



HIL/LHD/ENV/MoEF&CC/066

Date: 16th May 2025

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

Sub: Six Monthly EC Compliance Report for Pakhar (35.12 Ha) Bauxite Mining project of M/s Hindalco Industries Limited, Lohardaga Jharkhand for the period from October 2024 to March 2025.

Ref: Environmental Clearance Letter No. J-11015/137/2006-IA II (M), dated 05th April 2007.

Dear Sir,

With reference to the above, we are submitting herewith the Compliance status report of EC conditions for **Pakhar (35.12 Ha) Bauxite Mining project of M/s Hindalco Industries Limited**, Lohardaga Jharkhand for the period from **October 2024 to March 2025** for your kind perusal please.

The lease details are below:

Lease area (ha)	Production Capacity (MT)	Lease Period
35.12	200000	17.04.1975 to 31.03.2030

Hope you will find the same in order.

Thanking You

Yours faithfully,
For **Hindalco Industries Limited**

Basudev Gangopadhyay
AVP (Planning, Environment & Compliance)

Enclosure: - As Above

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

Name of the Project : **Pakhar Bauxite Mine (35.12 ha)**
M/s Hindalco Industries Limited

Environment Clearance No. & date : **J-11015/137/2006-IA.II(M), dated 05.04.2007**

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

Specific Conditions: -

Condition i: - All the conditions stipulated by SPCB in their NOC shall be effectively implemented.

Reply: Implementation of the stipulated conditions in the NOC was fulfilled, after which consent to operate was obtained from time to time while the mine was operational.

Presently, the mine has not been in operation as the winning of bauxite is closed w.e.f 08.06.2009 due to the exhaustion of mineral reserve. The final mine closure plan (FMCP) has been submitted and approved by Indian Bureau of Mines.

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

Reply: - Presently, the mine has not been in operation as the winning of bauxite is closed w.e.f 08.06.2009 due to the exhaustion of mineral reserve. The final mine closure plan (FMCP) has been submitted and approved by Indian Bureau of Mines.

The entire land was acquired in accordance with applicable laws while the mine was operational.

Condition iii: - Environmental clearance is subject to grant of forestry clearance, Necessary forestry clearance under the Forest (Conservation) Act, 1980 for an area of 3.45ha forestland shall be obtained before starting mining operation in that area.

Reply: - Presently, the mine has not been in operation as the winning of bauxite is closed w.e.f 08.06.2009 due to the exhaustion of mineral reserves. The final mine closure plan (FMCP) has been submitted and approved by Indian Bureau of Mines.

Condition iv: - Mining shall not intersect groundwater. The mine working shall be restricted to ground water table. Prior approval of the Ministry of Environment & Forests and Central Ground Water Authority shall be obtained for mining below water table.

Reply: - Presently, the mine has not been in operation as the winning of bauxite is closed w.e.f 08.06.2009 due to the exhaustion of mineral reserves. The final mine closure plan (FMCP) has been submitted and approved by Indian Bureau of Mines.

Shallow depth mining was carried out in the past; therefore, groundwater was not intersected during mining operations while the mine was operational.

Condition v: - The project proponent shall ensure that no natural watercourse shall be obstructed due to any mining operation.

Reply: - No natural water course was obstructed during mining operations in the past. Presently, the mine has not been in operation as the winning of bauxite is closed w.e.f 08.06.2009 due to the exhaustion of mineral reserve. The final mine closure plan (FMCP) has been submitted and approved by Indian Bureau of Mines.

Condition vi: -Top soil shall be stacked properly with proper slope with adequate measures and should be used for reclamation and rehabilitation of mined out areas.

Reply: - The winning of bauxite is closed w.e.f. 08.06.2009 due to the exhaustion of mineral reserve. Therefore, the mine has not been in operation. The final mine closure plan (FMCP) has been submitted and approved by Indian Bureau of Mines.

Condition vii: - The waste generated shall be concurrently backfilled in the mined out area. There shall be no external OB dump. Monitoring and management of rehabilitated areas should continue until the vegetation becomes self-sustaining. Compliance status should be submitted to the Ministry of Environment & Forest on six monthly basis.

Reply: - Presently, The mine has not been in operation as the winning of bauxite is closed w.e.f 08.06.2009 due to the exhaustion of mineral reserve. There is no external OB dump in mine lease area.

The final mine closure plan (FMCP) has been submitted and approved by Indian Bureau of Mines.

Condition viii: - Catch drains and siltation ponds of appropriate size should be constructed to arrest silt and sediment flows from mine working. The water so collected should be utilized for watering the mine area, roads, green belt development etc. The drains should be regularly desilted particularly after monsoon and maintained properly. Garland drain (size, gradient and length) shall be constructed for mine pit and sump capacity should be designed keeping 50% safety margin over and above peak sudden rainfall (based on 50 years data) and maximum discharge in the area adjoining the mine site. Sump capacity should also provide adequate retention period to allow proper setting of silt material. Sedimentation pits should be constructed at the corners of the garland drains and desilted at regular intervals.

Reply: - Presently, the mine has not been in operation as the winning of bauxite is closed w.e.f 08.06.2009 due to the exhaustion of mineral reserves. The final mine closure plan (FMCP) has been submitted and approved by Indian Bureau of Mines.

Condition ix: - Plantation shall be raised in an area of 24.83ha including a green belt of adequate width by planting the native species around the ML area, roads, reclaimed area etc. in consultation with the local DFO / Agriculture Department. The density of the trees should be around 1500 plants per ha.

Reply: - Already 32.85 ha has been planted in and around the mine/Plateau area.

Presently, the mine has not been in operation as the winning of bauxite is closed w.e.f 08.06.2009 due to the exhaustion of mineral reserve.

The final mine closure plan (FMCP) has been submitted and approved by Indian Bureau of Mines.

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

Reply: - Presently, the mine has not been in operation as the winning of bauxite is closed w.e.f 08.06.2009 due to the exhaustion of mineral reserves.

The final mine closure plan (FMCP) has been submitted and approved by Indian Bureau of Mines.

Condition xi: - Regular monitoring of ground water level and quality should be carried out by establishing a network of existing wells and constructing new piezometers during the mining operation. The monitoring should be carried out four times in a year – pre-monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January) and the data thus collected may be sent regularly to MOEF, Central Ground water Authority and Regional Director Central Ground Water Board.

Reply: - Presently, the mine has not been in operation as the winning of bauxite is closed w.e.f 08.06.2009 due to the exhaustion of mineral reserves.

The final mine closure plan (FMCP) has been submitted and approved by Indian Bureau of Mines.

Condition xii: - Prior permission from the competent authority should be obtained for drawl of water from the surface water bodies.

Reply: - Presently, the mine has not been in operation as the winning of bauxite is closed w.e.f. 08.06.2009 due to the exhaustion of mineral reserves.

The final mine closure plan (FMCP) has been submitted and approved by Indian Bureau of Mines.

Condition xiii: - Vehicular emissions should be kept under control and regularly monitored. Measures shall be taken for maintenance of vehicles used in mining operations and transportation of minerals. The vehicles should be covered with a tarpaulin and shall not be overloaded.

Reply: - The winning of bauxite is closed w.e.f. 08.06.2009 due to the exhaustion of mineral reserve. Therefore, the mine has not been in operation.

