	: ELES/DOC/SMPL/02
Period of Analysis	: 20.12.2024 to 25.12.2024	Sampling Done By	: ELES Pvt. Ltd.
renou of Analysis	20.12.2024 to 23.12.2024	Sample Condition	: Sealed & Preserved

MI	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 20	2	Barometric Pressure (mmHg)	: 725
3	Relative Humidity (%)	: 47	4	Weather Condition	Clear

Discipline : Chemic	al	Group:	Group: Atmospheric Pollution			
Parameter Unit		Test Protocol	Result	Regulatory Limit		
Particulate Matter (PM10)	μg/m³	IS 5182 (Part- 23): 2022	74	100 (24hrs)		
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24); 2019	43	60 (24hrs)		
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part- 2/Sec1): 2023	14.5	80 (24hrs)		
Nitrogen Di-Oxide (NO ₂)	μg/m³	IS 5182 (Part- 6): 2022	23.8	80 (24hrs)		
Ozone (O ₂)	µg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)		
Ammonia (NH ₃)	цg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)		
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part- 10): 2019 (NDIR Method)	1,19	2 (8hrs)		
Lead (Pb)	μg/m¹	IS 5182 (Part- 22): 2019	0.026	1 (24hrs)		
Nickel (Ni)	ng/m³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)		
Arsenic (As)	ng/m³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)		
Benzene (C ₀ H ₆)	µg/m³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)		
Benzo-(a)-Pyrene	ng/m ³	ELES/GC/SOP/05: 2023	< 0.5	01(Annual)		

Reviewed by Akash Kumae

Quality Managor

****End of Report****

Dr. Deependra Rumar Sinha

Ph. D. Environmental Engg.

Technical Manager

Page 1 of 1

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D124

ENGINEERING SERVICES PVT. LTD.

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TC-13561

TEST REPORT

Test Report No.	: ELES/RNC/2024/7682	Report Release Date	: 25.12.2024
Work Order No.	: RP/MJB/MM/24/0088/01	Work Order Date	: 30.03.2024
ULR No.	: TC135872400005534F		

CUSTOMER DET	AILS	SAMPLE DETAILS	10 - AVX 200 - CONTROL STREET
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2024/AA/9000
		Location	: Near Mine Quarry No-K9
			Pakhar (109.507 ha) Bauxite Mine
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 18.12.2024 to 19.12.2024
		Sample Received Date	: 20.12.2024
		Type of Sample	: Ambient Air
Mines Status	: Operational	Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
Period of Analysis	: 20.12 2024 to 25.12.2024	Sample Condition	: Sealed & Preserved

M	METEOROLOGICAL INFORMATION					
1	Average Temperature (°C) : 20	2	Barometric Pressure (mmHg)	: 725		
3	Relative Humidity (%) : 47	4	Weather Condition	: Clear		

Discipline : Chemic	al	Group:	Group: Atmospheric Pollution			
Parameter Unit		Test Protocol	Result	Regulatory Limit		
Particulate Matter (PM10)	μg/m³	IS 5182 (Part- 23): 2022	83	100 (24hrs)		
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	37	60 (24hrs)		
Sulphur Di-Oxide (SO ₂)	µg/m³	IS 5182 (Part- 2/Sec 1): 2023	12.1	80 (24hrs)		
Nitrogen Di-Oxide (NO ₂)	μg/m³	IS 5182 (Part- 6): 2022	30.8	80 (24hrs)		
Ozone (O ₃)	μg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)		
Ammonia (NH ₃)	μg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)		
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part- 10): 2019 (NDIR Method)	1.11	2 (8hrs)		
Lead (Pb)	µg/m³	IS 5182 (Part- 22): 2019	0.017	1 (24hrs)		
Nickel (Ni)	ng/m³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)		
Arsenic (As)	ng/m³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)		
Benzene (C ₆ H ₆)	µg/m³	ELES/GC/SOP/06: 2023	<2.5	05(Annuai)		
Benzo-(a)-Pyrene	ng/m³	ELES/GC/SOP/05: 2023	<0.5	91(Annual)		

Reviewed by Akash Kumar

Quality Manager

****End of Report****

Points

Dr. Deependra Kumar Sinha Ph. D. Environmental Engg.

Page I of 1

Technical Manager

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Report is in 15days from Albertaines used N-A (Nor Applicables, BDL Observation Limit). LDL Observation Limit.



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TC-13587

TEST REPORT

Test Report No.	: ELES/RNC/2024/7683	Report Release Date	: 25.12.2024	
Work Order No.	: RP/MJB/MM/24/0088/01	Work Order Date	: 30.03.2024	
ULR No.	: TC135872400005535F			

CUSTOMER DET	AILS	SAMPLE DETAILS	II
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2024/AA/9001
		Location	: Near Mine Quarry No-K5
			Pakhar (109,507 ha) Bauxite Mine
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 18.12.2024 to 19.12.2024
	The state of the s	Sample Received Date	: 20.12.2024
		Type of Sample	: Ambient Air
Mines Status	: Operational	Sampling Procedure	: ELES/DOC/SMPL/02
No. of Asset		Sampling Done By	: ELES Pvt. Ltd.
Period of Analysis	: 20.12.2024 to 25.12.2024	Sample Condition	: Senled & Preserved

MI	ETEOROLOGICAL INFO	RMATION			
1	Average Temperature (°C)	: 20	2	Barometric Pressure (mmHg)	: 725
3	Relative Humidity (%)	:47	4	Weather Condition	: Clear

Discipline : Chemic	al	Group:	Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	μg/m³	IS 5182 (Part- 23); 2022	78	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	32	60 (24hrs)	
Sulphur Di-Oxide (SO ₂)	μg/m ³	IS 5182 (Part- 2/Sec1): 2023	13.1	80 (24hrs)	
Nitrogen Di-Oxide (NO ₂)	μg/m³	IS 5182 (Part- 6): 2022	35.7	80 (24hrs)	
Ozone (O ₃)	μg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)	
Ammonia (NH ₃)	μg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part- 10): 2019 (NDIR Method)	1.33	2 (8hrs)	
Lead (Pb)	µg/m³	IS 5182 (Part- 22): 2019	0.025	1 (24hrs)	
Nickel (Ni)	ng/m³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)	
Arsenic (As)	ng/m³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)	
Benzene (C ₆ H ₆)	μg/m³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)	
Benzo-(a)-Pyrene	ng/m³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)	

Reviewed by Akash Kumar

Quality Manager

****End of Report****

Authorised Signatory Dr. Despendra Kumar Sinha

Ph. D. Environmental Er

Page 1 of 1

Technical Manager
The Description should be Tale Expert. to beside by the Laboratory under General Terms and Conditions, only on Congary Setur Sead in the approved Cornel The associate shown to the Tale Report ratio or related only in the polyanelysis done by the Laboratory only. The information stated on the Test Report reflects the fieldings done by the Laboratory at the time of involvement only and within the limits of client's instructions. The Laboratory is proposable for all the information or done provided on the report, except the information which is provided by the client. The Report cannot be reproduced except in full and any part of the report is not taken out of cancest, without prior written approval of the Laboratory. The Report is full and any part of the report is not taken out of cancest, without prior written approval of the Laboratory. The Report is full or in part shall not be published. advertise, used for any legal actions orders prior permission has been accused from the Management of the Laboratory. Attention is drawn to the limitation of liability, corresponding and jurisdiction some. Any unauthorized alteration it full officiation of the content or appearance of the Text Report is unlevelal and officialists may be presented to the follow system of the live. All the samples are removed for 70 days from the Own of relation name of the Tau Report. The manples from Hagedeney bodies are to be retained as specified. Any type of Observations or Compliants regarding the Reports shall be done within 15 days from the Date of Yest Report released based. After the time period stand before, we complicate will be accepted. The arrive Time schedule mentioned in Test Report to in 2-Hours format. Althorisation must NoA (Not Applicable), BOL (Holos Octobios Limit), LDL (Lower Detection Limit).



PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D124

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TO:13537

TEST REPORT

Test Report No.	: ELES/RNC/2024/7684	Report Release Date	: 25.12.2024	
Work Order No.	: RP/MJB/MM/24/0088/01	Work Order Date	: 30.03.2024	
ULR No.	: TC135872400005536F			

CUSTOMER DET	AILS	SAMPLE DETAILS		
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2024/AA/9002	
		Location	: Pakhar Loading Area Pakhar (109.507 ha) Bauxite Mine	
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 18.12.2024 to 19.12.2024	
	-5311	Sample Received Date	: 20.12.2024	
		Type of Sample	: Ambient Air	
Mines Status	: Operational	Sampling Procedure	: ELES/DOC/SMPL/02	
Desired of Assistant	. 20 12 2024 - 26 12 2024	Sampling Done By	: ELES Pvt. Ltd.	
Period of Analysis	: 20.12.2024 to 25.12.2024	Sample Condition	: Sealed & Preserved	

MI	ETEOROLOGICAL INFOR	MATION				
1	Average Temperature ("C)	: 20	2	Barometric Pressure (mmHg)	: 725	
3	Relative Humidity (%)	: 47	4	Weather Condition	: Clear	

Discipline : Chemic	ai	Group:	Atmospheric !	Pollution
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	μg/m³	IS 5182 (Part- 23): 2022	83	100 (24hrs)
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	38	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part- 2/Sec1): 2023	14.3	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	μg/m³	IS 5182 (Part- 6): 2022	30.7	80 (24hrs)
Ozone (O ₃)	µg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m²	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part- 10): 2019 (NDIR Method)	1.27	2 (8hrs)
Lead (Pb)	µg/m³	IS 5182 (Part- 22): 2019	0.22	1 (24hrs)
Nickel (Ni)	ng/m³	IS 5182 (Part- 26); 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	μg/m³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

Reviewed by

Akash Kumar ****End of Report****
Quality Manager

(Jinto

Dr. Deependra Kumar Sinha Ph. D. Environmental Enrig.

Page 1 of 1

Technical Manager

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10-19987

TEST REPORT

Test Report No.	: ELES/RNC/2024/7626	Report Release Date	: 24.12.2024	
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024	
ULR No.	: TC135872400005478F			

CUSTOMER DET	AILS	SAMPLE DETAILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/8964 : Near Bunglapart Village Pakhar Bauxite Mine		
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample	: 16.12.2024 to 17.12.2024 : 18.12.2024 : Ambient Air		
Mines Status	: Operational	Sampling Procedure	: ELES/DOC/SMPL/02		
Period of Analysis	: 18.12.2024 to 24.12.2024	Sampling Done By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved		

MI	METEOROLOGICAL INFORMATION					
-1	Average Temperature (°C)	: 20	2	Barometric Pressure (mmHg)	: 725	
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear	

Discipline: Chemic	cal	Group:	Atmospheric	Pollution
Parameter Unit		Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	μg/m³	IS 5182 (Part- 23): 2022	68	100 (24hrs)
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	37	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	μg/m³	1S 5182 (Part- 2/Sec 1): 2023	12.7	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m³	IS 5182 (Part- 6): 2022	24.2	80 (24hrs)
Ozone (O ₃)	μg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	μg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	μg/m³	IS 5182 (Part- 22); 2019	0.019	1 (24hrs)
Nickel (Ni)	ng/m³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m [†]	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C ₆ H ₀)	μg/m³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

Reviewed by

Akash Kumar Quality Manager ****End of Report****

K 9m-

Authorised Signatory
Dr. Deependra Kumar Sloha
Ph. D. Environmental Scool

Page 1 of 1

Technical Manager

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ENGINEERING SERVICES PVY. LTD.

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16-130

TEST REPORT

Test Report No.	: ELES/RNC/2024/7627	Report Release Date	: 24.12.2024
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC135872400005479F		

CUSTOMER DET	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/8965 : Yatri Shed (Near K-10) Pakhar Bauxite Mine
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 16.12.2024 to 17.12.2024 : 18.12.2024
Mines Status	: Operational	Type of Sample Sampling Procedure	: Ambient Air : ELES/DOC/SMPL/02
Period of Analysis	: 18.12.2024 to 24.12.2024	Sampling Done By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved

MI	METEOROLOGICAL INFORMATION						
1	Average Temperature (°C)	: 20	2	Barometric Pressure (mmHg)	: 725		
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear		

Discipline: Chemic	al	Group:	Atmospheric	Pollution
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	μg/m³	IS 5182 (Part- 23): 2022	71	100 (24hrs)
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	38	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part- 2/Sec1): 2023	12.1	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	μg/m³	IS 5182 (Part- 6): 2022	25.4	80 (24hrs)
Ozone (O ₃)	μg/m³	IS 5182 (Part- 9); 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	μg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part- 10): 2019 (NDIR Method)	1.18	2 (8hrs)
Lead (Pb)	μg/m³	IS 5182 (Part- 22): 2019	0.019	1 (24hrs)
Nickel (Ni)	ng/m³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m²	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C ₄ H ₄)	µg/m³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

Reviewed by

Akash Kumar

Chiality Manager

****End of Report****

Dr. Deuphinica Kumar Shiha Ph. D. Environmental Engg.

Page 1 of 1

reconscar Manager

The Discount stated as Test Report, a cound by the Laboratory under German Terrors and Continues, only on the Laboratory of the Laboratory of the Laboratory of the Laboratory of the Continues of involvement only and within the limits of client's instructions. The Laboratory of responsible for all the estimation of data previous of the report, except the information which is previously the client The Report cannot be reported over the report, except the information which is previously the Laboratory. The Report is fell or to provided by the client The Report cannot be reported over the report, except the Laboratory. The Report is fell or to provided by the client The Report is not allowed, used to any logal actions unless principles for the Management of the Laboratory. Attention is drawn to the Subtractor of Subdistry, compensation and the southern of the southern of the Laboratory Attention is drawn to the Subtractor of Subdistry, compensation and the Test Report is related and offenders may be proceeded to the follow scient of the law. All this complian we retained for Policys from the Date of polenteers and the Test Report is related from the security in operation. Any type of Observations in Complaints segmining the Reports shall be done within Management of Test Report internal and the time secure beared some before no complaints will be accepted. The center Time achieving mentioned in Test Report is an Illinois format Limit.)



PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D1Z4

ENGINEERING SERVICES PVT. LTD.

