

Date: 16th May 2025

#### HIL/LHD/ENV/MoEF&CC/062

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

**Sub:** Six Monthly EC Compliance Report for Pakhar (115.13 Ha) Bauxite Mining project of M/s Hindalco Industries Limited, Lohardaga Jharkhand for the period from October 2024 to March 2025.

Ref: Environmental Clearance Letter No. J-11015/406/2007-IA II (M), dated 27<sup>th</sup> November 2012.

Dear Sir,

With reference to the above, we are submitting herewith the Compliance status report of EC conditions for Pakhar (115.13 Ha) Bauxite Mining project of M/s Hindalco Industries 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)	<b>Production Capacity (MT)</b>	Lease Period
115.13	300000	19.07.1996 to 31.03.2030

Hope you will find the same in order.

Thanking You

Yours faithfully,

For Hindalco Industries Limited

**Basudev Gangopadhyay** 

**AVP (Planning, Environment & Compliance)** 

Enclosure: - As Above

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

Name of the Project : Pakhar Bauxite Mine (115.13 ha)
M/s Hindalco Industries Limited

Environment Clearance No. & date : J-11015/406/2007-IA. II(M), dated 27.11.2012

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

**Specific Conditions: -**

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

**Reply:-** Consent to Operate (CTO) has been obtained. The Stipulated conditions of CTO are being implemented and complied with. The existing Consent to Operate (CTO) is valid till 31<sup>st</sup> December 2025.

Condition ii:- All the conditions stipulated by the Jharkhand State Pollution Control Board in their NOC shall be effectively implemented.

**Reply:** - Implementations of stipulated conditions in NOC are fulfilled post which consent to operate has been obtained from time to time. The existing consent to operate is valid up to 31<sup>st</sup> December 2025. Productions of bauxite are within limits specified in consent to operate.

Condition iii: - Corporate Environment Policy and hierarchical system for ensuring adherence to the policy and compliance with environmental regulation in accordance with the office memorandum dated 26.4.2011 issued by MoEF should be put in place.

**Reply: -** Corporate Environment Policy and hierarchical system is in place.

Condition iv:- The Company shall submit within 3 month their policy towards Corporate Environment Responsibility which should inter-alia address (i) Standard operating process/procedure to bring Into focus any infringements/ deviation/ violation of environmental or forest norms/conditions, (ii) Hierarchical system or Administrative order of the company to deal with environmental issues and ensuring compliance EC conditions and (iii) System of reporting of non-compliance/violation environmental norms to the Board of Directors of the Company and/or stakeholders or shareholders.

**Reply: -** Policy towards Corporate Environment Responsibility is part of Corporate Environment policy and in place. A copy of our Environmental Policy has already been submitted to the relevant statutory authorities. The company has implemented a system in line with the above policies which addresses the following points. (i) Standard operating process / process to bring into focus any infringement / deviation / violation of the environmental or forest norms / conditions, (ii) Hierarchical system or administrative order of the company to deal with the environmental issues and for ensuring compliance with the EC conditions and (iii) System of reporting of non-compliances / violations of environmental norms to the Board of Directors of the company.

Condition v: - The environmental clearance is subject to approval of the State Land use Department, Government of Jharkhand for diversion of agricultural land for non-agricultural use.

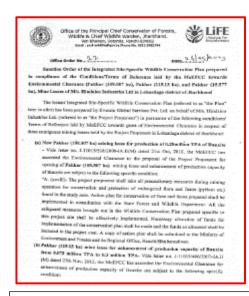
**Reply:** - Land acquisition is being done with permission of competent authority of State Government i.e. concerned Deputy Commissioner (D.C.) under CNT Act. The land lease agreement is being done with raiyat (Landowner) after permission of State Govt with provision of returning the land as per the 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.

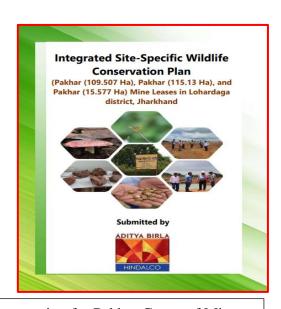
Condition vi: - The critical habitat in the area including dens of python, fox and bear should be protected by adopting appropriate wildlife conservation measures.

**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 vii: - The mining operations shall be restricted to above ground water table and it should not intersect the groundwater table. In case of working below the ground water table, prior approval of the Ministry of Environment and Forests and the 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 maintain 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 viii: - The project proponent shall ensure that no natural watercourse and/or water resources shall be obstructed due to any mining operations. Adequate measures shall be taken for conservation and protection of the 1st and  $2^{nd}$  order streams, if any emanating or passing through 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 ix: - 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. Data pertaining to backfilling is enclosed as **Annexure 4.** 





**Reclaimed Land** 

Condition x: - The over burden (OB) generated during the mining operation shall be temporarily stacked at earmarked dump site(s) only for the purpose of backfilling. Backfilling shall commence from the third year onwards and thereafter the waste generated shall be concurrently backfilled in the mined-out area. There shall be no external OB dump. An area of 16.39ha of the worked out pit shall be backfilled and reclaimed by plantation during the plan period. Monitoring and management of rehabilitated areas shall continue until the vegetation becomes self-sustaining. Compliance status should be submitted to the Ministry of Environment & Forests and its Regional Office, 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 is continuing until vegetation becomes self-sustaining through supervision. Data pertaining to backfilling is enclosed as **Annexure 4.** Compliance status is being submitted to MoEF&CC on six monthly basis.

Condition xi: - Catch drains and siltation ponds of appropriate size shall be constructed for the working pit, temporary soil, OB and mineral dumps to arrest flow of silt and sediment directly into the agricultural fields, the Chaupat Nadi, the Kisko Nadi, the Shankh Nadi, Kisko Nallah, the Narachiya Nal lah 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 the monsoon and maintained properly.

Garland drains, settling tanks and check dams of appropriate size, gradient and length shall be constructed both around the mine pit and temporary over burden dumps to prevent run off of water and flow of sediments directly into the agricultural fields, the Chaupat Nadi, the Kisko Nadi, the Shankh Nadi, Kisko Nallah, the Narachiya Nallah 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 settling 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. Photograph of the same is attached below.



De-siltation arrangement

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

**Reply:** - There is no external dump.

Condition xiii: - The void left unfilled in an area of 4.5ha shall be converted into water body. The higher benches of excavated void/mining pit shall be terraced and plantation done to stabilize the slopes. The slope of higher benches shall be made gentler for easy accessibility by local people to use the water body. Peripheral fencing shall be carried out all along the excavated area.

**Reply:** - Water body created in Mine lease area. Total 4.39 ha has been converted into water bodies (Rainwater harvesting ponds) within the lease. Implementation of condition is in progress. Further water bodies will be created as required. Mining is being carried out in a scientific manner as per Mining Plan approved by IBM. Necessary measures have been implemented for easy accessibility by local people to use this harvested water. Proper fencing is provided along excavated area.



Rainwater Harvesting Pond

Condition xiv: - Plantation shall be raised in an area of 24.09ha including a 7.5m wide green belt in the safety zone around the mining lease by planting the native species around reclaimed area, mine benches, around water body, along the roads etc. in consultation with the local DFO/Agriculture Department. The density of the trees should be around 1500 plants per hectare. 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 6250 nos. saplings have been planted within the mining lease. Cumulative 20.74 ha areas have been planted till date. In addition to this, agricultural activities is going on reclaimed land as per consent from landowners. Green belt development program is in progress with the progress of mining activities in a phased manner.



Plantation at mines

Condition xv: - Effective safeguard measures such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as around crushing and screening plant, loading and unloading point and 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:** - Effective safeguard measures, such as 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 are attached herewith below.



Water Tanker

Condition xvi: - 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 Central Ground Water Board. The photograph of Rainwater Harvesting Pond is already attached above.

Condition xvii: - Regular monitoring of ground water level and quality shall be carried out in and around the mine lease by establishing a network of existing wells and installing new piezometers during the operation. The periodic monitoring [(at least four times in a year- pre-monsoon (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 Bhubneswar, the Central Ground Water Authority and the Regional Director, Central Ground Water Board. If at any stage, it is observed that the groundwater 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, 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 xviii: - Appropriate mitigative measures should be taken to prevent pollution of the Chaupat Nadi, the Kisko Nadi and the Shankh 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 ensuring that water does not flow outside the boundaries of the mine lease under any circumstances.

Condition xix: - The project proponent shall obtain necessary prior permission of the competent authorities for drawl of requisite quantity of ground water, required for the project.

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

However, we have obtained NOC for extraction of ground water from CGWA/ CGWB for drinking purpose only. The copy of same NOC is attached below.



NOC for Ground Water

Condition xx: - The project proponent shall practice suitable rainwater harvesting measures on long term basis and work out a detailed scheme for rainwater harvesting in consultation with the Central Groundwater Authority and submit a copy of the same to the Ministry of Environment and Forests and its Regional Office, Bhubneswar.

**Reply:** - Rainwater is being harvested in mined out pit. Apart from rainwater harvesting pond, catch drain, sump etc. is being provided with progress of mining activity. The backfilling and drainage system in mine is so designed that water do not flow outside mine lease area and gets recharge in mine lease area itself.

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. Photograph of Rainwater Harvesting Pond is already attached above.

Condition xxi: - 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. The mineral transportation 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.



Tarpaulin covered vehicle

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

**Reply:** - Wet drilling is in practice.



Wet drilling

Condition xxiii: - Blasting operation should be carried out only during the daytime. Controlled blasting should be practiced. Mitigative measures for control of ground vibrations 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 xxiv: - Mineral handling area shall be provided with adequate number of high efficiency dust extraction systems. 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.



Water sprinkling through tanker.

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

**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 xxvi: - 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 a regular basis.

Condition xxvii: - It shall be ensured that the fluoride level in the drinking water to be used by the workers in the project as well as to be provided to the public, if any, should meet the prescribed norms in this regard.

**Reply:** - Fluoride level in drinking water is being monitored and no issues have been found in respect of fluoride in and around the mines. The water quality monitoring report is attached as **Annexure-2.** 

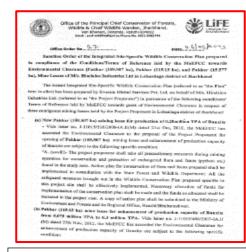
Condition xxviii: - The project proponent shall take all precautionary measures during mining operation for conservation and protection of endangered fauna namely python, leaf monkey (Presbyits phayrei) etc. spotted in the study area. The critical habitats in the area including dens of python, fox and bear should be protected by adopting appropriate wildlife conservation measures and the conservation plan prepared specific to this project in consultation with the State Forest and Wildlife Department should effectively address

the same. All the safeguard measures brought out in the Wildlife Conservation Plan prepared specific to this project site shall be effectively implemented in consultation with the State Forest and Wildlife Department. A copy of the approved wildlife conservation plan shall be submitted to the Ministry and its Regional Office, Bhubaneswar within 3 months.

**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: - 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, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.

**Reply: -** We believe that the wellbeing of all the labors 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 mentioned above, are being taken care of.

Condition xxx: - The critical parameters such as RSPM (Particulate matter with size less than 10 micron i.e PM10) and NOx in the ambient air within the impact zone, peak particle velocity at 300m distance or within the nearest habitation, whichever is closer shall be monitored periodically. Further, quality of discharged 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-20012/1/2005-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. Monitoring Report is attached herewith as **Annexure 2**. Six monthly 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 xxxi: - A Final Mine Closure Plan along with details of Corpus Fund shall be submitted to the Ministry of Environment & Forests 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 stations should be established in the core zone as well as in the buffer zone for RSPM (Particulate matter with size less than 10micron i.e., PM10) and NOx monitoring. Location of the stations should be decided based on the meteorological 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 10micron i.e., PM10) and NOx) should be regularly submitted to the Ministry including its Regional office located at Bhubaneswar 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 emissions from all the sources should be controlled regularly. Water spraying arrangement 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 operations of HEMM, etc. should be provided with ear plugs / 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. Monitoring Report has been attached as **Annexure 2**.

Condition vii: - Industrial wastewater (workshop 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 be 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 Bhubaneswar.

**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 Bhubaneswar 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 Bhubaneswar 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 reports on the status of compliance of the stipulated environmental clearance conditions including results of monitored data (both in hard copies as well as by e-mail) to the Ministry of Environment and Forests, its Regional Office Bhubaneswar, the respective Zonal Office of Central Pollution Control Board and 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, Bhubaneswar, the respective Zonal Officer of Central Pollution Control Board and the 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 MoEF&CC, Zonal office of CPCB & JSPCB, Ranchi and also uploaded on the website of the company. Now, the Regional Office of MoEF&CC is in Ranchi.

Condition xiv: - A copy of the 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: - The State Pollution Control Board should display a copy of the clearance letter at the Regional office, District Industry Centre and the 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 31st March in Form-V as is mandated to be submitted by the project proponent to the concerned State 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 compliance of environmental clearance conditions and shall also be sent to the respective Regional Office of the Ministry of Environment and Forests, Bhubneswar by e-mail.

**Reply:** - Environment statement is being submitted regularly to the regional office of the Ministry and Member Secretary, JSPCB. Also, the status of compliance with 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 of the District or State in which the project is located and widely circulated, one of which shall be in the vernacular language of the locality concerned, within 7 days 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 littp://envfonnic.in and a copy of the same should be forwarded to the Regional Office of this Ministry located at Bhubaneswar.