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

Reply: - The winning of bauxite is closed w.e.f. 08.06.2009 due to the exhaustion of mineral reserve. Therefore, the mine has not been in operation.

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

Reply: - The winning of bauxite is closed w.e.f. 08.06.2009 due to the exhaustion of mineral reserve. Therefore, the mine has not been in operation.

Condition xvi: - Consent to operate should be obtained from SPCB prior to start of enhanced production from the mine.

Reply: - The winning of bauxite is closed w.e.f. 08.06.2009 due to the exhaustion of mineral reserve. Therefore, the mine has not been in operation.

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

Reply: - The winning of bauxite is closed w.e.f. 08.06.2009 due to the exhaustion of mineral reserve. Therefore, the mine has not been in operation.

Condition xviii: - The project proponent should take all precautionary measures during mining operation for conservation and protection of endangered fauna such as Indian Python etc. Spotted in the study area. Action plan for conservation of flora and fauna shall be prepared and implemented in consultation with the State Forest and Wildlife Department. Necessary allocation of funds for implementation of the conservation plan shall be made and the funds so allocated shall be included in the project cost. Copy of action plan may be submitted to the Ministry and its Regional Office within 3 months.

Reply: - The winning of bauxite is closed w.e.f. 08.06.2009 due to the exhaustion of mineral reserve. Therefore, the mine has not been in operation.

The final mine closure plan (FMCP) has been submitted and approved by Indian Bureau of Mines.

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

Reply: - Approval letter of Final Mine closure plan duly approved by Indian Bureau of Mines is hereby attached as **Annexure-1.**

General Conditions

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

Reply: - The winning of bauxite is closed w.e.f. 08.06.2009 due to the exhaustion of mineral reserve. Therefore, the mine has not been in operation.

The final mine closure plan (FMCP) has been submitted and approved by Indian Bureau of Mines.

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

Reply: - The winning of bauxite is closed w.e.f. 08.06.2009 due to the exhaustion of mineral reserve. Therefore, the mine has not been in operation.

The final mine closure plan (FMCP) has been submitted and approved by Indian Bureau of Mines. Data of the same are enclosed herewith as **Annexure 4.**

Condition iii: - Four ambient air quality-monitoring station should be established in the core zone as well as in the buffer zone for RPM, SPM, SO₂, NO_x monitoring. Location of the stations should be decided based on the metrological data, topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board.

Reply: - Monitoring Reports of Pakhar Plateau is enclosed as **Annexure-2.**

Condition iv: - Data on ambient air quality (RPM, SPM, SO₂, NO_x) should be regularly submitted to the Ministry including its Regional office located at Bhubneshwar and the State Pollution Control Board / Central pollution Control Board once in six months.

Reply: - Monitoring Reports of Pakhar Plateau is enclosed as **Annexure-2.**

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

Reply: - The winning of Bauxite is closed w.e.f. 08.06.2009 due to exhaustion of resources. Therefore, the mine has not been in operation.

The final mine closure plan (FMCP) has been submitted and approved by Indian Bureau of Mines.

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

Reply: - The winning of Bauxite is closed w.e.f. 08.06.2009 due to exhaustion of resources. Therefore, the mine has not been in operation.

The final mine closure plan (FMCP) has been submitted and approved by Indian Bureau of Mines.

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

Reply: - The winning of bauxite is closed w.e.f. 08.06.2009 due to the exhaustion of mineral reserve. Therefore, the mine has not been in operation.

The final mine closure plan (FMCP) has been submitted and approved by Indian Bureau of Mines.

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

Reply: - The winning of bauxite is closed w.e.f. 08.06.2009 due to the exhaustion of mineral reserve. Therefore, the mine has not been in operation.

The final mine closure plan (FMCP) has been submitted and approved by Indian Bureau of Mines.

Condition ix: -A separate environmental management cell with suitable qualified personnel should be set-up under the control of a Senior Executive, who will report directly to the Head of the Organization.

Reply: - The winning of bauxite is closed w.e.f. 08.06.2009 due to the exhaustion of mineral reserve. Therefore, the mine has not been in operation. The final mine closure plan (FMCP) has been submitted and approved by Indian Bureau of Mines

We have Environment Management Cell for our Pakhar Group of Mines. This cell is looking after Environmental compliance of this Mine also. The copy of the same is attached herewith as **Annexure-3**.

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

Reply: - The winning of bauxite is closed w.e.f. 08.06.2009 due to the exhaustion of mineral reserve. Therefore, the mine has not been in operation. The final mine closure plan (FMCP) has been submitted and approved by Indian Bureau of Mines.

Approval letter of Final Mine closure plan duly approved by IBM is hereby attached as **Annexure-1**

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

Reply: - Statement of budgetary provision and actual expenses for environmental protection measure is enclosed as **Annexure-5**. The final mine closure plan (FMCP) has been submitted and approved by Indian Bureau of Mines. Now, the Regional Office of MoEFC&CC is in Ranchi.

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

Reply: - Agreed. However, the winning of bauxite is closed w.e.f 08.06.2009 due to the exhaustion of mineral reserve. Therefore, the mine has not been in operation.

Now, the Regional Office of MoEFC&CC is in Ranchi.

Condition xiii: - The project proponent shall submit six monthly report on the status of the implementation of the stipulated environmental safeguards to the Ministry of Environment and Forests, its Regional Office, Bhubaneshwar, Central Pollution Control Board and State Pollution Control Board.

Reply: - Being Complied. Six monthly reports on status of compliance of stipulated environmental clearance conditions are being submitted to the MoEF&CC, Zonal office of CPCB and JSPCB Ranchi. Now, the Regional Office of MoEF&CC is in Ranchi.

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

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

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

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

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

Reply: - Already complied. The information on grant of the EC has been published in two local newspapers. The copy of the advertisement has already been submitted to the Regional Office of the MoEF&CC vide our letter no. HIL/GMO(M)/ENV/142 dated 23.05.2007. Now, the Regional office of MoEF&CC is in Ranchi.



**GOVERNMENT OF INDIA
MINISTRY OF MINES
INDIAN BUREAU OF MINES
OFFICE OF THE REGIONAL CONTROLLER OF MINES**

Telephone: (0651) 2242889
(0651) 2242903
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E-mail: ro.ranchi@ibm.gov.in

No.: RAN/LOH/BX/FMCP-02/2014-15.

318-B, Road No.- 3,
Ashok Nagar,
Ranchi – 834 002,
Date: 23/04/2015

To: **Shri A. K. Agarwal,**
✓ Director cum Nominated Owner
M/s HINDALCO Industries Ltd.,
Court Road, Lohardaga - 835 302 (Jharkhand).

Sub: Approval of Final Mine Closure Plan in respect of PAKHAR Bauxite Mines of M/s HINDALCO Industries Ltd. over an area of 38.95 hectares in village-Pakhar, Lohardaga district of Jharkhand State submitted under Rule 23C of MCDR, 1988.

