



HIL/LHD/ENV/MoEF/439

Date: 25.11.2023

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: Compliance Report of EC conditions for Kujam-I Bauxite Mining project of M/s Hindalco Industries Limited located in Dist- Gumla, Jharkhand for the period April'23 to September'23.

Ref: Environmental Clearance Identification no EC23B001JH143302 dated 21st August 2023

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 April'23 to September'23.

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 Sincerely
FOR HINDALCO INDUSTRIES LIMITED

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

Enclosure: - As Above

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

**Name of the Project : Kujam I Bauxite Mine (80.87 ha)
M/s Hindalco Industries Ltd**

EC Identification No & date : EC23B001JH143302, dated 21.08.2023.

Period of compliance Report : From 1st April 2023 to 30th September 2023

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 concerned laws are already complied with. The decision of SEIAA on the issue of Environmental Clearance are being/ will be complied with.

Condition 2- Gabion Planation 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 & Clime Change. Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

Reply to Condition 2- Progressive plantation is being carried out in consultation with local forest Dept. Total 1200 nos. of saplings have been planted during FY 2023-24 within this lease. A total of 6.10 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 planation work is already going on. Gabion plantation work will be carried out with the consent of landowners. Plant survival rate is being taken care of by regular watering and manuring, Protection of saplings by fencing pillar, Tree guard and chain link fencing.



Plantation and Agriculture 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- Being adhered to. 7.5 m safety zone is being maintained and no mining activity is being carried out in 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, we are not doing any mining/activity in the forest area.

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, this mine is located beyond the ESZ boundary. Hence, it 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.

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 cause 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- Noted and agreed. This is a running mine and reclamation in the mined-out area are being done simultaneously as per the approved mining plan and progressive mine closure plan. However, at the end of the final closure of the mine the entire mined out area will be backfilled and reclaimed for the purpose of plantation, re-grassing, constructing rainwater harvesting pond and agricultural activities as per final mine closure plan.

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. 114 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, it 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- This is an operative mine 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- Agreed. This is an operative mine. Therefore, the land is acquired for mining purposes only after getting the written consent from the respective landowners followed by the DC's order.

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.

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 grant of EC has been published in two local newspaper named Hindustan and Hindustan Times. Paper-cutting enclosed herewith.



Advertisement on EC grant in Hindustan times

Advertisement on EC grant in Hindustan

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 1 Bauxite Mine. As shallow depth mining is being carried out, there is 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 being adhered to.

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

Reply to Condition 19- All statutory clearances have already been obtained as it is a running mine.

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 I (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. Report is attached as **Annexure 2**. Digital 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, metaled road construction etc.) shall be carried out in areas prone to air pollution wherein high levels of PM₁₀ and PM_{2.5} 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.



Condition for

**3-
dust**

Water Sprinkling on Haul Road

**Approved devices
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.

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- All the workers have been provided with PPEs including dust mask and dust respirators. Periodical Occupational health surveillance program of the workers is being carried out and records maintained as per statute. IME & PME report has been 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- Half-yearly EC compliance along with Environmental monitoring reports is being uploaded on company website regularly. The same is also being intimated to PCBs and RO,MOEF & CC. Environmental Display board is already installed at Mine Main Gate. **(Photo)**

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (Respirable Dust) (PM10)	ug/m ³	100	56
02.	Particulate Matter (Respirable Dust) (PM2.5)	ug/m ³	50	28
03.	Sulphur Dioxide (SO ₂)	ug/m ³	50	6.8
04.	Nitrogen Dioxide (NO ₂)	ug/m ³	80	22.7
05.	Ammonia (NH ₃)	ug/m ³	400	<20.0
06.	Ozone (O ₃)	ug/m ³	180	<10.0
07.	Carbon Monoxide (CO)	ppm	0.2	<1.0
08.	Lead (Pb)	ug/m ³	1.0	0.005
09.	Nickel (Ni)	ug/m ³	2.0	<6.0
10.	Arsenic (As)	ug/m ³	0.5	<2.0
11.	Barium (Ba)	ug/m ³	0.5	<1.0
12.	Cadmium (Cd)	ug/m ³	0.1	<0.5

Sample Description: Measurement of Noise
Sampling Method: Instrumental using Sound level Meter
Sample collected on: 07/01/2023

Parameter	Value	Unit	Standard
Leq (dB)	64	dB	75
Max (dB)	74	dB	85

Sample Description: Measurement of Spot Noise
Sampling Method: Instrumental using Sound level Meter
Sample collected on: 07/02/2023

Parameter	Value	Unit	Standard
Leq (dB)	60	dB	75
Max (dB)	70	dB	85

Environmental Display Board

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. However, shallow depth mining is being carried out in Kujam I Bauxite Mine. Hence, Mining operation does not involve intersection of ground water table.

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 later 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 done and the water analysis report is attached as **Annexure-2**.

However, the flow rate of the springs and perennial nallahs flowing in and around the mine lease area will be monitored. Piezometer is installed in mine to monitor ground water table. Shallow depth mining is being carried out, hence there is no intersection of ground water table during the mining process. Drinking water is being provided to nearby villages regularly.

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. There is no chance of intersection of ground water table during mining operation at present and in future.

A piezometer has been installed for monitoring of ground water level. Water quality and level report are attached herewith as **Annexure 1 & 2**.

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 its Regional Office, Central Ground Water Authority and Regional Director, Central Ground Water Board, State Pollution Control Board and Central Pollution Control Board. Clearly showing the trend analysis on 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 out and record is being maintained for the same. Water quality Report is attached as **Annexure-2** and level report are attached herewith as **Annexure 1**.



Installation of Piezometer at Kujam I Mine

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 runoff generated from the mines. All water parameters as per the norm are being monitored regularly. The report is attached as **Annexure-2**.

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 in the mine premises. Photographs of the same have been attached below. Water Positivity study of Kujam I and Kujam II bauxite mines has been carried out recently. Total amount of water recharge has been found 24,186.09 m³.



Rainwater Harvesting Pond in mines.

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.

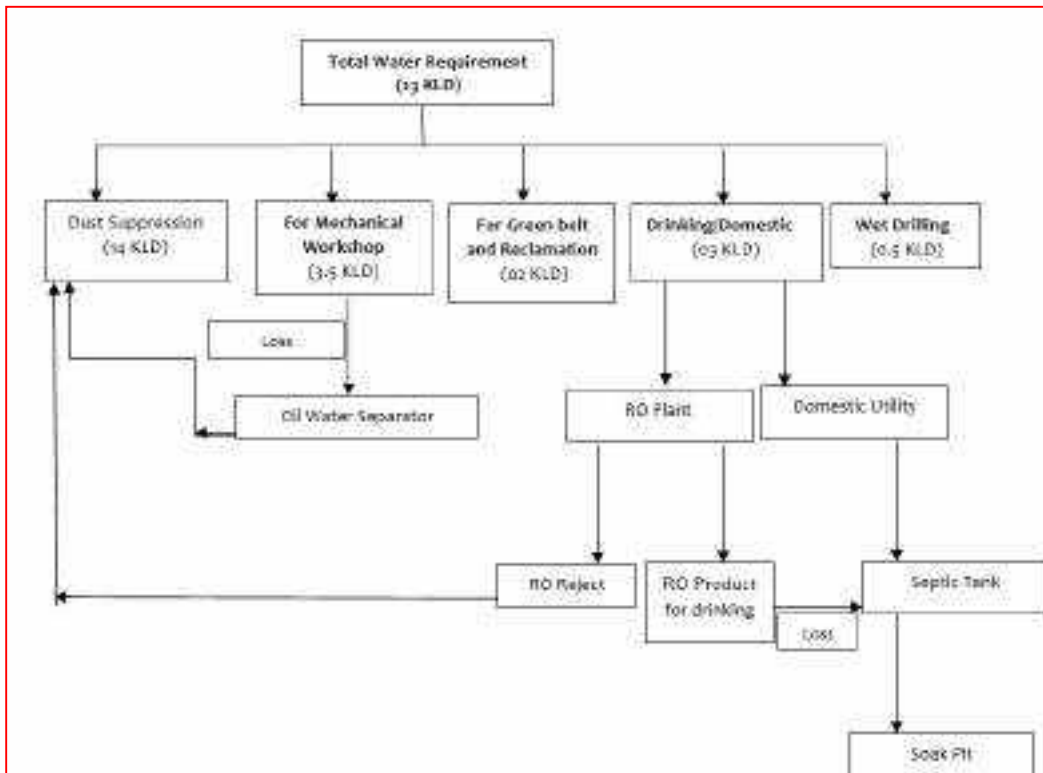
Reply to Condition 7- There is no industrial wastewater generation within the mine lease area. We are not discharging any wastewater outside the mine lease area. However, for washing of HEMM, Effluent treatment mechanism (Oil and grease trap) has been installed in Kujam mine.



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 only for drinking purposes.



Washing ramp with Oil and Grease Trap

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 operation at present and in future.

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. Shallow depth mining methodology is adopted for mining process, hence there is 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 rainwater harvesting plan to augment ground water has been prepared and suitable measures like water harvesting pond etc. are created for augmentation of ground water in Mine 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. 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- A detailed rainwater harvesting plan to augment ground water has been prepared and suitable measures like water harvesting pond etc. are created for augmentation of ground water in Mine.

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- Noted and being adhered to. Blast vibration study is being carried out at regular intervals and a report is attached.

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- Noted. Mining operation is restricted to daytime only. So there is 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- Noted

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- Noted

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 excavated area is being back filled concurrently and back filled area is used for afforestation/agricultural activity as required. Monitoring and management of rehabilitated areas is continuing through supervision.



Reclaimed area



Paddy Cultivation on 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- Noted

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

Reply to Condition 5- Calendar plan including excavation, quantum of bauxite ore and waste is being done as per IBM approved mining plan scheme in scientific manner. Report is attached herewith 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- Noted and being complied with as per the requirement. However, Monthly as well as annual return is being submitted to IBM and District Mining office at stipulated timeframe.

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

Reply to Condition 8- Dispensary facilities with qualified doctor and nurse are available in Kujam I Bauxite Mine. Photograph has been 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- Backfilling and reclamation is being done concurrently by overburden and waste rock. No OB dump is present in mines. The mining is being carried out as per the approved mining plan by IBM as well as the guidelines of DGMS. Data pertaining to backfilling is enclosed as **Annexure 4**. Monitoring and management of rehabilitated areas is being done through effective supervision.

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- Backfilling and reclamation is being done concurrently by overburden and waste/reject rock. No waste dump is present in mines. The mining is being carried out as per the

approved mining plan by IBM as well as the guidelines of DGMS. Data pertaining to backfilling is enclosed as **Annexure 4**. Monitoring and management of rehabilitated areas is being done through effective supervision.

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 is being done after concurrent backfilling as per approved mining plan scientifically.

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- Noted. There is no dump present currently on site as we are following concurrent reclamation process.

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- Noted. There is no dump present currently on site as we are following concurrent reclamation process. 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- No run-off is generated from mining activities. However, to collect & manage rainwater during monsoon, part of mined out area is used as a settling tank for the runoff. Rainwater stored is being used for watering the mine area, roads, green belt development and sprinkling as necessary. Catch drains, Garland drains of appropriate size are being constructed in both around the mine pit to prevent runoff of water and flow of sediments directly into the agricultural field and water bodies, if applicable.



Retaining wall to prevent solid wash-off.



Retaining wall and Garland drain around mine pit.

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- No run-off is generated from mining activities. However, to collect & manage rainwater during monsoon, part of mined out area is used as a settling tank for the runoff. Rainwater stored is being used for watering the mine area, roads, green belt development and sprinkling as necessary.

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- Topsoil is being used for reclamation and rehabilitation simultaneously. Temporary soil is being stacked separately in the mining premises, if required and the same is being used for reclamation purpose within a month . There is no external OB dump. The excavated area is being back filled concurrently and back filled area is used for afforestation/agricultural activity as required. Monitoring and management of rehabilitated areas is continuing 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- Haul road has been constructed for transportation of minerals. Mobile water tankers with sprinkling facilities have been provided along-haul roads, loading, unloading & at transfer points to arrest dust emission. Regular maintenance of vehicles is undertaken to minimize vehicular emission. All measures are being taken to control vehicular emission. The vehicles are being covered with tarpaulin while transportation of mineral. PUC Certificates have been attached as **Annexure 7**.



Bauxite transportation with tarpaulin covered trucks.



Water Sprinkling on Haul Road

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- Haul road has been constructed for transportation of minerals. Mobile water tankers with sprinkling facilities have been provided on long-haul roads, loading, unloading & at transfer points to arrest dust emission. Regular maintenance of vehicles is undertaken to minimize vehicular emission. All measures are being taken to control vehicular emission. The vehicles are being covered with tarpaulin while transportation of mineral.

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- Haul road has been constructed for transportation of minerals. Mobile water tankers with sprinkling facilities have been provided on long-haul roads, loading, unloading & at transfer points to arrest dust emission. Regular maintenance of vehicles is undertaken to minimize vehicular emission. All measures are being taken to control vehicular emission. The vehicles are being covered with tarpaulin while transportation of mineral. No transportation of materials is being carried out after sunset.

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 in progress in safety zone of mine lease already. Plantation work is being governed as per approved mining plan and EC granted.

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. Total 1200 nos. of saplings have been planted during FY 2023-24 within this lease. A total of 6.10 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

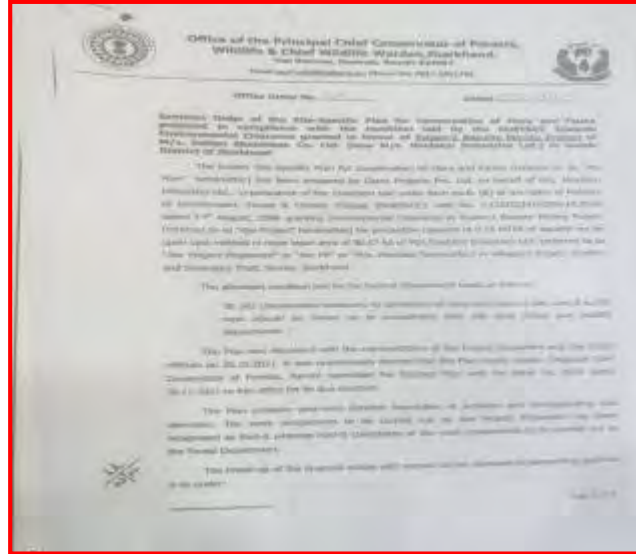
Condition 3- The Project Proponent shall make necessary alternative arrangements for livestock feed by developing grazing land with a view to compensating those areas which are coming within the mine lease. The development of such grazing land shall be done in consultation with the State Government. 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- We are acquiring land on the lease basis in consultation with the State Government and with due consent of the landowner. After completing mining operation followed by reclamation and topsoil spreading, we return the land to the landowner for agriculture purpose. Hence, we do not deteriorate the quality of the land and there is no need to create grazing land. Mining operation doesn't involve felling of trees and all the big trees present in the operation site are carefully protected.

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 Wildlife Conservation Plan in consultation with State Forest Department and also obtained approval letter from Principal Chief Conservator of Forest, Wildlife & Chief Wildlife Warden, Jharkhand for conservation and protection of flora and fauna in the core and buffer zone for Kujam I Bauxite Mines. Approval letter with the approved WLCP (Memo No 1871, dated 02.12.2021). However, Mine is located far beyond the eco-sensitive zone.



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.

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 are 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- Regular and 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 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 carried out to educate the local community on healthcare , sanitation, hygiene etc. We organise preventive and curative camps to control the Malaria epidemic. Also, the Tuberculosis patients in the neighborhood are being provided with the “Poshan Kit” under PM Nikshay Yojana. We collaborate with Jharkhand State AIDS control society to conduct awareness programme. We are working to make Ghagra and Bishunpur block Anaemia free, in this regard we have conducted more than 7000 strip tests to identify cases and take proper actions.

Furthermore, awareness has been created for Sanitation, Personal Hygiene, Hand washing and not to defecate in the open periodically through “Swacchta Abhiyan”. Education and awareness for Women Health and Hygiene, hazard of tobacco and alcohol use is being given on regular intervals to the local villagers.

All workers and company staff are provided with proper PPEs. Base line HRA for all the categories of workers will be carried out in the future. However, we conduct IME/PME for the health and wellbeing of the workers in the mines.





Medical Camp and awareness programme in nearby villages

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. A total 12 number of medical camp and 1no of mega medical camps have been organized from Apr'23 to sep'23. QNEA are being conducted periodically to monitor the levels of Silica, Asbestos, Iron etc. Report is being attached as **Annexure 6**.



Medical Camp in nearby villages and schools

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), (e) 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 project is being carried out and records are being maintained. IME/PME record is attached in compliance report 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/labours 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.

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- Year wise expenditure is being reported to the ministry and its Regional Office located at Ranchi. Report 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- Year wise expenditure is being reported to the ministry and its Regional Office located at Ranchi. Report 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- Year wise expenditure is being reported to the ministry and its Regional Office located at Ranchi. Report 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. Also, the status of compliance is uploaded on the website of the company on 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 – Noted and will be complied with. However, Digital Map of land use and land cover is being prepared every year and is being submitted to IBM Ranchi. The same will be submitted to IRO, Ranchi with EC compliance report as **Annexure 10**.

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- This is an operative mine hence provision related to financial closure is not applicable.

Condition 3- It shall be mandatory on 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 duly and timely submitted.

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 should be set up under the control of a Senior Executive, who is reporting directly to the Head of the Organization. The document attached 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. The mitigative measures for control of ground vibrations and to arrest fly rocks and boulders should be implemented.

Reply to Condition 9- Blasting time is fixed during Lunch Time i.e. 1.00 PM -2.00 PM. Controlled blasting method is in practice. Ground vibration study has been conducted by IIT, Kharagpur. All efforts are being taken to mitigate 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 is adopted at our mines.



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 project are being carried out and records maintained as per statute.

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- This is an existing mine, and 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/ labour 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- We are doing mining operations in a very shallow depth of plateau areas. During mining operations we carry out drilling and blasting for the production of bauxite. After

removing OB, we extract bauxite from the mine pit. However, there are no outcrops of rock in surrounding areas of our mines, hence this is not applicable for our mine.

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.

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 receiving copy has been attached as **Annexure 9**. 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- Six monthly reports on the status of the EC are being duly and timely submitted.

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 26- 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

Annexure 1

Piezometer reading - Kujam I Bauxite Mines

S No	Month	Depth (meter)
1	Apr-23	34.27
2	May-23	35.66
3	Jun-23	34.46
4	Jul-23	34.74
5	Aug-23	32.47
6	Sep-23	31.14



ENVIRONMENTAL LABORATORIES &

Plot No-30, Mansarovar Enclave, Tupudana
Hatia, Ranchi-834003 (JHARKHAND)
GST NO:- 20AAECC97130124

ENGINEERING SERVICES PVT, LTD.