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Phone no.: 0651-2290103 Website: www.elespi.co.in



TG-13582

TEST REPORT

Test Report No.	: ELES/RNC/2024/7628	Report Release Date	: 24.12.2024	
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024	
ULR No.	: TC135872400005480F			

CUSTOMER DET	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/8966 : Near Utkarmit Rajkiya Prathmik Vidyalaya Bunglapart Village Pakhar Bauxite Mine
Address	: Loharduga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample	: 16.12.2024 to 17.12.2024 : 18.12.2024 : Ambient Air
Mines Status : Operational		Sampling Procedure	: ELES/DOC/SMPL/02
Period of Analysis	: 18.12.2024 to 24.12.2024	Sampling Done By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved

MI	ETEOROLOGICAL INFORMATION				
1	Average Temperature (°C) : 20	2	Barometric Pressure (mmH	g) : 725	
3	Relative Humidity (%) : 48	4	Weather Condition	: Clear	

Discipline : Chemic	cal	Group ;	Atmospheric !	Pollution
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	μg/m³	IS 5182 (Part- 23): 2022	77	100 (24hrs)
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	42	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part- 2/Sec1): 2023	11.3	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	μg/m³	IS 5182 (Part- 6): 2022	26.7	80 (24hrs)
Ozone (O ₃)	μg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	μg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	μg/m³	IS 5182 (Part- 22); 2019	0.013	1 (24hrs)
Nickel (Ni)	ng/m³	1S 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C _s H ₆)	µg/m³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m³	ELES/GC/SOP/05: 2023	<0.5	OI(Annual)

Reviewed by Akash Kumar

****End of Report****

Authorised Signatory Dr. Deependra Kumnr Sinha

Quanty manager

Page 1 of 1

The Document somed as Test Report, is issued by the Laboratory moder General Forms and Conditions, only on Company letter head in the Condition of the Conditio refer or reference only to the privately sedom by the Laboratory order. The information stated on the Text Report reflects the findings done by the Laboratory or the time of involvement only and within the family or continuous. The Laboratory is continuously to all the information or data provided on the report, succept the information which is provided by the cheet. The Report around be reported except in full and any jest of the report is not taken and of entered, without prior written appeared of the Laboratory. The Report in full or in part shall not be published, advantage to the lagrance or the involved actions arrive point permission has been secreted from the Management of the Laboratory. Attention is drawn to the limitation of liability, compensation and provided on issues. Any smootherine distriction di falsification of the content or approximate of the Four Report is authorful and efficiency may be proximated in the following extent of the law. All the samples are normal for 300eys from the Date of submicrosses of the Tex Report. The samples from Regulatory budies are to be retained as specified. Any type of Characteristics or Complaints regarding the Report size has be above within 13days from the Date of Text Report relationship manifestal for the period stated before, no complaints will be excepted. The series Time echells manifestal flapoet is in 24hours format. Although the state of N. A. (See Applicable). BDL. (Bullow Detection Limit), LDL. (Limiter Detection Limit).



PEOT NO-30, MANSAROVAR ENCLAVE, FUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE97130124

NGINEERING SERVICES PVT. LTD.

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10/19087

TEST REPORT

Test Report No.	: ELES/RNC/2024/7629	Report Release Date	: 24.12.2024	
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024	
ULR No.	: TC135872400005481F			

CUSTOMER DET	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/8967 : Near Utkarmit Rajkiya Prathmil Vidyalaya Dumrapart Village Pakhar Bauxite Mine
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample	: 16.12.2024 to 17.12.2024 : 18.12.2024 : Ambient Air
Mines Status	: Operational	Sampling Procedure	: ELES/DOC/SMPL/02
Period of Analysis	: 18.12.2024 to 24.12.2024	Sampling Done By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved

M	ETEOROLOGICAL INFORMATION			
1.	Average Temperature (°C) : 20	2	Barometric Pressure (mm)	Hg) : 725
3	Relative Humidity (%) : 48	4	Weather Condition	: Clear

al	Group:	Group: Atmospheric Pollution			
Unit	Test Protocol	Result	Regulatory Limit		
μg/m³	IS 5182 (Part- 23); 2022	69	100 (24hrs)		
µg/m³	IS 5182 (Part- 24): 2019	43	60 (24hrs)		
μg/m³	IS 5182 (Part- 2/Sec1): 2023	12.7	80 (24hrs)		
μg/m³	IS 5182 (Part- 6): 2022	20.2	80 (24hrs)		
μg/m [±]	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)		
μg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)		
mg/m³	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)		
µg/m³	fS 5182 (Part- 22): 2019	0.009	1 (24hrs)		
ng/m³	IS 5182 (Part- 26); 2020	<6.0	20 (Annual)		
ng/m³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)		
µg/m³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)		
ng/m³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)		
	μg/m³ μg/m³ μg/m³ μg/m³ μg/m³ μg/m³ μg/m³ ng/m³ μg/m³ μg/m³ μg/m³ μg/m³	Unit Test Protocol μg/m³ IS 5182 (Part- 23): 2022 μg/m³ IS 5182 (Part- 24): 2019 μg/m³ IS 5182 (Part- 2/Sec1): 2023 μg/m³ IS 5182 (Part- 6): 2022 μg/m³ IS 5182 (Part- 6): 2019 μg/m³ IS 5182 (Part- 9): 2019 μg/m³ IS 5182 (Part- 25): 2018 mg/m³ IS 5182 (Part- 10): 2019 (NDIR Method) μg/m³ IS 5182 (Part- 22): 2019 ng/m³ IS 5182 (Part- 26): 2020 ng/m³ IS 5182 (Part- 26): 2020 ng/m³ ELES/AIR/SOP/01: 2021 μg/m³ ELES/GC/SOP/06: 2023	Unit Test Protocol Result μg/m³ IS 5182 (Part- 23): 2022 69 μg/m³ IS 5182 (Part- 24): 2019 43 μg/m³ IS 5182 (Part- 2/Sec1): 2023 12.7 μg/m³ IS 5182 (Part- 6): 2022 20.2 μg/m³ IS 5182 (Part- 6): 2019 <20.0		



****End of Report****

Authorised Signatory Dr. Deependra Kumar Sinha

Casality Manager

Page I of I

The Decement street in Test Report, in street by the Laboratory under Control Corner and Conditions, only on Company latter hand in pre-Technologies with the time of involved control on the Laboratory and the information and on the Test Report or latter than by the Laboratory at the time of involved control on the latter provided on the report, except the information which is provided by the client. The Report camps be supreficient except in tall and any part of the report is not below our of career, whose prior section appeared of the Laboratory. The Report is full and any part of the report is not below our of career, whose prior section appeared of the Laboratory. The Report in full are in part shall on the problement. advertise, used for any legal acriers unless prior permission has been record from the Management of the Laboratory. Attention is drawn to the limitation of ladelless, compression and punishers to seen. Any consultanced afrontion d. Behalication of the content or appearance of the Test Report to retire full and offendion may be provinced in the followed extent of the last. All the complex res segment for Belays from the Date of referencessor of the Ten Report. The security health we to be retained as specified. Any type of Observations or Complaints reporting the Report while before an interpretable that the time period stand before, no complaints will be accepted. The entire Time schedule attentional in Test Report is in 20 mars from Majoristics used. NA Obst Applicable), BDL (Below Detection Limit).

ENVIRONMENTAL LABORATORIES & ENGINEERING SERVICES PVT. LTD.

Plot No.30, Mansarovar Enclave, Tupudana, Hatia, Ranchi-834003, Jharkhand.

Pakhar (109.507) Bauxite Mine-Environmental Monitoring Report

January- 2025



CONTENT

	Minerals & Minerals: Pakhar (109.507) Environmental Monitoring Report	January 2025
	Pakhar (109.507)	
	AMBIENT AIR QUALITY- CORE ZONE	
1	Near Mine Quarry No-K7	
2	Near Mine Quarry No-K9	
3	Near Mine Quarry No-K5	
4	Pakhar Loading Area	
	AMBIENT AIR QUALITY- BUFFER ZONE	
1	Near Bunglapart Village	
2	Yatri Shed (Neur K-10)	
3	Near Utkarmit Rajkiya Prathmik Vidyalaya Bunglapart Village	
4	Near Utkarmit Rajkiya Prathmik Vidyalaya Dumrapart Village	
	Surface Water	
	Soil	





PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D124

ENGINEERING SERVICES PVT. LTD.

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TC-1388

TEST REPORT

Test Report No.	: ELES/RNC/2025/0436	Report Release Date	: 20.01.2025	
Work Order No.	: RP/MJB/MM/24/0088/01	Work Order Date	: 30.03.2024	
ULR No.	: TC1358725000000428F			

CUSTOMER DET	AILS	SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No. Location	: ELES/RNC/2025/AA/0253 : Near Mine Quarry No-K7 Pakhar (109.507 ha) Bauxite Mine
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 10.01.2025 to 11.01,2025 : 13.01.2025
Mines Status	: Operational	Type of Sample Sampling Procedure	: Ambient Air : ELES/DOC/SMPL/02
Period of Analysis	: 13.01.2025 to 20.01.2025	Sampling Done By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved

MI	METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 19	2	Barometric Pressure (mmHg)	: 725	
3	Relative Humidity (%)	: 55	4	Weather Condition	: Clear	

Discipline: Chemis	al	Group :	Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	μg/m³	IS 5182 (Part- 23): 2022	80	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	46	60 (24hrs)	
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part- 2/Sec1): 2023	12.8	80 (24hrs)	
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	26.4	80 (24hrs)	
Ozone (O ₃)	μg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)	
Ammonia (NH ₃)	μg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part- 10): 2019 (NDIR Method)	1.28	2 (8hrs)	
Lead (Pb)	μg/m³	IS 5182 (Part- 22): 2019	0.031	1 (24hrs)	
Nickel (Ni)	ng/m³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)	
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)	
Benzene (C ₁ H ₄)	µg/m³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)	
Benzo-(a)-Pyrene	ng/m³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)	

Reviewed by

****End of Report****

Authorised Signatory Dr. Deependra Kumar Sinha Ph. D. Environmental Engg.

Akash Kumar Duality Manage

Page 1 of 1

Technical Manager

The Discourse stated is Test Report, is issued by the Laboratory under General Territy and Conditions, only on Computy lower brook in pre-approved forms. The tendle shows is the Test Report action or the findings done by the Laboratory is the interest only in the interest of closed is interested for the Laboratory in responsible for all the information or data provided on the report, except the information which is provided by the client. The Report cannot be reproduced except in full and any part of the report is not taken out of contain, without prior actions approved of the Laboratory. The Export is full or in part shall not be published, solventian prior permission has been secured from the Management of the Laboratory. The Export is full or in part shall not be published, solventian at falsification of the contains at falsification of the contains a approximant of the Test Report is unlessful and offenders may be presented in the follow exacts of the low. All the complex are retained for Nodays from the Date of released some of the Test Report is unlessful and offenders may be presented in the following the Report of the Laboratory and the second of the laboratory of the Laboratory and particles are retained for Nodays from the Date of released some of the Test Report is unlessful and offenders are to be commend on the following the Report of the Report of the laboratory of the complete are retained for Nodays from the Date of Test Report scienced mand. After the time period stand before, we complaints will be accepted. The entity Time achieving an allowed to Test Report is in Management Limits LEU (Lower Determine) Limits.



PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST.NO:-204AECE9713D1Z4

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TEST REPORT

Test Report No.	: ELES/RNC/2025/0437	Report Release Date	: 20.01.2025	
Work Order No.	: RP/MJB/MM/24/0088/01	Work Order Date	: 30.03.2024	
ULR No.	: TC1358725000000429F			

CUSTOMER DET	AILS	SAMPLE DETAILS		
Customer Name	: Minerals & Minerals Limited	Sample Ref. No. Location	: ELES/RNC/2025/AA/0254 : Near Mine Quarry No-K9	
Address	: Lohardaga, Jharkhand-835302	Sampling Date	Pakhar (109,507 ha) Bauxite Mine : 10.01.2025 to 11.01.2025	
		Sample Received Date Type of Sample	: 13.01.2025 : Ambient Air	
Mines Status	: Operational	Sampling Procedure	: ELES/DOC/SMPL/02	
Period of Analysis	: 13.01.2025 to 20.01.2025	Sampling Done By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved	

MI	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 19	2	Barometric Pressure (mmHg)	: 725
3	Relative Humidity (%)	: 55	4	Weather Condition	: Clear

Discipline : Chemic	al	Group :	Atmospheric	Pollution
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	μg/m³	IS 5182 (Part- 23): 2022	78	100 (24hrs)
Particulate Matter (PM2.5)	μg/m ³	IS 5182 (Part- 24): 2019	42	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	μg/m ³	IS 5182 (Part- 2/Sec1): 2023	15.5	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	μg/m³	1S 5182 (Part- 6): 2022	33.2	80 (24hrs)
Ozone (O ₁)	µg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part- 10): 2019 (NDIR Method)	1.29	2 (8hrs)
Lead (Pb)	µg/m³	IS 5182 (Part- 22): 2019	0.031	1 (24hrs)
Nickel (Ni)	ng/m³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m²	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

Reviewed by

****End of Report****

Authorised Signatory Dr. Deependra Kumar Sinha

Ph. D. Environmental

Akash Kumar

Page 1 of 1

Technical Manager

The Discussion maked as Test Report, a mount by the Laboratory under General Terms and Conditions, only on Company letter head in proceedings. The conditions in the Test Report refer to relate only in the job analysis done by the Laboratory only. The information ented on the Last Report reflects the findings done by the Laboratory or the intention only and settles the lines of client's autoreacons. The Laboratory is responsible for all the information or data provided on the appear, except the information which is provided by the elect. The Report cannot be reproduced except in full and any part of the report is not inker out of context, inclined appears appeared of the Laboratory. The Report or full or is part shall not be published, advanture, used for my legal actions unless prior permission has been secured from the Management of the Laboratory. Attention in the laboratory are the laboratory of the somes. Any would extend aftermine it folially states of the content or appearance of the Test Report is unlawful and officialise may be pronequent to the folial extent of the Low. All the next file of the content of the Low. rotained for Mideys from the Date of relaxactions of the Torr Report. The samples from Regulatory bedieven to be retained as specified. Any type of Observations or Complaints regarding the Report which be done within 15 days from the Date of Ton Report relaxactives of After the true period stand before, we complaints will be accepted. The unite Time relatible mentioned in Test Report is at 2 House frames. After claims used. N.A. (Not Applicable), 2021. (Below December Limit), 1.01. (Lower Detection Limit).



PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (IHARKHAND) GST NO:- 20AAECE9713D124

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TEST REPORT

Test Report No.	: ELES/RNC/2025/0438	Report Release Date	: 20.01.2025	
Work Order No.	: RP/MJB/MM/24/0088/01	Work Order Date	: 30.03.2024	
ULR No.	: TC1358725000000430F			

CUSTOMER DET	AILS	SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2025/AA/0255
		Location	: Near Mine Quarry No-K5 Pakhar (109.507 ha) Bauxite Mine
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 10.01.2025 to 11.01.2025
		Sample Received Date	÷13.01.2025
		Type of Sample	: Ambient Air
Mines Status	: Operational	Sampling Procedure	: ELES/DOC/SMPL/02
Period of Analysis	: 13.01.2025 to 20.01.2025	Sampling Done By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved

M	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 19	2	Barometric Pressure (mmHg)	: 725
3	Relative Humidity (%)	: 55	4	Weather Condition	: Clear

Discipline: Chemic	enf .	Group:	Atmospheric	Pollution
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	μg/m³	IS 5182 (Part- 23): 2022	83	100 (24hrs)
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	48	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	μg/m ¹	IS 5182 (Part- 2/Sec1): 2023	16.3	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	μg/m³	IS 5182 (Part- 6): 2022	32.8	80 (24hrs)
Ozone (O ₃)	μg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	μg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part- 10): 2019 (NDIR Method)	1.25	2 (8hrs)
Lead (Pb)	µg/m³	IS 5182 (Part- 22): 2019	0.029	I (24hrs)
Nickel (Ni)	ng/m³	IS 5182 (Part-26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C ₄ H ₆)	µg/m³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

Reviewed by

****End of Report**** Akash Kumar

Authorised Signatory

Dr. Deependra Kumar Sinha

Page 1 of 1

Technical Manager The Discontent stand as Test Report, is usual by the Laboratory under General Yerms and Conditions, only on Company better head as pre-appr selfer or reflects only in the judicinalysis done by the Laboratory only. The information stand on the Test Report reflects the findings done by the Laboratory of the cities and so within the lamits of client is incurrent. The Laboratory is respectable for all the information or data provided to the report, encapt the information which is provided by the elient. The Report agrees be reproduced aways in full and any part of the report is not taken out of courses, without prior woman approval of the Laboratory. The Report is full or in part shall not be published, advertise, used for any legal actions outless prior permission has been account from the Management of the Laboratory. Apertical to the annual or the limitation of liability, compression and purelession tiones. Any ensultaneous alteration A value factor of the content or appearance of the Test Report is unleveled and offersions may be presented to the follow examined file law. All the complex may retained for 10 days from the Date of relative issue of the Test Report. The samples from Regularary budies are to be retained as specified. Any type of Observations or Complaints regarding the Reports shall be done within 15 days from the Date of Test Report related/issued. After the time period stated before, no complaints will be accepted. The stone Time acknows monitored in Test Report is to 14 hours formed. After one is No. 4 [Not Applicable), BDL (Below Detection Lamit).



PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-8340G3 (JHARKHAND) GST NO:- 20AAECE9713D124

ENGINEERING SERVICES PVT. LTD.

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Phone no.: 0651-2290103 Website: www.elespl.co.in



TEST REPORT

Test Report No.	: ELES/RNC/2025/0439	Report Release Date	: 20.01.2025	
Work Order No.	: RP/MJB/MM/24/0088/01	Work Order Date	: 30.03.2024	
ULR No.	: TC1358725000000431F			

CUSTOMER DET	AILS	SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No. Location	: ELES/RNC/2025/AA/0256 : Pakhar Loading Area Pakhar (109 507 ha) Bauxite Mine
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 10.01.2025 to 11.01.2025 : 13.01.2025
Mines Status	: Operational	Type of Sample Sampling Procedure	: Ambient Air : ELES/DOC/SMPL/02
Period of Analysis	: 13.01.2025 to 20.01.2025	Sampling Done By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved

MI	METEOROLOGICAL INFORMATION					
1	Average Temperature (°C) : 19	2	Barometric Pressure (mmHg)	: 725		
3	Relative Humidity (%) : 55	4	Weather Condition	: Clear		

Discipline : Chemical		Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	μg/m³	IS 5182 (Part- 23): 2022	88	100 (24hrs)	
Particulate Matter (PM2.5)	µg/m³	1S 5182 (Part- 24): 2019	51.1	60 (24hrs)	
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part- 2/Sec1): 2023	13.7	80 (24hrs)	
Nitrogen Di-Oxide (NO ₂)	μg/m³	IS 5182 (Part- 6): 2022	33.4	80 (24hrs)	
Ozone (O ₃)	μg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)	
Ammonia (NH ₃)	µg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part- 10): 2019 (NDIR Method)	1.31	2 (8hrs)	
Lead (Pb)	μg/m ⁸	IS 5182 (Part- 22): 2019	0.028	1 (24hrs)	
Nickel (Ni)	ng/m³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)	
Arsenic (As)	ng/m³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)	
Benzene (C ₄ H ₄)	µg/m³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)	
Benzo-(a)-Pyrene	ng/m³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)	

Reviewed by Akash Kumar

****End of Report****

Dr. Deependra Kumar Sinha

Ph. D. Environmental Engg

Page 1 of 1

Technical Manager

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TEST REPORT

Test Report No.	: ELES/RNC/2025/0451	Report Release Date	: 20.01.2025	
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024	
LI P No	TC1358725000000443F			

CUSTOMER DET	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/0270
		Location	: Near Bunglapart Village Pakhar Bauxite Mine
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 11.01.2025 to 12.01.2025
	The second of the second secon	Sample Received Date	: 13.01.2025
		Type of Sample	: Ambient Air
Mines Status	; Operational	Sampling Procedure	: ELES/DOC/SMPL/02
Period of Analysis	: 13.01.2025 to 20.01.2025	Sampling Done By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved

1911	ETEOROLOGICAL INFORMATION				
1	Average Temperature (°C) : 19	2	Barometric Pressure (mmH	g) : 725	
3	Relative Humidity (%) : 50	4	Weather Condition	: Clear	

Discipline: Chemic	al	Group:	Atmospheric :	Pollution
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m³	IS 5182 (Part- 23): 2022	73	100 (24hrs)
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	42	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part- 2/Sec1): 2023	13.4	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m³	IS 5182 (Part- 6): 2022	26.1	80 (24hrs)
Ozone (O ₃)	μg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	μg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Load (Pb)	μ <u>υ</u> /π ³	IS 5182 (Part- 22): 2019	0.022	1 (24hrs)
Nickel (Ni)	ng/m³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (A1)	ng/m³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C ₆ H ₄)	μg/m³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

Akadeniemed by Quality Manager

****End of Report****

Authorised Signatory Dr. Deependra Kumar Sinha Ph. D. Environmental Engg.

Page 1 of 1

Technical Manager

The Discurrent stated as Test Report, is assessed by the Laboratory scale: General Terms and Combiners, only in Company inter band in pre-approach because. The results above in the Test Report reflects the Testings does by the Laboratory as the man of involvement only and within the families of altered measure. The Laboratory is responsible for all the information or data provided on the report the information which is provided by the altered to the families of altered measure of the Laboratory. The Report measures for the provided of the Laboratory. The Report measures for the provided of the Laboratory. The Report is altered measured from the Managamer of the Laboratory. Attention to draws to the limitation of the provided on measured to altered measured to the Report of the Laboratory. The Report is altered to the Report of the Laboratory attention to draws to the limitation of the normal or approximate of the Laboratory attention to draws to the limitation of the normal or approximate of the Laboratory attention to draws to the limitation of the normal or approximate of the Laboratory attention to draw to the Report of the Laboratory attention to draw to the Report of the Laboratory attention to draw to the Report of the Laboratory attention to draw to the Report of the Laboratory attention to draw to the Report of the Laboratory attention to draw to the Report of the Laboratory attention to the Report of the Laboratory attention to the Report of the Laboratory attention to the Report of the Report Report is in 24hours former: Addressimon speci. NA A (Non Applicable), NA, (Helow December 2 min), LDL (Lower December Lamin)



PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (IHARKHAND) GST NO:- MAARCESTISDIZE

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TC-tiest

TEST REPORT

Test Report No.	: ELES/RNC/2025/0452	Report Release Date	: 20.01.2025	
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024	
ULR No.	: TC1358725000000444F			

CUSTOMER DET	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2025/AA/0271 : Yatri Shed (Near K-10) Pakhar Bauxite Mine
Address	; Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample	: 11.01.2025 to 12.01.2025 : 13.01.2025 : Ambient Air
Mines Status	: Operational	Sampling Procedure	: ELES/DOC/SMPL/02
Period of Analysis	: 13.01.2025 to 20.01.2025	Sampling Done By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved

MI	ETEOROLOGICAL INFORMATION				
1	Average Temperature (°C) : 19	2	Barometric Pressure (mm	Hg) : 725	
3	Relative Humidity (%) : 50	4	Weather Condition	: Clear	

Discipline : Chemical		Group:	Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Particulate Matter (PM10)	μg/m³	IS 5182 (Part- 23): 2022	76	100 (24hrs)		
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	43	60 (24hrs)		
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part- 2/Sec1): 2023	13.7	80 (24hrs)		
Nitrogen Di-Oxide (NO ₂)	μg/m³	IS 5182 (Part- 6): 2022	28.1	80 (24hrs)		
Ozone (O ₁)	μg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)		
Ammonia (NH ₃)	μg/m³	15 5182 (Part- 25): 2018	<10.0	400 (24hrs)		
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part- 10): 2019 (NDIR Method)	1.23	2 (8hrs)		
Lend (Pb)	µg/m²	IS 5182 (Part- 22): 2019	0.024	1 (24hrs)		
Nickel (Ni)	ng/m³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)		
Arsenic (As)	ng/m³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)		
Benzene (C _s H _k)	μg/m³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)		
Benzo-(a)-Pyrene	ng/m³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)		

Reviewed by Akasa Kumar

****End of Report****

Authorised Signatury Dr. Deependra Kumar Sinha

Ph. D. Environmental Enco.

Quality Managor

Page 1 of 1

Technical Manager

The Decement stand as Test Report, is usually the Laboratory under Occasia Lienze and Conditions, only on Company letter head in pre-appeared format. The results above in the Test Report units or relates only to the jobanesty of the Laboratory only. The information stand on the Test Report reflects the findings done by the Laboratory at the time of involvement only and within the limits of above a surrection. The Laboratory is responsible for all the information of data provided on the report, compile the information which is provided by the client. The Report names he expendently assume as full and may past of the report is not taken out of content, without prior sentim approval of the Laboratory. The Report is not full or to past whill not be published, advantage, usual for my legal actions unless prior permission has been accounted from the Management of the Laboratory Attention, as there is a theory of content of the laboratory of the correct or approximant of the Laboratory Attention and the laboratory of the laboratory of the Laboratory of the Laboratory of the Superior is substantially the form the Data of referentions of the Complete Attention on the Data of otherwise of the Test Report. The samples were begunning to be consisted. Any type of Observations or Completely segments and the data within United States of the Content of the Superior Limits (CO. Clauser Contents). Also are Completely 100 of the content of the same Time schedule mentioned in Test Report Contents and Data and Superior Contents and Data and States and States and Superior Contents and Data and States and States and Superior Contents and Data and States an Reports in Different fundat. Abbestication and INTA (Not Applicable), INDA (Below Descripe Limit), LDI, (Lower Generalise Limit).



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TEST REPORT

Test Report No.	: ELES/RNC/2025/0453	Report Release Date	: 20.01.2025	
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024	
ULR No.	: TC1358725000000445F			

CUSTOMER DET	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2025/AA/0272 : Near Utkarmit Rajkiya Prathmik Vidyalaya Bunglapurt Village Pakhar Bauxite Mine
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 11.01.2025 to 12.01.2025 : 13.01.2025
Mines Status	: Operational	Type of Sample Sampling Procedure	: Ambient Air : ELES/DOC/SMPL/02
Period of Analysis	: 13.01.2025 to 20.01.2025	Sampling Done By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved

Ţ	Average Temperature (°C) : 19	2	Barometric Pressure (mml-	lg) : 725	
3	Relative Humidity (%) : 50	4	Weather Condition	: Clear	

Discipline: Chemie	cal	Group:	Atmospheric	Pollution
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	μg/m³	IS 5182 (Part- 23): 2022	72	100 (24hrs)
Particulate Matter (PM2.5)	μg/m ¹	IS 5182 (Part- 24): 2019	35	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part- 2/Sec1): 2023	13.1	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	μg/m³	IS 5182 (Part- 6): 2022	28.1	80 (24hrs)
Ozone (O ₂)	µg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₂)	h8/m,	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	μg/m¹	IS 5182 (Part- 22): 2019	0.015	1 (24hrs)
Nickel (Ni)	ng/m³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C ₄ H ₄)	μg/m³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m³	ELES/GC/SOP/05: 2023	<0.5	O)(Annual)

Reviewed by

****End of Report****

Authorised Signatory Dr. Deependra Kumar Sinha

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Page I of I

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refer or relates only to the justiculosal dense by the Laboratory soils. The information stated on the Your Bagoot reflects the findings down by the Laboratory of the time of an obscurate only and within the limits of sizes of account only only and account of sizes of account on the limits of sizes of account on the provided by the altern. The Report cannot be expected account to full and any part of the report is not taken not of contrar, without prior written approved of the Laboratory. The Report is full or or part shall not be published, adverted the any legal actions collect prior participated from the Management of the Laboratory. Alternation of the familiarion of the covered or approvement of the Laboratory Attention of the familiarion of the law. All the complex are netword for 10 days from the Date of educations of the Report. The samples from Regulatory Scales are to be remoted on operation. Any type of Observations or Compliants regarding the Report chief for some state of the samples will be sampled. The sample from Report report of the samples will be sampled. The sample from the sample for the Report is a Silliant form. Abbreviation and Mrs. (For Applicable). SIR. (Below Compliant Limit), LOI. (Lower Dungtion Limit).