**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 (115.13 Ha)

S No	Month	Ground Water Level (BGL) in meter
1	Oct-24	36.31
2	Nov-24	37.17
3	Dec-24	37.52
4	Jan-25	37.55
5	Feb-25	37.52
6	Mar-25	37.62

# ENVIRONMENTAL LABORATORIES & ENGINEERING SERVICES PVT. LTD.

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

Pakhar (115.13) Bauxite Mine-Environmental Monitoring Report

October 2024



# CONTENT

25	Hindalco Industries: Pakhar (115.13) Environmental Monitoring Report October 2024
	Pakhar (115.13)
	AMBIENT AIR QUALITY- CORE ZONE
1	Near Mine Block-B, Quarry No.3
2	Near Mine Block-B, Quarry No.4
3	Near Mine Block B, Quarry No - 6
4	Near Mine Block-B, Quarry No.7
	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





PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) G5T NO:- 20AAECE97130124

### NGINEERING SERVICES PVT. LTD

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



TG-12MF

#### TEST REPORT

Test Report No.	: ELES/RNC/2024/6297	Report Release Date	: 26.10.2024
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC135872400004180F		

CUSTOMER DET	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/7347 : Near Mine Block-B, Quarry No.3 Pakhar Bauxite Mine (115.13 ha)	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 19.10.2024 to 20.10.2024 : 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	

MI	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 29	2	Barometric Pressure (mmHg)	: 740
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	63	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	54	60 (24hrs)	
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m <sup>1</sup>	IS 5182 (Part- 2/Sec1): 2023	6.8	80 (24hrs)	
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part- 6); 2022	23.6	80 (24hrs)	
Ozone (O <sub>A</sub> )	µg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)	
Ammonia (NH <sub>2</sub> )	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)	
Lend (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/m <sup>‡</sup>	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)	
Benzene (C <sub>6</sub> H <sub>6</sub> )	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 Ph. D. Favironmental Enga

Page 1 of 1

Technical Manager The Discussion stated as Two Report, in Issued by the Laboratory under General Terms and Conditions, only on Company letter head in pre-approved forms. The results shown in the Test Report reflects the findings done by the Laboratory on the introducement only and witten the limits of client's instructions. The Laboratory is engousible for all the information or data provided on for report, except the information which is provided by the client. The Hagner cased be reproduced except in full and any part of the report is not taken out of context, without prior written approval of the Laboratory. The Report is full or in part shall not be published, advertise, used for any legal actions unless prior permission has been account from the Management of the Laboratory. Attention is drawn to the function of fieldity, compression and participation of the Laboratory and substitute of the context of approaches of the Test Report is unlessful and offenders may be provinged as the fallest extent of the test and offenders may be provinged as the fallest extent of the test and offenders may be provinged as the fallest extent of the test. All the samples are returned for Moleys from the Date of referencions of the Two Report. The samples from Baguitting biolies are to be returned as specified. Any type of Observations or Compliants regarding the Reports shall be done within 15 days from the Date of Taxt Report released insued. After the time period stated before, we compliants will be accepted. The autou Time schedule mannioned in Text Report is as 24bours former. Observation word: N. A. (No. Applicable), RDL (Below Datestine Limit), LDL (Lower Detection Limit).



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

#### NGINEERING SERVICES PVT. LTD

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10-13087

#### TEST REPORT

Test Report No.	: ELES/RNC/2024/6298	Report Release Date	: 26.10.2024	
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024	
ULR No.	: TC135872400004181F			

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/7348 : Near Mine Block-B, Quarry No.4 Pakhar Bauxite Mine (115.13 ha)	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 19.10.2024 to 20.10.2024 : 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	

METEOROLOGICAL INFORMATIO	N		
1 Average Temperature (°C) : 29	2	Barometric Pressure (mmF	lg) : 740
3 Relative Humidity (%) : 58	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	66	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	31	60 (24hrs)	
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m <sup>3</sup>	IS 5182 (Part-2/Sec1): 2023	7.4	80 (24hrs)	
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part- 6): 2022	26.1	80 (24hrs)	
Ozone (O <sub>3</sub> )	µg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs.)	
Ammonia (NH <sub>3</sub> )	μg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m <sup>2</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)	
Lead (Pb)	μg/m³	IS 5182 (Part- 22): 2019	0.005	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 <sub>6</sub> H <sub>6</sub> )	µg/m³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)	
Benze-(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 Enpo

Page Lof 1

The Discoursest stated on True Report, is issued by the Laboratory under General Terms and Conditions, only on Company latter head to pro-approved format. The results of relation only to the inhumbrish done by the Laboratory and Conditions. The Discountst acted or Test Report, is issued by the Laboratory under General Terms and Conditions, only on Company latter head or prospective format. The results shown in the Test Report reflects only to the physical done by the Laboratory only. The information states on the Test Report reflects the findings done by the Laboratory is responsible for all the information or data provided on the report, assemt the information which is provided by the client. The Report cannot be separational except in full and any part of the report is not assent our of manager, without provided on the report, assemt the information which is provided by the client. The Report cannot be separational except in full and any part of the report is not assent our of manager, without provided on the Laboratory. The Report is full and any part of the report is not assent in the current of manager and in the Laboratory of the Laboratory of the Laboratory of including of indications of indications of the current or approximate of the Laboratory of Indicates may be prospected to the full of the section of the current or approximate of the Test Report. The samples from Regulatory bodies are us be retained as specified. Asserted of Chartestone or Constitution and the samples of the Test Report. The samples from the retained as specified. setumed for 10 days from the Date of refreserance of the Date of Test Report The samples from Regularity hodies are to be retained as specified. Any type of Observations or Compitates organizing the Report shall be alone within 15 days from the Date of Test Report referred from period street before, no complaints will be accepted. The entire Time schedule mentioned in Test Report is in Salarum farmed. Abbreviation used: N.A. (No. Applicable). BEIL (Decise Desection Limit); I.Df. (Lower Detection Limit).



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

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15-43167

#### TEST REPORT

Test Report No.	: ELES/RNC/2024/6299	Report Release Date	: 26.10.2024	
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024	
ULR No.	: TC135872400004182F			

CUSTOMER DET	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/7349
		Location	: Near Mine Block-B, Quarry No.6 Pakhar Bauxite Mine (115.13 ha)
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 19.10.2024 to 20.10.2024
HTTMLBOOK!		Sample Received Date	: 21.10.2024
		Type of Sample	: Ambient Air
Mines Status	: Operational	Sampling Procedure	: ELES/DOC/SMPL/02
Paried of Ambula	: 21.10.2024 to 26.10.2024	Sampling Done By	: ELES Pvt. Ltd.
Period of Analysis	F.41.10/202+10.20.10.2024	Sample Condition	: Sealed & Preserved

MI	TEOROLOGICAL INFORMATION			
1	Average Temperature ("C) : 29	2	Barometric Pressure (mml	Ig) : 740
3	Relative Humidity (%) : 58	4	Weather Condition	: Clear

Discipline: Chemic	ini	Group:	Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	μg/m³	IS 5182 (Part- 23): 2022	59	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	28	60 (24hrs)	
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m <sup>a</sup>	IS 5182 (Part- 2/Sec1): 2023	8.2	80 (24hrs)	
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m <sup>2</sup>	IS 5182 (Part- 6): 2022	22,6	80 (24hrs)	
Ozone (O <sub>3</sub> )	µg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)	
Ammonia (NH <sub>3</sub> )	μg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)	
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	0.011	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 <sub>6</sub> H <sub>8</sub> )	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 I of I

Page 1 of 1

Technical Manager
The Outcomer stated as Test Report, is issued by the Liberton's suche Greenil Terms and Conditions, only on Company below head at pre-approved forms. The result Shows on the Test Report reflects the findings done by the Laboratory and to information stated on the Test Report reflects the findings done by the Laboratory or the time of involvement only and works the inner of client's monuteurs. The Laboratory is responsible for all the information or date provided on the report, except the information which is provided by the client. The Report stated to reproduced except or full and any part of the report is not taken out of comment price written approval of the Laboratory. The Report is full or in part shall not be published, advertise, used for any legal actions called price permission has been secured from the Management of the Laboratory. Attention is drawn to the instance of includes, exemptions and providence of the Laboratory Attention is drawn to the instance of includes, exemptions and providence of the Laboratory Attention is drawn to the instance of includes comment or appearance of the Ton Report to retireful and efficulties may be provided to the follows comment of the law. All the samples comments are the following the law. retained for Mileys from the Date of referencious of the Tau Report. The complex from Regulatory budges are to be commed as specified. Any type of Observations or Complexists regarding the Reports shall be done within 15days from the Date of Tair Report released moved. After the time period stated before, no complicits will be accepted. The entire Achdete movement in Text Report is in Different format. Abbreviation used. N/A (Nor Applicable), NRI, (Nor Applica



PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (IHARKHAND) GST NO:- 20A4ECE97130124

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TE-CHAT

#### TEST REPORT

Test Report No.	: ELES/RNC/2024/6300	Report Release Date	: 26.10.2024	
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024	
ULR No.	: TC135872400004183F			

CUSTOMER DET	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/7350
		Location	: Near Mine Block-B, Quarry No.7 Pakhar Bauxite Mine (115.13 ha)
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 19.10.2024 to 20.10.2024
	The second secon	Sample Received Date	: 21.10.2024
		Type of Sample	: Ambient Air
Mines Status	: Operational	Sampling Procedure	: ELES/DOC/SMPL/02
Period of Analysis	: 21.10.2024 to 26.10.2024	Sampling Done By	: ELES Pvt. Ltd.
r service ser remary sus	F = 1.1 M , 6 Mart 10 20, 10, 2029	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 : Chemis	al	Group:	Atmospheric	Pollution
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m³	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 <sub>2</sub> )	μg/m³	IS 5182 (Part- 2/Sec1): 2023	7.5	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part- 6): 2022	20.2	80 (24hrs)
Ozone (O <sub>x</sub> )	μg/m³	15 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	μg/m³	1S 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	1S 5182 (Part- 22): 2019	0.013	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 <sub>s</sub> H <sub>6</sub> )	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. Deliberiard Renair Sinha Ph. D. Environmental Engg.

Technical Manager

Page 1 of 1

The Decement would as Lest Report, is issued by the Laboratory under General Terms and Conditions, only on Company letter head in pre-approved former. The results shown in the Test Report series only to the job analysis done by the Laboratory under General Terms and Conditions, only on Company letter head in pre-approved former. The results shown in the Test Report series the findings above by the Laboratory at the time of introducement only and souther too these to interesting. The Laboratory is responsible for all the information of data provided to the report, except the information which is provided by the claim The Report cannot be expeditured except in fall or in part shall not be published, adjusting, used for any logic actions unless prior permission has been succeed from the Management of the Laboratory. Attention is drawn to the limitation of lightley, companished and provided and effectives may be prosecuted with a little content of the laborators of the Report strained for Midage, then the Date of enhancement of the Report The samples from Regulatory business are to be remained as specified. Any type of Chouvarious or Completion Reports shall be done within Date of enhancement of the Report relaxed names. After the new period stated believe, no completes will be accepted. The sample the Report shall be done within 19 they form the Date of Test Report relaxed names. After the new period stated believe, no completes will be accepted. The national mentioned in Test Report is in 24 hours former. After the one period stated believe.



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

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TO-10187

#### 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

Mi	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature ("C)	: 29	2	Barometric Pressure (mmHg)	: 740
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	55	100 (24hrs)		
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	27	60 (24hrs)		
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part- 2/Sec1): 2023	8.1	80 (24hrs)		
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part- 6): 2022	19.7	80 (24hrs)		
Ozone (O <sub>3</sub> )	μg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)		
Ammonia (NH <sub>3</sub> )	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	0.011	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 <sub>s</sub> H <sub>6</sub> )	µg/m³	ELES/GC/SOP/06: 2023	<2.5	05(Annoal)		
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 Engq.

Page 1 of 1

Technical Manager

The Description matrix as Test Report, is considered by the Laboratory under General Terms and Conditions, only on Company letter head in pre-applicant format. The results already in the Test Report reflects such to the judiciouslysis done by the Laboratory only. The information stand on the Test Report reflects the feedings done by the Laboratory as the time of involvement only and within the limits of closer's instructions. The Laboratory is responsible for all the information or data provided on the report except the information reliable is provided by the ultime. The Report content for accept an field and any part of the suport is not raisen out of content, without prior written approved of the Laboratory. The Report is field and any part of the suport is not raisen out of content, without prior approved of the Laboratory. The Report is field and any part of the suport is not be published, advertise, used for one legal actions unless prior pervisasion has been secured from the Management of the Laboratory. Attention is desired about no the laboratory of the content or appearance of the Too Report is unlessful and officeders may be presented on the lidlest securit of the law. All the samples are retained for Midays from the Dote of referentiable of the Tast Report. The complex from Regulatory Society are to be remained as apocified. Any type of Observations or Complexes regarding the Reports shall be done sother 15days from the Data of Yest Report released small. After the time period stated before, no complicate well be accepted. The entire York scholar mentioned in Yest Report is in 24boars forms. After-vision used: N/A (Not Applicable), 1001, (Debye Denestion Limit), LOC (Lower Denestion Limit).



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

#### ENGINEERING SERVICES PVT. LTD

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FC-13567

#### 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			

AILS	SAMPLE DETAILS	
: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/7352 : Yatri Shed (Near K-10) Pakhar Bauxite Mine
: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 19.10.2024 to 20.10.2024 : 21.10.2024
nes Status : Operational Sampling Procedure		: Ambient Air : ELES/DOC/SMPL/02
: 21.10.2024 to 26.10.2024	Sampling Done By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved
	: Hindalco Industries Limited : Lohardaga, Jharkhand-835302 : Operational	: Hindalco Industries Limited  : Location  : Lohardaga, Jharkhand-835302  : Operational  : Operational  Sample Ref. No. Location  Sampling Date Sample Received Date Type of Sample Sampling Procedure Sampling Done By

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

Discipline: Chemie	:nl	Group:	Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	μg/m³	IS 5182 (Part- 23): 2022	59	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	1S 5182 (Part- 24): 2019	28	60 (24hrs)	
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part- 2/Sec1): 2023	7.4	80 (24hrs)	
Nitrogen Di-Oxide (NOz)	μg/m³	IS 5182 (Part- 6): 2022	19.1	80 (24hrs)	
Ozone (O <sub>3</sub> )	μg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)	
Ammonia (NH <sub>3</sub> )	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/m²	1S 5182 (Part- 22); 2019	<0.002	1 (24hrs)	
Nickel (Ni)	ng/m <sup>5</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)	
Arsenic (As)	ng/m³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)	
Benzene (C <sub>4</sub> H <sub>6</sub> )	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)	

AKREVIEWED AV Quality Manager

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

Dr. Deependra Kumar Sinha

Ph. D. Environmental Engg.