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

Phone no.: 0651-2290103

Website : www.elespl.co.in



TEST REPORT

Test Report No. : ELES/RNC/2023/1956	Report Release Date : 12.06.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000000917F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1383
Address	: Lohardaga, Jharkhand-835302	Location	: Kujam Quarry 430 Kujam-I Bauxite Mine (80.87ha)
		Sampling Date	: 13.04.2023 to 14.04.2023
Plant Status	: Operational	Sample Received Date	: 10.05.2023
Period of Analysis	: 10.05.2023 to 08.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 31	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear
5	Longitude	: 84°19'9.46"E	6	Latitude	: 23°18'30.17"N

NABL Accredited

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	68	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part-24): 2019	38	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	6.9	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	20.8	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part-25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	0.01	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	2.1	06 (Annual)



End of Report

Dr. Deependra Kumar Sinha
Authorized Signatory
Dr. Deependra Kumar Sinha
Ph: D. Environmental Engg.
ELES Pvt. Ltd, Technical Manager

Page 1 of 1

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ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
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TEST REPORT

Test Report No.	: ELES/RNC/2023/1956	Report Release Date	: 12.06.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1383
Address	: Lohardaga, Jharkhand-835302	Location	: Kujam Quarry 430 Kujam-I Bauxite Mine (80.87ha)
		Sampling Date	: 13.04.2023 to 14.04.2023
Plant Status	: Operational	Sample Received Date	: 10.05.2023
Period of Analysis	: 10.05.2023 to 08.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

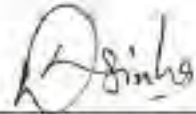
METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 31	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear
5	Longitude	: 84°19'9.46"E	6	Latitude	: 23°18'30.17"N

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	µg/m ³	IS:5182 (part-11): 2006;RA2017	<1.0	05(Annual)
Benzo (a) Pyrene*	ng/m ³	IS:5182 (Part-12): 2004;RA2019	<0.5	01(Annual)

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



****End of Report****


Authorized Signatory
Dr. Deependra Kumar Sinha
Ph. D. Environmental Engg.
ELES Pvt. Ltd. Technical Manager



ENVIRONMENTAL LABORATORIES &

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No.	: ELES/RNC/2023/1957	Report Release Date	: 12.06.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000000918F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1384
Address	: Lohardaga, Jharkhand-835302	Location	: Talabkhanta 4A13 Kujam-I Bauxite Mine (80.87ha)
		Sampling Date	: 13.04.2023 to 14.04.2023
Plant Status	: Operational	Sample Received Date	: 10.05.2023
Period of Analysis	: 10.05.2023 to 08.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 31	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear
5	Longitude	: 84°18'56.50"E	6	Latitude	: 23°18'21.76"N

NABL Accredited

Discipline : Chemical

Group : Atmospheric Pollution

Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	59	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	32	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	6.8	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	23.5	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	0.007	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

Dr. Deependra Kumar Sinha
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Dr. Deependra Kumar Sinha
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Page 1 of 1

ELES Pvt. Ltd. Technical Manager

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ENVIRONMENTAL LABORATORIES &

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No.	: ELES/RNC/2023/1957	Report Release Date	: 12.06.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1384
Address	: Lohardaga, Jharkhand-835302	Location	: Talabkhanta 4A13 Kujam-I Bauxite Mine (80.87ha)
		Sampling Date	: 13.04.2023 to 14.04.2023
Plant Status	: Operational	Sample Received Date	: 10.05.2023
Period of Analysis	: 10.05.2023 to 08.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 31	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear
5	Longitude	: 84°18'56.50"E	6	Latitude	: 23°18'21.76"N

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	µg/m ³	IS:5182 (part-11): 2006;RA2017	<1.0	05(Annual)
Benzo (a) Pyrene*	ng/m ³	IS:5182 (Part-12): 2004;RA2019	<0.5	01(Annual)

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



End of Report


Authorized Signatory
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 ELES Pvt. Ltd. Technical Manager

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CIN: U74999JH2018PT011225

TEST REPORT

Test Report No.	: ELES/RNC/2023/1958	Report Release Date	: 12.06.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC88392300000919F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1385
Address	: Lohardaga, Jharkhand-835302	Location	: 4 A11 Football Ground Kujam-I Bauxite Mine (80.87ha)
		Sampling Date	: 13.04.2023 to 14.04.2023
Plant Status	: Operational	Sample Received Date	: 10.05.2023
Period of Analysis	: 10.05.2023 to 08.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 31	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear
5	Longitude	: 84°18'47.03"E	6	Latitude	: 23°17'48.77"N

NABL Accredited				
Discipline : Chemical			Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	59	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	31	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	7.5	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	17.3	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	0.011	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)



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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No.	: ELES/RNC/2023/1958	Report Release Date	: 12.06.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1385
Address	: Lohardaga, Jharkhand-835302	Location	: 4 A11 Football Ground Kujam-I Bauxite Mine (80.87ha)
		Sampling Date	: 13.04.2023 to 14.04.2023
Plant Status	: Operational	Sample Received Date	: 10.05.2023
Period of Analysis	: 10.05.2023 to 08.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved


METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 31	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear
5	Longitude	: 84°18'47.03"E	6	Latitude	: 23°17'48.77"N

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	µg/m ³	IS:5182 (part-11): 2006;RA2017	<1.0	05(Annual)
Benzo (a) Pyrene*	ng/m ³	IS:5182 (Part-12): 2004;RA2019	<0.5	01(Annual)

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



****End of Report****


 Authorized Signatory
 Dr. Deependra Kumar Sinha
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 ELES Pvt. Ltd. Technical Manager

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ENVIRONMENTAL LABORATORIES &

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TEST REPORT

Test Report No.	: ELES/RNC/2023/1959	Report Release Date	: 12.06.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000000920F		


CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1386
Address	: Lohardaga, Jharkhand-835302	Location	: Camp; Kujam-I Bauxite Mine (80.87ha)
		Sampling Date	: 13.04.2023 to 14.04.2023
Plant Status	: Operational	Sample Received Date	: 10.05.2023
Period of Analysis	: 10.05.2023 to 08.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 31	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear
5	Longitude	: 84°18'42.75"E	6	Latitude	: 23°17'39.60"N

NABL Accredited				
Discipline : Chemical			Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	69	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part-24): 2019	37	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	8.9	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	22.8	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part-25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	0.013	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****


Authorized Signatory
Dr. Deependra Kumar Sinha
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Page 1 of 1

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TEST REPORT

Test Report No.	: ELES/RNC/2023/1959	Report Release Date	: 12.06.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1386
Address	: Lohardaga, Jharkhand-835302	Location	: Camp; Kujam-I Bauxite Mine (80.87ha)
		Sampling Date	: 13.04.2023 to 14.04.2023
Plant Status	: Operational	Sample Received Date	: 10.05.2023
Period of Analysis	: 10.05.2023 to 08.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 31	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear
5	Longitude	: 84°18'42.75"E	6	Latitude	: 23°17'39.60"N

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	µg/m ³	IS:5182 (part-11); 2006;RA2017	<1.0	05(Annual)
Benzo (a) Pyrene*	ng/m ³	IS:5182 (Part-12); 2004;RA2019	<0.5	01(Annual)

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



****End of Report****

Authorized Signatory
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ENVIRONMENTAL LABORATORIES &

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TEST REPORT

Test Report No. : ELES/RNC/2023/1964	Report Release Date : 12.06.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000000925F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1391
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pakri Gada Village
		Sampling Date	: 11.04.2023 to 12.04.2023
Piant Status	: Operational	Sample Received Date	: 10.05.2023
Period of Analysis	: 10.05.2023 to 08.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 30	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 62	4	Weather Condition	: Clear
5	Longitude	: 84°14'52.25"N	6	Latitude	: 23°17'41.21"E

NABL Accredited				
Discipline : Chemical			Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	63	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	34	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	6.2	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	15.5	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

Authorized Signatory
Dr. Deependra Kumar Sinha
Environmental Engg

Page 1 of 1

ELES Pvt. Ltd. Technical Manager

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ENVIRONMENTAL LABORATORIES &

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CIN: U74399JK2004PTC011124

TEST REPORT

Test Report No. : ELES/RNC/2023/1964	Report Release Date : 12.06.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1391
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pakri Gada Village
		Sampling Date	: 11.04.2023 to 12.04.2023
Plant Status	: Operational	Sample Received Date	: 10.05.2023
Period of Analysis	: 10.05.2023 to 08.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 30	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 62	4	Weather Condition	: Clear
5	Longitude	: 84°14'52.25"N	6	Latitude	: 23°17'41.21"E

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	µg/m ³	IS:5182 (part-11): 2006;RA2017	<1.0	05(Annual)
Benzo (a) Pyrene*	ng/m ³	IS:5182 (Part-12): 2004;RA2019	<0.5	01(Annual)

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



****End of Report****

Dr. Deependra Kumar Singh
Authorized Signatory
 Dr. Deependra Kumar Singh
 Ph. D. Environmental Engg.
 ELES Pvt Ltd. Technical Manager

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TEST REPORT

Test Report No. : ELES/RNC/2023/1965	Report Release Date : 12.06.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000000926F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1392
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pol Pol Village
		Sampling Date	: 11.04.2023 to 12.04.2023
Plant Status	: Operational	Sample Received Date	: 10.05.2023
Period of Analysis	: 10.05.2023 to 08.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 30	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 62	4	Weather Condition	: Clear

NABL Accredited				
Discipline : Chemical			Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	55	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	34	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	7.4	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	15.2	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

Dr. Deependra Kumar Singh
Authorized Signatory
 Dr. Deependra Kumar Singh
 Ph. D Environmental Engg.
 ELES Pvt. Ltd. Technical Manager

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CIN: U74906JH2016PTC211225

TEST REPORT

Test Report No.	: ELES/RNC/2023/1965	Report Release Date	: 12.06.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1392
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pol Pol Village
		Sampling Date	: 11.04.2023 to 12.04.2023
Plant Status	: Operational	Sample Received Date	: 10.05.2023
Period of Analysis	: 10.05.2023 to 08.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 30	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 62	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	µg/m ³	IS:5182 (part-11): 2006;RA2017	<1.0	05(Annual)
Benzo (a) Pyrene*	ng/m ³	IS:5182 (Part-12): 2004;RA2019	<0.5	01(Annual)

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



****End of Report****


 Authorized Signatory
 Dr. Dospandri Kumar Singh
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 ELES Pvt. Ltd. Technical Manager

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TC-4899

TEST REPORT

Test Report No.	: ELES/RNC/2023/1966	Report Release Date	: 12.06.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000000927F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindaleo Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1393
Address	: Lohardaga, Jharkhand-835302	Location	: Near Shakhupani Village
		Sampling Date	: 11.04.2023 to 12.04.2023
Plant Status	: Operational	Sample Received Date	: 10.05.2023
Period of Analysis	: 10.05.2023 to 08.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 30	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 62	4	Weather Condition	: Clear

NABL Accredited				
Discipline : Chemical			Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	62	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	34	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	7.7	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	19.2	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)



End of Report

Dr. Deshpande Ruman Singh
Authorized Signatory
 Dr. Deshpande Ruman Singh
 Ph. D. Environmental Engg.
 ELES Pvt. Ltd. Technical Manager

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CIN: U74999JH2012PTC011125

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TEST REPORT

Test Report No.	: ELES/RNC/2023/1966	Report Release Date	: 12.06.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1393
Address	: Lohardaga, Jharkhand-835302	Location	: Near Shakhupani Village
		Sampling Date	: 11.04.2023 to 12.04.2023
Plant Status	: Operational	Sample Received Date	: 10.05.2023
Period of Analysis	: 10.05.2023 to 08.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 30	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 62	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	µg/m ³	IS:5182 (part-11): 2006;RA2017	<1.0	05(Annual)
Benzo (a) Pyrene*	ng/m ³	IS:5182 (Part-12): 2004;RA2019	<0.5	01(Annual)

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



****End of Report****

Authorized Signatory

Dr. Deependra Kumar Sinha
Ph. D. Environmental Engg.
ELES Pvt. Ltd. Technical Manager

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CIN:U74999JH2018PT001129

TEST REPORT

Test Report No. : ELES/RNC/2023/1967	Report Release Date : 12.06.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000000928F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindaico Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1394
Address	: Lohardaga, Jharkhand-835302	Location	: Near Dipa Kujam Village
		Sampling Date	: 11.04.2023 to 12.04.2023
Plant Status	: Operational	Sample Received Date	: 10.05.2023
Period of Analysis	: 10.05.2023 to 08.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 30	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 62	4	Weather Condition	: Clear

NABL Accredited				
Discipline : Chemical			Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	61	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	33	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	7.3	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	15.6	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

Desendra
 Authorized Signatory
 Dr. Desendra Kumar Sinha
 Ph. D. Environmental Engg
 ELES Pvt. Ltd. Technical Manager

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TEST REPORT

Test Report No. : ELES/RNC/2023/1967	Report Release Date : 12.06.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1394
Address	: Lohardaga, Jharkhand-835302	Location	: Near Dipa Kujam Village
		Sampling Date	: 11.04.2023 to 12.04.2023
Plant Status	: Operational	Sample Received Date	: 10.05.2023
Period of Analysis	: 10.05.2023 to 08.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

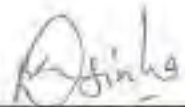
METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 30	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 62	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	µg/m ³	IS:5182 (part-11): 2006;RA2017	<1.0	05(Annual)
Benzo (a) Pyrene*	ng/m ³	IS:5182 (Part-12): 2004;RA2019	<0.5	01(Annual)

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



****End of Report****


 Authorized Signatory
 Dr. Deependra Kumar Sinha
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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RAN/2023/0495	Report Release Date : 06.05.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RAN/2023/DW/0380
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 07.04.2023
		Sample Received Date	: 26.04.2023
Mines Status	: Operational	Type of Sample	: Drinking Water
Period of Analysis	: 26.04.2023 to 05.05.2023	Source/Location of Sample	: Kujam I- Bauxite Mines (80.87 ha)
		Sampling Procedure	: ELES/DOC/SMPL/01
		Sample Collected By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

Discipline : Chemical		Group : Water		Regulatory Limit as per IS 10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
pH (at 25.1 °C)	-	APHA 23 rd Ed.2017, 4500-H ¹	7.08	6.5-8.5	No Relaxation
Turbidity	NTU	APHA 23 rd Ed.2017, 2130 B	0.38	1.0	5.0
Taste	-	APHA 23 rd Ed.2017, 2160 C	Agreeable	Agreeable	Agreeable
Odour	-	IS 3025 (Part-5) :2018	Agreeable	Agreeable	Agreeable
Colour	Hazen	APHA 23 rd Ed.2017, 2120B&D	1.0	5	15
Total Dissolved Solids (TDS)	mg/L	APHA 23 rd Ed.2017, 2540B,C&D	404	500	2000
Chloride (as Cl)	mg/L	APHA 23 rd Ed.2017, 4500 Cl B	70.8	250	1000
Fluoride (as F)	mg/L	APHA 23 rd Ed.2017, 4500 F-D	BDL (DL: 0.1)	1.0	1.5
Total Alkalinity (as CaCO ₃)	mg/L	APHA 23 rd Ed.2017, 2320 B	109	200	600
Total Hardness (as CaCO ₃)	mg/L	APHA 23 rd Ed.2017, 2340 C	165	200	600
Sulphate (as SO ₄)	mg/L	APHA 23 rd Ed.2017, 4500 SO ₄ ²⁻ -E	24.2	200	400
Nitrate (as NO ₃)	mg/L	APHA 23 rd Ed.2017, 4500 NO ₃ -B	3.22	45	No Relaxation
Phenolic Compound (as C ₆ H ₅ OH)	mg/L	IS 3025 (Part-43):1992;RA2019	BDL (DL: 0.0005)	0.001	0.002

Page 1 of 4

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CIN: U74999JH2018PTC011425

TEST REPORT

Test Report No. : ELES/RAN/2023/0495	Report Release Date : 06.05.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

Discipline : Chemical		Group : Water		Regulatory Limit as per IS10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
Cyanide (as CN)	mg/L	APHA 23 rd Ed.2017, 4500 CN-E	BDL (DL: 0.012)	0.05	No Relaxation
Residual Free Chlorine (RFC)	mg/L	IS 3025 (Part-26):2021	BDL (DL: 0.1)	0.02	1.0
Calcium (as Ca)	mg/L	APHA 23 rd Ed.2017, 3500 Ca B	44	75	200
Discipline : Chemical		Group : Residues in Water			
Aluminum (as Al)	mg/L	IS 3025 (Part-55): 2003; RA2019	BDL (DL: 0.02)	0.03	0.2
Arsenic (as As)	mg/L	IS 3025 (Part 37): 2022	BDL (DL: 0.005)	0.01	No Relaxation
Boron (as B)	mg/L	IS 3025(Part-57): 2005; RA2021	BDL (DL: 0.2)	0.5	1.0
Cadmium (as Cd)	mg/L	APHA 23 rd Ed.2017, 3111B	BDL (DL: 0.003)	0.003	No Relaxation
Total Chromium (as Cr)	mg/L	APHA 23 rd Ed.2017, 3111B	BDL (DL: 0.03)	0.05	No Relaxation
Copper (as Cu)	mg/L	APHA 23 rd Ed.2017, 3111B	BDL (DL: 0.03)	0.05	1.5
Iron (as Fe)	mg/L	APHA 23 rd Ed.2017, 3111B	0.244	1.0	1.0
Lead (as Pb)	mg/L	APHA 23 rd Ed.2017, 3111B	BDL (DL: 0.01)	0.01	No Relaxation
Manganese (as Mn)	mg/L	APHA 23 rd Ed.2017, 3111B	BDL (DL: 0.05)	0.1	0.3
Mercury (as Hg)	mg/L	IS 3025 (Part-48): 1994; RA2019	BDL (DL: 0.001)	0.001	No Relaxation
Selenium (as Se)	mg/L	IS 3025 (Part-56): 2003; RA2019	BDL (DL: 0.01)	0.01	No Relaxation
Zinc (as Zn)	mg/L	APHA 23 rd Ed.2017, 3111B	BDL (DL: 0.1)	5	15

Remarks: 1. pH & RFC done at Lab.

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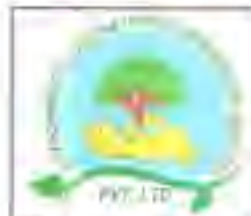
CIN: U74999JH2019PTC011125

TEST REPORT

Test Report No. : ELES/RAN/2023/0495	Report Release Date : 06.05.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

Discipline : Chemical		Group : Water		
Parameter	Unit	Test Protocol	Result	Regulatory Limit as per IS 10500:2012
Pesticides				
Alachlor*	µg/L	APHA	BDL (DL: 1.0)	20
Atrazine*	µg/L	APHA	BDL (DL: 1.0)	2
Aldrin/Dieldrin*	µg/L	APHA	BDL (DL: 0.01)	0.03
Alpha HCH*	µg/L	APHA	BDL (DL: 0.001)	0.01
Beta HCH*	µg/L	APHA	BDL (DL: 0.01)	0.04
Butachlor*	µg/L	APHA	BDL (DL: 10)	125
Chlorpyrifos*	µg/L	APHA	BDL (DL: 10)	30
Delta HCH*	µg/L	APHA	BDL (DL: 0.01)	0.04
2,4 dichlorophenoxyacetic acid*	µg/L	APHA	BDL (DL: 10)	30
DDT(o,p and p,p-isomers of DDT,DDE and DDD)*	µg/L	APHA	BDL (DL: 0.5)	1
Endosulfan (alpha, beta, and sulphate)*	µg/L	APHA	BDL (DL: 0.1)	0.4
Ethion*	µg/L	APHA	BDL (DL: 0.5)	3
Gamma HCH (Lindane)*	µg/L	APHA	BDL (DL: 0.5)	2
Isoproturon*	µg/L	APHA	BDL (DL: 0.5)	9

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TEST REPORT

Test Report No. : ELES/RAN/2023/0495	Report Release Date : 06.05.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

Discipline : Biological			Group : Water		Regulatory Limit as per IS 10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit	
Total Coliform	Per 100 mL	IS 15185:2016; RA 2021	Not Detected	Shall not be detected		
Escherichia Coli (E. Coli)	Per 100 mL	IS 15185:2016; RA 2021	Not Detected			
Discipline : Chemical			Group : Water		Regulatory Limit as per IS 10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit	
Anionic Surfactants (as MBAS)*	mg/L	IS 3025 Part 68	BDL (DL: 0.1)	0.2	1.0	
Mineral Oil*	mg/L	CL-6, IS: 3025 (P-39)	BDL (DL: 0.1)	1.0	No relaxation	
Polynuclear Aromatic Hydrocarbons (PAH)*	mg/L	APHA 23 rd Edition	BDL (DL: 0.0001)	0.0001	No relaxation	
Polychlorinated Biphenyls (PCB)*	mg/L	APHA 23 rd Edition	BDL (DL: 0.0005)	0.0005	No relaxation	

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



****End of Report****

Rekha Saxena
Authorised Signatory
Rekha Saxena
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 Director
 ELES Pvt. Ltd.