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TEST REPORT

Test Report No.	: ELES/RNC/2025/0454	Report Release Date	: 20.01.2025
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC1358725000000446F		

CUSTOMER DET	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2025/AA/0273 : Near Utkarmit Rajkiya Prathmik Vidyalaya Dumrapart Village
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	Pakhar Bauxite Mine : 11.01.2025 to 12.01.2025 : 13.01.2025
Mines Status	: Operational	Type of Sample Sampling Procedure	: Ambient Air : ELES/DOC/SMPL/02
Period of Analysis	: 13.01.2025 to 20.01.2025	Sampling Done By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved

M	ETEOROLOGICAL INFORMATION				
1	Average Temperature (°C) : 19	2	Barometric Pressure (mmH	lg) : 725	
3	Relative Humidity (%) : 50	4	Weather Condition	: Clear	

Discipline: Chemic	al	Group:	Atmospheric	Pollution
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	μg/m³	1S 5182 (Part- 23); 2022	72	100 (24hrs)
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	46	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m³	IS 5182 (Part- 2/Sec1): 2023	14.1	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m³	15 5182 (Part- 6): 2022	24.8	80 (24hrs)
Ozone (O ₃)	µg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m³	IS 5182 (Part- 25); 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m³	1S 5182 (Part- 10): 2019 (NDFR Method)	1.23	2 (8hrs)
Lead (Pb)	mg/m ¹	15 5182 (Part- 22): 2019	0.015	1 (24hrs)
Nickel (Ni)	ng/m³	IS 5182 (Part- 26); 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C ₄ H ₆)	µg/m²	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(u)-Pyrene	ng/m³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)
				T .

Reviewed by

****End of Report****

Authorised Signatory Dr. Deependra Kumar Sinha

Alash Kumar Duality Manage.

Page 1 of 1

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TEST REPORT

Test Report No.	: ELES/RNC/2025/0500	Report Release Date	: 22.01.2025	
Work Order No.	: RP/MJB/MM/24/0088/01	Work Order Date	: 30.03.2024	
ULR No.	: TC1358725000000491F		1102 1102 21 15 15 15 15 15 15 15 15 15 15 15 15 15	

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Minerals & Minerals Limited	Sample Ref. No. Sampling Date Sample Received Date	: ELES/RNC/2025/SW/0257 : 11.01.2025 : 13.01.2025	
Address	: Lohardaga, Jharkhand-835302	Type of Sample Location of Sample	: Surface Water : Near Mine Quarry No-K9. Pakhar Bauxite Mine(109.507ha)	
Mines Status	: Operational	Sampling Procedure	: ELES/DOC/SMPL/01	
Period of Analysis	: 13.01.2025 to 22.01.2025	Sampling Done By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved	

Discipline: Chemical		Group:	Tolerance Limits	
Parameter	Unit	Test Protocol	Result	ns per IS 2296-1992 Class C (Inland Surface Water)
pH (at 24.6 °C)		IS 3025 (Part-11): 2022	6.59	6.5-8.5
Temperature	°C	IS 3025 (Part 9); 2023	19.0	-
Chemical Oxygen Demand (COD)	mg/L	15 3025 (Part-58): 2023	BDL (DL: 4.0)	· ·
Biochemical Oxygen Demand (BOD) (@ 20°C for 5 days)	mg/L	APHA 24 th Ed.2023; 5210B	BDL (DL: 1.0)	3.0
Total Dissolved Solids (TDS)	mg/L	18 3025 (Part-16): 2023	82.0	1500
Total Suspended Solids (TSS)	mg/L	IS 3025 (Part-17): 2022	27.1	7.H
Oil & Grease	mg/L	IS 3025 (Part-39): 2021	BDL (DL: 0.1)	0.1
Calcium (as Ca)	mg/L	IS 3025 (Part-40): 2019	4.1	

Page 1 of 2

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20A4ECE9713D1Z4

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TC-11987

TEST REPORT

Test Report No.	: ELES/RNC/2025/0500	Report Release Date	: 22.01.2025
Work Order No.	: RP/MJB/MM/24/0088/01	Work Order Date	: 30.03.2024
III.R No	· TC1358725000000491F		

Discipline: Chemical		Group: Residues in	Group: Residues in Water	
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
Aluminum (as Al)	mg/L	IS 3025 (Part-55) :2003; RA2019	BDL (DL: 0.02)	ltt.
Iron (as Fe)	mg/L	APHA 24th Ed.2023; 3111B	0.255	50

Remarks: pH & Temperature done at site.

Reviewed by

Akash Kumar Quality Manager ****End of Report****

Authorised Signatory
Dr. Deependra Kumar Sinha
Ph. D. Environmental Engg.
Technical Manager

Page 2 of 2

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20A4ECE9713D1ZA

ENGINEERING SERVICES PVT. LTD.

Email: info@elespl.co.in , eles.ranchi@gmail.com

Phone no.: 0651-2290103 Website: www.elespl.co.in



TO 12587

TEST REPORT

Test Report No.	: ELES/RNC/2025/0501	Report Release Date	: 22.01.2025	
Work Order No.	: RP/MJB/MM/24/0088/01	Work Order Date	: 30.03.2024	
ULR No.	: TC1358725000000492F			

CUSTOMER DET	AILS	SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No. Sampling Date Sample Received Date	: ELES/RNC/2025/SL/0258 : 11.01.2025 : 13.01.2025
Address	: Lohardaga, Jharkhand-835302	Type of Sample Location of Sample	: Soil : Near Mine Quarry No- K9, Pakhar Bauxite Mine(109 507 ha
Mines Status	: Operational	Sampling Procedure	: ELES/DOC/SMPL/05
Period of Analysis	: 13.01.2025 to 22.01.2025	Sampling Done By Sample Condition	: ELES Pvt. Ltd. : Sealed

Discipline: Chemical		Group: Pollution &	Environment
Parameter	Unit	Test Protocol	Result
pH (1:2) at 24.4 °C	*	IS 2720 (Part-26): 2021	6.54
Conductivity (1:2) at 24.4 °C	μS/cm	IS 14767; 2021	190
Total Organic Carbon (TOC)	%	Soil Testing in India: 2011 (Walkley & Black Method)	0.73
Available Phosphorus (as P)	kg/ha	Soil Testing in India; 2011	2.68
Potassium (as K)	mg/kg	IS 9497: 2020	700
Available Nitrogen	96	Soil Testing in India; 2011	16.2
Chloride (as Cl) (1:2)	%	ELES/SOIL/SOP/01: 2021	0.021
Arsenic (as As)	mg/kg	ELES/SOIL/SOP/28: 2023	BDL (DL: 0.01)
Cadmium (as Cd)	mg/kg	US EPA 3050 A&B : 1996	BDL (DL: 0.1)
Lead (as Pb)	mg/kg	US EPA 3050 A&B: 1996	BDL (DL: 0.1)

Page 1 of 2

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D124

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Email: info@elespl.co.in , eles.ranchi@amail.com

Phone no.: 0651-2290103 Website: www.elespl.co.in



TG-13087

TEST REPORT

Test Report No.	: ELES/RNC/2025/0501	Report Release Date	: 22.01.2025
Work Order No.	: RP/MJB/MM/24/0088/01	Work Order Date	: 30.03.2024
ULR No.	: TC1358725000000492F		

Discipline : Chemical Group :		Group: Pollution &	Environment
Parameter	Unit	Test Protocol	Result
Magnesium (as Mg)	mg/kg	Soil Testing in India; 2011	1930
Mercury (as Hg)	mg/kg	US EPA 7473 : 2007	BDL (DL: 0.01)

Reviewed by Akash Kumar Quality Manager

****End of Report****

Or. Deependra Komer Sinha
Ph. D. Environmental Engg.
Technical Manager

Page 2 of 2

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D1Z4 ENGINEERING SERVICES PVT. LTD.

Email: info@elespl.co.in , eles.ranchi@gmail.com Phone no.: 0651-2290103

Website: www.elespl.co.in

TEST REPORT

Test Report No.	: ELES/RNC/2025/0501	Report Release Date	: 22.01.2025	
Work Order No.	: RP/MJB/MM/24/0088/01	Work Order Date	: 30.03.2024	

CUSTOMER DET	AILS	SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2025/SL/0258
		Sampling Date	: 11.01.2025
		Sample Received Date	: 13.01.2025
Address	: Lohardaga, Jharkhand-835302	Type of Sample	: Sail
		Location of Sample	: Near Mine Quarry No- K9.
			Pakhar Bauxite Mine(109,507 ha
Mines Status	: Operational	Sampling Procedure	: ELES/DOC/SMPL/05
Period of Analysis	: 13.01.2025 to 22.01.2025	Sampling Done By	: ELES Pvt. Ltd.
remod of Analysis	- 13A/1-2023 to 22.01.2023	Sample Condition	: Sealed

Discipline: Chemical		Group: Pollution & Environment	
Parameter	Unit	Test Protocol	Result
Selenium (as Se)	mg/kg	US EPA 3050 B: 1996	BDL (DL: 0.01)

Reviewed by

Alash Kumar Quality Manage: ****End of Report***

Ph. D. Environmental Engg.
Technical Manager

Page 1 of 1

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ENVIRONMENTAL LABORATORIES & ENGINEERING SERVICES PVT. LTD.

Plot No.30, Mansarovar Enclave, Tupudana, Hatia, Ranchi-834003, Jharkhand.

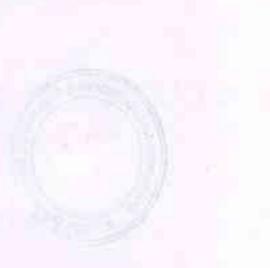
Pakhar (109.507) Bauxite Mine-Environmental Monitoring Report

February 2025



CONTENT

	Minerals & Minerals: Pakhar (109.507) Environmental Monitoring Report	February 2025
	Pakhar (109.507)	
	AMBIENT AIR QUALITY- CORE ZONE	
1	Near Mine Quarry No-K7	
2	Near Mine Quarry No-K9	
3	Near Mine Quarry No-K5	
4	Pakhar Loading Area	
	AMBIENT AIR QUALITY- BUFFER ZONE	
I	Near Bunglapart Village	
2	Yatri Shed (Near K-10)	
3	Near Utkarmit Rajkiya Prathmik Vidyalaya Bunglapart Village	
4	Near Utkarmit Rajkiya Prathmik Vidyalaya Dumrapart Village	
	Drinking Water	







PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATTA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D1Z4

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TO/UNION

TEST REPORT

Test Report No.	: ELES/RNC/2025/1303	Report Release Date	: 28.02.2025	
Work Order No.	: RP/MJB/MM/24/0088/01	Work Order Date	: 30.03.2024	
ULR No.	: TC1358725000001274F			

CUSTOMER DET	AILS	SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2025/AA/1328
		Location	: Near Mine Quarry No-K7 Pakhar (109,507 ha) Bauxite Mine
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 18.02.2025 to 19.02.2025
		Sample Received Date	: 21.02.2025
		Type of Sample	: Ambient Air
Mines Status	: Operational	Sampling Procedure	: ELES/DOC/SMPL/02
Period of Analysis	: 21.02.2025 to 28.02.2025	Sampling Done By	: ELES Pvt. Ltd.
Certon Of Athinysis	21.02.2025 to 28.02.2025	Sample Condition	: Sealed & Preserved

M	ETEOROLOGICAL INFORMA	TION			
-1	Average Temperature (°C) : 22	1 2	2	Barometric Pressure (mmHg)	: 720
3	Relative Humidity (%) : 59	1	4	Weather Condition	: Clear

Discipline : Chemic	al	Group:	Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Particulate Matter (PM10)	μg/m³	IS 5182 (Part- 23): 2022	86	100 (24hrs)		
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	49	60 (24hrs)		
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part- 2/Sec1): 2023	14.5	80 (24hrs)		
Nitrogen Di-Oxide (NO ₂)	μg/m³	1S 5182 (Part- 6): 2022	34.2	80 (24hrs)		
Ozone (O ₁)	μg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)		
Ammonia (NH ₃)	µg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)		
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part- 10): 2019 (NDIR Method)	1.34	2 (8hrs)		
Lead (Pb)	μg/m ³	IS 5182 (Part- 22); 2019	0.024	1 (24hrs)		
Nickel (Ni)	ng/m³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)		
Arsenic (As)	ng/m¹	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)		
Benzene (C _s H _n)	µg/m³	ELES/GC/SOP/06: 2023	<1.0	05(Annual)		
Benzo-(a)-Pyrene	ng/m ³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)		

Reviewed by

****End of Report****

Authorised Signatory

4-14-4

Page I of I

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D124

ENGINEERING SERVICES PVT. LTD.

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YC-13617

TEST REPORT

Test Report No.	: ELES/RNC/2025/1304	Report Release Date	: 28.02.2025	
Work Order No.	: RP/MJB/MM/24/0088/01	Work Order Date	: 30.03.2024	
ULR No.	: TC1358725000001275F			

CUSTOMER DET	AILS	SAMPLE DETAILS		
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2025/AA/1329	
		Location	: Near Mine Quarry No-K9 Pakhar (109,507 ha) Bauxite Mine	
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 18.02.2025 to 19.02.2025	
		Sample Received Date	: 21,02.2025	
		Type of Sample	: Ambient Air	
Mines Status	: Operational	Sampling Procedure	: ELES/DOC/SMPL/02	
Period of Analysis	: 21.02.2025 to 28.02.2025	Sampling Done By	: ELES Pvt. Ltd.	
renou of Analysis	-21.02.2025 to 28.02.2025	Sample Condition	: Sealed & Preserved	

MI	METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 22	2	Barometric Pressure (mmHg)	: 720	
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear	

Discipline : Chemic	al	Group:	Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Particulate Matter (PM10)	μg/m ¹	IS 5182 (Part- 23): 2022	82	100 (24hrs)		
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	44	60 (24hrs)		
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part- 2/Sec1): 2023	13.7	80 (24hrs)		
Nitrogen Di-Oxide (NO ₂)	μg/m³	IS 5182 (Part- 6): 2022	28.4	80 (24hrs)		
Ozone (O ₃)	μ <u>ο</u> /m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)		
Ammonia (NH ₃)	µg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)		
Carbon Monexide (CO)	mg/m³	IS 5182 (Part- 10): 2019 (NDIR Method)	1.22	2 (8hrs)		
Lead (Pb)	ug/m³	IS 5182 (Part- 22): 2019	0.036	1 (24hrs)		
Nickel (Ni)	ng/m³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)		
Arsenic (As)	ng/m³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)		
Benzene (C ₆ H ₆)	µg/m³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)		
Benzo-(a)-Pyrene	ng/m³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)		

Reviewed by

****End of Report****

Authorised Signatory

Chiefly Mutaca-

Page 1 of 1

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Email: info@elespl.co.in , eles.ranchi@amail.com

Phone no.: 0651-2290103 Website: www.elespl.co.in



TC-USSET

TEST REPORT

Test Report No.	: ELES/RNC/2025/1305	Report Release Date	: 28.02.2025	
Work Order No.	: RP/MJB/MM/24/0088/01	Work Order Date	: 30.03.2024	
ULR No.	: TC1358725000001276F			

CUSTOMER DET	AILS	SAMPLE DETAILS		
Customer Name	: Minerals & Minerals Limited	Sample Ref. No. Location	: ELES/RNC/2025/AA/1330 : Near Mine Quarry No-K5 Pakhar (109,507 ha) Bauxite Mine	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 18.02.2025 to 19.02.2025 : 21.02.2025	
Mines Status : Operational Sam		Type of Sample Sampling Procedure	: Ambient Air : ELES/DOC/SMPL/02	
Period of Analysis	: 21.02.2025 to 28.02.2025	Sampling Done By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved	

Mi	METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 22	2	Barometric Pressure (mmHg)	: 720	
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear	

Discipline : Chemic	al	Group:	Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	μg/m³	IS 5182 (Part- 23): 2022	87	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	45	60 (24hrs)	
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part- 2/Sec1); 2023	14.2	80 (24hrs)	
Nitrogen Di-Oxide (NO ₂)	μg/m³	IS 5182 (Part- 6): 2022	34.3	80 (24hrs)	
Ozone (O _x)	µg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)	
Ammonia (NH ₃)	μg/m²	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part- 10): 2019 (NDIR Method)	1.20	2 (8hrs)	
Lead (Pb)	μg/m³	IS 5182 (Part- 22): 2019	0.031	1 (24hrs)	
Nickel (Ni)	ng/m³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)	
Arsenic (As)	ng/m³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)	
Benzene (C ₆ H ₆)	μg/m³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)	
Benzo-(a)-Pyrene	ng/m³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)	

Reviewed by

****End of Report****

Authorised Signatory

Aless Huntar

Page 1 of 1

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ENGINEERING SERVICES PVT. LTD.

