

HIL/LHD/ENV/MoEF&CC/414

Date: 24th November 2025

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

Sub: Six Monthly EC Compliance Report for Kujam-I (80.87 Ha) Bauxite Mining project of M/s Hindalco Industries Limited, Gumla, Jharkhand for the period from April 2025 to September 2025.

Ref: Environmental Clearance Identification No. EC23B001JH143302, dated 21st August 2023.

Dear Sir,

With reference to the above, we are submitting herewith the Compliance status report of EC conditions for **Kujam-I (80.87 Ha)** Bauxite Mining project of **M/s Hindalco Industries Limited** located in Gumla, Jharkhand for the period from **April 2025 to September 2025** for your kind perusal please.

The lease details are below:

Lease area (ha)	Production Capacity (MT)	Lease Period
80.87	150000	13.03.2006 to 12.03.2056

Hope you will find the same in order.

Thanking You

Yours faithfully,
For **Hindalco Industries Limited**

A handwritten signature in blue ink, appearing to read "Basudev Gangopadhyay".

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 : **Kujam - I Bauxite Mine (80.87 ha)**
M/s Hindalco Industries Limited,

EC Identification No & date : **EC23B001JH143302, dated 21.08.2023.**

Period of compliance Report : **From 1st April 2025 to 30th September 2025**

A. Specific Conditions

Condition 1-This Environmental Clearance is valid subject to the following condition below-That this project has

- a. Obtained all legal rights to operate at concerned place.**
- b. Complied with all existing concerned laws of the land and**
- c. Complied with the decisions of SEIAA on the issue of Environmental Clearance till date.**

Reply to Condition 1 – Agreed. All the legal rights and laws concerned are already complied with. The decision of SEIAA on the issue of Environmental Clearance are being/ will be complied with.

Condition 2- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary and on either side of approach road in two rows with the spacing of 3x3m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, morality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change. Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

Reply to Condition 2- Being adhered to. Progressive plantation is being carried out in consultation with local forest Dept. During FY 2025-26 till September, a total of 3250 nos. of saplings have been planted within this lease. Cumulative 9.94 ha areas have been planted till date. In addition to these, agricultural activities (bio plantation) is going on reclaimed land as per the consent from landowners. Safety Zone plantation work is already being carried out. Plant survival rates are being taken care of by regular watering and manuring. Protection of saplings by fencing pillar and chain link fencing is being done. Photographs of plantation and chain link fencing are attached below:



Plantation and Agriculture activities in Safety zone and Reclaimed Area

Condition 3- Since this is an existing mine located adjacent to the notified forest land. Therefore 7.5-meter safety zone should be maintained as a special precautionary measure protect the adjoining forest.

Reply to Condition 3- Noted and complied. A 7.5-meter safety zone was maintained, and no mining activity was carried out within this zone.

Condition 4- No mining/activity shall be undertaken in the forest land or deemed forest without obtaining requisite prior forestry clearance.

Reply to Condition 4- Noted. However, there is no forest area in our mining lease area. Therefore, there is no need for forest clearance.

Condition 5- The project proponent may apply simultaneously for forest and NBWL clearance in order to complete the formalities without undue delay which till process on their respective merits, no rights will vest in or accrue to them unless all clearance are obtained, if applicable.

Reply to Condition 5- Noted. However, there is no forest land within the lease hold area. Therefore, there is no need for forest clearance. This mine is also located beyond the ESZ boundary. Hence, NBWL is not applicable for this mine.

B. Statutory Compliance

Condition 1-This Environmental Clearance (EC) is subject to orders/ judgment of Hon'ble Supreme Court of India, Hon'ble High Court, Hon'ble NGT and any other Court of Law. Common Cause Conditions as may be applicable.

Reply to Condition 1 – Noted. However, common cause conditions are not applicable for this mine.

Condition 2- In the writ petition (Civil) no. 202/1995, T.N. Godaverman Thirumulpad vs union of India and Ors. the Hon'ble Supreme Court passed an order dated 03.06.2022 " National Park or Wildlife Sanctuary must have an ESZ of minimum 01 km in which the activities prescribed and prescribed in the guidelines of 09th February 2011 shall be strictly adhered to".

Reply to Condition 2- Noted. However, this mine is approximately 9 km away from the Mahuadhanr ESZ boundary.

Condition 3- The Project proponent complies with all the statutory requirements and judgement of Hon'ble Supreme Court dated 2 August 2017 in Writ Petition (Civil) No. 114 of 2014 in matter of common cause versus Union of India & Ors before commencing the mining operations.

Reply to Condition 3- Noted. However, common conditions are not applicable for this mine.

Condition 4- The Hon'ble Supreme Court vide order dated 08.01.2020 in W.P. (Civil) No. 114/2014 in the mater of Common Cause vs. Union of India has directed that the area which has been mined should be restored so that grass and other vegetation including trees can grow in the mining area for the benefit of animals.

"The mining lease holders shall, after ceasing mining operations, undertake re-grassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc."

Reply to Condition 4- Agreed. The mine is currently non-operational due to the exhaustion of mineral reserves. The Final Mine Closure Plan (FMCP) has been approved by the Indian Bureau of Mines (IBM). In accordance with the approved FMCP, mine closure activities are being carried out, including land reclamation, plantation, re-grassing, construction of a rainwater harvesting pond, and facilitation of agricultural activities. These efforts aim to restore the mined-out area, enabling the growth of grass, vegetation, and trees for the benefit of local wildlife and the surrounding ecosystem.

Condition 5- The State Government concerned shall ensure that mining operation shall not be commenced till the entire compensation levied, if any, for illegal mining paid by the Project Proponent through their respective Department of Mining & Geology in strict compliance of Judgement of Hon'ble Supreme Court dated 2nd August. 2017 in Writ Petition (Civil) No. I14 of 2014 in matter of Common Cause versus Union of India & Ors.

Reply to Condition 5- There had been no illegal mining involved. Hence, there is no demand from the State Government regarding common cause matter for Kujam I bauxite mine.

Condition 6- This Environmental Clearance shall become operational only after receiving formal NBWL Clearance from MoEF&CC subsequent to the recommendations of the Standing Committee of National Board for Wildlife. if applicable to the Project.

Reply to Condition 6- Noted. However, this mine is located beyond the ESZ boundary. Hence, NBWL Clearance is not applicable for this mine.

Condition 7- This Environmental Clearance shall become operational only after receiving formal Forest Clearance (FC) under the provision of the Forest Conservation Act, 1980. If applicable to the Project.

Reply to Condition 7- Noted. However, no forest area is involved in the lease area. Hence, this condition is not applicable for this mine.

Condition 8- Project Proponent (PP) shall obtain Consent to Operate after grant of EC and effectively implement all the conditions stipulated therein. The mining activity shall not commence prior to obtaining Consent to Establish / Consent to Operate from the concerned State Pollution Control Board.

Reply to Condition 8- Noted. Valid CTE and CTO have already been received from JSPCB, Ranchi.

Condition 9- The PP shall adhere to the provision of the Mines Act, 1952, Mines and Mineral (Development & Regulation) Act, 2015 and rules & regulations made there under. PP shall adhere to various circulars issued by Directorate General Mines Safety (DGMS) and Indian Bureau of Mines from time to time.

Reply to Condition 9- The mine is currently non-operational due to the exhaustion of mineral reserves. The Final Mine Closure Plan (FMCP) has been approved by the Indian Bureau of Mines (IBM). In accordance with the approved FMCP, mine closure activities are being carried out and all the provisions and regulations made under Mines Act, 1952 and MMDR Act, 2015 and various circulars issued by Directorate General Mines Safety (DGMS) and Indian Bureau of Mines are being adhered to.

Condition 10- The Project Proponent shall obtain consent from all the concerned landowners. Before mining operations, as per the provisions of the MMDR Act, 1957 and rules made there under in respect of lands which are not owned by it.

Reply to Condition 10- The mine is currently non-operational due to the exhaustion of mineral reserves. The Final Mine Closure Plan (FMCP) has been approved by the Indian Bureau of Mines (IBM). The entire land was acquired in accordance with applicable laws while the mine was operational.

Condition 11- The Project Proponent shall follow the mitigation measures provided in MoEF & CC's Office Memorandum No. Z-1013/57/2014-IAJI (M), dated 29th October, 2014 titled "Impact of mining activities on Habitations-Issues related to the mining Projects wherein Habitations and villages are the part of mine lease areas or Habitations and villages are surrounded by the mine lease area".

Reply to Condition 11- Noted and being adhered to.

Condition 12- The Project Proponent shall obtain necessary prior permission of the competent authorities for drawl of requisite quantity of surface water and from CGWA for withdrawal of ground water for the project.

Reply to Condition 12- Noted. We have obtained NOC for withdrawal of groundwater from CGWA/CGWB for drinking purposes only. The Scan copy of the same NOC is attached below.

NOC for Ground water Extraction

Condition 13- A copy of EC letter will be marked to concerned Panchayat / local NGO etc. if any from whom suggestion / representation has been received while processing the proposal.

Reply to Condition 13- Noted. The EC letter has been submitted to DC Office, DIC office, RO, MoEF&CC, concerned Panchayat office, MS, JSPCB. Acknowledgment copy of the same is attached herewith as **Annexure-8**.

Condition 14- State Pollution Control Board/Committee shall be responsible for display of this EC letter at its Regional office, District Industries Centre, and Collector's office/ Tehsildar's Office for 30 days.

Reply to Condition 14- Noted. The EC Letter has been submitted to JSPCB for display of same at its Regional office and other government offices. Acknowledgment copy of the same is attached herewith as **Annexure-8**.

Condition 15- The Project Authorities should widely advertise the grant of this EC letter by printing the same in at least two local newspapers, one of which shall be in vernacular language of the concerned area. The advertisement shall be done within 7 days of the issue of the clearance letter mentioning that the instant project has been accorded EC and copy of the EC letter is available with the State Pollution Control Board/Committee and website of the Ministry of Environment, Forest and Climate Change (www.Environment clearance.nic.in). A copy of the advertisement may be forwarded to the concerned MoEF & CC Regional Office for compliance and record.

Reply to Condition 15- Noted and complied. The information regarding grant of EC has been published in two local newspapers, namely “Hindustan” and “Hindustan Times.” Copies of the advertisement in local newspapers have already been submitted to the Regional Office of MoEF&CC, Ranchi and JSPCB, Ranchi along with the Six-monthly EC compliance report, vide letter no. HIL/LHD/ENV/MoEF/433 dated 25.11.2023. The copy of the same advertisement in the newspapers is attached below.



Advertisement in the “Hindustan” Newspaper



Advertisement in the “Hindustan Times” Newspaper

Condition 16- The Project Proponent shall inform the MoEF&CC for any change in ownership of the mining lease. In case there is any change in ownership or mining lease is transferred then mining operation shall only be carried out after transfer of EC as per provisions of the para 11 of EIA Notification. 2006 as amended from time to time.

Reply to Condition 16- Noted and it will be informed if applicable.

Condition 17- In all Stone Mining projects, depending upon the air pollution estimates based upon fuel Use in operations and activities of the respective projects; required monitoring station-based air quality monitoring shall be done in the influence area of the project with needed mitigation conditions to ensure sustainable Stone mining as per guidelines, circulars and norms of MOEFCC / Hon'ble NGT or any other directives of regulatory / statutory bodies and competent Courts.

PP to take preventive steps to avoid flash flood conditions arising from mining operations and probably run off in rainy season conditions.

Reply to Condition 17- This is not a stone mine. It is a bauxite mine and all the mitigation measures are being taken to prevent air pollution in Kujam I Bauxite Mine. The mine is currently non-operational due to the exhaustion of mineral reserves. The Final Mine Closure Plan (FMCP) has been approved by the Indian Bureau of Mines (IBM). In accordance with the approved FMCP, mine closure activities are being carried out.

As shallow depth mining had been carried out, there was no chance of flash flood conditions arising from mining operations.

Condition 18- PP shall maintain minimum distance from Reserved / Protected Forests as stipulated in applicable guidelines.

Reply to Condition 18- Noted and adhered. The mine is currently non-operational due to the exhaustion of mineral reserves. The Final Mine Closure Plan (FMCP) has been approved by the Indian Bureau of Mines (IBM).

Condition 19- All statutory clearances shall be obtained before the start of mining operations.

Reply to Condition 19- All statutory clearances were obtained.

C. Air Quality monitoring and preservation

Condition 1- The Project Proponent shall install a minimum of 3 (three) online Ambient Air Quality Monitoring Stations with 1 (one) in upwind and 2 (two) in downwind direction based on long term climatological data about wind direction such that an angle of 120° is made between the monitoring locations to monitor critical parameters. relevant for mining operations, of air pollution viz. PM₁₀, PM_{2.5}, NO₂, CO and SO₂ etc. as per the methodology mentioned in NAAQS Notification No. B-2901 6/20/90/PCUI, dated 18.11.2009, covering the aspects of transportation and use of heavy machinery in the impact zone. The ambient air

quality shall also be monitored at prominent places like office buildings, canteen etc. as per the site condition to ascertain the exposure characteristics at specific places. The above data shall be digitally displayed within 03 months in front of the main Gate of the mine site.

Reply to Condition 1- We have 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**. A display board is already installed in front of mine gate office. We have already installed an online PM10 analyzer at mine site.

Condition 2- Effective safeguard measures for prevention of dust generation and subsequent Suppression (like regular water sprinkling, metal road construction etc.) shall be carried out in areas prone to air pollution wherein high levels of PM10 and PM2.5 are evident such as haul road, loading and unloading point and transfer points. Fugitive dust emissions from all sources shall be regularly controlled by installation of required equipment/ machineries and preventive maintenance. Use of suitable water-soluble chemical dust suppressing agents may be explored for better effectiveness of dust control system. It shall be ensured that the air pollution level conforms to the standards prescribed by the MoEF&CC/ Central Pollution Control Board.

Reply to Condition 2- Continuous water sprinkling is being done for dust suppression on haul road. Online PM10 analyser has been installed for regular monitoring purposes. Suitable water-soluble chemical dust suppressing agents will be used in future if required. The photograph of Water Sprinkler is already attached below.



Water Sprinkling on Haul Road

Condition 3-Approved devices for dust suppression shall be installed.

Reply to Condition 3- USEPA approved online PM10 analyzer has been installed in mine as per the directives of JSPCB. However, dust suppression is also being done by sprinkling water through mobile water tankers.

The photograph of Water Sprinkler is already attached in reply to condition no. 2 of Section-C Air Quality monitoring and preservation.

Condition 4- Personnel working in dusty areas should be provided with 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, A detailed report shall be sent to the Pollution Control Board periodically.

Reply to Condition 4- The mine is currently non-operational due to the exhaustion of mineral reserves. The Final Mine Closure Plan (FMCP) has been approved by the Indian Bureau of Mines (IBM). In accordance with the approved FMCP, mine closure activities are being carried out. 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 for Kujam group of mines. PME report is attached as **Annexure 6**.

Condition 5- 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 Jharkhand State Pollution Control Board and its concerned Regional Office. The criteria pollutant levels are namely SPM, RSPM, SO₂, NO_x (ambient levels) or critical sectoral parameters, indicated for the project shall be monitored and displayed at a convenient location near the project shall be monitored and displayed at a convenient location near the main gate of the company in the company in the public domain.

Reply to Condition 5- Six-monthly EC compliance along with Environmental monitoring reports is being uploaded on company website regularly. The same is also being submitted to the Regional Office of MoEF&CC, Ranchi and JSPCB, Ranchi. An Environmental Display board is already installed at the Mine Main Gate.

D. Water quality monitoring and preservation:

Condition 1- In case, immediate mining scheme envisages intersection of ground water table, then Environmental Clearance shall become operational only after receiving formal clearance from CGWA. In case, mining operation involves intersection of ground water table at a later stage, then PP shall ensure that prior approval from CGWA and MoEF&CC is in place before such mining operations. The permission for intersection of ground water table shall essentially be based on detailed hydro-geological study of the area.

Reply to Condition 1- Noted. As shallow depth mining had been carried out in Kujam I Bauxite Mine. Therefore, Mining operation does not involve intersection of ground water table. However, we are regularly monitoring the ground water table through installation of piezometer. The copy of the same report is attached herewith as **Annexure-1**.

As the water table is not intersecting during mining operation, the detailed hydro-geological study is not applicable for this mine.

Condition 2- Regular monitoring of the flow rate of the springs and perennial nallahs flowing in and around the mine lease shall be carried out and records maintained. The natural water bodies and or streams which are flowing in and around the village, should not be disturbed. The Water Table should be nurtured so as not to go down below the pre-mining period. In case of any water scarcity in the area, the Project Proponent has to provide water to the villagers for their use. A provision for regular monitoring of water tables in open dug wall located in village should be incorporated to ascertain the impact of mining over ground Water table. The Report on changes in Ground water level and quality shall be submitted on a six-monthly basis to the Regional Office of the Ministry, CGWA and State Groundwater Department / State Pollution Control Board.

Reply to Condition 2- Noted. Regular monitoring of drinking water along with stream and spring water is being carried out. As shallow depth mining had been carried out, hence there is no intersection of ground water table during the mining operation at present and in future. A piezometer has been installed in mine for monitoring ground water level. Drinking water is being provided to nearby villages regularly. The Water level and water quality reports are being sent regularly to regional office of Ministry, CGWA and JSPCB. The same is attached herewith as **Annexure 1 & 2**.

Condition 3-Project Proponent shall regularly monitor and maintain records w.r.t. ground water level and quality in and around the mine lease by establishing a network of existing wells as well as new piezo-meter installations during the mining operation in consultation with Central Ground Water Authority/ State Ground Water Department. The Report on changes in Ground water level and quality shall be submitted on a six-monthly basis to the Regional Office of the Ministry, CGWA and State Groundwater Department / State Pollution Control Board.

Reply to Condition 3- We are not using ground water for any mining purposes. As shallow depth mining had been carried out, hence there is no intersection of ground water table during the mining operation at present and in future. A piezometer has been installed for monitoring of ground water level. The Water level and water quality reports are being sent regular to regional office of Ministry, CGWA and JSPCB. The same is attached herewith as **Annexure 1 & 2**.



Piezometer at Kujam I Mine

Condition 4- The Project Proponent shall undertake regular monitoring of natural water course/ water resources/ springs and perennial nallahs existing/ flowing in and around the mine lease and maintain its records. The project proponent shall undertake regular monitoring of water quality upstream and downstream of water bodies passing within and nearby/ adjacent to the mine lease and maintain its records. Sufficient number of gullies shall be provided at appropriate places within the lease for management of water. PP shall carry out regular monitoring w.r.t. pH and included the same in the monitoring plan. The parameters to be monitored shall include their water quality vis-à-vis suitability for usage as per CPCB criteria and flow rate. It shall be ensured that no obstruction and/ or alteration be made to water bodies during mining operations without justification and prior approval of MoEF&CC. The monitoring of water courses/ bodies existing in lease area shall be carried out four times in a year viz. pre- monsoon (April-May), Monsoon (August), post-monsoon (November) and winter (January) and the record of monitored data may be sent regularly to Ministry of Environment, Forest and Climate Change and is Regional Office, Central Ground Water Authority and Regional Director, Central Ground Water Board, State Pollution Control Board and Central Pollution Control Board. Clearly showing the trend analysis on a six-monthly basis.

Reply to Condition 4- Regular monitoring of water quality parameters of natural water course/ water resources/ springs and perennial nallahs existing/ flowing in and around the mine lease is being carried. There are no watercourses/bodies existing in the mining lease area. No natural water bodies are being / will be obstructed due to any mining operations. Monitoring Reports are being sent regular to regional office of Ministry, CGWA and JSPCB on six-monthly basis. The same are attached herewith as **Annexure 2**.

Condition 5- Quality of polluted water generated from mining operations which include Chemical Oxygen Demand (COD) in mines run-off acid mine drainage and metal contamination in runoff shall be monitored along with Total Suspended Solids (TDS). Dissolved Oxygen (DO). pH and Total Suspended Solids (TSS). The monitored data shall be uploaded on the website of the company as well as displayed at the project site in public domain, on a display board, at a suitable location near the main gate of the Company. The circular No. J-20012/1/2006-AJI (M) dated 27.05.2009 issued by Ministry of Environment, Forest and Climate Change may also be referred to in this regard.

Reply to Condition 5- There is no polluted water generated during mining operations. However, a negligible amount of wastewater is generated in the workshop from washing vehicles, and an Oil & grease trap system is already installed for Kujam group of mines to treat this effluent. The treated water is in close circuit and being reused for washing of vehicle in the workshop.

Furthermore, the quality of this treated water is being monitored regularly and all water parameters are within permissible limits. The monitoring report is attached herewith as **Annexure- 2**. The monitoring report is being uploaded on company website along with Six-monthly EC Compliance report regularly. An Environmental Display board is already installed at the Mine Main Gate.

Condition 6- Project Proponent shall plan, develop and implement rainwater harvesting measures on long term basis to augment ground water resources in the area consultation with Central Ground Water Board/ State Groundwater Department. A report on amount of water recharged needs to be submitted to Regional Office MoEF&CC annually.

Reply to Condition 6- Rainwater harvesting pond with proper fencing has been already constructed on long term basis to augment ground water in the area, in consultation with Central Ground Water Board. Photographs of the same have been attached below. Water Positivity study of Kujam Groups of Mines (Kujam I and II) has been carried out recently. Total amount of water recharge has been found 24,186.09 m³/annum.



Rainwater Harvesting Pond in mine

Condition 7- Industrial wastewater (workshop and wastewater from the mine) should be properly collected and treated so as to conform to the notified standards prescribed from time to time. The standards shall be prescribed through Consent to Operate (CTO) issued by concerned State Pollution Control Board (SPCB). The workshop effluent shall be treated after its initial passage through Oil and grease trap.

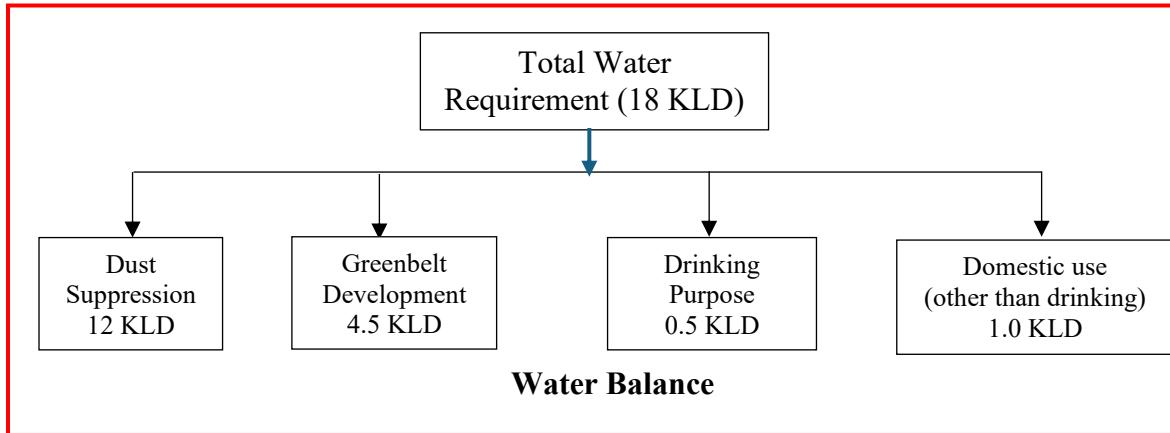
Reply to Condition 7- There is no industrial wastewater generation from the mining operations, and no wastewater is being discharged outside the mine lease area. However, a negligible amount of wastewater is generated in the workshop from vehicle washing activities within the Kujam Group of Mines. An oil and grease trap system has been installed for the treatment of this effluent. The treated water is maintained in a closed-loop system and is being reused for vehicle washing in the workshop. Furthermore, the quality of the treated water is monitored regularly, and all parameters remain within permissible limits. The monitoring report is attached herewith as **Annexure-2**



Washing ramp with Oil and Grease Trap

Condition 8- The water balance/water auditing shall be carried out and measures for reducing the consumption of water shall be taken up and reported to the Regional Office of the MoEF&CC and State Pollution Control Board/Committee.

Reply to Condition 8- Noted. The water balance for the mine is given below. We are taking water from rainwater harvesting pond for sprinkling and other activities. However, we have obtained NOC from CGWA/CGWB for drinking purposes only. However, we have conducted water study for Netarhat group of mines and prepared a report. Based on the water study this mine has been turned out to be a water positive mine.



Condition 9- The mining operations shall be restricted to ground above the water table, and it should not intersect the groundwater table. In case of working below the ground water table. Prior approval of the Ground Water Directorate. Government of Jharkhand / Central Ground Water Board shall be obtained. Benches height and slope shall be maintained as per approved Mining Plan. The Mining Plan has to be got approved by concerned authorities as per IBM or equivalent agencies. Safety measures shall be adopted in line with DGMS Guidelines.

Reply to Condition 9- Noted. We are not using ground water for any mining purposes. There is no chance of intersection of ground water table during mining operations at present and in future as we are practicing shallow depth mining operations. A piezometer has been installed for monitoring of ground water level. The Mining Plan has already been approved by IBM, Ranchi and safety measures like benches height and slope are being maintained as per the guideline by DGMS.

Condition 10- The project proponent shall ensure that no natural watercourse and / or water resources shall be obstructed / diverted due to any mining operations. Adequate measures shall be taken for conservation and protection of the first order and the second order streams. If any emanating / passing through the mine lease area during the course of mining operation.

Reply to Condition 10- There is no natural watercourse and / or water resources within the mining lease area. As Shallow depth mining methodology was adopted for mining process, there was no impact of mining operation on natural water course.

Condition 11- The project proponent shall implement approved conservation measures to augment ground water resources in the area in consultation with the Ground Water Directorate, Government of Jharkhand/ Central Ground Water Board.

Reply to Condition 11- A detailed plan to augment groundwater has been prepared, and suitable measures like creation of water harvesting ponds etc., are being taken for the augmentation of groundwater in the area, in consultation with Central Ground Water Board.

Condition 12- The project proponent shall, if required, obtain necessary prior permission/NOC from the competent authorities for drawl of requisite quantity of water required from the source for the project.

Reply to Condition 12- No Objection Certificate (NOC) for ground water abstraction for Kujam I mine has been obtained for drinking purposes only. The Scan copy of the same NOC is already attached in reply to condition no. 12 of Section - B Statutory compliance.

However, rainwater harvesting pond has been created and used for sprinkling on haul roads and raising plantation. No natural water resource/ground water is being used for mining purposes.

Condition 13- Suitable rainwater harvesting measures shall be planned and implemented in consultation with the Ground Water Directorate, Government of Jharkhand / Central Ground Water Board.

Reply to Condition 13- Suitable measures such as creation of rainwater harvesting ponds, etc., are implemented in the area, in consultation with the Central Ground Water Board.

E. Noise and vibration monitoring and prevention

Condition 1- The peak particle velocity at 500 m distance or within the nearest habitation, whichever is closer shall be monitored periodically as per applicable DGMS Guidelines.

Reply to Condition 1- Complied. The mine is currently non-operational due to the exhaustion of mineral reserves. The Final Mine Closure Plan (FMCP) has been approved by the Indian Bureau of Mines (IBM).

Condition 2- The illumination and sound at night at project sites disturb the villages in respect of both human and animal population. Consequent sleeping disorders and stress may affect the health in the villages located close to mining operations. Habitations have a right for darkness and minimal noise levels at night. PPs must ensure that the biological clock of the villages is not disturbed: by orienting the floodlights/ masks away from the villagers and keeping the noise levels well within the prescribed limits for day /night hours.

Reply to Condition 2- Complied. The mine is currently non-operational due to the exhaustion of mineral reserves. The Final Mine Closure Plan (FMCP) has been approved by the Indian Bureau of Mines (IBM). Mining operation was restricted to daytime only. So, there was no disturbance created in the nearby villages regarding illumination and sound.

Condition 3-The Project Proponent shall take measures for control of noise levels below 85 dBA in the work environment. The workers engaged in operations of HEMM. etc. should be provided with ear plugs /muffs. All personnel including labours working in dusty area shall be provided with protective respiratory devices along with adequate training, awareness and information on safety and health aspects. The PP shall be held responsible in case it has been found that workers/ personals/ labours are working without personal protective equipment.

Reply to Condition 3- Noted. The noise level monitoring is being conducted at a regular interval. The noise level is below the prescribed norms. Report has been attached as **Annexure 2**. All workers engaged in operation have been provided with PPEs. Training in Health and safety is being imparted by the respective officials.

F. Mining Plan:

Condition 1- The Project Proponent shall adhere to the working parameters of the mining plan which was submitted at the time of EC appraisal wherein year-wise plan was mentioned for total excavation i.e. quantum of mineral, waste, over burden, inter burden and topsoil etc. No change in basic mining proposal like mining technology, total excavation, mineral & waste production, lease area and scope of working (viz. method of mining, overburden & dump management, O.B & dump mining, mineral transportation mode, ultimate depth of mining etc.) shall not be carried out without prior approval of the Ministry of Environment Forest and Climate Change which entail adverse environmental impacts even if it is a part of approved mining plan modified after grant of EC or granted by State Govt. in the form to Short Term Permit (STP), Query license or any other name.

Reply to Condition 1- Complied. The mine is currently non-operational due to the exhaustion of mineral reserves. The Final Mine Closure Plan (FMCP) has been approved by the Indian Bureau of Mines (IBM).

Condition 2- . The Project Proponent shall get the Final Mine Closure Plan along with Financial Assurance approved from Indian Bureau of Mines/Department of Mining & Geology as required under the Provision of the MMDR Act. 1957 and Rules/ Guidelines made there under. A copy of approved final mine closure plan shall be submitted within 2 months of the approval of the same from the competent authority to the concerned Regional Office of the Ministry of Environment, Forest and Climate Change for record and verification.

Reply to Condition 2- The Final Mine Closure Plan (FMCP) has been approved by the Indian Bureau of Mines and subsequently submitted to the regional office of the Ministry of Environment, Forest and Climate Change (MoEFCC).

Condition 3-The land-use of the mine lease area at various stages of the mining scheme as well as at the end-of-life shall be governed as per the approved Mining Plan. The excavation vis-à-vis backfilling in the mine lease area and corresponding afforestation to be raised in the reclaimed area shall be governed as per the approved mining plan. PP shall ensure the

monitoring and management of rehabilitated areas until the vegetation becomes self-sustaining. The compliance status shall be submitted half-yearly to the MoEF&CC and its concerning the Regional Office.

Reply to Condition 3- Noted. The mine is currently non-operational due to the exhaustion of mineral reserves. The Final Mine Closure Plan (FMCP) has been approved by the Indian Bureau of Mines (IBM). Monitoring and management of rehabilitated areas is being continued through supervision. Photograph is attached below.



Reclaimed area

Condition 4- No change in mining technology and scope of working should be made without prior approval of the Statutory authorities / Department of Mines, Government of Jharkhand / Jharkhand State Pollution Control Board, Ranchi during the EC period.

Reply to Condition 4- Complied. The mine is currently non-operational due to the exhaustion of mineral reserves. The Final Mine Closure Plan (FMCP) has been approved by the Indian Bureau of Mines (IBM).

Condition 5- No change in the calendar plan including excavation, quantum of mineral and waste should be made.

Reply to Condition 5- Complied. The mine is currently non-operational due to the exhaustion of mineral reserves. The Final Mine Closure Plan (FMCP) has been approved by the Indian Bureau of Mines (IBM). Data pertaining to excavation, quantum of mineral bauxite etc. are mentioned in the report attached as **Annexure 4**.

Condition 6- The Project proponent shall make all internal roads pucca as per approved specification of Govt. of Jharkhand and shall maintain a good housekeeping by regular cleaning and wetting of the haul roads and the premises.

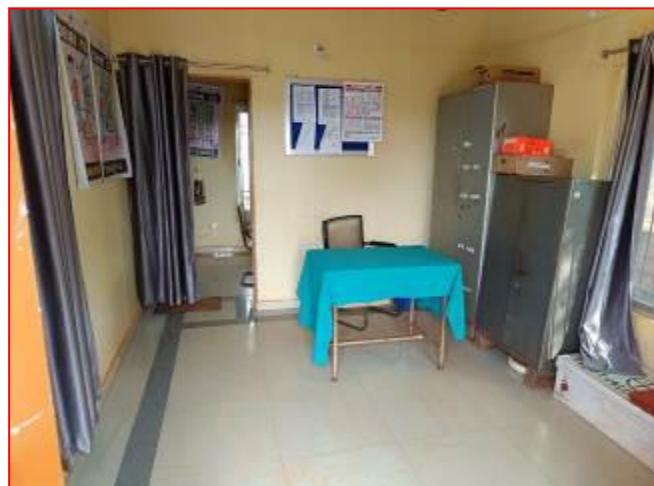
Reply to Condition 6- Internal haul road has been provided as per approved specifications. Regular housekeeping and water sprinkling is being carried out for fugitive dust suppression.

Condition 7- The Project proponent shall maintain register for production and dispatch and submit return to the Board.

Reply to Condition 7- Complied. The mine is currently non-operational due to the exhaustion of mineral reserves. The Final Mine Closure Plan (FMCP) has been approved by the Indian Bureau of Mines (IBM).

Condition 8- Dispensary facilities for First Aid shall be provided at site.

Reply to Condition 8- Dispensary facilities is available for Kujam Group of Mines. Photographs are attached below.



Dispensary Facility inside mine premises

G. Land Reclamation

Condition 1- The Overburden (O.B.) generated during the mining operations shall be stacked at earmarked OB dump site(s) only and it should not be kept active for a long period of time. The physical parameters of the OB dumps are like height, width and angle of slope shall be governed as per the approved Mining Plan as per the guidelines/circulars issued by D.G.M.S w.r.t safety in mining operations shall be strictly adhered to maintain the stability of topsoil/OB dumps. The topsoil shall be used for land reclamation and plantation.