Ref : Your A.G.M. (Geology) letters no. HIL/LHD/BX/IBM/245 Dated 02/08/2014

Your R.Q.P. letter nos. NIL, dated.03/11/2014 & 26/12/2014

This office letter no. रांची/लोहरदगा/बाक्साइट/एफ.एम.सी पी.-02/2014-15, दिनांक: 26/09/2014

Sir,

In exercise of the powers conferred by the sub-rule 2 of Rule 23C of Mineral Conservation & Development Rules, 1988; I hereby **approve** the above said Final Mine Closure Plan in respect of PAKHAR Bauxite mines of M/s HINDALCO Industries Ltd. over an area of 38.95 hectares in village-Pakhar, Lohardaga district of Jharkhand State, submitted under Rule 23C of MCDR, 1988. This approval is subject to the following conditions: -

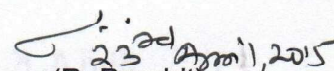
- (i) that the Final Mine Closure Plan is approved without prejudice to any other laws applicable to the mine/lease area from time to time whether made by the Central Government, State Government or any other Authority.
- (ii) that this approval of the Final Mine Closure Plan does not, in any way, imply the approval of the Government in terms of any other provisions of the Mines & Minerals (Development & Regulation) Act, 1957 or the Mineral Concession Rules, 1960 and any other laws including Forest (Conservation) Act, 1980, Environment (Protection) Act, 1986 and the rules made there under.
- (iii) that the Final Mine Closure Plan is approved without prejudice to any order or direction from any court of competent jurisdiction.
- (iv) that the Regional Office, Indian Bureau of Mines, Ranchi shall be informed after completion of activities of final mine closure as per proposal of the Final Mine Closure Plan.
- (v) that the Yearly report as required under Rule 23E(2) of MCDR, 1988 setting forth the extent of protection and rehabilitation works carried out as envisaged in the approved final mine closure plan and if there is any deviations, reasons thereof shall be submitted before 1st July of every year to the Regional office, Indian Bureau of Mines, Ranchi.

No.: RAN/LOH/BX/FMCP-02/2014-15.

- (iv) The financial assurance submitted for Rs. 2,74,000/- (Two lacs seventy four thousand only) is valid up to 31/03/2016. A new bank guarantee is to be submitted on or before its expiry i.e. 31/03/2016, if the rehabilitation proposal not completed by the time.

Encl.: One copy of approved
Final Mine Closure Plan.

Yours faithfully


(R. Purohit)

Regional Controller of Mines

Copy forwarded for information to: -

1. **The Director (Mines),**
Directorate of Mines and Geology,
Government of Jharkhand,
Nepal House Area, Doranda,
Ranchi - 834 002. (Jharkhand), along with a copy of approved Final Mine Closure Plan. It is requested to ensure that the determination of aforesaid lease is not accepted unless and until a certificate issued by the Indian Bureau of Mines under Rule 29A (2) of Mineral Concession Rules, 1960 to the effect that protective, reclamation and rehabilitative works as envisaged in the approved Final Mine Closure Plan are carried out.
2. **The Director of Mines Safety**
Ranchi Region
CMPDIL-Campus
3rd Floor, Old Building
Kanke Road, Ranchi-834008
along with a copy of approved Final Mine Closure Plan.
3. **Shri P.K. Sen, RQP,**
Kali Mandir Road,
Doranda, Ranchi - 834 002.

(R. Purohit)

Regional Controller of Mines

**ENVIRONMENTAL LABORATORIES & ENGINEERING
SERVICES PVT. LTD.**

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

Pakhar (115.13) Bauxite Mine-Environmental Monitoring Report

October 2024



CONTENT

Hindaleo Industries : Pakhar (115.13) Environmental Monitoring Report		October 2024
Pakhar (115.13)		
	AMBIENT AIR QUALITY- CORE ZONE	
1	Near Mine Block-B, Quarry No.3	
2	Near Mine Block-B, Quarry No.4	
3	Near Mine Block B, Quarry No - 6	
4	Near Mine Block-B, Quarry No.7	
	AMBIENT AIR QUALITY- BUFFER ZONE	
1	Near Bunglapart Village	
2	Yatri Shed (Near K-10)	
3	Near Utkarmit Rajkiya Prathmik Vidyalaya Bunglapart Village	
4	Near Utkarmit Rajkiya Prathmik Vidyalaya Dumrapart Village	





ENVIRONMENTAL LABORATORIES &

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

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TC-12887

TEST REPORT

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

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/7347
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Block-B, Quarry No.3 Pakhar Bauxite Mine (115.13 ha)
		Sampling Date	: 19.10.2024 to 20.10.2024
Mines Status	: Operational	Sample Received Date	: 21.10.2024
		Type of Sample	: Ambient Air
Period of Analysis	: 21.10.2024 to 26.10.2024	Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

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

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part- 23): 2022	63	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	54	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- 2/Sec1): 2023	6.8	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	23.6	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.016	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: 2021	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m ³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m ³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

Reviewed by

Akash Kumar

Quality Manager

****End of Report****

Authorised Signatory

Dr. Deependra Kumar Sinha

Ph. D. Environmental Engg.

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 in 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, advertised, 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 returned for 30 days 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 15 days 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 24 hours format. Abbreviation used: N/A (Not Applicable); BDL (Below Detection Limit); LOD (Lower Detection Limit).

"Save Environment, Save India"



TEST REPORT

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

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/7348
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Block-B, Quarry No.4 Pakhar Bauxite Mine (115.13 ha)
		Sampling Date	: 19.10.2024 to 20.10.2024
Mines Status	: Operational	Sample Received Date	: 21.10.2024
		Type of Sample	: Ambient Air
Period of Analysis	: 21.10.2024 to 26.10.2024	Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

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

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m³	IS 5182 (Part- 23): 2022	66	100 (24hrs)
Particulate Matter (PM2.5)	µg/m³	IS 5182 (Part- 24): 2019	31	60 (24hrs)
Sulphur Di-Oxide (SO₂)	µg/m³	IS 5182 (Part- 2/Sec1): 2023	7.4	80 (24hrs)
Nitrogen Di-Oxide (NO₂)	µg/m³	IS 5182 (Part- 6): 2022	26.1	80 (24hrs)
Ozone (O₃)	µg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH₃)	µg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m³	IS 5182 (Part- 22): 2019	0.005	1 (24hrs)
Nickel (Ni)	ng/m³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C₆H₆)	µg/m³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)


Reviewed by
Akash Kumar
Quality Manager

****End of Report****


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



ENVIRONMENTAL LABORATORIES &

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TEST REPORT

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

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

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

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): 2022	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/Sec1): 2023	8.2	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	22.6	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 9): 2019	<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): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	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: 2021	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	$\mu\text{g}/\text{m}^3$	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m^3	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

Reviewed by
Akash Kumar
Quality Manager

****End of Report****

Authorised Signatory
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Ph. D. Environmental Engg.