Email: info@elespl.co.in , eles.ranchi@gmail.com

Phone no.: 0651-2290103 Website: www.elespl.co.in



TQ-13687

TEST REPORT

Test Report No.	: ELES/RNC/2025/1306	Report Release Date	: 28.02.2025	
Work Order No.	: RP/MJB/MM/24/0088/01	Work Order Date	: 30.03.2024	
ULR No.	: TC1358725000001277F	11	CONTRACTOR OF THE	

CUSTOMER DET	CUSTOMER DETAILS		
Customer Name	: Minerals & Minerals Limited	Sample Ref. No. Location	: ELES/RNC/2025/AA/1331 : Pakhar Loading Area
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	Pakhar (109.507 ha) Bauxite Mine : 18.02.2025 to 19.02.2025 : 21.02.2025
Mines Status	: Operational	Type of Sample Sampling Procedure	: Ambient Air : ELES/DOC/SMPL/02
Period of Analysis	: 21.02.2025 to 28.02.2025	Sampling Done By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved

MI	METEOROLOGICAL INFORMATION						
1	Average Temperature (°C)	: 22	2	Barometric Pressure (mmHg)	: 720		
3	Relative Humidity (%)	: 59		Weather Condition	: Clear		

Discipline : Chemic	al	Group:	Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	μg/m³	IS 5182 (Part- 23): 2022	92	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	56	60 (24hrs)	
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2/Sec1): 2023	16.8	80 (24hrs)	
Nitrogen Di-Oxide (NO ₂)	μg/m³	IS 5182 (Part- 6): 2022	36.1	80 (24hrs)	
Ozone (O ₃)	μg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)	
Ammonia (NH ₃)	μg/m³	IS 5182 (Part-25): 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part- 10): 2019 (NDIR Method)	1.36	2 (8hrs)	
Lead (Pb)	μg/m³	IS 5182 (Part- 22): 2019	0.038	1 (24hrs)	
Nickel (Ni)	ng/m³	IS 5182 (Part-26): 2020	<6.0	20 (Annual)	
Arsenic (As)	ng/m³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)	
Benzene (C _s H _s)	μg/m³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)	
Benzo-(a)-Pyrene	ng/m³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)	

Reviewed by

****End of Report****

Authorised Signatory

Charley Manager

Page 1 of 1

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TC-1556T

TEST REPORT

Test Report No.	: ELES/RNC/2025/1319	Report Release Date	: 28.02.2025	
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024	
ULR No.	: TC1358725000001290F			_

CUSTOMER DET	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2025/AA/1349 : Near Bunglapart Village Pakhar Bauxite Mine
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample	: 19.02.2025 to 20.02.2025 : 21.02.2025 : Ambient Air
Mines Status	: Operational	Sampling Procedure	: ELES/DOC/SMPL/02
Period of Analysis	: 21.02.2025 to 28.02.2025	Sampling Done By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved

M	ETEOROLOGICAL INFORMATION			
1	Average Temperature (°C) : 21	2	Barometric Pressure (mm)	Hg) : 720
3	Relative Humidity (%) : 56	4	Weather Condition	: Clear

Discipline: Chemic	al	Group:	Atmospheric	Pollution
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m³	IS 5182 (Part- 23): 2022	78	I00 (24hrs)
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24); 2019	47	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part- 2/Sec1); 2023	12.8	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m³	IS 5182 (Part- 6): 2022	27.5	80 (24hrs)
Ozone (O ₃)	μg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₂)	μg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	μg/m³	IS 5182 (Part- 22); 2019	0.015	1 (24hrs)
Nickel (Ni)	ng/m³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C ₆ H ₄)	μg/m³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m³	ELES/GC/SOP/05: 2023	< 0.5	01(Annual)

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****End of Report****

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TEST REPORT

Test Report No.	: ELES/RNC/2025/1320	Report Release Date	: 28.02.2025	
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024	
III D No	· TC1358725000001291F			

CUSTOMER DET	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2025/AA/1350 : Yatri Shed (Near K-10) Pakhar Bauxite Mine
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 19.02.2025 to 20.02.2025 : 21.02.2025 : Ambient Air
Mines Status	: Operational	Type of Sample Sampling Procedure	: ELES/DOC/SMPL/02
Period of Analysis	: 21.02.2025 to 28.02.2025	Sampling Done By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved

MI	ETEOROLOGICAL INFORMATION			
1	Average Temperature (°C) : 21	2	Barometric Pressure (mmHg	0 : 725
3	Relative Humidity (%) : 56	4	Weather Condition	: Clear

Discipline : Chemic	al	Group:	Group: Atmospheric Pollution		
Parameter Unit		Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	μg/m³	IS 5182 (Part- 23): 2022	80	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	49	60 (24hrs)	
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part- 2/Sec1): 2023	12.3	80 (24hrs)	
Nitrogen Di-Oxide (NO ₂)	μg/m³	IS 5182 (Part- 6): 2022	31.7	80 (24hrs)	
Ozone (O ₂)	μg/m³	1S 5182 (Part- 9): 2019	<20.0	100 (8hrs)	
Ammonia (NH ₃)	μg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part- 10): 2019 (NDIR Method)	1.25	2 (8hrs)	
Lead (Pb)	μg/m³	IS 5182 (Part- 22): 2019	0.029	1 (24hrs)	
Nickel (Ni)	ng/m³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)	
Arsenic (As)	ng/m²	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)	
Benzene (C ₆ H ₈)	µg/m³	ELES/GC/SOP/06: 2023	<2.5	Q5(Annual)	
Benzo-(a)-Pyrene	ng/m³	ELES/GC/SOP/05: 2023	< 0.5	01(Annual)	

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TEST REPORT

Test Report No.	: ELES/RNC/2025/1321	Report Release Date	: 28.02.2025	
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024	
ULR No.	: TC1358725000001292F			

CUSTOMER DET	CUSTOMER DETAILS		The same of the sa
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2025/AA/1351 : Near Utkarmit Rajkiya Prathmik Vidyalaya Bunglapart Village Pakhar Bauxite Mine
Address Mines Status	: Lohardaga, Jharkhand-835302 : Operational	Sampling Date Sample Received Date Type of Sample Sampling Procedure	: 19.02.2025 to 20.02.2025 : 21.02.2025 : Ambient Air : ELES/DOC/SMPL/02
Period of Analysis	: 21.02,2025 to 28.02,2025	Sampling Done By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved

M	ETEOROLOGICAL INFOR	MATION				
	Average Temperature (°C)	: 21	2	Barometric Pressure (mmHg)	: 725	
3	Relative Humidity (%)	: 56	4	Weather Condition	: Clear	

Discipline: Chemic	cal	Group:	Atmospheric	Pollution
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	μg/m ²	IS 5182 (Part- 23): 2022	76	100 (24hrs)
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	42	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part- 2/Sec1): 2023	13.3	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	μg/m³	IS 5182 (Part- 6): 2022	26.3	80 (24hrs)
Ozone (O ₃)	µg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	μg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part- 10): 2019 (NDIR Method)	1.28	2 (8hrs)
Lend (Pb)	µg/m³	IS 5182 (Part- 22): 2019	0.018	1 (24hrs)
Nickel (Ni)	ng/m³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C _s H _q)	µg/m³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

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TEST REPORT

Test Report No.	: ELES/RNC/2025/1322	Report Release Date	: 28.02.2025	
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024	
ULR No.	: TC1358725000001293F			

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	; Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2025/AA/1352 : Near Utkarmit Rajkiya Prathmik Vidyalaya Dumrapart Village Pakhar Bauxite Mine	
Address Mines Status	: Lohardaga, Jharkhand-835302 : Operational	Sampling Date Sample Received Date Type of Sample Sampling Procedure	: 19.02.2025 to 20.02.2025 : 21.02.2025 : Ambient Air : ELES/DOC/SMPL/02	
Period of Analysis	d of Analysis : 21.02.2025 to 28.02.2025 Sample Condition		: ELES Pvt. Ltd. : Sealed & Preserved	

M	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	:21	2	Barometric Pressure (mmHg)	: 725
3	Relative Humidity (%)	: 56	4	Weather Condition	: Clear

Discipline : Chemic	al	Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	μg/m³	IS 5182 (Part-23): 2022	72	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	46	60 (24hrs)	
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part- 2/Sec 1): 2023	14.1	80 (24hrs)	
Nitrogen Di-Oxide (NO ₁)	μg/m³	IS 5182 (Part- 6): 2022	24.8	80 (24hrs)	
Ozone (O ₁)	μg/m³	IS 5182 (Part- 9); 2019	<20.0	100 (8hrs)	
Ammonia (NH ₃)	µg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part- 10): 2019 (NDIR Method)	1.23	2 (8hrs)	
Lead (Pb)	µg/m³	IS 5182 (Part- 22): 2019	0.015	1 (24hrs)	
Nickel (Ni)	ng/m³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)	
Arsenic (As)	ng/m³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)	
Benzene (C ₆ H ₆)	jug/m³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)	
Benzo-(a)-Pyrene	ng/m³	ELES/GC/SOP/05: 2023	<0.5	OI(Annual)	

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TC-YEART

TEST REPORT

Test Report No.	: ELES/RNC/2025/1346	Report Release Date	: 01.03.2025	
Work Order No.	: RP/MJB/MM/24/0088/01	Work Order Date	: 30.03.2024	
ULR No.	: TC1358725000001317F			

CUSTOMER DET	AILS	SAMPLE DETAILS		
Customer Name	: Minerals & Minerals Limited	Sample Ref. No. Sampling Date Sample Received Date Type of Sample	: ELES/RNC/2025/DW/1332 : 18.02.2025 : 21.02.2025 : Drinking Water	
Address	: Lohardaga, Jharkhand-835302	Source of Sample Location of Sample	: Tap Water : Mines Site	
Mines Status	: Operational	Sampling Procedure	Pakhar Bauxite Mine (109.507ha : ELES/DOC/SMPL/01	
Period of Analysis	: 21.02.2025 to 01.03.2025	Sampling Done By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved	

Discipline : Chemical Group : Water					Regulatory Limit as per IS 10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit	
pH (at 24,7 °C)		APHA 24th Ed.2023, 4500-H*	6.64	6.5-8.5	No Relaxation	
Turbidity	NTU	APHA 24th Ed.2023, 2130 B	0.92	1.0	5.0	
Taste	(9)	APHA 24th Ed.2023, 2160 C	Agreeable	Agreeable	Agreeable	
Odour	3.00	1S 3025 (Part-5) :2018	Agreeable	Agrecable	Agreeable	
Colour	Hazen	APHA 24th Ed.2023, 2120B&D	1.0	5.0	15	
Total Dissolved Solids (TDS)	mg/L	APHA 24th Ed 2023, 2540B,C&D	402	500	2000	
Chloride (as CI)	mg/L	APHA 24th Ed.2023, 4500 Cl B	26.8	250	1000	
Fluoride (as F)	mg/L	APHA 24 th Ed.2023, 4500 F-D	BDL (DL: 0.1)	1.0	1.5	
Total Alkalinity (as CaCO ₃)	mg/L	APHA 24th Ed.2023, 2320 B	182	200	600	
Total Hardness (as CaCO ₃)	mg/L	APHA 24th Ed.2023, 2340 C	168	200	600	
Sulphate (as SO ₄)	mg/L	APHA 24th Ed.2023, 4500 SO ₄ -2-E	12.3	200	400	
Nitrate (as NO ₃)	mg/L	APHA 24 th Ed.2023, 4500 NO ₃ -B	1.24	45	No Relaxation	

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATTA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D124

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TC-13881

TEST REPORT

Test Report No.	: ELES/RNC/2025/1346	Report Release Date	: 01.03.2025
Work Order No.	: RP/MJB/MM/24/0088/01	Work Order Date	: 30.03.2024
ULR No.	: TC1358725000001317F		

Discipline : Chemical		Group: Water		Regulatory Limit as per IS10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
Phenolic Compound (as C ₆ H ₃ OH)	mg/L	IS 3025 (Part 43/Sec1): 2022	BDL (DL: 0.001)	0.001	0.002
Free Residual Chlorine (RFC)	mg/L	IS 3025 (Part-26): 2021	BDL (DL: 0.1)	0.2(Min)	1.0(Min)
Calcium (as Ca)	mg/L	APHA 24th Ed.2023, 3500 Ca B	44,8	75	200
Anionic Surfactants (as MBAS)	mg/L	APHA 24th Ed.2023, 5540-C	BDL (DL: 0.025)	0.2	1.0
Discipline : Chemic	cal	Gre	oup: Residues i	n Water	
Aluminum (as Al)	mg/L	IS 3025 (Part-55) :2003; RA2019	BDL (DL: 0.02)	0.03	0.2
Arsenic (as As)	mg/L	IS 3025 (Part-37): 2022	BDL (DL: 0.005)	0.01	No Relaxation
Boron (as B)	mg/L	IS 3025 (Part-57): 2021	BDL (DL: 0.2)	0.5	1.0
Cadmium (as Cd)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.003)	0.003	No Relaxation
Total Chromium (as Cr)	mg/L	APHA 24th Ed.2023; 3111B	BDL (DL: 0.03)	0.05	No Relaxation
Copper (as Cu)	mg/L	IS 3025 (Part 42): 2019	BDL (DL: 0.03)	0.05	1.5
Cyanide (as CN)	mg/L	APHA 24th Ed.2023, 4500 CN-E	BDL (DL: 0.012)	0.05	No Relaxation
Iron (as Fe)	mg/L	APHA 24th Ed.2023; 3111B	0.043	1.0	No Relaxation
Lead (as Pb)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.01)	0.01	No Relaxation
Manganese (as Mn)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.05)	0.1	0.3
Mercury (as Hg)	mg/L	IS 3025 (Part-48): 2019	BDL (DL: 0.001)	0.001	No Relaxation
Selenium (as Se)	mg/L	IS 3025 (Part-56): 2019	BDL (DL: 0.01)	0.01	No Relaxation

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ULR No.