Reply to Condition 1- The mine is currently non-operational due to the exhaustion of mineral reserves. The Final Mine Closure Plan (FMCP) has been approved by the Indian Bureau of Mines (IBM). In accordance with the approved FMCP, mine closure activities are being carried out.

At present, there is no overburden (OB) dump within the mine lease area. Mining operations were conducted as per the approved mining plan by IBM and in compliance with the safety guidelines and circulars issued by the DGMS.

Monitoring and management of the rehabilitated areas are being undertaken through effective supervision. Data pertaining to backfilling is enclosed as **Annexure 4**.

Condition 2- The reject/ waste generated during the mining operations shall be stacked at earmarked waste dump site(s) only. The physical parameters of the waste dumps are like height. Width and angle of slope shall be governed as per the approved Mining Plan as per the guidelines/circulars issued by DGMS w.r.t. safety in mining operations shall be strictly adhered to maintain the stability of waste dumps.

Reply to Condition 2- The mine is currently non-operational due to the exhaustion of mineral reserves. The Final Mine Closure Plan (FMCP) has been approved by the Indian Bureau of Mines (IBM). In accordance with the approved FMCP, mine closure activities are being carried out.

Overburden and waste rock were used for backfilling as per the approved mining plan by IBM. Mining operations were conducted in compliance with the safety guidelines and circulars issued by the DGMS. Monitoring and management of rehabilitated areas is being done through effective supervision. Data pertaining to backfilling is enclosed as **Annexure 4**.

Condition 3- The reclamation of waste dump sites shall be done in scientific manner as per the Approved Mining Plan cum Progressive Mine Closure Plan.

Reply to Condition 3- The Land reclamation of OB dumps was carried out scientifically as per the approved mining plan.

Condition 4- The slope of dumps shall be vegetated in a scientific manner with suitable native species to maintain the slope stability, prevent erosion and surface run off. The selection of local species regulates local climatic parameters and helps in adaptation of plant species to the microclimate. The gullies formed on slopes should be adequately taken care of as it impacts the overall stability of dumps. The dump mass should be consolidated with the help of dozer/ compactors thereby ensuring proper filling/ leveling of dump mass. In critical areas. use of geo textiles/ geo-membranes / clay liners / Bentonite etc. shall be undertaken for stabilization of the dump.

Reply to Condition 4- Complied. The mine is currently non-operational due to the exhaustion of mineral reserves. The Final Mine Closure Plan (FMCP) has been approved by the Indian Bureau of Mines (IBM). In accordance with the approved FMCP, mine closure activities are being carried out.

At present, there is no overburden (OB) dump within the mine lease area. Mining operations were conducted as per the approved mining plan by IBM

Condition 5- The Project Proponent shall carry out slope stability study in case the dump height is more than 30 meters. The slope stability report shall be submitted to concerned regional office of MoEF& CC.

Reply to Condition 5- Complied. At present, there is no overburden (OB) dump within the mine lease area. Overburden were used for backfilling as per the approved mining plan by IBM Therefore, this condition is not applicable for this mine.

Condition 6- Catch drains, settling tanks and ponds of appropriate size shall be constructed around the mine working, mineral yards and Topsoil/OB/Waste dumps to prevent run off of water and flow of sediments directly into the water bodies (Nallah/ River/ Pond etc.). The collected water should be utilized for watering the mine area, roads, green belt development, plantation etc. The drains/ sedimentation sumps, etc. shall be de-silted regularly, particularly after monsoon season, and maintained properly.

Reply to Condition 6- The mine is currently non-operational due to the exhaustion of mineral reserves, and the Final Mine Closure Plan (FMCP) has been approved by the Indian Bureau of Mines (IBM). To collect and manage rainwater during the monsoon season, part of the mined-out area is being used as a settling tank for surface runoff. The stored rainwater is utilized for watering the mine area, roads, greenbelt development, agricultural activities, and sprinkling as required. Catch drains and garland drains of appropriate size have been constructed around the mine pit to prevent the runoff of water and the flow of sediments into nearby agricultural fields and water bodies, wherever applicable.

Condition 7- Check dams of appropriate size, gradient and length shall be constructed around mine pit and OB dumps to prevent storm run-off and sediment flow into adjoining water bodies. A safety margin of 50% shall be kept for designing of sump structures over and above peak rainfall (based on 50 years data) and maximum discharge in the mine and its adjoining which shall also help in providing adequate retention time period thereby allowing proper settling of sediments/ silt material. The sedimentation pits/ sumps shall be constructed at the corners of the garland drains.

Reply to Condition 7- To collect & manage rainwater during monsoon, part of mined out area is used as a settling tank for the runoff. Stored Rainwater is being used for green belt development and sprinkling in the mining lease area.

Condition 8- The topsoil, if any, shall temporarily be stored at earmarked site(s) within the mine lease only and should not be kept unutilized for long. The physical parameters of the topsoil dumps are like height. width and angle of slope shall be governed as per the approved mining Plan and as per the guidelines framed by DGMS w.r.t. safety in mining operations shall be strictly adhered to maintain the stability of dumps. The topsoil shall be used for land reclamation and plantation purposes.

Reply to Condition 8- Complied. The mine is currently non-operational due to the exhaustion of mineral reserves. The Final Mine Closure Plan (FMCP) has been approved by the Indian Bureau of Mines (IBM). In accordance with the approved FMCP, mine closure activities are being carried out.

At present, there is no overburden (OB) dump within the mine lease area. Monitoring and management of rehabilitated areas is being continued through supervision.

H. Transportation

Condition 1- No Transportation of the minerals shall be allowed in case of roads passing through villages habitations. In such cases, PP shall construct a 'bypass' road for the purpose of transportation of the minerals leaving an adequate gap (say at least 200 meters) so that the adverse impact of sound and dust along with chances of accidents could be mitigated. All costs resulting from widening and strengthening of existing public road network shall be borne by the PP in consultation with nodal State Govt. Department. Transportation of minerals through road movement in case of existing village/ rural roads shall be allowed in consultation with nodal State Govt. Department only after required strengthening such that the carrying capacity of roads is increased to handle the traffic load. The pollution due to transportation load on the environment will be effectively controlled and water sprinkling will also be done regularly. Vehicular emissions shall be kept under control and regularly monitored. Project should obtain Pollution Under Control (PUC) certificate for all the vehicles from authorized pollution testing centers.

Reply to Condition 1- The mine is currently non-operational due to the exhaustion of mineral reserves. The Final Mine Closure Plan (fugitive) has been approved by the Indian Bureau of Mines (IBM). In accordance with the approved FMCP, mine closure activities are being carried out. Therefore, no transportation of minerals is currently taking place. Earlier Haul Road was constructed for transportation of minerals.

Mobile water tankers with sprinkling facilities have been provided along-haul roads to arrest dust emission. Regular maintenance of vehicles is undertaken to minimize vehicular emission. All measures are being taken to control vehicular emission. PUC Certificate of running HEMM has been attached as **Annexure 7**.

Condition 2- The Main haulage road within the mine lease should be provided with a permanent water sprinkling arrangement for dust suppression. Other roads within the mine lease should be wetted regularly with tanker-mounted water sprinkling system. The other areas of dust generation like crushing zone, material transfer points. material yards etc. should invariably be provided with dust suppression arrangements. The air pollution control equipment like bag filters, vacuum suction hoods. dry fogging system etc. shall be installed in Crushers, belt-conveyors, and other areas prone to air pollution. The belt conveyor should be fully covered to avoid generation of dust while transportation. PP shall take necessary measures to avoid generation of fugitive dust emissions.

Reply to Condition 2- The mine is currently non-operational due to the exhaustion of mineral reserves. The Final Mine Closure Plan (FMCP) has been approved by the Indian Bureau of Mines (IBM). In accordance with the approved FMCP, mine closure activities are being carried out.

Therefore, no transportation of minerals is currently taking place. Earlier Haul Road was constructed for transportation of minerals.

Mobile water tankers with sprinkling facilities have been provided along-haul roads to arrest dust emission.

Condition 3- Vehicular emissions shall be kept under control by regular repairing of transport roads and regular air quality monitoring. Measures shall be taken for maintenance of vehicles used in mining operations and in transportation of minerals. The mineral transportation shall be carried out through the covered trucks only and the vehicles carrying the mineral shall not be overloaded. No transportation of stone / sand outside the mine lease area shall be carried out after sunset.

Reply to Condition 3- The mine is currently non-operational due to the exhaustion of mineral reserves. The Final Mine Closure Plan (FMCP) has been approved by the Indian Bureau of Mines (IBM). In accordance with the approved FMCP, mine closure activities are being carried out. Therefore, no transportation of minerals is currently taking place.

I. Greenbelt

Condition 1-The Project Proponent shall develop greenbelt in 7.5m wide safety zone all along the mine lease boundary as per the guidelines of CPCB in order to arrest pollution emanating from mining operations within the lease. The whole Green belt shall be developed within the first 5 years starting from the windward side of the active mining area. The development of greenbelt shall be governed as per the EC granted by the Ministry irrespective of the stipulation made in approved mine plan.

Reply to Condition 1- Green belt development work is being carried out in safety zone of mine lease. Plantation work is being governed as per approved mining plan and as per EC condition. The photographs of the same are already attached in reply to condition no. 1 of section – A Specific condition.

Condition 2- The Project Proponent shall carry out plantation/ afforestation in backfilled and reclaimed area of mining lease, around water body, along the roadsides, in community areas etc. by planting the native species in consultation with the State Forest Department/ Agriculture Department/ Rural development department/ Tribal Welfare Department/ Gram Panchayat is such that only those species be selected which are of use to the local people.

The CPCB guidelines in this respect shall also be adhered to. The density of the trees should be around 2500 saplings per Hectare. Adequate budgetary provision shall be made for the protection and care of trees.

Reply to Condition 2- . Progressive plantation is being carried out in consultation with local forest Dept. During FY 2025-26 till September, a total of 3250 nos. of saplings have been planted within this lease. Cumulative 9.94 ha areas have been planted till date. In addition to these agricultural activities (bio plantation) is going on reclaimed land as per the consent from landowners. The Green belt development program is in progress with the progress of mining activities.



Greenbelt Plantation and Agricultural activities

Condition 3- The Project Proponent shall make necessary alternative arrangements for livestock feed by developing grazing land with a view to compensating those areas which are coming within the mine lease. The development of such grazing land shall be done in consultation with the State Government. In this regard, Project Proponent should essentially implement the directions of the Hon'ble Supreme Court with regard to acquisition of grazing land. The sparse trees on such grazing ground, which provide mid-day shelter from the scorching sun, should be scrupulously guarded/ protected against felling and plantation of such trees should be promoted.

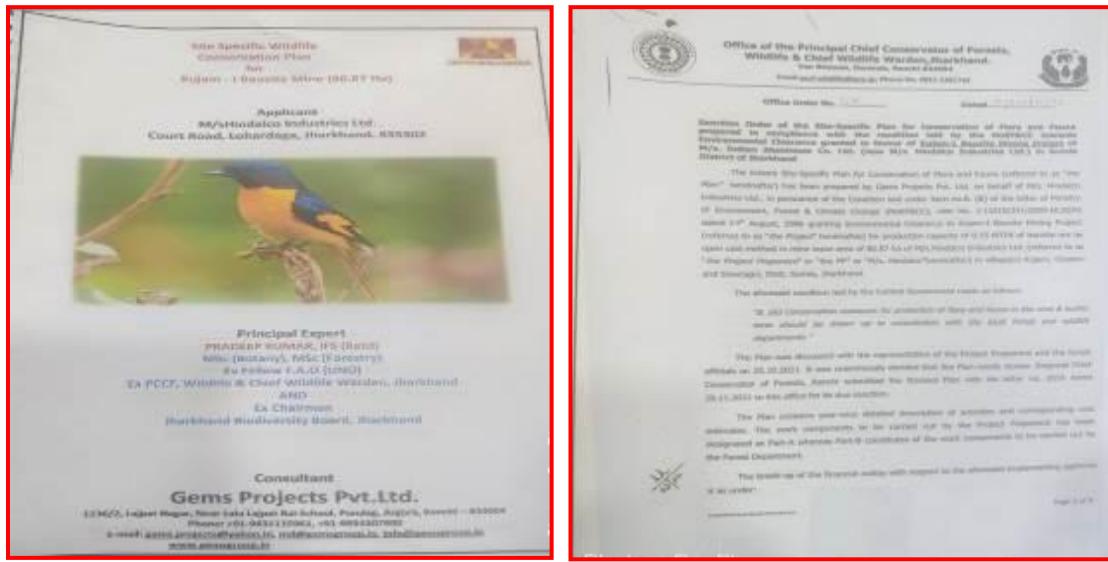
Reply to Condition 3- The mine is currently non-operational due to the exhaustion of mineral reserves. The Final Mine Closure Plan (FMCP) was approved by the Indian Bureau of Mines (IBM). The entire land was acquired in accordance with applicable laws while the mine was operational. As per the agreement with the District Collector (DC), the land was acquired on a lease basis in consultation with the State Government and with the consent of the landowners. After completing mining operations, followed by reclamation, the land was returned to the landowners for agricultural purposes or plantation, whichever is desired by them (landowners/villagers).

Hence, the quality of the land was not deteriorated, and there was no need to create grazing land. No cutting or felling of trees was involved in the mining process.

Condition 4- The Project Proponent shall undertake all precautionary measures for conservation and protection of endangered flora and fauna and Schedule-I species during mining operation. A Wildlife Conservation Plan shall be prepared for the same clearly

delineating action to be taken for conservation of flora and fauna. The Plan shall be approved by Chief Wildlife Warden of the State Govt.

Reply to Condition 4- We have prepared Site-Specific Wildlife Conservation Plan (WLCP) 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. 50 dated 03.12.2021 for conservation and protection of flora and fauna in the core and buffer zone for Kujam I Bauxite Mine. However, Mine is located outside the eco-sensitive zone.



Site-Specific Wildlife Conservation Plan

Condition 5- And implemented in consultation with the State Forest and Wildlife Department. A copy of the Wildlife Conservation Plan and its implementation status (annual) shall be submitted to the Regional Office of the Ministry.

Reply to Condition 5- Noted and complied with. A Site-Specific Wildlife Conservation Plan (WLCP) has been prepared in consultation with the State Forest Department and approved by the PCCF (Wildlife), Jharkhand. As per the approved WLCP, we receive a demand note from the DFO each year and make the corresponding payment accordingly. A copy of the latest payment receipt is enclosed herewith as **Annexure 10**.

Condition 6- The Project proponent shall not cut trees / carry out tree felling in leased out area without the permission of competent authority.

Reply to Condition 6- No cutting of trees/ felling of trees were involved in the mining process.

J. Public hearing and human health issues:

Condition 1- The Project Proponent shall appoint an Occupational Health Specialist for Regular as well as Periodical medical examination of the workers engaged in the mining

activities, as per the DGMS guidelines. The records shall be maintained properly. PP shall also carry out Occupational health check-ups in respect of workers which are having ailments, like BP, diabetes, habitual smoking, etc. The check-ups shall be undertaken once in six months and necessary remedial/ preventive measures be taken. A status report on the same may be sent to MoEF&CC Regional Office and DGMS on a half-yearly basis.

Reply to Condition 1- Being adhered to. Periodical medical examination of the workers of Kujam group of mines is being carried out and records are being maintained by Medical Officer. IME/PME record is attached in compliance report as **Annexure 6**.

Condition 2- . The Project Proponent must demonstrate commitment to work towards 'Zero Harm' from their mining activities and carry out Health Risk Assessment (HRA) for identification workplace hazards and assess their potential risks to health and determine appropriate control measures to protect the health and wellbeing of workers and nearby community. The proponent shall maintain accurate and systematic records of the HRA. The HRA for neighborhood has to focus on Public Health Problems like Malaria, Tuberculosis, HIV, Anaemia, Diarrhea in children under five, respiratory infections due to biomass cooking. The proponent shall also create awareness and educate the nearby community and workers for Sanitation. Personal Hygiene, Hand washing, not to defecate in the open, Women Health and Hygiene (Providing Sanitary Napkins), hazard of tobacco and alcohol use. The Proponent shall carry out base line HRA for all the categories of workers and thereafter every five years.

Reply to Condition 2- Regular awareness programs are being conducted to educate the local community on healthcare, sanitation, hygiene, and related topics. We organized an awareness drive on heat waves at the Kujam group of Mines operational areas and distributed ORS packets to workers and staff and distributed the "Poshan Kit" to TB patient to enhance their nutrition and support recovery. Additionally, rural medical camps are being organized every Friday. Educational programs are also regularly provided to local villagers, focusing on women's health and hygiene, as well as the hazards of tobacco and alcohol use.

All workers and company staff are provided with appropriate PPE. We continue to conduct IME/PME to ensure the health and well-being of workers in the mines.



Medical Camp programme in nearby villages



Distribution of Poshan Kit



Awareness programme in nearby schools

Condition 3- The Proponent shall carry out Occupational health surveillance which be a part of HRA and include Biological Monitoring where practical and feasible, and the tests and investigations relevant to the exposure (e.g. for Dust X-Ray chest: For Noise Audiometric: for Lead Exposure Blood Lead. For Welders Full Ophthalmologic Assessment: for Manganese Miners a complete Neurological Assessment by a Certified Neurologist and Manganese (Mn) Estimation in Blood: For Inorganic Chromium- Fortnightly skin inspection of hands and forearms by a responsible person. Except routine tests all tests would be carried out in a Lab accredited by NABH. Records of Health Surveillance must be kept for 30 years, including the results of and the records of Physical examination and tests. The record of exposure due to materials like Asbestos, Hard Rock Mining, Silica, Gold, Kaolin, Aluminum, Iron, Manganese, Chromium, Lead, Uranium needs to be handed over to the Mining Department of the State in case the life of the mine is less than 30 years. It would be obligatory for the State Mines Departments to make arrangements for the safe and secure storage of the records including X-Ray. Only conventional X-Ray will be accepted for recording purposes and not the digital one). X-Ray must meet ILO criteria (17 x14 inches and of good quality).

Reply to Condition 3- Occupational health surveillance is being conducted in regular intervals by specialized doctors and nurses. Rural medical camps are being organized every Friday. Periodical medical examination of the workers engaged in the project is being carried out and records are being maintained by Medical Officer. IME/PME record is attached in compliance report as **Annexure 6**.

Condition 4- The Proponent shall maintain a record of performance indicators for workers which includes. (a) there should not be a significant decline in their Body Mass Index, and it should stay between 18.5 -24.9, (b) the Final Chest X-Ray compared with the base line X-Ray should not show any capacities (c) At the end of their leaving job there should be no Diminution in their Lung Functions Forced Expiratory Volume in one second (FEV1), Forced Vital Capacity (FVC), and the ratio) unless they are smokers which has to be adjusted, and the effect of age, (d) their hearing should not be affected. As a proof an Audiogram (first and last need to be presented), (c) they should not have developed any Persistent Back Pain, Neck Pain, and the movement of their Hip, Knee and other joints should have a normal range of movement. (f) they should not have suffered loss of any body part. The record of the same should be submitted to the Regional Office, MoEF&CC annually along with details of the relief and compensation paid to workers having the above indications.

Reply to Condition 4- Noted and being complied with. However, Regular and periodical medical examination of the workers engaged in the Kujam Group of mines are being carried out and records are being maintained. IME/PME record is attached herewith as **Annexure 6**.

Condition 5-The Project Proponent shall ensure that Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects.

Reply to Condition 5- Personnel working in dusty areas are provided with proper respiratory devices. Regular training is being conducted on occupational health and work safety environments.

Condition 6-Project Proponent shall make provision for the housing for workers/labours or shall construct labor camps within/outside (company owned land) with necessary basic infrastructure/ facilities like fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche for kids etc. The housing may be provided in the form of temporary structures which can be removed after the completion of the project-related infrastructure. The domestic wastewater should be treated with STP in order to avoid contamination of underground water.

Reply to Condition 6- Temporary rest shelters have been constructed for laborers. As most of the workers/labors are from local village, there is no need for labor camps.

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

Reply to Condition 7- Noted. The issues raised during the Public Hearing have been implemented as per the budgetary provisions.

Condition 8- Measures should be taken for control of noise levels below prescribed norms in the work environment. Workers engaged in operations of HEMM, etc. should be provided with ear plugs /muffs.

Reply to Condition 8- Noise level is maintained below prescribed norms and is being monitored by NABL accredited laboratory. The report is attached as **Annexure 2**. All the workers engaged in operations of HEMM are provided with earplugs.

K. Corporate Environment Responsibility (CER):

Condition 1- The activities and budget earmarked for Corporate Environmental Responsibility (CER) as per Ministry's O.M No 22-65/20 1 7-IA. II (M) dated 01.05.2018 or as proposed by EAC should be kept in a separate bank account. The activities proposed for CER shall be implemented in a time bound manner and annual report of implementation of the same along with documentary proof viz. photographs, purchase document, latitude & longitude of

infrastructure developed & road constructed needs to be submitted to Regional Office MoEF&CC annually along with audited statement.

Reply to Condition 1- Every year, the funds earmarked for corporate environmental responsibility is being budgeted separately and its expenditure is being reported to the regional office of Ministry. The copy of the same is attached as **Annexure 5.**

Condition 2-Project Proponent shall keep the funds earmarked for environmental protection measures in a separate account and refrain from diverting the same for other purposes. The Year wise expenditure of such funds should be reported to the MoEF&CC and its concerned Regional Office.

Reply to Condition 2- Every year, the funds earmarked for environmental protection measures is being budgeted separately and its expenditure is being reported to the regional office of Ministry. The copy of the same is attached as **Annexure 5.**

Condition 3- The funds earmarked for environmental protection measures should be kept in a separate account and should not be diverted for other purposes. Year wise expenditure should be reported to the Jharkhand State Pollution Control Board, Ranchi. PP shall carry out CSR activities as per Government Guidelines (% of Profit / turnover) or at least Rs 1 per ton whichever is higher.

Reply to Condition 3- Every year, the funds earmarked for CSR measures is being budgeted separately as per the govt. guidelines and its expenditure is being reported to the Ministry and JSPCB. The copy of the same is attached as **Annexure 5.**

Condition 4- 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 Jharkhand 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 the status of compliance of EC conditions and shall also be sent to the concerned Regional Office of JSPCB by e-mail.

Reply to Condition 4- Environment statement is being submitted regularly to Member Secretary, JSPCB. The status of compliance with the EC conditions is also submitted to the Regional Office of JSPCB and uploaded on the company's website on a regular basis..

L. Miscellaneous:

Condition 1- The Project Proponent shall prepare a digital map (land use & land cover) of the entire lease area once in five years for the purpose of monitoring land use pattern and submit a report concerned Regional Office of the MoEF & CC.

Reply to Condition 1 – Being Complied. Digital Map of land use and land cover is being prepared and submitted to IBM Ranchi. The same is attached herewith as **Annexure 9.**

Condition 2- The Project Authorities should inform the Regional office regarding the date of financial closures and final approval of the project by the concerned authorities start of land development work.

Reply to Condition 2- The Final Mine Closure Plan (FMCP), along with the Financial Assurance, has been approved by the Indian Bureau of Mines and subsequently submitted to the Regional Office of the Ministry of Environment, Forest and Climate Change (MoEF&CC). The financial closure is planned for 31st March 2026.

Condition 3- It shall be mandatory for the project management to submit six (06) monthly compliance report in respect of the stipulated prior environmental clearance terms and conditions in hard copies and soft copies to the regulatory authority concerned Regional office of MoEF & CC at Ranchi and Jharkhand State Pollution Control Board (J.S.P.C.B.). Ranchi JCPCB SEIAA.

Reply to Condition 3- Six monthly reports on the status of the EC are being submitted regularly.

Condition 4- A separate 'Environmental Management Cell' with suitable qualified manpower should be set-up under the control of a Senior Executive. The Senior Executive shall report directly to the Head of the Organization. An adequate number of qualified Environmental Scientists and Mining Engineers shall be appointed and submit a report to RO, MoEF&CC.

Reply to Condition 4- 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 attached herewith as **Annexure 3**.

Condition 5- The concerned Regional Office of the MoEF&CC shall randomly monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the MoEF&CC officer(s) by furnishing the requisite data / information /monitoring reports.

Reply to Condition 5- Noted and Agreed.

Condition 6- Concealing factual data or submission of false/fabricated data may result in revocation of this environmental clearance and attract action under the provisions of Environment (Protection) Act. 1986.

Reply to Condition 6- Noted.

Condition 7- The Ministry / SEIAA / SEAC may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.

Reply to Condition 7- Noted.

Condition 8- The Ministry /SEIAA /SEAC reserves the right to stipulate additional conditions if found necessary. The Company in a time-bound manner shall implement these conditions.

Reply to Condition 8- Noted & Agreed.

Condition 9- No blasting shall be carried out after sunset. Blasting operation shall be carried out only during Daytime, Controlled blasting shall be practiced. Mitigative measures for control of ground vibrations and to arrest fly rocks and boulders should be implemented.

Reply to Condition 9- The mine is currently non-operational due to the exhaustion of mineral reserves. The Final Mine Closure Plan (FMCP) has been approved by the Indian Bureau of Mines (IBM), and mine closure activities are being carried out in accordance with the approved plan. At present, no blasting is being carried out. Earlier, controlled blasting methods were practiced, and a ground vibration study was conducted. Appropriate efforts and mitigative measures were taken to minimize the impact of blasting.

Condition 10- Drilling shall either be operated with dust extractors or equipped with a water injection system.

Reply to Condition 10- Wet drilling practice was adopted when the mine was operational.

Condition 11- Pre-placement medical examination and periodical medical examination of the workers engaged in the project conducted by a Registered Medical Officer shall be carried out and records maintained.

Reply to Condition 11- Pre-placement medical examination and periodical medical examination of the workers engaged in the Kujam group of mines are being carried out and records maintained as per statute. IME/PME report is attached as **Annexure-6**.

Condition 12- Provision shall be made for the housing of construction labor at a suitable place away from the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets / septic tanks, safe drinking water, medical health care, etc. The housing may be in the form of temporary structures to be removed after the completion of the project.

Reply to Condition 12- All the necessary basic facilities has been provided to the workers. Also, as most of the workers/laborers are from local village, so there is no need of housing infrastructure/ labor camps.

Condition 13- Proper Safety measures as per statutory requirement shall be implemented around the mined-out Pit prior to closure of site.

Reply to Condition 13- Noted and being adhered to.

Condition 14- The Project Proponent shall submit six monthly report on the expenditure incurred on environmental management plan submitted by them.

Reply to Condition 14- Environmental Expenditure is being submitted six-monthly. The report is attached as **Annexure 5**.

Condition 15- Since blasting and mining on Hillock / Rock out crop may also be carried out. Suitable scheme for access / ramp to the highest elevation with gradient shall be submitted for approval from competent authorities.

Reply to Condition 15- The mine is currently non-operational due to the exhaustion of mineral reserves. The Final Mine Closure Plan (FMCP) has been approved by the Indian Bureau of Mines (IBM), and mine closure activities are being carried out in accordance with the approved plan. Therefore, no blasting is currently being carried out.

Condition 16- A separate environmental management /monitoring 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 to Condition 16- 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 17- The Jharkhand State Pollution Control Board, Ranchi directly or through its Regional Office shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) by furnishing the requisite data information /monitoring reports.

Reply to Condition 17- Noted and Agreed.

Condition 18- A copy of the clearance letter shall be sent by the project proponent to concerned Panchayat, Zila Parishad / 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 project proponent.

Reply to Condition 18- A copy of the clearance letter has been submitted to panchayat office and Zila parishad. The acknowledgment copy is attached as **Annexure 8**. No suggestions were received from urban bodies/ local NGOs while processing the proposal. The clearance letter has been uploaded on the company website.

Condition 19- It shall be mandatory for the project management to submit six (06) monthly compliance report in respect of the stipulated prior environmental clearance terms and conditions in hard copies and soft copies to the regulatory authority concerned Regional Office of MoEF & CC at Ranchi and Jharkhand State Pollution Control Board (J.S.P.C.B.) Ranchi/SEIAA/CPCB.

Reply to Condition 19- The six-monthly compliance reports of EC conditions are being submitted regularly to MoEF&CC, CPCB, and JSPCB.

Condition 20- Concealing factual data or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act. 1986.

Reply to Condition 20- Noted.

Condition 21- The Authority reserves the right to add any new condition or modify the above conditions to revoke the clearance if conditions stipulated above are not implemented to the satisfaction of Authority or for that matter for any other Administrative reason.

Reply to Condition 21- Noted and agreed.

Condition 22- In case of any deviation or alteration in the project proposed from those submitted to SEIAA, Jharkhand for clearance, a fresh reference should be made to SEIAA to assess the adequacy of the conditions imposed and to incorporate any new conditions if required.

Reply to Condition 22- Noted and agreed.

Condition 23- The above stipulations would be enforced among others under the Water (Prevention & Control of Pollution) Act, 1974. the Air (Prevention & Control of Pollution) Act. 1981 the Environment (Protection) Act, 1986. Hazardous and other Wastes (Management and Transboundary Movement) Rules. 2016 and the Public Liability Insurance Act. 1991 along with their amendments and rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/ High Court of Jharkhand and another Court of Law relating to the subject matter.

Reply to Condition 23- Noted.

Condition 24- The SEIAA. Jharkhand or any other competent Authority may alter modify the above conditions or stipulate any further condition in the interest of Environment protection.

Reply to Condition 24- Noted and agreed.

Condition 25-The Environmental Clearance accorded shall be valid for the period of lease of the mine. The PP shall not increase production rate and alter lease area during the validity of Environmental Clearance.

Reply to Condition 25- Noted and agreed.

Condition 26-Any Appeal against this Environmental Clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.

Reply to Condition 26- Noted.

Piezometer Monitoring Report

Mine: Kujam - I Bauxite Mine (80.87 Ha)

S No	Month	Ground Water Level (BGL) in meter
1	Apr-25	33.21
2	May-25	33.41
3	Jun-25	33.37
4	Jul-25	33.18
5	Aug-25	33.02
6	Sep-25	32.91



Analytical Test Certificate

Annexure - 2

Unique Lab Report No.	TC1288725000000397	Discipline	Chemical
Report Unique ID	RL0144251716	Group	Atmospheric Pollution
Issue date/time	28.04.2025/ 10:08	Sub Group	Ambient Air Quality

Report issue to

M/s - HINDALCO INDUSTRIES LIMITED
VILLAGE-COURT ROAD,
POST OFFICE-LOHARDAGA, DIST.-LOHARDAGA,
STATE-JHARKHAND, INDIA 835302
MONITORING SITE :KUJAM I BAUXITE MINE

Contact Person
 Mr. Ankit Das
 Contact Number
 +91 9871034775
 Email Id
 ankit.das@adityabirla.com
 Order Date
 31.03.2025/ 10:10
 Order Number
 13612313868

References of Quality Management System (Steps of Traceability Chart)

Customer Registration No.	EPIC/OTH/0144	Sample Booking Number	EPIC-251716
Sample(s) Code	251716 (A) (B) (C) (D)	Sample Receipt (D/T)	21.04.2025/17:24

Sampling References

Type of Industry	Bauxite Miner	Ref. of Sampling Plan	EPIC/LAB/R/036
Sampling method used	IS 5182 and CPCB Air Manual Volume - 1 (NAAQM/36/2012-13)		
Sampling Start (D/T)	18.04.2025/ 11:30	Sampling End (D/T)	20.04.2025/ 07:05
Mode of Sampling	Conducted by Laboratory	Sample collected by	Mr. Karan Kumar & Team
Description/condition of sample	Receipt sample(s) were fit for analysis.		

Environmental Condition during sampling

Weather condition	Clear	Temperature (°C)	29	Humidity %	49	Wind direction	270°-90°
-------------------	-------	------------------	----	------------	----	----------------	----------

Sampling Location(s) with GPS coordinate(s)

5. Location A	Kujam Quarry 448	GPS coordinate	23°18'25.41" N 84°19'03.19" E
5. Location B	Talabkhanta 4 A13	GPS coordinate	23°18'11.06" N 84°17'40.12" E
5. Location C	4 A11 Football Ground	GPS coordinate	23°18'36.18" N 84°17'38.10" E
5. Location D	Camp	GPS coordinate	23°18'53.11" N 84°17'27.09" E

Date(s) of performance of the laboratory activities

Test start date	21.04.2025/ 18:15	Test completion date	26.04.2025/ 17:30
-----------------	-------------------	----------------------	-------------------

-Test Result -

Sl.	Test Parameters	Method used	Unit	Results				Limits
				A	B	C	D	
1.	Particulate Matter (PM ₁₀)	IS:5182 (P-23) 2022	µg/m ³	75.98	77.96	76.91	74.93	100 (24 hr)
2.	Fine Particulate Matter (PM _{2.5})	IS:5182 (P-24) 2019	µg/m ³	33.45	32.98	32.67	31.75	60(24 hr)
3.	Sulphur Dioxide (SO ₂)	IS:5182 (P-02) 2023	µg/m ³	8.10	8.12	7.17	7.62	80(24 hr)
4.	Nitrogen Dioxide (NO ₂)	IS:5182 (P-06) 2022	µg/m ³	20.79	22.05	23.51	21.58	80(24 hr)
5.	Ozone (O ₃)	IS:5182 (P-09) 2019	µg/m ³	31.22	34.59	33.62	32.77	100(1 hr)
6.	Ammonia (NH ₃)	IS:5182 (P-25) 2018	µg/m ³	43.96	44.86	41.70	40.76	400(24 hr)
7.	Lead (Pb)	IS:5182 (P-22) 2019	µg/m ³	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	1.0(24 hr)
8.	Nickel (Ni)	IS:5182 (P-38) 2020	ng/m ³	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	-
9.	Arsenic (As)	USEPA 10.3.2:1999	ng/m ³	(MDL-0.001)	(MDL-0.001)	(MDL-0.001)	(MDL-0.001)	-

-Test Result End -

Prescribed Limit
 Operational Status
 Analysed by -A. S. Das

Environmental (Protection) Rules-1986, Schedule VII.

Unit was Operational During sampling.