Page I of I

Technical Manager

The Document stated as Tast Report, is issued by the Lobertony maker General Terror and Conditions, only on Company Jetter found in pre-approved former. The results shown in the Test Report refer or relates only to the privated wis directly define by the Laboratory and a The information stated on the Test Report reflects the findings done by the Laboratory at the tone of involvement only and souther the limits of client's instructions. The Laboratory is responsible for all the information or data provided on the report, except the information which is provided by the client. This Report souther the finish of cheer, a microcrawic. The Laboratory is responsible for all the information or fails provided on the report, except the information which is provided by the cheer. This Report is most affect on the report is not affected as a provided on the report of the Laboratory. The Report is full or in part shall not be published, advised, used for one logal actions unless prior permission has been secured from the Management of the Laboratory. Alternative decision is the interaction of liability, progression and provided to the full of the content or approaches of the Test Report is unlessful and offenders may be provided to the full or notion of the law adult or acquisition of the laboratory. Alternative may be provided to the full or notion of the law adult or acquisition o



PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) 55T NO:- 20AAECE97130124

#### NGINEERING SERVICES PVT. LTD.

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

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



70-13567

## 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		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/7353 : Near Utkarmit Rajkiya Prathmil Vidyalaya Bunglapart Village
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	Pakhar Bausite Mine : 19.10.2024 to 20.10.2024 : 21.10.2024
Mines Status	ines 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	METEOROLOGICAL INFORMATION					
1	Average Temperature (°C) : 29	2	Barometric Pressure (mmH	2) :740		
3	Relative Humidity (%) : 58	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	52	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	31	60 (24hrs)	
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part- 2/Sec1): 2023	7.3	80 (24hrs)	
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part-6): 2022	18.7	80 (24hrs)	
Ozone (O <sub>1</sub> )	μg/m³.	1S 5182 (Part- 9): 2019	<20.0	100 (8hrs)	
Ammonia (NH <sub>3</sub> )	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	15 5182 (Part- 22): 2019	0.001	I (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 <sub>6</sub> H <sub>6</sub> )	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 Kulhar Sinha

Page I of 1

The Discussion and as Test Report, is issued by the Labinatory under Caratral Terms and Conditions, only on Company letter head in pre-option for the Caratral Report of Caratral States and Caratral States a active or relates only to the polametry of the Laboratory only. The information stated on the Long Report reflects the findings done by the Laboratory at the time of involvement sorty and within the limits of client a instructions. The Laboratory is responsible for all the information or done provided in the import, except the information which is provided by the client. The Report cannot be explodeded except at full and any part of the expect is not taken not of context, without prior settler approval of the Laboratory. The Report in full or as part abilities advertise, used for any laged actions unless prior permission has been secured from the Management of the Laboratory. Afternoon, the formation of his faction of the context of the laboratory of the faction of the context of the laboratory of the faction of the context of the laboratory of the faction of the context of the laboratory of the faction of the context of the laboratory of the faction of the context of the laboratory of t estanced for 30 days from the Data of infrarections of the Test Report. The appelling from Regulatory bodies are to be retained as specified. Any type of Observations or Compliants regarding the Reports shall be done within 15 days from the Data of Test Report released instant. After the time period stated before, no compliants will be accepted. The make Time achieved memorial in Test Report is in 24 brains from 1 Abbreviance used. N.A.(Nos Applicable), BDL (Below Detaction Local), LDL (Lover Detection Local).



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

#### ENGINEERING SERVICES PVT. LTD.

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TC-SAME

#### 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	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/7354 : Near Utkarmit Rajkiya Prathmik Vidyalaya Dumrapart Village Pakhar Bauxite Mine
Address Mines Status	: Lohardaga, Jharkhand-835302 Sampling Date Sample Received Date Type of Sample Sampling Procedure Sampling Done By Sample Condition	: 19.10.2024 to 20.10.2024 : 21.10.2024 : Ambient Air : ELES/DOC/SMPL/02	
AND DESCRIPTION OF THE PARTY OF		The state of the s	: ELES Pvt. Ltd.
Period of Analysis		Sample Condition	: Sealed & Preserved

MI	ETEOROLOGICAL INFORM	IATION			
1	Average Temperature ("C)	29	2	Barometric Pressure (mmHg)	: 740
3	Relative Humidity (%)	58	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	57	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24); 2019	29	60 (24hrs)	
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part- 2/Sec 1): 2023	6.8	80 (24hrs)	
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m³	IS 5182 (Part- 6): 2022	18.2	80 (24hrs)	
Ozone (O <sub>1</sub> )	μg/m³	IS 5182 (Part- 9); 2019	<20.0	100 (8hrs)	
Ammonia (NH <sub>2</sub> )	μg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m³	TS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)	
Lead (Pb)	μg/m³	IS 5182 (Part- 22): 2019	0.012	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 <sub>4</sub> H <sub>6</sub> )	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. Deependla Komar Sinha

Page 1 of 1

The Document stead as 1 set Report, to second by the Laboratory under General Terms and Conditions, only on Company letter head in proceedings therein as the Fast Report refer to relates only in the justicealrois done by the Laboratory only. The information stated in the Test Report reflects the findings done by the Laboratory at the time of provided must be information which is provided by the client. The Report cannot be reported and only part of the report is not taken out of content, without prove senters approved of the Laboratory. The Report is that set is part stall set in part s terained for Bildes from the Date of release issue of the Test Report. The samples from Regularry bodies are to be returned as specified. Any type of Observations or Complaints regarding the Reports shall be done within 17-days from the Date of Test Report released issued. After the time period stated before, on complaints will be accepted. The entire Time schedule mentioned in Test Report is as 24bours from Abbreviation used. N.A.(Not Applicable), 1809. (Below Describes Limit), 1.02. (Lower Detection Limit).

# ENVIRONMENTAL LABORATORIES & ENGINEERING SERVICES PVT. LTD.

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

Pakhar (115.13) Bauxite Mine-Environmental Monitoring Report

November 2024



#### CONTENT

-	Hindalco Industries: Pakhar (115.13) Environmental Monitoring Report	November 2024
	Pakhar (115.13)	
	AMBIENT AIR QUALITY- CORE ZONE	
1	Near Mine Block-B, Quarry No.3	-100
2	Near Mine Block-B, Quarry No.4	
3	Near Mine Block B, Quarry No - 6	SUMMERS BOOK
4	Near Mine Block-B, Quarry No.7	
195	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	
	Drinking Water	
	Effluent Water	





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

### ENGINEERING SERVICES PVT. LTD.

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#### TEST REPORT

Test Report No.	: ELES/RNC/2024/7037	Report Release Date	: 02.12.2024
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC135872400004906F	al communication of the second	

CUSTOMER DET	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/8243 : Near Mine Block-B, Quarry No.3 Pakhar Bauxite Mine (115.13 ha)	
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 Pvi. Ltd. : Sealed & Preserved	

MI	ETEOROLOGICAL INFORMATION			
1	Average Temperature (°C) : 25	2	Barometric Pressure (mmHg	; 740
3	Relative Humidity (%) : 48	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	68	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	39	60 (24hrs)	
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part- 2/Sec1): 2023	7.2	80 (24hrs)	
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part- 6): 2022	24.5	80 (24hrs)	
Ozone (O <sub>3</sub> )	μg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)	
Ammonia (NH <sub>2</sub> )	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	0.012	1 (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 <sub>6</sub> H <sub>6</sub> )	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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Page I of I

The Decement stated for the approximation and Conditions, only on Company benefit head to pre-opproved former. The results shown in the Test Report refer or relative only to the approximation of the Laboratory at the time of involvement only and within this times of about the former of the approximation of the information of the information of the report countries of the information which is provided by the ultern. The Report countries of the information which is provided by the ultern. The Report countries in real and any part of the report is not taken out of connect, without prior written approval of the Laboratory. The Report to fall in its part shall not be published, and the laboratory are provided by the ultern and periodical countries in drawn to the limitation of liability, competitation and jurisdiction. whereas, used for any legal actions unless peace permission has been secured from the Management of the Laboratory. Attention is drawn to the limitation of liability, compensation and jurisdiction action. Any security distribution of the centers of the Less Report to order had and offinders may be presented to the hidest extent of the law. All the samples are returned for Metays from the Date of release bout of the Test Report of the three period strend of the returned as specified. Any type of Observations of Complicate regarding the Reports shall be determined as the first area to be determined as the returned of the security of the samples from the period strend before, we complicate will be accurated. The sample from the first shall be determined as the first area of the first accordance on the first shall be determined. Report to an 34hours formus. Abbreviation used: N/A (Not Applicable), 1801. (Below Detection Lamb), LDL (Lower Detection Lamb).



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

### ENGINEERING SERVICES PVT. LTD.

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#### TEST REPORT

Test Report No.	: ELES/RNC/2024/7038	Report Release Date	: 02.12.2024	
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024	
ULR No.	: TC135872400004907F			

CUSTOMER DET	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/8244 : Near Mine Block-B, Quarry No.4 Pakhar Bauxite Mine (115.13 ha)	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 23.11.2024 to 24.11.2024 : 25.11.2024	
Mines Status	: Operational	Type of Sample Sampling Procedure	: Ambient Air : ELES/DOC/SMPL/02	
Period of Analysis	: 25.11.2024 to 02.12.2024	Sampling Done By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved	

M	ETEOROLOGICAL INFORMA	TION			
1	Average Temperature (°C) : 2:	5	2	Barometric Pressure (mmHg)	: 740
3	Relative Humidity (%) : 49	8		Weather Condition	: Clear

Discipline : Chemie	cal	Group:	Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	μg/m <sup>3</sup>	IS 5182 (Part- 23): 2022	71	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	38	60 (24hrs)	
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part-2/Sec1): 2023	11.8	80 (24hrs)	
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part- 6): 2022	33.3	80 (24hrs)	
Ozone (O <sub>3</sub> )	µg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)	
Ammonia (NH <sub>2</sub> )	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/m <sup>3</sup>	1S 5182 (Part- 22): 2019	0.012	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 <sub>s</sub> H <sub>s</sub> )	μg/m¹	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

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

Authorised Signatory Akash Kumar

Quality Manager

Page 1 of 1

Page 1 of 1

The Doublewest search as Test Secont, Manuscript the charactery under General Terms and Conditions, only on Company least hand in pre-approved format. The results shown in the Test Report critics only to the job and hand the Laboratory only. The information stand on the Test Report reflects the findings stone by the Laboratory at the time of involvement and and an attention of client's assistant on which is provided by the client. The Report cannot be reported except to full and any part of the report is not taken and at amount, without prove scients approved of the Laboratory. The Report in full or in part shell not be published, advertise, used for any legal actions assists prior permission has been accord from the Management of the Laboratory. Amorton to the initiation of full or in part shell not be published, advertise, used for any legal actions assists prior permission has been accord from the Management of the Laboratory. Amorton to the initiation of full devices and permission and permission of the sentent or appearance of the Test Report is understand and offenders may be presented to the full at extent of the law. All the samples are retained for Malays from the Date of referencement of the Test Report The samples from Regulatory bodies are to be retained in specified. Any type of Observations or Compinious arganing the Reports shall be about within 15 days from the Date of Test Report referred issued. After the time period stated before, no compliants will be accepted. The unite Time schedule mentioned in Test Report is in 3 theses format. Albertistion used. N.A. (Not Application), BEE. (Below Detection Limit), L.D.I. (Lower Detection Limit).