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TC-0019

TEST REPORT

Test Report No.	: ELES/RNC/2023/2287	Report Release Date	: 01.07.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000001209F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1760
Address	: Lohardaga, Jharkhand-835302	Location	: Kujam Quarry 430 Kujam-I Bauxite Mine (80.87ha)
		Sampling Date	: 08.05.2023 to 09.05.2023
Plant Status	: Operational	Sample Received Date	: 06.06.2023
Period of Analysis	: 06.06.2023 to 09.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 34	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear
5	Longitude	: 84°19'9.46"E	6	Latitude	: 23°18'30.17"N

NABL Accredited				
Discipline : Chemical			Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	62	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part-24): 2019	30	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	7.6	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	17.2	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part-25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	0.009	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

Authorized Signatory

Dr. Deependra Kumar Sinha

Ph. D Environmental Engg.
ELES Pvt. Ltd. Technical Manager

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No.	: ELES/RNC/2023/2287	Report Release Date	: 01.07.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1760
Address	: Lohardaga, Jharkhand-835302	Location	: Kujam Quarry 430 Kujam-1 Bauxite Mine (80.87ha)
		Sampling Date	: 08.05.2023 to 09.05.2023
Plant Status	: Operational	Sample Received Date	: 06.06.2023
Period of Analysis	: 06.06.2023 to 09.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

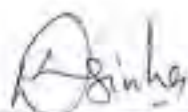
METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 34	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear
5	Longitude	: 84°19'9.46"E	6	Latitude	: 23°18'30.17"N

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	µg/m ³	IS:5182 (Part-11); 2006;RA2017	<1.0	05(Annual)
Benzo (a) Pyrene*	ng/m ³	IS:5182 (Part-12); 2004;RA2019	<0.5	01(Annual)

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



****End of Report****


Authorized Signatory
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ELES PVT. LTD. Technical Manager



ENVIRONMENTAL LABORATORIES &

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TEST REPORT

Test Report No.	: ELES/RNC/2023/2288	Report Release Date	: 01.07.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000001210F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1761
Address	: Lohardaga, Jharkhand-835302	Location	: Talabkhanta 4A13 Kujam-I Bauxite Mine (80.87ha)
		Sampling Date	: 08.05.2023 to 09.05.2023
Plant Status	: Operational	Sample Received Date	: 06.06.2023
Period of Analysis	: 06.06.2023 to 09.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 34	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear
5	Longitude	: 84°18'56.50"E	6	Latitude	: 23°18'21.76"N

NABL Accredited				
Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	53	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-24): 2019	28	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	7.1	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	20.8	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	0.009	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

Dr. Deependra Kumar Sinha
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Dr. Deependra Kumar Sinha

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ELES PVT. LTD. Technical Manager

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TEST REPORT

Test Report No.	: ELES/RNC/2023/2288	Report Release Date	: 01.07.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1761
Address	: Lohardaga, Jharkhand-835302	Location	: Talabkhanta 4A13 Kujam-I Bauxite Mine (80.87ha)
		Sampling Date	: 08.05.2023 to 09.05.2023
Plant Status	: Operational	Sample Received Date	: 06.06.2023
Period of Analysis	: 06.06.2023 to 09.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 34	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear
5	Longitude	: 84°18'56.50"E	6	Latitude	: 23°18'21.76"N

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	µg/m ³	IS:5182 (Part-11): 2006;RA2017	<1.0	05(Annual)
Benzo (a) Pyrene*	ng/m ³	IS:5182 (Part-12): 2004;RA2019	<0.5	01(Annual)

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



****End of Report****

Authorized Signatory
Dr. Deependra Kumar Sinha
Ph. D. Environmental Engg.
ELES Pvt. Ltd. Technical Manager

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ENVIRONMENTAL LABORATORIES &

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TEST REPORT

Test Report No. : ELES/RNC/2023/2289	Report Release Date : 01.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000001211F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1762
Address	: Lohardaga, Jharkhand-835302	Location	: 4 A11 Football Ground Kujam-I Bauxite Mine (80.87ha)
Plant Status	: Operational	Sampling Date	: 08.05.2023 to 09.05.2023
Period of Analysis	: 06.06.2023 to 09.06.2023	Sample Received Date	: 06.06.2023
		Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 34	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear
5	Longitude	: 84°18'47.03"E	6	Latitude	: 23°17'48.77"N

NABL Accredited				
Discipline : Chemical			Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	57	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	28	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	6.9	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	19.6	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	0.009	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

Authorized Signatory
Dr. Deependra Kumar Sinha
ELES Pvt. Ltd., Technical Manager

Page 1 of 1

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ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
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CIN: U74999JH2018PTC011225

TEST REPORT

Test Report No. : ELES/RNC/2023/2289	Report Release Date : 01.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1762
Address	: Lohardaga, Jharkhand-835302	Location	: 4 A/1 Football Ground Kujam-I Bauxite Mine (80.87ha)
		Sampling Date	: 08.05.2023 to 09.05.2023
Plant Status	: Operational	Sample Received Date	: 06.06.2023
Period of Analysis	: 06.06.2023 to 09.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 34	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear
5	Longitude	: 84°18'47.03"E	6	Latitude	: 23°17'48.77"N

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	µg/m ³	IS:5182 (Part-11): 2006;RA2017	<1.0	05(Annual)
Benzo (a) Pyrene*	ng/m ³	IS:5182 (Part-12): 2004;RA2019	<0.5	01(Annual)

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



****End of Report****

Authorized Signatory
Dr. Deependra Kumar Sinha
Ph. D. Environmental Engg.
ELES Pvt. Ltd. Technical Manager

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ENVIRONMENTAL LABORATORIES &

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TC-8039

TEST REPORT

Test Report No. : ELES/RNC/2023/2290	Report Release Date : 01.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000001212F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindaleo Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1763
Address	: Lohardaga, Jharkhand-835302	Location	: Camp; Kujam-I Bauxite Mine (80.87ha)
Plant Status	: Operational	Sampling Date	: 08.05.2023 to 09.05.2023
Period of Analysis	: 06.06.2023 to 09.06.2023	Sample Received Date	: 06.06.2023
		Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 34	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear
5	Longitude	: 84°18'42.75"E	6	Latitude	: 23°17'39.60"N

NABL Accredited				
Discipline : Chemical			Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	62	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	32	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	7.5	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	20.2	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	0.007	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

Authorized Signatory
Dr. Deependra Kumar Sinha

Page 1 of 1

Technical Manager
ELES Pvt. Ltd.

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ENVIRONMENTAL LABORATORIES &

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2023/2290	Report Release Date : 01.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1763
Address	: Lohardaga, Jharkhand-835302	Location	: Camp; Kujam-I Bauxite Mine (80.87ha)
Plant Status	: Operational	Sampling Date	: 08.05.2023 to 09.05.2023
Period of Analysis	: 10.05.2023 to 08.06.2023	Sample Received Date	: 06.06.2023
		Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 34	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear
5	Longitude	: 84°18'42.75"E	6	Latitude	: 23°17'39.60"N

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	µg/m ³	IS:5182 (Part-11): 2006;RA2017	<1.0	05(Annual)
Benzo (a) Pyrene*	ng/m ³	IS:5182 (Part-12): 2004;RA2019	<0.5	01(Annual)

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



****End of Report****


Authorized Signatory
 Dr. Deependra Kumar Sinha
 Ph. D. Environmental Engg.
 ELES Pvt. Ltd. Technical Manager

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ENVIRONMENTAL LABORATORIES &

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TEST REPORT

Test Report No.	: ELES/RNC/2023/2295	Report Release Date	: 01.07.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000001217F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindaleo Industries Limited	Sample Ref No.	: ELES/RNC/2023/AA/1768
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pakri Gada Village
Plant Status	: Operational	Sampling Date	: 08.05.2023 to 09.05.2023
Period of Analysis	: 06.06.2023 to 09.06.2023	Sample Received Date	: 06.06.2023
		Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 34	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear
5	Longitude	: 84°14'52.25"N	6	Latitude	: 23°17'41.21"E

NABL Accredited				
Discipline : Chemical			Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	60	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	31	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	5.7	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	13.3	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01	<2.0	06 (Annual)

Reviewed by

Authorized Signatory
Dr. Deependra Kumar Saha

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TEST REPORT

Test Report No. : ELES/RNC/2023/2295	Report Release Date : 01.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1768
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pakri Gada Village
Plant Status	: Operational	Sampling Date	: 08.05.2023 to 09.05.2023
Period of Analysis	: 06.06.2023 to 09.06.2023	Sample Received Date	: 06.06.2023
		Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved


METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 34	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear
5	Longitude	: 84°14'52.25"N	6	Latitude	: 23°17'41.21"E

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	µg/m ³	IS:5182 (Part-11): 2006;RA2017	<1.0	05(Annual)
Benzo (a) Pyrene*	ng/m ³	IS:5182 (Part-12): 2004;RA2019	<0.5	01(Annual)

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



****End of Report****


Authorized Signatory
 Dr. Deepanjita Kumar Sinha
 Ph.D. Environmental Engg.
 ELES Pvt. Ltd. Technical Manager



ENVIRONMENTAL LABORATORIES &

PLANT NO. 40, MAHARAJGARH ENCLAVE, Sector-34
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TEST REPORT

Test Report No.	: ELES/RNC/2023/2296	Report Release Date	: 01.07.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000001218F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1769
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pol Pol Village
Plant Status	: Operational	Sampling Date	: 08.05.2023 to 09.05.2023
Period of Analysis	: 06.06.2023 to 09.06.2023	Sample Received Date	: 06.06.2023
		Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 34	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

NABL Accredited				
Discipline : Chemical			Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23); 2006; RA2022	57	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part-24); 2019	28	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2); 2001; RA2022	6.5	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6); 2006; RA2022	12.8	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9); 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part-25); 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10); 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22); 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26); 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

R. Sinha
Authorized Signatory
Dr. D. Anurag Kumar Sinha
Egg. Manager

Page 1 of 1

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ENVIRONMENTAL LABORATORIES &

CONSULTING SERVICES PVT. LTD.

REGD. NO.-06, MANSAROVAN ENCLAVE, P. CHITRAVATI,
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TEST REPORT

Test Report No. : ELES/RNC/2023/2296	Report Release Date : 01.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1769
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pol Pol Village
		Sampling Date	: 08.05.2023 to 09.05.2023
Plant Status	: Operational	Sample Received Date	: 06.06.2023
Period of Analysis	: 06.06.2023 to 09.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved


METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 34	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	µg/m ³	IS:5182 (Part-11): 2006;RA2017	<1.0	05(Annual)
Benzo (a) Pyrene*	ng/m ³	IS:5182 (Part-12): 2004;RA2019	<0.5	01(Annual)

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



****End of Report****


Authorized Signatory
 Dr. G. Srinivas Kumar SMHA
 ELES
 Manager



ENVIRONMENTAL LABORATORIES &

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TEST REPORT

Test Report No.	: ELES/RNC/2023/2297	Report Release Date	: 01.07.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000001219F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1770
Address	: Lohardaga, Jharkhand-835302	Location	: Near Shakhupani Village
Plant Status	: Operational	Sampling Date	: 08.05.2023 to 09.05.2023
Period of Analysis	: 06.06.2023 to 09.06.2023	Sample Received Date	: 06.06.2023
		Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 34	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

NABL Accredited				
Discipline : Chemical			Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	59	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-24): 2019	28	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	6.6	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	16.8	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part-26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

[Signature]
Authorized Signatory
Dr. [Name] Singh
Ph. D. Environmental Engg.
ELES Pvt. Ltd. Technical Manager

Page 1 of 1

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TEST REPORT

Test Report No.	: ELES/RNC/2023/2297	Report Release Date	: 01.07.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindaleo Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1770
Address	: Lohardaga, Jharkhand-835302	Location	: Near Shakhupani Village
		Sampling Date	: 08.05.2023 to 09.05.2023
Plant Status	: Operational	Sample Received Date	: 06.06.2023
Period of Analysis	: 06.06.2023 to 09.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved


METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 34	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	µg/m ³	IS:5182 (Part-11): 2006;RA2017	<1.0	05(Annual)
Benzo (a) Pyrene*	ng/m ³	IS:5182 (Part-12): 2004;RA2019	<0.5	01(Annual)

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



****End of Report****


Authorized Signatory
 Dr. Deepshikha Chhabra Sinha
 Ph. D. Environmental Engg.
 ELES Pvt. Ltd. Technical Manager



ENVIRONMENTAL LABORATORIES &

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 Website: www.elab.com.in



TEST REPORT

Test Report No. : ELES/RNC/2023/2298	Report Release Date : 01.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000001220F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1771
Address	: Lohardaga, Jharkhand-835302	Location	: Near Dipa Kujam Village
		Sampling Date	: 08.05.2023 to 09.05.2023
Plant Status	: Operational	Sample Received Date	: 06.06.2023
Period of Analysis	: 06.06.2023 to 09.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 34	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

NABL Accredited				
Discipline : Chemical			Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	58	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part-24): 2019	27	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	6.2	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	13.9	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part-25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

(Signature)
Authorized Signatory
 Dr. P. S. Sinha
 Dr. P. S. Sinha
 ELES/DOC/Technical Manager

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ENGINEERING SERVICES PVT. LTD.

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TEST REPORT

Test Report No. : ELES/RNC/2023/2298	Report Release Date : 01.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindafco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1771
Address	: Lohardaga, Jharkhand-835302	Location	: Near Dipa Kujam Village
Plant Status	: Operational	Sampling Date	: 08.05.2023 to 09.05.2023
Period of Analysis	: 06.06.2023 to 09.06.2023	Sample Received Date	: 06.06.2023
		Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 34	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene ^a	µg/m ³	IS:5182 (Part-11): 2006;RA2017	<1.0	05(Annual)
Benzo (a) Pyrene ^a	ng/m ³	IS:5182 (Part-12): 2004;RA2019	<0.5	01(Annual)

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



****End of Report****

R. Singh
 Authorized Signatory
 Dr. Rajendra Kumar Singh
 Sr. Environmental Engg.
 ELES Pvt. Ltd. Technical Manager

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2023/2771	Report Release Date : 29.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000001636F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1951
Address	: Lohardaga, Jharkhand-835302	Location	: Kujam Quarry- 449 Kujam-I Bauxite Mine (80.87ha)
		Sampling Date	: 09.06.2023 to 10.06.2023
Mines Status	: Operational	Sample Received Date	: 17.06.2023
Period of Analysis	: 17.06.2023 to 26.06.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 32	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear
5	Longitude	: 84°19'9.46"E	6	Latitude	: 23°18'30.17"N

NABL Accredited				
Discipline : Chemical			Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	55	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	28	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	8.1	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	21.5	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	0.005	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

Page 1 of 1

Authorised Signatory

Dr. Deependra Kumar Sinha

Ph. D. Environmental Engg.
ELES Pvt. Ltd. Technical Manager

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ENVIRONMENTAL LABORATORIES &

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Website : www.elespl.co.in

CIN: U74599RJ2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2023/2771	Report Release Date : 29.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1951
Address	: Lohardaga, Jharkhand-835302	Location	: Kujam Quarry- 449 Kujam-I Bauxite Mine (80.87ha)
		Sampling Date	: 09.06.2023 to 10.06.2023
Mines Status	: Operational	Sample Received Date	: 17.06.2023
Period of Analysis	: 17.06.2023 to 26.06.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

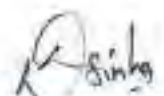
METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 32	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear
5	Longitude	: 84°19'9.46"E	6	Latitude	: 23°18'30.17"N

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	µg/m ³	IS:5182 (Part-11): 2006;RA2017	<1.0	05(Annual)
Benzo (a) Pyrene*	ng/m ³	IS:5182 (Part-12): 2004;RA2019	<0.5	01(Annual)

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



****End of Report****


Authorized Signatory
Dr. Deependra Kumar Sinha
Ph. D. Environmental Engg.
ELES Pvt. Ltd. Technical Manager

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ENVIRONMENTAL LABORATORIES &

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CIN: U74999JH2018PTC011125

FC-8528

TEST REPORT

Test Report No. : ELES/RNC/2023/2772	Report Release Date : 29.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000001637F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1952
Address	: Lohardaga, Jharkhand-835302	Location	: Talabkhanta 4A13 Kujam-I Bauxite Mine (80.87ha)
		Sampling Date	: 09.06.2023 to 10.06.2023
Mines Status	: Operational	Sample Received Date	: 17.06.2023
Period of Analysis	: 17.06.2023 to 26.06.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 32	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear
5	Longitude	: 84°18'56.50"E	6	Latitude	: 23°18'21.76"N

NABL Accredited

Discipline : Chemical

Group : Atmospheric Pollution

Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	49	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part-24): 2019	23	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	6.4	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	23.7	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part-25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	0.007	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

Authorized Signatory

Jr. Deependra Kumar Sinha

Ph. D. Environmental Engg.
ELES Pvt. Ltd. Technical Manager

Page 1 of 1

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ENVIRONMENTAL LABORATORIES &

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CRM: U74090MH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2023/2772	Report Release Date : 29.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1952
Address	: Lohardaga, Jharkhand-835302	Location	: Talabkhanta 4A13 Kujam-1 Bauxite Mine (80.87ha)
		Sampling Date	: 09.06.2023 to 10.06.2023
Mines Status	: Operational	Sample Received Date	: 17.06.2023
Period of Analysis	: 17.06.2023 to 26.06.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 32	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear
5	Longitude	: 84°18'56.50"E	6	Latitude	: 23°18'21.76"N

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	µg/m ³	IS:5182 (Part-11): 2006;RA2017	<1.0	05(Annual)
Benzo (a) Pyrene*	ng/m ³	IS:5182 (Part-12): 2004;RA2019	<0.5	01(Annual)

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



****End of Report****

Authorized Signatory

Jr. Deependra Kumar Sinha
Ph. D. Environmental Engg.
ELES Pvt. Ltd., Technical Manager

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TEST REPORT

Test Report No. : ELES/RNC/2023/2773	Report Release Date : 29.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000001638F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1953
Address	: Lohardaga, Jharkhand-835302	Location	: 4 A 11 Football Ground Kujam-I Bauxite Mine (80.87ha)
		Sampling Date	: 09.06.2023 to 10.06.2023
Mines Status	: Operational	Sample Received Date	: 17.06.2023
Period of Analysis	: 17.06.2023 to 26.06.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 32	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear
5	Longitude	: 84°18'47.03"E	6	Latitude	: 23°17'48.77"N

NABL Accredited				
Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	53	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part-24): 2019	25	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	6.3	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	17.6	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	0.007	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

Authorized Signatory

Dr. Deependra Kumar Sinha

Ph. D. Environmental Engg.
ELES Pvt. Ltd. Technical Manager

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ENVIRONMENTAL LABORATORIES &

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CAN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2023/2773	Report Release Date : 29.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1953
Address	: Lohardaga, Jharkhand-835302	Location	: 4 A11 Football Ground Kujam-I Bauxite Mine (80.87ha)
		Sampling Date	: 09.06.2023 to 10.06.2023
Mines Status	: Operational	Sample Received Date	: 17.06.2023
Period of Analysis	: 17.06.2023 to 26.06.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 32	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear
5	Longitude	: 84°18'47.03"E	6	Latitude	: 23°17'48.77"N

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	µg/m ³	IS:5182 (Part-11): 2006;RA2017	<1.0	05(Annual)
Benzo (a) Pyrene*	ng/m ³	IS:5182 (Part-12): 2004;RA2019	<0.5	01(Annual)

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



****End of Report****


Authorized Signatory
Dr. Deependra Kumar Singh
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ELES Pvt. Ltd. Technical Manager

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CIN: U74999JH2018PT011125

TEST REPORT

Test Report No. : ELES/RNC/2023/2774	Report Release Date : 29.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000001639F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1954
Address	: Lohardaga, Jharkhand-835302	Location	: Camp; Kujam-I Bauxite Mine (80.87ha)
		Sampling Date	: 09.06.2023 to 10.06.2023
Mines Status	: Operational	Sample Received Date	: 17.06.2023
Period of Analysis	: 17.06.2023 to 26.06.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 32	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear
5	Longitude	: 84°18'42.75"E	6	Latitude	: 23°17'39.60"N

NABL Accredited				
Discipline : Chemical			Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	56	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	28	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	6.8	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	22.7	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	0.005	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)



(Signature)

****End of Report****

Authorised Signatory
Jr. Deependra Kumar Sirtia
Ph. D. Environmental Engg.
ELES Pvt. Ltd, Technical Manager

Page 1 of 1

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CIN: U74599JH2018PTC011225

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TEST REPORT

Test Report No. : ELES/RNC/2023/2774	Report Release Date : 29.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1954
Address	: Lohardaga, Jharkhand-835302	Location	: Camp; Kujam-I Bauxite Mine (80.87ha)
		Sampling Date	: 09.06.2023 to 10.06.2023
Mines Status	: Operational	Sample Received Date	: 17.06.2023
Period of Analysis	: 17.06.2023 to 26.06.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 32	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear
5	Longitude	: 84°18'42.75"E	6	Latitude	: 23°17'39.60"N

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	µg/m ³	IS:5182 (Part-11): 2006;RA2017	<1.0	05(Annual)
Benzo (a) Pyrene*	ng/m ³	IS:5182 (Part-12): 2004;RA2019	<0.5	01(Annual)

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



****End of Report****

Authorised Signatory

Dr. Deependra Kumar Sinha
Ph. D. Environmental Engg.
ELES Pvt. Ltd, Technical Manager

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TEST REPORT

Test Report No.	: ELES/RNC/2023/2763	Report Release Date	: 29.07.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000001628F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1943
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pakri Gada Village
		Sampling Date	: 07.06.2023 to 08.06.2023
Mines Status	: Operational	Sample Received Date	: 17.06.2023
Period of Analysis	: 17.06.2023 to 26.06.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 33	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear
5	Longitude	: 84°14'52.25"N	6	Latitude	: 23°17'41.21"E

NABL Accredited

Discipline : Chemical

Group : Atmospheric Pollution

Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	55	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part-24): 2019	27	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	6.3	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	17.9	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part-25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)



End of Report

Authorised Signatory

Jr. Deependra Kumar Sini

PHD, Environmental Engg.

ELES Pvt. Ltd. Technical Manager

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TEST REPORT

Test Report No. : ELES/RNC/2023/2763	Report Release Date : 29.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1943
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pakri Gada Village
		Sampling Date	: 07.06.2023 to 08.06.2023
Mines Status	: Operational	Sample Received Date	: 17.06.2023
Period of Analysis	: 17.06.2023 to 26.06.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 33	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear
5	Longitude	: 84°14'52.25"N	6	Latitude	: 23°17'41.21"E

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	µg/m ³	IS:5182 (Part-11): 2006;RA2017	<1.0	05(Annual)
Benzo (a) Pyrene*	ng/m ³	IS:5182 (Part-12): 2004;RA2019	<0.5	01(Annual)

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



End of Report

Authorised Signatory

Jr. Deependra Kumar Singh
Ph. D. Environmental Engg.
ELES Pvt. Ltd. Technical Manager

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ENVIRONMENTAL LABORATORIES &

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TEST REPORT

Test Report No.	: ELES/RNC/2023/2764	Report Release Date	: 29.07.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000001629F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1944
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pol Pol Village
		Sampling Date	: 07.06.2023 to 08.06.2023
Mines Status	: Operational	Sample Received Date	: 17.06.2023
Period of Analysis	: 17.06.2023 to 26.06.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 33	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear

NABL Accredited				
Discipline : Chemical			Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	61	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	32	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	7.1	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	16.3	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-32): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01	<2.0	06 (Annual)



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****End of Report****

Dr. Deependra Kumar Saini

Page 1 of 1

Ph. D. Environmental Engg.