Checked by
 (A. S. Das)
 Technical Head

Verified & Issued by
 (A. S. Das)
 Laboratory Head

Authorised Signatory

EPIC LabTech Private Limited

Page 1 of 1

Contractual basis | 1. The laboratory accepts responsibility for content of this report | 2. Test performed at laboratory's permanent facilities, at specific environmental condition as outlined required and results relate only to the sample tested in prescribed date & time | 3. The Test report shall not be reproduced full or in part, or in any way, as prior to the issue of this | 4. Any complaint about this report should be communicated in writing within 15 days of its issue | 5. Total liability of EPIC LabTech Pvt. Ltd. will be limited to incurred amount only | 6. All disputes are subjected to Ranchi Jurisdiction and maximum liability of the laboratory does not exceed the testing and sampling charges | 7. Opinion does not imply endorsement of the tested product by laboratory. Under no circumstances, laboratory accepts any claim by user or intent of this report | 8. When the results are from external provider are marked as "mark".





EPIC
Analytical Test Certificate

Unique Lab Report No.	N/A	Discipline	Chemical
Report Unique ID	RL0144251716	Group	Atmospheric Pollution
Issue date/Time	28.04.2025/ 10:08	Sub Group	Ambient Air Quality

Report Issue to		
M/s- HINDALCO INDUSTRIES LIMITED	Contact Person	Mr. Ankit Das
VILLAGE-COURT ROAD,	Contact Number	+91 9971034775
POST OFFICE-LOHARDAGA, DIST.-LOHARDAGA,	Email Id	ankit.das@adityabirla.com
STATE-JHARKHAND, INDIA 835302	Order Date	31.03.2025/ 10:10
MONITORING SITE : KUJAM I BAUXITE MINES	Order Number	13612313868

References of Quality Management Systems Best Practices

Customer Registration No.: EPIC/OTH/0144 Sample Booking Number: EPIC-251716
Sample(s) Code: 251716 (A) (B) (C) (D) Sample Receipt (D/T): 21.04.2025/ 17:24

Section References

Type of industry	Bauxite Mines	Ref. of Sampling Plan	EPIC/LAB/R/036
Sampling method used	IS 5182 and CPCB Air Manual Volume -1 (NAAQM/36/2012-13)		
Sampling Start (D/T)	19.04.2025/ 11:20	Sampling End (D/T)	20.04.2025/ 07:05
Mode of Sampling	Conducted by Laboratory	Sample collected by	Mr. Karan Kumar & Team
Description/condition of sample	Receipt sample(s) were fit for analysis.		

Environmental Conditions during maturation

Wind direction 220°-90°

Weather condition: Clear

Sampling Location(s) with GPS coordinate(s)	GPS coordinate		
S. Location A	Kujam Quarry 449	GPS coordinate	23° 18' 25.41" / 84° 19' 03.19"
S. Location B	Talabkhanta 4 A13	GPS coordinate	23° 18' 11.06" / 84° 17' 40.12"
S. Location C	4 A11 Football Ground	GPS coordinate	23° 18' 36.18" / 84° 17' 38.10"
S. Location D	Camp	GPS coordinate	23° 18' 53.11" / 84° 17' 27.09"

Rate(s) of performance of the Johnson: 2000

Test completion date: 26.04.2025/12:30

1931.]

Sl	Test Parameters	Method used	Unit	Results				Limits
				A	B	C	D	
1.	Benzene (C ₆ H ₆)	IS:5182(P-11) 2005	µg/m ³	BDL (MDL-0.1)	BOL (MDL-0.1)	BOL (MDL-0.1)	BOL (MDL-0.1)	-
2.	Benzo (a) Pyrene (Bap)- Particulate phase only	IS:5182(P-12) 2004	ng/m ³	BOL (MDL-0.1)	BOL (MDL-0.1)	BOL (MDL-0.1)	BOL (MDL-0.1)	-
3.	Carbon Monoxide (CO)	EPICLAB/SOP/01/00	mg/m ³	BOL (MDL-1.0)	BOL (MDL-1.0)	BOL (MDL-1.0)	BOL (MDL-1.0)	-

Text-Based End

--Test Report End--

Checked by
(T. S. Kaviratne)

Checked by
(E.R. Kavari)

12
11/25/91 12:30

Verified by
(Bhushan Patel)
Signature: [Signature]

Authorized Signatory
EPIC LabTech Pvt. Ltd
Ranji, Jamshedpur



Analytical Test Certificate

Unique Lab Report No.	TC1288725000000399	Discipline	Chemical
Report Unique ID	RL0144251718	Group	Water
Issue date/time	28.04.2025/ 10:13	Sub Group	Drinking Water

Report Issue to

M/s - HINDALCO INDUSTRIES LIMITED VILLAGE-COURT ROAD, POST OFFICE-LOHARDAGA, DIST.-LOHARDAGA, STATE-JHARKHAND, INDIA 835302 MONITORING SITE : KUJAM I BAUXITE MINE	Contact Person	Mr. Ankit Das
	Contact Number	+91 9971034775
	Email Id	ankit.das@adityabirla.com
	Order Date	31.03.2025/ 10:10
	Order Number	13612313888

References of Quality Management System (List of Traceability Data)

Customer Registration No.	EPIC/OTH/0144	Sample Booking Number	EPIC-251718
Sample(s) Code	251718	Sample Receipt (D/T)	21.04.2025/17:36

Sampling References

Type of Industry	Bauxite Mines	Ref. of Sampling Plan	EPIC/LAB/R/036
Sampling method used	IS : 3025 (Part-1) 1987, R-2003		
Sampling Start (D/T)	20.04.2025/ 11:55	Sampling End (D/T)	20.04.2025/ 12:15
Mode of Sampling	Conducted by Laboratory	Sample collected by	Mr. Karan Kumar & Team
Description/condition of sample			Receipt sample(s) were fit for analysis.

Environmental Condition during sampling

Weather condition	Clear	Temperature (°C)	29	Humidity %	49	Wind direction	270°-90°
-------------------	-------	------------------	----	------------	----	----------------	----------

Sampling Location(s) with GPS coordinate(s)

S. Location A	Canteen	GPS coordinate	23°18'50.49"/64°17'30.44"
---------------	---------	----------------	---------------------------

Date(s) of performance of the laboratory activities

Test start date	21.04.2025/ 18:00	Test completion date	27.04.2025/ 13:00
-----------------	-------------------	----------------------	-------------------

-Test Result -

Sl.	Test Parameters	Method used	Unit	Results	Limits	
					Acceptable Limit	Permissible limit
1.	pH value at 24.8°C	IS 3025 (P-11) 2022	-	6.58	8.5-8.5	No relaxation
2.	Turbidity	IS 3025 (P-10) 1984	NTU	0.64	1	5
3.	Colour	IS 3025 (P-04) 2021	Hazen	<5	5	15
4.	Odour	IS 3025 (P-05) 2018	-	Agreeable	Agreeable	Agreeable
5.	Taste	IS 3025 (P-07) 2017	-	Agreeable	Agreeable	Agreeable
6.	Total Dissolved Solids (TDS)	IS 3025 (P-15) 2023	mg/l	98.00	500	2000
7.	Chloride (as Cl)	IS 3025 (P-32) 2019	mg/l	15.76	250	1000
8.	Total Alkalinity (as CaCO ₃)	IS 3025 (P-23) 2019	mg/l	54.00	200	600
9.	Total Hardness (as CaCO ₃)	IS 3025 (P-21) 2009	mg/l	68.00	200	600
10.	Calcium (as Ca)	IS 3025 (P-40) 1991	mg/l	9.62	75	200
11.	Free Residual Chlorine	IS 3025 (P-26) 1986	mg/l	BDL(MDL-0.4)	0.2	1
12.	Sulphate (as SO ₄)	IS 3025 (P-24/Sec-1) 2022	mg/l	1.30	200	400
13.	Nitrate (as NO ₃)	APHA 4500 B 2023	mg/l	0.98	45	No relaxation
14.	Phenolic Compound	IS 3025 (P-43/Sec-1) 2022	mg/l	BDL(MDL-0.001)	0.001	0.002
15.	Magnesium (as Mg)	APHA 3500 Mg E 2023	mg/l	10.69	30	100



EPIC
Analytical Test Certificate

Unique Lab Report No.	TC128872500000399	Discipline	Chemical
Report Unique ID	RL014425171B	Group	Water
Issue date/time	28.04.2026/ 10:13	Sub Group	Drinking Water

Report issue to

M/s - HINDALCO INDUSTRIES LIMITED
VILLAGE-COURT ROAD,
POST OFFICE-LOHARDAGA, DIST.-LOHAR
STATE-JHARKHAND, INDIA 835302
MONITORING SITE : KUJAMAL BAUXITE

Contact Person	Mr. Ankit Das
Contact Number	+91 9971034775
Email Id	ankit.das@adityabirla.com
Order Date	31.03.2025/ 10:10
Order Number	13612313868

Group - Residues and Contaminants in Water

Sub Group: Trace Metals Elements

16. Copper (as Cu)	APHA 3111 B 2023	mg/l	BDL(MDL-0.2)	0.05	1.5
17. Iron (as Fe)	APHA 3111 B 2023	mg/l	BDL(MDL-0.1)	1.0	No relaxation
18. Lead (as Pb)	APHA 3111 B 2023	mg/l	BDL(MDL-0.01)	0.01	No relaxation
19. Cadmium (as Cd)	APHA 3111 B 2023	mg/l	BDL(MDL-0.003)	0.003	No relaxation
20. Total Chromium (as Cr)	APHA 3111 B 2023	mg/l	BDL(MDL-0.05)	0.05	No relaxation
21. Nickel (as Ni)	APHA 3111 B 2023	mg/l	BDL(MDL-0.02)	0.02	No relaxation
22. Total Arsenic (as As)	APHA 3114 B 2023	mg/l	BDL(MDL-0.005)	0.01	0.05
23. Selenium (as Se)	APHA 3114 B 2023	mg/l	BDL(MDL-0.005)	0.01	No relaxation
24. Manganese (as Mn)	APHA 3111 B 2023	mg/l	BDL(MDL-0.09)	0.1	0.3
25. Zinc (as Zn)	APHA 3111 B 2023	mg/l	BDL(MDL-0.04)	0.05	15

—Test Report End—

**Prescribed Limit
Operational Status**

IS 10500-2021

Now was Operational. During summer

Analyzed by: -Porraine Foster / Robby Foster

Created by
S.M. Kurniawati
Terbatas

Checked by
(J.N. Kaur)
Technical Room

✓
11/28/14 JAB

Authorised Signatory
EPIC LabTech Pvt. Ltd.
Panaji, Goa



Analytical Test Certificate

Unique Lab Report No.	N/A	Discipline	Chemical
Report Unique ID	RLD144251718	Group	Water
Issue date/time	28.04.2025/ 10:13	Sub Group	Drinking Water

Report Issue to M/s - HINDALCO INDUSTRIES LIMITED VILLAGE-COURT ROAD, POST OFFICE-LOHARDAGA, DIST.-LOHARDAGA, STATE-JHARKHAND, INDIA 835302 MONITORING SITE : KUJAM I BAUXITE MINE	Contact Person Mr. Ankit Das
	Contact Number +91 9971034775
	Email Id ankit.das@edityabirla.com
	Order Date 31.03.2025/ 10:10
	Order Number 13612313868

References of Quality Management System (Steps of Incredibility Check)

Customer Registration No.	EPIC/OTH/0144	Sample Booking Number	EPIC- 251718
Sample(s) Code	251718	Sample Receipt (D/T)	21.04.2025/17:36

Sampling References

Type of Industry	Bauxite Mines	Ref. of Sampling Plan	EPIC/LAB/R/036
Sampling method used	IS : 3025 (Part-1) 1987, R-2003		
Sampling Start (D/T)	20.04.2025/ 11:55	Sampling End (D/T)	20.04.2025/ 12:15
Mode of Sampling	Conducted by Laboratory	Sample collected by	Mr. Karan Kumar & Team
Description/condition of sample			Receipt sample(s) were fit for analysis.

Environmental Condition during sampling

Weather condition	Clear	Temperature (°C)	29	Humidity %	49	Wind direction	270°-90°
-------------------	-------	------------------	----	------------	----	----------------	----------

Sampling Location(s) with GPS coordinate(s)		GPS coordinate	23°18' 50.49" E/ 84°17' 30.44" N
S. Location-A	Canteen		

Date(s) of performance of the laboratory activities

Test start date	21.04.2025/ 16:00	Test completion date	27.04.2025/ 13:00
-----------------	-------------------	----------------------	-------------------

--Test Result--

Sl	Test Parameters	Method used	Unit	Results	Limits	
					Acceptable Limit	Permissible Limit
1.	Fluoride (as F)	APHA 4500 F-C 2023	mg/l	BDL(MDL-0.1)	1.0	1.5
Group-Residues and Contaminants in Water						
2.	Aluminum	IS 3025 (P-55):2019	mg/l	BDL(MDL-0.1)	0.03	0.2
3.	Boron	IS 3025 (P-57):2021	mg/l	BDL(MDL-0.1)	0.5	1.0
4.	Polychlorinated biphenyls	EPIC/LAB/SOP/WA/01/00	µg/l	BDL(MDL-0.2)	0.5	No relaxation
5.	Polynuclear Aromatic Hydrocarbons (PAH)	EPIC/LAB/SOP/WA/01/00	µg/l	BDL(MDL-0.05)	0.1	No relaxation
Group-Residues and Contaminants in Water						
6.	Alachlor	EPIC/LAB/SOP/WA/01/00	µg/l	BDL(MDL-0.5)	20	No relaxation
7.	Atrazine	EPIC/LAB/SOP/WA/01/00	µg/l	BDL(MDL-0.5)	2.0	No relaxation
8.	Dieldrin	EPIC/LAB/SOP/WA/01/00	µg/l	BDL(MDL-0.02)	0.03	No relaxation
9.	Alpha HCH	EPIC/LAB/SOP/WA/01/00	µg/l	BDL(MDL-0.005)	0.01	No relaxation
10.	Beta HCH	EPIC/LAB/SOP/WA/01/00	µg/l	BDL(MDL-0.02)	0.04	No relaxation
11.	Butachlor	EPIC/LAB/SOP/WA/01/00	µg/l	BDL(MDL-0.5)	125.0	No relaxation
12.	Chlopyrifos	EPIC/LAB/SOP/WA/01/00	µg/l	BDL(MDL-0.5)	30.0	No relaxation
13.	Delta HCH	EPIC/LAB/SOP/WA/01/00	µg/l	BDL(MDL-0.02)	0.04	No relaxation
14.	Ethion	EPIC/LAB/SOP/WA/01/00	µg/l	BDL(MDL-0.5)	3.0	No relaxation



Address:
C/o - R.K. Tripathi, Indrapuri
Road No. - S. Ranchi,
Jharkhand - 834005, India

T. GSTR 456623
33357 84477
093849 73894
epiclabtech@gmail.com

CIN - U74899JH2007PTC019625
PAN - AAHCES81TM
GST - 26AAHCES81TM123

Accredited by:
Birla Birla State Pollution Control Board
Certified by:
ISO 9001:2015 and ISO 17025

Analytical Test Certificate

Unique Lab Report No.	N/A	Discipline	Chemical
Report Unique ID	RL0144251718	Group	Water
Issue date/time	26.04.2025/ 10:13	Sub Group	Drinking Water

Report Issue to

M/s - HINDALCO INDUSTRIES LIMITED
VILLAGE-COURT ROAD,
POST OFFICE-LOHARDAGA, DIST.-LOHARDAGA,
STATE-JHARKHAND, INDIA 835302
MONITORING SITE : KUJAM I BAUXITE MINE

Contact Person
Mr. Ankit Das
Contact Number
+91 9971034775
Email Id
ankit.das@adityabirla.com
Order Date
31.03.2025/ 10:10
Order Number
13612313868

15. Gamma- HCH(Lindane)	EPIC/LAB/SOP/WA/01/00	µg/l	BDL(MDL-0.5)	2.0	No relaxation
16. Malathion	EPIC/LAB/SOP/WA/01/00	µg/l	BDL(MDL-0.5)	150.0	No relaxation
17. Methyl parathion	EPIC/LAB/SOP/WA/01/00	µg/l	BDL(MDL-0.2)	0.3	No relaxation
18. Monocrotophos	EPIC/LAB/SOP/WA/01/00	µg/l	BDL(MDL-0.5)	1.0	No relaxation
19. Phorate	EPIC/LAB/SOP/WA/01/00	µg/l	BDL(MDL-0.5)	2.0	No relaxation
20. DDT (o, p and p, p-isomer of DDT, DDE and DDD)	EPIC/LAB/SOP/WA/01/00	µg/l	BDL(MDL-0.5)	1.0	No relaxation
21. Endosulfan (alpha, beta, and sulphate)	EPIC/LAB/SOP/WA/01/00	µg/l	BDL(MDL-0.05)	0.4	No relaxation

--Test Result End --

Prescribed Limit 15.10.2021

Operational Status Unit was Operational During sampling.

Analysed by -Pratik Kumar/ Anjali Kumar



Checked by
(P.K. Kumar)
Technical Head



Verified Issue by
(Pratik Kumar)
Laboratory Head

Authorised Signatory
EPIC LabTech Pvt. Ltd.
Ranchi, Jharkhand



Address:
C/o - R.C. Tripathi, Indrapuri,
Road No. - 3, Ranchi,
Jharkhand - 831005, India

Tel: 0651 4661292
98357 86677
94065 77944
epiclabtech@gmail.com

CIN - U74999WB2020PTC039643, Accredited by:
Institutional Quality Assurance Council
Certified by:
ISO 9001:2015 and ISO 17025

Analytical Test Certificate

Unique Lab Report No.	N/A	Discipline	Biological
Report Unique ID	RL0144251719	Group	Water
Issue date/time	28.04.2025/ 10:15	Sub Group	Drinking Water

Report Issue to

M/S - HINDALCO INDUSTRIES LIMITED
VILLAGE-COURT ROAD, POST OFFICE-LOHARDAGA,
DIST.-LOHARDAGA, STATE-JHARKHAND, INDIA 835302
MONITORING SITE: KUJAM I BAUXITE MINE

Contact Person
Mr. Ankit Das
Contact Number
+91 9971034775
Email Id
ankit.das@adityabirla.com
Order Date
31.03.2025/ 10:10
Order Number
13612313866

References of Quality Management System/Item of Traceability Chain

Customer Registration No.	EPIC/OTH/0144	Sample Booking Number	EPIC-251719
Sample(s) Code	251719	Sample Receipt (D/T)	21.04.2025/17:40

Sampling References

Type of Industry	Bauxite Mines	Ref. of Sampling Plan	EPIC/LAB/R/036
Sampling method used	IS : 3025 (Part-1) 1987, R-2003& IS 1622 1981		
Sampling Start (D/T)	20.04.2025/ 11:55	Sampling End (D/T)	20.04.2025/ 12:15
Mode of Sampling	Conducted by Laboratory	Sample collected by	Mr. Karan Kumar & Team
Description/condition of sample	Receipt sample(s) were fit for analysis.		

Environmental Condition during sampling

Weather condition	Clear	Temperature (°C)	29	Humidity %	49	Wind direction	270°-90°
-------------------	-------	------------------	----	------------	----	----------------	----------

Sampling Location(s) with GPS coordinate(s)

5. Location A	Canteen	GPS coordinate	23°18'50.49" N 84°17'30.44" E
---------------	---------	----------------	-------------------------------

Date(s) of performance of the laboratory activities

Test start date	21.04.2025/ 18:00	Test completion date	27.04.2025/ 13:00
-----------------	-------------------	----------------------	-------------------

Sl.	Test Parameters	Method used	Unit	--Test Result --		Limits
				Results		
1.	Total Coliform	IS 15185 2002	Per 100 ml	Not Detected		Shall not be detectable in any 100 ml sample
2.	E. Coli	IS 15185 2002	Per 100 ml	Not Detected		

--Test Result End --

Prescribed Limit

IS 10500:2021

Operational Status

Unit was Operational During sampling.

Analysed by -Pratik Kumar/ Anjali Kumar




Decided by
(E. Kumar)
Technical Head


Verified & Issued by
(Ankit Das)
Laboratory Head

Authorized Signatory
EPIC LabTech Pvt. Ltd.
Ranchi (Jharkhand)



Address:
C/o - R.R. Belpahar, Indrapuri
Road No - 5, Ranchi
Jharkhand - 834005, India

T. 0651 7664361
98357 86877
910495 73994
epiclabtech@gmail.com

CIN-U78900JH2012PTC078852
PAN-HAAHC355TM
GST-20AAHC3551M12X

Accredited by -
NABL and NABLUS Number IC-13867
The Union State Pollution Control Board
Certified by -
ISO 9001:2015 and ISO 45001:2018

TC-12887

Analytical Test Certificate

Unique Lab Report No.	TC1288725000000400	Discipline	Chemical
Report Unique ID	RL0144251720	Group	Water
Issue date/time	28.04.2025/ 10:17	Sub Group	Ground Water

Report Issue to		Contact Person	Mr. Ankit Das
M/s - HINDALCO INDUSTRIES LIMITED		Contact Number	+91 9971034775
VILLAGE-COURT ROAD, POST OFFICE-LOHARDAGA, DIST.-LOHARDAGA, STATE-JHARKHAND, INDIA 835302		Email Id	ankit.das@adityabirla.com
MONITORING SITE: KUJAM I BAUXITE MINE		Order Date	31.03.2025/ 10:10
		Order Number	13612313868

References of Quality Management System (Date of Issuance/ Date)		Sample Booking Number	EPIC-251720
Customer Registration No.	EPIC/OTH/0144	Sample Receipt (D/T)	21.04.2025/17:41

Sampling References		Ref. of Sampling Plan	EPIC/LAB/R/036
Type of Industry	Bauxite Mines	Ref. of Sampling Plan	EPIC/LAB/R/036
Sampling method used	IS : 3025 (Part-1) 1987, R-2003	Sampling End (D/T)	20.04.2025/ 15:25
Sampling Start (D/T)	20.04.2025/ 15:12	Sample collected by	Mr. Karan Kumar & Team
Mode of Sampling	Conducted by Laboratory	Description/condition of sample	Receipt sample(s) were fit for analysis.

Environmental Condition during sampling		Wind direction	270°-30°
Weather condition	Clear	Temperature (°C)	23

Humidity %	49		
GPS coordinate	23° 19' 22.76" / 84° 15' 33.71"		

S. Location A	Near Shakhupani Village	Test completion date	27.04.2025/ 13:00
---------------	-------------------------	----------------------	-------------------

--Test Result--						
Sl	Test Parameters	Method used	Unit	Results	Acceptable Limit	Permissible limit

1.	pH value at 25°C	IS 3025 (P-11) 2022	-	6.85	6.5-8.5	No relaxation
2.	Turbidity	IS 3025 (P-10) 1984	NTU	0.89	1	5
3.	Colour	IS 3025 (P-04) 2021	Hazen	<5	5	15
4.	Odour	IS 3025 (P-05) 2018	-	Agreeable	Agreeable	Agreeable
5.	Taste	IS 3025 (P-07) 2017	-	Agreeable	Agreeable	Agreeable
6.	Total Dissolved Solids (TDS)	IS 3025 (P-16) 2023	mg/l	136	500	2000
7.	Chloride (as Cl)	IS 3025 (P-32) 2019	mg/l	19.71	250	1000
8.	Total Alkalinity (as CaCO ₃)	IS 3025 (P-23) 2019	mg/l	64	200	600
9.	Total Hardness (as CaCO ₃)	IS 3025 (P-21) 2009	mg/l	96	200	600
10.	Calcium (as Ca)	IS 3025 (P-40) 1991	mg/l	12.83	75	200
11.	Free Residual Chlorine	IS 3025 (P-26) 1986	mg/l	BDL(MDL-0.4)	0.2	1
12.	Sulphate (as SO ₄)	IS 3025 (P-24/Sec-1) 2022	mg/l	2.9	200	400
13.	Nitrate (as NO ₃)	APHA 4500 B 2023	mg/l	1.19	45	No relaxation
14.	Phenolic Compound	IS 3025 (P-43/Sec-1) 2022	mg/l	BDL(MDL-0.001)	0.001	0.002
15.	Magnesium (as Mg)	APHA 3500 Mg E 2023	mg/l	15.55	30	100



Analytical Test Certificate

Unique Lab Report No.	TC1288725000000400	Discipline	Chemical
Report Unique ID	RL0144251720	Group	Water
Issue date/time	28.04.2025/ 10:17	Sub Group	Ground Water

Report Issue to:

M/s - HINDALCO INDUSTRIES LIMITED
VILLAGE-COURT ROAD,
POST OFFICE-LOHARDAGA, DIST.-LOHARDAGA,
STATE-JHARKHAND, INDIA 835302
MONITORING SITE: KUJAM I BAUXITE MINE

Contact Person
Mr. Ankit Das
Contact Number
+91 9971034775
Email Id
ankit.das@adityabirla.com
Order Date
31.03.2025/ 10:10
Order Number
13612313868

Group - Residues and Contaminants in Water

Sub Group- Trace Metals Elements

16. Copper(as Cu)	APHA 3111 B 2023	mg/l	BDL(MDL-0.2)	0.05	1.5
17. Iron (as Fe)	APHA 3111 B 2023	mg/l	BDL(MDL-0.1)	1.0	No relaxation
18. Lead (as Pb)	APHA 3111 B 2023	mg/l	BDL(MDL-0.01)	0.01	No relaxation
19. Cadmium (as Cd)	APHA 3111 B 2023	mg/l	BDL(MDL-0.003)	0.003	No relaxation
20. Total Chromium (as Cr)	APHA 3111 B 2023	mg/l	BDL(MDL-0.05)	0.05	No relaxation
21. Nickel (as Ni)	APHA 3111 B 2023	mg/l	BDL(MDL-0.02)	0.02	No relaxation
22. Total Arsenic (as As)	APHA 3114 B 2023	mg/l	BDL(MDL-0.005)	0.01	0.05
23. Selenium (as Se)	APHA 3114 B 2023	mg/l	BDL(MDL-0.005)	0.01	No relaxation
24. Manganese (as Mn)	APHA 3111 B 2023	mg/l	BDL(MDL-0.08)	0.1	0.3
25. Zinc(as Zn)	APHA 3111 B 2023	mg/l	BDL(MDL-0.04)	5	15

-Test Result End -

Prescribed Limit

IS 10500:2021

Operational Status

Unit was Operational During sampling.

Analyzed by -Pratima Kumar/ Arpita Kumar

Checked by
(P.M. Kumar)
Technical HeadVerified & Issued by
(Arpita Kumar)
Laboratory Head

Authorized Signatory
EPIC LabTech Pvt. Ltd.
Ranchi, Jharkhand



Analytical Test Certificate

Unique Lab Report No.	N/A	Discipline	Chemical
Report Unique ID	RL0144251720	Group	Water
Issue date/time	28.04.2025/ 10:17	Sub Group	Ground Water

Report Issue to MM/s - HINDALCO INDUSTRIES LIMITED VILLAGE-COURT ROAD, POST OFFICE-LOHARDAGA, DIST.-LOHARDAGA, STATE-JHARKHAND, INDIA 835302 MONITORING SITE: KUJAM I BAUXITE MINE	Contact Person Mr. Ankit Das
	Contact Number +919971034775
	Email Id ankit.das@adityabirla.com
	Order Date 31.03.2025/ 10:10
	Order Number 13612313868

References of Quality Management System (Date of Issuability Date)
Customer Registration No.: EPIC/OTH/0144
Sample(s) Code 251720

Sampling References
Type of Industry Bauxite Mines
Sampling method used IS : 3025 (Part-1) 1987, R-2003
Sampling Start (D/T) 20.04.2025/ 15:12
Mode of Sampling Conducted by Laboratory
Description/condition of sample Receipt sample(s) were fit for analysis.

Environmental Condition during sampling
Weather condition Clear Temperature (°C) 29 Humidity % 49 Wind direction 270°-90°

Sampling Location(s) with GPS coordinate(s)
S. Location A Near Shakhupatti Village GPS coordinate 23° 19' 22.76" E 84° 15' 33.71"

Date(s) of performance of the laboratory activities
Test start date 21.04.2025/ 18:00 Test completion date 27.04.2025/ 13:00

--Test Result--

Sl.	Test Parameters	Method used	Unit	Results	Limits	
					Acceptable Limit	Permissible limit
1.	Fluoride (as F)	APHA 4500 F-C 2023	mg/l	BDL(MDL-0.1)	1.0	1.5
Group-Residues and Contaminants in Water					Sub Group-Trace Metals Elements	
2.	Aluminum	IS 3025 (P-55):2019	mg/l	BDL(MDL-0.1)	0.03	0.2
3.	Boron	IS 3025 (P-57):2021	mg/l	BDL(MDL-0.1)	0.5	1.0
4.	Polychlorinated biphenyls	EPIC/LAB/SOP/WA/01/00	µg/l	BDL(MDL-0.2)	0.5	No relaxation
5.	Polynuclear Aromatic Hydrocarbons (PAH)	EPIC/LAB/SOP/WA/01/00	µg/l	BDL(MDL-0.05)	0.1	No relaxation
Group-Residues and Contaminants in Water					Sub Group-Pesticides	
6.	Aalachlor	EPIC/LAB/SOP/WA/01/00	µg/l	BDL(MDL-0.5)	20	No relaxation
7.	Atrazine	EPIC/LAB/SOP/WA/01/00	µg/l	BDL(MDL-0.5)	2.0	No relaxation
8.	Dieldrin	EPIC/LAB/SOP/WA/01/00	µg/l	BDL(MDL-0.02)	0.03	No relaxation
9.	Alpha HCH	EPIC/LAB/SOP/WA/01/00	µg/l	BDL(MDL-0.005)	0.01	No relaxation
10.	Beta HCH	EPIC/LAB/SOP/WA/01/00	µg/l	BDL(MDL-0.02)	0.04	No relaxation
11.	Butachlor	EPIC/LAB/SOP/WA/01/00	µg/l	BDL(MDL-0.5)	125.0	No relaxation
12.	Chlopyrifos	EPIC/LAB/SOP/WA/01/00	µg/l	BDL(MDL-0.5)	30.0	No relaxation
13.	Delta HCH	EPIC/LAB/SOP/WA/01/00	µg/l	BDL(MDL-0.02)	0.04	No relaxation
14.	Ethion	EPIC/LAB/SOP/WA/01/00	µg/l	BDL(MDL-0.5)	3.0	No relaxation



EPIC LabTech Private Limited

Address:
C-2 - R.R. Tripathi, Indrapuri
Road No. - 5, Ranchi
Jharkhand - 834003, India

91 98351 4546292
+91 9971034775
+91 9971034775
epiclabtech@gmail.com

CLB-01/49991H2022/PC/09623 Accredited by -
National Accreditation Board for Testing and
Certified by -
ISO 9001:2015 and ISO 45001:2018

Analytical Test Certificate

Unique Lab Report No.	N/A	Discipline	Chemical
Report Unique ID	RL0144251720	Group	Water
Issue date/time	28.04.2025/ 10:17	Sub Group	Ground Water

Report Issue to

MM/s - HINDALCO INDUSTRIES LIMITED
VILLAGE-COURT ROAD,
POST OFFICE-LOHARDAGA, DIST.-LOHARDAGA,
STATE-JHARKHAND, INDIA 835302
MONITORING SITE: KUJAM I BAUXITE MINE

Contact Person
Mr. Ankit Das
Contact Number
+91 9971034775
Email Id
ankit.das@adityabirla.com
Order Date
31.03.2025/ 10:10
Order Number
13612313866

15. Gamma-HCH(Lindane)	EPIC/LAB/SOP/WA/01/00	µg/l	BDL(MDL-0.5)	2.0	No relaxation
16. Malathion	EPIC/LAB/SOP/WA/01/00	µg/l	BDL(MDL-0.5)	190.0	No relaxation
17. Methyl parathion	EPIC/LAB/SOP/WA/01/00	µg/l	BDL(MDL-0.2)	0.3	No relaxation
18. Monocrotophos	EPIC/LAB/SOP/WA/01/00	µg/l	BDL(MDL-0.5)	1.0	No relaxation
19. Phorate	EPIC/LAB/SOP/WA/01/00	µg/l	BDL(MDL-0.5)	2.0	No relaxation
20. DDT (o, p and p, p-isomer of DDT, DDE and DDD)	EPIC/LAB/SOP/WA/01/00	µg/l	BDL(MDL-0.5)	1.0	No relaxation
21. Endosulfan (alpha, beta, and sulphate)	EPIC/LAB/SOP/WA/01/00	µg/l	BDL(MDL-0.05)	0.4	No relaxation

-Test Result End -

Prescribed Limit IS 10500:2021

Operational Status Unit was Operational During sampling.

Analysed by -Pradeep Kumar/ Ankit Das


Directed by
(P.K. Kumar)
Technical Head


Verified & Issued by
(Ankit Das)
Laboratory Head

Authorised Signatory
EPIC LabTech Pvt. Ltd.
Ranchi, Jharkhand





EPIC LabTech Private Limited

Address:
C/o - R.K. Tripathi, Interceptor,
Road No. - 3, Ranchi,
Jharkhand - 834003, India

Tel: 0651-4664797
88337 88477
93849 73994
Oepiclabtech@gmail.com

CIN: -U74999JH2022PTC01945
PAN: AAHCCE381TM
GST: 25AAHCCE381TM25

Accredited by:
NABL - 0003 (Registration Number 11 - 1307)
Jharkhand State Pollution Control Board
Certified by:
ISO 9001:2015 and ISO 45001:2018



TC-12887

Analytical Test Certificate

Unique Lab Report No.	TC1288725000000572	Discipline	Chemical
Report Unique ID	RL0177252135	Group	Atmospheric Pollution
Issue date/time	26.05.2025/ 11:50	Sub Group	Ambient Air Quality

Report Issue to

M/s - HINDALCO INDUSTRIES LIMITED
VILLAGE-COURT ROAD, POST OFFICE-LOHARDAGA,
DIST. - LOHARDAGA, STATE - JHARKHAND, INDIA 835302
MONITORING SITE : KUJAM I BAUXITE MINE

Contact Person
Mr. Ankit Das
Contact Number
+91 9871034775
Email Id
ankit.das@uditvibhav.com
Order Date
31.03.2025/ 10:10
Order Number
13612313868

References of Quality Management System (Code of Traceability Doc)

Customer Registration No.	EPIC/OTH/0177	Sample Booking Number	EPIC- 252135
Sample(s) Code	252135 (A) (B) (C) (D)	Sample Receipt (D/T)	19.05.2025/ 12:25

Sampling References

Type of Industry	Bauxite Mines	Ref. of Sampling Plan	EPIC/LAB/R/036
Sampling Start (D/T)	15.05.2025/ 11:49	Sampling End (D/T)	16.05.2025/ 08:20
Mode of Sampling	Conducted by Laboratory	Sample collected by	Mr. Vishal Kumar & Team
Sampling method used	IS 5182 and CPCB Air Manual Volume - 1 (NAAQM/36/2012-13)		
Description/condition of sample	Receipt sample(s) were fit for analysis.		