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

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#### TEST REPORT

Test Report No.	: ELES/RNC/2024/7039	Report Release Date	: 02.12.2024	
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024	
ULR No.	: TC135872400004908F			

CUSTOMER DET	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/8245	
		Location	: Near Mine Block-B, Quarry No.6 Pakhar Bauxite Mine (115.13 ha)	
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 23.11.2024 to 24.11.2024	
		Sample Received Date	: 25.11.2024	
		Type of Sample	: 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	

M	ETEOROLOGICAL INFO	RMATION				
	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 740	
3	Relative Humidity (%)	: 48		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	66	100 (24hrs)	
Particulate Matter (PM2,5)	μg/m³	IS 5182 (Part- 24): 2019	35	60 (24hrs)	
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part- 2/Sec1): 2023	10.8	80 (24hrs)	
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part- 6): 2022	24.3	80 (24hrs)	
Ozone (O <sub>3</sub> )	μg/m²	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)	
Ammonia (NH <sub>3</sub> )	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	0.018	1 (24hrs)	
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)	
Arsenic (As)	ng/m³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)	
Benzene (C <sub>4</sub> H <sub>4</sub> )	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 Akash Kumar Quality Manager

Page 1 of 1

The Discoursest suspect as Tea Report to the policy of the Laboratory under General Terms and Conditions, only on Company letter head in pre-approval formst. The twends shown in the Test Report refer to relates only to the policy of the Laboratory andy. The information stated on the Test Report refers the findings show by the Laboratory at the time of involvement only and waters the limits of allows a networks. The Laboratory is responsible for all the information or data provided in 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 and of concess, without price soften approval of the Laboratory. The Report in full or as part shall not be published, advertise, used for any legal actions unless grow permissions has been secured from the Management of the Laboratory. Attention is drawn to the limitation of liability, compensation and periodicism issues. Any structured aftertions & fabrillations of the content or appearance of the Test Report is unlowful and officially may be promised to the full set on the fabrillations of the favor All the samples from Regulatory bodies are to be retained as specified. Any type of Observations or Compliants regarding the Report of the family from the Date of Test Report released issued. After the time period stand before, no compliants will be accepted. The entire Time schedule mannered in Test Report to an Education and NA (Not Applicable), BOL (Below Disposit Limit), LDC (Lewer Disposition 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.elespl.co.in



#### TEST REPORT

Test Report No.	: ELES/RNC/2024/7040	Report Release Date	: 02.12.2024
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC135872400004909F		

CUSTOMER DET	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/8246 : Near Mine Block-B, Quarry No.7 Pakhar Bauxite Mine (115.13 ha)
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 23.11.2024 to 24.11.2024 : 25.11.2024
Mines Status	: Operational	Type of Sample Sampling Procedure	: Ambient Air : ELES/DOC/SMPL/02
Period of Analysis	: 25.11.2024 to 02.12.2024	Sampling Done By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved

M	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 740
3	Relative Humidity (%)	; 48	4	Weather Condition	: Clear

Discipline: Chemic	cal	Group:	Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limi	
Particulate Matter (PM10)	μg/m³	IS 5182 (Part- 23): 2022	73	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	37	60 (24hrs)	
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part- 2/Sec1): 2023	12.4	80 (24hrs)	
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part- 6): 2022	23.7	80 (24hrs)	
Ozone (O <sub>3</sub> )	μg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)	
Ammonia (NH <sub>3</sub> )	μg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part- 10): 2019 (NDIR Method)	1.26	2 (8hrs)	
Lead (Pb)	μg/m³	IS 5182 (Part- 22): 2019	0.022	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 <sub>4</sub> H <sub>4</sub> )	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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Akash Kumar

Page 1 of 1

Page 1 of 1

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

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TC-12507

#### 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	: Hindaico Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/8247 : Near Bunglapart Village Pakhar Bauxite Mine
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 23.11.2024 to 24.11.2024 : 25.11.2024
Mines Status	: Operational	Type of Sample Sampling Procedure	: Ambient Air : 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 (°C)	:25	2	Barometric Pressure (mmHg)	: 740
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear

Discipline: Chemic	al	Group:	Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	μg/m <sup>3</sup>	IS 5182 (Part- 23): 2022	60	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	32	60 (24hrs)	
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part- 2/Sec1): 2023	11.4	80 (24hrs)	
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m³	IS 5182 (Part- 6): 2022	22.8	80 (24hrs)	
Ozone (O <sub>3</sub> )	μg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)	
Ammonia (NH <sub>3</sub> )	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	0.016	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 <sub>6</sub> H <sub>4</sub> )	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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Outlity Manager

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

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#### TEST REPORT

Test Report No.	: ELES/RNC/2024/7042	Report Release Date	: 02.12.2024	
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024	
ULR No.	: TC135872400004911F			

CUSTOMER DET	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco 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	: 23.11.2024 to 24.11.2024 : 25.11.2024	
Mines Status	: Operational	Type of Sample Sampling Procedure	: Ambient Air : 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 INFORMA	ATION		
1	Average Temperature ("C) : 2	5 2	Barometric Pressure (mmHg)	: 740
3	Relative Humidity (%) : 4	8 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	64	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	32	60 (24hrs)	
Sulphur Di-Oxide (SO <sub>3</sub> )	μg/m³	IS 5182 (Part- 2/Sec1): 2023	10.8	80 (24hrs)	
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part- 6): 2022	22.2	80 (24hrs)	
Ozone (O <sub>1</sub> )	μg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)	
Ammonia (NH <sub>2</sub> )	μg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	1.08	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/m <sup>3</sup>	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)	
Benzene (C <sub>s</sub> H <sub>6</sub> )	µg/m³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)	
Benzo-(n)-Pyrene	ng/m³	ELES/GC/SOP/05: 2023	< 0.5	01(Annual)	

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Page 1 of 1

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#### 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.	: TC135872400004912F			

CUSTOMER DET	AILS	SAMPLE DETAILS	The state of the s	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/8249 : Near Utkarmit Rajkiya Prathmii Vidyalaya Bunglapart Village Pakhar Bauxite Mine	
Address	: Lohardaga, Jharkhand-835302	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	
Mines Status	: Operational	Sampling Done By	: ELES Pvt. Ltd. : Sealed & Preserved	
Period of Analysis	: 25.11.2024 to 02.12.2024	Sample Condition		

MI	ETEOROLOGICAL INFOR	MATION				
1	Average Temperature ("C)	: 25	2	Barometric Pressure (mmHg)	: 740	
3	Relative Humidity (%)	: 48	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	63	100 (24hrs)		
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	35	60 (24hrs)		
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part- 2/Sec 1): 2023	9.7	80 (24hrs)		
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part- 6): 2022	22.1	80 (24hrs)		
Ozone (O <sub>3</sub> )	μg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)		
Ammonia (NH <sub>3</sub> )	μg/m <sup>7</sup>	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	0.008	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 <sub>6</sub> H <sub>6</sub> )	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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Page 1 of 1

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

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#### TEST REPORT

Test Report No.	: ELES/RNC/2024/7044	Report Release Date	: 02.12.2024	
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024	
ULR No.	: TC135872400004913F			

CUSTOMER DET	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/8250 : Near Utkarmit Rajkiya Prathmil Vidyalaya Dumrapart Village 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. Ltd. : Sealed & Preserved	

METEOROLOGICAL I	NFORMATION
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1784	TECHOLOGICAL INFORMATION				
1	Average Temperature (°C) ; 25	2	Barometric Pressure (mmHg)	: 740	
3	Relative Humidity (%) : 48		Weather Condition	: Clear	7

Discipline : Chemic	al	Group:	Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	μg/m <sup>3</sup>	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 <sub>2</sub> )	μg/m³	IS 5182 (Part- 2/Sec1): 2023	9,7	80 (24hrs)	
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part- 6): 2022	20.2	80 (24hrs)	
Ozone (O <sub>3</sub> )	μg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)	
Ammonia (NH <sub>1</sub> )	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/m <sup>1</sup>	1S 5182 (Part- 22): 2019	0.009	1 (24hrs)	
Nickel (Ni)	ng/m³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)	
Arsenic (As)	rig/m <sup>3</sup>	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)	
Benzene (C <sub>8</sub> H <sub>6</sub> )	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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Page 1 of 1

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

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10-13987

### TEST REPORT

Test Report No.	: ELES/RNC/2024/7051	Report Release Date	: 02.12.2024
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC135872400004920F		

CUSTOMER DET	TAILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Sampling Date Sample Received Date	: ELES/RNC/2024/DW/8257 : 24.11.2024 : 25.11.2024	
Address	: Lohardaga, Jharkhand-835302	Type of Sample Source of Sample Location of Sample	: Drinking Water : Tap Water : Mines Site	
Mines Status	: Operational	Sampling Procedure	(Pakhar-115.13 Bauxite Mine) : ELES/DOC/SMPL/01	
Period of Analysis	: 25.11.2024 to 02.12.2024	Sampling Done By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved	

Discipline : Chemical		Croun	Water	Regulat	ory Limit
ariscipinie i Citemicai		Group	NY MICE	as per IS 10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
pH (at 24.8 °C)	18.	APHA 24th Ed.2023, 4500-H	6.71	6.5-8.5	No Relaxation
Turbidity	NTU	APHA 24th Ed.2023, 2130 B	0.09	1.0	5.0
Taste	-	APHA 24th Ed.2023, 2160 C	Agreeable	Agreeable	Agrecable
Odour	14	IS 3025 (Part-5) :2018	Agreeable	Agreeable	Agreeable
Colour	Hazen	APHA 24th Ed.2023, 2120B&D	1.4	5.0	15
Total Dissolved Solids (TDS)	mg/L	APHA 24th Ed.2023, 2540B,C&D	52.0	500	2000
Chloride (as Cl)	mg/L	APHA 24th Ed.2023, 4500 CI B	8.0	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 <sub>3</sub> )	mg/L	APHA 24th Ed.2023, 2320 B	12.6	200	600
Total Hardness (as CaCO <sub>3</sub> )	mg/L	APHA 24th Ed.2023, 2340 C	18.4	200	600
Sulphate (as SO <sub>4</sub> )	mg/L	APHA 24th Ed.2023, 4500 SO <sub>4</sub> -2-E	2.86	200	400
Nitrate (as NO <sub>3</sub> )	mg/L	APHA 24th Ed.2023, 4500 NO <sub>5</sub> -B	1.39	45	No Relaxation

Page 1 of 4

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

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TC-13567

## TEST REPORT

Test Report No. : ELES/RNC/2024/7051 Report Release Date : 02.12.2024

Work Order No. : 13612312113 Work Order Date : 28.03.2024

ULR No. : TC135872400004920F

Discipline : Chemic	al	Gro	up: Water	D. N. T. P. C. and D. and D. C. and D. and D. C. and D. and D. C. and D. and D. C. and	ory Limit 10500:2012
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
Phenolic Compound (as C <sub>6</sub> H <sub>5</sub> 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	4.6	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	Gr	oup : Residues i	n Water	
Aluminum (as AI)	mg/L	IS 3025 (Part-55) :2003; RA2019	BDL (DL: 0.02)	0.03	0.2
Arsenic (as As)	mg/L	1S 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)	0.05	No Relaxation
Iron (as Fe)	mg/L	APHA 24th Ed.2023; 3111B	0.081	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

Page 2 of 4

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

## ENGINEERING SERVICES PVT. LTD.

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

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TO 43567

### TEST REPORT

Test Report No. : ELES/RNC/2024/7051 Report Release Date : 02.12.2024

Work Order No. : 13612312113 Work Order Date : 28.03.2024

ULR No. : TC135872400004920F

Discipline : Chemical		Group: Resid	lues in Water	THE RESERVE TO SERVE THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TWO IS NAMED	ory Limit 10500:2012	
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)	1	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)	3	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)	1	90	
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)	I	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, TUPLIDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D124

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TC-MSE?

### TEST REPORT

Test Report No.	; ELES/RNC/2024/7051	Report Release Date	: 02.12.2024	
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024	
	THE RESERVE OF THE PARTY OF THE			

ULR No.	: TC135872400004920F
The second of the second	

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	Chall and he decorated	
Escherichia coli (Qualitative)	Per 100 mL	IS 15185: 2021	Not Detected	Shall not be detected	

Reviewed by Akash Kumar Quality Managor

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

Authorised Signatory

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

Technical Manager

#### Page 4 of 4

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

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### TEST REPORT

Test Report No.	: ELES/RNC/2024/7051	Report Release Date	: 02.12.2024
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024

CUSTOMER DET	TAILS	SAMPLE DETAILS		
Customer Name Address	: Hindalco Industries Limited : Lohardaga, Jharkhand-835302	Sample Ref. No. Sampling Date Sample Received Date Type of Sample Source of Sample	: ELES/RNC/2024/DW/8257 : 24.11.2024 : 25.11.2024 : Drinking Water : Tap Water	
Mines Status	: Operational	Location of Sample Sampling Procedure	: Mines Site (Pakhar-115.13 Bauxite Mine) : ELES/DOC/SMPL/01	
Period of Analysis	: 25.11.2024 to 02.12.2024	Sampling Done By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved	

Discipline: Chemical		Group: Wa	Group: Water		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

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

Or. Deepondra Kamer Sinha Ph. D. Environmental Engg.

Technical Manager

### Page I of I

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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/2024/7054	Report Release Date	: 02.12.2024
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC135872400004923F		

CUSTOMER DET	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/EF/8260	
		Sampling Date	: 24.11.2024	
		Sample Received Date	: 25.11.2024	
Address	: Lohardaga, Jharkhand-835302	Type of Sample	: Effluent Water	
7 1001 233	- Assumidaga, markhanu-e323u2	Source of Sample	: Near Mine Block-B, Quarry No.: Pakhar Bauxite Mine (115.13 ha)	
N. C		Sampling Procedure	: ELES/DOC/SMPL/01	
Mines Status	: Operational	Sampling Done By	: ELES Pvt. Ltd.	
Period of Analysis	: 25.11.2024 to 02.12.2024	Sample Condition	: Sealed & Preserved	

Discipline : Chemical		Group: Pollution & 1	Group: Pollution & Environment		Discharge Limits – CPCB EPR, 1986 Schedule VI	
Parameter	Unit	Test Protocol	Result	Inland Surface Water	Land for Irrigation	
pH (at 24,7 °C)		APHA 24th Ed.2023,4500-H	8.24	5.5-9.0	5.5-9.0	
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part-16): 2023	340		**	
Total Suspended Solids (TSS)	mg/L	IS 3025 (Part-17): 2022	36.2	100	200	
Dissolved Oxygen (DO)	mg/L	IS 3025 (Part-38): 2019	5.2		***	
Biochemical Oxygen Demand (BOD) (at 27 °C for 3 days)	mg/L	IS 3025 (Part-44): 2023	22.0	30	100	
Chemical Oxygen Demand (COD)	mg/L	IS 3025 (Part-58); 2023	179	250	***	
Dissolved Phosphate (as P)	mg/L	IS 3025 (Part-31/Sec-1): 2022	2.80	5.0		
Fluoride (as F)	mg/L	IS 3025 (Part-60): 2019	BDL (DL: 0.1)	2.0	1.5	
Sulphide (as S)	mg/L	IS 3025 (Part-29): 2019	BDL (DL: 0.04)	2.0	986	
Oil & Grease	mg/L	IS 3025 (Part-39): 2021	2.8	10	10	

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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/2024/7054	Report Release Date	: 02.12.2024
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC135872400004923F		

Discipline : Chemical		Group: Resid	Group: Residues in Water		its – CPCB bedule VI
Parameter	Unit	Test Protocol	Result	Inland Surface Water	Land for Irrigation
Lead (as Pb)	mg/L	APHA 24th Ed.2023, 3111 B	BDL (DL; 0.01)	0.1	е.
Manganese (as Mn)	mg/L	APHA 24th Ed.2023, 3111 B	0.182	2.0	-
Mercury (as Hg)	mg/L	IS 3025(Part-48): 1994; RA2019	BDL (DL; 0.001)	0.01	-
Nickel (as Ni)	mg/L	APHA 24th Ed.2023, 3111 B	BDL (DL: 0.01)	3.0	+4
Zinc (as Zn)	mg/L	APHA 24th Ed.2023, 3111 B	BDL (DL: 0.1)	5.0	

Reviewed by Akash Kumar Gwality Manager

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

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

Page 2 of 2

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# ENVIRONMENTAL LABORATORIES & ENGINEERING SERVICES PVT. LTD.