ELES Pvt. Ltd. Technical Manager

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TEST REPORT

Test Report No.	: ELES/RNC/2023/2764	Report Release Date	: 29.07.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1944
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pol Pol Village
		Sampling Date	: 07.06.2023 to 08.06.2023
Mines Status	: Operational	Sample Received Date	: 17.06.2023
Period of Analysis	: 17.06.2023 to 26.06.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 33	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	µg/m ³	IS:5182 (Part-11): 2006;RA2017	<1.0	05(Annual)
Benzo (a) Pyrene*	ng/m ³	IS:5182 (Part-12): 2004;RA2019	<0.5	01(Annual)

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



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Authorized Signatory

Dr. Deependra Kumar Singh
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ELES Pvt. Ltd. Technical Manager

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TC-8835

TEST REPORT

Test Report No.	: ELES/RNC/2023/2765	Report Release Date	: 29.07.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000001630F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1945
Address	: Lohardaga, Jharkhand-835302	Location	: Near Shakhupani Village
		Sampling Date	: 08.06.2023 to 09.06.2023
Mines Status	: Operational	Sample Received Date	: 17.06.2023
Period of Analysis	: 17.06.2023 to 26.06.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 33	2	Barometric Pressure (mmHg)	: 740
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

NABL Accredited				
Discipline : Chemical			Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	53	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	24	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	5.8	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	19.4	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

Authorized Signatory
Jr. Deependra Kumar Sinha
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ELES Pvt. Ltd. Technical Manager

Page 1 of 1

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TEST REPORT

Test Report No. : ELES/RNC/2023/2765	Report Release Date : 29.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1945
Address	: Lohardaga, Jharkhand-835302	Location	: Near Shakhupani Village
		Sampling Date	: 08.06.2023 to 09.06.2023
Mines Status	: Operational	Sample Received Date	: 17.06.2023
Period of Analysis	: 17.06.2023 to 26.06.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

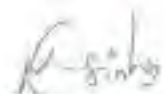
METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 33	2	Barometric Pressure (mmHg)	: 740
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene [®]	µg/m ³	IS:5182 (Part-11): 2006;RA2017	<1.0	05(Annual)
Benzo (a) Pyrene [®]	ng/m ³	IS:5182 (Part-12): 2004;RA2019	<0.5	01(Annual)

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



****End of Report****


 Authorised Signatory
 Dr. Deependra Kumar Singh,
 Ph. D. Environmental Engg.
 ELES Pvt. Ltd. Technical Manager

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TEST REPORT

Test Report No. : ELES/RNC/2023/2766	Report Release Date : 29.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000001631F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1946
Address	: Lohardaga, Jharkhand-835302	Location	: Near Dipa Kujan Village
		Sampling Date	: 08.06.2023 to 09.06.2023
Mines Status	: Operational	Sample Received Date	: 17.06.2023
Period of Analysis	: 17.06.2023 to 26.06.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 33	2	Barometric Pressure (mmHg)	: 740
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

NABL Accredited				
Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	52	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-24): 2019	25	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	7.1	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	15.3	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-26): 2020	<6.0	20 (Annual)
Arsenic (As)	$\mu\text{g}/\text{m}^3$	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

Deependra Kumar Sin
Authorized Signatory
Jr. Deependra Kumar Sin.
Pvt. Environmental Engg.

Page 1 of 1

ELES Pvt. Ltd. Technical Manager

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CIN: U74900JH2012PT011125

TEST REPORT

Test Report No.	: ELES/RNC/2023/2766	Report Release Date	: 29.07.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1946
Address	: Lohardaga, Jharkhand-835302	Location	: Near Dipa Kujum Village
		Sampling Date	: 08.06.2023 to 09.06.2023
Mines Status	: Operational	Sample Received Date	: 17.06.2023
Period of Analysis	: 17.06.2023 to 26.06.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 33	2	Barometric Pressure (mmHg)	: 740
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	µg/m ³	IS:5182 (Part-11): 2006;RA2017	<1.0	05(Annual)
Benzo (a) Pyrene*	ng/m ³	IS-5182 (Part-12): 2004;RA2019	<0.5	01(Annual)

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



****End of Report****

Authorised Signatory

Dr. Deependra Kumar Sinha
Ph. D. Environmental Engg.
ELES Pvt. Ltd. Technical Manager

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TEST REPORT

Test Report No. : ELES/RNC/2023/2910	Report Release Date : 08.08.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000001757F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2452
Address	: Lohardaga, Jharkhand-835302	Location	: Kujam Quarry- 449 Kujam-I Bauxite Mine (80.87ha)
		Sampling Date	: 12.07.2023 to 13.07.2023
Mines Status	: Operational	Sample Received Date	: 17.07.2023
Period of Analysis	: 17.07.2023 to 24.07.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 737
3	Relative Humidity (%)	: 66	4	Weather Condition	: Partly Cloudy
5	Longitude	: 84°19'9.46"E	6	Latitude	: 23°18'30.17"N

NABL Accredited				
Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	50	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	24	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	6.4	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	15.2	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	0.007	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/ATR/SOP/01	<2.0	06 (Annual)



****End of Report****

Dr. Deependra Kumar Singh
Authorized Signatory
Dr. Deependra Kumar Singh

Page 1 of 1

Ph. 0651-2290103
ELES Pvt. Ltd. Technical Manager

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ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
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TEST REPORT

Test Report No. : ELES/RNC/2023/2910	Report Release Date : 08.08.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2452
Address	: Lohardaga, Jharkhand-835302	Location	: Kujam Quarry- 449 Kujam-I Bauxite Mine (80.87ha)
		Sampling Date	: 12.07.2023 to 13.07.2023
Mines Status	: Operational	Sample Received Date	: 17.07.2023
Period of Analysis	: 17.07.2023 to 24.07.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

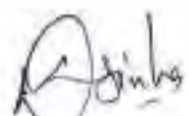
METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 737
3	Relative Humidity (%)	: 66	4	Weather Condition	: Partly Cloudy
5	Longitude	: 84°19'9.46"E	6	Latitude	: 23°18'30.17"N

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	µg/m ³	IS:5182 (Part-11); 2006;RA2017	<1.0	05(Annual)
Benzo (a) Pyrene*	ng/m ³	IS:5182 (Part-12); 2004;RA2019	<0.5	01(Annual)

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



****End of Report****


Authorised Signatory
Dr. Deependra Kumar Sinha
Ph. D, Environmental Engg
ELES Pvt. Ltd, Technical Manager



ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
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TEST REPORT

Test Report No.	: ELES/RNC/2023/2911	Report Release Date	: 08.08.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000001758F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2453
Address	: Lohardaga, Jharkhand-835302	Location	: Talabkhanta 4A13 Kujam-I Bauxite Mine (80.87ha)
		Sampling Date	: 12.07.2023 to 13.07.2023
Mines Status	: Operational	Sample Received Date	: 17.07.2023
Period of Analysis	: 17.07.2023 to 24.07.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 737
3	Relative Humidity (%)	: 66	4	Weather Condition	: Partly Cloudy
5	Longitude	: 84°18'56.50"E	6	Latitude	: 23°18'21.76"N

NABL Accredited

Discipline : Chemical

Group : Atmospheric Pollution

Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	45	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	21	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	5.8	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	18.2	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	0.005	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

Authorized Signatory
Dr. Deependra Kumar Sinha
P.O. Environmental Engg.
ELES Pvt. Ltd. Technical Manager

Page 1 of 1

The Document stated as Test Report, is issued by the Laboratory under General Terms and Conditions, only on Company letter head in pre-approved format. The results shown in the Test Report refer or relate only to the job/analysis done by the Laboratory only. The information stated on the Test Report reflects the findings done by the Laboratory at the time of involvement only and within the limits of client's instructions. The Laboratory is responsible for all the information or data provided on the report, except the information which is provided by the client. The Report cannot be reproduced except in full and any part of the report is not taken out of context, without prior written approval of the Laboratory. The Report in full or in part shall not be published, advertise, used for any legal actions unless prior permission has been secured from the Management of the Laboratory. Attention is drawn to the limitation of liability, compensation and jurisdiction issues. Any unauthorized alteration & falsification of the content or appearance of the Test Report is unlawful and offenders may be prosecuted to the fullest extent of the law. All the samples are retained for 30days from the Date of release/issue of the Test Report. The samples from Regulatory bodies are to be retained as specified. Any type of Observations or Complaints regarding the Reports shall be done within 15days from the Date of Test Report released/issued. After the time period stated before, no complaints will be accepted. The entire Time schedule mentioned in Test Report is in 24hrs format. Abbreviation used: N/A (Not Applicable); BDL (Below Detection Limit), LDL (Lower Detection Limit).



ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
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CIN: U74999HR2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2023/2911	Report Release Date : 08.08.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2453
Address	: Lohardaga, Jharkhand-835302	Location	: Talabkhanta 4A13 Kujam-I Bauxite Mine (80.87ha)
		Sampling Date	: 12.07.2023 to 13.07.2023
Mines Status	: Operational	Sample Received Date	: 17.07.2023
Period of Analysis	: 17.07.2023 to 24.07.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved


METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 737
3	Relative Humidity (%)	: 66	4	Weather Condition	: Partly Cloudy
5	Longitude	: 84°18'56.50"E	6	Latitude	: 23°18'21.76"N

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	µg/m ³	IS:5182 (Part-11): 2006;RA2017	<1.0	05(Annual)
Benzo (a) Pyrene*	ng/m ³	IS:5182 (Part-12): 2004;RA2019	<0.5	01(Annual)

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



****End of Report****


Dr. Anshu Sinha
Ph. D. Environmental Engg.
ELES Pvt. Ltd. Technical Manager

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ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
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TEST REPORT

Test Report No. : ELES/RNC/2023/2912	Report Release Date : 08.08.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000001759F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2454
Address	: Lohardaga, Jharkhand-835302	Location	: 4 A11 Football Ground Kujam-I Bauxite Mine (80.87ha)
		Sampling Date	: 12.07.2023 to 13.07.2023
Mines Status	: Operational	Sample Received Date	: 17.07.2023
Period of Analysis	: 17.07.2023 to 24.07.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 738
3	Relative Humidity (%)	: 66	4	Weather Condition	: Partly Cloudy
5	Longitude	: 84°18'47.03"E	6	Latitude	: 23°17'48.77"N

NABL Accredited				
Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	47	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	21	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	5.5	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	15.2	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	0.005	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

Dr. Deependra Kumar Sinha
Authorized Signatory
Dr. Deependra Kumar Sinha
Ph. & Environmental Engg.
ELES Pvt. Ltd. Technical Manager

Page 1 of 1

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ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
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CIN: U74999JH2018PTC011123

TEST REPORT

Test Report No. : ELES/RNC/2023/2912	Report Release Date : 08.08.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2454
Address	: Lohardaga, Jharkhand-835302	Location	: 4 A11 Football Ground Kujam-I Bauxite Mine (80.87ha)
		Sampling Date	: 12.07.2023 to 13.07.2023
Mines Status	: Operational	Sample Received Date	: 17.07.2023
Period of Analysis	: 17.07.2023 to 24.07.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved


METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 738
3	Relative Humidity (%)	: 66	4	Weather Condition	: Partly Cloudy
5	Longitude	: 84°18'47.03"E	6	Latitude	: 23°17'48.77"N

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	µg/m ³	IS:5182 (Part-11): 2006;RA2017	<1.0	05(Annual)
Benzo (a) Pyrene*	ng/m ³	IS:5182 (Part-12): 2004;RA2019	<0.5	01(Annual)

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



****End of Report****


Authorized Signatory
Dr. Deependra Kumar Sinha
Ph. D. Environmental Engg.
ELES Pvt. Ltd. Technical Manager



ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
HATIA, RANCHI-834003 (JHARKHAND)
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CIN: U70900JH2018PT0011125

TEST REPORT

Test Report No. : ELES/RNC/2023/2913	Report Release Date : 08.08.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000001760F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2455
Address	: Lohardaga, Jharkhand-835302	Location	: Camp; Kujam-I Bauxite Mine (80.87ha)
		Sampling Date	: 12.07.2023 to 13.07.2023
Mines Status	: Operational	Sample Received Date	: 17.07.2023
Period of Analysis	: 17.07.2023 to 24.07.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 738
3	Relative Humidity (%)	: 66	4	Weather Condition	: Partly Cloudy
5	Longitude	: 84°18'42.75"E	6	Latitude	: 23°17'39.60"N

NABL Accredited				
Discipline : Chemical			Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	52	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part-24): 2019	24	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	5.3	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	23.7	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part-25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)



Authorised Signatory

Dr. Deependra Kumar Sinha

Head of Environmental Engg
ELES Pvt. Ltd. Technical Manager

****End of Report****

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ENVIRONMENTAL LABORATORIES &

PLOT NO-36, MANSAROVAR ENCLAVE, TUPUDANA
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TEST REPORT

Test Report No. : ELES/RNC/2023/2913	Report Release Date : 08.08.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2455
Address	: Lohardaga, Jharkhand-835302	Location	: Camp; Kujam-I Bauxite Mine (80.87ha)
Mines Status	: Operational	Sampling Date	: 12.07.2023 to 13.07.2023
Period of Analysis	: 17.07.2023 to 24.07.2023	Sample Received Date	: 17.07.2023
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

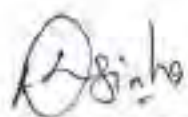
METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 738
3	Relative Humidity (%)	: 66	4	Weather Condition	: Partly Cloudy
5	Longitude	: 84°18'42.75"E	6	Latitude	: 23°17'39.60"N

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	µg/m ³	IS:5182 (Part-11); 2006;RA2017	<1.0	05(Annual)
Benzo (a) Pyrene*	ng/m ³	IS:5182 (Part-12); 2004;RA2019	<0.5	01(Annual)

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



****End of Report****


Authorized Signatory
Dr. Deependra Kumar Sinha
Ph. D Environmental Engg.
ELES Pvt. Ltd. Technical Manager



ENVIRONMENTAL LABORATORIES &

PLT NO-30, MANSA ROVAR ENCLAVE, TURIDAMA
NATIA, RANCHI-834003 (JHARKHAND)
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TEST REPORT

Test Report No.	: ELES/RNC/2023/2902	Report Release Date	: 08.08.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000001749F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2044
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pakri Gada Village
		Sampling Date	: 10.07.2023 to 11.07.2023
Mines Status	: Operational	Sample Received Date	: 17.07.2023
Period of Analysis	: 17.07.2023 to 24.07.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 27	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 65	4	Weather Condition	: Partly Cloudy
5	Longitude	: 84°14'52.25"N	6	Latitude	: 23°17'41.21"E

NABL Accredited				
Discipline : Chemical			Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	51	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part-24): 2019	25	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	5.2	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	14.5	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part-25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26): 2020	<6.0	30 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

Dr. Dipendra Kumar Sinha
Authorized Signatory
 Dr. Dipendra Kumar Sinha
 Technical Manager
 ELES Pvt. Ltd.

Page 1 of 1

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ENGINEERING SERVICES PVT. LTD.

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Website: www.elespl.co.in

CIN: U74999W2018PF001114

TEST REPORT

Test Report No. : ELES/RNC/2023/2902	Report Release Date : 08.08.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2444
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pakri Gada Village
		Sampling Date	: 10.07.2023 to 11.07.2023
Mines Status	: Operational	Sample Received Date	: 17.07.2023
Period of Analysis	: 17.07.2023 to 24.07.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION


1	Average Temperature (°C)	: 27	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 65	4	Weather Condition	: Partly Cloudy
5	Longitude	: 84°14'52.25"N	6	Latitude	: 23°17'41.21"E

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	µg/m ³	IS:5182 (Part-11): 2006;RA2017	<1.0	05(Annual)
Benzo (a) Pyrene*	ng/m ³	IS 5182 (Part-12): 2004;RA2019	<0.5	01(Annual)

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



End of Report


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

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TEST REPORT

Test Report No. : ELES/RNC/2023/2903	Report Release Date : 08.08.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000001750F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2445
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pol Pol Village
		Sampling Date	: 10.07.2023 to 11.07.2023
Mines Status	: Operational	Sample Received Date	: 17.07.2023
Period of Analysis	: 17.07.2023 to 24.07.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMP/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 27	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 65	4	Weather Condition	: Partly Cloudy

NABL Accredited				
Discipline : Chemical			Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	56	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	26	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2023	5.9	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	14.5	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)



End of Report

Authorized Signatory
Dr. Udeependra Kumar Sinha
Ph. D. Environmental Engg.
ELES Pvt. Ltd. Senior Test Manager

Page 1 of 1

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CIN: U74899JH00197001111

TEST REPORT

Test Report No. : ELES/RNC/2023/2903	Report Release Date : 08.08.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2445
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pol Pol Village
		Sampling Date	: 10.07.2023 to 11.07.2023
Mines Status	: Operational	Sample Received Date	: 17.07.2023
Period of Analysis	: 17.07.2023 to 24.07.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SAMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved


METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 27	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 65	4	Weather Condition	: Partly Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene ^a	µg/m ³	IS:5182 (Part-11): 2006;RA2017	<1.0	05(Annual)
Benzo (a) Pyrene ^a	ng/m ³	IS:5182 (Part-12): 2004;RA2019	<0.5	01(Annual)

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



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 Authorised Signatory
 Dr. Daependra Kumar Sinha
 Ph. D. Environmental Engg
 ELES Pvt. Ltd. Technical Manager

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TEST REPORT

Test Report No. : ELES/RNC/2023/2904	Report Release Date : 08.08.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000001751F	


CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindaleo Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2446
Address	: Lohardaga, Jharkhand-835302	Location	: Near Shakhupani Village
		Sampling Date	: 11.07.2023 to 12.07.2023
Mines Status	: Operational	Sample Received Date	: 17.07.2023
Period of Analysis	: 17.07.2023 to 24.07.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 26	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 64	4	Weather Condition	: Partly Cloudy

NABL Accredited				
Discipline : Chemical			Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	48	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	20	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	5.2	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	21.8	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	3 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)



End of Report


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

Page 1 of 1

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CIN: U74909JH2019PT001113

TEST REPORT

Test Report No. : ELES/RNC/2023/2904	Report Release Date : 08.08.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2446
Address	: Lohardaga, Jharkhand-835302	Location	: Near Shakhupani Village
		Sampling Date	: 11.07.2023 to 12.07.2023
Mines Status	: Operational	Sample Received Date	: 17.07.2023
Period of Analysis	: 17.07.2023 to 24.07.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved


METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 26	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 64	4	Weather Condition	: Partly Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	µg/m ³	IS:5182 (Part-11): 2006;RA2017	<1.0	05(Annual)
Benzo (a) Pyrene*	ng/m ³	IS:5182 (Part-12): 2004;RA2019	<0.5	01(Annual)

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



End of Report


Authorised Signatory
 Dr. Deependra Kumar Sinha
 Ph. D, Environmental Engg.
 ELES Pvt. Ltd, Technical Manager

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TEST REPORT

Test Report No.	: ELES/RNC/2023/2905	Report Release Date	: 08.08.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000001752F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2447
Address	: Lohardaga, Jharkhand-835302	Location	: Near Dipa Kajam Village
		Sampling Date	: 11.07.2023 to 12.07.2023
Mines Status	: Operational	Sample Received Date	: 17.07.2023
Period of Analysis	: 17.07.2023 to 24.07.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 26	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 64	4	Weather Condition	: Partly Cloudy

NABL Accredited		Group : Atmospheric Pollution		
Discipline : Chemical				
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	46	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	23	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	5.3	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	13.6	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

Authorized Signatory

Dr. Deependra Kumar Singh

Ph. D. Environmental Engg
ELES Pvt. Ltd. Jamshedpur, Jharkhand

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ENVIRONMENTAL LABORATORIES &

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TEST REPORT

Test Report No. : ELES/RNC/2023/2905	Report Release Date : 08.08.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2447
Address	: Lohardaga, Jharkhand-835302	Location	: Near Dipa Kujam Village
		Sampling Date	: 11.07.2023 to 12.07.2023
Mines Status	: Operational	Sample Received Date	: 17.07.2023
Period of Analysis	: 17.07.2023 to 24.07.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 26	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 64	4	Weather Condition	: Partly Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	µg/m ³	IS:5182 (Part-11); 2006;RA2017	<1.0	05(Annual)
Benzo (a) Pyrene*	ng/m ³	IS:5182 (Part-12); 2004;RA2019	<0.5	01(Annual)

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



End of Report


Authorised Signatory
 Dr. Debprasad Kumar Sinha
 Ph. D. Environmental Engg
 ELES Pvt. Ltd. Technical Manager

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ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
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TEST REPORT

Test Report No. : ELES/RNC/2023/3357	Report Release Date : 09.09.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000002125F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2854
Address	: Lohardaga, Jharkhand-835302	Location	: Kujam Quarry- 449 Kujam-I Bauxite Mine (80.87ha)
		Sampling Date	: 10.08.2023 to 11.08.2023
Mines Status	: Operational	Sample Received Date	: 14.08.2023
Period of Analysis	: 14.08.2023 to 21.08.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 735
3	Relative Humidity (%)	: 64	4	Weather Condition	: Partly Cloudy
5	Longitude	: 84°19'9.46"E	6	Latitude	: 23°18'30.17"N

NABL Accredited				
Discipline : Chemical			Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	45	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	21	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	5.6	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	18.5	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	0.009	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

Authorized Signatory
Dr. Deependra Kumar Sinha
ELES Pvt. Ltd. Technical Manager

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ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAVAR ENCLAVE, TUPUDANA
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Website : www.elespl.co.in

TEST REPORT

Test Report No. : ELES/RNC/2023/3357	Report Release Date : 09.09.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2854
Address	: Lohardaga, Jharkhand-835302	Location	: Kujam Quarry- 449 Kujam-I Bauxite Mine (80.87ha)
		Sampling Date	: 10.08.2023 to 11.08.2023
Mines Status	: Operational	Sample Received Date	: 14.08.2023
Period of Analysis	: 14.08.2023 to 21.08.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 735
3	Relative Humidity (%)	: 64	4	Weather Condition	: Partly Cloudy
5	Longitude	: 84°19'9.46"E	6	Latitude	: 23°18'30.17"N

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	µg/m ³	IS:5182 (Part-11): 2006;RA2017	<1.0	05(Annual)
Benzo (a) Pyrene*	ng/m ³	IS:5182 (Part-12): 2004;RA2019	<0.5	01(Annual)

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



****End of Report****


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

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TEST REPORT

Test Report No. : ELES/RNC/2023/3358	Report Release Date : 09.09.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000002126F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name : Hindalco Industries Limited	Address : Lohardaga, Jharkhand-835302	Sample Ref. No. : ELES/RNC/2023/AA/2855	Location : Talabkhanta 4A13 Kujam-I Bauxite Mine (80.87ha)
Mines Status : Operational	Period of Analysis : 14.08.2023 to 21.08.2023	Sampling Date : 10.08.2023 to 11.08.2023	Sample Received Date : 14.08.2023
		Type of Sample : Ambient Air	Sampling Procedure : ELES/DOC/SMPL/02
		Sample Drawn By : ELES Pvt. Ltd.	Sample Condition : Sealed & Preserved

METEOROLOGICAL INFORMATION

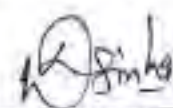
1	Average Temperature (°C) : 25	2	Barometric Pressure (mmHg) : 735
3	Relative Humidity (%) : 64	4	Weather Condition : Partly Cloudy
5	Longitude : 84°18'56.50"E	6	Latitude : 23°18'21.76"N

NABL Accredited

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	41	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part-24): 2019	17	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	5.1	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	20.6	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part-25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	0.008	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)



End of Report


Dr. Deependra Kumar Sinha
Ph. D. Environmental Engg.
ELES Pvt. Ltd. Technical Manager

Page 1 of 1

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Phone no.: 0651-2290103

Website : www.elespl.co.in

CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2023/3358	Report Release Date : 09.09.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2855
Address	Lohardaga, Jharkhand-835302	Location	: Talabkhanta 4A13 Kujam-I Bauxite Mine (80.87ha)
		Sampling Date	: 10.08.2023 to 11.08.2023
Mines Status	: Operational	Sample Received Date	: 14.08.2023
Period of Analysis	: 14.08.2023 to 21.08.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 735
3	Relative Humidity (%)	: 64	4	Weather Condition	: Partly Cloudy
5	Longitude	: 84°18'56.50"E	6	Latitude	: 23°18'21.76"N

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	µg/m ³	IS:5182 (Part-11): 2006;RA2017	<1.0	05(Annual)
Benzo (a) Pyrene*	ng/m ³	IS:5182 (Part-12): 2004;RA2019	<0.5	01(Annual)

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



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Authorised Signatory
Dr. Deependra Kumar Singh
Ph. D. Environmental Enngg.
ELES Pvt. Ltd. Technical Manager

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ENVIRONMENTAL LABORATORIES & ENGINEERING SERVICES PVT. LTD.