Environmental Condition during sampling

Weather condition	Clear	Temperature (°C)	26	Humidity %	45	Wind direction	270°-90°
-------------------	-------	------------------	----	------------	----	----------------	----------

Sampling Location(s) with GPS coordinate(s)

S. Location A	Kujam Quarry 449	GPS coordinate	23° 18' 25.41" / 84° 19' 03.19"
S. Location B	Talabkhanta 4 A13	GPS coordinate	23° 18' 11.06" / 84° 17' 40.12"
S. Location C	4 A11 Football Ground	GPS coordinate	23° 18' 36.18" / 84° 17' 38.10"
S. Location D	Camp	GPS coordinate	23° 18' 53.11" / 84° 17' 27.09"

Date(s) of performance of the laboratory activities

Test start date	19.05.2025/ 12:45	Test completion date	24.05.2025/ 17:45
-----------------	-------------------	----------------------	-------------------

-Test Results-

Sl	Test Parameters	Method used	Unit	Results				Limits
				A	B	C	D	
1.	Particulate Matter (PM ₁₀)	IS:5182 (P-23) 2022	µg/m ³	77.03	70.01	74.97	82.03	100 (24 hr)
2.	Fine Particulate Matter (PM _{2.5})	IS:5182 (P-24) 2019	µg/m ³	36.85	35.30	33.90	39.10	60 (24 hr)
3.	Sulphur Dioxide (SO ₂)	IS:5182 (P-02) 2023	µg/m ³	09.29	12.37	10.53	10.89	80 (24 hr)
4.	Nitrogen Dioxide (NO ₂)	IS:5182 (P-06) 2022	µg/m ³	22.20	25.67	21.04	18.78	80 (24 hr)
5.	Ammonia (NH ₃)	IS:5182 (P-25) 2018	µg/m ³	48.05	43.83	40.58	45.21	400 (24 hr)
6.	Ozone (O ₃)	IS:5182 (P-09) 2019	µg/m ³	35.77	33.26	30.76	28.61	180 (1 hr)
7.	Lead (Pb)	IS:5182 (P-22) 2019	µg/m ³	BDL	BDL	BDL	BDL	1.0 (24 hr)
8.	Nickel (Ni)	IS:5182 (P-26) 2020	ng/m ³	BDL	BDL	BDL	BDL	-
9.	Arsenic (As)	USEPA 10.3.2:1999	ng/m ³	BDL	BDL	BDL	BDL	-

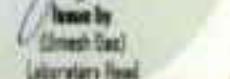
-Test Results End -

Prescribed Limit
Environmental (Protection) Rules-1986, Schedule VII.
Operational Status
Unit was Operational During sampling.

Analyzed by - AK Srivastava



Reviewed by
(R.K. Kumar)
Technician


Issued by
(Ankit Das)
Liaison Head

Authorized Signatory
EPIC LabTech Pvt. Ltd.
Ranchi, Jharkhand

Page 1 of 1

Contractual Notes: 1. The laboratory accepts responsibility for content of this report. 2. Test performed at laboratory's permanent facility at specific environmental conditions as notified and could relate only to the sample tested is prescribed Date & time. 3. The Test report shall not be reproduced full or in part & can't be used as proof in the court of law. 4. Any complaint about this report should be communicated in writing within 10 days of its issue. 5. Total liability of EPIC LabTech Pvt. Ltd. will be limited to limited account only. 6. All diagnosis are subjected to Ranchi Jurisdiction and maximum liability of the laboratory does not exceed the testing and sampling charges. 7. Opinion does not imply endorsement of the tested product by laboratory. Under no circumstances, laboratory accepts any claim by use or misuse of this report. 8. When the results are from natural possible are marked as * mark. 9. Abbreviations - BDL (Below Detectable Limit), MDL (Minimum Detectable Limit), LoQ (Limit of Quantitation).



Analytical Test Certificate

Unique Lab Report No.	N/A	Discipline	Chemical					
Report Unique ID	RL0177252135	Group	Atmospheric Pollution					
Issue date/time	26.05.2025/ 11:50	Sub Group	Ambient Air Quality					
Report Issue to								
M/s - HINDALCO INDUSTRIES LIMITED VILLAGE-COURT ROAD, POST OFFICE-LOHARDAGA, DIST-LOHARDAGA, STATE-JHARKHAND, INDIA 835302 MONITORING SITE : KUJAM I BAUXITE MINE	Contact Person	Mr. Ankit Das						
	Contact Number	+91 9871034775						
	Email Id	ankit.das@adityabirla.com						
	Order Date	31.03.2025/ 10:10						
	Order Number	13612313868						
References of Quality Management System (Days of Traceability Date)								
Customer Registration No.	EPIC/OTH/0177	Sample Booking Number	EPIC- 252135					
Sample(s) Code	252135 (A) (B) (C) (D)	Sample Receipt (D/T)	19.05.2025/ 12:25					
Sampling References								
Type of Industry	Bauxite Mines	Ref. of Sampling Plan	EPIC/LAB/R/036					
Sampling Start (D/T)	15.05.2025/ 11:49	Sampling End (D/T)	16.05.2025/ 08:20					
Mode of Sampling	Conducted by Laboratory	Sample collected by	Mr. Vishal Kumar & Team					
Sampling method used	IS 5182 and CPCB Air Manual Volume - 1 (NAAQM/36/2012-13)							
Description/condition of sample	Receipt sample(s) were fit for analysis.							
Environmental Condition during sampling								
Weather condition	Clear	Temperature (°C)	26					
		Humidity %	45					
		Wind direction	270°-90°					
Sampling Location(s) with GPS coordinate(s)								
S. Location A	Kujam Quarry 449	GPS coordinate	23° 18' 25.41" / 84° 19' 03.19"					
S. Location B	Tatatkanta 4 A13	GPS coordinate	23° 18' 11.06" / 84° 17' 40.12"					
S. Location C	4 A11 Football Ground	GPS coordinate	23° 18' 36.18" / 84° 17' 38.10"					
S. Location D	Camp	GPS coordinate	23° 18' 53.11" / 84° 17' 27.09"					
Data(s) of performance of the laboratory activities								
Test start date	19.05.2025/ 12:45	Test completion date	24.05.2025/ 17:45					
-Test Results-								
Sl	Test Parameters	Method used	Unit	A	B	C	D	Limits
1.	Benzene (C ₆ H ₆)	IS:5182(P-11)2000	µg/m ³	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	-
2.	Benzo (a) Pyrene (Bap)- Particulate phase only	IS:5182(P-12)2004	ng/m ³	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	-
3.	Carbon Monoxide (CO)	EPIC/LAB/ISOP/AP/01/00	mg/m ³	BDL (MDL-1.0)	BDL (MDL-1.0)	BDL (MDL-1.0)	BDL (MDL-1.0)	-
-Test Results End -								

Prescribed Limit Environmental (Protection) Rules-1996, Schedule VII.
Operational Status Unit was Operational During sampling.

Analysed by - AK Saha



 Reviewed by
S.K. Kumar
Technical Head




EPIC LabTech Private Limited

Address:
C/o - R.K. Tripathi, Indrapuri,
Road No. - 5, Ranchi,
Jharkhand - 834001, India

Tel: 0651-4886192
98357 88677
93049 77984
epiclabtech@gmail.com

CIN - U74999JH2002PTC019483
PAN - AAHCESBTM
GST - 20AAHCESBTM1212

Accredited by -
National State Pollution Control Board
Certified by -
ISO 9001:2015 and ISO 17025:2018

Analytical Test Certificate

Unique Lab Report No.	N/A	Discipline	Chemical
Report Unique ID	RL0177252136	Group	Atmospheric Pollution
Issue date/time	26.05.2025/ 11:52	Sub Group	Ambient Air Quality

Report Issue to

M/s - HINDALCO INDUSTRIES LIMITED
VILLAGE-COURT ROAD, POST OFFICE-LOHARDAGA,
DIST.-LOHARDAGA, STATE-JHARKHAND, INDIA 835302
MONITORING SITE : KUJAM I BAUXITE MINE

Contact Person
Mr. Ankit Das
Contact Number
+91 9971034775
Email Id
ankit.das@adityabirla.com
Order Date
31.03.2025/ 10:10
Order Number
13612313868

References of Quality Management System (Days of Traceability Data)

Customer Registration No.	EPIC/OTH/0177	Sample Booking Number	EPIC-252136
Sample(s) Code	252136 (A) (B) (C) (D)	Sample Receipt (D/T)	19.05.2025/ 12:30

Sampling References

Type of industry	Bauxite Mines	Ref. of Sampling Plan	EPIC/LAB/R/036
Sampling Start (D/T)	16.05.2025/ 11:22	Sampling End (D/T)	17.05.2025/ 08:21
Mode of Sampling	Conducted by Laboratory	Sample collected by	Mr. Vishal Kumar & Team
Sampling method used	IS 5182 and CPCB Air Manual Volume - 1 (NAAQM/36/2012-13)		
Description/condition of sample	Receipt sample(s) were fit for analysis.		

Environmental Condition during sampling

Weather condition	Clear	Temperature (°C)	26	Humidity %	46	Wind direction	270°-90°
-------------------	-------	------------------	----	------------	----	----------------	----------

Sampling Location(s) with GPS coordinate(s)

S. Location A	Near Pakni Gada Village	GPS coordinate	23° 20' 01.26" / 84° 14' 17.70"
S. Location B	Near Pol Pol Village	GPS coordinate	23° 18' 46.04" / 84° 16' 18.35"
S. Location C	Near Shakhuapani Village	GPS coordinate	23° 19' 22.76" / 84° 15' 33.71"
S. Location D	Near Dipa Kujam Village	GPS coordinate	23° 18' 18.91" / 84° 14' 55.35"

Date(s) of performance of the laboratory activities

Test start date	19.05.2025/ 12:40	Test completion date	24.05.2025/ 17:50
-----------------	-------------------	----------------------	-------------------

-Test Results-

Sl.	Test Parameters	Method used	Unit	Results				Limits
				A	B	C	D	
1.	Benzene (C ₆ H ₆)	IS:5182(P-11) 2006	µg/m ³	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	-
2.	Benzo (a) Pyrene (Bap)- Particulate phase only	IS:5182(P-12) 2004	ng/m ³	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	-
3.	Carbon Monoxide (CO)	EPIC/LAB/SOP/AP/01/00	mg/m ³	BDL (MDL-1.0)	BDL (MDL-1.0)	BDL (MDL-1.0)	BDL (MDL-1.0)	-

-Test Results End -

Prescribed Limit Environmental (Protection) Rules-1986, Schedule VII.

Operational Status Unit was Operational During sampling.

Analyzed by - AK Singh


Reviewed by
(AK Singh)
Technical Head


Issued by
(Ankit Das)
Laboratory Head
Authorized Signatory
EPIC LabTech Pvt. Ltd.
Ranchi, Jharkhand





EPIC LabTech Private Limited

Address:
C/o - R.K. Tripathi, Indrapuri,
Road No. - 3, Ranchi,
Jharkhand - 834003, India

Ph: +91 98351 4666352
+91 9357 88677
+91 949 73394
epiclabtech@gmail.com

CIN - U74999JH2022PLC000005
PAN - AAHCED51TM
GST - 25AAHCED51TM12X

Accredited by -
ISI, ISO certificate Number TC - 12887
Jharkhand State Pollution Control Board
Certified by -
ISO 9001:2015 and ISO 14001:2015



TC-12887

Analytical Test Certificate

Unique Lab Report No.	TC1288725000000574	Discipline	Chemical
Report Unique ID	RL0177252137	Group	Atmospheric Pollution
Issue date/time	26.05.2025/ 11:54	Sub Group	Ambient Noise

Report Issue to

M/s - HINDALCO INDUSTRIES LIMITED VILLAGE-COURT ROAD, POST OFFICE-LOHARDAGA, DIST - LOHARDAGA, STATE-JHARKHAND, INDIA 835302 MONITORING SITE : KUJAM I BAUXITE MINE	Contact Person	Mr. Ankit Das
	Contact Number	+91 9871034775
	Email Id	ankit.das@adityabirla.com
	Order Date	31.03.2025/ 10:10
	Order Number	13612313868

References of Quality Management System (Steps of Traceability Chart)

Customer Registration No.	EPIC/OTH/0177	Sample Booking Number	EPIC- 252137
Sample(s) Code	252137 (A) (B) (C) (D)	Sample Receipt (D/T)	19.05.2025/ 12:37

Sampling References

Type of Industry	Bauxite Mines	Ref. of Sampling Plan	EPIC/LAB/R/036
Sampling Start (D/T)	15.05.2025/ 11:49	Sampling End (D/T)	16.05.2025/ 08:20
Mode of Sampling	Conducted by Laboratory	Sample collected by	Mr. Vishal Kumar & Team
Sampling method used	IS 9989:1981 (RA 2020) & CPCB Method S.O.50 (E) dated 11/01/2010		
Description/condition of sample	Receipt sample(s) were fit for analysis.		

Environmental Condition during sampling

Weather condition	Clear	Temperature (°C)	26	Humidity %	46	Wind direction	270°-90°
-------------------	-------	------------------	----	------------	----	----------------	----------

Sampling Location(s) with GPS coordinate(s)

S. Location A	Kujam Quarry 449	GPS coordinate	23° 18' 25.41" / 84° 19' 03.19"
S. Location B	Talabkhanta 4 A13	GPS coordinate	23° 18' 11.06" / 84° 17' 40.12"
S. Location C	4 A11 Football Ground	GPS coordinate	23° 18' 36.18" / 84° 17' 38.10"
S. Location D	Camp	GPS coordinate	23° 18' 53.11" / 84° 17' 27.09"

Date(s) of performance of the laboratory activities

Test start date	19.05.2025/ 12:52	Test completion date	24.05.2025/ 18:00
-----------------	-------------------	----------------------	-------------------

-Test Results-

Sl	Test Parameters	Method used	Unit	Results				Limits
				A	B	C	D	
1.	L ₁ (Daytime)	IS: 9989:1981	dB (A)	44.0	48.2	47.2	53.1	75
2.	L ₁ (Nighttime)	IS: 9989:1981	dB (A)	38.3	36.3	40.4	42.4	70

--Test Results End --

Prescribed Limit:
Operational Status:
Analysed by - A.K. Saha

Environmental (Protection) Rules-1986, Schedule III.
Unit was Operational During sampling.


Reviewed by
(A.K. Saha)
Technical Head


Issued by
(Ankit Das)
Laboratory Head
Authorized Signatory
EPIC LabTech Pvt. Ltd.
Ranchi, Jharkhand





TC-12887

Analytical Test Certificate

Unique Lab Report No.	TC1288725000000714	Discipline	Chemical
Report Unique ID	RL02102525001	Group	Atmospheric Pollution
Issue date/time	20.06.2025/ 17:05	Sub Group	Ambient Air Quality

Report Issue to

M/s - HINDALCO INDUSTRIES LIMITED
 VILLAGE-COURT ROAD, POST OFFICE-LOHARDAGA,
 DIST.-LOHARDAGA, STATE-JHARKHAND, INDIA 835302
MONITORING SITE: KUJAM I BAUXITE MINE

Contact Person
 Mr. Ankit Das
 Contact Number
 +91 9971034775
 Email Id
 ankit.das@adityabirla.com
 Order Date
 31.03.2025/ 10:10
 Order Number
 13612313868

References of Quality Management System (Days of Traceability Date)

Customer Registration No.	EPIC/OTH/0210	Sample Booking Number	EPIC- 25250/OI
Sample(s) Code	25250(A) (B) (C) (D)	Sample Receipt (D/T)	18.06.2025/ 10:18

Sampling References

Type of Industry	Bauxite Mines	Ref. of Sampling Plan	EPIC/LAB/R/036
Sampling Start (D/T)	12.06.2025/ 11:56	Sampling End (D/T)	13.06.2025/ 08:41
Mode of Sampling	Conducted by Laboratory	Sample collected by	Mr. Vishal Kumar & Team
Sampling method used	IS 5182 and CPCB Air Manual Volume - 1 (NAAQM/36/2012-13)		
Description/condition of sample	Receipt sample(s) were fit for analysis.		

Environmental Condition during sampling

Weather condition	Clear	Temperature (°C)	32	Humidity %	55	Wind direction	90°-270°
-------------------	-------	------------------	----	------------	----	----------------	----------

Sampling Location(s) with GPS coordinate(s)

S. Location A	Kujam Quarry 449	GPS coordinate	23° 18' 25.41" / 84° 19' 03.19"
S. Location B	Talabkhanta 4 A13	GPS coordinate	23° 18' 11.06" / 84° 17' 40.12"
S. Location C	4 A11 Football Ground	GPS coordinate	23° 18' 36.18" / 84° 17' 38.10"
S. Location D	Camp	GPS coordinate	23° 18' 53.11" / 84° 17' 27.09"

Data(s) of performance of the laboratory activities

Test start date	16.06.2025/ 10:33	Test completion date	20.06.2025/ 15:15
-----------------	-------------------	----------------------	-------------------

-Test Results-

Sl.	Test Parameters	Method used	Unit	Results				Limits
				A	B	C	D	
1.	Particulate Matter (PM ₁₀)	IS:5182 (P-23) 2022	µg/m ³	75.21	68.28	72.24	80.17	100 (24 hr)
2.	Fine Particulate Matter (PM _{2.5})	IS:5182 (P-24) 2019	µg/m ³	35.47	34.36	31.04	37.13	60 (24 hr)
3.	Sulphur Dioxide (SO ₂)	IS:5182 (P-02) 2023	µg/m ³	08.22	11.35	09.01	09.40	60 (24 hr)
4.	Nitrogen Dioxide (NO ₂)	IS:5182 (P-06) 2022	µg/m ³	20.08	23.25	19.03	22.20	60 (24 hr)
5.	Ammonia (NH ₃)	IS:5182 (P-25) 2018	µg/m ³	47.08	42.21	39.29	43.18	400 (24 hr)
6.	Ozone (O ₃)	IS:5182 (P-09) 2019	µg/m ³	34.34	31.12	29.29	27.18	180 (1 hr)
7.	Lead (Pb)	IS:5182 (P-22) 2019	µg/m ³	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	1.0 (24 hr)
8.	Nickel (Ni)	IS:5182 (P-26) 2020	ng/m ³	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	-
9.	Arsenic (As)	USEPA 40 3.2:1999	ng/m ³	BDL (MDL-0.001)	BDL (MDL-0.001)	BDL (MDL-0.001)	BDL (MDL-0.001)	-

-Test Results End -

Prescribed Limit
 Operational Status
 Environmental (Protection) Rules-1986, Schedule VII.
 Unit was Operational During sampling.

Analysed by - Archana Gorain

Reviewed by
 (S. K. Kumar)
 Technical Head

Reviewed by
 (Archana Gorain)
 Laboratory Head

Authorized Signatory
 EPIC LabTech Pvt. Ltd.

Ranchi, Jharkhand Page 1 of 1



EPIC LabTech Private Limited

Address:
C/o - R.K. Tripathi, Indrapuri,
Road No. - 5, Ranchi
Jharkhand - 834001, India

Tel: 0651 4066522
98357 86477
933049 73994
epiclabtech@gmail.com

CIN: U74999IN2012PTC019385
PAN: RAHCE3871M
GST: 25AAHCE3871M12X

Accredited by:-
National Body Pollution Control Board
Certified by:-
ISO 9001:2015 and ISO 45001:2018

Analytical Test Certificate

Unique Lab Report No.	N/A	Discipline	Chemical
Report Unique ID	RL02102525001	Group	Atmospheric Pollution
Issue date/time	20.06.2025/ 17:05	Sub Group	Ambient Air Quality

Report Issue to:

M/s - HINDALCO INDUSTRIES LIMITED
VILLAGE-COURT ROAD, POST OFFICE-LOHARDAGA,
DIST- LOHARDAGA, STATE-JHARKHAND, INDIA 835302
MONITORING SITE: KUJAM I BAUXITE MINE

Contact Person
Mr. Ankit Das
Contact Number
+91 9971034775
Email Id
ankit.das@adityabirla.com
Order Date
31.03.2025/ 10:10
Order Number
13612313868

References of Quality Management System (Code of Traceability Data)

Customer Registration No.	EPIC/OTH/0210	Sample Booking Number	EPIC- 252501
Sample(s) Code	252501 (A) (B) (C) (D)	Sample Receipt (D/T)	16.06.2025/ 10:18

Sampling References

Type of Industry	Bauxite Mines	Ref. of Sampling Plan	EPIC/LAB/R/036
Sampling Start (D/T)	12.06.2025/ 11:55	Sampling End (D/T)	13.06.2025/ 08:41
Mode of Sampling	Conducted by Laboratory	Sample collected by	Mr. Vishal Kumar & Team
Sampling method used	IS 5182 and CPCB Air Manual Volume - 1 (NAAQM/36/2012-13)		
Description/condition of sample	Receipt sample(s) were fit for analysis.		

Environmental Condition during sampling

Weather condition	Clear	Temperature (°C)	32	Humidity %	55	Wind direction	90°-270°
-------------------	-------	------------------	----	------------	----	----------------	----------

Sampling Location(s) with GPS coordinate(s)

S. Location A	Kujam Quarry 449	GPS coordinate	23° 18' 25.41" / 84° 19' 03.19"
S. Location B	Talabkhanta 4 A13	GPS coordinate	23° 18' 11.06" / 84° 17' 40.12"
S. Location C	4 A11 Football Ground	GPS coordinate	23° 18' 36.18" / 84° 17' 38.10"
S. Location D	Camp	GPS coordinate	23° 18' 53.11" / 84° 17' 27.09"

Date(s) of performance of the laboratory activities

Test start date	16.06.2025/ 10:33	Test completion date	20.06.2025/ 15:15
-----------------	-------------------	----------------------	-------------------

--Test Results--

Sl.	Test Parameters	Method used	Unit	Results				Limits
				A	B	C	D	
1.	Benzene (C ₆ H ₆)	IS:5182(P-11) 2006	µg/m ³	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	-
2.	Benzo (a) Pyrene (Bap)- Particulate phase only	IS:5182(P-12) 2004	ng/m ³	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	-
3.	Carbon Monoxide (CO)	EPIC/LAB/SOP/AP/01/00	mg/m ³	BDL (MDL-1.0)	BDL (MDL-1.0)	BDL (MDL-1.0)	BDL (MDL-1.0)	-

--Test Results End --

Prescribed Limit: Environmental (Protection) Rules-1986, Schedule VI.

Operational Status: Unit was Operational During sampling.

Analyzed by - Archana Gorain


Reviewed by
(A. Gorain)
Technician


Reviewed by
(Archana Gorain)
Laboratory Head

Authorized Signatory
EPIC LabTech Pvt. Ltd.
Ranchi, Jharkhand



Address:
C/o - R.K. Tripathi, Instapuri,
Road No. - 3, Ranchi,
Jharkhand - 834003, India

Tel: 0651-4666352
98351 86677
93049 73934
Oepiclabtech@gmail.com

CIN - U74999JH2022PTC219685 Accredited by -
ISO 9001:2015 Certificate Number SC - 12887
Jharkhand State Pollution Control Board
Certified by -
ISO 9001:2015 and ISO 45001:2018

Analytical Test Certificate

Unique Lab Report No.	TC1288725000000715	Discipline	Chemical					
Report Unique ID	RL02102525002	Group	Atmospheric Pollution					
Issue date/time	20.06.2025/ 17:07	Sub Group	Ambient Air Quality					
Report Issue to								
M/s - HINDALCO INDUSTRIES LIMITED VILLAGE-COURT ROAD, POST OFFICE-LOHARDAGA, DIST.-LOHARDAGA, STATE-JHARKHAND, INDIA 835302 MONITORING SITE: KUJAM I BAUXITE MINE	Contact Person Mr. Ankit Das Contact Number +91 9871034775 Email Id ankit.das@adityabirla.com Order Date 31.03.2025/ 10:10 Order Number 13612313868							
References of Quality Management System (Days of Traceability Data)								
Customer Registration No.	EPIC/OTH/0210	Sample Booking Number	EPIC- 252502					
Sample(s) Code	252502 (A) (B) (C) (D)	Sample Receipt (D/T)	16.06.2025/ 10:20					
Sampling References								
Type of Industry	Bauxite Mines	Ref. of Sampling Plan	EPIC/LAB/R/036					
Sampling Start (D/T)	13.06.2025/ 12:20	Sampling End (D/T)	14.06.2025/ 10:20					
Mode of Sampling	Conducted by Laboratory	Sample collected by	Mr. Vishal Kumar & Team					
Sampling method used	IS 5182 and CPCB Air Manual Volume - 1 (NAAQM/36/2012-13)							
Description/condition of sample	Receipt sample(s) were fit for analysis.							
Environmental Condition during sampling								
Weather condition	Clear	Temperature (°C)	32					
		Humidity %	55					
		Wind direction	90°-270°					
Sampling Location(s) with GPS coordinate(s)								
S. Location A	Near Pakri Goda Village	GPS coordinate	23° 20' 01.20" / 84° 14' 17.70"					
S. Location B	Near Pol-Pol Village	GPS coordinate	23° 18' 46.04" / 84° 16' 18.35"					
S. Location C	Near Shakhuapani Village	GPS coordinate	23° 19' 22.76" / 84° 15' 33.71"					
S. Location D	Near Dipa Kujam Village	GPS coordinate	23° 18' 18.91" / 84° 14' 55.35"					
Data(s) of performance of the laboratory activities								
Test start date	16.06.2025/ 10:40	Test completion date	20.06.2025/ 15:22					
-Test Results-								
Sl	Test Parameters	Method used	Unit	A	B	C	D	Limits
1.	Particulate Matter (PM ₁₀)	IS:5182 (P-23) 2022	µg/m ³	60.35	67.09	65.04	74.09	100 (24 hr)
2.	Fine Particulate Matter (PM _{2.5})	IS:5182 (P-24) 2010	µg/m ³	28.27	28.82	24.39	31.59	80 (24 hr)
3.	Sulphur Dioxide (SO ₂)	IS:5182 (P-02) 2023	µg/m ³	06.26	07.44	06.61	09.40	80 (24 hr)
4.	Nitrogen Dioxide (NO ₂)	IS:5182 (P-06) 2022	µg/m ³	17.97	19.03	20.08	22.20	80 (24 hr)
5.	Ammonia (NH ₃)	IS:5182 (P-25) 2018	µg/m ³	32.14	29.22	33.12	36.04	400 (24 hr)
6.	Ozone (O ₃)	IS:5182 (P-09) 2019	µg/m ³	24.32	22.18	25.04	24.32	180 (1 hr)
7.	Lead (Pb)	IS:5182 (P-22) 2019	µg/m ³	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	1.0 (24 hr)
8.	Nickel (Ni)	IS:5182 (P-26) 2020	ng/m ³	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)
9.	Arsenic (As)	USEPA 10.3.2:1999	ng/m ³	BDL (MDL-0.001)	BDL (MDL-0.001)	BDL (MDL-0.003)	BDL (MDL-0.003)	BDL (MDL-0.003)
-Test Results End -								

Prescribed Limit Environmental (Protection) Rules-1986, Schedule VI.
Operational Status Unit was Operational During sampling.

Analyzed by - Archana Gorai


Reviewed by
D.K. Kumar
Technical Head


Reviewed by
D.K. Kumar
Laboratory Head

Authorized Signatory
EPIC LabTech Pvt. Ltd.
Ranchi, Jharkhand

Page 1 of 3



EPIC LabTech Private Limited

Address:
C/o - R.K. Tripathi, Indrapuri,
Road No. - S. Ranchi,
Jharkhand - 834003, India

Tel: 0637 4666397
98357 86477
93045 73984
epiclabtech@gmail.com

CIN - U74999JH2022PTC219585
PAN - ARHCE3881M
GST - 23AAHCE3881M12A

Accredited by -
Jharkhand State Pollution Control Board
Certified by -
ISO 9001:2015 and ISO 14001:2015

Analytical Test Certificate

Unique Lab Report No.	N/A	Discipline	Chemical					
Report Unique ID	RL02102525002	Group	Atmospheric Pollution					
Issue date/time	20.06.2025/ 17:07	Sub Group	Ambient Air Quality					
Report Issue to								
M/s - HINDALCO INDUSTRIES LIMITED VILLAGE-COURT ROAD, POST OFFICE-LOHARDAGA, DIST-LOHARDAGA, STATE-JHARKHAND, INDIA 835302 MONITORING SITE: KUJAM I BAUXITE MINE	Contact Person Mr. Ankit Das	Contact Number +91 9871034775	Email Id ankit.das@edityabirla.com					
	Order Date 31.03.2025/ 10:20	Order Number 13612313866						
References of Quality Management System (Days of Traceability Data)								
Customer Registration No.	EPIC/OTH/0210	Sample Booking Number	EPIC- 252502					
Sample(s) Code	252502 (A) (B) (C) (D)	Sample Receipt (D/T)	16.06.2025/ 10:20					
Sampling References								
Type of industry	Bauxite Mines	Ref. of Sampling Plan	EPIC/LAB/R/036					
Sampling Start (D/T)	13.06.2025/ 12:20	Sampling End (D/T)	14.06.2025/ 10:40					
Mode of Sampling	Conducted by Laboratory	Sample collected by	Mr. Vishal Kumar & Team					
Sampling method used	IS 5182 and CPCB Air Manual Volume - 1 (NAAQM/36/2012-13)							
Description/condition of sample	Receipt sample(s) were fit for analysis.							
Environmental Condition during sampling								
Weather condition	Clear	Temperature (°C)	32					
		Humidity %	55					
		Wind direction	90°-270°					
Sampling Location(s) with GPS coordinate(s)								
S. Location A	Near Pakni Gada Village	GPS coordinate	23° 20' 01.26" / 84° 14' 17.70"					
S. Location B	Near Poi Poi Village	GPS coordinate	23° 18' 46.04" / 84° 16' 18.36"					
S. Location C	Near Shukhuapani Village	GPS coordinate	23° 19' 22.78" / 84° 15' 33.71"					
S. Location D	Near Dipa Kujam Village	GPS coordinate	23° 18' 18.91" / 84° 14' 55.35"					
Date(s) of performance of the laboratory activities								
Test start date	16.06.2025/ 10:40	Test completion date	20.06.2025/ 15:22					
-Test Results-								
Sl	Test Parameters	Method used	Unit	A	B	C	D	Limits
1.	Benzene (C ₆ H ₆)	IS:5182(P-11) 2006	µg/m ³	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	-
2.	Benzo (a) Pyrene (Bap)- Particulate phase only	IS:5182(P-12) 2004	ng/m ³	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	-
3.	Carbon Monoxide (CO)	EPIC/LAB/SOP/AP/01/00	mg/m ³	BDL (MDL-1.0)	BDL (MDL-1.0)	BDL (MDL-1.0)	BDL (MDL-1.0)	-
-Test Results End -								

Prescribed Limit: Environmental (Protection) Rules-1996, Schedule VII.

Operational Status: Unit was Operational During sampling.

Analyzed by - Archana Gorain


Reviewed by
(B.K. Kumar)
Technical Head



Page 1 of 1



EPIC LabTech Private Limited

Address:
C/o - R.K. Tripathi, Indrapuri,
Road No. - S. Ranchi,
Jharkhand - 834005, India

Tel: 0651 4666292
98357 86677
93049 72984
epiclabtech@gmail.com

CIN - U74999JH2022PTC019485 Accredited by -
Jharkhand State Pollution Control Board
Certified by -
ISO 17025:2017 and ISO 17065

Analytical Test Certificate

Unique Lab Report No.	N/A	Discipline	Chemical
Report Unique ID	RLD2102525003	Group	Atmospheric Pollution
Issue date/time	20.06.2025/ 17:09	Sub Group	Work Zone Noise
Report Issue to			
M/s - HINDALCO INDUSTRIES LIMITED VILLAGE-COURT ROAD, POST OFFICE-LOHARDAGA, DIST-LOHARDAGA, STATE-JHARKHAND, INDIA 835302 MONITORING SITE: KUJAM I BAUXITE MINE	Contact Person	Mr. Ankit Das	
	Contact Number	+91 9871034775	
	Email Id	ankit.das@adityabirla.com	
	Order Date	31.03.2025/ 10:10	
	Order Number	13612313868	
References of Quality Management System (Steps of Traceability Chart)			
Customer Registration No.	EPIC/OTH/0210	Sample Booking Number	EPIC- 252503
Sample(s) Code	252503 (A) (B) (C) (D)	Sample Receipt (D/T)	16.06.2025/ 10:26
Sampling References			
Type of Industry	Bauxite Mines	Ref. of Sampling Plan	EPIC/LAB/R/038
Sampling Start (D)	13.06.2025	Sampling End (D)	13.06.2025
Mode of Sampling	Conducted by Laboratory	Sample collected by	Mr. Vishal Kumar & Team
Sampling method used	IS 9989:1981 (RA 2020) & CPCB Methods.O-50 (E) dated 11/01/2010		
Description/condition of sample	Receipt sample(s) were fit for analysis.		
Environmental Condition during sampling			
Weather condition	Clear	Temperature (°C)	32
		Humidity %	55
		Wind direction	90°-270°
Sampling Location(s) with GPS coordinate(s)			
S. Location A	Drilling at Working Pit	GPS coordinate	23° 18' 10.45" / 84° 17' 41.09"
S. Location B	Kujam I Bauxite Mine (80.67 Ha)	GPS coordinate	23° 18' 09.10" / 84° 17' 35.54"
Data(s) of performance of the laboratory activities			
Test start date	16.06.2025/ 10:44	Test completion date	20.06.2025/ 15:28
-Test Results-			
Sl.	Test Parameters	Method used	Results
1.	L _{eq}	IS: 9989:1981	Unit A B Limits
		dB (A)	73.6 70.9 85
-Test Results End -			

Prescribed Limit

NIOSH - Publication No. 96-126 in 1972, Table 1-1

Operational Status

Unit was Operational During sampling.