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

Pakhar (115.13) Bauxite Mine-Environmental Monitoring Report

December 2024



### CONTENT

	Hindalco Industries: Pakhar (115.13) Environmental Monitoring Report	December 2024
	Pakhar (115.13)	
	AMBIENT AIR QUALITY- CORE ZONE	
1	Near Mine Block-B, Quarry No.3	
2	Near Mine Block-B, Quarry No.4	
3	Near Mine Block B, Quarry No - 6	
4	Near Mine Block-B, Quarry No.7	
	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	



PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (IHARKHAND) GST NO:- 20AAECE971301ZA



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### TEST REPORT

Test Report No.	: ELES/RNC/2024/7622	Report Release Date	: 24.12.2024	
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024	
ULR No.	: TC135872400005474F		The state of the s	

CUSTOMER DET	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/8960 : Near Mine Block-B, Quarry No.3 Pakhar Bauxite Mine (115.13 ha)	
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	ETEOROLOGICAL INFORMATION	
1	Average Temperature (°C) : 20	2 Barometric Pressure (mmHg) : 725
3	Relative Humidity (%) : 48	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	74	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	43	60 (24hrs)	
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part- 2/Sec1): 2023	8.9	80 (24hrs)	
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part- 6): 2022	27.2	80 (24hrs)	
Ozone (O <sub>1</sub> )	µg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)	
Ammonia (NH <sub>3</sub> )	μg/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/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 <sub>6</sub> H <sub>6</sub> )	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\*\*\*\*

Authorised Signatory

Dr. Deependra Kumar Sinha

Page 1 of 1

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

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TC-13581

### TEST REPORT

Test Report No.	: ELES/RNC/2024/7623	Report Release Date	: 24.12.2024
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC135872400005475F	11	

CUSTOMER DET	CUSTOMER DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/8961 : Near Mine Block-B, Quarry No.4 Pakhar Bauxite Mine (115.13 ha)
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 16.12.2024 to 17.12.2024 : 18.12.2024 : Ambient Air
Mines Status	: Operational	Type of Sample 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:	Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	µg/m³	IS 5182 (Part- 23): 2022	79	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	46	60 (24hrs)	
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part- 2/Sec1): 2023	13.6	80 (24hrs)	
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	1S 5182 (Part- 6): 2022	35.1	80 (24hrs)	
Ozone (O <sub>i</sub> )	μg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)	
Ammonia (NH <sub>3</sub> )	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/m <sup>T</sup>	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 <sub>6</sub> H <sub>6</sub> )	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. Deepenting Signaleshha 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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### TEST REPORT

Test Report No.	: ELES/RNC/2024/7624	Report Release Date	: 24.12.2024	
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024	
ULR No.	: TC135872400005476F	Thin when the same of the same	The state of the s	

CUSTOMER DET	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/8962	
		Location	: Near Mine Block-B, Quarry No.6 Pakhar Bauxite Mine (115.13 ha)	
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 16.12.2024 to 17.12.2024	
193000-2011		Sample Received Date	: 18.12.2024	
		Type of Sample	: Ambient Air	
Mines Status	: Operational	Sampling Procedure Sampling Done By Sample Condition	: ELES/DOC/SMPL/02	
Period of Analysis	: 18.12.2024 to 24.12.2024		: ELES Pvt. Ltd. : Sealed & Preserved	

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

Discipline : Chemic	cal	Group:	Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	μg/m <sup>3</sup>	IS 5182 (Part- 23); 2022	73	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24); 2019	32	60 (24hrs)	
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part- 2/Sec1): 2023	12.7	80 (24hrs)	
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part-6): 2022	28.2	80 (24hrs)	
Ozone (O <sub>2</sub> )	μg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)	
Ammonia (NH <sub>3</sub> )	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	0.028	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 <sub>6</sub> H <sub>6</sub> )	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

Technical Manager

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



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### TEST REPORT

Test Report No.	: ELES/RNC/2024/7625	Report Release Date	: 24.12.2024	
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024	
ULR No.	: TC135872400005477F	Till Parket State		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/8963 : Near Mine Block-B, Quarry No.7 Pakhar Bauxite Mine (115.13 ha)
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 16.12.2024 to 17.12.2024 : 18.12.2024
Mines Status	nes 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:	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	32	60 (24hrs)	
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part- 2/Sec1): 2023	10.2	80 (24hrs)	
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part- 6): 2022	22.8	80 (24hrs)	
Ozone (O <sub>3</sub> )	μg/m³	IS 5182 (Part- 9); 2019	<20.0	100 (8hrs)	
Ammonia (NH <sub>3</sub> )	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	0.018	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 <sub>6</sub> H <sub>6</sub> )	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

Ph. D. Environmental Engg.

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Technical Manager

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) G5T NO:- 20AAECE9713D1Z4

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## 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	
III.R No.	+ TC135872400005478F			

CUSTOMER DET	AILS	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	: 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	

M	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	:20	2	Barometric Pressure (mmHg)	: 725
3	Relative Humidity (%)	: 48		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	68	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	37	60 (24hrs)	
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part- 2/Sec1): 2023	12.7	80 (24hrs)	
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part- 6): 2022	24.2	80 (24hrs)	
Ozone (O <sub>4</sub> )	µg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)	
Ammonia (NH <sub>5</sub> )	μg/m¹	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	1S 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 <sub>6</sub> H <sub>6</sub> )	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 Feore

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Technical Manager

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

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TO-12587

### 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 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	

ME	ETEOROLOGICAL INFOR	MATION				
1	Average Temperature (°C)	: 20	2	Barometric Pressure (mmHg	: 725	
3	Relative Humidity (%)	: 48	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	71	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	38	60 (24hrs)	
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part- 2/Sec1): 2023	12.1	80 (24hrs)	
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m <sup>3</sup>	1S 5182 (Part- 6): 2022	25.4	80 (24hrs)	
Ozone (O <sub>3</sub> )	μg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)	
Ammonia (NH <sub>3</sub> )	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	1S 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 <sub>6</sub> H <sub>6</sub> )	μg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)	
Benzo-(a)-Pyrene	ng/m²	ELES/GC/SOP/05: 2023	<0.5	01(Annual)	

Reviewed by Akash Kumar

Quality, Manager

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

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

rechineal manager

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (IHARKHAND) GST NO:- 20AAECE9713D174

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TU-13587

## 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	: 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	

METEOROLOGICAL	INFORMATION			
1 Average Temperatu	re (°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	77	100 (24hrs)
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	42	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part- 2/Sec1): 2023	11.3	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part- 6): 2022	26.7	80 (24hrs)
Ozone (O <sub>2</sub> )	μg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>1</sup>	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	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C <sub>s</sub> H <sub>a</sub> )	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\*\*\*\*

Authorised Signatory Dr. Deependra Kumar Sinha

**Cuality Manager** 

Page 1 of 1

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

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### 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		- The Declaration of the	

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	METEOROLOGICAL INFORMATION				
1	Average Temperature (°C) : 20	2	Barometric Pressure (mmH	g) : 725	
3	Relative Humidity (%) : 48		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	69	100 (24hrs)
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	43	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part- 2/Sec1): 2023	12.7	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part- 6): 2022	20.2	80 (24hrs)
Ozone (O <sub>3</sub> )	μg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	μg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>1</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	μg/m³	IS 5182 (Part- 22): 2019	0.009	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 <sub>6</sub> H <sub>6</sub> )	µg/m³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>1</sup>	ELES/GC/SOP/05: 2023	< 0.5	01(Annual)

417-71 Reviewed by

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

Authorised Signatory Dr. Deependra Rumar Sinha

Akash Kumar

Quality Manager

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# ENVIRONMENTAL LABORATORIES & ENGINEERING SERVICES PVT. LTD.

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

Pakhar (115.13) Bauxite Mine-Environmental Monitoring Report

January- 2025

## CONTENT

	Hindalco Industries: Pakhar (115.13) Environmental Monitoring Report	January 2025
	Pakhar (115.13)	
	AMBIENT AIR QUALITY- CORE ZONE	
1	Near Mine Block-B, Quarry No.3	
2	Near Mine Block-B, Quarry No.4	
3	Near Mine Block B, Quarry No - 6	
4	Near Mine Block-B, Quarry No.7	
	AMBIENT AIR QUALITY- BUFFER ZONE	
1	Near BungJapart Village	
2	Yatri Shed (Near K-10)	
3	Near Utkarmit Rajkiya Prathmik Vidyalaya Bunglapart Village	
4	Near Utkarmit Rajkiya Prathmik Vidyalaya Dumrapart Village	
	Surface Water	and the same
	Soil	Eggs



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

## ENGINEERING SERVICES PVT. LTD.

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TC-12567

### TEST REPORT

Test Report No.	: ELES/RNC/2025/0447	Report Release Date	: 20.01.2025
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC1358725000000439F		

CUSTOMER DET	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2025/AA/0266 : Near Mine Block-B, Quarry No.3
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	Pakhar Bauxite Mine (115.13 ha) : 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

MI	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature ("C)	:19	2	Barometric Pressure (mmHg)	: 725
3	Relative Humidity (%)	: 50	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	77	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	46	60 (24hrs)	
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m³	IS 5182 (Part- 2/Sec1): 2023	11.2	80 (24hrs)	
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part- 6): 2022	32.8	80 (24hrs)	
Ozone (O <sub>2</sub> )	μg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)	
Ammonía (NH <sub>3</sub> )	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/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 <sub>s</sub> H <sub>4</sub> )	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. Anthoninal Six autor Sinha Ph. D. Environmental Engg.

Toohnical Manager

Page Lof L

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (IHARKHAND) GST NO:- 20AAECE97130124

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TG-1006

### TEST REPORT

Test Report No.	: ELES/RNC/2025/0448	Report Release Date	: 20.01.2025	
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024	
ULR No.	: TC1358725000000440F			

CUSTOMER DET	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2025/AA/0267 : Near Mine Block-B, Quarry No.4 Pakhar Bauxite Mine (115.13 ha)	
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	

MI	ETEOROLOGICAL INFORMA	ATION			
1	Average Temperature (°C)	19	2	Barometric Pressure (mmHg)	: 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	75	100 (24hrs)
Particulate Matter (PM2.5)	μg/m <sup>2</sup>	IS 5182 (Part- 24): 2019	42	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part- 2/Sec1); 2023	12.4	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part- 6): 2022	32.8	80 (24hrs)
Ozone (O <sub>1</sub> )	µg/m³	1S 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	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/m³	IS 5182 (Part- 22); 2019	0.023	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 <sub>6</sub> H <sub>6</sub> )	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. Authorised Signatury Dr. Deependra Kumar Sinha

Ph. D. Environmental Engg.

Page 1 of 1

Technical Manager

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

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TEST REPORT

Test Report No.	: ELES/RNC/2025/0449	Report Release Date	: 20.01.2025	
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024	
ULR No.	· TC1358725000000441F			

CUSTOMER DET	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/0268	
		Location	: Near Mine Block-B, Quarry No.6 Pakhar Bauxite Mine (115.13 ha)	
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 11.01.2025 to 12.01.2025	
		Sample Received Date	: 13.01.2025	
		Type of Sample	: Ambient Air	
Mines Status	: Operational	Sampling Procedure	: ELES/DOC/SMPL/02	
Distant of Australia	. 12.01.2025 - 20.01.2025	Sampling Done By	: ELES Pvt. Ltd.	
Period of Analysis	: 13.01.2025 to 20.01.2025	Sample Condition	: Sealed & Preserved	

M	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 19	2	Barometric Pressure (mmHg)	: 725
3	Relative Humidity (%)	: 50	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	36	60 (24hrs)		
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m³	IS-5182 (Part- 2/Sec1): 2023	14.1	80 (24hrs)		
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part- 6): 2022	33,5	80 (24hrs)		
Ozone (O <sub>2</sub> )	μg/m²	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)		
Ammonia (NH <sub>3</sub> )	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/m³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)		
Benzene (C <sub>4</sub> H <sub>6</sub> )	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 Avash Kumar Quality Manager

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

Dr. Deependra Kumar Sinha

Ph. D. Environmental Engg.