Technical Manager

Page 1 of 1

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TEST REPORT

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

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/7350
		Location	: Near Mine Block-B, Quarry No.7 Pakhar Bauxite Mine (115.13 ha)
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 19.10.2024 to 20.10.2024
		Sample Received Date	: 21.10.2024
Mines Status	: Operational	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
Period of Analysis	: 21.10.2024 to 26.10.2024	Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

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

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): 2022	63	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	35	60 (24hrs)
Sulphur Di-Oxide (SO_2)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 2/Sec1): 2023	7.5	80 (24hrs)
Nitrogen Di-Oxide (NO_2)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	20.2	80 (24hrs)
Ozone (O_3)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 9): 2019	<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): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	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: 2021	<2.0	06 (Annual)
Benzene (C_6H_6)	$\mu\text{g}/\text{m}^3$	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m^3	ELES/GC/SOP/05: 2023	<0.5	01(Annual)



Reviewed by
Akash Kumar
Quality Manager

****End of Report****



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

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TEST REPORT

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


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

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

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m³	IS 5182 (Part- 23): 2022	55	100 (24hrs)
Particulate Matter (PM2.5)	µg/m³	IS 5182 (Part- 24): 2019	27	60 (24hrs)
Sulphur Di-Oxide (SO₂)	µg/m³	IS 5182 (Part- 2/Sec1): 2023	8.1	80 (24hrs)
Nitrogen Di-Oxide (NO₂)	µg/m³	IS 5182 (Part- 6): 2022	19.7	80 (24hrs)
Ozone (O₃)	µg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH₃)	µg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m³	IS 5182 (Part- 22): 2019	0.011	1 (24hrs)
Nickel (Ni)	ng/m³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C₆H₆)	µg/m³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)


Reviewed by
Akash Kumar
Quality Manager

****End of Report****


Authorised Signatory
Dr. Deependra Kumar Sinha
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Technical Manager

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TC-12887

TEST REPORT

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

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

METEOROLOGICAL INFORMATION

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

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): 2022	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/Sec1): 2023	7.4	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	19.1	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 9): 2019	<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): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	$\mu\text{g}/\text{m}^3$	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m^3	ELES/GC/SOP/05: 2023	<0.5	01(Annual)



Reviewed by
Akash Kumar
Quality Manager

****End of Report****



Authorised Signatory
Dr. Deependra Kumar Sinha
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Technical Manager

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TEST REPORT

Test Report No.	: ELES/RNC/2024/6303	Report Release Date	: 26.10.2024
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC135872400004186F		

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

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

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): 2022	52	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/Sec1): 2023	7.3	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	18.7	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 9): 2019	<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): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	0.001	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: 2021	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	$\mu\text{g}/\text{m}^3$	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m^3	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

Reviewed by
Akash Kumar
Quality Manager

****End of Report****

Page 1 of 1

Authorised Signatory
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TEST REPORT

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

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/7354
Address	: Lohardaga, Jharkhand-835302	Location	: Near Utkarmit Rajkiya Prathmik Vidyalaya Dumrapart Village Pakhar Bauxite Mine
		Sampling Date	: 19.10.2024 to 20.10.2024
Mines Status	: Operational	Sample Received Date	: 21.10.2024
Period of Analysis	: 21.10.2024 to 26.10.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

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

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part- 23): 2022	57	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	29	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- 2/Sec1): 2023	6.8	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	18.2	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.012	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: 2021	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m ³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m ³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)


Reviewed by
Akash Kumar
Quality Manager

****End of Report****


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

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

Pakhar (115.13) Bauxite Mine-Environmental Monitoring Report

November 2024



CONTENT

Hindalco Industries : Pakhar (115.13) Environmental Monitoring Report		November 2024
Pakhar (115.13)		
	AMBIENT AIR QUALITY- CORE ZONE	
1	Near Mine Block-B, Quarry No.3	
2	Near Mine Block-B, Quarry No.4	
3	Near Mine Block B, Quarry No - 6	
4	Near Mine Block-B, Quarry No.7	
	AMBIENT AIR QUALITY- BUFFER ZONE	
1	Near Bunglapart Village	
2	Yatri Shed (Near K-10)	
3	Near Utkarmit Rajkiya Prathamik Vidyalaya Bunglapart Village	
4	Near Utkarmit Rajkiya Prathamik Vidyalaya Dumrapart Village	
	Drinking Water	
	Effluent Water	





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TEST REPORT

Test Report No.	: ELES/RNC/2024/7037	Report Release Date	: 02.12.2024
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC135872400004906F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/8243
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Block-B, Quarry No.3 Pakhar Bauxite Mine (115.13 ha)
		Sampling Date	: 23.11.2024 to 24.11.2024
Mines Status	: Operational	Sample Received Date	: 25.11.2024
		Type of Sample	: Ambient Air
Period of Analysis	: 25.11.2024 to 02.12.2024	Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 740
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m³	IS 5182 (Part- 23): 2022	68	100 (24hrs)
Particulate Matter (PM2.5)	µg/m³	IS 5182 (Part- 24): 2019	39	60 (24hrs)
Sulphur Di-Oxide (SO₂)	µg/m³	IS 5182 (Part- 2/Sec1): 2023	7.2	80 (24hrs)
Nitrogen Di-Oxide (NO₂)	µg/m³	IS 5182 (Part- 6): 2022	24.5	80 (24hrs)
Ozone (O₃)	µg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH₃)	µg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part- 10): 2019 (NDIR Method)	1.15	2 (8hrs)
Lead (Pb)	µg/m³	IS 5182 (Part- 22): 2019	0.012	1 (24hrs)
Nickel (Ni)	ng/m³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C₆H₆)	µg/m³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)



****End of Report****

[Signature]
Authorized Signatory
Quality Manager

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TEST REPORT

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

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

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 740
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part- 23): 2022	71	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/Sec1): 2023	11.8	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	33.3	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	1.15	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.012	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: 2021	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m ³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m ³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)



****End of Report****


Authorised Signatory
Akash Kumar
Quality Manager

Page 1 of 1

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"Save Environment, Save Future"



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TEST REPORT

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

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/8245
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Block-B, Quarry No.6 Pakhar Bauxite Mine (115.13 ha)
		Sampling Date	: 23.11.2024 to 24.11.2024
Mines Status	: Operational	Sample Received Date	: 25.11.2024
Period of Analysis	: 25.11.2024 to 02.12.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 740
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part- 23): 2022	66	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	35	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- 2/Sec1): 2023	10.8	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	24.3	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	1.18	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.018	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: 2021	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m ³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m ³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)



****End of Report****

Authorized Signatory
Akash Kumar
Quality Manager

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TEST REPORT

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

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

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 740
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part- 23): 2022	73	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/Sec I): 2023	12.4	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	23.7	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	1.26	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.022	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: 2021	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m ³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m ³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)



****End of Report****


Authorised Signatory
Akash Kumar
Quality Manager

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TEST REPORT

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

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

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 740
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part- 23): 2022	60	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/Sec1): 2023	11.4	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	22.8	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.016	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: 2021	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m ³	ELES/GC/SOP/06: 2023	<2.5	05 (Annual)
Benzo-(a)-Pyrene	ng/m ³	ELES/GC/SOP/05: 2023	<0.5	01 (Annual)



****End of Report****


Authorised Signatory
Akash Kumar
Quality Manager

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"New Technology, New Values"



TEST REPORT

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

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/8248
Address	: Lohardaga, Jharkhand-835302	Location	: Yatri Shed (Near K-10) Pakhar Bauxite Mine
		Sampling Date	: 23.11.2024 to 24.11.2024
Mines Status	: Operational	Sample Received Date	: 25.11.2024
Period of Analysis	: 25.11.2024 to 02.12.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 740
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part- 23): 2022	64	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/Sec1): 2023	10.8	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	22.2	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	1.08	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m ³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m ³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)