Certified by
(Vishal Kumar)
Technical Head


Done by
(Ankit Das)
Laboratory Head

Authorized Signatory
EPIC LabTech Pvt. Ltd.
Ranchi, Jharkhand



TC-12887

Environmental Test Certificate

Unique Lab Report No.	TC1288725000000891	Discipline	Chemical
Report Unique ID	RL02372529024	Group	Atmospheric Pollution
Issue date/time	19.07.2025/ 17:12	Sub Group	Ambient Air Quality

Report Issue to

M/s - HINDALCO INDUSTRIES LIMITED

VILLAGE-COURT ROAD, POST OFFICE-LOHARDAGA,
DIST.-LOHARDAGA, STATE-JHARKHAND, INDIA 835302

MONITORING SITE: KUJAMI BAUXITE MINE

Contact Number
Email Id
Order Date
Order Number

Mr. Ankit Das
+91 9871034775
ankit.das@adityabirla.com
31.03.2025/ 10:10
13612313868

References of Quality Management System (Days of Traceability Date)

Customer Registration No.	EPIC/OTH/0237	Sample Booking Number	EPIC-2529024
Sample(s) Code	2529024 (A) (B) (C) (D)	Sample Receipt (D/T)	15.07.2025/ 11:35

Sampling References

Type of Industry	Bauxite Mines	Ref. of Sampling Plan	EPIC/LAB/R/036
Sampling Start (D/T)	12.07.2025/ 11:55	Sampling End (D/T)	13.07.2025/ 08:06
Mode of Sampling	Conducted by Laboratory	Sample collected by	Mr. Akash Kumar & Team
Sampling method used	IS 5182 and CPCB Air Manual Volume - 1 (NAAQM/36/2012-13)		
Description/condition of sample	Receipt sample(s) were fit for analysis.		

Environmental Condition during sampling

Weather condition	Cloudy	Temperature (°C)	25	Humidity %	72	Wind direction	40°-220°
-------------------	--------	------------------	----	------------	----	----------------	----------

Sampling Location(s) with GPS coordinate(s)

S. Location A	Kujam Quarry 449	GPS coordinate	23° 18' 25.41" / 84° 19' 03.19"
S. Location B	Talabkhanta 4 A13	GPS coordinate	23° 18' 11.06" / 84° 17' 40.12"
S. Location C	4 A11 Football Ground	GPS coordinate	23° 18' 36.18" / 84° 17' 38.10"
S. Location D	Camp	GPS coordinate	23° 18' 53.11" / 84° 17' 27.09"

Data(s) of performance of the laboratory activities

Test start date	15.07.2025/ 11:55	Test completion date	19.07.2025/ 15:55
-----------------	-------------------	----------------------	-------------------

-Test Results-

Sl.	Test Parameters	Method used	Unit	Results				Limits
				A	B	C	D	
1.	Particulate Matter (PM ₁₀)	IS:5182 (P-23) 2022	µg/m ³	71.11	64.49	68.63	76.59	100 (24 hr)
2.	Fine Particulate Matter (PM _{2.5})	IS:5182 (P-34) 2019	µg/m ³	31.26	30.28	27.3	33.92	60(24 hr)
3.	Sulphur Dioxide (SO ₂)	IS:5182 (P-02) 2022	µg/m ³	07.10	10.68	08.71	08.73	60(24 hr)
4.	Nitrogen Dioxide (NO ₂)	IS:5182 (P-06) 2022	µg/m ³	18.66	21.97	17.60	20.94	80(24 hr)
5.	Ammonia (NH ₃)	IS:5182 (P-25) 2019	µg/m ³	43.35	38.57	36.02	39.20	400(24 hr)
6.	Ozone (O ₃)	IS:5182 (P-09) 2019	µg/m ³	30.04	27.86	25.33	23.16	180(1 hr)
7.	Lead (Pb)	IS:5182 (P-22) 2019	µg/m ³	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	1.0(24 hr)
8.	Nickel (Ni)	IS:5182 (P-26) 2020	ng/m ³	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)
9.	Arsenic (As)	USEPA 60 3.2:1998	ng/m ³	BDL (MDL-1.0)	BDL (MDL-1.0)	BDL (MDL-1.0)	BDL (MDL-1.0)	BDL (MDL-1.0)

-Test Results End -

Prescribed Limit Environmental (Protection) Rules-1986, Schedule VI.

Operational Status Unit was Operational During sampling.

Analysed by - Vishal Mangat


 Reviewed by
(E.K. Kumar)
Technical Head


 Issued by
(Ankit Das)
Laboratory Head

Authorized Signatory

EPIC LabTech Pvt. Ltd. Page 1 of 1

Ranchi, Jharkhand, India

Disclaimer Note: 1. The laboratory accepts responsibility for content of this report. 2. Test performed at laboratory's permanent facility. 3. The results relate only to the sample tested in prescribed Date & time. 4. The Test report shall not be reproduced full or in part & it can't be used for any other purpose. 5. Any complaint about this report should be communicated in writing within 10 days of its issue. 6. Total liability of EPIC LabTech Pvt. Ltd. will be limited to assessed amount only. 7. All disputes are subject to Ranchi jurisdiction and exclusive liability of the laboratory does not exceed the testing and sampling charge. 8. Opinion does not imply endorsement of the tested product by laboratory. Under no circumstances, laboratory accepts any liability for use or misuse of this report. 9. When the results are from external provider are marked as * mark. 10. Abbreviations - BDL (Below Detectable Limit), MDL (Minimum Detectable Limit), LoQ (Limit of Quantification).



Analytical Test Certificate

Unique Lab Report No.	N/A	Discipline	Chemical
Report Unique ID	RLB2372529024	Group	Atmospheric Pollution
Issue date/time	19.07.2025/ 17:12	Sub Group	Ambient Air Quality

Report Issue to

M/s - HINDALCO INDUSTRIES LIMITED
VILLAGE-COURT ROAD, POST OFFICE-LOHARDAGA,
DIST.-LOHARDAGA, STATE-JHARKHAND, INDIA 835302
MONITORING SITE: KUJAM I BAUXITE MINE

Contact Person
Mr. Ankit Das
Contact Number
+91 9971034775
Email Id
ankit.das@adityabirla.com
Order Date
31.03.2025/ 10:10
Order Number
13612313868

References of Quality Management System (Base of Traceability Data)

Customer Registration No.	EPIC/OTH/0237	Sample Booking Number	EPIC-2529024
Sample(s) Code	2529024 (A) (B) (C) (D)	Sample Receipt (D/T)	19.07.2025/ 11:35

Sampling References

Type of Industry	Bauxite Mines	Ref. of Sampling Plan	EPIC/LAB/R/036
Sampling Start (D/T)	12.07.2025/ 11:55	Sampling End (D/T)	13.07.2025/ 08:06
Mode of Sampling	Conducted by Laboratory	Sample collected by	Mr. Akash Kumar & Team
Sampling method used	IS 5182 and CPCB Air Manual Volume - 1 (NAAQM/36/2012-13)		
Description/condition of sample	Receipt sample(s) were fit for analysis.		

Environmental Condition during sampling

Weather condition	Cloudy	Temperature (°C)	25	Humidity %	72	Wind direction	40°-220°
-------------------	--------	------------------	----	------------	----	----------------	----------

Sampling Location(s) with GPS coordinate(s)

S. Location A	Kujam Quarry 449	GPS coordinate	23° 18' 25.41" / 84° 19' 03.19"
S. Location B	Talabkhanta 4 A13	GPS coordinate	23° 18' 11.06" / 84° 17' 40.12"
S. Location C	4 A11 Football Ground	GPS coordinate	23° 18' 38.18" / 84° 17' 38.10"
S. Location D	Camp	GPS coordinate	23° 18' 53.11" / 84° 17' 27.09"

Data(s) of performance of the laboratory activities

Test start date	15.07.2025/ 11:55	Test completion date	19.07.2025/ 15:55
-----------------	-------------------	----------------------	-------------------

-Test Results-

Sl.	Test Parameters	Method used	Unit	Results				Limits
				A	B	C	D	
1.	Benzene (C ₆ H ₆)	IS:5182(P-11) 2006	µg/m ³	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	-
2.	Benzo (a) Pyrene (Bap)- Particulate phase only	IS:5182(P-12) 2004	ng/m ³	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	-
3.	Carbon Monoxide (CO)	EPIC/LAB/SOP/AM/01/00	mg/m ³	BDL (MDL-1.0)	BDL (MDL-1.0)	BDL (MDL-1.0)	BDL (MDL-1.0)	-

-Test Results End-

Prescribed Limit Environmental (Protection) Rules-1986, Schedule VII.

Operational Status Unit was Operational During sampling.

Analysed by - Vishal Mangarji


 Reviewed by
(Vishal Mangarji)
Technical Head




TC-12887

Analytical Test Certificate

Unique Lab Report No.	TC1288725000000892	Discipline	Chemical
Report Unique ID	RL02372529025	Group	Atmospheric Pollution
Issue date/time	19.07.2025/ 17:14	Sub Group	Ambient Air Quality

Report Issue to

M/s - HINDALCO INDUSTRIES LIMITED
VILLAGE-COURT ROAD, POST OFFICE-LOHARDAGA,
DIST-LOHARDAGA, STATE-JHARKHAND, INDIA-835302
MONITORING SITE: KUJAM I BAUXITE MINE

Contact Person
Mr. Ankit Das
Contact Number
+91 9871034775
Email Id
ankit.das@uditaybirta.com
Order Date
31.03.2025/ 10:10
Order Number
13612313868

References of Quality Management System (Days of Traceability Date)

Customer Registration No.	EPIC/OTH/0237	Sample Booking Number	EPIC-2529025
Sample(s) Code	2529025 (A) (B) (C) (D)	Sample Receipt (D/T)	15.07.2025/ 11:36

Sampling References

Type of Industry	Bauxite Mines	Ref. of Sampling Plan	EPIC/LAB/R/036
Sampling Start (D/T)	13.07.2025/ 11:26	Sampling End (D/T)	14.07.2025/ 08:36
Mode of Sampling	Conducted by Laboratory	Sample collected by	Mr. Akash Kumar & Team
Sampling method used	IS 5182 and CPCB Air Manual Volume - 1 (NAAQM/36/2012-13)		
Description/condition of sample	Receipt sample(s) were fit for analysis.		

Environmental Condition during sampling

Weather condition	Cloudy	Temperature (°C)	25	Humidity %	70	Wind direction	20°-220°
-------------------	--------	------------------	----	------------	----	----------------	----------

Sampling Location(s) with GPS coordinate(s)

S. Location A	Near Pakri Gada Village	GPS coordinate	23° 20' 01.26" / 84° 14' 17.70"
S. Location B	Near Poi Poi Village	GPS coordinate	23° 18' 46.04" / 84° 16' 16.35"
S. Location C	Near Shakhuapani Village	GPS coordinate	23° 19' 22.76" / 84° 15' 33.71"
S. Location D	Near Dipa Kujam Village	GPS coordinate	23° 18' 18.91" / 84° 14' 55.35"

Data(s) of performance of the laboratory activities

Test start date	15.07.2025/ 11:56	Test completion date	19.07.2025/ 15:56
-----------------	-------------------	----------------------	-------------------

-Test Results-

Sl.	Test Parameters	Method used	Unit	Results				Limits
				A	B	C	D	
1.	Particulate Matter (PM ₁₀)	IS:5182 (P-23) 2022	µg/m ³	56.60	63.21	61.92	70.41	100 (24 hr)
2.	Fine Particulate Matter (PM _{2.5})	IS:5182 (P-34) 2019	µg/m ³	24.89	24.32	20.76	27.23	60(24 hr)
3.	Sulphur Dioxide (SO ₂)	IS:5182 (P-02) 2023	µg/m ³	06.97	06.75	07.54	08.30	80(24 hr)
4.	Nitrogen Dioxide (NO ₂)	IS:5182 (P-06) 2022	µg/m ³	28.75	25.37	29.76	32.93	80(24 hr)
5.	Ammonia (NH ₃)	IS:5182 (P-25) 2018	µg/m ³	28.69	25.82	29.54	32.83	400(24 hr)
6.	Ozone (O ₃)	IS:5182 (P-09) 2019	µg/m ³	20.27	18.82	21.35	20.99	180(1 hr)
7.	Lead (Pb)	IS:5182 (P-22) 2019	µg/m ³	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	1.0(24 hr)
8.	Nickel (Ni)	IS:5182 (P-26) 2020	ng/m ³	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	1.0(24 hr)
9.	Arsenic (As)	USEPA 10.3.2:1999	ng/m ³	BDL (MDL-1.0)	BDL (MDL-1.0)	BDL (MDL-1.0)	BDL (MDL-1.0)	1.0(24 hr)

-Test Results End -

Prescribed Limit Environmental (Protection) Rules- 1986, Schedule VI.
Operational Status Unit was Operational During sampling.

Analysed by - Vishal Mangarwala


Reviewed by
(A.K. Kumar)
Technical Head


Issued by
(A.K. Kumar)
Laboratory Head

Authorized Signatory

EPIC LabTech Pvt. Ltd. Page 1 of 1

Panaji, Jharkhand, India

Contracted Notes: 1. No responsibility for content of this report | 2. Test performed at laboratory's permanent facility. | 3. All analytical methods as method required and results relate only to the sample tested or prescribed Date & time | 4. The Test report shall not be reproduced in full or in part & can't be used for any other purpose | 5. Total liability of EPIC LabTech Pvt. Ltd. will be limited to original amount only | 6. All disputes are subject to Ranchi Jurisdiction and maximum validity of the laboratory does not exceed the testing and sampling charges | 7. Operator does not copy or memorise of the tested product by laboratory. Under no circumstances, laboratory accepts any cause by use or misuse of this report. | 8. When the results are from external provider are marked as * mark. | 9. MDL (Detectable Limit), MDL (Minimum Detectable Limit), LoQ (Limit of Quantification).



Analytical Test Certificate

Unique Lab Report No.	N/A	Discipline	Chemical
Report Unique ID	PL02372529025	Group	Atmospheric Pollution
Issue date/time	19.07.2025/ 17:14	Sub Group	Ambient Air Quality

Report Issue to

M/s - HINDALCO INDUSTRIES LIMITED VILLAGE-COURT ROAD, POST OFFICE-LOHARDAGA, DIST-LOHARDAGA, STATE-JHARKHAND, INDIA 835302 MONITORING SITE: KUJAM I BAUXITE MINE	Contact Person Mr. Ankit Das
	Contact Number +91 9671034775
	Email Id ankit.das@adityabirla.com
	Order Date 31.03.2025/ 10:10
	Order Number 13612313868

References of Quality Management System (Steps of Traceability Data)

Customer Registration No.	EPIC/OTH/0237	Sample Booking Number	EPIC-2529025
Sample(s) Code	2529025 (A) (B) (C) (D)	Sample Receipt (D/T)	15.07.2025/ 11:36

Sampling References

Type of Industry	Bauxite Mines	Ref. of Sampling Plan	EPIC/LAB/R/036
Sampling Start (D/T)	13.07.2025/ 11:26	Sampling End (D/T)	14.07.2025/ 08:36
Mode of Sampling	Conducted by Laboratory	Sample collected by	Mr. Akash Kumar & Team
Sampling method used	IS 5182 and CPCB Air Manual Volume - 1 (NAAQM/36/2012-13)		
Description/condition of sample	Receipt sample(s) were fit for analysis.		

Environmental Condition during sampling

Weather condition	Cloudy	Temperature (°C)	25	Humidity %	70	Wind direction	20°-220°
-------------------	--------	------------------	----	------------	----	----------------	----------

Sampling Location(s) with GPS coordinate(s)

S. Location A	Near Pakri Gada Village	GPS coordinate	23° 20' 01.26" / 84° 14' 17.70"
S. Location B	Near Pol Pol Village	GPS coordinate	23° 18' 46.04" / 84° 16' 18.35"
S. Location C	Near Shakhuapani Village	GPS coordinate	23° 19' 22.76" / 84° 15' 33.71"
S. Location D	Near Dipa Kujam Village	GPS coordinate	23° 18' 18.91" / 84° 14' 55.35"

Date(s) of performance of the laboratory activities

Test start date	15.07.2025/ 11:36	Test completion date	19.07.2025/ 15:56
-----------------	-------------------	----------------------	-------------------

-Test Results-

Sl.	Test Parameters	Method used	Unit	Results				Limits
				A	B	C	D	
1.	Benzene (C ₆ H ₆)	IS 5182(P-11) 2006	µg/m ³	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	-
2.	Benzo (a) Pyrene (Bap)- Particulate phase only	IS 5182(P-12) 2004	ng/m ³	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	-
3.	Carbon Monoxide (CO)	EPIC/LAB/SOP/AP/01/00	mg/m ³	BDL (MDL-1.6)	BDL (MDL-1.6)	BDL (MDL-1.6)	BDL (MDL-1.6)	-

-Test Results End -

Prescribed Limit Environmental (Protection) Rules-1986, Schedule VII.

Analysed by - Vishal Mangaraj



Reviewed by
(R.K. Kumar)
Technical Head

Authorised Signatory
EPIC LabTech Pvt. Ltd.,
Ranchi, Jharkhand

1/2
15/7/25
Ankit Das
Laboratory Head



Address -
C/o - R.K. Tripathi, Indrapuri,
Road No. - 5, Ranchi,
Jharkhand - 834001, India

0651 4666292
98357 88677
91549 77794
epiclabtech@gmail.com

CIN - U74999JH2022PTC079825, Accredited by -
ISO, Visa certificate number TC - 12887
Prabhikar Mahi Pollution Control Board
Certified by -
ISO 9001:2015 and ISO 14001:2015

TC-12887

Analytical Test Certificate

Unique Lab Report No.	TC1288725000000893	Discipline	Chemical
Report Unique ID	RL02372529026	Group	Water
Issue date/time	19.07.2025/ 17:16	Sub Group	Drinking Water

Report Issue to

M/s - HINDALCO INDUSTRIES LIMITED
VILLAGE-COURT ROAD, POST OFFICE-LOHARDAGA,
DIST-LOHARDAGA, STATE-JHARKHAND, INDIA 835302
MONITORING SITE: KUJAM I BAUXITE MINE

Contact Person Mr. Ankit Das
Contact Number +91 9971034775
Email Id ankit.das@adityabirla.com
Order Date 31.03.2025/ 10:10
Order Number 13612313868

References of Quality Management System (Steps of Traceability Data)

Customer Registration No.	EPIC/OTH/0237	Sample Booking Number	EPIC-2529026
Sample(s) Code	2529026	Sample Receipt (D/T)	15.07.2025/ 11:37

Sampling References

Type of Industry	Bauxite Mines	Ref. of Sampling Plan	EPIC/LAB/R/036
Sampling Start (D/T)	13.07.2025/ 12:10	Sampling End (D/T)	13.07.2025/ 12:20
Mode of Sampling	Conducted by Laboratory	Sample collected by	Mr. Vishal Kumar & Team
Sampling method used	IS : 3025 (Part-1) 1987, R-2003		
Description/condition of sample		Receipt sample(s) were fit for analysis.	

Environmental Condition during sampling

Weather condition	Cloudy	Temperature (°C)	25	Humidity %	70	Wind direction	40°-220°
-------------------	--------	------------------	----	------------	----	----------------	----------

Sampling Location(s) with GPS coordinate(s)

S. Location A	Canteen	GPS coordinate	23° 18' 50.49" / 84° 17' 30.44"
---------------	---------	----------------	---------------------------------

Date(s) of performance of the laboratory activities

Test start date	15.07.2025/ 11:57	Test completion date	19.07.2025/ 16:00
-----------------	-------------------	----------------------	-------------------

-Test Result-

Sl.	Test Parameters	Method used	Unit	Results	Limits	
					Acceptable Limit	Permissible limit
1.	pH value at 25°C	IS 3025 (P-11) 2022	-	6.75	6.5-8.5	No relaxation
2.	Turbidity	IS 3025 (P-10) 1984	NTU	0.76	1	5
3.	Colour	IS 3025 (P-04) 2021	Hazen	<5	5	15
4.	Odour	IS 3025 (P-05) 2018	-	Agreeable	Agreeable	Agreeable
5.	Taste	IS 3025 (P-07) 2017	-	Agreeable	Agreeable	Agreeable
6.	Total Dissolved Solids (TDS)	IS 3026 (P-16) 2023	mg/l	94.00	500	2000
7.	Chloride (as Cl)	IS 3025 (P-32) 2019	mg/l	14.86	250	1000
8.	Total Alkalinity (as CaCO ₃)	IS 3025 (P-23) 2019	mg/l	51.00	200	600
9.	Total Hardness (as CaCO ₃)	IS 3025 (P-21) 2009	mg/l	65.00	200	600
10.	Calcium (as Ca)	IS 3025 (P-40) 1991	mg/l	09.22	75	200
11.	Free Residual Chlorine	IS 3025 (P-29) 1988	mg/l	BDL(mol-0.4)	0.2	1
12.	Sulphate (as SO ₄)	IS 3025 (P-24/Sec-1) 2022	mg/l	1.10	200	400
13.	Nitrate (as NO ₃)	APHA 2500 B 2023	mg/l	0.92	45	No relaxation
14.	Phenolic Compound	IS 3025 (P-43/Sec-1) 2022	mg/l	BDL(mol-0.001)	0.001	0.002
15.	Magnesium (as Mg)	APHA 2500 Mg E 2023	mg/l	10.47	30	100

Page 1 of 2

Contracted Note : 1. The laboratory accepts responsibility for content of this report. 2. Test performed at laboratory's permanent facility, at specific environmental conditions as method required and results relate only to the sample tested in prescribed time & time. 3. The Test report shall not be reproduced full or in part & can't be used as proof in the court of law. 4. Any complaint about this report should be communicated in writing within 10 days of its issue. 5. Total liability of EPIC LabTech Pvt. Ltd. will be limited to honored amount only. 6. All disputes are subject to Ranchi Jurisdiction and maximum liability of the laboratory does not exceed the testing and sampling charges. 7. Opinion does not imply endorsement of the tested product by laboratory. Under no circumstances, laboratory accepts any claim by site or source of this report. 8. When the results are from external provider are marked as * mark.

Abbreviations - BDL (Below Detectable Limit), MDL (Minimum Detectable Limit), LoQ (Limit of Quantitation).



Analyzed Test Certificate

Unique Lab Report No.	TC1288725000000893	Discipline	Chemical
Report Unique ID	RL02372529026	Group	Water
Issue date/time	19.07.2025/ 17:16	Sub Group	Drinking Water

Report Issue to

M/s - HINDALCO INDUSTRIES LIMITED
VILLAGE-COURT ROAD, POST OFFICE-LOHARDAGA,
DIST-LOHARDAGA, STATE-JHARKHAND, INDIA 835302
MONITORING SITE: KUJAM I BAUXITE MINE

Contact Person
Mr. Ankit Das
Contact Number
+91 9971034775
Email Id
ankit.das@adityabirla.com
Order Date
31.03.2025/ 10:10
Order Number
13812313868

Group - Residues and Contaminants in Water			Sub Group - Trace Metals Elements			
16. Copper (as Cu)	APHA 3111 B 2023	mg/l	BDL(MOL-0.2)	0.05	1.5	
17. Iron (as Fe)	APHA 3111 B 2023	mg/l	BDL(MOL-0.1)	1.0	No relaxation	
18. Lead (as Pb)	APHA 3111 B 2023	mg/l	BDL(MOL-0.01)	0.01	No relaxation	
19. Cadmium (as Cd)	APHA 3111 B 2023	mg/l	BDL(MOL-0.003)	0.003	No relaxation	
20. Total Chromium (as Cr)	APHA 3111 B 2023	mg/l	BDL(MOL-0.05)	0.05	No relaxation	
21. Nickel (as Ni)	APHA 3111 B 2023	mg/l	BDL(MOL-0.02)	0.02	No relaxation	
22. Total Arsenic (as As)	APHA 3114 B 2023	mg/l	BDL(MOL-0.005)	0.01	0.05	
23. Selenium (as Se)	APHA 3114 B 2023	mg/l	BDL(MOL-0.005)	0.01	No relaxation	
24. Manganese (as Mn)	APHA 3111 B 2023	mg/l	BDL(MOL-0.09)	0.1	0.3	
25. Zinc (as Zn)	APHA 3111 B 2023	mg/l	BDL(MOL-0.04)	5	15	

-Test result End -

Prescribed Limit

IS 10500:2021

Operational Status

Unit was Operational During sampling.



 Reviewed by
(E.A. Gaur)
Technical Head


 Headed by
(Ankit Das)
Laboratory Head

 Authorized Signature
 EPIC LabTech Pvt. Ltd.
 Ranchi, Jharkhand




Analytical Test Certificate

Unique Lab Report No.	N/A	Discipline	Chemical
Report Unique ID	RL02372529026	Group	Water
Issue date/time	19.07.2025/ 17:16	Sub Group	Drinking Water

Report Issue to

M/s - HINDALCO INDUSTRIES LIMITED VILLAGE-COURT ROAD, POST OFFICE-LOHARDAGA, DIST-LOHARDAGA, STATE-JHARKHAND, INDIA 835302 MONITORING SITE: KUJAM I BAUXITE MINE	Contact Person Mr. Ankit Das
	Contact Number +91 9971034775
	Email Id ankit.das@adityabirla.com
	Order Date 31.03.2025/ 10:10
	Order Number 13612313868

References of Quality Management System (Days of Traceability Date)

Customer Registration No.	EPIC/OTH/0237	Sample Booking Number	EPIC-2529026
Sample(s) Code	2529026	Sample Receipt (D/T)	15.07.2025/ 11:37

Sampling References

Type of industry	Bauxite Mines	Ref. of Sampling Plan	EPIC/LAB/R/036
Sampling Start (D/T)	13.07.2025/ 12:10	Sampling End (D/T)	13.07.2025/ 12:20
Mode of Sampling	Conducted by Laboratory	Sample collected by	Mr. Akash Kumar & Team
Sampling method used	IS: 3025 (Part-1) 1987, R-2003		
Description/condition of sample	Receipt sample(s) were fit for analysis.		

Environmental Condition during sampling

Weather condition	Cloudy	Temperature (°C)	25	Humidity %	70	Wind direction	40°-220°
-------------------	--------	------------------	----	------------	----	----------------	----------

Sampling Location(s) with GPS coordinate(s)

S. Location A	Canteen	GPS coordinate	23° 18' 50.49" / 84° 17' 30.44"
---------------	---------	----------------	---------------------------------

Data(s) of performance of the laboratory activities

Test start date	15.07.2025/ 11:57	Test completion date	19.07.2025/ 16:00
-----------------	-------------------	----------------------	-------------------

-Test Result-

Sl	Test Parameters	Method used	Unit	Results	Limits	
					Acceptable Limit	Permissible limit
1.	Fluoride (as F)	APHA 4500 F-C 2023	mg/l	BDL(MDL-0.1)	1.0	1.5
Group-Residues and Contaminants in Water						
2.	Aluminum	IS 2025 (P-59)-2019	mg/l	BDL(MDL-0.1)	0.03	0.2
3.	Boron	IS 3026 (P-57)-2021	mg/l	BDL(MDL-0.1)	0.5	1.0
4.	Polychlorinated biphenyls	EPIC/LAB/SOP/WA/01/00	ug/l	BDL(MDL-0.2)	0.5	No relaxation
5.	Polynuclear Aromatic Hydrocarbons (PAH)	EPIC/LAB/SOP/WA/01/00	ug/l	BDL(MDL-0.05)	0.1	No relaxation
Group-Residues and Contaminants in Water						
6.	Aalachlor	EPIC/LAB/SOP/WA/01/00	ug/l	BDL(MDL-0.8)	20	No relaxation
7.	Atrazine	EPIC/LAB/SOP/WA/01/00	ug/l	BDL(MDL-0.5)	2.0	No relaxation
8.	Dieldrin	EPIC/LAB/SOP/WA/01/00	ug/l	BDL(MDL-0.02)	0.03	No relaxation
9.	Alpha HCH	EPIC/LAB/SOP/WA/01/00	ug/l	BDL(MDL-0.005)	0.01	No relaxation
10.	Beta HCH	EPIC/LAB/SOP/WA/01/00	ug/l	BDL(MDL-0.02)	0.04	No relaxation
11.	Butachlor	EPIC/LAB/SOP/WA/01/00	ug/l	BDL(MDL-0.5)	125.0	No relaxation
12.	Chlopyrifos	EPIC/LAB/SOP/WA/01/00	ug/l	BDL(MDL-0.5)	38.0	No relaxation
13.	Delta HCH	EPIC/LAB/SOP/WA/01/00	ug/l	BDL(MDL-0.02)	0.04	No relaxation
14.	Ethion	EPIC/LAB/SOP/WA/01/00	ug/l	BDL(MDL-0.5)	3.0	No relaxation

Important Notes: 1. The laboratory accepts responsibility for content of this report | 2. Test performed at laboratory's permanent facility, at specific environmental condition as method required and results relate only to the sample tested in prescribed Date & time | 3. The Test report shall not be reproduced full or in part & can't be used as proof in the court of law | 4. Any complaint about this report should be communicated in writing within 10 days of its issue | 5. Testability of EPIC LabTech Pvt. Ltd. will be limited to intended analysis only | 6. All disputes are subject to Ranchi jurisdiction and maximum liability of the laboratory does not exceed the testing and sampling charges | 7. Opinion does not imply endorsement of the tested product by laboratory. Under no circumstances, laboratory accepts any claim by use or misuse of this report | 8. When the results are from external provider are marked as * mark. |

Abbreviations: - BDL (Below Detectable Limit), MDL (Minimum Detectable Limit), LQ (Limit of Quantitation)



Analytical Test Certificate

Unique Lab Report No.	N/A	Discipline	Chemical
Report Unique ID	BL02372529026	Group	Water
Issue date/time	19.07.2025/ 17:16	Sub Group	Drinking Water

Report Issue to

M/s - HINDALCO INDUSTRIES LIMITED
VILLAGE-COURT ROAD, POST OFFICE-LOHARDAGA,
DIST-LOHARDAGA, STATE-JHARKHAND, INDIA 835302
MONITORING SITE: KUJAM I BAUXITE MINE

Contact Person
Mr. Arkit Das
Contact Number
+91 9971034775
Email Id
arkit.das@adityabirla.com
Order Date
31.03.2025/ 10:10
Order Number
13612313868

15. Gamma-HCH(Lindane)	EPIC/LAB/SOP/WA/01/00	ug/l	BDL(MDL-0.5)	2.0	No relaxation
16. Malathion	EPIC/LAB/SOP/WA/01/00	ug/l	BDL(MDL-0.5)	190.0	No relaxation
17. Methyl parathion	EPIC/LAB/SOP/WA/01/00	ug/l	BDL(MDL-0.2)	0.3	No relaxation
18. Monocrotophos	EPIC/LAB/SOP/WA/01/00	ug/l	BDL(MDL-0.5)	1.0	No relaxation
19. Phorate	EPIC/LAB/SOP/WA/01/00	ug/l	BDL(MDL-0.5)	2.0	No relaxation
20. DDT (o, p and p, p-isomer of DDT, DDE and DDD)	EPIC/LAB/SOP/WA/01/00	ug/l	BDL(MDL-0.5)	1.0	No relaxation
21. Endosulfan (alpha, beta, and sulphate)	EPIC/LAB/SOP/WA/01/00	ug/l	BDL(MDL-0.05)	0.4	No relaxation

-Test result End -

Prescribed Limit

IS 10500:2021

Operational Status

Unit was Operational During sampling.

Analyzed by - Vishal Mangaraj

Reviewed by
(B.K. Kumar)
Technical HeadIssued by
(Arkit Das)
Secretary Head
Authorized SignatoryEPIC LabTech Pvt. Ltd.
Ranchi, Jharkhand



Analytical Test Certificate

Unique Lab Report No.	N/A	Discipline	Biological
Report Unique ID	RL02372529027	Group	Water
Issue date/time	19.07.2025/ 17:1	Sub Group	Drinking Water

Report Issue to

M/s - **HINDALCO INDUSTRIES LIMITED**
VILLAGE-COURT ROAD, POST OFFICE-LOHARDAGA,
DIST.-LOHARDAGA, STATE-JHARKHAND, INDIA 835302
MONITORING SITE : KUJAM I BAUXITE MINE

Contact Person
Mr. Ankit Das
Contact Number
+91 9871034775
Email Id
ankit.das@adityabirla.com
Order Date
31.03.2025/ 10:10
Order Number
13612313868

References of Quality Management System (Steps of Traceability Chart)

Customer Registration No.	EPIC/OTH/0237	Sample Booking Number	EPIC-2529027
Sample(s) Code	2529027	Sample Receipt (D/T)	19.07.2025/ 11:37

Sampling References

Type of Industry	Bauxite Mines	Ref. of Sampling Plan	EPIC/LAB/R/036
Sampling Start (D/T)	19.07.2025/ 12:10	Sampling End (D/T)	19.07.2025/ 12:20
Mode of Sampling	Conducted by Laboratory	Sample collected by	Mr. Akash Kumar & Team
Sampling method used	IS : 3025 (Part-1) 1997, R-2003		
Description/condition of sample	Receipt sample(s) were fit for analysis.		