Page 1 of 1

rechnical Manager

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) 65T NO:- 20A4ECE9713D124

## ENGINEERING SERVICES PVT. LTD.

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TC-12587

#### TEST REPORT

Test Report No.	: ELES/RNC/2025/0450	Report Release Date	: 20.01.2025	
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024	
ULR No.	: TC1358725000000442F			

CUSTOMER DET	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2025/AA/0269 : Near Mine Block-B, Quarry No.7 Pakhar Bauxite Mine (115.13 ha)	
Address	: Lohardage, 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	

M	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 19	2	Barometric Pressure (mmHg)	: 725
3	Relative Humidity (%)	: 50	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	75	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24); 2019	38	60 (24hrs)	
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m³	IS 5182 (Part-2/Sec1): 2023	11.6	80 (24hrs)	
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part- 6): 2022	25.1	80 (24hrs)	
Ozone (O <sub>3</sub> )	µg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)	
Ammonia (NH <sub>3</sub> )	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	0.024	1 (24hrs)	
Nickel (Ni)	ng/m³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)	
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)	
Benzene (C <sub>s</sub> H <sub>6</sub> )	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 Signato

Dr. Deepended Kennig 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

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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	
ULR No.	: TC1358725000000443F			

CUSTOMER DET	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2025/AA/0270 : Near Bunglapart 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

M	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 19	2	Barometric Pressure (mmHg)	: 725
3	Relative Humidity (%)	:50	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	73	100 (24hrs)			
Particulate Matter (PM2.5)	µg/m³	IS 5182 (Part- 24); 2019	42	60 (24hrs)			
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	1S 5182 (Part- 2/Sec1): 2023	13.4	80 (24hrs)			
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m³	IS 5182 (Part- 6): 2022	26.1	80 (24hrs)			
Ozone (O <sub>3</sub> )	μg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)			
Ammonia (NH <sub>3</sub> )	μg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)			
Carbon Monoxide (CO)	mg/m³	[S 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)			
Lead (Pb)	μg/m³	IS 5182 (Part- 22): 2019	0.022	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 <sub>6</sub> H <sub>6</sub> )	ug/m³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)			
Benzo-(a)-Pyrene	ng/m³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)			

AksSirkmidely Quality Manager

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

White

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

Page 1 of 1

Technical Manager

The Decement stated as Text Report, to tossed by the Laboratory under General Tarms and Conditions, only on Corpuny Softer hand in pro-approved format. The results shown in the Text Report reflects the findings done by the Laboratory on the time of involvement only and soften the laster of cheat's interactions. The Laboratory is important to the provided on the report, except the information which is provided by the client. The Report among he reported as a part of the report is not taken out of context, without prior written approval of the Laboratory. The Report is full or in part shall not be published, advertise, used for any legal actions unless prior parameters has been secured from the Management of the Laboratory. Another is drawn to the limitation of liability, compensation and jurisdiction more. Any unauthorneed structures of the laboratory of the Laboratory begins may be prosecuted to the fallest extent of the law. All the samples are retained for Mileys from the Date of release laws of the Text Report. The samples from Regulatory begins are to be retained as epocified. Any type of Observations or Complaints regarding the Report about to done within 15 days from the Date of Form Report referred structure described. The samplest income format to be provided by the accepted. The samplest income format is 20 miles. Although the accepted The same Tarte subsidiate regarding the Report is in 20 miles. Although the same than 15 miles.



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

## ENGINEERING SERVICES PVT. LTD.

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30435E

### 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

M	ETEOROLOGICAL INFO	RMATION			
1	Average Temperature (°C)	: 19	2	Barometric Pressure (mmHg)	: 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	76	100 (24hrs)
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	43	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part- 2/Sec1): 2023	13.7	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part- 6): 2022	28.1	80 (24hrs)
Ozone (O <sub>3</sub> )	μg/m <sup>3</sup>	1S 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>2</sub> )	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/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 <sub>s</sub> H <sub>6</sub> )	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 Signator

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

Technical Manager

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## ENGINEERING SERVICES PVT. LTD.

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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 Bunglapart Village Pakhar Bauxite Mine
Address Mines Status	: Lohardaga, Jharkhand-835302 : Operational	Sampling Date Sample Received Date Type of Sample Sampling Procedure	: 11.01.2025 to 12.01.2025 : 13.01.2025 : 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 INFORM	MATION			
Ι	Average Temperature (°C)	: 19	2	Barometric Pressure (mmHg)	1725
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	72	100 (24hrs)
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	35	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part- 2/Sec1): 2023	13.1	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m³	IS 5182 (Part- 6): 2022	28.1	80 (24hrs)
Ozone (O <sub>3</sub> )	μg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>1</sub> )	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/m	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C <sub>1</sub> H <sub>6</sub> )	μ <u>u</u> /m³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m³	ELES/GC/SOP/05: 2023	<0.5	91(Annual)

Reviewed by Akash Kumar

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

Authorised Signatory Dr. Deependra Kumar Sinha

Quality Manage.

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## ENGINEERING SERVICES PVT. LTD.

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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

METEOROLOGICAL INFORMATION						
1	Average Temperature (°C)	: 19	2	Barometric Pressure (mmHg)	: 725	
3	Relative Humidity (%)	:50	4	Weather Condition	: Clear	

Discipline: Chemic	al	Group:	Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	μg/m <sup>1</sup>	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 <sub>2</sub> )	μg/m³	IS 5182 (Part- 2/Sec1): 2023	14.1	80 (24hrs)	
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part- 6): 2022	24.8	80 (24hrs)	
Ozone (O <sub>2</sub> )	μg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)	
Ammonia (NH <sub>1</sub> )	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/m <sup>3</sup>	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	96 (Annual)	
Benzene (C <sub>4</sub> H <sub>4</sub> )	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

Akash Kumar Quality Manager

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TC-11581

### TEST REPORT

Test Report No.	: ELES/RNC/2025/0503	Report Release Date	: 22.01.2025
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC1358725000000494F		

CUSTOMER DET	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Sampling Date Sample Received Date	: ELES/RNC/2025/SW/0275 : 11.01.2025 : 13.01.2025
Address	: Lohardaga, Jharkhand-835302	Type of Sample Location of Sample	: Surface Water : Near Quarry No 3- Pakhar Bauxite Mine (115.13 ha)
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:	Water	<b>Tolerance Limits</b>	
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
pH (at 24.7 °C)	-	IS 3025 (Part-11): 2022	6.58	6.5-8.5
Temperature	°C	IS 3025 (Part 9): 2023	18.0	
Chemical Oxygen Demand (COD)	mg/L	IS 3025 (Part-58): 2023	9.1	(746)
Biochemical Oxygen Demand (BOD) (@ 20°C for 5 days)	mg/L	APHA 24th Ed.2023; 5210B	1.8	3,0
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part-16): 2023	112	1500
Total Suspended Solids (TSS)	mg/L	IS 3025 (Part-17): 2022	109	-
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	5.2	

Page 1 of 2

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TC-Y2187

## TEST REPORT

Test Report No.	: ELES/RNC/2025/0503	Report Release Date	: 22.01.2025
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
III R No.	· TC1358725000000494F		

Discipline : Chemical  Parameter Unit		Group: Residues in	Group: Residues in Water	
		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)	1000
Iron (as Fe)	mg/L	APHA 24th Ed.2023; 3111B	1.266	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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TO:13567

### TEST REPORT

Test Report No.	: ELES/RNC/2025/0506	Report Release Date	: 22.01.2025	
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024	
ULR No.	: TC1358725000000497F			

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name Address	: Hindalco Industries Limited : Lohardaga, Jharkhand-835302	Sample Ref. No. Sampling Date Sample Received Date Type of Sample Location of Sample	: ELES/RNC/2025/SL/0278 : 12.01.2025 : 13.01.2025 : Soil : Near Mine Block-B, Quarry No.7- Pakhar Bauxite Mine (115.13ha
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	8	IS 2720 (Part-26); 2021	6.76
Conductivity (1:2) at 24.4 °C	μS/cm	IS 14767: 2021	178
Total Organic Carbon (TOC)	%	Soil Testing in India: 2011 (Walkley & Black Method)	0.53
Available Phosphorus (as P)	kg/ha	Soil Testing in India; 2011	BDL (DL: 2.0)
Potassium (as K)	mg/kg	IS 9497: 2020	1250
Available Nitrogen	%	Soil Testing in India; 2011	6.44
Chloride (as Cl) (1:2)	96	ELES/SOIL/SOP/01: 2021	0.014
Arsenic (as As)	mg/kg	ELES/SOIL/SOP/28: 2023	BDL (DL: 0.01)
Cadmittm (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)

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Sauce Contributions of Date States



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

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TO-13587

## TEST REPORT

Test Report No.	: ELES/RNC/2025/0506	Report Release Date	: 22.01.2025
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC1358725000000497F		

Discipline: Chemical		Group: Pollution & Environment	
Parameter	Unit	Test Protocol	Result
Magnesium (as Mg)	mg/kg	Soil Testing in India; 2011	3195
Mercury (as Hg)	mg/kg	US EPA 7473: 2007	BDL (DL: 0.01)

Reviewed by Akash Kumar Quality Manager

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

Authorised Signatory

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

Page 2 of 2

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### TEST REPORT

Test Report No.	: ELES/RNC/2025/0506	Report Release Date	: 22.01.2025
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name Address	: Hindalco Industries Limited : Lohardaga, Jharkhand-835302	Sample Ref. No. Sampling Date Sample Received Date Type of Sample Location of Sample	: ELES/RNC/2025/SL/0278 : 12.01.2025 : 13.01.2025 : Soil : Near Mine Block-B,	
Mines Status Period of Analysis	: Operational : 13.01.2025 to 22.01.2025	Sampling Procedure Sampling Done By Sample Condition	Quarry No.7- Pakhar Bauxite Mine (115.13ha) : ELES/DOC/SMPL/05 : ELES Pvt. Ltd. : Sealed	

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

Reviewed by Akash Kumar Quality Manager

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

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

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# ENVIRONMENTAL LABORATORIES & ENGINEERING SERVICES PVT. LTD.

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

Pakhar (115.13) Bauxite Mine-Environmental Monitoring Report

February 2025



## CONTENT

	Hindalco Industries: Pakhar (115.13) Environmental Monitoring Report	February 2025
	Pakhar (115.13)	
	AMBIENT AIR QUALITY- CORE ZONE	
1	Near Mine Block-B, Quarry No.3	
2	Near Mine Block-B, Quarry No.4	
3	Near Mine Block B, Quarry No - 6	
4	Near Mine Block-B, Quarry No.7	
	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	
	Drinking Water	
	Effluent Water	







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

## ENGINEERING SERVICES PVT. LTD.

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TC-13517

### TEST REPORT

Test Report No.	: ELES/RNC/2025/1315	Report Release Date	: 28.02.2025
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC1358725000001286F		

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/1345	
		Location	: Near Mine Block-B, Quarry No.3 Pakhar Bauxite Mine (115.13 ha)	
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 19.02.2025 to 20.02.2025	
		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.	
Leriou or Analysis		Sample Condition	: Sealed & Preserved	

MI	METEOROLOGICAL INFORMATION					
1	Average Temperature (°C) ; 2	1 2	Barometric Pressure (mmHg)	: 722		
3	Relative Humidity (%) : 5		Weather Condition	: Clear		

Discipline : Chemie	catl	Group:	Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	μg/m³	IS 5182 (Part- 23): 2022	82	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	51	60 (24hrs)	
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part- 2/Sec1): 2023	13.6	80 (24hrs)	
Nitrogen Di-Oxide (NO2)	μg/m³	IS 5182 (Part- 6): 2022	36.1	80 (24hrs)	
Ozone (O <sub>3</sub> )	µg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)	
Ammonia (NH <sub>3</sub> )	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/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 <sub>6</sub> H <sub>6</sub> )	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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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D1Z4

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TC-13587

### TEST REPORT

Test Report No.	: ELES/RNC/2025/1316	Report Release Date	: 28.02,2025	
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024	
ULR No.	: TC1358725000001287F			

CUSTOMER DET	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2025/AA/1346 : Near Mine Block-B, Quarry No.4 Pakhar Bauxite Mine (115.13 ha)	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 19.02.2025 to 20.02.2025 : 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	

M	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 21	2	Barometric Pressure (mmHg)	: 720
3	Relative Humidity (%)	: 58	4	Weather Condition	: Clear

Discipline : Chemic	ral	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	47	60 (24hrs)	
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part- 2/Sec1): 2023	15.1	80 (24hrs)	
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part- 6): 2022	30.4	80 (24hrs)	
Ozone (O <sub>5</sub> )	μg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)	
Ammonia (NH <sub>3</sub> )	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	0.028	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 <sub>a</sub> H <sub>a</sub> )	pg/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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TC-19587

### TEST REPORT

Test Report No.	: ELES/RNC/2025/1317	Report Release Date	: 28.02.2025
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC1358725000001288F		

CUSTOMER DET	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/1347	
		Location	: Near Mine Block-B, Quarry No.6 Pakhar Bauxite Mine (115.13 ha)	
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 19.02.2025 to 20.02.2025	
		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 10 28.02.2025	Sample Condition	: Sealed & Preserved	

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	:21	2	Barometric Pressure (mmHg)	2 720
3	Relative Humidity (%)	: 58		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	74	100 (24hrs)		
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	40	60 (24hrs)		
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part- 2/Sec1): 2023	12.2	80 (24hrs)		
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m³	IS 5182 (Part- 6): 2022	26.2	80 (24hrs)		
Ozone (O <sub>3</sub> )	μg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)		
Ammonia (NH <sub>3</sub> )	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	0.035	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 <sub>6</sub> H <sub>6</sub> )	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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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/2025/1318	Report Release Date	: 28.02.2025	
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024	
ULR No.	: TC1358725000001289F			

CUSTOMER DET	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2025/AA/1348 : Near Mine Block-B, Quarry No.7 Pakhar Bauxite Mine (115.13 ha)	
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	

MI	METEOROLOGICAL INFORMATION					
1	Average Temperature (°C) : 2	1	2	Barometric Pressure (mmHg)	: 720	
3	Relative Humidity (%) : 5	8	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	79	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24); 2019	44	60 (24hrs)	
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part- 2/Sec1): 2023	16.1	80 (24hrs)	
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part- 6): 2022	28.8	80 (24hrs)	
Ozone (O <sub>3</sub> )	μg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)	
Ammonia (NH <sub>3</sub> )	μg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m <sup>2</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	1.22	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 <sub>6</sub> H <sub>6</sub> )	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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TC-13587

### 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.	: ELES/RNC/2025/AA/1349
		Location	; Near Bunglapart Village
and with the control		Samulian Data	Pakhar Bauxite Mine
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 19.02.2025 to 20.02.2025
		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.
s willow or runnysis	Lativalavas io adivactivas	Sample Condition	: Sealed & Preserved