Authorised Signatory
Akash Kumar
Quality Manager

****End of Report****

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TEST REPORT

Test Report No.	: ELES/RNC/2024/7043	Report Release Date	: 02.12.2024
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC135872400004912F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/8249
Address	: Lohardaga, Jharkhand-835302	Location	: Near Utkarmit Rajkiya Prathamik Vidyalaya Bunglapart Village Pakhar Bauxite Mine
		Sampling Date	: 23.11.2024 to 24.11.2024
Mines Status	: Operational	Sample Received Date	: 25.11.2024
		Type of Sample	: Ambient Air
Period of Analysis	: 25.11.2024 to 02.12.2024	Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 740
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part- 23): 2022	63	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	35	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- 2/Sec1): 2023	9.7	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	22.1	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	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: 2021	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m ³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m ³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

Kusma Yadav
Reviewed by

Akash Kumar
Authorized Signatory
Quality Manager

****End of Report****

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TEST REPORT

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

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/8250
Address	: Lohardaga, Jharkhand-835302	Location	: Near Utkarmit Rajkiya Prathamik Vidyalaya Dumrapart Village Pakhar Bauxite Mine
		Sampling Date	: 23.11.2024 to 24.11.2024
Mines Status	: Operational	Sample Received Date	: 25.11.2024
Period of Analysis	: 25.11.2024 to 02.12.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 740
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part- 23): 2022	66	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/Sec1): 2023	9.7	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	20.2	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	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: 2021	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m ³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m ³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)



(Signature)
Authorised Signatory
Akash Kumar
Quality Manager

****End of Report****

Page 1 of 1

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TEST REPORT

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

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/DW/8257
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 24.11.2024
		Sample Received Date	: 25.11.2024
		Type of Sample	: Drinking Water
Mines Status	: Operational	Source of Sample	: Tap Water
		Location of Sample	: Mines Site (Pakhar-115.13 Bauxite Mine)
Period of Analysis	: 25.11.2024 to 02.12.2024	Sampling Procedure	: ELES/DOC/SMPL/01
		Sampling Done 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 24.8 °C)	-	APHA 24 th Ed.2023, 4500-H ⁺	6.71	6.5-8.5	No Relaxation
Turbidity	NTU	APHA 24 th Ed.2023, 2130 B	0.09	1.0	5.0
Taste	-	APHA 24 th Ed.2023, 2160 C	Agreeable	Agreeable	Agreeable
Odour	-	IS 3025 (Part-5) :2018	Agreeable	Agreeable	Agreeable
Colour	Hazen	APHA 24 th Ed.2023, 2120B&D	1.4	5.0	15
Total Dissolved Solids (TDS)	mg/L	APHA 24 th Ed.2023, 2540B,C&D	52.0	500	2000
Chloride (as Cl)	mg/L	APHA 24 th Ed.2023, 4500 Cl B	8.0	250	1000
Fluoride (as F)	mg/L	APHA 24 th Ed.2023, 4500 F-D	BDL (DL: 0.1)	1.0	1.5
Total Alkalinity (as CaCO ₃)	mg/L	APHA 24 th Ed.2023, 2320 B	12.6	200	600
Total Hardness (as CaCO ₃)	mg/L	APHA 24 th Ed.2023, 2340 C	18.4	200	600
Sulphate (as SO ₄)	mg/L	APHA 24 th Ed.2023, 4500 SO ₄ ⁻² -E	2.86	200	400
Nitrate (as NO ₃)	mg/L	APHA 24 th Ed.2023, 4500 NO ₃ -B	1.39	45	No Relaxation



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TC-13587

TEST REPORT

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

Discipline : Chemical		Group : Water		Regulatory Limit as per IS10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
Phenolic Compound (as C ₆ H ₅ OH)	mg/L	IS 3025 (Part 43/Sec1): 2022	BDL (DL: 0.001)	0.001	0.002
Free Residual Chlorine (RFC)	mg/L	IS 3025 (Part-26): 2021	BDL (DL: 0.1)	0.2(Min)	1.0(Min)
Calcium (as Ca)	mg/L	APHA 24 th Ed.2023, 3500 Ca B	4.6	75	200
Anionic Surfactants (as MBAS)	mg/L	APHA 24 th Ed.2023, 5540-C	BDL (DL: 0.025)	0.2	1.0
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) : 2021	BDL (DL: 0.2)	0.5	1.0
Cadmium (as Cd)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.003)	0.003	No Relaxation
Total Chromium (as Cr)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.03)	0.05	No Relaxation
Copper (as Cu)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.03)	0.05	1.5
Cyanide (as CN)	mg/L	APHA 24 th Ed.2023, 4500 CN-E	BDL (DL: 0.012)	0.05	No Relaxation
Iron (as Fe)	mg/L	APHA 24 th Ed.2023; 3111B	0.081	1.0	No Relaxation
Lead (as Pb)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.01)	0.01	No Relaxation
Manganese (as Mn)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.05)	0.1	0.3
Mercury (as Hg)	mg/L	IS 3025 (Part-48): 2019	BDL (DL: 0.001)	0.001	No Relaxation
Selenium (as Se)	mg/L	IS 3025 (Part-56): 2019	BDL (DL: 0.01)	0.01	No Relaxation

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TEST REPORT

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

Discipline : Chemical		Group : Residues in Water		Regulatory Limit as per IS10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
Zinc (as Zn)	mg/L	APHA 24 th Ed.2023: 3111B	BDL (DL: 0.1)	5.0	15
Polynuclear Aromatic Hydrocarbons (PAH)	µg/L	ELES/GC/SOP/04: 2023	BDL (DL: 0.05)	0.1	No Relaxation
Polychlorinated biphenyls (PCB)	µg/L	ELES/GC/SOP/03: 2023	BDL (DL: 0.1)	0.5	No Relaxation
Pesticides				Limit	
Alachlor	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	20	
Atrazine	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	2.0	
Butachlor	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	125	
Chlorpyrifos	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	30	
Ethion	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	3.0	
Malathion	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	190	
Methyl parathion	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.1)	0.30	
Monocrotophos	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	1.0	
Phorate	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	2.0	
Phorate Sulphone	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	--	
Dieldrin	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.01)	0.03	
Alpha HCH	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.006)	0.01	
Beta HCH	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.02)	0.04	

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TEST REPORT

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

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


Reviewed by
Akash Kumar
Quality Manager

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


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



ENVIRONMENTAL LABORATORIES &

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TEST REPORT

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

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/DW/8257
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 24.11.2024
		Sample Received Date	: 25.11.2024
		Type of Sample	: Drinking Water
Mines Status	: Operational	Source of Sample	: Tap Water
		Location of Sample	: Mines Site (Pakhar-115.13 Bauxite Mine)
Period of Analysis	: 25.11.2024 to 02.12.2024	Sampling Procedure	: ELES/DOC/SMPL/01
		Sampling Done 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
Mineral Oil*	mg/L	IS 3025 (Part-39): 2021, Clause 6 Infrared Spectroscopic method.	BDL (DL: 0.01)	0.5	No Relaxation

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


Reviewed by
Akash Kumar
Quality Manager

****End of Report****


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



ENVIRONMENTAL LABORATORIES &

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TEST REPORT

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

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/EF/8260
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 24.11.2024
		Sample Received Date	: 25.11.2024
Mines Status	: Operational	Type of Sample	: Effluent Water
		Source of Sample	: Near Mine Block-B, Quarry No.3 Pakhar Bauxite Mine (115.13 ha)
Period of Analysis	: 25.11.2024 to 02.12.2024	Sampling Procedure	: ELES/DOC/SMPL/01
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