Environmental Condition during sampling

Weather condition	Cloudy	Temperature (°C)	25	Humidity %	70	Wind direction	20°-220°
-------------------	--------	------------------	----	------------	----	----------------	----------

Sampling Location(s) with GPS coordinate(s)

S. Location A	Canteen	GPS coordinate	23° 18' 50.49"/ 84° 17' 30.44"
---------------	---------	----------------	--------------------------------

Data(s) of performance of the laboratory activities

Test start date	15.07.2025/ 12:30	Test completion date	19.07.2025/ 16:25
-----------------	-------------------	----------------------	-------------------

--Test Result--

Sl.	Test Parameters	Method used	Unit	Results	Limits
1.	Total Coliform	IS 15185:2002	Per 100 ml	Not Detected	Should not be detectable in any 100 ml sample
2.	E. Coli	IS 15185:2002	Per 100 ml	Not Detected	

--Test result End --

Prescribed Limit

IS 10500:2021

Operational Status

Unit was Operational During sampling.




Reviewed by
(Sujata Kumar)
Technical Head


Reviewed by
(Ankit Das)
Laboratory Head

Authorized Signatory
EPIC LabTech Pvt. Ltd.
Ranchi, Jharkhand





Address:
C/o - R.K. Tripathi, Indrapuri,
Road No. - 3, Ranchi,
Jharkhand - 834001, India

UIN: 9451466392
9835789477
9384371594
epiclabtech@gmail.com

CIN: U74999JH2022PTC019683
PAN: AAHCE3887PM
GST: 29AAHCE3887M12E

Accredited by -
NABL, ISO certificate number: TC - 12887
Jharkhand State Pollution Control Board
Certified by -
ISO 9001:2015 and ISO 45001:2018

Analytical Test Certificate

Unique Lab Report No.	TC1288725000001049	Discipline	Chemical
Report Unique ID	RL02692534073	Group	Atmospheric Pollution
Issue date/time	28.08.2025/ 17:00	Sub Group	Ambient Air Quality
Report Issue to			
M/S - HINDALCO INDUSTRIES LIMITED VILLAGE-COURT ROAD, POST OFFICE-LOHARDAGA, DIST - LOHARDAGA, STATE-JHARKHAND, INDIA 835302 MONITORING SITE : KUJAM I BAUXITE MINE	Contact Person Mr. Ankit Das Contact Number +91 9971034775 Email Id ankit.das@adityabirla.com Order Date 31.03.2025/ 10:10 Order Number 13612313868		

References of Quality Management System (Steps of Traceability Chain)

Customer Registration No.	EPIC/OTH/0289	Sample Booking Number	EPIC-2534073
Sample(s) Code	2534073 (A) (B) (C) (D)	Sample Receipt (D/T)	23.08.2025/ 10:24

Sampling References

Type of Industry	Bauxite Mines	Ref. of Sampling Plan	EPIC/LAB/R/036
Sampling Start (D/T)	20.08.2025/ 11:56	Sampling End (D/T)	21.08.2025/ 08:30
Mode of Sampling	Conducted by Laboratory	Sample collected by	Mr. Pawan Deep Bhagat & Team
Sampling method used	IS 5182 and CPCB Air Manual Volume - 1 (NAAQM/36/2012-13)		
Description/condition of sample			Receipt sample(s) were fit for analysis.

Environmental Condition during sampling

Weather condition	Cloudy	Temperature (°C)	28	Humidity %	70	Wind direction	180°-360°
-------------------	--------	------------------	----	------------	----	----------------	-----------

Sampling Location(s) with GPS coordinate(s)

S. Location A	Kujam Quarry 449	GPS coordinate	23° 18' 25.41" / 84° 19' 03.19"
S. Location B	Talabkhanta 4 A13	GPS coordinate	23° 18' 11.06" / 84° 17' 40.12"
S. Location C	4 A11 Football Ground	GPS coordinate	23° 18' 36.10" / 84° 17' 38.10"
S. Location D	Camp	GPS coordinate	23° 18' 53.11" / 84° 17' 27.09"

Date(s) of performance of the laboratory activities

Test start date	23.08.2025/ 10:44	Test completion date	28.08.2025/ 16:00
-----------------	-------------------	----------------------	-------------------

-Test Results-

Sl	Test Parameters	Method used	Unit	Results				Limits
				A	B	C	D	
1.	Particulate Matter (PM ₁₀)	IS:5182 (P-23) 2022	µg/m ³	70.87	64.04	68.22	76.07	100 (24 hr)
2.	Fine Particulate Matter (PM _{2.5})	IS:5182 (P-24) 2019	µg/m ³	30.76	29.77	27.21	33.17	60(24 hr)
3.	Sulphur Dioxide (SO ₂)	IS:5182 (P-02) 2023	µg/m ³	07.11	10.16	08.37	08.23	60(24 hr)
4.	Nitrogen Dioxide (NO ₂)	IS:5182 (P-06) 2022	µg/m ³	17.56	21.31	17.13	20.02	80(24 hr)
5.	Ammonia (NH ₃)	IS:5182 (P-25) 2018	µg/m ³	43.03	38.25	35.38	38.88	400(24 hr)
6.	Ozone (O ₃)	IS:5182 (P-08) 2019	µg/m ³	29.67	27.14	35.97	22.60	180(1 hr)
7.	Lead (Pb)	IS:5182 (P-22) 2019	µg/m ³	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)
8.	Nickel (Ni)	IS:5182 (P-26) 2020	ng/m ³	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)
9.	Arsenic (As)	USEPA IO 3.2:1999	ng/m ³	BDL (MDL-0.001)	BDL (MDL-0.003)	BDL (MDL-0.001)	BDL (MDL-0.001)	BDL (MDL-0.001)

-Test Results End -

Prescribed Limit Environmental (Protection) Rules-1986, Schedule VII.
Operational Status Unit was Operational During sampling.

Analysed by - Vishal Mangrula

Reviewed by
(R.K. Kheri)
Technical Head

Issue by
(Rakesh Das)
Laboratory Head

Authorized Signatory
EPIC LabTech Pvt. Ltd.



Analytical Test Certificate

Unique Lab Report No.	NIA	Discipline	Chemical
Report Unique ID	RLI202534073	Group	Atmospheric Pollution
Issue date/time	28.08.2025/ 17:00	Sub Group	Ambient Air Quality

Report Issue to

M/s - HINDALCO INDUSTRIES LIMITED VILLAGE-COURT ROAD, POST OFFICE-LOHARDAGA, DIST - LOHARDAGA, STATE - JHARKHAND, INDIA 835302 MONITORING SITE : KUJAM I BAUXITE MINE	Contact Person	Mr. Ankit Das
	Contact Number	+91 9871034775
	Email Id	ankit.das@adityabirla.com
	Order Date	31.03.2025/ 10:10
	Order Number	13612313868

References of Quality Management System (Steps of Traceability Chart)

Customer Registration No.	EPIC/OTH/0269	Sample Booking Number	EPIC-2534073
Sample(s) Code	2534073 (A) (B) (C) (D)	Sample Receipt (D/T)	23.08.2025/ 10:24

Sampling References

Type of industry	Bauxite Mines	Ref. of Sampling Plan	EPIC/LAB/R/036
Sampling Start (D/T)	20.08.2025/ 11:56	Sampling End (D/T)	21.08.2025/ 08:30
Mode of Sampling	Conducted by Laboratory	Sample collected by	Mr. Pawan Deep Bhagat & Team
Sampling method used	IS 5182 and CPCB Air Manual Volume - 1 (NAAQM/36/2012-13)		
Description/condition of sample	Receipt sample(s) were fit for analysis.		

Environmental Condition during sampling

Weather condition	Cloudy	Temperature (°C)	26	Humidity %	70	Wind direction	180°-360°
-------------------	--------	------------------	----	------------	----	----------------	-----------

Sampling Location(s) with GPS coordinate(s)

S. Location A	Kujam Quarry 449	GPS coordinate	23° 18' 25.41" / 84° 10' 03.19"
S. Location B	Talabkhanta 4 A13	GPS coordinate	23° 18' 11.06" / 84° 17' 40.12"
S. Location C	4 A11 Football Ground	GPS coordinate	23° 18' 36.18" / 84° 17' 38.10"
S. Location D	Camp	GPS coordinate	23° 18' 53.11" / 84° 17' 27.09"

Date(s) of performance of the laboratory activities

Test start date	23.08.2025/ 10:44	Test completion date	26.08.2025/ 16:00
-----------------	-------------------	----------------------	-------------------

-Test Results-

Sl.	Test Parameters	Method used	Unit	Results				Limits
				A	B	C	D	
1.	Benzene (C ₆ H ₆)	IS:5182(P-11) 2006	µg/m ³	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	-
2.	Benzo (a) Pyrene (Bap)- Particulate phase only	IS:5182(P-12) 2004	ng/m ³	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	-
3.	Carbon Monoxide (CO)	EPIC/LAB/SOP/AP/01/00	mg/m ³	BDL (MDL-1.0)	BDL (MDL-1.0)	BDL (MDL-1.0)	BDL (MDL-1.0)	-

-Test Results End -

Prescribed Limit Environmental (Protection) Rules-1986, Schedule VII.

Operational Status Unit was Operational During sampling.

Analyzed by - Vishal Mangaraj

Reviewed by
(R.K. Khera)
Technical HeadDate by
Ankit Das
Laboratory HeadAuthorized Signatory
EPIC LabTech Pvt. Ltd.
Ranchi, Jharkhand



Analytical Test Certificate

Unique Lab Report No.	TC1286725000001060	Discipline	Chemical
Report Unique ID	RLU25002534074	Group	Atmospheric Pollution
Issue date/time	28.08.2025/ 17:03	Sub Group	Ambient Air Quality

Report Issue to

M/s - HINDALCO INDUSTRIES LIMITED
VILLAGE-COURT ROAD, POST OFFICE-LOHARDAGA,
DIST - LOHARDAGA, STATE-JHARKHAND, INDIA 835302
MONITORING SITE : KUJAM I BAUXITE MINE

Contact Person
Mr. Ankit Das
Contact Number
+91 9871034775
Email Id
ankit.das@adityabirla.com
Order Date
31.03.2025/ 10:10
Order Number
13612313868

References of Quality Management System (Steps of Inevitability Chart)

Customer Registration No.	EPIC/OTH/0269	Sample Booking Number	EPIC-2534074
Sample(s) Code	2434074 (A) (B) (C) (D)	Sample Receipt (D/T)	23.08.2025/ 10:25

Sampling References

Type of Industry	Bauxite Mines	Ref. of Sampling Plan	EPIC/LAB/R/036
Sampling Start (D/T)	21.08.2025/ 11:27	Sampling End (D/T)	22.08.2025/ 09:06
Mode of Sampling	Conducted by Laboratory	Sample collected by	Mr. Pawan Deep Bhagat & Team
Sampling method used	IS 5182 and CPCB Air Manual Volume - 1 (NAAQM/36/2012-13)		
Description/condition of sample	Receipt sample(s) were fit for analysis.		

Environmental Condition during sampling

Weather condition	Cloudy	Temperature (°C)	28	Humidity %	70	Wind direction	180°-360°
-------------------	--------	------------------	----	------------	----	----------------	-----------

Sampling Location(s) with GPS coordinate(s)

5. Location A	Near Pakri Gada Village	GPS coordinate	23° 20' 01.26" E 84° 14' 17.70" S
5. Location B	Near Poi Poi Village	GPS coordinate	23° 18' 46.04" E 84° 16' 18.36" S
5. Location C	Near Shakhuapani Village	GPS coordinate	23° 19' 22.76" E 84° 16' 33.71" S
5. Location D	Near Dipa Kujam Village	GPS coordinate	23° 18' 18.91" E 84° 14' 55.30" S

Date(s) of performance of the laboratory activities

Test start date	23.08.2025/ 10:45	Test completion date	28.08.2025/ 16:00
-----------------	-------------------	----------------------	-------------------

-Test Results-

Sl.	Test Parameters	Method used	Unit	Results				Limits
				A	B	C	D	
1.	Particulate Matter (PM ₁₀)	IS:5182 (P-23) 2022	µg/m ³	56.19	63.00	61.42	70.01	100 (24 hr)
2.	Fine Particulate Matter (PM _{2.5})	IS:5182 (P-24) 2019	µg/m ³	24.32	24.30	20.46	27.09	60 (24 hr)
3.	Sulphur Dioxide (SO ₂)	IS:5182 (P-02) 2023	µg/m ³	06.17	06.42	07.34	07.82	80 (24 hr)
4.	Nitrogen Dioxide (NO ₂)	IS:5182 (P-06) 2022	µg/m ³	27.82	24.16	28.06	31.04	80 (24 hr)
5.	Ammonia (NH ₃)	IS:5182 (P-25) 2018	µg/m ³	28.07	25.50	29.32	32.51	400 (24 hr)
6.	Ozone (O ₃)	IS:5182 (P-09) 2019	µg/m ³	19.90	18.09	20.99	20.27	180 (1 hr)
7.	Lead (Pb)	IS:5182 (P-22) 2019	µg/m ³	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	1.0 (24 hr)
8.	Nickel (Ni)	IS:5182 (P-26) 2020	ng/m ³	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	+
9.	Arsenic (As)	USEPA ID 3.2:1999	ng/m ³	BDL (MDL-0.001)	BDL (MDL-0.001)	BDL (MDL-0.001)	BDL (MDL-0.001)	+

-Test Results End -

Prescribed Limit Environmental (Protection) Rules-1986, Schedule VII.
Operational Status (Unit was Operational During sampling.

Analysed by - Yashu Mangaraj

Reviewed by
(E.K. Kumar)
Technical HeadReviewed by
(Ankit Das)
Laboratory Head
Authorized Signatory
EPIC LabTech Pvt. Ltd.
Ranchi, Jharkhand

Page 1 of 1

Disclaimer Note: 1. The laboratory accepts responsibility for content of this report. 2. The performed at laboratory's permanent facility, at specific environmental conditions as method required and results relate only to the sample tested in prescribed Date & time. 3. The Test report shall not be reproduced full or in part & can't be used as proof in the court of law. 4. Any complaint about this report should be communicated in writing within 10 days of its issue. 5. Total liability of EPIC LabTech Pvt. Ltd. will be limited to incurred amount only. 6. All disputes are subject to Jharkhand jurisdiction and maximum liability of the laboratory does not exceed the testing and sampling charges. 7. Opinion does not imply endorsement of the tested product by laboratory. Under no circumstances, laboratory accepts any reward by use or misuse of this report. 8. When the results are from external provider are marked as * mark. 9. Abbreviations - BDL (Below Detectable Limit), MDL (Minimum Detectable Limit), LoQ (Limit of Quantitation).



Analytical Test Certificate

Unique Lab Report No.	N/A	Discipline	Chemical					
Report Unique ID	RL025902534074	Group	Atmospheric Pollution					
Issue date/time	28.08.2025/ 17:03	Sub Group	Ambient Air Quality					
Report Issue To								
M/s - HINDALCO INDUSTRIES LIMITED VILLAGE-COURT ROAD, POST OFFICE-LOHARDAGA, DIST - LOHARDAGA, STATE - JHARKHAND, INDIA 835302 MONITORING SITE : KUJAM I BAUXITE MINE	Contact Person Mr. Ankit Das Contact Number +91 9971034775 Email Id ankit.das@adityabirla.com Order Date 31.03.2025/ 10:10 Order Number 13612313868							
References of Quality Management System (Steps of Traceability Chain)								
Customer Registration No.	EPIC/OTH/0289	Sample Booking Number	EPIC-2534074					
Sample(s) Code	2434074 (A) (B) (C) (D)	Sample Receipt (D/T)	23.08.2025/ 10:25					
Sampling References								
Type of Industry	Bauxite Mines	Ref. of Sampling Plan	EPIC/LAB/R/036					
Sampling Start (D/T)	21.08.2025/ 11:27	Sampling End (D/T)	22.08.2025/ 09:08					
Mode of Sampling	Conducted by Laboratory	Sample collected by	Mr. Pawan Deep Bhagat & Team					
Sampling method used	IS 5182 and CPCB Air Manual Volume - 1 (NAAQM/36/2012-13)							
Description/condition of sample	Receipt sample(s) were fit for analysis.							
Environmental Condition during sampling								
Weather condition	Cloudy	Temperature (°C)	28					
		Humidity %	70					
		Wind direction	180°-360°					
Sampling Location(s) with GPS coordinate(s)								
S. Location A	Near Pakri Gada Village	GPS coordinate	23° 20' 01.26" E 84° 14' 17.70"					
S. Location B	Near Poi Poi Village	GPS coordinate	23° 18' 46.04" E 84° 15' 18.35"					
S. Location C	Near Shakhupani Village	GPS coordinate	23° 19' 22.76" E 84° 15' 33.71"					
S. Location D	Near Dipa Kujam Village	GPS coordinate	23° 18' 10.91" E 84° 14' 55.30"					
Date(s) of performance of the laboratory activities								
Test start date	23.08.2025/ 10:45	Test completion date	28.08.2025/ 16:00					
-Test Results-								
Sl.	Test Parameters	Method used	Unit	A	B	C	D	Limits
1.	Benzene (C ₆ H ₆)	IS:5182(P-11) 2006	µg/m ³	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	-
2.	Benzo (a) Pyrene (Bap)- Particulate phase only	IS:5182(P-12) 2004	ng/m ³	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	-
3.	Carbon Monoxide (CO)	EPIC/LAB/SOP/AP/01/00	mg/m ³	BDL (MDL-1.0)	BDL (MDL-1.0)	BDL (MDL-1.0)	BDL (MDL-1.0)	-
-Test Results End-								

Prescribed Limit Environmental (Protection) Rules-1986, Schedule VI.
Operational Status Unit was Operational During sampling.

Analyzed by - Vishal Mangaraj




Reviewed by
(R.K. Kumar)
Technical Head


Reviewed by
(Ankit Das)
Laboratory Head
EPIC LabTech Pvt. Ltd.,
Ranchi, Jharkhand



Analytical Test Certificate

Unique Lab Report No.	TC1288725000001051	Discipline	Chemical
Report Unique ID	RL02692534075	Group	Water
Issue date/time	28.08.2025/ 17:06	Sub Group	Ground Water

Report Issue to

M/s - HINDALCO INDUSTRIES LIMITED
VILLAGE-COURT ROAD, POST OFFICE-LOHARDAGA,
DIST-LOHARDAGA, STATE-JHARKHAND, INDIA 835302
MONITORING SITE: KUJAM I BAUXITE MINE

Contact Person
Mr. Ankit Das
Contact Number
+919971034775
Email Id
ankit.das@adityabirla.com
Order Date
31.03.2025/ 10:10
Order Number
13612313868

References of Quality Management System (Steps of Traceability Chart)

Customer Registration No.	EPIC/OTH/0289	Sample Booking Number	EPIC-2534075
Sample(s) Code	2534075	Sample Receipt (D/T)	23.08.2025/ 10:27

Sampling References

Type of Industry	Bauxite Mines	Ref. of Sampling Plan	EPIC/LAB/R/038
Sampling Start (D/T)	23.08.2025/ 15:25	Sampling End (D/T)	23.08.2025/ 15:35
Mode of Sampling	Conducted by Laboratory	Sample collected by	Mr. Pawan Deep Bhagat & Team
Sampling method used	IS : 3025 (Part-1) 1987, R-2003		
Description/condition of sample		Receipt sample(s) were fit for analysis.	

Environmental Condition during sampling

Weather condition	Cloudy	Temperature (°C)	28	Humidity %	70	Wind direction	180°-360°
-------------------	--------	------------------	----	------------	----	----------------	-----------

Sampling Location(s) with GPS coordinate(s)

S. Location A	Near Shakhuapani Village	GPS coordinate	23° 19' 22.76" / 84° 15' 33.71"
---------------	--------------------------	----------------	---------------------------------

Date(s) of performance of the laboratory activities

Test start date	23.08.2025/ 10:47	Test completion date	28.08.2025/ 15:30
-----------------	-------------------	----------------------	-------------------

-Test Result-

Sl.	Test Parameters	Method used	Unit	Results	Limits	
					Acceptable Limit	Permissible limit
1.	pH value at 25°C	IS 3025 (P-11) 2022	-	6.99	6.5-8.5	No relaxation
2.	Turbidity	IS 3025 (P-10) 1984	NTU	0.94	1	5
3.	Colour	IS 3025 (P-04) 2021	Hazen	<5	5	15
4.	Odour	IS 3025 (P-06) 2018	-	Agreeable	Agreeable	Agreeable
5.	Taste	IS 3025 (P-07) 2017	-	Agreeable	Agreeable	Agreeable
6.	Total Dissolved Solids (TDS)	IS 3025 (P-16) 2023	mg/l	133.00	500	2000
7.	Chloride (as Cl)	IS 3025 (P-32) 2019	mg/l	18.61	250	1000
8.	Total Alkalinity (as CaCO ₃)	IS 3025 (P-23) 2019	mg/l	60.00	200	600
9.	Total Hardness (as CaCO ₃)	IS 3025 (P-21) 2009	mg/l	91.00	200	600
10.	Calcium (as Ca)	IS 3025 (P-40) 1991	mg/l	12.23	75	200
11.	Free Residual Chlorine	IS 3025 (P-26) 1986	mg/l	BDL(MDL-0.4)	0.2	1
12.	Sulphate (as SO ₄)	IS 3025 (P-24/Sec-1) 2022	mg/l	2.50	200	400
13.	Nitrate (as NO ₃)	APHA 4500 B 2023	mg/l	1.10	40	No relaxation
14.	Phenolic Compound	IS 3025 (P-43/Sec-1) 2022	mg/l	BDL(MDL-0.001)	0.001	0.002
15.	Magnesium (as Mg)	APHA 3500 Mg E 2023	mg/l	10.47	30	100



Address:
C/o - R.K. Tripathi, Indrapuri,
Road No - 3, Ranchi,
Jharkhand - 834005, India

Tel: 0651 4066392
Email: 88357 88677
93549 72394
Oepiclabtech@gmail.com

CIN - U74999JH2022PTC019883
PAN - AAHCES87TM
GST - 25AAHCES87TM128

Accredited by -
ISI, Lab. Code Certificate Number TC - 12887
Jharkhand State Pollution Control Board
Certified by -
ISO 9001:2015 and ISO 45001:2018

Analytical Test Certificate

Unique Lab Report No.	TC1288725000001051	Discipline	Chemical
Report Unique ID	RL026902534075	Group	Water
Issue date/time	28.08.2025/ 17:06	Sub Group	Ground Water

Report Issue to

M/s - HINDALCO INDUSTRIES LIMITED
VILLAGE-COURT ROAD, POST OFFICE-LOHARDAGA,
DIST-LOHARDAGA, STATE-JHARKHAND, INDIA 835302
MONITORING SITE : KUJAM I BAUXITE MINE

Contact Person
Contact Number
Email Id
Order Date
Order Number

Mr. Ankit Das
+91 9971034775
ankit.das@adityabirla.com
31.03.2025/ 10:10
13612313868

Group - Residues and Contaminants in Water, Sub Group - Trace Metals Elements

16. Copper (as Cu)	APHA 3111 B 2023	mg/l	BDL(MDL-0.2)	0.05	1.5
17. Iron (as Fe)	APHA 3111 B 2023	mg/l	BDL(MDL-0.1)	1.0	No relaxation
18. Lead (as Pb)	APHA 3111 B 2023	mg/l	BDL(MDL-0.01)	0.01	No relaxation
19. Cadmium (as Cd)	APHA 3111 B 2023	mg/l	BDL(MDL-0.003)	0.003	No relaxation
20. Total Chromium (as Cr)	APHA 3111 B 2023	mg/l	BDL(MDL-0.05)	0.05	No relaxation
21. Nickel (as Ni)	APHA 3111 B 2023	mg/l	BDL(MDL-0.02)	0.02	No relaxation
22. Total Arsenic (as As)	APHA 3114 B 2023	mg/l	BDL(MDL-0.005)	0.01	0.05
23. Selenium (as Se)	APHA 3114 B 2023	mg/l	BDL(MDL-0.005)	0.01	No relaxation
24. Manganese (as Mn)	APHA 3111 B 2023	mg/l	BDL(MDL-0.05)	0.1	0.3
25. Zinc (as Zn)	APHA 3111 B 2023	mg/l	BDL(MDL-0.04)	1	15

--Test result End --

Prescribed Limit

15.10.500:2021

Operational Status

Unit was Operational During sampling.

Analysed by - Pappu Kumar




Reviewed by
(P. Kumar)
Technical Head


Issued by
(Ankit Das)
Laboratory Head

Authorized Signature
EPIC LabTech Pvt. Ltd.
Ranchi, Jharkhand





Analytical Test Certificate

Unique Lab Report No.	N/A	Discipline	Chemical
Report Unique ID	PL02692534075	Group	Water
Issue date/time	28.08.2025/ 17:06	Sub Group	Ground Water

Report Issue to

M/s - HINDALCO INDUSTRIES LIMITED VILLAGE-COURT ROAD, POST OFFICE-LOHARDAGA, DIST - LOHARDAGA, STATE-JHARKHAND, INDIA 835302	Contact Person	Mr. Ankit Das
MONITORING SITE : KUJAM I BAUXITE MINE	Contact Number	+91 9971034775
	Email Id	ankit.das@adityabirla.com
	Order Date	31.03.2025/ 10:10
	Order Number	13612313868

References of Quality Management System (Steps of Traceability Detail)

Customer Registration No.	EPIC/OTH/0269	Sample Booking Number	EPIC-2534075
Sample(s) Code	2534075	Sample Receipt (D/T)	23.08.2025/ 10:27

Sampling References

Type of Industry	Bauxite Mines	Ref. of Sampling Plan	EPIC/LAB/R/036
Sampling Start (D/T)	21.08.2025/ 15:25	Sampling End (D/T)	21.08.2025/ 16:35
Mode of Sampling	Conducted by Laboratory	Sample collected by	Mr. Pawan Deep Bhagat & Team
Sampling method used	IS : 3025 (Part-1) 1987, R-2003		
Description/condition of sample	Receipt sample(s) were fit for analysis.		

Environmental Condition during sampling

Weather condition	Cloudy	Temperature (°C)	28	Humidity %	70	Wind direction	180°-360°
-------------------	--------	------------------	----	------------	----	----------------	-----------

Sampling Location(s) with GPS coordinate(s)

S. Location A	Near Shakhuapani Village	GPS coordinate	23° 19' 22.76" E 84° 15' 33.71" N
---------------	--------------------------	----------------	-----------------------------------

Date(s) of performance of the laboratory activities

Test start date	23.08.2025/ 10:47	Test completion date	28.08.2025/ 15:30
-----------------	-------------------	----------------------	-------------------

-Test Result-

Sl	Test Parameters	Method used	Unit	Results	Acceptable Limit	Limits
----	-----------------	-------------	------	---------	------------------	--------

1. Fluoride (as F)	APHA 4500 F-C 2023	mg/l	BDL(MDL-0.1)	1.0	1.5
--------------------	--------------------	------	--------------	-----	-----

Group-Residues and Contaminants in Water Sub Group-Trace Metals Elements

2. Aluminum	IS 3025 (P-55):2019	mg/l	BDL(MDL-0.1)	0.03	0.2
3. Boron	IS 3025 (P-67):2021	mg/l	BDL(MDL-0.1)	0.5	1.0
4. Polychlorinated biphenyls	EPIC/LAB/SOP/WA/01/00	µg/l	BDL(MDL-0.2)	0.5	No relaxation
5. Polynuclear Aromatic Hydrocarbons (PAH)	EPIC/LAB/SOP/WA/01/00	µg/l	BDL(MDL-0.05)	0.1	No relaxation

Group-Residues and Contaminants in Water Sub Group-Pesticides

6. Alachlor	EPIC/LAB/SOP/WA/01/00	µg/l	BDL(MDL-0.5)	20	No relaxation
7. Atrazine	EPIC/LAB/SOP/WA/01/00	µg/l	BDL(MDL-0.5)	2.0	No relaxation
8. Dieldrin	EPIC/LAB/SOP/WA/01/00	µg/l	BDL(MDL-0.02)	0.03	No relaxation
9. Alpha HCH	EPIC/LAB/SOP/WA/01/00	µg/l	BDL(MDL-0.005)	0.01	No relaxation
10. Beta HCH	EPIC/LAB/SOP/WA/01/00	µg/l	BDL(MDL-0.02)	0.04	No relaxation
11. Butachlor	EPIC/LAB/SOP/WA/01/00	µg/l	BDL(MDL-0.5)	125.0	No relaxation
12. Chlopyrifos	EPIC/LAB/SOP/WA/01/00	µg/l	BDL(MDL-0.5)	30.0	No relaxation
13. Delta HCH	EPIC/LAB/SOP/WA/01/00	µg/l	BDL(MDL-0.02)	0.04	No relaxation
14. Ethion	EPIC/LAB/SOP/WA/01/00	µg/l	BDL(MDL-0.5)	3.0	No relaxation

Disclaimer Note : 1. The laboratory accepts responsibility for content of this report. 2. Test performed at laboratory's permanent facility, at specific environmental conditions as method required and results relate only to the sample tested as prescribed Date & time. 3. The Test report shall not be reproduced full or in part & can't be used as proof in the court of law. 4. Any complaint about this report should be communicated in writing within 30 days of its issue. 5. Total liability of EPIC LabTech Pvt. Ltd. will be limited to insured amount only. 6. All disputes are subject to Ranchi jurisdiction and maximum liability of the laboratory does not exceed the testing and sampling charges. 7. Option does not imply endorsement of the tested product by laboratory. Under no circumstances, laboratory accepts any damage by use or misuse of this report. 8. When the results are from external provider are marked as * mark. 9. Abbreviation - BDL (Below Detectable Limit), MDL (Minimum Detectable Limit), LoQ (Limit of Quantification). 10. Page 1 of 2



EPIC LabTech Private Limited

Address -
C/o - R.C. Tripathi, Indrapuram
Road No. - 3, Ranchi,
Jharkhand - 834005, India

Tel: 0651-4866392
98357 88677
0651-4972994
epiclabtech@gmail.com

CIN - U74999JH2022PTC019685
Accredited by -
PAN - AAHCESEETM
GST - 25AAHCESEETM25

Bank: State Bank of India
Branch: Ranchi
Certified by -
ISO 9001:2015 and ISO 45001:2018

Analytical Test Certificate

Unique Lab Report No.	N/A	Discipline	Chemical
Report Unique ID	RL02692534075	Group	Water
Issue date/time	28.08.2025/ 17:06	Sub Group	Ground Water

Report Issue to

M/s - HINDALCO INDUSTRIES LIMITED
VILLAGE-COURT ROAD, POST OFFICE-LOHARDAGA,
DIST - LOHARDAGA, STATE - JHARKHAND, INDIA 835302
MONITORING SITE : KUJAM I BAUXITE MINE

Contact Person
Mr. Ankit Das
Contact Number
+91 9971034775
Email Id
ankit.das@adityabirla.com
Order Date
31.03.2025/ 10:10
Order Number
13612313868

15. Gamma- HCH(Lindane)	EPIC/LAB/SOP/WA/01/00	ppb	BDL(MDL-0.5)	2.0	No relaxation
16. Malathion	EPIC/LAB/SOP/WA/01/00	ppb	BDL(MDL-0.5)	180.0	No relaxation
17. Methyl parathion	EPIC/LAB/SOP/WA/01/00	ppb	BDL(MDL-0.2)	0.3	No relaxation
18. Monocrotophos	EPIC/LAB/SOP/WA/01/00	ppb	BDL(MDL-0.5)	1.0	No relaxation
19. Phorate	EPIC/LAB/SOP/WA/01/00	ppb	BDL(MDL-0.5)	2.0	No relaxation
20. DDT (o, p and p, p-isomer of DDT, DDE and DDD)	EPIC/LAB/SOP/WA/01/00	ppb	BDL(MDL-0.5)	1.0	No relaxation
21. Endosulfan (alpha, beta, and sulphate)	EPIC/LAB/SOP/WA/01/00	ppb	BDL(MDL-0.05)	—	—

—Test result End—

Prescribed Limit

Operational Status

Analyzed by - Pappu Kumar

Unit was Operational During sampling.


Reviewed by
(P. Kumar)
Technical Head


Reviewed by
(Ankit Das)
Laboratory Head

Authorized Signature
EPIC LabTech Pvt. Ltd.
Ranchi, Jharkhand





Analytical Test Certificate

Unique Lab Report No.	N/A	Discipline	Biological
Report Unique ID	PLG2025076	Group	Water
Issue date/time	28.08.2025/ 17:09	Sub Group	Ground Water

Report Issue to

M/s - HINDALCO INDUSTRIES LIMITED
VILLAGE-COURT ROAD, POST OFFICE-LOHARDAGA,
DIST - LOHARDAGA, STATE-JHARKHAND, INDIA 835302
MONITORING SITE : KUJAMI BAUXITE MINE

Contact Person
Mr. Ankit Das
Contact Number
+91 9971034775
Email Id
ankit.das@adityabirla.com
Order Date
31.03.2025/ 10:10
Order Number
13612313868

References of Quality Management System (Copy of Traceability Chart)

Customer Registration No.	EPIC/OTH/0269	Sample Booking Number	EPIC-2534076
Sample(s) Code	2534076	Sample Receipt (D/T)	23.08.2025/ 10:27

Sampling References

Type of Industry	Bauxite Mines	Ref. of Sampling Plan	EPIC/LAB/R/036
Sampling Start (D/T)	21.08.2025/ 15:25	Sampling End (D/T)	21.08.2025/ 15:35
Mode of Sampling	Conducted by Laboratory	Sample collected by	Mr. Pawan Deep Bhagat & Team
Sampling method used	IS : 3025 (Part-1) 1987, R-2003		
Description/condition of sample		Receipt sample(s) were fit for analysis.	