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TEST REPORT

Test Report No. : ELES/RNC/2023/3359	Report Release Date : 09.09.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000002127F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2856
Address	: Lohardaga, Jharkhand-835302	Location	: 4 A11 Football Ground Kujam-I Bauxite Mine (80.87ha)
		Sampling Date	: 10.08.2023 to 11.08.2023
Mines Status	: Operational	Sample Received Date	: 14.08.2023
Period of Analysis	14.08.2023 to 21.08.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 735
3	Relative Humidity (%)	: 64	4	Weather Condition	: Partly Cloudy
5	Longitude	: 84°18'47.03"E	6	Latitude	: 23°17'48.77"N

NABL Accredited				
Discipline : Chemical			Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	43	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part-24): 2019	19	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	5.1	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	18.5	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part-25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	0.008	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

Dr. Deependra Kumar Sinha
Authorized Signatory
Dr. Deependra Kumar Sinha

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ELES Pvt. Ltd. Technical Manager

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CIN: U74999JH2018PTC01123

TEST REPORT

Test Report No. : ELES/RNC/2023/3359	Report Release Date : 09.09.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2856
Address	: Lohardaga, Jharkhand-835302	Location	: 4 A11 Football Ground Kujam-I Bauxite Mine (80.87ha)
		Sampling Date	: 10.08.2023 to 11.08.2023
Mines Status	: Operational	Sample Received Date	: 14.08.2023
Period of Analysis	: 14.08.2023 to 21.08.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION


1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 735
3	Relative Humidity (%)	: 64	4	Weather Condition	: Partly Cloudy
5	Longitude	: 84°18'47.03"E	6	Latitude	: 23°17'48.77"N

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	µg/m ³	IS:5182 (Part-11): 2006;RA2017	<1.0	05(Annual)
Benzo (a) Pyrene*	ng/m ³	IS:5182 (Part-12): 2004;RA2019	<0.5	01(Annual)

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



****End of Report****


Authorised Signatory
 Dr. Deependra Kumar Sinha
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 ELES Pvt. Ltd. Technical Manager

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ENVIRONMENTAL LABORATORIES &

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TEST REPORT

Test Report No. : ELES/RNC/2023/3360	Report Release Date : 09.09.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000002128F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindaleo Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2857
Address	: Lohardaga, Jharkhand-835302	Location	: Camp; Kujam-I Bauxite Mine (80.87ha)
Mines Status	: Operational	Sampling Date	: 10.08.2023 to 11.08.2023
Period of Analysis	: 14.08.2023 to 21.08.2023	Sample Received Date	: 14.08.2023
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 735
3	Relative Humidity (%)	: 64	4	Weather Condition	: Partly Cloudy
5	Longitude	: 84°18'42.75"E	6	Latitude	: 23°17'39.60"N

NABL Accredited				
Discipline : Chemical			Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	46	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part-24): 2019	21	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	5.8	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	20.5	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part-25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

Authorized Signatory
Dr. Deependra Kumar Sinha
ELES Pvt. Ltd. Technical Manager

Page 1 of 1

ELES Pvt. Ltd. Technical Manager

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ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TURUDANA
HATIA, RANCHI-834003 (JHARKHAND)
GST NO:- 20AAECC9713D124

ENGINEERING SERVICES PVT. LTD.

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

Phone no.: 0651-2290103

Website : www.elespl.co.in

CIN: U74999JH2012PTEC011125

TEST REPORT

Test Report No. : ELES/RNC/2023/3360	Report Release Date : 09.09.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2857
Address	: Lohardaga, Jharkhand-835302	Location	: Camp; Kujam-I Bauxite Mine (80.87ha)
		Sampling Date	: 10.08.2023 to 11.08.2023
Mines Status	: Operational	Sample Received Date	: 14.08.2023
Period of Analysis	: 14.08.2023 to 21.08.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 735
3	Relative Humidity (%)	: 64	4	Weather Condition	: Partly Cloudy
5	Longitude	: 84°18'42.75"E	6	Latitude	: 23°17'39.60"N

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	µg/m ³	IS:5182 (Part-11): 2006;RA2017	<1.0	05(Annual)
Benzo (a) Pyrene*	ng/m ³	IS:5182 (Part-12): 2004;RA2019	<0.5	01(Annual)

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



****End of Report****

Authorised Signatory

Dr. Deependra Kumar Binha

Pt. D. Environmental Engg.

ELES Pvt. Ltd. Technical Manager

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TEST REPORT

Test Report No. : ELES/RNC/2023/3349	Report Release Date : 09.09.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923040002117F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2846
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pakri Gada Village
		Sampling Date	: 08.08.2023 to 09.08.2023
Mines Status	: Operational	Sample Received Date	: 14.08.2023
Period of Analysis	: 14.08.2023 to 21.08.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPJ/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1 Average Temperature (°C) : 24	2 Barometric Pressure (mmHg) : 737
3 Relative Humidity (%) : 65	4 Weather Condition : Partly Cloudy
5 Longitude : 84°14'52.25"N	6 Latitude : 23°17'41.21"E

N/A DE. Approved/Stamp

Discipline : Chemical

Group : Atmospheric Pollution

Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	44	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part-24): 2019	19	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	5.9	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	16.3	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part-25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)



Reviewed by

****End of Report****

Authorised Signatory
 Dr. Deependra Kumar Singh
 Sr. D. Environmental Engg.
 ELES Pvt. Ltd. Lohardaga, Jharkhand

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TEST REPORT

Test Report No. : ELES/RNC/2023/3349	Report Release Date : 09.09.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2846
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pakri Gada Village
Mines Status	: Operational	Sampling Date	: 08.08.2023 to 09.08.2023
Period of Analysis	: 14.08.2023 to 21.08.2023	Sample Received Date	: 14.08.2023
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DGC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION			
1	Average Temperature (°C)	: 24	2 Barometric Pressure (mmHg)
3	Relative Humidity (%)	: 65	4 Weather Condition
5	Longitude	: 84°14'52.25"N	6 Latitude
			: 23°17'41.21"E

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	µg/m ³	IS:5182 (Part-11): 2006;RA2017	<1.0	05(Annual)
Benzo (a) Pyrene*	ng/m ³	IS:5182 (Part-12): 2004;RA2019	<0.5	01(Annual)

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

Reviewed by

****End of Report****

Authorized Signatory
ELES Pvt. Ltd. Gurgaon, Haryana

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TEST REPORT

Test Report No. : ELES/RNC/2023/3350	Report Release Date : 09.09.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000002118F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2847
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pol Pol Village
		Sampling Date	: 08.08.2023 to 09.08.2023
Mines Status	: Operational	Sample Received Date	: 14.08.2023
Period of Analysis	: 14.08.2023 to 21.08.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 24	2	Barometric Pressure (mmHg)	: 737
3	Relative Humidity (%)	: 65	4	Weather Condition	: Partly Cloudy

NABL Accredited				
Discipline : Chemical			Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	50	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	22	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	5.1	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	12.7	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

Authorised Signatory
 Dr. Chandras Kumar Sinha
 P. 2, ELES Pvt. Ltd. Bldg.

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ENVIRONMENTAL LABORATORY INDIA

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101, Old Service Road, Sector 10, Gurgaon
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Tel: 01299-421000

TEST REPORT

Test Report No. : ELES/RNC/2023/3350	Report Release Date : 09.09.2023
Work Order No. : 13612310219	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2847
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pal Pal Village
		Sampling Date	: 08.08.2023 to 09.08.2023
Mines Status	: Operational	Sample Received Date	: 14.08.2023
Period of Analysis	: 14.08.2023 to 21.08.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DCC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 24	2	Barometric Pressure (mmHg)	: 737
3	Relative Humidity (%)	: 65	4	Weather Condition	: Partly Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	µg/m ³	IS:5182 (Part-11): 2006;RA2017	<1.0	05(Annual)
Benzo (a) Pyrene*	ng/m ³	IS:5182 (Part-12): 2004;RA2019	<0.5	01(Annual)

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



End of Report

Handwritten signature
Authorized Signatory
ELES Pvt. Ltd. Gurgaon Haryana

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TEST REPORT

Test Report No. : ELES/RNC/2023/3351	Report Release Date : 09.09.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000002119F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindelco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2848
Address	: Lohardaga, Jharkhand-835302	Location	: Near Shakhupani Village
		Sampling Date	: 09.08.2023 to 10.08.2023
Mines Status	: Operational	Sample Received Date	: 14.08.2023
Period of Analysis	: 14.08.2023 to 21.08.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 66	4	Weather Condition	: Partly Cloudy

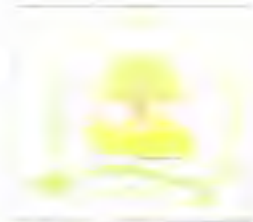
NABL Accredited				
Discipline : Chemical			Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	42	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	18	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	<5.0	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	18.3	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

Authorised Signatory
 Dr. Gopendra Kumar Singh
 P. O. Environmental Engg.

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ENVIRONMENTAL LABORATORY INDIA

TEST REPORT

Test Report No. : ELES/RNC/2023/3351	Report Release Date : 09.09.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2848
Address	: Lohardaga, Jharkhand-835302	Location	: Near Shakhupani Village
		Sampling Date	: 09.08.2023 to 10.08.2023
Mines Status	: Operational	Sample Received Date	: 14.08.2023
Period of Analysis	: 14.08.2023 to 21.08.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 66	4	Weather Condition	: Partly Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	µg/m ³	IS:5182 (Part-11): 2006;RA2017	<1.0	05(Annual)
Benzo (a) Pyrene*	ng/m ³	IS:5182 (Part-12): 2004;RA2019	<0.5	01(Annual)

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


Reviewed by

****End of Report****


Authorised Signatory
ELES Pvt. Ltd. Environmental
ELES Pvt. Ltd. Environmental

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ENVIRONMENTAL LABORATORY INDIA



TEST REPORT

Test Report No. : ELES/RNC/2023/3352	Report Release Date : 09.09.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000002120F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2849
Address	: Lohardaga, Jharkhand-835302	Location	: Near Dipa Kujam Village
		Sampling Date	: 11.08.2023 to 12.08.2023
Mines Status	: Operational	Sample Received Date	: 14.08.2023
Period of Analysis	: 14.08.2023 to 21.08.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 735
3	Relative Humidity (%)	: 64	4	Weather Condition	: Partly Cloudy

NABL Accredited				
Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	41	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	19	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	6.5	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	16.1	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)

Reviewed by

Authorized Signatory

ELES Pvt. Ltd. Technical Manager

****End of Report****

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TEST REPORT

Test Report No. : ELES/RNC/2023/3352	Report Release Date : 09.09.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2840
Address	: Lohardaga, Jharkhand-835302	Location	: Near Dipa Kujam Village
		Sampling Date	: 11.08.2023 to 12.08.2023
Mines Status	: Operational	Sample Received Date	: 14.08.2023
Period of Analysis	: 14.08.2023 to 21.08.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION			
1	Average Temperature (°C) : 25	2	Barometric Pressure (mmHg) : 735
3	Relative Humidity (%) : 64	4	Weather Condition : Partly Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	µg/m ³	IS:5182 (Part-11): 2006;RA2017	<1.0	05(Annual)
Benzo (a) Pyrene*	ng/m ³	IS:5182 (Part-12): 2004;RA2019	<0.5	01(Annual)

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


 Reviewed by

****End of Report****


 Authorized Signatory
 Head of Quality Control
 ELES Pvt. Ltd.



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CW: U74999JH2018PTC033125

TEST REPORT

Test Report No. : ELES/RAN/2023/1717	Report Release Date : 10.09.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

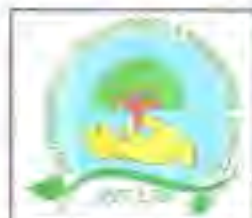
CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RAN/2023/DW/1604
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 07.08.2023
		Sample Received Date	: 28.08.2023
Mines Status	: Operational	Type of Sample	: Drinking Water
Period of Analysis	: 28.08.2023 to 09.09.2023	Source/Location of Sample	: Kujam I- Bauxite Mines (80.87 ha)
		Sampling Procedure	: ELES/DOC/SMPL/01
		Sample Collected By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

Discipline : Chemical		Group : Water		Regulatory Limit as per IS 10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
pH (at 24.7 °C)	-	APHA 23 rd Ed.2017, 4500-H ⁺	6.68	6.5-8.5	No Relaxation
Turbidity	NTU	APHA 23 rd Ed.2017, 2130 B	0.28	1.0	5.0
Taste	-	APHA 23 rd Ed.2017, 2160 C	Agreeable	Agreeable	Agreeable
Odour	-	IS 3025 (Part-5):2018	Agreeable	Agreeable	Agreeable
Colour	Hazen	APHA 23 rd Ed.2017, 2120B&D	1.0	5	15
Total Dissolved Solids (TDS)	mg/L	APHA 23 rd Ed.2017, 2540B,C&D	396	500	2000
Chloride (as Cl)	mg/L	APHA 23 rd Ed.2017, 4500 Cl B	80.4	250	1000
Fluoride (as F)	mg/L	APHA 23 rd Ed.2017, 4500 F-D	BDL (DL: 0.1)	1.0	1.5
Total Alkalinity (as CaCO ₃)	mg/L	APHA 23 rd Ed.2017, 2320 B	112	200	600
Total Hardness (as CaCO ₃)	mg/L	APHA 23 rd Ed.2017, 2340 C	169	200	600
Sulphate (as SO ₄)	mg/L	APHA 23 rd Ed.2017, 4500 SO ₄ ²⁻ -E	26.8	200	400
Nitrate (as NO ₃)	mg/L	APHA 23 rd Ed.2017, 4500 NO ₃ -B	3.42	45	No Relaxation
Phenolic Compound (as C ₆ H ₅ OH)	mg/L	IS 3025 (Part-43):1992;RA2019	BDL (DL: 0.0005)	0.001	0.002

Page 1 of 4

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CIN: U74999JH2018PFC011225

TEST REPORT

Test Report No. : ELES/RAN/2023/1717	Report Release Date : 10.09.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

Discipline : Chemical			Group : Water		Regulatory Limit as per IS10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit	
Cyanide (as CN)	mg/L	APHA 23 rd Ed.2017, 4500 CN-E	BDL (DL: 0.012)	0.05	No Relaxation	
Residual Free Chlorine (RFC)	mg/L	IS 3025 (Part-26):2021	BDL (DL: 0.1)	0.02	1.0	
Calcium (as Ca)	mg/L	APHA 23 rd Ed.2017, 3500 Ca B	41.8	75	200	
Discipline : Chemical			Group : Residues in Water			
Aluminum (as Al)	mg/L	IS 3025 (Part-55); 2003; RA2019	BDL (DL: 0.02)	0.03	0.2	
Arsenic (as As)	mg/L	IS 3025 (Part 37): 2022	BDL (DL: 0.005)	0.01	No Relaxation	
Boron (as B)	mg/L	IS 3025(Part-57): 2005; RA2021	BDL (DL: 0.2)	0.5	1.0	
Cadmium (as Cd)	mg/L	APHA 23 rd Ed.2017, 3111B	BDL (DL: 0.003)	0.003	No Relaxation	
Total Chromium (as Cr)	mg/L	APHA 23 rd Ed.2017, 3111B	BDL (DL: 0.03)	0.05	No Relaxation	
Copper (as Cu)	mg/L	APHA 23 rd Ed.2017, 3111B	BDL (DL: 0.03)	0.05	1.5	
Iron (as Fe)	mg/L	APHA 23 rd Ed.2017, 3111B	0.198	1.0	1.0	
Lead (as Pb)	mg/L	APHA 23 rd Ed.2017, 3111B	BDL (DL: 0.01)	0.01	No Relaxation	
Manganese (as Mn)	mg/L	APHA 23 rd Ed.2017, 3111B	BDL (DL: 0.05)	0.1	0.3	
Mercury (as Hg)	mg/L	IS 3025 (Part-48); 1994; RA2019	BDL (DL: 0.001)	0.001	No Relaxation	
Selenium (as Se)	mg/L	IS 3025 (Part-56); 2003; RA2019	BDL (DL: 0.01)	0.01	No Relaxation	
Zinc (as Zn)	mg/L	APHA 23 rd Ed.2017, 3111B	BDL (DL: 0.1)	5	15	

Remarks: 1. pH & RFC done at Lab.

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RAN/2023/1717	Report Release Date : 10.09.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

Discipline : Chemical		Group : Water		
Parameter	Unit	Test Protocol	Result	Regulatory Limit as per IS 10500:2012
Pesticides				
Alachlor*	µg/L	APHA	BDL (DL: 1.0)	20
Atrazine*	µg/L	APHA	BDL (DL: 1.0)	2
Aldrin/Dieldrin*	µg/L	APHA	BDL (DL: 0.01)	0.03
Alpha HCH*	µg/L	APHA	BDL (DL: 0.001)	0.01
Beta HCH*	µg/L	APHA	BDL (DL: 0.01)	0.04
Butachlor*	µg/L	APHA	BDL (DL: 10)	125
Chlorpyrifos*	µg/L	APHA	BDL (DL: 10)	30
Delta HCH*	µg/L	APHA	BDL (DL: 0.01)	0.04
2,4 dichlorophenoxyacetic acid*	µg/L	APHA	BDL (DL: 10)	30
DDT(o,p and p,p-isomers of DDT,DDE and DDD)*	µg/L	APHA	BDL (DL: 0.5)	1
Endosulfan (alpha, beta, and sulphate)*	µg/L	APHA	BDL (DL: 0.1)	0.4
Ethion*	µg/L	APHA	BDL (DL: 0.5)	3
Gamma HCH (Lindane)*	µg/L	APHA	BDL (DL: 0.5)	2
Isoproturon*	µg/L	APHA	BDL (DL: 0.5)	9

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TEST REPORT

Test Report No. : ELES/RAN/2023/1717	Report Release Date : 10.09.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

Discipline : Biological		Group : Water		Regulatory Limit as per IS 10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
Total Coliform	Per 100 mL	IS 15185:2016; RA 2021	Not Detected	Shall not be detected	
Escherichia Coli (E. Coli)	Per 100 mL	IS 15185:2016; RA 2021	Not Detected		
Discipline : Chemical		Group : Water		Regulatory Limit as per IS 10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
Anionic Surfactants (as MBAS)*	mg/L	IS 3025 Part 68	BDL (DL: 0.1)	0.2	1.0
Mineral Oil*	mg/L	CL-6, IS: 3025 (P-39)	BDL (DL: 0.1)	1.0	No relaxation
Polynuclear Aromatic Hydrocarbons (PAH)*	mg/L	APHA 23 rd Edition	BDL (DL: 0.0001)	0.0001	No relaxation
Polychlorinated Biphenyls (PCB)*	mg/L	APHA 23 rd Edition	BDL (DL: 0.0005)	0.0005	No relaxation

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



****End of Report****

Rekha Saxena
Authorized Signatory
Rekha Saxena
B. Sc, M. Sc. (Botany)
Director
ELES Pvt. Ltd.