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TEST REPORT

: 01.03.2025 : ELES/RNC/2025/1346 Report Release Date Test Report No. : 30.03.2024 Work Order Date : RP/MJB/MM/24/0088/01 Work Order No. : TC1358725000001317F

Discipline: Chemical		Group: Resid	ues in Water	Regulatory Limit as per IS10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
Zinc (as Zn)	mg/L	APHA 24th Ed.2023; 3111B	BDL (DL: 0.1)	5.0	15
Polynuclear Aromatic Hydrocarbons (PAH)	μg/L	ELES/GC/SOP/04: 2023	BDL (DL: 0.05)	0.1	No Relaxation
Polychlorinated biphenyls (PCB)	μg/L	ELES/GC/SOP/03: 2023	BDL (DL: 0.1)	0.5	No Relaxation
Pesticides				Li	mit
Alachlor	μg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)		20
Atrazine	μg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	2	2.0
Butachlor	μg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	125	
Chlorpyriphos	μg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	30	
Ethion	μg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	3.0	
Malathion	μg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	190	
Methyl parathion	μg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.1)	0.30	
Monocrotophos	μg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	1.0	
Phorate	μg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	2.0	
Phorate Sulphone	μg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	**	
Dieldrin	μg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.01)	0.03	
Alpha HCH	μg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.006)	0.01	
Beta HCH	μg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.02)	0	.04

Page 3 of 4

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20A4ECE9713D124

ENGINEERING SERVICES PVT. LTD.

Email: info@elespl.co.in , eles.ranchi@gmail.com

Phone no.: 0651-2290103 Website: www.elespl.co.in



TC-13987

TEST REPORT

Test Report No.	: ELES/RNC/2025/1346	Report Release Date	: 01.03.2025
Work Order No.	: RP/MJB/MM/24/0088/01	Work Order Date	: 30.03.2024
ULR No.	: TC1358725000001317F		

Pesticides				
Parameter	Unit	Test Protocol	Result	Limit
Delta HCH	μg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.02)	0.04
Gamma HCH (Lindane)	μg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.02)	2.0
Endosulfan (alpha, beta and sulphate)	μg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.05)	0.40
DDT(o,p and p,p-isomers of DDT) (DDE and DDD)	μg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.05)	1.0
Discipline : Biological		Grou	p: Water	
Total Coliform (Qualitative)	Per 100 mL	IS 15185: 2021	Not Detected	Shall not be detected
Escherichia coli (Qualitative)	Per 100 mL	15 15185: 2021	Not Detected	Shan not be detected

Remarks: pH done at Site.

Reviewed by

Ahash Kumar Contity Manacas ****End of Report****

Authorised Signatory

Dr. Deependra Kumpr Sinha Ph. D. Environmental Engil-Technical Manager

Page 4 of 4

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D124 ENGINEERING SERVICES PVT. LTD.

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Website : www.elespl.co.in

TEST REPORT

Test Report No.	: ELES/RNC/2025/1346	Report Release Date	: 01.03.2025	
Work Order No.	: RP/MJB/MM/24/0088/01	Work Order Date	: 30.03.2024	

CUSTOMER DET	TAILS	SAMPLE DETAILS		
Customer Name	: Minerals & Minerals Limited	Sample Ref. No. Sampling Date Sample Received Date Type of Sample	: ELES/RNC/2025/DW/1332 : 18.02.2025 : 21.02.2025 : Drinking Water	
Address	: Lohardaga, Jharkhand-835302	Source of Sample Location of Sample	: Tap Water : Mines Site Pakhar Bauxite Mine (109.507ha)	
Mines Status	: Operational	Sampling Procedure	: ELES/DOC/SMPL/01	
Period of Analysis	: 21.02.2025 to 01.03.2025	Sampling Done By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved	

Discipline : Chemical		Group: Water		Regulatory Limit as per IS 10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
Mineral Oil*	mg/L	1S 3025 (Part-39): 2021, Clause 6 Infrared Spectroscopic method.	BDL (DL: 0.01)	0.5	No Relaxation

Remarks: (*) Parameters are outsourced to other Lab.

Reviewed by

Akash Kumar Quality Manar ****End of Report****

Authorised Signatory

Dr. Despendra Kumar Sinha Pls. D. Environ de mai Engip. Teomican variages

Page 1 of 1

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ENVIRONMENTAL LABORATORIES & ENGINEERING SERVICES PVT. LTD.

Plot No.30, Mansarovar Enclave, Tupudana, Hatia, Ranchi-834003, Jharkhand.

Pakhar (109,507) Bauxite Mine-Environmental Monitoring Report

March 2025



CONTENT

	Pakhar (109.507)
	AMBIENT AIR QUALITY- CORE ZONE
1	Near Mine Quarry No-K7
2	Near Mine Quarry No-K9
3	Near Mine Quarry No-K5
4	Pakhar Loading Area
	AMBIENT AIR QUALITY- BUFFER ZONE
1	Near Bunglapart Village
2	Yatri Shed (Near K-10)
3	Near Utkarmit Rajkiya Prathmik Vidyalaya Bunglapart Village
4	Near Utkarmit Rajkiya Prathmik Vidyalaya Dumrapart Village
	AMBIENT NOISE
	WORKZONE NOISE
	Spring Water (2)
	Dumar Part (/3/ s



PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D124



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TC-12587

TEST REPORT

Test Report No.	: ELES/RNC/2025/1668	Report Release Date	: 17.03.2025	
Work Order No.	: RP/MJB/MM/24/0088/01	Work Order Date	: 30.03.2024	
ULR No.	: TC1358725000001632F			

CUSTOMER DET	AILS	SAMPLE DETAILS		
Customer Name	: Minerals & Minerals Limited	Sample Ref. No. Location	: ELES/RNC/2025/AA/1861 : Near Mine Quarry No-K7 Pakhar (109.507 ha) Bauxite Mine	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 08.03.2025 to 09.03.2025 : 10.03.2025	
Mines Status	: Operational Type of Sample Sampling Procedure		: Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.	
Period of Analysis	: 10.03.2025 to 17.03.2025	Sampling Done By Sample Condition	: Sealed & Preserved	

M	ETEOROLOGICAL INFORMATION				
1	Average Temperature (°C) : 27	2	Barometric Pressure (mmH	g) : 720	
3	Relative Humidity (%) : 59	4	Weather Condition	: Clear	

Discipline : Chemic	al	Group:	Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	µg/m³	IS 5182 (Part- 23): 2022	81	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	45	60 (24hrs)	
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2/Sec1): 2023	13.7	80 (24hrs)	
Nitrogen Di-Oxide (NO ₂)	μg/m³	IS 5182 (Part- 6): 2022	30.5	80 (24hrs)	
Ozone (O ₃)	μg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)	
Ammonia (NH ₃)	µg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m³	1S 5182 (Part- 10): 2019 (NDIR Method)	1.28	2 (8hrs)	
Lead (Pb)	μg/m³	IS 5182 (Part- 22): 2019	0.022	I (24hrs)	
Nickel (Ni)	ng/m³	1S 5182 (Part- 26): 2020	<6.0	20 (Annual)	
Arsenic (As)	ng/m³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)	
Benzene (C ₆ H ₆)	μg/m³	ELES/GC/SOP/06: 2023	<1.0	05(Annual)	
Benzo-(a)-Pyrene	ng/m³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)	

Reviewed by

Akash Kumar

****End of Report****

Authorised Signatory Dr. Deependra Kumar Sinha

Ph. D. Environmental Engg.

Page I of I

Technical Manager

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TC-13587

TEST REPORT

Test Report No.	: ELES/RNC/2025/1669	Report Release Date	: 17.03.2025	
Work Order No.	: RP/MJB/MM/24/0088/01	Work Order Date	: 30.03.2024	
ULR No.	: TC1358725000001633F			

CUSTOMER DET	AILS	SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2025/AA/1862
		Location	: Near Mine Quarry No-K9
	494	111 120 120	Pakhar (109.507 ha) Bauxite Mine
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 08.03.2025 to 09.03.2025
		Sample Received Date	: 10.03.2025
		Type of Sample	: Ambient Air
Mines Status	: Operational	Sampling Procedure	: ELES/DOC/SMPL/02
	10.02.2025 17.02.2025	Sampling Done By	: ELES Pvt. Ltd.
Period of Analysis	: 10.03.2025 to 17.03.2025	Sample Condition	: Sealed & Preserved

MI	TEOROLOGICAL INFOR	RMATION			
1	Average Temperature (°C)	: 27	2	Barometric Pressure (mmHg)	: 720
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

Discipline : Chemic	al	Group:	Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	μg/m ³	IS 5182 (Part- 23): 2022	79	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	40	60 (24hrs)	
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part- 2/Sec1): 2023	12.9	80 (24hrs)	
Nitrogen Di-Oxide (NO ₂)	μg/m³	IS 5182 (Part- 6): 2022	31.6	80 (24hrs)	
Ozone (O ₃)	μg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)	
Ammonia (NH ₃)	μg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part- 10); 2019 (NDIR Method)	1.15	2 (8hrs)	
Lead (Pb)	μg/m³	1S 5182 (Part- 22); 2019	0.025	1 (24hrs)	
Nickel (Ni)	ng/m³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)	
Arsenic (As)	ng/m³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)	
Benzene (C ₆ H ₆)	μg/m³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)	
Benzo-(a)-Pyrene	ng/m³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)	

Reviewed by Akash Kumar

Quality Manager

****End of Report****

Dr. Deliberhord Standar Sinha Ph. D. Environmental Engg.

Lecturical manager

Page 1 of 1

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TC-13587

TEST REPORT

Test Report No.	: ELES/RNC/2025/1670	Report Release Date	: 17.03.2025	
Work Order No.	: RP/MJB/MM/24/0088/01	Work Order Date	: 30.03.2024	
ULR No.	: TC1358725000001634F			

CUSTOMER DET	AILS	SAMPLE DETAILS		
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2025/AA/1863	
	The second secon	Location	: Near Mine Quarry No-K5 Pakhar (109.507 ha) Bauxite Mine	
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 08.03.2025 to 09.03.2025	
		Sample Received Date	: 10.03.2025	
		Type of Sample	: Ambient Air	
Mines Status	: Operational	Sampling Procedure	: ELES/DOC/SMPL/02	
not represented	10.03.2026 17.03.2026	Sampling Done By	: ELES Pvt. Ltd.	
Period of Analysis	; 10.03.2025 to 17.03.2025	Sample Condition	: Sealed & Preserved	

MI	METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 27	2	Barometric Pressure (mmHg)	: 720	
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear	

Discipline : Chemic	al	Group:	Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	µg/m³	IS 5182 (Part- 23): 2022	80	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	42	60 (24hrs)	
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part- 2/Sec I): 2023	12.6	80 (24hrs)	
Nitrogen Di-Oxide (NO ₂)	μg/m³	IS 5182 (Part- 6): 2022	29.3	80 (24hrs)	
Ozone (O _A)	μg/m³	1S 5182 (Part- 9); 2019	<20.0	100 (8hrs)	
Ammonia (NH ₂)	μg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 2019 (NDIR Method)	1.18	2 (8hrs)	
Lead (Pb)	µg/m³	1S 5182 (Part- 22): 2019	0.024	1 (24hrs)	
Nickel (Ni)	ng/m³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)	
Arsenic (As)	ng/m³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)	
Benzene (C _s H _n)	μg/m³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)	
Benzo-(a)-Pyrene	ng/m³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)	

Reviewed by

Akash Kumar

****End of Report****

Koning

Authorised Signatory
Dr. Deependra Kumar Sinha

Ph. D. Environmental Engg.

Page 1 of I

Technical Manager

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D124

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TC-13587

TEST REPORT

Test Report No.	: ELES/RNC/2025/1671	Report Release Date	: 17.03.2025	
Work Order No.	: RP/MJB/MM/24/0088/01	Work Order Date	: 30.03.2024	
ULR No.	: TC1358725000001635F			

CUSTOMER DET	TAILS	SAMPLE DETAILS		
Customer Name	: Minerals & Minerals Limited	Sample Ref. No. Location	: ELES/RNC/2025/AA/1864 : Pakhar Loading Area Pakhar (109.507 ha) Bauxite Mine	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 08.03.2025 to 09.03.2025 : 10.03.2025	
Mines Status	: Operational	Type of Sample Sampling Procedure	: Ambient Air : ELES/DOC/SMPL/02	
Period of Analysis	: 10.03.2025 to 17.03.2025	Sampling Done By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved	

M	METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 27	2	Barometric Pressure (mmHg)	: 720	
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear	

Discipline : Chemic	al	Group:	Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	µg/m³	IS 5182 (Part- 23): 2022	87	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	49	60 (24hrs)	
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2/Sec1): 2023	14.4	80 (24hrs)	
Nitrogen Di-Oxide (NO ₂)	μg/m³	IS 5182 (Part- 6); 2022	32.8	80 (24hrs)	
Ozone (O ₁)	μg/m²	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)	
Ammonia (NH ₃)	μg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m³	1S 5182 (Part- 10): 2019 (NDIR Method)	1.30	2 (8hrs)	
Lead (Pb)	μg/m³	IS 5182 (Part- 22): 2019	0.040	1 (24hrs)	
Nickel (Ni)	ng/m*	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)	
Arsenic (As)	ng/m³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)	
Benzene (C ₆ H ₆)	µg/m³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)	
Benzo-(a)-Pyrene	ng/m³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)	

Reviewed by Akash Kumar

Quality Manager

****End of Report****

Authorised Signatory Dr. Deependra Kumar Sinha

Ph. D. Environmental Engg.