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

Discipline : Chemic	cal	Group :	Group : Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Particulate Matter (PM10)	μg/m³	1S 5182 (Part- 23): 2022	78	100 (24hrs)		
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	47	60 (24hrs)		
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part- 2/Sec1): 2023	12.8	80 (24hrs)		
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part- 6): 2022	27.5	80 (24hrs)		
Ozone (O <sub>3</sub> )	μg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)		
Ammonia (NH <sub>3</sub> )	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 <sub>s</sub> H <sub>s</sub> )	µg/m³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)		
Benzo-(a)-Pyrene	ng/m²	ELES/GC/SOP/05: 2023	<0.5	01(Annual)		

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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/2025/1320	Report Release Date	: 28.02.2025
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR 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)
		Location	Pakhar Bauxite Mine
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 19.02.2025 to 20.02.2025
teneschietme		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 Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved

MI	METEOROLOGICAL INFORMATION					
1	Average Temperature (°C) : 21	2	Barometric Pressure (mmHg)	: 725		
3	Relative Humidity (%) : 56	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	80	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24); 2019	49	60 (24hrs)	
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part- 2/Sec1): 2023	12.3	80 (24hrs)	
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part- 6); 2022	31.7	80 (24hrs)	
Ozone (O <sub>3</sub> )	μg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)	
Ammonia (NH <sub>2</sub> )	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/m³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)	
Benzene (C <sub>6</sub> H <sub>8</sub> )	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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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D124



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TC-13567

### 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	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/1351	
		Location	: Near Utkarmit Rajkiya Prathmii Vidyalaya Bunglapart Village Pakhar Bauxite Mine	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 19.02.2025 to 20.02.2025 : 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 Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved	

### METEOROLOGICAL INFORMATION

-	Average Temperature (°C) : 21 2 Barometric Pressure (mmHg) : 725				
-	the state of the s		Baromeure Pressure (mmrig)	: 145	
3	Relative Humidity (%) : 56	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	76	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24); 2019	42	60 (24hrs)	
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part- 2/Sec1): 2023	13.3	80 (24hrs)	
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m³	1S 5182 (Part- 6): 2022	26.3	80 (24hrs)	
Ozone (O <sub>3</sub> )	μg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)	
Ammonia (NH <sub>3</sub> )	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	0.018	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 <sub>t</sub> H <sub>6</sub> )	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

Quality Asanar

Page 1 of 1

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

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TC-12587

### 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 DET	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/1352	
	processor and an analysis of the second and the	Location	: Near Utkarmit Rajkiya Prathmil Vidyalaya Dumrapart Village Pakhar Bauxite Mine	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 19.02.2025 to 20.02.2025 : 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 Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved	

MI	METEOROLOGICAL INFORMATION					
1	Average Temperature (°C) : 21	2	Barometric Pressure (mmHg	) : 725		
3	Relative Humidity (%) : 56	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	72	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	46	60 (24hrs)	
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part- 2/Sec 1): 2023	14.1	80 (24hrs)	
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part- 6): 2022	24.8	80 (24hrs)	
Ozone (O <sub>2</sub> )	μg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)	
Ammonia (NH <sub>3</sub> )	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 <sub>6</sub> H <sub>6</sub> )	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

Page 1 of 1

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



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TC-13507

### TEST REPORT

Test Report No.	: ELES/RNC/2025/1349	Report Release Date	: 01.03.2025
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC1358725000001320F		

CUSTOMER DET	TAILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/DW/1335	
		Sampling Date	: 20.02.2025	
		Sample Received Date	: 21.02.2025	
2042 0.00	: Lohardaga, Jharkhand-835302	Type of Sample	: Drinking Water	
Address		Source of Sample	: TAP Water	
		Location of Sample	: Mines Site	
-WEER COLORS			(Pakhar-115.13 Bauxite Mine)	
Mines Status	: Operational	Sampling Procedure	: ELES/DOC/SMPL/01	
Period of Analysis	: 21.02.2025 to 01.03.2025	Sampling Done By	; ELES Pvt. Ltd.	
r crion or relatysts	: 21.02.2025 to 01.03.2025	Sample Condition	: Sealed & Preserved	

Discipline: Chemical	Discipline : Chemical Group : Water				
mocipane: Cacancai		Group	- Transca	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*	6.67	6.5-8.5	No Relaxation
Turbidity	NTU	APHA 24th Ed.2023, 2130 B	0.75	1.0	5.0
Taste		APHA 24th Ed.2023, 2160 C	Agreeable	Agreeable	Agreeable
Odour	8	IS 3025 (Part-5) :2018	Agreeable	Agreeable	Agreeable
Colour	Hazen	APHA 24th Ed.2023, 2120B&D	1.2	5.0	15
Total Dissolved Solids (TDS)	mg/L	APHA 24th Ed.2023, 2540B,C&D	304	500	2000
Chloride (as Cl)	mg/L	APHA 24th Ed.2023, 4500 Cl B	19.9	250	1000
Fluoride (as F)	mg/L	APHA 24 <sup>th</sup> Ed.2023, 4500 F-D	BDL (DL: 0.1)	1.0	1.5
Total Alkalinity (as CaCO <sub>3</sub> )	mg/L	APHA 24 <sup>th</sup> Ed.2023, 2320 B	123	200	600
Total Hardness (as CaCO <sub>1</sub> )	mg/L	APHA 24 <sup>th</sup> Ed.2023, 2340 C	146	200	600
Sulphate (as SO <sub>4</sub> )	mg/L	APHA 24th Ed.2023, 4500 SO <sub>4</sub> 2-E	7.12	200	400
Nītrate (as NO <sub>3</sub> )	mg/L	APHA 24th Ed.2023, 4500 NO <sub>3</sub> -B	2.82	45	No Relaxation

Page 1 of 4

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

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TC-15507

TEST REPORT

Test Report No. : ELES/RNC/2025/1349 Report Release Date : 01.03.2025

Work Order No. : 13612312113 Work Order Date : 28.03.2024

ULR No. : TC1358725000001320F

Discipline : Chemical Group : Water			Regulatory Limit as per IS10500:2012		
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
Phenolic Compound (as C <sub>6</sub> H <sub>5</sub> 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	38.8	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	Gro	oup: Residues i	n Water	
Aluminum (as AI)	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	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	0.049	1.0	No Relaxation
Lead (as Pb)	mg/L	APHA 24 <sup>th</sup> 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

Page 2 of 4

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

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10-11597

### TEST REPORT

 Test Report No.
 : ELES/RNC/2025/1349
 Report Release Date
 : 01.03.2025

 Work Order No.
 : 13612312113
 Work Order Date
 : 28.03.2024

 ULR No.
 : TC1358725000001320F

Discipline: Chemical		Group: Resid	Group : Residues in Water Regulatory Limi as per IS10500:20		
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)	2	0
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)	1	90
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)	3	*:
Dieldrin	μg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.01)	0.03	
Alpha HCH	pg/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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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D1Z4

## ENGINEERING SERVICES PVT. LTD.

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TC-13582

### TEST REPORT

Test Report No. : ELES/RNC/2025/1349 Report Release Date : 01.03.2025

Work Order No. : 13612312113 Work Order Date : 28.03.2024

ULR No. : TC1358725000001320F

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 and by January	
Escherichia coli (Qualitative)	Per 100 mL	IS 15185: 2021	Not Detected	Shall not be detected	

Remarks: pH done at Site.

Reviewed by

Akash Kumar Quality Manacus \*\*\*\*End of Report\*\*\*\*

Authorised Signatory

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

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/2025/1349	Report Release Date	: 01.03.2025	
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024	

CUSTOMER DET	TAILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Sampling Date	: ELES/RNC/2025/DW/1335 : 20.02.2025	
Address	: Lohardaga, Jharkhand-835302	Sample Received Date Type of Sample Source of Sample	: 21.02.2025 : Drinking Water : TAP Water	
Mines Status	: Operational	Location of Sample Sampling Procedure	: Mines Site (Pakhar-115.13 Bauxite Mine) : 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: Wa	Group: Water		Regulatory Limit as per IS 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

Akash Numer Quality Manage: \*\*\*\*End of Report\*\*\*

Authorised Signatory

Dr. Deependra Komer Sinha Ph. D. Environmental Enou.

Technical Manager

Page 1 of I

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

## ENGINEERING SERVICES PVT. LTD.

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TC-1398

### TEST REPORT

Test Report No.	: ELES/RNC/2025/1350	Report Release Date	: 01.03.2025
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC1358725000001321F	11	

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/EF/1336	
		Sampling Date	: 20.02.2025	
		Sample Received Date	: 21.02.2025	
Address	: Lohardaga, Jharkhand-835302	Type of Sample	: Effluent Water	
Address	: Lonardaga, markhand-e55502	Source of Sample	: Near Mine Block-B, Quarry No.3 Pakhar Bauxite Mine (115.13 ha)	
		Sampling Procedure	: ELES/DOC/SMPL/01	
Mines Status	: Operational	Sampling Done By	: ELES Pvt. Ltd.	
Period of Analysis	: 21.02.2025 to 01.03.2025	Sample Condition	: Sealed & Preserved	

Discipline : Chemical		Group: Pollution & I	Pollution & Environment Discharge Limits EPR, 1986 Sche		
Parameter	Unit	Test Protocol	Result	Inland Surface Water	Land for Irrigation
pH (at 24.7 °C)	7.	APHA 24th Ed.2023,4500-H	6.53	5.5-9.0	5.5-9.0
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part-16); 2023	235		
Total Suspended Solids (TSS)	mg/L	IS 3025 (Part-17): 2022	82.4	100	200
Dissolved Oxygen (DO)	mg/L	IS 3025 (Part-38): 2019	5.7	77	***
Biochemical Oxygen Demand (BOD) (at 27 °C for 3 days)	mg/L	IS 3025 (Part-44): 2023	19	30	100
Chemical Oxygen Demand (COD)	mg/L	IS 3025 (Part-58): 2023	173	250	**
Dissolved Phosphate (as P)	mg/L	IS 3025 (Part-31/Sec-1): 2022	2.4	5.0	22
Fluoride (as F)	mg/L	IS 3025 (Part-60); 2019	BDL (DL: 0.1)	2.0	
Sulphide (as S)	mg/L	1S 3025 (Part-29): 2019	BDL (DL: 0.04)	2.0	
Oil & Grease	mg/L	IS 3025 (Part-39): 2021	5.2	10	10

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

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TC-13567

### TEST REPORT

Test Report No.	: ELES/RNC/2025/1350	Report Release Date	: 01,03.2025
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC1358725000001321F		

Discipline: Chemical		Group: Residues in Water		Discharge Limits – CPCB EPR, 1986 Schedule VI	
Parameter	Unit	Test Protocol	Result	Inland Surface Water	Land for Irrigation
Lead (as Pb)	mg/L	APHA 24th Ed.2023, 3111 B	BDL (DL: 0.01)	0.1	
Manganese (as Mn)	mg/L	APHA 24th Ed.2023, 3111 B	0.643	2.0	
Mercury (as Hg)	mg/L	IS 3025(Part-48): 1994; RA2019	BDL (DL; 0.001)	0.01	877
Nickel (as Ni)	mg/L	APHA 24th Ed.2023, 3111 B	0.122	3.0	· ++
Zinc (as Zn)	mg/L	APHA 24th Ed.2023, 3111 B	0.202	5.0	: <del>**</del>

Remarks: pH & DO done at Site.

Reviewed by

Akash Kumar Duality Managar \*\*\*\*End of Report\*\*\*\*

Authorised Signatory

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

Page 2 of 2

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# ENVIRONMENTAL LABORATORIES & ENGINEERING SERVICES PVT. LTD.

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

Pakhar (115.13) Bauxite Mine-Environmental Monitoring Report

March 2025

# CONTENT

	Hindalco Industries: Pakhar (115.13) Environmental Monitoring Report March 2025
	Pakhar (115.13)
	AMBIENT AIR QUALITY- CORE ZONE
1	Near Mine Block-B, Quarry No.3
2	Near Mine Block-B, Quarry No.4
3	Near Mine Block B, Quarry No - 6
4	Near Mine Block-B, Quarry No.7
	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



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

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TC-13587

## TEST REPORT

Test Report No.	: ELES/RNC/2025/1644	Report Release Date	: 17.03.2025
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
III.R No.	+ TC1358725000001608F		

CUSTOMER DET	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/1837
	Section of the second section of the	Location	: Near Mine Block-B, Quarry No.3 Pakhar Bauxite Mine (115.13 ha)
Address	: Lohurdaga, Jharkhand-835302	Sampling Date	; 07.03.2025 to 08.03.2025
		Sample Received Date Type of Sample	: 10.03.2025 : Ambient Air
Mines Status	: Operational	Sampling Procedure	: ELES/DOC/SMPL/02
Period of Analysis	: 10,03,2025 to 17.03.2025	Sampling Done By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved

METEOROLOGICAL INFORMATION			
1 Average Temperature (°C) : 25	2	Barometric Pressure (mmHg)	: 720
3 Relative Humidity (%) : 59	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	88	100 (24hrs)
Particulate Matter (PM2.5)	μg/m³	1S 5182 (Part-24): 2019	53	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	1S 5182 (Part- 2/Sec1): 2023	10.2	80 (24hrs)
Nitrogen Di-Oxide (NO2)	μg/m³	IS 5182 (Part- 6): 2022	44.6	80 (24hrs)
Ozone (O <sub>1</sub> )	µg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	μg/m <sup>1</sup>	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	0.025	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 <sub>6</sub> H <sub>6</sub> )	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.