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TEST REPORT

Test Report No. : ELES/RNC/2023/3965	Report Release Date : 28.10.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3201
Address	: Lohardaga, Jharkhand-835302	Location	: Kujam Quarry- 449 Kujam-I Bauxite Mine (80.87ha)
		Sampling Date	: 07.09.2023 to 08.09.2023
Mines Status	: Operational	Sample Received Date	: 12.09.2023
Period of Analysis	: 12.09.2023 to 23.09.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 734
3	Relative Humidity (%)	: 70	4	Weather Condition	: Cloudy
5	Longitude	: 84°19'9.46"E	6	Latitude	: 23°18'30.17"N

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	43	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	19	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	5.1	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	17.6	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	0.005	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)

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TEST REPORT

Test Report No. : ELES/RNC/2023/3965	Report Release Date : 28.10.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C ₆ H ₆)*	µg/m ³	IS 5182 (Part-11)2006;RA2017	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m ³	IS 5182 (Part-12)2004;RA2019	<0.5	01(Annual)

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



****End of Report****



Authorised Signatory
Jr. Deependra Kumar Sinha
Ph. D. Environmental Engg.
ELES Pvt. Ltd. Technical Manager



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TEST REPORT

Test Report No. : ELES/RNC/2023/3966	Report Release Date : 28.10.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3202
Address	: Lohardaga, Jharkhand-835302	Location	: Talabkhanta 4A13 Kujam-I Bauxite Mine (80.87ha)
		Sampling Date	: 07.09.2023 to 08.09.2023
Mines Status	: Operational	Sample Received Date	: 12.09.2023
Period of Analysis	: 12.09.2023 to 23.09.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 734
3	Relative Humidity (%)	: 70	4	Weather Condition	: Cloudy
5	Longitude	: 84°18'56.50"E	6	Latitude	: 23°18'21.76"N

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	38	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	15	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	<5.0	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	17.2	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	0.005	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)

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CIN : U74999JH01&PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2023/3966	Report Release Date : 28.10.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C ₆ H ₆)*	µg/m ³	IS 5182 (Part-11)2006;RA2017	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m ³	IS 5182 (Part-12)2004;RA2019	<0.5	01(Annual)

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



****End of Report****

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



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TEST REPORT

Test Report No. : ELES/RNC/2023/3967	Report Release Date : 28.10.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3203
Address	: Lohardaga, Jharkhand-835302	Location	: 4 A11 Football Ground Kujam-I Bauxite Mine (80.87ha)
		Sampling Date	: 07.09.2023 to 08.09.2023
Mines Status	: Operational	Sample Received Date	: 12.09.2023
Period of Analysis	: 12.09.2023 to 23.09.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 734
3	Relative Humidity (%)	: 70	4	Weather Condition	: Cloudy
5	Longitude	: 84°18'47.03"E	6	Latitude	: 23°17'48.77"N

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	38	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	16	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	<5.0	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	20.4	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)

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CIN: U74599JH2014PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2023/3967	Report Release Date : 28.10.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C ₆ H ₆)*	µg/m ³	IS 5182 (Part-11)2006;RA2017	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m ³	IS 5182 (Part-12)2004;RA2019	<0.5	01(Annual)

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



****End of Report****


Authorized Signatory
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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2023/3968	Report Release Date : 28.10.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3204
Address	: Lohardaga, Jharkhand-835302	Location	: Camp; Kujam-I Bauxite Mine (80.87ha)
Mines Status	: Operational	Sampling Date	: 07.09.2023 to 08.09.2023
Period of Analysis	: 12.09.2023 to 23.09.2023	Sample Received Date	: 12.09.2023
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 734
3	Relative Humidity (%)	: 70	4	Weather Condition	: Cloudy
5	Longitude	: 84°18'42.75"E	6	Latitude	: 23°17'39.60"N

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	41	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	19	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	5.1	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	17.2	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)

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TEST REPORT


Test Report No. : ELES/RNC/2023/3968	Report Release Date : 28.10.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C ₆ H ₆)*	µg/m ³	IS 5182 (Part-11)2006;RA2017	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m ³	IS 5182 (Part-12)2004;RA2019	<0.5	01(Annual)

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



****End of Report****


Authorised Signatory
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TEST REPORT

Test Report No. : ELES/RNC/2023/3957	Report Release Date : 28.10.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3192
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pakri Gada Village
		Sampling Date	: 05.09.2023 to 06.09.2023
Mines Status	: Operational	Sample Received Date	: 12.09.2023
Period of Analysis	: 12.09.2023 to 23.09.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 74	4	Weather Condition	: Cloudy
5	Longitude	: 84°14'52.25"N	6	Latitude	: 23°17'41.21"E

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	39	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	22	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	5.1	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	18.7	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01	<2.0	06 (Annual)

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TEST REPORT

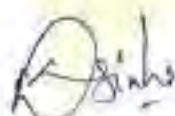
Test Report No. : ELES/RNC/2023/3957	Report Release Date : 28.10.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C ₆ H ₆)*	µg/m ³	IS 5182 (Part-11)2006;RA2017	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m ³	IS 5182 (Part-12)2004;RA2019	<0.5	01(Annual)

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



****End of Report****


Authorised Signatory
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 ELES Pvt. Ltd. Technical Manager



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TEST REPORT

Test Report No. : ELES/RNC/2023/3958	Report Release Date : 28.10.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3193
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pol Pol Village
		Sampling Date	: 05.09.2023 to 06.09.2023
Mines Status	: Operational	Sample Received Date	: 12.09.2023
Period of Analysis	: 12.09.2023 to 23.09.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 74	4	Weather Condition	: Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	43	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	20	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	<5.0	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	15.5	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01	<2.0	06 (Annual)

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TEST REPORT


Test Report No. : ELES/RNC/2023/3958	Report Release Date : 28.10.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C ₆ H ₆)*	µg/m ³	IS 5182 (Part-11)2006;RA2017	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m ³	IS 5182 (Part-12)2004;RA2019	<0.5	01(Annual)

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



****End of Report****


Authorised Signatory
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ELES Pvt. Ltd. Technical Manager



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TEST REPORT

Test Report No. : ELES/RNC/2023/3959	Report Release Date : 28.10.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3194
Address	: Lohardaga, Jharkhand-835302	Location	: Near Shakhuaipani Village
		Sampling Date	: 06.09.2023 to 07.09.2023
Mines Status	: Operational	Sample Received Date	: 12.09.2023
Period of Analysis	: 12.09.2023 to 23.09.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 26	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 68	4	Weather Condition	: Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	42	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	17	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	<5.0	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	18.2	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01	<2.0	06 (Annual)

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Website : www.elespl.co.in

CIN: U74999JH2016PTC011125

TEST REPORT


Test Report No. : ELES/RNC/2023/3959	Report Release Date : 28.10.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C ₆ H ₆)*	µg/m ³	IS 5182 (Part-11)2006;RA2017	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m ³	IS 5182 (Part-12)2004;RA2019	<0.5	01(Annual)

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



****End of Report****


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



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Phone no.: 0651-2290103

Website : www.elespl.co.in

CIN: U72900JH2018PT011125

TEST REPORT

Test Report No. : ELES/RNC/2023/3960	Report Release Date : 28.10.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3195
Address	: Lohardaga, Jharkhand-835302	Location	: Near Dipa Kujam Village
		Sampling Date	: 07.09.2023 to 08.09.2023
Mines Status	: Operational	Sample Received Date	: 12.09.2023
Period of Analysis	: 12.09.2023 to 23.09.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 70	4	Weather Condition	: Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	48	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	24	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	<5.0	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	17.3	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01	<2.0	06 (Annual)

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CIN: U74599JH2018PTL011125

TEST REPORT

Test Report No. : ELES/RNC/2023/3960	Report Release Date : 28.10.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023


Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C ₆ H ₆)*	µg/m ³	IS 5182 (Part-11)2006;RA2017	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m ³	IS 5182 (Part-12)2004;RA2019	<0.5	01(Annual)

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



Reviewed by

****End of Report****


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



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Website : www.elespl.co.in

CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2023/4136	Report Release Date : 31.10.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sampling Date	: 07.09.2023 to 08.09.2023
Address	: Lohardaga, Jharkhand-835302	Sampling Received Date	: 30.09.2023
		Type of Sample	: Ambient Noise
Mines Status	: Operational	Sampling procedure	: ELES/DOC/SMPL/03
		Sample Drawn By	: ELES Pvt. Ltd.
		Period of Analysis	: 30.09.2023 to 10.10.2023

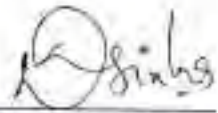
METEOROLOGICAL INFORMATION

1	Average Temperature (°C) : 25	2	Barometric Pressure (mmHg) : 734
3	Relative Humidity (%) : 70	4	Weather Condition : Cloudy

Location	Unit	Test Protocol	Result		Regulatory Limit (Industrial Zone)
			Time	L _{eq}	
Kujam-I Bauxite Mine (80.87ha)	dB(A)	IS 9989:1981, RA 2020	Day Time	67	75 dB(A) Day Time & 70 dB(A) Night Time
Sample ID: ELES/RNC/2023/AN/3528			Night Time	47	



****End of Report****


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

Page 1 of 1

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Website: www.elespl.co.in

CIN: U74999HR2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2023/4158	Report Release Date : 31.10.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name : Hindalco Industries Limited	Address : Lohardaga, Jharkhand-835302	Sampling Date : 07.09.2023	Sampling Received Date : 30.09.2023
Mines Status : Operational		Type of Sample : Workzone Noise	Sampling procedure : ELES/DOC/SMPL/03
		Sample Drawn By : ELES Pvt. Ltd.	Period of Analysis : 30.09.2023 to 11.10.2023

METEOROLOGICAL INFORMATION			
1	Average Temperature (°C) : 24	2	Barometric Pressure (mmHg) : 734
3	Relative Humidity (%) : 70	4	Weather Condition : Cloudy

Location	Unit	Test Protocol	Result		Regulatory Limit (Industrial Zone)
			Time	L _{eq}	
Drill rig at Working Pit - Kujam-I Bauxite Mine (80.87ha)	dB(A)	IS 4758:1968; RA 2017	Day Time	76	90 dB (A)
Sample ID: ELES/RNC/2023/WN/3550					



****End of Report****


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

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TEST REPORT

Test Report No. : ELES/RNC/2023/4108	Report Release Date : 31.10.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/SW/3500
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 07.09.2023
		Sample Received Date	: 29.09.2023
Mines Status	: Operational	Type of Sample	: Surface Water
		Source of Sample	: Spring Water
Period of Analysis	: 29.09.2023 to 17.10.2023	Location of Sample	: Kujam-I Bauxite Mine (80.87 ha)
		Sampling Procedure	: ELES/DOC/SMPL/01
		Sample Collected By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

Discipline : Chemical		Group : Water		Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
pH (at 24.8 °C)	-	IS 3025 (Part 11) : 2022	6.64	6.5-8.5
Colour	Hazen	IS 3025 (Part -4) : 2021	5.0	300
Odour	-	IS 3025 (Part-5) : 2018	Unobjectionable	--
Taste	-	APHA 23 rd Ed.2017, 2160 C	N/A	--
Turbidity	mg/L	IS 3025 (Part-10) :1984;RA2017	0.51	--
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part 16):1984; RA2017	192	1500
Total Alkalinity (as CaCO ₃)	mg/L	IS 3025 (Part-23) :1986; RA2019	85.6	--
Total Hardness (as CaCO ₃)	mg/L	IS 3025 (Part-21) : 2009; RA2019	94.8	--
Sulphate (as SO ₄)	mg/L	IS 3025 (Part 24) : 1986; RA2019	4.0	400
Nitrate (as NO ₃)	mg/L	APHA 23 rd Ed.2017, 4500 NO ₃ -B	BDL (DL: 0.5)	50
Chloride (as Cl)	mg/L	IS 3025 (Part-32) :1988; RA2019	7.6	600
Fluoride (as F)	mg/L	IS 3025 (Part-60) :2008; RA2019	BDL (DL: 0.1)	1.5
Cyanide (as CN)	mg/L	APHA 23 rd Ed.2017, 4500 CN-E	BDL (DL: 0.012)	0.05
Phenols Compounds (as C ₆ H ₅ OH)	mg/L	IS 3025 (Part-43): 1992;RA2019	BDL (DL: 0.0005)	0.005

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"Save Environment, Save Future"



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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2023/4108	Report Release Date : 31.10.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

Discipline: Chemical		Group: Water		Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
Calcium (as Ca)	mg/L	IS 3025 (Part-40): 1991;RA2019	25.3	--
Free Residual Chlorine (RFC)	mg/L	IS 3025 (Part-26) :2021	BDL (DL: 0.1)	--
Discipline: Chemical		Group: Residues in Water		
Aluminium (as Al)	mg/L	IS 3025 (Part-55) :2003; RA2019	BDL (DL: 0.02)	--
Arsenic (as As)	mg/L	IS 3025 (Part 37): 2022	BDL (DL: 0.005)	0.2
Boron (as B)	mg/L	IS 3025 (Part-57) :2021	BDL (DL: 0.2)	--
Cadmium (as Cd)	mg/L	APHA 23 rd Ed.2017; 3111B	BDL (DL: 0.003)	0.01
Total Chromium (as Cr)	mg/L	APHA 23 rd Ed.2017; 3111B	BDL (DL: 0.03)	--
Copper (as Cu)	mg/L	APHA 23 rd Ed.2017; 3111B	BDL (DL: 0.03)	1.5
Iron (as Fe)	mg/L	APHA 23 rd Ed.2017; 3111B	0.181	50
Lead (as Pb)	mg/L	APHA 23 rd Ed.2017, 3111 B	BDL (DL: 0.01)	0.1
Manganese (as Mn)	mg/L	APHA 23 rd Ed.2017; 3111 B	BDL (DL: 0.05)	--
Mercury (as Hg)	mg/L	IS 3025 (Part-48) :1994; RA2019	BDL (DL: 0.001)	--
Selenium (as Se)	mg/L	IS 3025 (Part-56) :2003; RA2019	BDL (DL: 0.01)	0.05
Zinc (as Zn)	mg/L	APHA 23 rd Ed.2017, 3111 B	BDL (DL: 0.1)	15
Discipline: Biological		Group: Water		
Total Coliform	CFU/100 mL	IS 15185: 2016, RA2021	2.45×10 ²	5000
Escherichia Coli	CFU/100 mL	IS 15185:2016; RA2021	BDL (DL: 1.0)	--

Remarks: 1. pH & RFC done at Lab.

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2023/4108	Report Release Date : 31.10.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

Discipline: Chemical		Group: Water	
Parameter	Unit	Test Protocol	Result
Anionic Surfactants (as MBAS)*	mg/L	IS 3025 Part 68	<0.1
Mineral Oil*	mg/L	CL-6, IS: 3025 (P-39)	<0.1
Polynuclear Aromatic Hydrocarbons (PAH)*	mg/L	APHA 23 rd Edition	<0.0001
Pesticides			
Alachlor*	µg/L	APHA	<1.0
Atrazine*	µg/L	APHA	<1.0
Aldrin/Dieldrin*	µg/L	APHA	<0.01
Alpha HCH*	µg/L	APHA	<0.001
Beta HCH*	µg/L	APHA	<0.01
Butachlor*	µg/L	APHA	<10
Chlorpyrifos*	µg/L	APHA	<10
Delta HCH*	µg/L	APHA	<0.01
2,4 dichlorophenoxyacetic acid*	µg/L	APHA	<10
DDT(o,p and p,p-isomers of DDT,DDE and DDD)*	µg/L	APHA	<0.5
Endosulfan (alpha, beta, and sulphate)*	µg/L	APHA	<0.1
Ethion*	µg/L	APHA	<0.5
Gamma HCH (Lindane)*	µg/L	APHA	<0.5
Isoproturon*	µg/L	APHA	<0.5

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



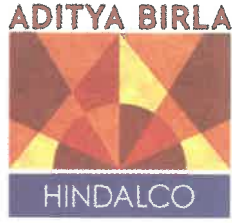
****End of Report****

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

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"Save Environment, Save Future"



Annexure 3

Date – 06.11.2023

Office Order

Environmental Cell has been re-constituted at Kujam I Bauxite Mine (Area 80.87 ha) comprising below mentioned team members. The team will ensure compliance with the Environment Act, Regulation & Rule in respect of the said mines of Hindalco Industries Limited.

1. Mr. Pradeep Kumar (Coordinator)
2. Mr. Shubham Kumar - Geologist
3. Ms. Swetapadma Nanda– 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 act rule and regulation for the above mine.

A handwritten signature in blue ink, appearing to read "Basudev Gangopadhyay", with a horizontal line drawn through it.

Basudev Gangopadhyay
AVP (Planning, Environment & Compliance)

Annexure 4

Production, Mined Out, Back Filled and Over Burden removal from April'23 to September'23								
S No	Name of the Mines	Mining lease area (ha)	Production Capacity (MT)*	Lease Period*	Production (MT)	Mined out area (ha)	Back filled area (ha)	Over burden (Cu.M)
1	Bagru bauxite Mine	75.41	85000	22.01.1974 to 31.03.2030	0	0	0.00	0.00
2	Bhusar Bauxite Mine	65.31	280000	11.07.1981 to 31.03.2030	148918	0.92	0.45	163157.26
3	Hisri (New) Bauxite Mine	14.55	100000	19.07.1981 to 31.03.2030	56738	0.4	0.49	27329.28
4	Kujam - I Bauxite Mine	80.87	150000	13.03.2006 to 12.03.2056	102270	2.1	1.61	157784.02
5	Kujam - II Bauxite Mine	157.38	300000	24.03.2006 to 23.03.2056	61110	3.02	1.21	134785.10
6	Amtipani Bauxite Mine	190.95	150000	13.03.2006 to 12.03.2056	100700	2.91	1.00	125875.50
7	Gurdari Bauxite Mine	584.19	325000	23.03.1985 to 22.03.2035	78106	3.07	2.38	242675.00
8	Shrengdag A Bauxite Mine	155.81	260000	16.10.1974 to 31.03.2030	14860	0.39	0.35	14280
9	Shrengdag B Bauxite Mine	140.07	100000	04.10.1978 to 31.03.2030	43320	1.12	1.15	77170
10	Jalim & Sanai Bauxite Mine	12.14	50000	16.10.1974 to 31.03.2030	26725	0.21	0.2	8750
11	Orsapat Bauxite Mine	196.36	200000	17.07.1986 to 16.07.2036	NIL	NIL	NIL	NIL
12	Chiro Kukud bauxite Mine	152.57	100000	29.01.1985 to 28.01.2035	NIL	NIL	NIL	NIL
13	Pakhar (8.09)	8.09	80000	16.05.1973 to 31.03.2030	NIL	NIL	NIL	NIL
14	Pakhar (35.12)	35.12	200000	17.04.1975 to 31.03.2030	NIL	NIL	NIL	NIL

Annexure 4

15	Pakhar (115.13)	115.13	300000	19.07.1996 to 31.03.2030	147508.00	2.29	0.4	532571.87
Minerals & Minerals Limited								
16	Pakhar (15.58)	15.58	60000	28.04.1965 to 31.03.2030	80.00	0.00	0.00	0.00
17	Pakhar (109.507)	109.507	280000	26.07.2008 to 25.07.2058	97720.00	1.93	0.71	237280.85
18	Bimarla Bauxite Mine	134.37	300000	18.07.2009 to 17.07.2059	39550	2.21	0.8	64913.65
19	Amtipani Chirodih Bauxite Mines	130.01	450000	11.01.2017 to 10.01.2067	84678	3.96	1.15	98519.66

*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 2023-24

The composite cost during the year 2023-24 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 Pakhar (115.13 ha), Pakhar (15.58 ha), Pakhar (109.507 ha), Pakhar (8.09 ha), Pakhar (35.12 ha), Serengdag (140.06 ha), Serengdag (155.81 ha), Jalim & Sanai (12.14 ha), Gurdari (584.19 ha), Amtipani (190.95 ha), Kujam I (80.97 ha) Kujam II (157.38 ha), Bagru (75.41 ha), Hisri New (14.55 ha), Chiro kukud (152.57 ha), Orsa pat (196.36 ha), Bhusar (65.31 ha), Bimarla Bauxite Mines (134.52 ha) and Amtipani Chirodih (130.01 ha) Bauxite Mine.