Discipline : Chemical		Group : Pollution & Environment		Discharge Limits – CPCB EPR, 1986 Schedule VI	
Parameter	Unit	Test Protocol	Result	Inland Surface Water	Land for Irrigation
pH (at 24.7 °C)	-	APHA 24 th Ed.2023,4500-H ⁺	8.24	5.5-9.0	5.5-9.0
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part-16): 2023	340	--	--
Total Suspended Solids (TSS)	mg/L	IS 3025 (Part-17): 2022	36.2	100	200
Dissolved Oxygen (DO)	mg/L	IS 3025 (Part-38): 2019	5.2	--	--
Biochemical Oxygen Demand (BOD) (at 27 °C for 3 days)	mg/L	IS 3025 (Part-44): 2023	22.0	30	100
Chemical Oxygen Demand (COD)	mg/L	IS 3025 (Part-58): 2023	179	250	--
Dissolved Phosphate (as P)	mg/L	IS 3025 (Part-31/Sec-1): 2022	2.80	5.0	--
Fluoride (as F)	mg/L	IS 3025 (Part-60): 2019	BDL (DL: 0.1)	2.0	1.5
Sulphide (as S)	mg/L	IS 3025 (Part-29): 2019	BDL (DL: 0.04)	2.0	--
Oil & Grease	mg/L	IS 3025 (Part-39): 2021	2.8	10	10

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TC-13587

TEST REPORT

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

Discipline : Chemical		Group : Residues in Water		Discharge Limits – CPCB EPR, 1986 Schedule VI	
Parameter	Unit	Test Protocol	Result	Inland Surface Water	Land for Irrigation
Lead (as Pb)	mg/L	APHA 24 th Ed.2023, 3111 B	BDL (DL: 0.01)	0.1	--
Manganese (as Mn)	mg/L	APHA 24 th Ed.2023, 3111 B	0.182	2.0	--
Mercury (as Hg)	mg/L	IS 3025(Part-48): 1994; RA2019	BDL (DL: 0.001)	0.01	--
Nickel (as Ni)	mg/L	APHA 24 th Ed.2023, 3111 B	BDL (DL: 0.01)	3.0	--
Zinc (as Zn)	mg/L	APHA 24 th Ed.2023, 3111 B	BDL (DL: 0.1)	5.0	--


Reviewed by
Akash Kumar
Quality Manager

****End of Report****


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

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

Pakhar (115.13) Bauxite Mine-Environmental Monitoring Report

December 2024



CONTENT

Hindalco Industries : Pakhar (115.13) Environmental Monitoring Report		December 2024
Pakhar (115.13)		
AMBIENT AIR QUALITY- CORE ZONE		
1	Near Mine Block-B, Quarry No.3	
2	Near Mine Block-B, Quarry No.4	
3	Near Mine Block B, Quarry No - 6	
4	Near Mine Block-B, Quarry No.7	
AMBIENT AIR QUALITY- BUFFER ZONE		
1	Near Bunglapart Village	
2	Yatri Shed (Near K-10)	
3	Near Utkarmit Rajkiya Prathmik Vidyalaya Bunglapart Village	
4	Near Utkarmit Rajkiya Prathmik Vidyalaya Dumrapart Village	





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TEST REPORT

Test Report No. : ELES/RNC/2024/7622	Report Release Date : 24.12.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400005474F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/8960
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Block-B, Quarry No.3 Pakhar Bauxite Mine (115.13 ha)
		Sampling Date	: 16.12.2024 to 17.12.2024
Mines Status	: Operational	Sample Received Date	: 18.12.2024
		Type of Sample	: Ambient Air
Period of Analysis	: 18.12.2024 to 24.12.2024	Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

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

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part- 23): 2022	74	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	43	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- 2/Sec1): 2023	8.9	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	27.2	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	1.19	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.025	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: 2021	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m ³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m ³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)


Reviewed by
Akash Kumar
Quality Manager

****End of Report****


Authorized Signatory
Dr. Deependra Kumar Sinha
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Technical Manager

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TEST REPORT

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

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/8961
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Block-B, Quarry No.4 Pakhar Bauxite Mine (115.13 ha)
		Sampling Date	: 16.12.2024 to 17.12.2024
Mines Status	: Operational	Sample Received Date	: 18.12.2024
		Type of Sample	: Ambient Air
Period of Analysis	: 18.12.2024 to 24.12.2024	Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

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

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part- 23): 2022	79	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	46	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- 2/Sec1): 2023	13.6	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	35.1	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	1.28	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.019	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: 2021	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m ³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m ³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

Reviewed by
Akash Kumar
Quality Manager

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Authorized Signatory
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Technical Manager

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TEST REPORT

Test Report No. : ELES/RNC/2024/7624	Report Release Date : 24.12.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400005476F	

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

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

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part- 23): 2022	73	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/Sec1): 2023	12.7	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	28.2	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	1.23	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.028	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: 2021	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m ³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m ³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)



Reviewed by
Akash Kumar
Quality Manager

****End of Report****



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

Technical Manager

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TEST REPORT

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

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/8963
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Block-B, Quarry No.7 Pakhar Bauxite Mine (115.13 ha)
Mines Status	: Operational	Sampling Date	: 16.12.2024 to 17.12.2024
Period of Analysis	: 18.12.2024 to 24.12.2024	Sample Received Date	: 18.12.2024
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

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

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part- 23): 2022	67	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/Sec1): 2023	10.2	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	22.8	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.018	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: 2021	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m ³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m ³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)



Reviewed by
Akash Kumar
Quality Manager

****End of Report****



Authorised Signatory
Dr. Deependra Kumar Sinha
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Technical Manager

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TEST REPORT

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

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

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

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part- 23): 2022	68	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/Sec1): 2023	12.7	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	24.2	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.019	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: 2021	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m ³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m ³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

Reviewed by
Aakash Kumar
Quality Manager

****End of Report****

Authorised Signatory
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Technical Manager

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TEST REPORT

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

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

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

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part- 23): 2022	71	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/Sec1): 2023	12.1	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	25.4	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	1.18	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.019	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: 2021	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m ³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m ³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

Reviewed by
Akash Kumar
Quality Manager

****End of Report****

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

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ENVIRONMENTAL LABORATORIES & ENGINEERING SERVICES PVT. LTD.

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TEST REPORT

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

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

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

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


Reviewed by
Akash Kumar
Quality Manager

****End of Report****


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

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"Data Not Manipulated, Data Telling"



ENVIRONMENTAL LABORATORIES & ENGINEERING SERVICES PVT. LTD.

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TEST REPORT

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

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

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

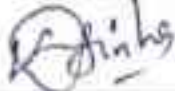
Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m³	IS 5182 (Part- 23): 2022	69	100 (24hrs)
Particulate Matter (PM2.5)	µg/m³	IS 5182 (Part- 24): 2019	43	60 (24hrs)
Sulphur Di-Oxide (SO₂)	µg/m³	IS 5182 (Part- 2/Sec1): 2023	12.7	80 (24hrs)
Nitrogen Di-Oxide (NO₂)	µg/m³	IS 5182 (Part- 6): 2022	20.2	80 (24hrs)
Ozone (O₃)	µg/m³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH₃)	µg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m³	IS 5182 (Part- 22): 2019	0.009	1 (24hrs)
Nickel (Ni)	ng/m³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C₆H₆)	µg/m³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)



Reviewed by

Akash Kumar

Quality Manager



Authorised Signatory

Dr. Deependra Kumar Sinha

Ph.D. Environmental Engg.