Page I of I

The Document stated as Your Report, in issued by the Laboratory scaler General Trans and Conditions, only on Company Series South to pur-up Technical Managers in the Total Report refer to refere only to the job analysis denie by the Laboratory only. The information stated on the Text Report reflects the findings done by the Laboratory in the stem of incolvenium only and writing the limits of claim's instructions. The Laboratory is responsible for all the information or data provided on the report, except the information which is previded by the claim. The Report cannot be reproduced except in full and any part of the expect is not taken out of context, without prior written appeared of the Laboratory. The Report in full or in part shall not be published. advertise, used for any legal actions unities prior permission has been second from the Management of the Laboratory. Attention is drawn to the limitation of liability, compensation and jurisdiction somes. Any assorberance difference in this faction of the common or approximate of the Lost Report to order find and offenders may be presecuted to the fallest extent of the faw. All this complex me retained for 30days from the Date of release record of the Tast Report. The samples from Regulatory bedies are no be retained as epocified. Any type of Observations or Complaints regarding the Reports shall be done within 15 days from the Date of Top Report released/sound. After the time period stoud before, no complaints will be accupted. The entire Time subodule manifold in Test Report is in 24 leases formed. Abbreviation used: % A (Not Applicable). HDL (Below Detection Limit). LDL (Lower Detection Limit).



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

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TC-13567

### TEST REPORT

Test Report No.	: ELES/RNC/2025/1645	Report Release Date	: 17.03.2025	
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024	
ULR No.	: TC1358725000001609F			

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2025/AA/1838 : Near Mine Block-B, Quarry No.4 Pakhar Bauxite Mine (115.13 ha)	
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	

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	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	83	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24); 2019	44	60 (24hrs)	
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part- 2/Sec1): 2023	13.3	80 (24hrs)	
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part- 6): 2022	27.1	80 (24hrs)	
Ozone (O <sub>5</sub> )	μg/m)	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)	
Ammonia (NH <sub>1</sub> )	μg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part- 10); 2019 (NDIR Method)	1.30	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 <sub>4</sub> H <sub>4</sub> )	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\*\*\*\*

Authorised Signatory
Dr. Deependra Kumar Sinha

Ph. D. Environmental Engly.

Page 1 of 1

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

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TC-13587

## TEST REPORT

Test Report No.	: ELES/RNC/2025/1646	Report Release Date	: 17.03.2025
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC1358725000001610F		

CUSTOMER DET	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/1839	
		Location	: Near Mine Block-B, Quarry No.6 Pakhar Bauxite Mine (115.13 ha)	
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 07.03.2025 to 08.03.2025	
		Sample Received Date	: 10.03.2025	
		Type of Sample	: Ambient Air	
Mines Status	: Operational	Sampling Procedure	: ELES/DOC/SMPL/02	
Period of Analysis	: 10.03.2025 to 17.03.2025	Sampling Done By	; ELES Pvt. Ltd.	
relien in Municipals	- 10/07/4027 W 17/07/2023	Sample Condition	: Sealed & Preserved	

MI	ETEOROLOGICAL INFO	RMATION			
1	Average Temperature (*C)	: 25	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	79	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24); 2019	37	60 (24hrs)	
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m³	IS 5182 (Part- 2/Sec1): 2023	14.4	80 (24hrs)	
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part- 6); 2022	30.9	80 (24hrs)	
Ozone (O <sub>2</sub> )	μg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)	
Ammonia (NH <sub>2</sub> )	μg/m <sup>3</sup>	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/m²	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 <sub>6</sub> H <sub>6</sub> )	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

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Page 1 of 1.

The Discouncil stated as Test Report, so could be the Laboratory state. Gauged Terms and Combiness, only on Company factor hand in pre-approved formal. The translational state Test Report is the Test Report in the Test Report i refer or relates only to the job analysis done by the Laboratory only. The information stated on the Test Report reflects the findings done by the Laboratory or the time of insolvement only and within the interest of client's instructions. The Laboratory is 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 to full and any part of the report is not taken our of central, Without prior written approval of the Laboratory. The Report in full or in part shall not be published. advertise, used for any legal access unless prior permission has been exceed from the Management of the Cobecatory. Attention is drawn to the limitation of hishility, compensation and periodicine assert. Any sensitivitied alteration & Scholikotton of the constant or appearance of the Test Report is unlessful and offenders may be presented to the follow extent of the law. All the complication measured for Midays from the Date of releases used of the Test Report. The complication Regulatory bodies are to be retained as specified. Any type of Observations or Compliants regarding the Report what he done within 15-days from the Date of Test Report releases/bound. After the time period statud before, no complaints will be accepted. The unity Time schedule mentioned in Test Report is in 24 hours formed. Althorosomics much NoA (Not Applicable), BDL (Below Descrion Linit), LDL (Lower Detection Linit).



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/2025/1647	Report Release Date	: 17.03.2025	
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024	
ULR No.	: TC1358725000001611F			

CUSTOMER DET	CUSTOMER DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/1840
		Location	: Near Mine Block-B, Quarry No.7 Pakhar Bauxite Mine (115.13 ha)
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 07.03.2025 to 08.03.2025
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		Sample Received Date	±10.03,2025
		Type of Sample	: Ambient Air
Mines Status	: Operational	Sampling Procedure	: ELES/DOC/SMPL/02
Period of Analysis	: 10.03.2025 to 17.03.2025	Sampling Done By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved

METEOROLOGICAL INFORMATION						
1	Average Temperature (°C)	: 25	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	84	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24); 2019	40	60 (24hrs)	
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m <sup>3</sup>	IS 5182 (Part- 2/Sec1): 2023	13.3	80 (24hrs)	
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part- 6): 2022	31.6	80 (24hrs)	
Ozone (O <sub>3</sub> )	μg/m³	15 5182 (Part- 9): 2019	<20.0	100 (8hrs)	
Ammonia (NH <sub>3</sub> )	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	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 <sub>6</sub> H <sub>6</sub> )	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\*\*\*\*

Authorised Signatory Dr. Deependra Kumar Sinha

Ph. D. Environmental Engo

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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



10-1350

## 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 DET	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/1841	
		Location	: Near Bunglapart Village Pakhar Bauxite Mine	
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 07.03.2025 to 08.03.2025	
		Sample Received Date	: 10.03.2025 : Ambient Air	
Mines Status	: Operational	Type of Sample Sampling Procedure	: 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 (%)	158	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	83	100 (24hrs)		
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24); 2019	51	60 (24hrs)		
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part- 2/Sec1): 2023	13.6	80 (24hrs)		
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m³	IS 5182 (Part- 6): 2022	29.2	80 (24hrs)		
Ozone (O <sub>3</sub> )	µg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)		
Ammonia (NH <sub>3</sub> )	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	0.020	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 <sub>6</sub> H <sub>6</sub> )	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 Akaah Kumar

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

Authorised Signatory

Dr. Deependra Kumar Sinha

Ph. D. Environmental Engg.

milty-Manager

Page I of I

Die December water as Last Report in mount by the Laboratory under General Terms and Conditions, only on Company latter hand in pro-applecturing abbit management and the Test Report reflects the findings done by the Laboratory and the Laboratory and the respective of the Test Report reflects the findings done by the Laboratory as the total soft under the findings done by the Laboratory as the total soft under the findings done by the Laboratory. The Laboratory is responsible for all the information or data provided on the report, except the information which is provided by the client. The Report content or the report and the report in full and any port of the expert is not taken out of content, without price written approval of the Laboratory. The Report is full on its part shall not be problemed, advantage, and the range price permission has been incomed from the Management of the Laboratory. According to drawn to the lambday compensation and periodicions. Any anauthorized aboration of falsefunctions of the content or appearance of the Test Report is unlowful and effective may be provided to the fullest extent of the law. All the complete one totalized for Miders from the Date of release inner of the Test Report released before, no compliants will be accepted. The cone Time schedule mannered in Test Report to its 24hours forms. Althorization shall be accepted. The cone Time schedule mannered in Test Report to its 24hours forms. Althorization shall be described benefit and the finance of the test finance of the Cone Time schedule mannered in Test Report to its 24hours forms. Althorization shall be described benefit and the finance of the test finance of the Cone Time schedule mannered in Test Report to its 24hours forms. Althorization shall be described benefit to its finance of the test finance



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



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



TO-13587

## 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	1/1		

CUSTOMER DET	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2025/AA/1842 : Yatri Shed (Near K-10)	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	Pakhar Bauxite Mine : 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 INFO	RMATION			
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	75	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24); 2019	43	60 (24hrs)	
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m³	IS 5182 (Part- 2/Sec1): 2023	11.8	80 (24hrs)	
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	15 5182 (Part- 6): 2022	29.3	80 (24hrs)	
Ozone (O <sub>3</sub> )	µg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)	
Ammonia (NH <sub>3</sub> )	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/m³	IS 5182 (Part- 22): 2019	0.032	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 <sub>0</sub> H <sub>0</sub> )	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\*\*\*\*

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Authorised Signatory
Dr. Deependra Kumar Sinha

Quality manager

Akash Kumar

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Ph. D. Environmental Engg.

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## ENGINEERING SERVICES PVT. LTD.

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TC-135EF

## 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.	: ELES/RNC/2025/AA/1843
		Location	: Near Utkarmit Rajkiya Prathmik Vidyalaya Bunglapart Village Pakhar Bauxite Mine
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 07.03.2025 to 08.03.2025
		Sample Received Date	: 10.03.2025
		Type of Sample	: Ambient Air
Mines Status	: Operational	Sampling Procedure Sampling Done By	: ELES/DOC/SMPL/02 : ELES Pvt. Ltd.
Period of Analysis	: 10.03.2025 to 17.03.2025	Sample Condition	: Sealed & Preserved

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

Discipline : Chemic	al	Group:	Atmospherie	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 <sub>2</sub> )	μg/m³	IS 5182 (Part- 2/Sec1): 2023	14.2	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part- 6): 2022	27.7	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m³	15 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	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	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m²	ELES/GC/SOP/05: 2023	< 0.5	01(Annual)

Reviewed by Akash Kumur

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

Authorised Signatory Dr. Deependra Kumar Sinha

Quality Manage

Page 1 of 1

Ph. D. Environmental Engg.

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TC-taser

## TEST REPORT

Test Report No.	: ELES/RNC/2025/1651	Report Release Date	: 17.03,2025	
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024	
ULR No.	: TC1358725000001615F			

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	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 07.03.2025 to 08.03.2025 : 10.03.2025	
		Type of Sample	: Ambient Air	
Mines Status	: Operational	Sampling Procedure Sampling Done By	: ELES/DOC/SMPL/02 : ELES Pvt. Ltd.	
Period of Analysis	: 10.03.2025 to 17.03.2025	Sampling Done By Sample Condition	: 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	1S 5182 (Part-23): 2022	71	100 (24hrs)
Particulate Matter (PM2,5)	µg/m³	15 5182 (Part- 24); 2019	40	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part- 2/Sec1): 2023	12.9	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	1S 5182 (Part- 6): 2022	29.1	80 (24hrs)
Ozone (O <sub>3</sub> )	μg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	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/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 <sub>6</sub> H <sub>6</sub> )	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)



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

Authorised Signatory

Dr. Deependra Kumar Sinha

Page 1 of 1

Ph. D. Environmental Engg.

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

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TO-1358

### TEST REPORT

Test Report No.	: ELES/RNC/2025/1662	Report Release Date	: 17.03.2025
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC1358725000001626F		

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name Address	: Hindalco Industries Limited : Lohardaga, Jharkhand-835302	Sampling Date Sampling Received Date Type of Sample Sampling procedure Sampling Done By	: 07.03.2025 to 08.03.2025 : 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 INFORMATI	ION		
1	Average Temperature (°C) : 25	2	Barometric Pressure (mn	nHg) : 720
3	Relative Humidity (%) : 59	4	Weather Condition	: Clear

Discipline : Chemical	Discipline : Chemical				Pollution
Location	Unit	Test Protocol	Resu	lt	Regulatory Limit (Industrial Zone)
A A A A A A A A A A A A A A A A A A A			Time	Leq	
Quarry Mines Pit, Pakhar Bauxite Mine (115.13 ha)	dB(A)	IS 9989: 2020	Day Time	66	75 dB(A) Day Time
Sample ID: ELES/RNC/2025/AN/1855	7.77	13,7707, 2020	Night Time	48	70 dB(A) Night Time

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

## ENGINEERING SERVICES PVT. LTD.

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TC-12587

## TEST REPORT

Test Report No.	: ELES/RNC/2025/1657	Report Release Date	: 17.03.2025
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC1358725000001621F		

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name Address	: Hindalco Industries Limited : Lohardaga, Jharkhand-835302	Sampling Date Sampling Received Date Type of Sample Sampling procedure Sample Drawn By	: 08.03.2025 : 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	

M	ETEOROLOGICAL INFORMATION			
1	Average Temperature (°C) : 28	2	Barometric Pressure (mml	ig) : 720
3	Relative Humidity (%) : 60	4	Weather Condition	: Clear

Location	Unit	Test Protocol	Res	alt	Regulatory Limit (Industrial Zone)
Quarry No.7 -			Time	$L_{eq}$	
Pakhar Bauxite Mine (115.13 ha)	dB(A)	IS 4758: 2017	Day Time	77	90 dB(A)
Sample ID: ELES/RNC/2025/WN/1850			Day Time	5406	

Reviewed by Akash Kumar Quality Managor

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

Ails

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

Page 1 of 1

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### **Annexure 3**

Date - 01.05.2025

### Office Order

Environmental Cell has been re-constituted for Pakhar Group of Mines (Pakhar – 115.13 ha, Pakhar – 35.12 ha and Pakhar – 8.09 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 Hindalco Industries Limited.

- 1. Mr. Sanjay 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**

	Product	tion, Mined Out	t, Back Filled an	d Over Burden ren	noval from Oc	tober'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			

<sup>\*</sup>Static information about the mines included in the above table

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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	

<sup>\*\*</sup>Part of OB removed cost

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