S No	Description	Budget (in Rupees) FY 2023-24	Actual (in Rupees) FY 2023-24 (From April'23 to September'23)
1	Pollution Control & Environment monitoring	1,57,41,102.00	82,15,825.36
2	Reclamation/ Back filing & Rehabilitation**	1,36,62,095.00	6,66,42,814.70
3	Green belt, Plantation & Water sprinkling arrangement	67,45,898.00	19,34,590.20
4	Rural Development	6,19,33,534.00	1,83,73,453.27

**Part of OB removed cost.

Basudev Gangopadhyay
AVP (Planning, Environment & Compliance)

2023

Annexure 6


NO.	NAME	FORM B/A NO.	FORM O CERTIFICATE NO.	PME DATE	PME DUE DATE
7	SAVITRI ASUR				
1)	BABLU YAYRAI	IME	KJM-1-1238722533	16/2/23	17/2/28
2)	GOPAL ASUR. W8	IME	KJM-1-1238722534	16/2/23	17/2/28
3)	MATHURA PURTI	IME	KJM-1-1238722532	16/2/23	17/2/28
4)	SHIV KUMAR ORADON	IME	KJM-1-1238722531	16/2/23	17/2/28
5)	SUKHU ASUR. (6)	IME	KJM-1-1238722535	16/2/23	17/2/28
6)	CHAMRU ASUR.	42 (PME)	KJM-1-76706	26/05/23	27/05/28
7)	BUDHU ASUR.	1 (PME)	KJM-1-76708	26/05/23	27/05/28
8)	AJAY ASUR.	7 (PME)	KJM-1-76709	26/05/23	27/05/28
9)	SUNIT ASUR.	41 (PME)	KJM-1-76707	26/05/23	27/05/28
10)	SOMRA ASUR.	33 (PME)	KJM-1-76704	26/05/23	27/05/26
11)	MANGRA ASUR.	34 (PME)	KJM-1-76705	26/05/23	27/05/28
12)	SUKHU ASUR.	PME (6)	KJM-1-099055	18/05/23	17/05/26
13)	MANGHAR ASUR.	PME (27)	KJM-1-099057	18/05/23	17/05/28
14)	JAYPAL ASUR.	PME (58)	KJM-1-099053	18/05/23	17/05/28
15)	GOPAL ASUR.	PME (48)	KJM-2-099051	18/05/23	17/05/28
16)	SOMRA ASUR.	PME (5)	KJM-2-099052	18/05/23	17/05/28

FORM "O"
 (See Rule 29 F(2) and 29L)
REPORT OF MEDICAL EXAMINATION UNDER RULE 29 B
 (TO BE ISSUED IN TRIPLICATE)**


Certificate No: KJM-1-099055

Certified that SUKHU ASUR employed as Workman in Kujam-1- Bauxite Mine, Form-A No. 6
 has been examined for an Periodical medical examination. He appears to be 64 years of age.
 The findings of the examining authority are given in the attached sheet. It is considered that SUKHU ASUR

- a. Is medically fit for any employment in mines.
- b. Is suffering from _____ and is medically unfit for
 - (i) Any employment in mines, 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. ## appear for re-examination with the result
 of test of _____ and the opinion of _____
 specialist from _____ #REF# may be permitted/not permitted to carry on
 his duties during this period.


Dr. Omprakash Dubey
 Sr. Consultant
 Hindalco Mines Divi., Lohardaga
 Reg. No.-33297, BR-2002




 Signature of the examining authority
 Name and designation in Block Letter
DR OMPRAKASH DUBEY
 SENIOR CONSULTANT
 Reg.No-33297 BR2002
Dr. Omprakash Dubey
 Sr. Consultant
 Hindalco Mines Divi., Lohardaga
 Reg. No.-33297, BR-2002

Place Rajendra Hospital, Lohardaga
 Date 18/05/2023
 *Delete whatever not applicable.

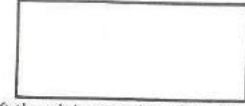
One copy of the certificate shall be handed over to the person concerned and another copy shall be sent to the Manager of the mine concerned by registered post and the third copy shall be retained by the examining authority.

Report of the Examining Authority

(To be filled in for every medical examination whether initial or periodical or re-examination or after cure/control of disability)

Annexure to Certificate No. KJM-1-099055 as a result of medical examination on 18-05-2023

Identification Mark: A Cut mark on chest



Left thumb impression of the Candidate

1 General Development

2 Height 171 cms
 3 Weight 55 Kgs

4 Eyes
 (i) Visual Acuity - Distant Vision (with or with NORMAL)

Right Eye 6/6 Left Eye 6/6 with glasses

- (ii) Any organic disease of eyes NO
- *(iii) Night Blindness NO
- *(iv) Colour Blindness NO
- (v) Squint NO
- (*to be tested in special cases)

5 Ears

(i) Hearing: Right Ear WNL Left Ear WNL
 (ii) Any organic disease NO

6 Respiratory System:

Chest Measurement:
 (i) After full inspiration 104 cms
 (ii) After full expiration 102 cms

7 Circulatory System

Blood Pressure 130/80 mm of Hg
 Pulse 92 per minute

8 Abdomen

Tenderness CNAD
 Liver CNAD
 Spleen CNAD
 Tumor CNAD

9 Nervous System

History of Fits or Epilepsy NO
 Paralysis NO
 Mental Health NORMAL

10 Loco Motor System

NORMAL

11 Skin

FAIR

12 Hernia

NIL

13 Hydrocele

NIL

14 Any other abnormality

NO

15 Urine

Reaction ACIDIC
 Albumin NIL
 Sugar NIL


16 SKia gram of chest

NORMAL

17 Any other test considered necessary by the examining authority

18 Any opinion of specialist considered necessary

ECG, SPIROMETRY TEST, AUDIOMETRY TEST & BLOOD TEST
NA


 Signature of Examining Authority

Dr. Omprakash Dubey
 Place - Hindalco Industries LTD
 Mines Divn - Lohardaga
 Hindalco Mines Divi., Lohardaga
 Reg. No.-33297, BR-2002

Report of Medical Examination under Mines Rule 29B

(To be used in continuation with Form "O")

Certificate No.

KJM-1-099055

Name

SUKHU ASUR

Identification Marks

A Cut markon Forehead

Result of Lung Function Test (Spirometry)

Parameters	Predicted Value	Performed Value	% Of Predicted			
Forced Vital Capacity (FVC)	4.1	6.58	161			
Forced Exhalation Volume in 1 st Second (FEV1)	3.29	3.11	95			
FEV1/FVC	77.42	47.27	61			
Peak Expiratory Flow	8.31	4.99	60			

Enclosed Spirometry Report:

Signature of the Examination Authority

Dr. Omprakash Dubey
Sr. Consultant

Hindalco Mines, Divic, Lohardaga
Reg. No. 33257, BR 2002

Table 1: Personal exposure monitoring results for RPCS

Results of Personal Exposure Monitoring for Respirable Particulates and Crystalline Silica, Quartz at Kujiam Bauxite Mines, Netarhah, Jharkhand.									
CAS No.: Respirable particulates: NA Respirable Silica, crystalline quartz (with respirable particulate) 14808-60-7									
Analytical Method: mod. NIOSH 0600/7500/mod. OSHA ID-142; Grav./XRD		Sampling Pumps: Gillian GilAir 3, Primary Calibrator: AP Buck		Threshold Limit Values - ACGIH, 2022 TLV-TWA: Respirable Silica (Crystalline silica, Quartz): 0.025 mg/m ³ @, Respirable particulate:- 3 mg/m ³ (PNOS) Indian Factories Act PLE-TWA: Respirable silica: The Indian Factories Act PLE-TWA for Quartz in terms of Respirable particulates = 10 / (% Respirable Quartz +2) mg/m ³ .		Reporting Limit: 0.0050 mg (Crystalline silica Quartz), 0.05 mg (Respirable particulate)		Lab Reported Concentration (mg/m ³)	
Date of Sampling	Sample ID	Employee Name	Location	Activity	Duration of Sampling (Min)	Average Flow Rate (L/Min)	Volume (Liter)	Analytes	Lab Reported Concentration (mg/m ³)
To view additional monitoring details, please unhide the columns.									
Mining supervisor									
30-09-2022	KBM300922RPC S-02	Mr. Anand Kumar Pathak	Navatolipit-Mining Supervisor	Mining supervision	378	2.516	951.0	Respirable particulate	<0.053
30-09-2022	KBM300922RPC S-03	Mr. Ashish Kumar Pathak	Bhathipatti-Mining Supervisor	Mining supervision	377	2.511	946.773	Crystalline silica (Quartz)	<0.0053
Drill Operation									
30-09-2022	KBM300922RPC S-01		Bhathipatti-Drilling Helper	Drilling operation	293	2.526	740.17	Respirable	0.160

Results of Personal Exposure Monitoring for Respirable Particulates and Crystalline Silica, Quartz at Kujam Bauxite Mines, Netarhat, Jharkhand.

CAS No.: Respirable particulates: NA Respirable Silica, crystalline quartz (with respirable particulate) 14808-60-7

Analytical Method: mod. NIOSH 0600/7500/mod. OSHA ID-142; Grav./XRD

Date Of Analysis: 03-NOV-22 - 04-NOV-22

Reporting Limit: 0.0050 mg (Crystalline silica Quartz), 0.05 mg (Respirable particulate)

Sampling Pumps: Gilian GilAir 3, Primary
Callibrator: AP Buck
Model No.: M-5
Sr. No: A54209
Calibration Date: 01/07/2022

Sampling Media: 37PVC 5.0 PW with aluminium cyclone

Threshold Limit Values - ACGIH, 2022 TLV-TWA:
Respirable Silica (Crystalline silica, Quartz): 0.025 mg/m³ ®, **Respirable particulate:-** 3 mg/m³ (PNOS)
Indian Factories Act PLE-TWA: Respirable silica:
The Indian Factories Act PLE-TWA for Quartz in terms of Respirable particulates = 10 / (% Respirable Quartz +2) mg/m³.

Date of Sampling	Sample ID	Employee Name	Location	Activity	Duration of Sampling		Average Flow Rate (L/Min)	Volume (Liter)	Analytes	Lab Reported Concentration (mg/m ³)
					Total Duration (Min)					
		Mr. Angnu Oorav							particulate	
									Crystalline silica (Quartz)	<0.0068
30-09-2022	KBM300922RPC S-05	Mr. Rahul Rana	Navatolipit-Driller Operator		330		2.531	835.23	Respirable particulate	0.100
									Crystalline silica (Quartz)	<0.0060
HEMM Operation										
30-09-2022	KBM300922RPC S-06	Mr. Sandeep Oorav	Navatolipit-Breaker Operator (HEMM)	HEMM Operation	330		2.522	832.15	Respirable particulate	<0.060
									Crystalline silica (Quartz)	<0.0060

To view additional monitoring details, please unhide the columns.

[See rules 115 (2)]

Pollution Under Control Certificate

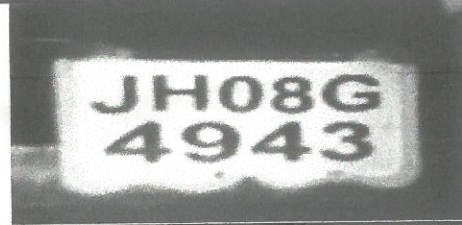
Authorised By :
Government of Jharkhand

Date : **28/10/2023**
Time : **15:50:31 PM**
Validity upto : **27/04/2024**



Certificate SL. No. : JH01900240003302
Registration No. : JH08G4943
Date of Registration : 30/Jul/2004
Month & Year of Manufacturing : July-2004
Valid Mobile Number : *****1350
Emission Norms : BHARAT STAGE I
Fuel : DIESEL
PUC Code : JH0190024
GSTIN :
Fees : Rs.300.00
(GST to be paid extra as applicable)
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	
	Lambda	-	1 ± 0.03	
Smoke Density	Light absorption coefficient	1/metre	2.45	0.63
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

Pollution Under Control Certificate

Authorised By :

Government of JH

Date

: 14/10/2023

Time

: 10:29:46 AM

Validity upto

: 13/04/2024



Certificate Sl. No.

: JH00102050002540

Registration No.

: JH08B4344

Date of Registration

: 05/Apr/2011

Month & Year of Manufacturing

: April-2011

Valid Mobile Number

: *****9897

Emission Norms

: BHARAT STAGE III

Fuel

: DIESEL

PUC Code

: JH0010205

GSTIN

: Rs.300.00

Fees

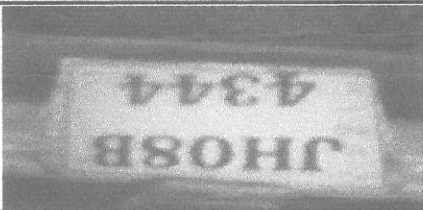
: (GST to be paid extra as applicable)

MIL observation

: No

Vehicle Photo with Registration plate

60 mm x 30 mm



Sr. No.

1

Pollutant (as applicable)

2

Units (as applicable)

3

Emission limits

4

Measured Value (upto 2 decimal places)

5

Idling Emissions

Carbon Monoxide (CO)

percentage (%)

ppm

High idling emissions

RPM

2500 ± 200

Lambda

1 ± 0.03

Light absorption coefficient

1/metre

2.45

Smoke Density

1.93

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

Form 59

[See rules 115 (2)]

Pollution Under Control Certificate

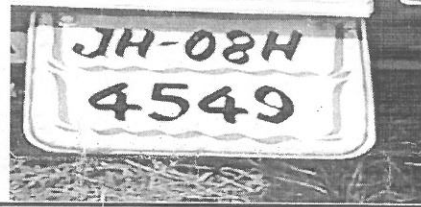
Authorised By :
Government of Odisha

Date : 17/10/2023
Time : 16:11:08 PM
Validity upto : 16/04/2024



Certificate SL. No. : OR02800090000267
Registration No. : JH08H4549
Date of Registration : 02/Nov/2011
Month & Year of Manufacturing : March-2011
Valid Mobile Number : *****5465
Emission Norms : Bharat (Trem) Stage III A
Fuel : DIESEL
PUC Code : OR0280009
GSTIN : 21CHSPB9476L1ZR
Fees : Rs.300.00
(GST to be paid extra as applicable)
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	
	Lambda	-	1 ± 0.03	
Smoke Density	Light absorption coefficient	1/metre	2.45	0.1

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

Form 59

[See rules 115 (2)]

Pollution Under Control Certificate

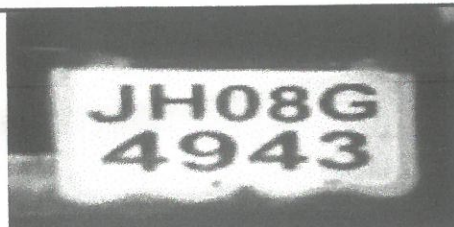
Authorised By :
Government of Jharkhand

Date : 28/10/2023
Time : 15:50:31 PM
Validity upto : 27/04/2024



Certificate SL. No. : JH01900240003302
Registration No. : JH08G4943
Date of Registration : 30/Jul/2004
Month & Year of Manufacturing : July-2004
Valid Mobile Number : *****1350
Emission Norms : BHARAT STAGE I
Fuel : DIESEL
PUC Code : JH0190024
GSTIN :
Fees : Rs.300.00
(GST to be paid extra as applicable)
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	
	Lambda	-	1 ± 0.03	
Smoke Density	Light absorption coefficient	1/metre	2.45	0.63
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

Form 59

[See rules 115 (2)]

Pollution Under Control Certificate

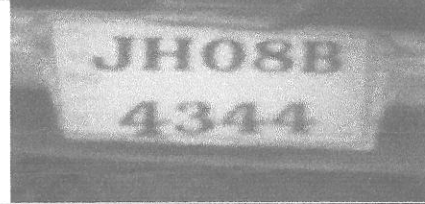
Authorised By :
Government of JH

Date : 14/10/2023
Time : 10:29:46 AM
Validity upto : 13/04/2024



Certificate SL. No. : JH00102050002540
Registration No. : JH08B4344
Date of Registration : 05/Apr/2011
Month & Year of Manufacturing : April-2011
Valid Mobile Number : *****9897
Emission Norms : BHARAT STAGE III
Fuel : DIESEL
PUC Code : JH0010205
GSTIN :
Fees : Rs.300.00
(GST to be paid extra as applicable)
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	
	Lambda	-	1 ± 0.03	
Smoke Density	Light absorption coefficient	1/metre	2.45	1.93
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

Date/Time Long at 11:19:58 June 24, 2023
Trigger Source Geo: 0.700 mm/s
Range Geo: 254.0 mm/s
Record Time 3.0 sec at 2048 sps
Operator/Setup: Operator/BV.MMB

Serial Number UM17410 V 10-89 Micromate ISEE
Battery Level 3.8 Volts
Unit Calibration February 15, 2021 by UES New Delhi
File Name __TEMP.EVT

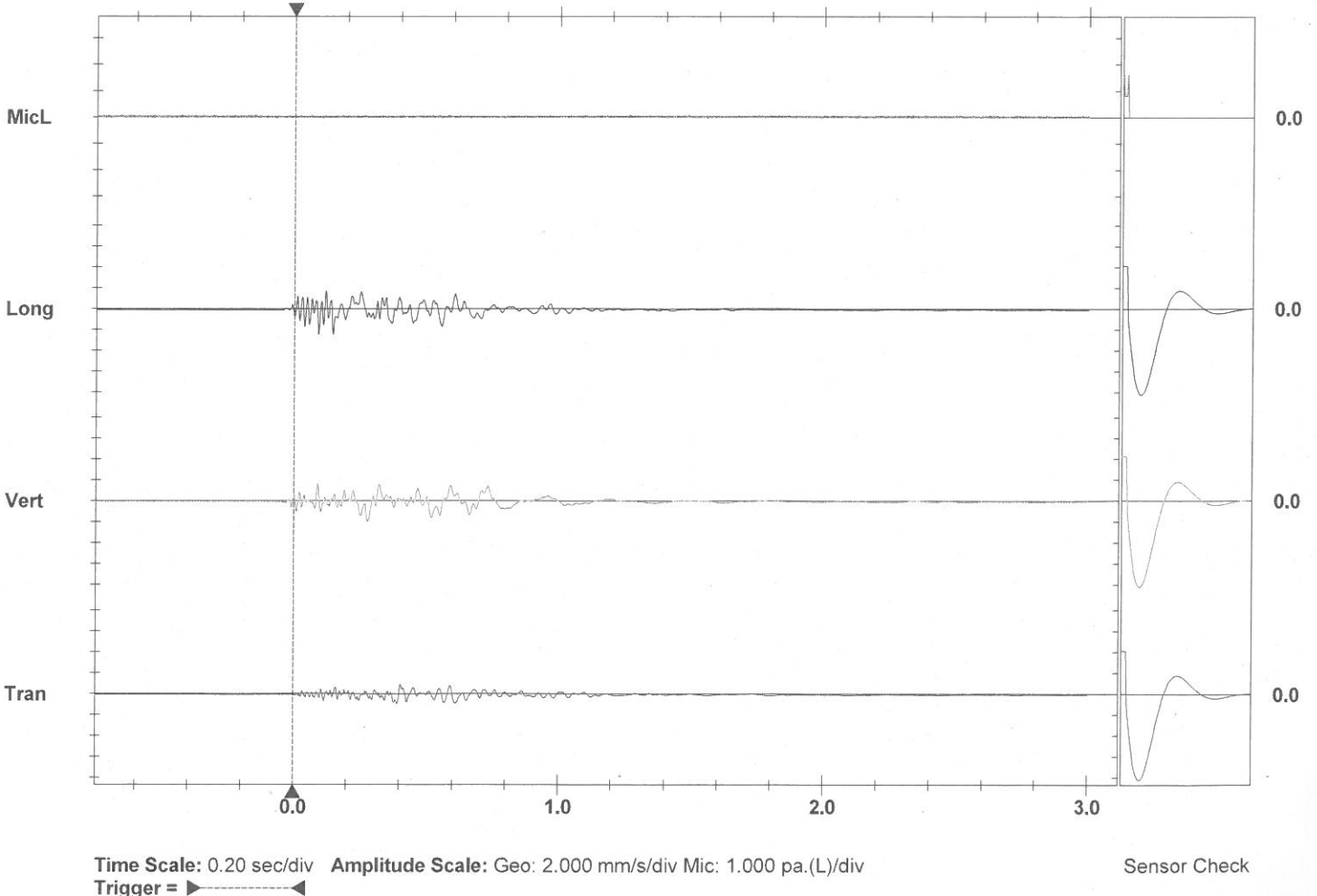
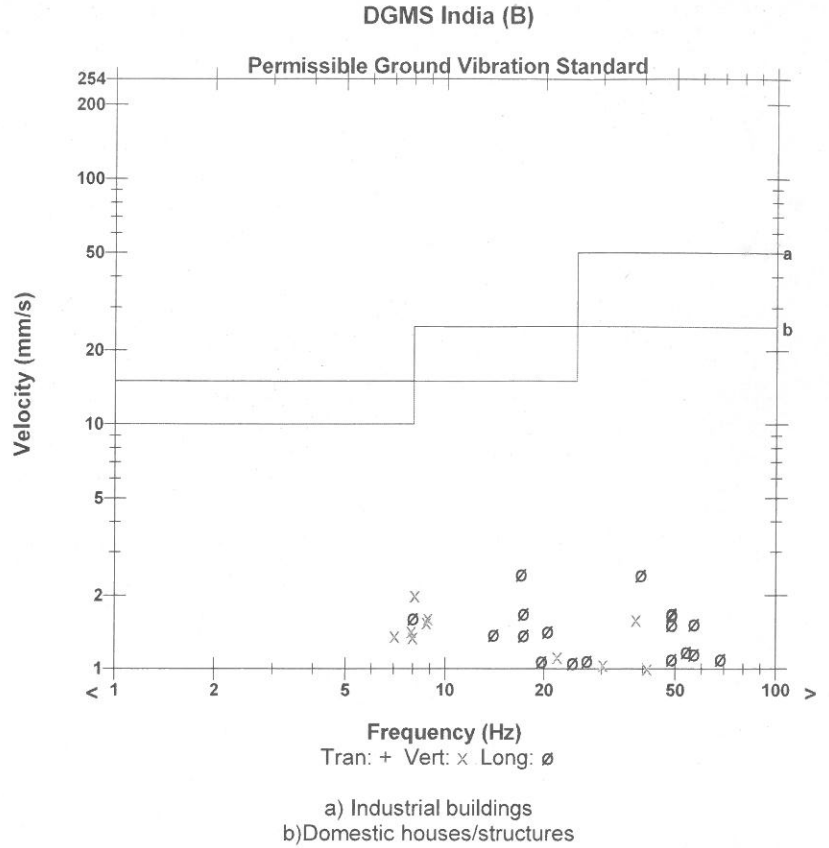
Notes