Page 1 of 1

rechnical Manager

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advance, used for any logist actions called price posteriors has been accurate from the University Anomalies in discountry. The Report is fall for in part shall not be published.

advance, used for any logist actions called price posteriors has been accurate from the University Anomalies in discountry to the Interface of Sabrilly contents and parameters for Laboratory and office and to the following a superstance of the Tay Report to advanced in a parameter may be provided to the following accurate of the Tay Report. The samples from Regulatory bodies are to be extended as specified. Any type of Observations or Complaints regarding the Reports shall be done within 15 days from the Date of Test Report released wood. After the time period stand believe, no complaints will be accorded. The cutter Time schedule mentioned in Test Report is in 35hours format. Abbreviation used: 50 A (Not Applicable); BDI, (Below Direction Limit); LDI. (Lower Deterrion Limit).



PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:-20AAECE9713D124



Email: info@elespl.co.in, eles.ranchi@amail.com

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TEST REPORT

Test Report No. : ELES/RNC/2025/1648 Report Release Date : 17.03.2025

Work Order No. : 13612312113 Work Order Date : 28.03.2024

ULR No. : TC1358725000001612F

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2025/AA/184 : Near Bunglapart Village Pakhar Bauxite Mine	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 07.03.2025 to 08.03.2025 : 10.03.2025	
Mines Status	: Operational	Type of Sample Sampling Procedure	: Ambient Air : ELES/DOC/SMPL/02	
Period of Analysis	: 10.03.2025 to 17.03.2025	Sampling Done By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved	

MI	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 720
3	Relative Humidity (%)	:58	4	Weather Condition	: Clear

Discipline: Chemic	al	Group:	Atmospheric !	Pollution
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m³	IS 5182 (Part- 23): 2022	83	100 (24hrs)
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	51	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m³	IS 5182 (Part-2/Sec1): 2023	13.6	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	μg/m³	IS 5182 (Part- 6): 2022	29.2	80 (24hrs)
Ozone (O ₃)	ug/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m³	18 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m	IS 5182 (Part- 22): 2019	0.020	1 (24hrs)
Nickel (Ni)	ng/m³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C ₄ H ₄)	µg/m ¹	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m ¹	ELES/GC/SOP/05: 2023	< 0.5	01(Annual)

Reviewed by Alcosh Kuntar

Quality Manager

****End of Report****

Authorised Signatory

Dr. Deependra Kumar Sinha

Ph. D. Environmental Engg.

Page 1 of 1

The Encourage stated as Test Report, to sound by the Laboratory under Desired Trains and Conditions, only on Company latter hand is pre-epipedismic stated goth to the Jahrentey only. The inflantation stated on the Tast Report reflects the flactuage does by the Laboratory as the time of accordance on the Tast Report reflects the flactuage does by the Laboratory as the time of accordance on the Tast Report reflects the flactuage does by the Laboratory as the time of accordance on the Tast Report reflects the report of the report is not false or pure of the report of the report is not false or pure desired, without prior willing approach of the Laboratory. The Report is full and any part of the report is not false or pure desired, without prior willing approach of the Laboratory. The Report is full and the published advertice, used for any legislactions of the fall and any pure of the report is not false according to the Laboratory. Attention is drawn to the fall instance of liability, compensation and particular transfer and the fall according to the Laboratory and the laboratory of the laboratory and the laboratory an



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TEST REPORT

Test Report No.	: ELES/RNC/2025/1649	Report Release Date	: 17.03.2025
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC1358725000001613F		

CUSTOMER DET	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2025/AA/1842 : Yatri Shed (Near K-10) Pakhar Bauxite Mine
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 07.03.2025 to 08.03.2025 : 10.03.2025
Mines Status	: Operational	Sampling Procedure Sampling Done By	: Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.
Period of Analysis	: 10.03.2025 to 17.03.2025	Sample Condition	: Sealed & Preserved

MI	ETEOROLOGICAL INFO	RMATION			
1	Average Temperature (9C)	: 25	2	Barometric Pressure (mmHg)	: 720
3	Relative Humidity (%)	: 58	4	Weather Condition	: Clear

Discipline : Chemic	al	Group:	Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	μg/m ¹	IS 5182 (Part- 23): 2022	75	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	43	60 (24hrs)	
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part- 2/Sec1): 2023	11.8	80 (24hrs)	
Nitrogen Di-Oxide (NO ₂)	μg/m³	IS 5182 (Part- 6); 2022	29.3	80 (24hrs)	
Ozone (O ₃)	µg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)	
Ammonia (NH ₃)	µg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part- 10): 2019 (NDIR Method)	1.31	2 (8hrs)	
Lead (Pb)	µg/m²	IS 5182 (Part- 22): 2019	0.032	1 (24hrs)	
Nickel (Ni)	ng/m²	IS 5182 (Part- 26): 2020	<6,0	20 (Annual)	
Arsenic (As)	ng/m³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)	
Benzene (C _a H _b)	μg/m³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)	
Benzo-(a)-Pyrene	ng/m³	ELES/GC/SOP/05: 2023	<0.5	(Inunual)	

Reviewed by

Akush Kumaz

****End of Report****

Authorised Signatory

Dr. Despendra Kumar Sinha

County - Mayor

Ph. D. Environmentar Engg:

The Discussers coved as Two Report is bound by the Laboratory under General Terms and Caladinana, only on Congressy lates based in pre-Emphrical Manager was in the Test Report reflects the facilities down by the Laboratory or the information was due to the Test Report reflects the findings down by the Laboratory or the since of mentions and within the limits of allient's interactions. The Laboratory is responsible for all the information of allient's interactions. The Laboratory is responsible for all the information of allient's interactions which is previously by the alient. The Report within the litture of allows a measurement. The Laboratory is responsible for all the inflamentance of the copied on the copied on the copied in the inflamentance whose of provided by the client. The Report cannot be reproduced enough as full and any part of the report is not offer out of content, without prior written approprial of the Laboratory. The Report is full or in part of the report in the part in the Management of the Laboratory. Attention to those to the finitions of includity, compressed and entered absorbing the finite content of the content of the content of the finite content of the content of the content of the finite content of the content of the finite con



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1 Transaction

TEST REPORT

 Test Report No.
 : ELES/RNC/2025/1650
 Report Release Date
 : 17.03.2025

 Work Order No.
 : 13612312113
 Work Order Date
 : 28.03.2024

ULR No. : TC1358725000001614F

CUSTOMER DET	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2025/AA/1843 : Near Utkarmit Rajkiya Prathmik Vidyalaya Bunglapart Village Pakhar Bauxite Mine
Address Mines Status	: Lohardaga, Jharkhand-835302 : Operational	Sampling Date Sample Received Date Type of Sample Sampling Procedure	: 07.03,2025 to 08.03,2025 : 10.03,2025 : Ambient Air : ELES/DOC/SMPL/02
Period of Analysis	: 10.03.2025 to 17.03.2025	Sampling Done By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved

M	ETEOROLOGICAL INFORM	MATION				
1	Average Temperature (%C)	25	2	Barometric Pressure (mmHg)	: 720	
3	Relative Humidity (%)	: 58	-4	Weather Condition	: Clear	

Discipline: Chemic	al	Group:	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit			
Particulate Matter (PM10)	µg/m³	IS 5182 (Part- 23): 2022	76	100 (24hrs)			
Particulate Matter (PM2.5)	µg/m³	IS 5182 (Part- 24): 2019	37	60 (24hrs)			
Sulphur Di-Oxide (SO ₂)	µg/m ¹	IS 5182 (Part- 2/Sec1): 2023	14.2	80 (24hrs)			
Nitrogen Di-Oxide (NO ₂)	µg/m³	IS 5182 (Part- 6): 2022	27.7	80 (24hrs)			
Ozone (O ₃)	µg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)			
Ammonia (NH ₁)	µg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)			
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10); 2019 (NDIR Method)	<1.0	2 (8hrs)			
Load (Pb)	hā/m	IS 5182 (Part- 22): 2019	0.013	1 (24hrs)			
Nickel (Ni)	ng/m³	IS 5182 (Part- 26): 2020	< 6.0	20 (Annual)			
Arsenit (As)	ng/m²	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)			
Benzene (C _e H _e)	μg/m ³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)			
Benzo-(a)-Pyrene	ng/m³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)			

Reviewed by Akaub Kumar

- Quality-d-humocom

****End of Report****

Authorised Signatory Dr. Deependra Kumar Sinha

Page 1 of 1 Ph. D. Environmental Englis

The Dominion stand as Test Report, to bound by the Lebestory under Grand Terms and Certifician, only on Company letter band in **Physical Addition path** shares in the Test Report software sortly to the job/analysis done by the Lebestory only. The information stands on the Test Report software shared on the Test Report software shared on the Indianance of the Information shared as the information of the Information shared in the report of the support of the report of the report of the support of th



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CON: (J.74 FEB. H2018FTC0111155

Work Order No.

TEST REPORT

Report Release Date : 17.03.2025 Test Report No. : ELES/RNC/2025/1651 Work Order Date : 28.03.2024

ULR No. : TC1358725000001615F

ATTENDO OCICAL INFORMATION

: 13612312113

CUSTOMER DET	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2025/AA/1844 : Near Utkarmit Rajkiya Prathmik Vidyalaya Dumrapart Village Pakhar Bauxite Mine
Address Mines Status	: Lohardaga, Jharkhand-835302 : Operational	Sampling Date Sample Received Date Type of Sample Sampling Procedure	: 07.03.2025 to 08.03.2025 : 10.03.2025 : Ambient Air : ELES/DOC/SMPL/02
Period of Analysis	: 10.03.2025 to 17.03.2025	Sampling Done By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved

		Philip	Chart	Bestonal	Darult	Depulatory Limit
Ξ	Discipline : Chemi	cal		Group: A	tmospheric	Pollution
3	Relative Humidity (%)	: 58	4	Weather Condition	- 39	Clear
1	Average Temperature (°C) :25	2	Barometric Pressure (mmHg) :	720
_	ETEOROLOGICAL INFO				11575	Mark.

Discipline: Chemic	al	Group:	Group: Atmospheric Pollution			
Parameter Unit		Test Protocol	Result	Regulatory Limit		
Particulate Matter (PM10)	µg/m ³	1S 5182 (Part- 23): 2022	71	100 (24hrs)		
Particulate Matter (PM2.5)	µg/m³	IS 5182 (Part-24): 2019	40	60 (24hrs)		
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2/Sec1): 2023	12.9	80 (24hrs)		
Nitrogen Di-Oxide (NO ₂)	μg/m³	IS 5182 (Part- 6): 2022	29.1	80 (24hrs)		
Ozone (O ₃)	µg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (Shrs)		
Ammonía (NH ₃)	µg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)		
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part- 10): 2019 (NDIR Method)	1.24	2 (8hrs)		
Lead (Pb)	µg/m³	IS 5182 (Part- 22): 2019	0.022	1 (24hrs)		
Nickel (Ni)	ng/m²	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)		
Arsenic (As)	ng/m³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annuil)		
Benzene (C,H,)	µg/m³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)		
Benzo-(a)-Pyrene	ng/m³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)		

-177

****End of Report****

Authorised Signatory

Dr. Deependra Kumar Sinha

Page 1 of 1

Ph. D. Environmental Engg.

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TC-13887

TEST REPORT

Test Report No.	: ELES/RNC/2025/1675	Report Release Date	: 17.03.2025
Work Order No.	: RP/MJB/MM/24/0088/01	Work Order Date	: 30.03.2024
ULR No.	: TC1358725000001639F		

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name Address	: Minerals & Minerals Limited : Lohardaga, Jharkhand-835302	Sampling Date Sampling Received Date Type of Sample Sampling procedure Sampling Done By	: 08.03.2025 to 09.03.2025 : 10.03.2025 : Ambient Noise : ELES/DOC/SMPL/03 : ELES Pvt. Ltd.	
Mines Status	: Operational	Period of Analysis	: 10.03.2025 to 13.03.2025	

M	ETEOROLOGICAL INFORMATION			
1	Average Temperature (°C) : 27	2	Barometric Pressure (mm	Hg) : 720
3	Relative Humidity (%) : 59	4	Weather Condition	: Clear

Discipline: Chemical	Discipline : Chemical				Pollution
Location	Unit	Test Protocol	Rest	ilt	Regulatory Limit (Industrial Zone)
Near Mine Quarry No-K7, Pakhar Bauxite Mine (109.507 ha) Sample ID: ELES/RNC/2025/AN/1868	dB(A)	IS 9989: 2020	Time	Leg	
			Day Time	63	75 dB(A) Duy Time &
			Night Time	47	70 dB(A) Night Time

Reviewed by Alash Kumar Quality Manager

****End of Report****

Dr. Delegenera Yammer Binha Ph. D. Environmental Engg. Technical Manager

Page 1 of 1

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TC-13587

TEST REPORT

Test Report No.	: ELES/RNC/2025/1673	Report Release Date	: 17.03.2025
Work Order No.	: RP/MJB/MM/24/0088/01	Work Order Date	: 30.03.2024
ULR No.	: TC1358725000001637F		

CUSTOMER DE	TAILS	SAMPLE DETAILS		
Customer Name Address	: Minerals & Minerals Limited : Lohardaga, Jharkhand-835302	Sampling Date Sampling Received Date Type of Sample Sampling procedure Sample Drawn By	: 09.03.2025 : 10.03.2025 : Workzone Noise : ELES/DOC/SMPL/03 : ELES Pvt. Ltd.	
Mines Status	: Operational	Period of Analysis	: 10.03.2025 to 13.03.2025	

MI	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 29	2	Barometric Pressure (mmHg)	: 720
3	Relative Humidity (%)	: 61	4	Weather Condition	: Clear

Location	Unit	Test Protocol	Res	ult	Regulatory Limit (Industrial Zone)
Loading Point Near Dumper -			Time	L_{eq}	
Pakhar Bauxite Mines (109.507 ha.)	dB(A)	IS 4758: 2017	Don Time	73	90 dB(A)
Sample ID: ELES/RNC/2025/WN/1866			Day Time	13	

Reviewed by Akash Kumar Quality Manager

****End of Report****

Authorised Signatory
Dr. Deependra Kumar Sinha
Ph. D. Environmental Engg.
Technical Manager

Page 1 of 1

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ENGINEERING SERVICES PVT. LTD.