Technical Manager

****End of Report****

Page 1 of 1

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"Save Environment, Save Future"

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

Pakhar (115.13) Bauxite Mine-Environmental Monitoring Report

January- 2025



CONTENT

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



TEST REPORT

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


CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/0266
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Block-B, Quarry No.3 Pakhar Bauxite Mine (115.13 ha)
Mines Status	: Operational	Sampling Date	: 11.01.2025 to 12.01.2025
Period of Analysis	: 13.01.2025 to 20.01.2025	Sample Received Date	: 13.01.2025
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

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

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part- 23): 2022	77	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	46	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- 2/Sec1): 2023	11.2	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	32.8	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	1.22	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.031	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: 2021	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m ³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m ³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)


Reviewed by
Akash Kumar
Quality Manager

****End of Report****


Dr. Anupama Sinha
Ph. D. Environmental Engg.
Technical Manager



ENVIRONMENTAL LABORATORIES &

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TEST REPORT

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

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/0267
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Block-B, Quarry No.4 Pakhar Bauxite Mine (115.13 ha)
		Sampling Date	: 11.01.2025 to 12.01.2025
Mines Status	: Operational	Sample Received Date	: 13.01.2025
		Type of Sample	: Ambient Air
Period of Analysis	: 13.01.2025 to 20.01.2025	Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

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

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): 2022	75	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	42	60 (24hrs)
Sulphur Di-Oxide (SO_2)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 2/Sec1): 2023	12.4	80 (24hrs)
Nitrogen Di-Oxide (NO_2)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	32.8	80 (24hrs)
Ozone (O_3)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 9): 2019	<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): 2019 (NDIR Method)	1.31	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	0.023	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: 2021	<2.0	06 (Annual)
Benzene (C_6H_6)	$\mu\text{g}/\text{m}^3$	ELES/GC/SOP/06: 2023	<2.5	05 (Annual)
Benzo-(a)-Pyrene	ng/m^3	ELES/GC/SOP/05: 2023	<0.5	01 (Annual)

Reviewed by
Akash Kumar
Quality Manager

****End of Report****

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

Page 1 of 1

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TEST REPORT

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

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

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

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part- 23): 2022	78	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	36	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- 2/Sec1): 2023	14.1	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	33.5	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	1.28	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.031	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: 2021	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m ³	ELES/GC/SOP/06: 2023	<2.5	05 (Annual)
Benzo-(a)-Pyrene	ng/m ³	ELES/GC/SOP/05: 2023	<0.5	01 (Annual)



Reviewed by
Akash Kumar
Quality Manager

****End of Report****



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

Page 1 of 1

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ENVIRONMENTAL LABORATORIES &

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TEST REPORT

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

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/0269
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Block-B, Quarry No.7 Pakhar Bauxite Mine (115.13 ha)
		Sampling Date	: 11.01.2025 to 12.01.2025
Mines Status	: Operational	Sample Received Date	: 13.01.2025
		Type of Sample	: Ambient Air
Period of Analysis	: 13.01.2025 to 20.01.2025	Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

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

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): 2022	75	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	38	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 2/Sec1): 2023	11.6	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	25.1	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 9): 2019	<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): 2019 (NDIR Method)	1.18	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	0.024	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: 2021	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	$\mu\text{g}/\text{m}^3$	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m^3	ELES/GC/SOP/05: 2023	<0.5	01(Annual)



Reviewed by
Akash Kumar
Quality Manager

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Technical Manager

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TEST REPORT

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

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

METEOROLOGICAL INFORMATION

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

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part- 23): 2022	73	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	42	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- 2/Sec1): 2023	13.4	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	26.1	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.022	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: 2021	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m ³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m ³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)


Reviewed by
Akash Kumar
Quality Manager

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Technical Manager

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TEST REPORT

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

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

METEOROLOGICAL INFORMATION

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

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



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Quality Manager

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TEST REPORT

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

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

METEOROLOGICAL INFORMATION

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

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part- 23): 2022	72	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	35	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- 2/Sec I): 2023	13.1	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	28.1	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.015	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: 2021	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m ³	ELES/GC/SOP/06: 2023	<2.5	05 (Annual)
Benzo-(a)-Pyrene	ng/m ³	ELES/GC/SOP/05: 2023	<0.5	01 (Annual)

Akash Kumar

Reviewed by
Akash Kumar
Quality Manager

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TEST REPORT

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

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

METEOROLOGICAL INFORMATION

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

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): 2022	72	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	46	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 2/Sec1): 2023	14.1	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	24.8	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 9): 2019	<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): 2019 (NDIR Method)	1.23	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	0.015	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: 2021	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	$\mu\text{g}/\text{m}^3$	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m^3	ELES/GC/SOP/05: 2023	<0.5	01(Annual)



Reviewed by
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Quality Manager

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TEST REPORT

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

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/SW/0275
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 11.01.2025
		Sample Received Date	: 13.01.2025
Mines Status	: Operational	Type of Sample	: Surface Water
		Location of Sample	: Near Quarry No.- 3- Pakhar Bauxite Mine (115.13 ha)
Period of Analysis	: 13.01.2025 to 22.01.2025	Sampling Procedure	: ELES/DOC/SMPL/01
		Sampling Done 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 24.7 °C)	-	IS 3025 (Part-11): 2022	6.58	6.5-8.5
Temperature	°C	IS 3025 (Part 9): 2023	18.0	--
Chemical Oxygen Demand (COD)	mg/L	IS 3025 (Part-58): 2023	9.1	--
Biochemical Oxygen Demand (BOD) (@ 20°C for 5 days)	mg/L	APHA 24 th Ed.2023; 5210B	1.8	3.0
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part-16): 2023	112	1500
Total Suspended Solids (TSS)	mg/L	IS 3025 (Part-17): 2022	109	--
Oil & Grease	mg/L	IS 3025 (Part-39): 2021	BDL (DL: 0.1)	0.1
Calcium (as Ca)	mg/L	IS 3025 (Part-40): 2019	5.2	--



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TEST REPORT

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

Discipline : Chemical		Group : Residues in Water		Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
Aluminum (as Al)	mg/L	IS 3025 (Part-55) :2003; RA2019	BDL (DL: 0.02)	--
Iron (as Fe)	mg/L	APHA 24 th Ed.2023; 3111B	1.266	50

Remarks: pH & Temperature done at site.