Location:
 Client:
 User Name:
 General:

Microphone Linear Weighting
PSPL <88 dB(L)
ZC Freq >200 Hz
Channel Test Check (Freq = 0.0 Hz Amp = 0 mv)

	Tran	Vert	Long	
PPV	0.962	2.010	2.459	mm/s
PPV	50.66	57.06	58.82	dB
ZC Freq	18.3	8.1	17.1	Hz
Time (Rel. to Trig)	0.392	0.278	0.146	sec
Peak Acceleration	0.028	0.044	0.077	g
Peak Displacement	0.036	0.028	0.035	mm
Sensor Check	Passed	Passed	Passed	
Frequency	7.3	7.3	7.1	Hz
Overswing Ratio	4.7	4.6	4.8	

Peak Vector Sum 2.899 mm/s at 0.090 sec
 N/A: Not Applicable



Date/Time Long at 13:46:43 July 27, 2023
Trigger Source Geo: 0.700 mm/s
Range Geo: 254.0 mm/s
Record Time 3.0 sec at 2048 sps
Operator/Setup: Operator/BV.MMB

Serial Number UM17410 V 10-89 Micromate ISEE
Battery Level 3.8 Volts
Unit Calibration February 15, 2021 by UES New Delhi
File Name __TEMP.EVT

Notes

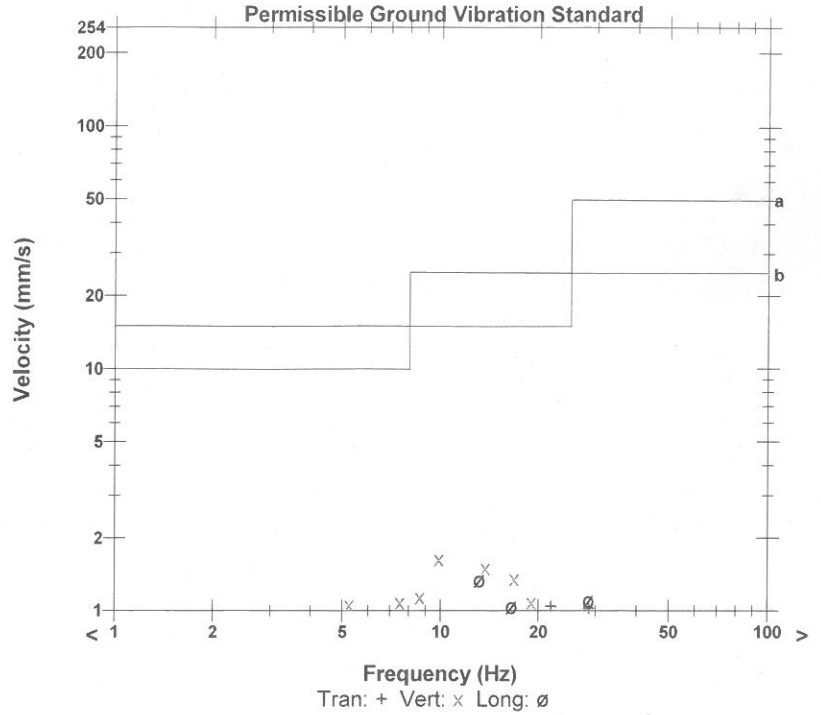
Location:
 Client:
 User Name:
 General:

Microphone Linear Weighting
PSPL 103.5 dB(L) at 0.366 sec
ZC Freq 17.7 Hz
Channel Test Passed (Freq = 19.7 Hz Amp = 1198 mv)

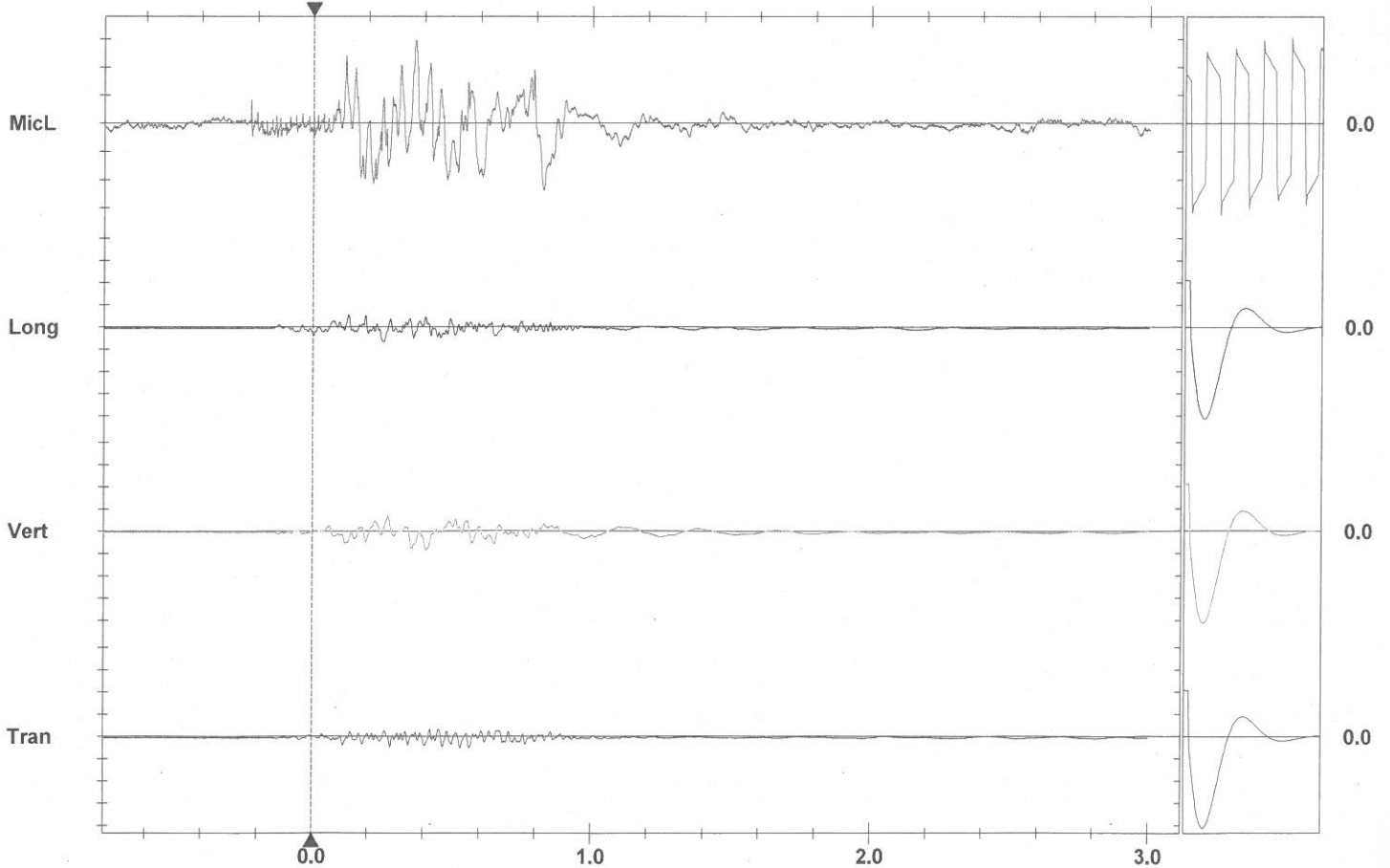
	Tran	Vert	Long	
PPV	1.040 ✓	1.647	1.348	mm/s
PPV	51.34	55.34	53.59	dB
ZC Freq	22 ✓	9.8	13.1	Hz
Time (Rel. to Trig)	0.534	0.410	0.256	sec
Peak Acceleration	0.026	0.039	0.043	g
Peak Displacement	0.045	0.036	0.031	mm
Sensor Check	Passed	Passed	Passed	
Frequency	7.3	7.3	7.1	Hz
Overswing Ratio	4.7	4.6	4.8	

Peak Vector Sum 1.941 mm/s at 0.407 sec

DGMS India (B)



a) Industrial buildings
 b) Domestic houses/structures



Time Scale: 0.20 sec/div
 Trigger =

Amplitude Scale: Geo: 2.000 mm/s/div Mic: 1.000 pa.(L)/div

Sensor Check

Date/Time Long at 15:29:18 August 4, 2023
Trigger Source Geo: 0.700 mm/s
Range Geo: 254.0 mm/s
Record Time 3.0 sec at 2048 sps
Operator/Setup: Operator/BV.MMB

Serial Number UM17410 V 10-89 Micromate ISEE
Battery Level 3.7 Volts
Unit Calibration February 15, 2021 by UES New Delhi
File Name _TEMP.EVT

Notes

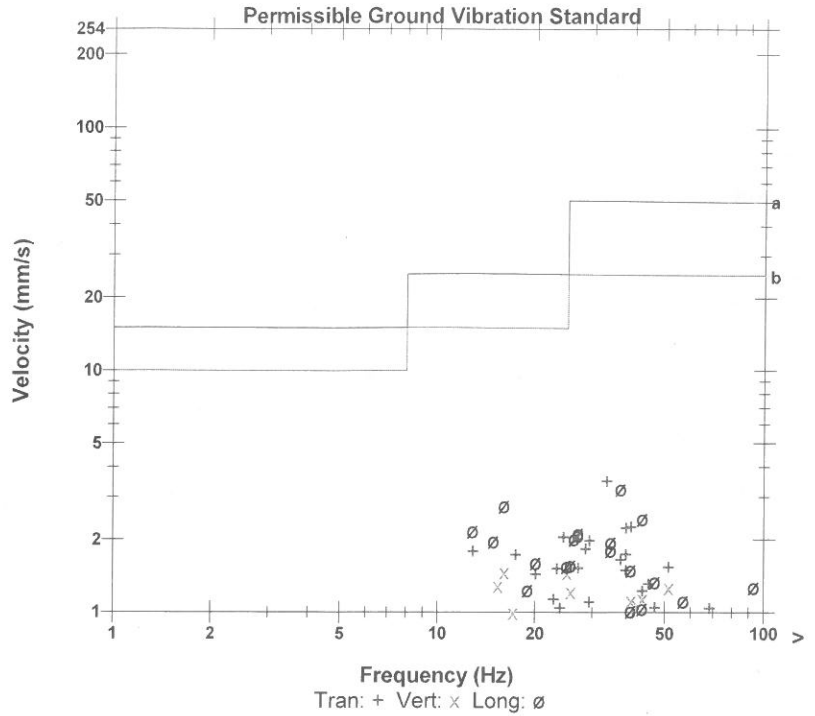
Location:
 Client:
 User Name:
 General:

Microphone Linear Weighting
PSPL 119.7 dB(L) at 0.301 sec
ZC Freq 7.8 Hz
Channel Test Passed (Freq = 19.7 Hz Amp = 1313 mv)

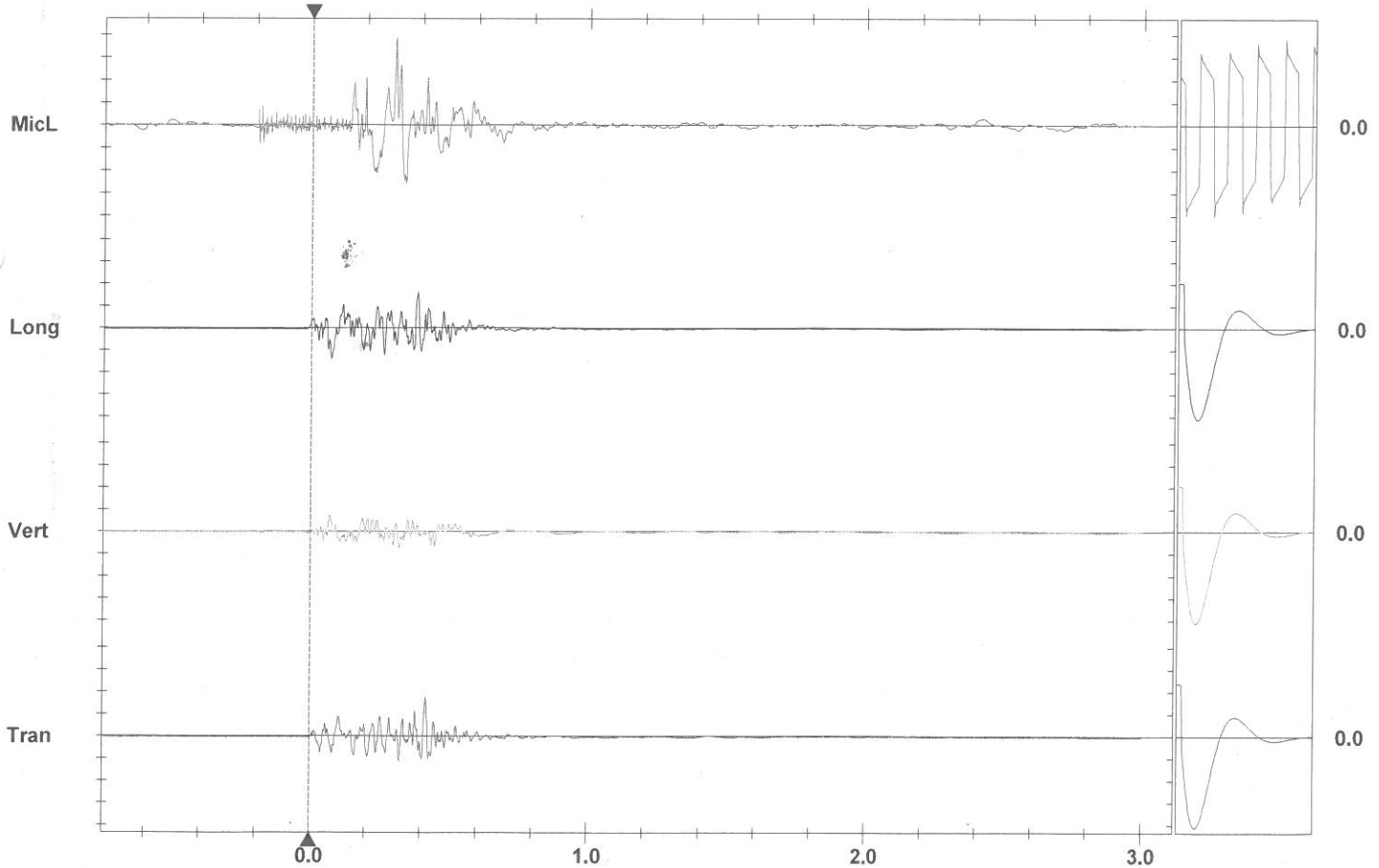
	Tran	Vert	Long	
PPV	3.500 ✓	1.474	3.263	mm/s
PPV	61.88	54.37	61.27	dB
ZC Freq	33 ✓	16.0	37	Hz
Time (Rel. to Trig)	0.419	0.321	0.384	sec
Peak Acceleration	0.092	0.056	0.110	g
Peak Displacement	0.022	0.016	0.024	mm
Sensor Check	Passed	Passed	Passed	
Frequency	7.3	7.3	7.1	Hz
Overswing Ratio	4.7	4.7	4.8	

Peak Vector Sum 3.807 mm/s at 0.419 sec

DGMS India (B)



a) Industrial buildings
 b) Domestic houses/structures



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

Sensor Check



Ref No: HIL/LHD/ENV/Kujam I / 371

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**

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

Received
20/10/2023



o/c
ADITYA BIRLA



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.

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For **Hindalco Industries Ltd**

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

SEIAA
20/10/23

01c
ADITYA BIRLA



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.

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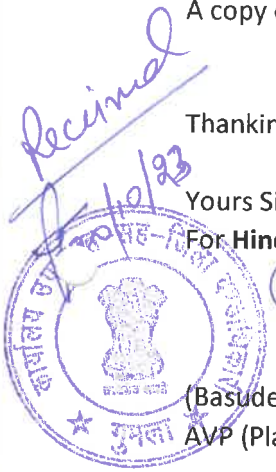
Thanking You,

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 6691 7000 | F: +91 22 6691 7001

Corporate ID No.: L27020MH1958PLC011238

o/c

ADITYA BIRLA



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.

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Thanking You,

Yours Sincerely
For Hindalco Industries Ltd

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





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.

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Yours Sincerely
For **Hindalco Industries Ltd**

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





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.

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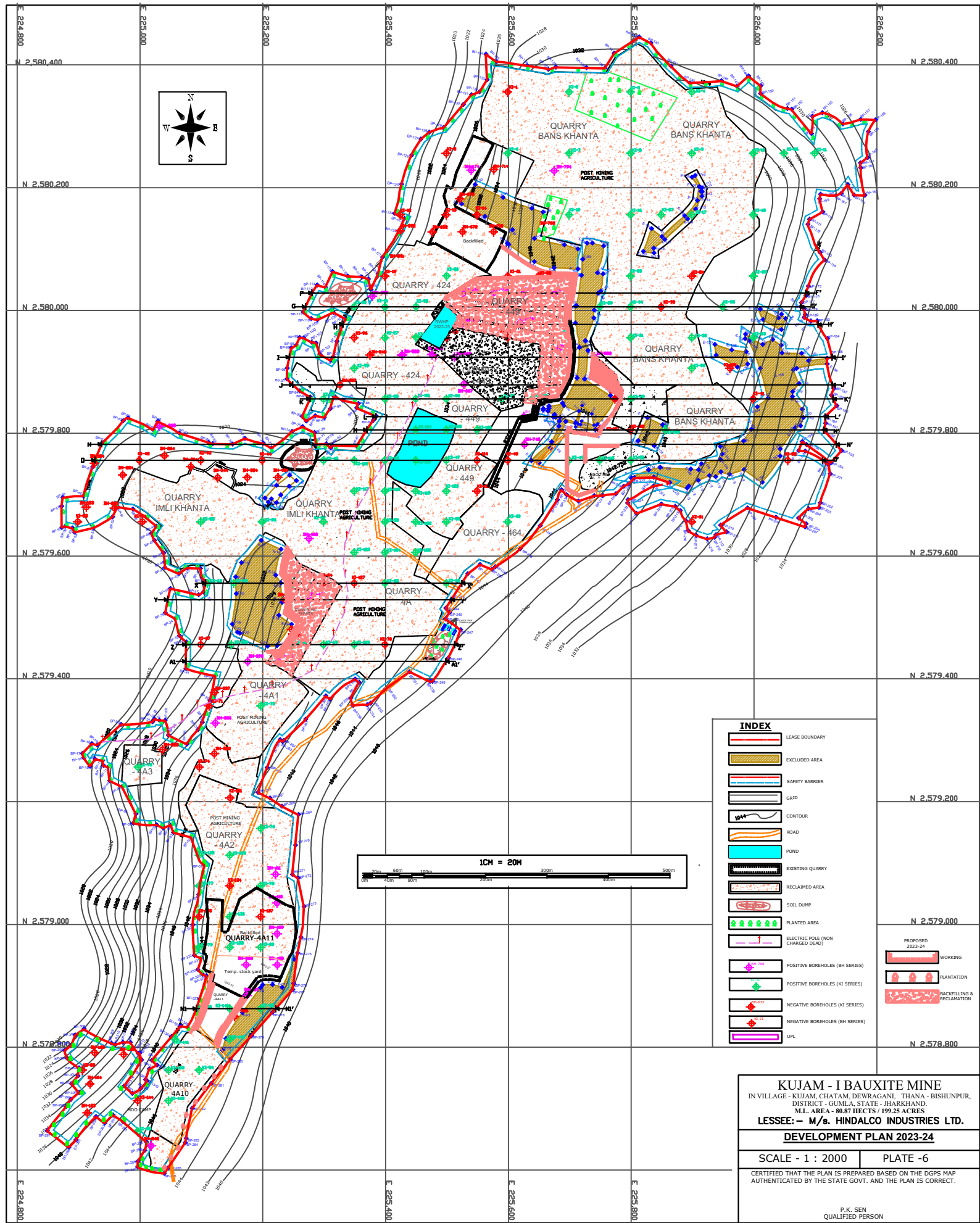
A copy of issued Environmental Clearance is attached along with this letter for your ready reference.

Thanking You,

Yours Sincerely
For **Hindalco Industries Ltd**

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

Handwritten signature
11/11/23
मुखिया
ग्राम पंचायत-चिरोडीह



INDEX	
	LEASE BOUNDARY
	EXCLUDED AREA
	SAFETY BARRIER
	GRID
	CONTOUR
	ROAD
	POND
	EXISTING QUARRY
	RECLAIMED AREA
	SOIL DUMP
	PLANTED AREA
	ELECTRIC POLE (NON CHARGED DEAD)
	POSITIVE BOREHOLES (BH SERIES)
	POSITIVE BOREHOLES (KI SERIES)
	NEGATIVE BOREHOLES (KI SERIES)
	NEGATIVE BOREHOLES (BH SERIES)
	UPL

KUJAM - I BAUXITE MINE
 IN VILLAGE - KUJAM, CHATAM, DEWRAGANI, THANA - BISHUNPUR,
 DISTRICT - GUMLA, STATE - JHARKHAND,
 M.L. AREA - 80.87 HECTS / 199.25 ACRES
 LESSEE: - M/s. HINDALCO INDUSTRIES LTD.
DEVELOPMENT PLAN 2023-24

SCALE - 1 : 2000 PLATE - 6

CERTIFIED THAT THE PLAN IS PREPARED BASED ON THE DGPS MAP AUTHENTICATED BY THE STATE GOVT. AND THE PLAN IS CORRECT.

P.K. SEN
 QUALIFIED PERSON