Environmental Condition during sampling

Weather condition	Cloudy	Temperature (°C)	28	Humidity %	70	Wind direction	180°-360°
-------------------	--------	------------------	----	------------	----	----------------	-----------

Sampling Location(s) with GPS coordinate(s)

S. Location A	Near Shakhuapani Village	GPS coordinate	23° 19' 22.76" / 84° 15' 33.71"
---------------	--------------------------	----------------	---------------------------------

Date(s) of performance of the laboratory activities

Test start date	23.08.2025/ 10:47	Test completion date	28.08.2025/ 15:30
-----------------	-------------------	----------------------	-------------------

-Test Result-

Sl	Test Parameters	Method used	Unit	Results	Limits
1.	Total Coliform	IS 15185:2002	Per 100 ml	Not Detected	Shall not be detectable in any 100 ml sample
2.	E. Coli	IS 15185:2002	Per 100 ml	Not Detected	

-Test result End -

Prescribed Limit

IS 10500:2021

Operational Status

Unit was Operational During sampling.

Analysed by - Supta Kumar

Reviewed by

(S. Kumar)

Technical Head


 Issued by
(Supta Kumar)
Laboratory Head

 Authorised Signatory
 EPIC LabTech Pvt. Ltd.
 Ranchi, Jharkhand




Analytical Test Certificate

Unique Lab Report No.	TC1288725000001052	Discipline	Chemical
Report Unique ID	RLU2692634077	Group	Water
Issue date/time	26.08.2025/ 17:12	Sub Group	Surface Water

Report Issue to

M/s - HINDALCO INDUSTRIES LIMITED
VILLAGE-COURT ROAD, POST OFFICE-LOHARDAGA,
DIST - LOHARDAGA, STATE-JHARKHAND, INDIA 835302
MONITORING SITE : KUJAM I BAUXITE MINE

Contact Person
Contact Number
Email Id
Order Date
Order Number

Mr. Ankit Das
+91 9971034775
ankit.das@adityabirla.com
31.03.2025/ 10:10
13612313868

References of Quality Management System (Steps of Traceability Chart)

Customer Registration No.	EPIC/OTH/0289	Sample Booking Number	EPIC-2534077
Sample(s) Code	2534077	Sample Receipt (D/T)	23.08.2025/ 10:28

Sampling References

Type of Industry	Bauxite Mines	Ref. of Sampling Plan	EPIC/LAB/R/036
Sampling Start (D/T)	21.08.2025/ 16:10	Sampling End (D/T)	21.08.2025/ 16:20
Mode of Sampling	Conducted by Laboratory	Sample collected by	Mr. Pawan Deep Bhagat & Team
Sampling method used	IS : 3025 (Part-1) 1987, R-2003		
Description/condition of sample		Receipt sample(s) were fit for analysis.	

Environmental Condition during sampling

Weather condition	Cloudy	Temperature (°C)	28	Humidity %	70	Wind direction	180°-360°
-------------------	--------	------------------	----	------------	----	----------------	-----------

Sampling Location(s) with GPS coordinate(s)

S. Location A	Chotang Kujam	GPS coordinate	23° 16' 49.56" / 84° 17' 42.11"
---------------	---------------	----------------	---------------------------------

Date(s) of performance of the laboratory activities

Test start date	23.08.2025/ 10:48	Test completion date	26.08.2025/ 15:30
-----------------	-------------------	----------------------	-------------------

-Test Result-

Sl.	Test Parameters	Method used	Unit	Results	Limits
1.	pH value at 25°C	IS 3025 (P-11) 2022	-	6.47	-
2.	Turbidity	IS 3025 (P-10) 1984	NTU	0.12	-
3.	Colour	IS 3025 (P-04) 2021	Hazen	5	-
4.	Odour	IS 3025 (P-05) 2018	-	Agreeable	-
5.	Taste	IS 3025 (P-07) 2017	-	Agreeable	-
6.	Total Dissolved Solids (TDS)	IS 3025 (P-16) 2023	mg/l	168.00	-
7.	Chloride (as Cl)	IS 3025 (P-22) 2018	mg/l	12.13	-
8.	Total Alkalinity (as CaCO ₃)	IS 3025 (P-23) 2019	mg/l	30.00	-
9.	Total Hardness (as CaCO ₃)	IS 3025 (P-21) 2009	mg/l	40.16	-
10.	Calcium (as Ca)	IS 3025 (P-40) 1991	mg/l	14.41	-
11.	Free Residual Chlorine	IS 3025 (P-26) 1990	mg/l	BDL:MDL:0.4	-
12.	Sulphate (as SO ₄)	IS 3025 (P-24/Sec-1) 2022	mg/l	1.80	-
13.	Nitrate (as NO ₃)	APHA 4500-B 2023	mg/l	1.74	-
14.	Phenolic Compound	IS 3025 (P-43/Sec-1) 2022	mg/l	BDL:MDL:0.001	-



Analytical Test Certificate

Unique Lab Report No.	TC1288725000001052	Discipline	Chemical
Report Unique ID	FLU28892534077	Group	Water
Issue date/time	28.08.2025/ 17:12	Sub Group	Surface Water

Report Issue to

M/s - HINDALCO INDUSTRIES LIMITED
VILLAGE-COURT ROAD, POST OFFICE-LOHARDAGA,
DIST - LOHARDAGA, STATE - JHARKHAND, INDIA 835302
MONITORING SITE: KUJAM I BAUXITE MINE

Contact Person
Contact Number
Email Id
Order Date
Order Number

Mr. Ankit Das
+91 9971034775
ankit.das@adityabirla.com
31.03.2025/ 10:10
13612313868

Group - Residues and Contaminants in Water.				Sub Group - Trace Metals Elements
15. Copper (as Cu)	APHA 3111 B 2023	mg/l	BDL(MDL-0.2)	-
16. Iron (as Fe)	APHA 3111 B 2023	mg/l	BDL(MDL-0.1)	-
17. Lead (as Pb)	APHA 3111 B 2023	mg/l	BDL(MDL-0.01)	-
18. Cadmium (as Cd)	APHA 3111 B 2023	mg/l	BDL(MDL-0.003)	-
19. Total Chromium (as Cr)	APHA 3111 B 2023	mg/l	BDL(MDL-0.05)	-
20. Nickel (as Ni)	APHA 3111 B 2023	mg/l	BDL(MDL-0.02)	-
21. Total Arsenic (as As)	APHA 3114 B 2023	mg/l	BDL(MDL-0.005)	-
22. Selenium (as Se)	APHA 3114 B 2023	mg/l	BDL(MDL-0.005)	-
23. Manganese (as Mn)	APHA 3111 B 2023	mg/l	BDL(MDL-0.08)	-
24. Zinc (as Zn)	APHA 3111 B 2023	mg/l	BDL(MDL-0.04)	-

-Test result End -

Prescribed Limit

Operational Status

Analysed by - Pappu Kumar

Unit was Operational During sampling


 Reviewed by
(P. Kumar)
Technical Head


 Issued by
(Jitendra Kumar)
Laboratory Head

 Authorized Signatory
EPIC LabTech Pvt. Ltd.
Ranchi, Jharkhand




Analytical Test Certificate

Unique Lab Report No.	N/A	Discipline	Chemical
Report Unique ID	RL026992534077	Group	Water
Issue date/time	26.08.2025/ 17:12	Sub Group	Surface Water

Report Issue to

M/s - HINDALCO INDUSTRIES LIMITED VILLAGE-COURT ROAD, POST OFFICE-LOHARDAGA, DIST - LOHARDAGA, STATE - JHARKHAND, INDIA 835302 MONITORING SITE : KUJAM I BAUXITE MINE	Contact Person Mr. Ankit Das Contact Number +91 9871034775 Email Id ankit.das@adityabirla.com Order Date 31.03.2025/ 10:10 Order Number 13612313868
--	--

References of Quality Management System (Steps of Traceability Chart)

Customer Registration No.	EPIC/OTH/0269	Sample Booking Number	EPIC/2534077
Sample(s) Code	2534077	Sample Receipt (D/T)	23.08.2025/ 10:28

Sampling References

Type of industry	Bauxite Mines	Ref. of Sampling Plan	EPIC/LAB/R/036
Sampling Start (D/T)	21.08.2025/ 16:10	Sampling End (D/T)	20.08.2025/ 16:25
Mode of Sampling	Conducted by Laboratory	Sample collected by	Mr. Vishal Kumar & Team
Sampling method used	IS : 3025 (Part-1) 1987, R-2003		
Description/condition of sample	Receipt sample(s) were fit for analysis.		

Environmental Condition during sampling

Weather condition	Cloudy	Temperature (°C)	28	Humidity %	70	Wind direction	180°-360°
-------------------	--------	------------------	----	------------	----	----------------	-----------

Sampling Location(s) with GPS coordinate(s)

S. Location A	Chotang, Kujam	GPS coordinate	23° 16' 49.59" / 84° 17' 42.11"
---------------	----------------	----------------	---------------------------------

Date(s) of performance of the laboratory activities

Test start date	23.08.2025/ 10:48	Test completion date	26.08.2025/ 15:30
-----------------	-------------------	----------------------	-------------------

-Test Result-

Sl.	Test Parameters	Method used	Unit	Results	Units
-----	-----------------	-------------	------	---------	-------

1. Fluoride (as F)	APHA 4500 F-C 2023	mg/l	BDL(MDL-0.1)	-
--------------------	--------------------	------	--------------	---

Group-Residues and Contaminants in Water Sub Group-Trace Metals Elements

2. Aluminum	IS 3026 (P-65):2010	mg/l	BDL(MDL-0.1)	-
-------------	---------------------	------	--------------	---

3. Boron	IS 3025 (P-57):2021	mg/l	BDL(MDL-0.1)	-
----------	---------------------	------	--------------	---

4. Polychlorinated biphenyls	EPIC/LAB/SOP/WA/01/00	ug/l	BDL(MDL-0.2)	-
------------------------------	-----------------------	------	--------------	---

5. Polynuclear Aromatic Hydrocarbons (PAH)	EPIC/LAB/SOP/WA/01/00	ug/l	BDL(MDL-0.05)	-
--	-----------------------	------	---------------	---

Group-Residues and Contaminants in Water Sub Group-Pesticides

6. Alachlor	EPIC/LAB/SOP/WA/01/00	ug/l	BDL(MDL-0.5)	-
-------------	-----------------------	------	--------------	---

7. Atrazine	EPIC/LAB/SOP/WA/01/00	ug/l	BDL(MDL-0.5)	-
-------------	-----------------------	------	--------------	---

8. Dieldrin	EPIC/LAB/SOP/WA/01/00	ug/l	BDL(MDL-0.02)	-
-------------	-----------------------	------	---------------	---

9. Alpha HCH	EPIC/LAB/SOP/WA/01/00	ug/l	BDL(MDL-0.005)	-
--------------	-----------------------	------	----------------	---

10. Beta HCH	EPIC/LAB/SOP/WA/01/00	ug/l	BDL(MDL-0.02)	-
--------------	-----------------------	------	---------------	---

11. Butachlor	EPIC/LAB/SOP/WA/01/00	ug/l	BDL(MDL-0.5)	-
---------------	-----------------------	------	--------------	---

12. Chlopyrifos	EPIC/LAB/SOP/WA/01/00	ug/l	BDL(MDL-0.5)	-
-----------------	-----------------------	------	--------------	---

13. Delta HCH	EPIC/LAB/SOP/WA/01/00	ug/l	BDL(MDL-0.02)	-
---------------	-----------------------	------	---------------	---

14. Ethion	EPIC/LAB/SOP/WA/01/00	ug/l	BDL(MDL-0.5)	-
------------	-----------------------	------	--------------	---



Analytical Test Certificate

Unique Lab Report No.	N/A	Discipline	Chemical
Report Unique ID	RLU26982534077	Group	Water
Issue date/time	28.08.2025/ 17:12	Sub Group	Surface Water

Report Issue to

M/s - HINDALCO INDUSTRIES LIMITED
VILLAGE-COURT ROAD, POST OFFICE-LOHARDAGA,
DIST - LOHARDAGA, STATE - JHARKHAND, INDIA 835302
MONITORING SITE : KUJAM I BAUXITE MINE

Contact Person
Contact Number
Email Id
Order Date
Order Number

Mr. Ankit Das
+91 9871034775
ankit.das@adityabirla.com
31.03.2025/ 10:10
13612313868

15. Gamma-HCH(Lindane)	EPIC/LAB/SOP/WA/01/00	µg/l	BDL(MDL-0.5)
16. Malathion	EPIC/LAB/SOP/WA/01/00	µg/l	BDL(MDL-0.5)
17. Methyl parathion	EPIC/LAB/SOP/WA/01/00	µg/l	BDL(MDL-0.2)
18. Monocrotophos	EPIC/LAB/SOP/WA/01/00	µg/l	BDL(MDL-0.5)
19. Phorate	EPIC/LAB/SOP/WA/01/00	µg/l	BDL(MDL-0.5)
20. DDT (o, p and p, p-isomer of DDT, DDE and DDD)	EPIC/LAB/SOP/WA/01/00	µg/l	BDL(MDL-0.5)
21. Endosulfan (alpha, beta, and sulphate)	EPIC/LAB/SOP/WA/01/00	µg/l	BDL(MDL-0.05)

--Test result End--

Prescribed Limit

Operational Status

Analyzed by - Pappu Kumar

Unit was Operational During sampling.



Reviewed by
(P.K. Kumar)
Technical Head



Issued by
(Deepak)
Laboratory Head

Authorized Signature
EPIC LabTech Pvt. Ltd.
Ranchi, Jharkhand



Page 2 of 2

Contractual terms : 1. The laboratory accepts responsibility for content of this report. 2. Test performed at laboratory's permanent facility, at specific environmental conditions as method required and results relate only to the sample tested in prescribed Date & time. 3. The Test report shall not be reproduced full or in part & can't be used as proof in the court of law. 4. Any complaint about this report should be communicated in writing within 10 days of its issue. 5. Total liability of EPIC LabTech Pvt. Ltd. will be limited to honored amount only. 6. All disputes are subjected to Ranchi jurisdiction and primum. Liability of the laboratory does not exceed the testing and sampling charges. 7. Quality does not imply endorsement of the tested product by laboratory. Under no circumstances, laboratory accepts any claim by use or misuse of this report. 8. When the results are from external provider are marked as "mark".

Abbreviations : BDL (Below Detectable Limit), MDL (Minimum Detectable Limit), LoQ (Limit of Quantification).



Analytical Test Certificate

Unique Lab Report No.	N/A	Discipline	Biological		
Report Unique ID	RL02692534078	Group	Water		
Issue date/time	28.08.2025/ 17:15	Sub Group	Surface Water		
Report Issue to					
M/s - HINDALCO INDUSTRIES LIMITED VILLAGE-COURT ROAD, POST OFFICE-LOHARDAGA, DIST - LOHARDAGA, STATE-JHARKHAND, INDIA 835302	Contact Person Mr. Ankit Das Contact Number +919971034775 Email Id ankit.das@adityabirla.com Order Date 31.03.2025/ 10:10 Order Number 13612313868				
References of Quality Management System (Days of Incubation Chart)					
Customer Registration No.	EPIC/DTH/0269	Sample Booking Number	EPIC-2534078		
Sample(s) Code	2534078	Sample Receipt (D/T)	23.08.2025/ 10:26		
Sampling References					
Type of Industry	Bauxite Mines	Ref. of Sampling Plan	EPIC/LAB/R/036		
Sampling Start (D/T)	21.08.2025/ 16:10	Sampling End (D/T)	21.08.2025/ 16:20		
Mode of Sampling	Conducted by Laboratory	Sample collected by	Mr. Pawan Deep Bhagat & Team		
Sampling method used	IS : 3025 (Part-1) 1987, R-2003				
Description/condition of sample	Receipt sample(s) were fit for analysis.				
Environmental Condition during sampling					
Weather condition	Cloudy	Temperature (°C)	28		
		Humidity %	70		
		Wind direction	180°-360°		
Sampling Location(s) with GPS coordinate(s)					
S. Location A	Chotang Kujam	GPS coordinate	23° 18' 49.59" / 84° 17' 42.11"		
Date(s) of performance of the laboratory activities					
Test start date	23.08.2025/ 10:48	Test completion date	28.08.2025/ 15:30		
-Test Result-					
Sl.	Test Parameters	Method used	Unit	Results	Limits
1.	Total Coliform	IS 15185:2002	Per 100 ml.	390	—
2.	E. Coli	IS 15185:2002	Per 100 ml.	270	—
-Test result End --					

Prescribed Limit

Operational Status

Analyzed by - Sujata Kumar

Unit was Operational During sampling.


Reviewed by
(Sujata Kumar)
Technical Head


Issued by
(Ankit Das)
Laboratory Head

Authorized Signature
EPIC LabTech Pvt. Ltd.
Ranchi, Jharkhand



Page 1 of 1



Analytical Test Certificate

Unique Lab Report No.	TC1288725000001219	Discipline	Chemical
Report Unique ID	RL02972538023	Group	Atmospheric Pollution
Issue date/time	20-09-2025/15:00	Sub Group	Ambient Air Quality
Report Issue to		Contact Person	Mr. Ankit Das
M/s - HINDALCO INDUSTRIES LIMITED VILLAGE-COURT ROAD, POST OFFICE-LOHARDAGA, DIST - LOHARDAGA, STATE - JHARKHAND, INDIA 835302 MONITORING SITE: KUJAM I BAUXITE MINE		Contact Number	+91 98971034775
		Email Id	ankit.das@adityabirla.com
		Order Date	31.03.2025/ 10:10
		Order Number	13612313868

References of Quality Management System (Steps of Traceability, Date)

Customer Registration No.	EPIC/OTH/0297	Sample Booking Number	EPIC-2538023
Sample(s) Code	2538023 (A) (B) (C) (D)	Sample Receipt (D/T)	16.09.2025/ 10:36

Sampling References

Type of Industry	Bauxite Mines	Ref. of Sampling Plan	EPIC/LAB/R/036
Sampling Start (D/T)	13.09.2025/ 12:08	Sampling End (D/T)	14.09.2025/ 08:31
Mode of Sampling	Conducted by Laboratory	Sample collected by	Mr. Pawan Deep Bhagat & Team
Sampling method used	IS 5182 and CPCB Air Manual Volume - 1 (NAAQM/36/2012-13)		
Description/condition of sample	Receipt sample(s) were fit for analysis.		

Environmental Condition during sampling

Weather condition	Cloudy	Temperature (°C)	25	Humidity %	67	Wind direction	180°-0°
-------------------	--------	------------------	----	------------	----	----------------	---------

Sampling Location(s) with GPS coordinate(s)

S. Location A	Kujam Quarry 449	GPS coordinate	23° 18' 25.41" / 84° 19' 03.19"
S. Location B	Talabkhanta 4 A13	GPS coordinate	23° 18' 11.06" / 84° 17' 40.12"
S. Location C	4 A11 Football Ground	GPS coordinate	23° 18' 36.18" / 84° 17' 38.10"
S. Location D	Camp	GPS coordinate	23° 18' 53.11" / 84° 17' 27.09"

Data(s) of performance of the laboratory activities

Test start date	16.09.2025/ 10:56	Test completion date	20.09.2025/ 14:50
-----------------	-------------------	----------------------	-------------------

-Test Results-

Sl.	Test Parameters	Method used	Unit	Results				Limits
				A	B	C	D	
1.	Particulate Matter (PM ₁₀)	IS 5182 (P-23) 2022	µg/m ³	57.81	65.79	61.96	55.89	100 (24 hr)
2.	Fine Particulate Matter (PM _{2.5})	IS 5182 (P-24) 2019	µg/m ³	22.76	26.28	28.28	27.75	60(24 hr)
3.	Sulphur Dioxide (SO ₂)	IS 5182 (P-02) 2023	µg/m ³	07.89	11.04	09.06	09.44	80(24 hr)
4.	Nitrogen Dioxide (NO ₂)	IS 5182 (P-06) 2022	µg/m ³	19.72	22.99	18.60	20.77	80(24 hr)
5.	Ammonia (NH ₃)	IS 5182 (P-25) 2018	µg/m ³	29.64	29.32	29.00	29.96	400(24 hr)
6.	Ozone (O ₃)	IS 5182 (P-09) 2019	µg/m ³	20.27	20.63	19.18	18.82	180(1 hr)
7.	Lead (Pb)	IS 5182 (P-22) 2019	µg/m ³	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	1.0(24 hr)
8.	Nickel (Ni)	IS 5182 (P-26) 2020	ng/m ³	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	-
9.	Arsenic (As)	USEPA IO 3.2:1999	ng/m ³	BDL (MDL-0.001)	BDL (MDL-0.001)	BDL (MDL-0.001)	BDL (MDL-0.001)	-

-Test Results End -

Prescribed Limit Environmental (Protection) Rules-1986, Schedule VII.
Operational Status Unit was Operational During sampling.

Analyzed by - Vishal Mangrulkar

Reviewed by
(B.K. Kumar)
Technical HeadIssue by
(Sheetal Das)
Laboratory Head

Authorized Signatory

EPIC LabTech Pvt. Ltd.

Page 1 of 1

Contractual Notes : 1. The laboratory accepts responsibility for content of this report. 2. Test performed at laboratory's permanent facility. 3. Specific environmental condition as testbed required and results relate only to the sample tested in prescribed date & time. 4. The Test report shall not be reproduced full or in part & can't be used as proof in the court of law. 5. Any complaint about this report should be communicated in writing within 10 days of its issue. 6. Total liability of EPIC LabTech Pvt. Ltd. will be limited to its tested amount only. 7. All disputes are subject to State Jurisdiction and maximum liability of the laboratory does not exceed the testing and sampling charges. 8. C-Gain does not imply endorsement of the tested product by laboratory. Under no circumstances, laboratory accepts any claim by use or misuse of this report. 9. When the results are from external provider are marked as * mark. 10. Abbreviations - BDL (Below Detectable Limit), MDL (Minimum Detectable Limit), LoQ (Limit of Quantitation).]



Analytical Test Certificate

Unique Lab Report No.	N/A	Discipline	Chemical
Report Unique ID	RL02972538023	Group	Atmospheric Pollution
Issue date/time	20-09-2025/15:00	Sub Group	Ambient Air Quality

Report Issue to

M/s - HINDALCO INDUSTRIES LIMITED
VILLAGE-COURT ROAD, POST OFFICE-LORARDAGA,
DIST - LOHARDAGA, STATE - JHARKHAND, INDIA 835302
MONITORING SITE : KUJAM I BAUXITE MINE

Contact Person
Mr. Ankit Das
Contact Number
+91 9971034775
Email Id
ankit.das@adityabirla.com
Order Date
31.03.2025/ 10:10
Order Number
13612313868

References of Quality Management System (Days of Traceability Data)

Customer Registration No.	EPIC/OTH/0297	Sample Booking Number	EPIC-2538023
Sample(s) Code	2538023 (A) (B) (C) (D)	Sample Receipt (D/T)	16.09.2025/ 10:36

Sampling References

Type of Industry	Bauxite Mines	Ref. of Sampling Plan	EPIC/LAB/R/036
Sampling Start (D/T)	13.09.2025/ 12:08	Sampling End (D/T)	14.09.2025/ 08:31
Mode of Sampling	Conducted by Laboratory	Sample collected by	Mr. Pawan Deep Bhagat & Team
Sampling method used	IS 5182 and CPCB Air Manual Volume - 1 (NAAQM/36/2012-13)		
Description/condition of sample	Receipt sample(s) were fit for analysis.		

Environmental Condition during sampling

Weather condition	Cloudy	Temperature (°C)	28	Humidity %	67	Wind direction	180°-0°
-------------------	--------	------------------	----	------------	----	----------------	---------

Sampling Location(s) with GPS coordinate(s)

S. Location A	Kujam Quarry 449	GPS coordinate	23° 18' 25.41" E 84° 19' 03.19"
S. Location B	Talabkhanta 4 A13	GPS coordinate	23° 18' 11.06" E 84° 17' 40.12"
S. Location C	4 A11 Football Ground	GPS coordinate	23° 18' 36.18" E 84° 17' 38.10"
S. Location D	Camp	GPS coordinate	23° 18' 53.11" E 84° 17' 27.09"

Date(s) of performance of the laboratory activities

Test start date	16.09.2025/ 10:56	Test completion date	20.09.2025/ 14:50
-----------------	-------------------	----------------------	-------------------

-Test Results-

Sl.	Test Parameters	Method used	Unit	Results				Limits
				A	B	C	D	
1.	Benzene (C ₆ H ₆)	IS:5182(P-11) 2006	µg/m ³	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	-
2.	Benzo (a) Pyrene (Bap)- Particulate phase only	IS:5182(P-12) 2004	ng/m ³	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	-
3.	Carbon Monoxide (CO)	EPIC/LAB/SOP/AP/01/00	mg/m ³	BDL (MDL-1.0)	BDL (MDL-1.0)	BDL (MDL-1.0)	BDL (MDL-1.0)	-

-Test Results End-

Prescribed Limit Environmental (Protection) Rules-1996, Schedule VI.

Operational Status Unit was Operational During sampling.

Analyzed by - Vishal Mangat

Reviewed by
(B.N. Kumar)
Technical HeadIssued by
(B.N. Kumar)
Laboratory HeadAuthorized Signatory
EPIC LabTech Pvt. Ltd.,
Ranchi, Jharkhand



Address:
C/o - R.K. Tripathi, Indrapuri
Road No. - 5, Ranchi,
Jharkhand - 834005, India

Tel: 0657 4666322
98237 88677
91349 77994
epiclabtech@gmail.com

CIN: U74999JH2022TCA19083. Accredited by -
ISO 17025 Certificate Number IC-13007
Particulars: ISO-17025 Certified Client
Certification -
ISO 17025:2017 and ISO 14001:2015

TC-12887

Analytical Test Certificate

Unique Lab Report No.	TC1288725000001220	Discipline	Chemical
Report Unique ID	RL02972538024	Group	Atmospheric Pollution
Issue date/time	20-09-2025/15:03	Sub Group	Ambient Air Quality

Report Issue to

M/s - HINDALCO INDUSTRIES LIMITED
VILLAGE-COURT ROAD, POST OFFICE-LORARDAGA,
DIST.-LOHARDAGA, STATE-JHARKHAND, INDIA 835302
MONITORING SITE : KUJAM I BAUXITE MINE

Contact Person: Mr. Ankit Das
Contact Number: +91 9871034775
Email Id: ankit.das@adityabirla.com
Order Date: 31.03.2025/ 10:10
Order Number: 13612313868

References of Quality Management System (Steps of Traceability Chain)

Customer Registration No.	EPIC/OTH/0297	Sample Booking Number	EPIC-2538024
Sample(s) Code	2538024 (A) (B) (C) (D)	Sample Receipt (D/T)	16.09.2025/ 10:37

Sampling References

Type of Industry	Bauxite Mines	Ref. of Sampling Plan	EPIC/LAB/R/036
Sampling Start (D/T)	14.09.2025/ 11:35	Sampling End (D/T)	15.09.2025/ 09:09
Mode of Sampling	Conducted by Laboratory	Sample collected by	Mr. Pawan Deep Bhagat & Team
Sampling method used	IS 5182 and CPCB Air Manual Volume - 1 (NAAQM/36/2012-13)		
Description/condition of sample	Receipt sample(s) were fit for analysis.		

Environmental Condition during sampling

Weather condition	Cloudy	Temperature (°C)	28	Humidity %	67	Wind direction	180°-0°
-------------------	--------	------------------	----	------------	----	----------------	---------

Sampling Location(s) with GPS coordinate(s)

S. Location A	Near Pakri Gada Village	GPS coordinate	23° 20' 01.26" / 84° 14' 17.70"
S. Location B	Near Pol Pol Village	GPS coordinate	23° 18' 46.04" / 84° 16' 18.35"
S. Location C	Near Shakhuapani Village	GPS coordinate	23° 19' 22.76" / 84° 15' 33.71"
S. Location D	Near Dipa Kujam Village	GPS coordinate	23° 18' 18.91" / 84° 14' 55.35"

Date(s) of performance of the laboratory activities

Test start date	16.09.2025/ 10:57	Test completion date	20.09.2025/ 14:50
-----------------	-------------------	----------------------	-------------------

-Test Results-

Sl.	Test Parameters	Method used	Unit	Results				Limits
				A	B	C	D	
1.	Particulate Matter (PM ₁₀)	IS:5182 (P-23) 2022	µg/m ³	57.57	64.72	62.40	59.90	100 (24 hr)
2.	Fine Particulate Matter (PM _{2.5})	IS:5182 (P-24) 2019	µg/m ³	25.43	25.89	21.53	29.04	60(24 hr)
3.	Sulphur Dioxide (SO ₂)	IS:5182 (P-02) 2023	µg/m ³	06.36	07.11	07.83	08.54	80(24 hr)
4.	Nitrogen Dioxide (NO ₂)	IS:5182 (P-06) 2022	µg/m ³	18.71	19.74	18.65	19.80	80(24 hr)
5.	Ammonia (NH ₃)	IS:5182 (P-25) 2018	µg/m ³	29.64	26.14	30.92	33.79	400(24 hr)
6.	Ozone (O ₃)	IS:5182 (P-09) 2019	µg/m ³	21.35	19.90	22.44	21.71	180(1hr)
7.	Lead (Pb)	IS:5182 (P-22) 2019	µg/m ³	BDL (MDL<0.1)	BDL (MDL<0.1)	BDL (MDL<0.1)	BDL (MDL<0.1)	1.0(24 hr)
8.	Nickel (Ni)	IS:5182 (P-26) 2020	ng/m ³	BDL (MDL<0.1)	BDL (MDL<0.1)	BDL (MDL<0.1)	BDL (MDL<0.1)	
9.	Arsenic (As)	USEPA ID 3.2:1999	ng/m ³	BDL (MDL<0.001)	BDL (MDL<0.001)	BDL (MDL<0.001)	BDL (MDL<0.001)	

-Test Results End -

Prescribed Limit: Environmental (Protection) Rules-1986, Schedule VII.

Operational Status: Unit was Operational During sampling.

Analysed by - Vimal Margaria

Reviewed by
(S. Kumar)
Technical Head

Issued by
(Ankit Das)
Laboratory Head

Authorized Signatory
EPIC LabTech Pvt. Ltd.
Panaji, Goa, India



Analytical Test Certificate

Unique Lab Report No.	N/A	Discipline	Chemical
Report Unique ID	RL02972538024	Group	Atmospheric Pollution
Issue date/time	20-09-2025/15:03	Sub Group	Ambient Air Quality

Report issue to

M/s - HINDALCO INDUSTRIES LIMITED
VILLAGE-COURT ROAD, POST OFFICE-LOHARDAGA,
DIST-LOHARDAGA, STATE-JHARKHAND, INDIA 835302
MONITORING SITE : KUJAM I BAUXITE MINE

Contact Person
Mr. Ankit Das
Contact Number
+91 9971034775
Email Id
ankit.das@achyabirla.com
Order Date
31.03.2025/ 10:10
Order Number
13612313868

References of Quality Management System (Steps of Traceability Chart)

Customer Registration No.	EPIC/OTH/0297	Sample Booking Number	EPIC-2538024
Sample(s) Code	2538024 (A) (B) (C) (D)	Sample Receipt (D/T)	16.09.2025/ 10:37

Sampling References

Type of Industry	Bauxite Mines	Ref. of Sampling Plan	EPIC/LAB/R/036
Sampling Start (D/T)	14.09.2025/ 11:35	Sampling End (D/T)	15.09.2025/ 09:09
Mode of Sampling	Conducted by Laboratory	Sample collected by	Mr. Pawan Deep Bhagat & Team
Sampling method used	IS 5182 and CPCB Air Manual Volume - 1 (NAAQM/36/2012-13)		
Description/condition of sample	Receipt sample(s) were fit for analysis.		

Environmental Condition during sampling

Weather condition	Cloudy	Temperature (°C)	28	Humidity %	87	Wind direction	180°-0°
-------------------	--------	------------------	----	------------	----	----------------	---------

Sampling Location(s) with GPS coordinate(s)

S. Location A	Near Pakri Gada Village	GPS coordinate	23° 20' 01.26" / 84° 14' 17.70"
S. Location B	Near Poi Poi Village	GPS coordinate	23° 18' 46.04" / 84° 16' 18.35"
S. Location C	Near Shakhuapani Village	GPS coordinate	23° 19' 22.76" / 84° 15' 33.71"
S. Location D	Near Dipa Kujam Village	GPS coordinate	23° 18' 18.91" / 84° 14' 55.35"

Data(s) of performance of the laboratory activities

Test start date	16.09.2025/ 10:57	Test completion date	20.09.2025/ 14:50
-----------------	-------------------	----------------------	-------------------

-Test Results-

Sl	Test Parameters	Method used	Unit	Results				Limits
				A	B	C	D	
1.	Benzene (C ₆ H ₆)	IS:5182(P-11) 2006	µg/m ³	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	-
2.	Benzo (a) Pyrene (Bap)- Particulate phase only	IS:5182(P-12) 2004	ng/m ³	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	BDL (MDL-0.1)	-
3.	Carbon Monoxide (CO)	EPIC/LAB/SOP/AP/01/00	mg/m ³	BDL (MDL-1.0)	BDL (MDL-1.0)	BDL (MDL-1.0)	BDL (MDL-1.0)	-

-Test Results End-

Prescribed Limit Environmental (Protection) Rules-1986, Schedule VII.

Operational Status Unit was Operational During sampling.