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Phone no.: 0651-2290103 Website: www.elespl.co.in



TEST REPORT

Test Report No.	: ELES/RNC/2025/1753	Report Release Date	: 20.03.2025	
Work Order No.	: RP/MJB/MM/24/0088/01	Work Order Date	: 30.03.2024	
ULR No.	: TC1358725000001712F			

CUSTOMER DET	AILS	SAMPLE DETAILS	
Customer Name Address	: Minerals & Minerals Limited : Lohardaga, Jharkhand-835302	Sample Ref. No. Sampling Date Sample Received Date Type of Sample Source of Sample Location of Sample	: ELES/RNC/2025/SW/1870 : 08.03.2025 : 10.03.2025 : Surface Water : Spring Water : Dumarpart Village, Pakhar Bauxite Mine (109.507 ha)
Mines Status	: Operational	Sampling Procedure	: ELES/DOC/SMPL/01
Period of Analysis	: 10.03.2025 to 17.03.2025	Sampling Done By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved

Discipline: Chemical		Gr	oup: Water	Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
pH (at 24.8 °C)	3	IS 3025 (Part-11): 2022	6.53	6.5-8.5
Colour	Hazen	IS 3025 (Part -4): 2021	5.4	300
Odour	141	IS 3025 (Part-5) : 2018	Unobjectionable	V.
Turbidity	NTU	IS 3025 (Part-10): 2023	0.84	72
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part-16): 2023	48.0	1500
Total Alkalinity (as CaCO ₂)	mg/L	IS 3025 (Part-23): 2023	18.3	
Total Hardness (as CaCO ₁)	mg/L	IS 3025 (Part-21): 2019	11.7	6
Sulphate (as SO ₄)	mg/L	IS 3025 (Part-24/Sec1): 2022	3.2	400
Chloride (as Cl)	mg/L	IS 3025 (Part-32): 2019	7.7	600
Fluoride (as F)	mg/L	IS 3025 (Part-60): 2019	BDL (DL: 0.1)	1.5
Nitrate (as NO ₃)	mg/L	APHA 24th Ed.2023, 4500 NO ₃ -B	1.24	50

Page 1 of 4

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PLOT NO-30, MANSARDVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO- 20AAECE9713D124

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TEST REPORT

 Test Report No.
 : ELES/RNC/2025/1753
 Report Release Date
 : 20.03.2025

 Work Order No.
 : RP/MJB/MM/24/0088/01
 Work Order Date
 : 30.03.2024

ULR No. : TC1358725000001712F

Discipline : Chemical		Group: Wa	ter	Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
Free Residual Chlorine (RFC)	mg/L	IS 3025 (Part-26): 2021	BDL (DL: 0.1)	-
Phenols Compounds (as C ₆ H ₅ OH)	mg/L	1S 3025 (Part-43/Sec1): 2022	BDL (DL: 0.001)	0.005
Culcium (as Cu)	mg/L	IS 3025 (Part-40): 2019	3.1	-
Discipline : Chen	nical	Gre	oup: Residues	in Water
Aluminum (as Al)	mg/L	IS 3025 (Part-55): 2003;RA2019	BDL (DL: 0.02)	144
Arsenic (as As)	mg/L	IS 3025 (Part 37):2022	BDL (DL: 0.005)	0.2
Boron (as B)	mg/L	IS 3025 (Part-57): 2021	BDL (DL: 0.2)	5 m
Cadmium (as Cd)	mg/L	APHA 24th Ed.2023; 3111B	BDL (DL: 0.003)	0.01
Total Chromium (as Cr)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.03)	0.05
Copper (as Cu)	mg/L	IS 3025 (Part 42): 2019	BDL (DL: 0.03)	1.5
Iron (as Fe)	mg/L	APHA 24th Ed.2023; 3111B	0.120	50
Lead (as Pb)	mg/L	APHA 24th Ed.2023; 3111B	BDL (DL: 0.01)	0.1
Manganese (as Mn)	mg/L	APHA 24th Ed.2023; 3111B	BDL (DL: 0.05)	166
Mercury (as Hg)	mg/L	IS 3025 (Part-48): 2019	BDL (DL: 0.001)	I**
Selenium (as Se)	mg/L	IS 3025(Part-56): 2019	BDL (DL: 0.01)	0.05
Zinc (as Zn)	mg/L	APHA 24th Ed,2023; 3111B	BDL (DL: 0.1)	15

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D1Z4

ENGINEERING SERVICES PVT. LTD.

Email: info@elespl.co.in, eles.ranchi@gmail.com

Phone no.: 0651-2290103 Website: www.elespl.co.in



10-13587

TEST REPORT

Test Report No. : ELES/RNC/2025/1753 Report Release Date : 20.03.2025

Work Order No. : RP/MJB/MM/24/0088/01 Work Order Date : 30.03.2024

ULR No. : TC1358725000001712F

Discipline : Chemie	cal	Group: Residue	in Water	Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
Cyanide (as CN)	mg/L	APHA 24th Ed.2023, 4500 CN-E	BDL (DL: 0.012)	0.05
Polynuclear Aromatic Hydrocarbons (PAH)	μg/L	ELES/GC/SOP/04: 2023	BDL (DL: 0.05)	5
Pesticides				
Alachlor	μg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	2
Atrazine	μψ/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	*
Butachlor	μg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	(H)
Chlorpyriphos	μg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	-
Ethion	μg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	**
Malathion	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	55 (i
Methyl parathion	μg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.1)	447
Monocrotophos	μg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	**
Phorate	μg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	**
Phorate Sulphone	μg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	
Dieldrin	μg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.01)	**

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TC-13587

TEST REPORT

Test Report No. : ELES/RNC/2025/1753 Report Release Date : 20.03.2025

Work Order No. : RP/MJB/MM/24/0088/01 Work Order Date : 30.03.2024

ULR No. : TC1358725000001712F

Pesticides				Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
Alpha HCH	μg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.006)	==
Beta HCH	μg/L	ELES/GC/SOP/02: 2023	BDL, (DL: 0.02)	24
Delta HCH	μg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.02)	*
Gamma HCH (Lindane)	μg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.02)	**
Endosulfan (alpha, beta and sulphate)	μg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.05)	*1
DDT(o,p and p,p-isomers of DDT) (DDE and DDD)	μg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.05)	*/
Discipline: Biolo	gical	Gre	oup: Water	
Total Coliform	CFU/100 mL	IS 15185: 2021	4.31×10 ²	5000
Escherichia coli	CFU/100 mL	IS 15185; 2021	BDL (DL: 1.0)	-

Remarks; pH & RFC done at site.

Reviewed by Akash Kumar Quality Manager

****End of Report****

Authorised Signatory
Dr. Deependra Kumar Sinha
Ph. D. Environmental Engg.
Technical Manager

Page 4 of 4

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TEST REPORT

Test Report No.	: ELES/RNC/2025/1753	Report Release Date	: 20.03.2025	
Work Order No.	: RP/MJB/MM/24/0088/01	Work Order Date	: 30.03.2024	

CUSTOMER DET	AILS	SAMPLE DETAILS		
Customer Name Address	: Minerals & Minerals Limited : Lohardaga, Jharkhand-835302	Sample Ref. No. Sampling Date Sample Received Date Type of Sample Source of Sample Location of Sample	: ELES/RNC/2025/SW/1870 : 08.03.2025 : 10.03.2025 : Surface Water : Spring Water : Dumarpart, Pakhar Bauxite Mine (109.507 ha)	
Mines Status	: Operational	Sampling Procedure	: ELES/DOC/SMPL/01	
Period of Analysis	: 10.03.2025 to 20.03.2025	Sampling Done By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved	

Discipline : Chemical			up: Water	Tolerance Limits	
Parameter U		Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water	
Taste	2	APHA 24th Ed.2023, 2160C	N/A	- ma	
Anionic Surfactants (as MBAS)	mg/L	APHA 24th Ed.2023, 5540-C	BDL (DL: 0.025)	1.0	
Mineral Oil*	mg/L	IS 3025 (Part-39):2021 (Clause 6 Infrared Spectroscopic Method)	BDL (DL: 0.05)		

Remarks: 1. (*) Parameters are outsourced to other Lab.

Reviewed by Akash Kumar Quality Manager

****End of Report****

Authorised Signatory

Dr. Deependra Kumar Sinha Ph. D. Environmental Engg. Technical Manager

Page 1 of 1

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MINERALS & MINERALS LIMITED

Regd. Office- Court Road, P.O. & Distt.-Lohardaga, Jharkhand-835302 Tel.-06526-223163

CIN NO. U26990JH1970PLC000875

Ref.:	Date

Annexure 3

Date - 01.05.2025

Office Order

Environmental Cell has been re-constituted for Pakhar Group of Mines (Pakhar – 109.507 ha, Pakhar – 15.58 ha Bauxite Mines). This cell consists of the following team members who will ensure compliance with the Environment Acts, Rules & Regulations in respect of the said mines of Minerals & Minerals Limited.

- 1. Mr. Jitendra Kumar (Coordinator)
- 2. Mr. Chandan Kumar (Geologist)
- 3. Mr. Girija Tamrakar (Environment Engineer)
- 4. Mr. Anand Prakash Tiwari (Environment Engineer)

The Undersigned is the in charge of above Environment Management Cell constituted for the purpose of ensuring compliances of environmental acts, rules and regulations for the above mines.

Basudev Gangopadhyay
AVP (Planning, Environment & Compliance)

Annexure 4

	Production, Mined Out, Back Filled and Over Burden removal from October'24 to March'25							
S No	Name of the Mines	Mining lease area (ha)	Production Capacity (MT)*	Lease Period*	Production (MT)	Mined out area (ha)	Backfilled area (ha)	Over burden (Cu.M)
1	Bagru Bauxite Mine	75.41	85000	22.01.1974 to 31.03.2030	NIL	NIL	NIL	NIL
2	Bhusar Bauxite Mine	65.31	280000	11.07.1981 to 31.03.2030	86061	1.53	0.695	88218.66
3	Hisri (New) Bauxite Mine	14.55	100000	19.07.1981 to 31.03.2030	25362	0.345	0.10	30825.23
4	Pakhar (8.09) Bauxite Mine	8.09	80000	16.05.1973 to 31.03.2030	NIL	NIL	NIL	NIL
5	Pakhar (35.12) Bauxite Mine	35.12	200000	17.04.1975 to 31.03.2030	NIL	NIL	NIL	NIL
6	Pakhar (115.13) Bauxite Mine	115.13	300000	19.07.1996 to 31.03.2030	109753	2.12	7.6	332929.81
7	Sherangdag-A Bauxite Mine	155.81	260000	16.10.1974 to 31.03.2030	2989	0.02	0.02	2110.0
8	Serangdag-B Bauxite Mine	77.89	100000	04.10.1978 to 31.03.2030	35253	0.756	0.35	38119.67
9	Jalim & Sanai Bauxite Mine	12.14	50000	16.10.1974 to 31.03.2030	24760	0.13	0.08	12444.82
10	Gurdari Bauxite Mine	584.19	325000	23.03.1985 to 22.03.2035	105401	4.42	3.76	185747.47
11	Kujam - I Bauxite Mine	80.87	150000	13.03.2006 to 12.03.2056	NIL	NIL	2.54	NIL
12	Kujam - II Bauxite Mine	157.38	300000	24.03.2006 to 23.03.2056	61250	2.40	4.72	136798.61
13	Amtipani Bauxite Mine	190.95	150000	13.03.2006 to 12.03.2056	62240	4.047	6.423	255249.72

	Minerals & Minerals Limited							
14	Pakhar (109.507) Bauxite Mine	109.507	280000	26.07.2008 to 25.07.2058	112559	0.44	3.62	255124.1
15	Pakhar (15.58) Bauxite Mine	15.58	60000	28.04.1965 to 31.03.2030	5015	0.26	0.42	11644.5
16	Bimarla Bauxite Mine	134.526	300000	18.07.2009 to 17.07.2059	93500	3.956	5.37	156892.41
17	Amtipani Chirodih Bauxite Mine	130.01	450000	11.01.2017 to 10.01.2067	114100	5.43	5.133	233823.46

^{*}Static information about the mines included in the above table

Basudev Gangopadhyay
AVP (Planning, Environment and Compliance)

BREAK UP THE COST OF ENVIRONMENTAL MEASURES DURING THE YEAR 2024-25

The composite cost during the year 2024-25 for environmental protection & pollution control by Jharkhand Mines division of M/s Hindalco Industries Ltd & M/s Minerals & Minerals Ltd for implementation of the suggested measures in EC at our all the operating mines in the state of Jharkhand-namely Bagru (75.41 ha), Hisri New (14.55 ha), Bhusar (65.31 ha), Pakhar (115.13 ha), Pakhars (109.507 ha), Pakhar (15.58 ha), Pakhar (8.09 ha), Pakhar (35.12 ha), Sherangdag (155.81 ha), Serangdag (77.89 ha), Jalim & Sanai (12.14 ha), Bimarla Bauxite Mines (134.526 ha), Gurdari (584.19 ha), Amtipani (190.95 ha), Kujam I (80.87 ha) Kujam II (157.38 ha), and Amtipani Chirodih (130.01 ha) Bauxite mines.

S.No	Description	Budget (in Rupees) FY 2024-25 (From Oct'24 to Mar'25)	Actual (in Rupees) FY 2024-25 (From Oct'24 to Mar'25)
1	Pollution Control and Environmental Monitoring	61,35,000.00	42,08,879.10
2	Reclamation/ Back filing & Rehabilitation**	5,62,80,000.00	5,32,33,879.71
3	Green belt, Plantation & Water sprinkling arrangement	73,42,000.00	43,51,560.28
4	Rural Development	2,75,00,000.00	3,13,06,810.81

^{**}Part of OB removed cost

Basudev Gangopadhyay

AVP (Planning, Environment & Compliance)