Analysed by - Vishal Mangat

Reviewed by
(E.K. Kaur)
Technical Head



TC-12887

Analytical Test Certificate

Unique Lab Report No.	TC1288725000001221	Discipline	Chemical
Report Unique ID	RL02972538025	Group	Pollution & Environment
Issue date/time	20-09-2025/15:06	Sub Group	Soil/Sediments

Report Issue to

M/s - HINDALCO INDUSTRIES LIMITED
VILLAGE-COURT ROAD, POST OFFICE-LOHARDAGA,
DIST- LOHARDAGA, STATE-JHARKHAND, INDIA-835302
MONITORING SITE : KUJAM I BAUXITE MINE

Contact Person
Mr. Ankit Das
Contact Number
+91 9871034775
Email Id
ankit.das@uditysbirla.com
Order Date
31.03.2025/ 10:10
Order Number
13612313888

References of Quality Management System (Steps of Traceability Data)

Customer Registration No.	EPIC/OTH/0297	Sample Booking Number	EPIC-2538025
Sample(s) Code	2538025	Sample Receipt (D/T)	16.09.2025/ 10:38

Sampling References

Type of Industry	Bauxite Mines	Ref. of Sampling Plan	EPIC/LAB/R/036
Sampling Start (D/T)	13.09.2025/ 16:30	Sampling End (D/T)	13.09.2025/ 16:40
Mode of Sampling	Conducted by Laboratory	Sample collected by	Mr. Pawan Deep Bhagat & Team
Sampling method used	IS : 3025 (Part-1) 1987, R-2003		
Description/condition of sample	Receipt sample(s) were fit for analysis.		

Environmental Condition during sampling

Weather condition	Cloudy	Temperature (°C)	28	Humidity %	67	Wind direction	180°-0°
-------------------	--------	------------------	----	------------	----	----------------	---------

Sampling Location(s) with GPS coordinate(s)

S. Location A	Kujam Quarry 449	GPS coordinate	23° 18' 25.45" / 84° 19' 03.22"
---------------	------------------	----------------	---------------------------------

Date(s) of performance of the laboratory activities

Test start date	16.09.2025/ 11:35	Test completion date	20.09.2025/ 14:50
-----------------	-------------------	----------------------	-------------------

-Test Result-

Sl.	Test Parameters	Method used	Unit	Results	Limits
1.	pH value at 25.7°C	MAGI 2011	-	6.80	-
2.	Available Phosphorus	MAGI 2011	Kg/ha	26.9	-
3.	Available Potassium	MAGI 2011	Kg/ha	70.90	-
4.	Organic Carbon	MAGI 2011	%	1.31	-
5.	Electrical Conductivity	MAGI 2011	µs/cm	147.6	-
6.	Magnesium	MAGI 2011	mg/kg	39.54	-
7.	Nitrogen	MAGI 2011	%	0.12	-
8.	Arsenic (as As)	USEPA 3050 B 1996	mg/kg	BDL(MDL-0.005)	-
9.	Cadmium (as Cd)	USEPA 3050 B 1996	mg/kg	0.7	-
10.	Selenium (as Se)	USEPA 3050 B 1996	mg/kg	BDL(MDL-0.006)	-

-Test result End -

Prescribed Limit

Operational Status

Unit was Operational During sampling.

Analysed by - Ishika Singh



Reviewed by

(E.K. Kumar)

Technical Head

Issued by

(Shashi Das)

Laboratory Head

Authorized Signatory

Page 1 of 1

Contractual Note 1.1: The laboratory accepts responsibility for content of this report | 2. Test performed at laboratory's premises: The laboratory will assume responsibility for conditions as method required and results relate only to the sample tested in prescribed Date & time | 3. The Test report shall not be reproduced full or in part without the written approval of the court of law | 4. Any complaint about this report should be communicated in writing within 30 days of its issue | 5. Total liability of EPIC LabTech Pvt. Ltd. will be limited to assessed amount only | 6. All disputes are subject to Ranchi jurisdiction and exclusive liability of the laboratory does not exceed the testing and sampling charges | 7. Operator does not imply endorsement of the tested product by laboratory. Under no circumstances, laboratory accepts any responsibility for use or misuse of this report | 8. When the results are from external provider are marked as * mark | 9. Abbreviations - BDL (Below Detectable Limit), MDL (Minimum Detectable Limit), LoQ (Limit of Quantification)



Analytical Test Certificate

Unique Lab Report No.	N/A	Discipline	Chemical
Report Unique ID	RL02972538025	Group	Pollution & Environment
Issue date/time	20-09-2025/15:06	Sub Group	Soil/Sediments

Report Issue to

M/s - HINDALCO INDUSTRIES LIMITED
VILLAGE-COURT ROAD, POST OFFICE-LOHARDAGA,
DIST.-LOHARDAGA, STATE-JHARKHAND, INDIA 835302
MONITORING SITE : KUJAM I BAUXITE MINE

Contact Person
Mr. Ankit Das
Contact Number
+91 9971034775
Email Id
ankit.das@adityabirla.com
Order Date
31.03.2025/ 10:10
Order Number
13612313868

References of Quality Management System (Steps of Traceability Chart)

Customer Registration No.	EPIC/OTH/0297	Sample Booking Number	EPIC-2538025
Sample(s) Code	2538025	Sample Receipt (D/T)	16.09.2025/ 10:38

Sampling References

Type of Industry	Bauxite Mines	Ref. of Sampling Plan	EPIC/LAB/R/036
Sampling Start (D/T)	13.09.2025/ 16:30	Sampling End (D/T)	13.09.2025/ 16:40
Mode of Sampling	Conducted by Laboratory	Sample collected by	Mr. Pawan Deep Bhagat & Team
Sampling method used	IS : 3025 (Part-1) 1987, R-2003		
Description/condition of sample	Receipt sample(s) were fit for analysis.		

Environmental Condition during sampling

Weather condition	Cloudy	Temperature (°C)	28	Humidity %	67	Wind direction	180°-0°
-------------------	--------	------------------	----	------------	----	----------------	---------

Sampling Location(s) with GPS coordinate(s)

S. Location A	Kujam Quarry 449	GPS coordinate	23° 18' 25.45" / 84° 19' 03.22"
---------------	------------------	----------------	---------------------------------

Date(s) of performance of the laboratory activities

Test start date	16.09.2025/ 11:35	Test completion date	20.09.2025/ 15:00
-----------------	-------------------	----------------------	-------------------

-Test Result-

Sl.	Test Parameters	Method used	Unit	Results	Limits
1.	Chloride (as Cl)	EPIC/LAB/SOPPE/01/00	%	0.041	-
2.	Mercury (as Hg)	USEPA 3050 B 1996	mg/kg	BDL(MDL-0.005)	-

-Test result End -

Operational Status
Analysed by - Pawan Kumar

Unit was Operational During sampling.


Reviewed by
(Pawan Kumar)
Technical Head


Issued by
(Ankit Das)
Laboratory Head

Authorized Signatory
EPIC LabTech Pvt. Ltd.
Ranchi, Jharkhand



Analytical Test Certificate

Unique Lab Report No.	TC1288725000001222	Discipline	Chemical
Report Unique ID	RL02972538026	Group	Water
Issue date/time	20-09-2025/15:09	Sub Group	Surface Water

Report Issue to

M/s - HINDALCO INDUSTRIES LIMITED
VILLAGE-COURT ROAD, POST OFFICE-LOHARDAGA,
DIST-LOHARDAGA, STATE-JHARKHAND, INDIA 835302
MONITORING SITE : KUJAM I BAUXITE MINE

Contact Person
Mr. Ankit Das
Contact Number
+91 9971034775
Email Id
ankit.das@adityabirla.com
Order Date
31.03.2025/ 10:10
Order Number
13612313868

References of Quality Management System (Steps of Traceability Chart)

Customer Registration No.	EPIC/OTH/0297	Sample Booking Number	EPIC-2538026
Sample(s) Code	2538026	Sample Receipt (D/T)	16.09.2025/ 10:39

Sampling References

Type of Industry	Bauxite Mines	Ref. of Sampling Plan	EPIC/LAB/R/036
Sampling Start (D/T)	13.09.2025/ 15:25	Sampling End (D/T)	13.09.2025/ 15:37
Mode of Sampling	Conducted by Laboratory	Sample collected by	Mr. Pawan Deep Bhagat & Team
Sampling method used	IS : 3025 (Part-1) 1987, R-2003		
Description/condition of sample		Receipt sample(s) were fit for analysis.	

Environmental Condition during sampling

Weather condition	Cloudy	Temperature (°C)	28	Humidity %	67	Wind direction	180°-360°
-------------------	--------	------------------	----	------------	----	----------------	-----------

Sampling Location(s) with GPS coordinate(s)

S. Location A	Kujam Quarry 449	GPS coordinate	23° 18' 25.39" / 84° 19' 03.17"
---------------	------------------	----------------	---------------------------------

Date(s) of performance of the laboratory activities

Test start date	16.09.2025/ 11:10	Test completion date	20.09.2025/ 14:35
-----------------	-------------------	----------------------	-------------------

-Test Result-

Sl	Test Parameters	Method used	Unit	Results	Limits
1.	pH value at 25°C	IS 3025 (P-11) 2022	-	6.46	-
2.	Total Dissolved Solids (TDS)	IS 3025 (P-16) 2022	mg/l	115.0	-
3.	Calcium (as Ca)	IS 3025 (P-40) 1991	mg/l	8.21	-

Group - Residues and Contaminants in Water,

Sub Group - Trace Metals Elements

4.	Iron (as Fe)	APHA 3111 B 2020	mg/l	BDL(MDL-0.1)
----	--------------	------------------	------	--------------

-Test result End --

Operational Status

Unit was Operational During sampling.

Analysed by - Peppu Kumar


Reviewed by
(E.S. Kumar)
Technical Head





Analytical Test Certificate

Unique Lab Report No.	N/A	Discipline	Chemical
Report Unique ID	RL02972538026	Group	Water
Issue date/time	20-09-2025/15:09	Sub Group	Surface Water

Report Issue to

M/s - HINDALCO INDUSTRIES LIMITED VILLAGE-COURT ROAD, POST OFFICE-LOHARDAGA, DIST-LOHARDAGA, STATE-JHARKHAND, INDIA 835302 MONITORING SITE : KUJAM I BAUXITE MINE	Contact Person Mr. Ankit Das Contact Number +91 9871034775 Email Id ankit.das@adityabirla.com Order Date 31.03.2025/ 10:10 Order Number 13612313868
--	---

References of Quality Management System (Date of Traceability Check)

Customer Registration No.	EPIC/OTH/0297	Sample Booking Number	EPIC-2538026
Sample(s) Code	2538026	Sample Receipt (D/T)	16.09.2025/ 10:39

Sampling References

Type of Industry	Bauxite Mines	Ref. of Sampling Plan	EPIC/LAB/R/036
Sampling Start (D/T)	13.09.2025/ 15:25	Sampling End (D/T)	13.09.2025/ 15:37
Mode of Sampling	Conducted by Laboratory	Sample collected by	Mr. Pawan Deep Bhagat & Team
Sampling method used	IS : 3025 (Part-1) 1987, R-2003		
Description/condition of sample	Receipt sample(s) were fit for analysis.		

Environmental Condition during sampling

Weather condition	Cloudy	Temperature (°C)	28	Humidity %	67	Wind direction	180°-360°
-------------------	--------	------------------	----	------------	----	----------------	-----------

Sampling Location(s) with GPS coordinate(s)

S. Location A	Kujam Quarry 449	GPS coordinate	23° 18' 25.39" / 64° 19' 03.17"
---------------	------------------	----------------	---------------------------------

Date(s) of performance of the laboratory activities

Test start date	16.09.2025/ 11:10	Test completion date	20.09.2025/ 14:35
-----------------	-------------------	----------------------	-------------------

-Test Result-

Sl	Test Parameters	Method used	Unit	Results	Limits
1.	Dissolve Oxygen (DO)	IS 3025 (P-38) 2006	mg/l	2.80	-
2.	Temperature	IS 3025 (P-09) 2006	°C	25.2	-
3.	BOD (3days at 27°C)	IS 3025 (P-44) 2000	mg/l	3.00	-
4.	COD	IS 3025 (P-58) 2006	mg/l	40.0	-
5.	Total Suspended Solids (TSS)	IS 3025 (P-17) 2022	mg/l	12.00	-
6.	Oil & Grease	IS 3025 (P-39) 2021	mg/l	BDL(MDL-04)	-

Group - Residues and Contaminants in Water,

Sub Group - Trace Metals Elements

7.	Aluminum (as Al)	IS 3025 (P-55) 2003	mg/l	BDL(MDL-0.1)
----	------------------	---------------------	------	--------------

-Test result End ---

Operational Status

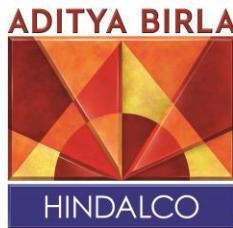
Unit was Operational During sampling.

Analyzed by - Pappu Kumar


Reviewed by
(P.K. Kumar)
Technical Head


Issued by
(Ankit Das)
Laboratory Head

Authenticated Signature
EPIC LabTech Pvt. Ltd.
Ranchi, Jharkhand



Annexure 3

Date – 01.11.2025

Office Order

Environmental Cell has been re-constituted for Kujam Group of Mines (Kujam-I and Kujam-II Bauxite Mine), comprising below mentioned team members. The team will ensure compliance with the Environment Acts, Rules & Regulations in respect of the said mines of Hindalco Industries Limited.

1. Mr. Vangalapudi Kumar (Coordinator)
2. Mr. Biswajeet Deogharia (Geologist)
3. Mr. Girija Tamrakar (Environment Engineer)
4. Mr. Anand Prakash Tiwari (Environment Engineer)

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



Basudev Gangopadhyay
AVP (Planning, Environment & Compliance)

Annexure 4

Production, Mined Out, Back Filled and Over Burden removal from April 2025 to September 2025								
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	79390	0.21	0.45	87427.68
3	Hisri (New) Bauxite Mine	14.55	100000	19.07.1981 to 31.03.2030	41829	0.11	0.23	13246.30
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	124975	1.58	0.50	153576.56
7	Sherangdag-A Bauxite Mine	155.81	260000	16.10.1974 to 31.03.2030	500	0.03	0.01	0.00
8	Serangdag-B Bauxite Mine	77.89	100000	04.10.1978 to 31.03.2030	57100	2.01	1.60	70755.24
9	Jalim & Sanai Bauxite Mine	12.14	50000	16.10.1974 to 31.03.2030	8547	0.13	0.10	8842.10
10	Gurdari Bauxite Mine	584.19	325000	23.03.1985 to 22.03.2035	94470	4.30	3.31	125642.99
11	Kujam - I Bauxite Mine	80.87	150000	13.03.2006 to 12.03.2056	NIL	NIL	NIL	NIL
12	Kujam - II Bauxite Mine	157.38	300000	24.03.2006 to 23.03.2056	63140	1.67	0.51	56988.56
13	Amtipani Bauxite Mine	190.95	150000	13.03.2006 to 12.03.2056	93765	3.168	1.21	209999.64

Annexure 4

Minerals & Minerals Limited								
14	Pakhar (109.507) Bauxite Mine	109.507	280000	26.07.2008 to 25.07.2058	100280	1.630	0.72	175833.99
15	Pakhar (15.58) Bauxite Mine	15.58	60000	28.04.1965 to 31.03.2030	NIL	NIL	NIL	NIL
16	Bimarla Bauxite Mine	134.526	300000	18.07.2009 to 17.07.2059	77100	0.849	0.30	62788.97
17	Amtipani Chirodih Bauxite Mine	130.01	450000	11.01.2017 to 10.01.2067	157400	5.320	4.600	218030.43

*Static information about the mines included in the above table



Basudev Gangopadhyay
AVP (Planning, Environment and Compliance)

Annexure-5

BREAK UP THE COST OF ENVIRONMENTAL MEASURES DURING THE YEAR 2025-26

The composite cost during the year 2025-26 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 2025-26 (From Apr'25 to Sep'25)	Actual (in Rupees) FY 2025-26 (From Apr'25 to Sep'25)
1	Pollution Control and Environmental Monitoring	1,71,00,000	59,45,184
2	Reclamation/ Back filing & Rehabilitation**	2,04,00,000	1,19,00,000
3	Green belt, Plantation & Water sprinkling arrangement	1,20,00,000	42,73,045
4	Rural Development	7,92,00,000	2,59,84,599

**Part of OB removed cost



Basudev Gangopadhyay
AVP (Planning, Environment & Compliance)

OHC/HS

FORM – O

(See rule 29F (2) and 29L)
 Report of medical examination under rule 29B
 (To be issued in triplicate)**

Certificate No. KUJAM.IME-009

Certified that Shri/Shrimati BIRSU ASUR employed as

WORKMAN in KUJAM BAUXITE MINES mine, Form B No.

..... has been examined for an initial / periodical medical examination. He/she appears to be 34 years of age. The findings of the examining authority are given in the attached sheet.

BIRSU ASUR

It is considered that Shri/Shrimati

(a) is medically **fit** for any employment in mines.(b) is suffering from and is medically **unfit** for

- (i) any employment in mine; or
- (ii) any employment below ground; or
- (iii) any employment or work

(c) is suffering from and should get this disability cured/controlled and should be again examined within a period of months. He/She will appear for re-examination with the result of test of and the opinion of Specialist from

He/She may be permitted/ not permitted to carry on his duties during this period.



Signature of the examining authority

Dr. OM PRAKASH DUBEY

Sr. CONSULTANT

033297-BM-2002
Name and designation in Block letters

Sr. Consultant

Hindalco Mines Divi., Lohardaga

Req No -33297, BR-2002

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

Form 59

[See rules 115 (2)]

Pollution Under Control Certificate

Authorised By :
Government of Jharkhand

Date : **20/04/2025**
Time : **11:52:22 AM**
Validity upto : **19/10/2025**



Certificate SL. No. : JH00700100013110
Registration No. : JH08H4549
Date of Registration : 02/Nov/2011
Month & Year of Manufacturing : March-2011
Valid Mobile Number : *****8309
Emission Norms : Bharat (Trem) Stage III A
Fuel : DIESEL
PUC Code : JH0070010
GSTIN :
Fees : Rs.300.00
MIL observation : No

Vehicle Photo with Registration plate
60 mm x 30 mm



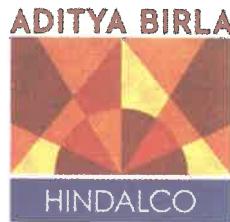
Sr. No.	Pollutant (as applicable)	Units (as applicable)	Emission limits	Measured Value (upto 2 decimal places)
1	2	3	4	5
Idling Emissions	Carbon Monoxide (CO)	percentage (%)		
	Hydrocarbon, (THC/HC)	ppm		
High idling emissions	CO	percentage (%)		
	RPM	RPM	2500 ± 200	
Smoke Density	Lambda	-	1 ± 0.03	
	Light absorption coefficient	1/metre	2.45	0.4

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

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

Authorised Signature with stamp of PUC Operator
60mm x 20 mm

JH08H4549
21/4/2025



Ref No: HIL/LHD/ENV/Kujam I / 571

Date: 19.10.2023

To

**District Industries Centre,
Gumla, Jharkhand.**

Sub: Intimation of revalidated EC grant of Kujam I Bauxite Mine (Area: 80.87 Ha) of Hindalco Industries Limited, with production capacity of Bauxite 150000 TPA near Villages: Kujam, Dewragini & Chatam, Taluka: Bishunpur, District: Gumla, Jharkhand.

Sir,

We would like to bring this to your notice that revalidated EC has been granted for Kujam I Bauxite Mine by SEIAA, Jharkhand.

A copy of issued Environmental Clearance is attached along with this letter for your ready reference.

Thanking You,

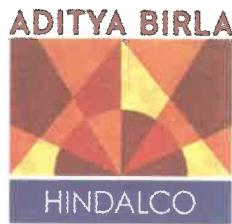
Yours Sincerely
For Hindalco Industries Ltd

(Basudeb Gangopadhyay)
AVP (Planning, Environment & Compliance)

Received
20/10/2023



0/C



Ref No: HIL/LHD/ENV/Kujam I / 373

Date: 19.10.2023

To

**Zilla Parishad,
Gumla, Jharkhand.**

Sub: Intimation of revalidated EC grant of Kujam I Bauxite Mine (Area: 80.87 Ha) of Hindalco Industries Limited, with production capacity of Bauxite 150000 TPA near Villages: Kujam, Dewragini & Chatam, Taluka: Bishunpur, District: Gumla, Jharkhand.

Sir,

We would like to bring this to your notice that revalidated EC has been granted for Kujam I Bauxite Mine by SEIAA, Jharkhand.

A copy of issued Environmental Clearance is attached along with this letter for your ready reference.

Thanking You,

Yours Sincerely
For Hindalco Industries Ltd

A handwritten signature in blue ink, appearing to read "B. Gangopadhyay".

(Basudev Gangopadhyay)
AVP (Planning, Environment & Compliance)

*S. Ghosh
20/10/23*

Hindalco Industries Limited

Mines Division, Court Road, Lohardaga 835302, Jharkhand, India

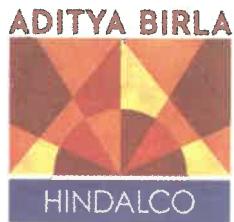
T: +91 6526 224112/224015/223113 | E: hindalco@adityabirla.com | W: www.hindalco.com

Registered Office: Ahura Centre, 1st Floor, B Wing, Mahakali Caves Road, Andheri (East), Mumbai 400 093, India

T: +91 22 6691 7000 | F: +91 22 6691 7001

Corporate ID No.: L27020MH1958PLC011238

OIC



Ref No: HIL/LHD/ENV/Kujam I / 368

Date: 19.10.2023

To
The Deputy Commissioner,
Office of the Deputy Commissioner (District General Branch),
New Collectorate Building Nag-01, Room No.-09,
Gumla, Pin 835207 (Jharkhand)

Sub: Intimation of revalidated EC grant of Kujam I Bauxite Mine (Area: 80.87 Ha) of Hindalco Industries Limited, with production capacity of Bauxite 150000 TPA near Villages: Kujam, Dewragini & Chatam, Taluka: Bishunpur, District: Gumla, Jharkhand.

Sir,

We would like to bring this to your notice that revalidated EC has been granted for Kujam I Bauxite Mine by SEIAA, Jharkhand.

A copy of issued Environmental Clearance is attached along with this letter for your ready reference.

Thanking You,

Yours Sincerely

For Hindalco Industries Ltd

(Basudev Gangopadhyay)

AVP (Planning, Environment & Compliance)



[Handwritten signature of Basudev Gangopadhyay]

Hindalco Industries Limited

Mines Division, Court Road, Lohardaga 835302, Jharkhand, India

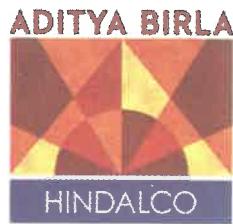
T: +91 6526 224112/223113 | E: hindalco@adityabirla.com | W: www.hindalco.com

Registered Office: Ahura Centre, 1st Floor, B Wing, Mahakali Caves Road, Andheri (East), Mumbai 400 093, India

T: +91 22 6691 7000 | F: +91 22 6691 7001

Corporate ID No.: L27020MH1958PLC011238

O/C



Ref No: HIL/LHD/ENV/Kujam I / 370

Date: 19.10.2023

To

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

Sub: Intimation of revalidated EC grant of Kujam I Bauxite Mine (Area: 80.87 Ha) of Hindalco Industries Limited, with production capacity of Bauxite 150000 TPA near Villages: Kujam, Dewragini & Chatam, Taluka: Bishunpur, District: Gumla, Jharkhand.

Sir,

We would like to bring this to your notice that revalidated EC has been granted for Kujam I Bauxite Mine by SEIAA, Jharkhand.

A copy of issued Environmental Clearance is attached along with this letter for your ready reference.

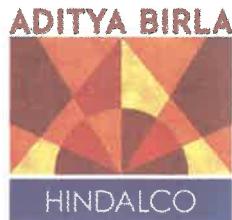
Thanking You,

Yours Sincerely
For Hindalco Industries Ltd

(Basudev Gangopadhyay)
AVP (Planning, Environment & Compliance)



O/C



Ref No: HIL/LHD/ENV/Kujam I / 369

Date: 19.10.2023

To

**The Member Secretary,
Jharkhand State Pollution Control Board,
TA Building, Dhurwa,
Ranchi (Jharkhand).**

Sub: Intimation of revalidated EC grant of Kujam I Bauxite Mine (Area: 80.87 Ha) of Hindalco Industries Limited, with production capacity of Bauxite 150000 TPA near Villages: Kujam, Dewragini & Chatam, Taluka: Bishunpur, District: Gumla, Jharkhand.

Sir,

We would like to bring this to your notice that revalidated EC has been granted for Kujam I Bauxite Mine by SEIAA, Jharkhand.

A copy of issued Environmental Clearance is attached along with this letter for your ready reference.

Thanking You,

Yours Sincerely
For Hindalco Industries Ltd

(Basudev Gangopadhyay)
AVP (Planning, Environment & Compliance)



Hindalco Industries Limited

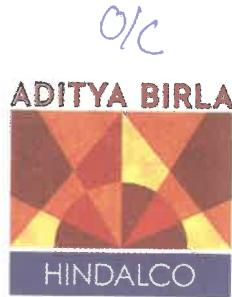
Mines Division, Court Road, Lohardaga 835302, Jharkhand, India

T: +91 6526 224112/224015/223113 | E: hindalco@adityabirla.com | W: www.hindalco.com

Registered Office: Ahura Centre, 1st Floor, B Wing, Mahakali Caves Road, Andheri (East), Mumbai 400 093, India

T: +91 22 66917000 | F: +91 22 66917001

Corporate ID No.: L27020MH1958PLC011238



Ref No: HIL/LHD/ENV/Kujam I / 367

Date: 19.10.2023

To

Gram Panchayat Mukhiya,
Panchayat Bhawan, Chirodih,
Block-Bishunpur, Gumla.

Sub: Intimation of revalidated EC grant of Kujam I Bauxite Mine (Area: 80.87 Ha) of Hindalco Industries Limited, with production capacity of Bauxite 150000 TPA near Villages: Kujam, Dewragini & Chatam, Taluka: Bishunpur, District: Gumla, Jharkhand.

Sir,

We would like to bring this to your notice that revalidated EC has been granted for Kujam I Bauxite Mine by SEIAA, Jharkhand.

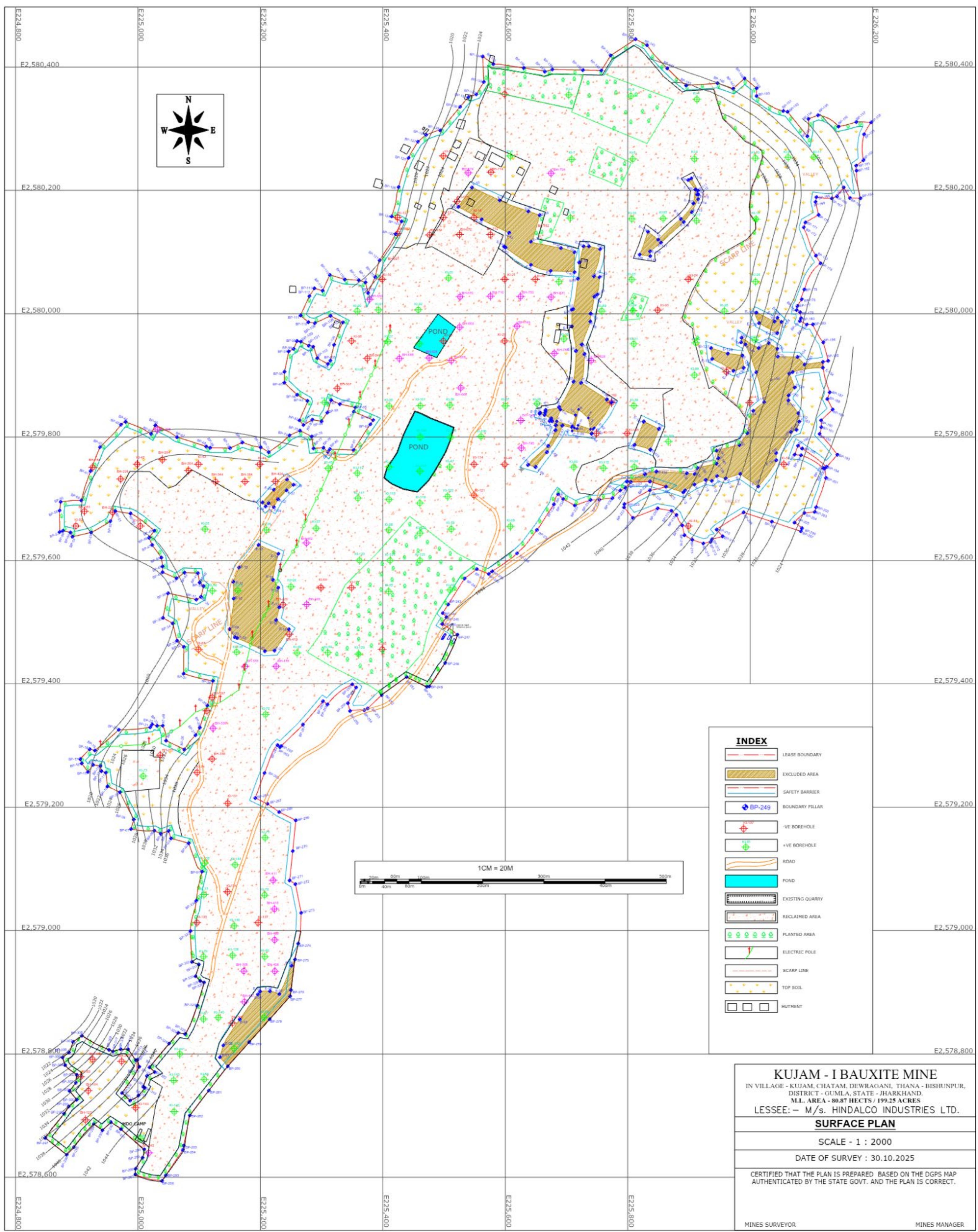
A copy of issued Environmental Clearance is attached along with this letter for your ready reference.

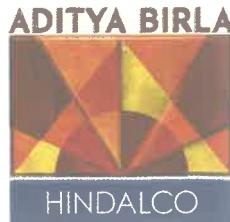
Thanking You,

Yours Sincerely
For Hindalco Industries Ltd

(Basudev Gangopadhyay)
AVP (Planning, Environment & Compliance)

Basudev Gangopadhyay
मुखिया
ग्राम पंचायत-चिरोडीह
11/11/23





Ref: HIL/JH/DFO-LOHARDAGA/WLCP Fees/143

Date: 27.06.2025

To,
Divisional Forest Officer,
Lohardaga, Jharkhand

Sub: Payment of Rs. 387.344 Lakhs (Rupees Three Hundred Eighty-Seven Lakhs Thirty-Four Thousand Four Hundred Only) towards Wildlife Conservation Plan fees as per sanctioned order by PCCF, Wildlife, Ranchi for our all-bauxite mines of Hindalco Industries Limited and Minerals & Minerals Limited in Lohardaga Forest Division, Jharkhand.

Ref: (i) Your Letter no. 597 dated 10.06.2025 (ii) Your Letter no. 598 dated 10.06.2025
 (iii) Your Letter no. 599 dated 10.06.2025

Dear Sir,
 The Wildlife Conservation Plans for following Bauxite mines of Hindalco Industries Ltd and Minerals & Minerals Limited have been approved by PCCF, Wildlife, Ranchi. Subsequently, we have received the demand notes from your good office as per the allocated fund mentioned in the sanctioned/approved documents.

As per the demand note received from your good office, a total amount of an amount of **Rs. 387.344 Lakhs (Rupees Three Hundred Eighty-Seven Lakhs Thirty-Four Thousand Four Hundred Only)** has to be paid to the Divisional Forest Officer, Lohardaga as per the sanctioned budget mentioned in the approved report according to the EC condition.

Therefore, we are submitting three demand drafts amounting to **Rs. 387.344 Lakhs (Rupees Three Hundred Eighty-Seven Lakhs Thirty-Four Thousand Four Hundred Only)** against the Wildlife Conservation Plan for the following bauxite mines of Hindalco Industries Ltd. and Minerals & Minerals Limited. The details of the bank drafts are as follows:

*Received 27/06/2025
Div. Forest Officer
Lohardaga*

S. No.	Your reference Letter No	Amount in Demand note	Mining Project	Demand Draft (DD) In Favour of	Amount (Rs)	DD No. dated
	597 dated 10.06.2025	246.684 Lakhs	Bagru, Bhusar, Hisri New and Hisri Old, Pakhar (115.13 Ha), Pakhar (109.507 Ha), Pakhar (15.577 Ha) Shrengdag (155.81 Ha), Serengdag (140.07 Ha), Jalim & Sanai (12.14 Ha)	Range Officer of Forest, Lohardaga	246.684 Lakhs	567891 dated 19.06.2025
	599 dated 10.06.2025	124.560 Lakhs	Amitpani, Gurdari, Kujam-I and Kujam-II	Range Officer of Forest, Banari	124.560 Lakhs	567890 dated 19.06.2025
3	598 dated 10.06.2025	16.10 Lakhs	Amitpani Chirodih (130.01 Ha)	Range Officer of Forest, Banari	16.10 Lakhs	642410 dated 20.06.2025
Total		387.344 Lakhs				387.344 Lakhs

Please acknowledge the receipt.

Thanking You,
 Sincerely Yours,

(Signature)
 (Basudev Gangopadhyay)

AVP (Planning, Environment & Compliance)

Encl: As above

Hindalco Industries Limited

Mines Division, Court Road, Lohardaga 835302, Jharkhand, India | T: +91 6526 223163

Corporate Office: 6th & 7th Floor, Birla Birla Centurion, Pandurang Budhakar Marg, Worli, Mumbai-400030, India

T: +91 22 66626666/626105555 | F: +91 22 62610400/62610500

Registered Office: 21st Floor, One Unity Center, Senapati Bapat Marg, Prabhadevi, Mumbai - 400013, India

T: +91 22 69477000/69477150 | F: +91 22 69477001/69477090

W: www.hindalco.com | E: hilinvestors@adityabirla.com