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TEST REPORT

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

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

Discipline : Chemical		Group : Pollution & Environment	
Parameter	Unit	Test Protocol	Result
pH (1:2) at 24.4 °C	-	IS 2720 (Part-26): 2021	6.76
Conductivity (1:2) at 24.4 °C	µS/cm	IS 14767: 2021	178
Total Organic Carbon (TOC)	%	Soil Testing in India: 2011 (Walkley & Black Method)	0.53
Available Phosphorus (as P)	kg/ha	Soil Testing in India: 2011	BDL (DL: 2.0)
Potassium (as K)	mg/kg	IS 9497: 2020	1250
Available Nitrogen	%	Soil Testing in India: 2011	6.44
Chloride (as Cl) (1:2)	%	ELES/SOIL/SOP/01: 2021	0.014
Arsenic (as As)	mg/kg	ELES/SOIL/SOP/28: 2023	BDL (DL: 0.01)
Cadmium (as Cd)	mg/kg	US EPA 3050 A&B : 1996	BDL (DL: 0.1)
Lead (as Pb)	mg/kg	US EPA 3050 A&B : 1996	BDL (DL: 0.1)

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TEST REPORT

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

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


Reviewed by
Akash Kumar
Quality Manager

****End of Report****


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

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TEST REPORT

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

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

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

Reviewed by
Akash Kumar
Quality Manager

****End of Report****

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

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

Pakhar (115.13) Bauxite Mine-Environmental Monitoring Report

February 2025



CONTENT

Hindalco Industries : Pakhar (115.13) Environmental Monitoring Report		February 2025
Pakhar (115.13)		
	AMBIENT AIR QUALITY- CORE ZONE	
1	Near Mine Block-B, Quarry No.3	
2	Near Mine Block-B, Quarry No.4	
3	Near Mine Block B, Quarry No - 6	
4	Near Mine Block-B, Quarry No.7	
	AMBIENT AIR QUALITY- BUFFER ZONE	
1	Near Bunglapart Village	
2	Yatri Shed (Near K-10)	
3	Near Utkarmit Rajkiya Prathamik Vidyalaya Bunglapart Village	
4	Near Utkarmit Rajkiya Prathamik Vidyalaya Dumrapart Village	
	Drinking Water	
	Effluent Water	





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TEST REPORT

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

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/1345
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Block-B, Quarry No.3 Pakhar Bauxite Mine (115.13 ha)
		Sampling Date	: 19.02.2025 to 20.02.2025
Mines Status	: Operational	Sample Received Date	: 21.02.2025
Period of Analysis	: 21.02.2025 to 28.02.2025	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 21	2	Barometric Pressure (mmHg)	: 722
3	Relative Humidity (%)	: 58	4	Weather Condition	: Clear

Discipline : Chemical

Group : Atmospheric Pollution

Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part- 23): 2022	82	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	51	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- 2/Sec1): 2023	13.6	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	36.1	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	1.34	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.036	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: 2021	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m ³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m ³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

Suma Yadav
Reviewed by

****End of Report****

Authorised Signatory
Quality Manager

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TEST REPORT

Test Report No. : ELES/RNC/2025/1316	Report Release Date : 28.02.2025
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC1358725000001287F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/1346
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Block-B, Quarry No.4 Pakhar Bauxite Mine (115.13 ha)
Mines Status	: Operational	Sampling Date	: 19.02.2025 to 20.02.2025
Period of Analysis	: 21.02.2025 to 28.02.2025	Sample Received Date	: 21.02.2025
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 21	2	Barometric Pressure (mmHg)	: 720
3	Relative Humidity (%)	: 58	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part- 23): 2022	78	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	47	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- 2/Sec1): 2023	15.1	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	30.4	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	1.23	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.028	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: 2021	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m ³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m ³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)


Reviewed by

****End of Report****


Authorised Signatory
Quality Manager

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TEST REPORT

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

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/1347
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Block-B, Quarry No.6 Pakhar Bauxite Mine (115.13 ha)
		Sampling Date	: 19.02.2025 to 20.02.2025
Mines Status	: Operational	Sample Received Date	: 21.02.2025
		Type of Sample	: Ambient Air
Period of Analysis	: 21.02.2025 to 28.02.2025	Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C) : 21		2	Barometric Pressure (mmHg) : 720	
3	Relative Humidity (%) : 58		4	Weather Condition : Clear	

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): 2022	74	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	40	60 (24hrs)
Sulphur Di-Oxide (SO_2)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 2/Sec1): 2023	12.2	80 (24hrs)
Nitrogen Di-Oxide (NO_2)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	26.2	80 (24hrs)
Ozone (O_3)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 9): 2019	<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): 2019 (NDIR Method)	1.33	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	0.035	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: 2021	<2.0	06 (Annual)
Benzene (C_6H_6)	$\mu\text{g}/\text{m}^3$	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m^3	ELES/GC/SOP/05: 2023	<0.5	01(Annual)


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****End of Report****


Authorised Signatory
Quality Manager

Page 1 of 1

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TEST REPORT

Test Report No.	: ELES/RNC/2025/1318	Report Release Date	: 28.02.2025
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC1358725000001289F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/1348
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Block-B, Quarry No.7 Pakhar Bauxite Mine (115.13 ha)
		Sampling Date	: 19.02.2025 to 20.02.2025
Mines Status	: Operational	Sample Received Date	: 21.02.2025
		Type of Sample	: Ambient Air
Period of Analysis	: 21.02.2025 to 28.02.2025	Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 21	2	Barometric Pressure (mmHg)	: 720
3	Relative Humidity (%)	: 58	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part- 23): 2022	79	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	44	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- 2/Sec1): 2023	16.1	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	28.8	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	1.22	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.025	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: 2021	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m ³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m ³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)


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****End of Report****


Authorised Signatory
Quality Manager

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TEST REPORT

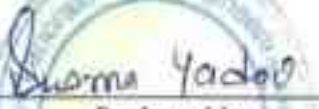
Test Report No. : ELES/RNC/2025/1319	Report Release Date : 28.02.2025
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC1358725000001290F	

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

METEOROLOGICAL INFORMATION

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

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): 2022	78	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	47	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 2/Sec1): 2023	12.8	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	27.5	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 9): 2019	<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): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	0.015	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: 2021	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	$\mu\text{g}/\text{m}^3$	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m^3	ELES/GC/SOP/05: 2023	<0.5	01(Annual)


Reviewed by


Authorized Signatory
Akash Kumar

****End of Report****

Page 1 of 1

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TEST REPORT

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

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

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

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

Sugma Yadav
Reviewed by

****End of Report****

[Signature]
Authorised Signatory
Quality Manager

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TEST REPORT

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

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/1351
Address	: Lohardaga, Jharkhand-835302	Location	: Near Utkarmit Rajkiya Prathamik Vidyalaya Bunglapart Village Pakhar Bauxite Mine
		Sampling Date	: 19.02.2025 to 20.02.2025
Mines Status	: Operational	Sample Received Date	: 21.02.2025
		Type of Sample	: Ambient Air
Period of Analysis	: 21.02.2025 to 28.02.2025	Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

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

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

Suma Yadav
Reviewed by

[Signature]
Authorised Signatory
Quality Manager

****End of Report****

Page 1 of 1

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TEST REPORT

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

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

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

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part- 23): 2022	72	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	46	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- 2/Sec1): 2023	14.1	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	24.8	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	1.23	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.015	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: 2021	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m ³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m ³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

Susma Yadav
Reviewed by

Akash Kumar
Authorised Signatory
Akash Kumar

****End of Report****

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TEST REPORT

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

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/DW/1335
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 20.02.2025
		Sample Received Date	: 21.02.2025
		Type of Sample	: Drinking Water
Mines Status	: Operational	Source of Sample	: TAP Water
		Location of Sample	: Mines Site (Pakhar-115.13 Bauxite Mine)
Period of Analysis	: 21.02.2025 to 01.03.2025	Sampling Procedure	: ELES/DOC/SMPL/01
		Sampling Done 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 24 th Ed.2023, 4500-H ⁺	6.67	6.5-8.5	No Relaxation
Turbidity	NTU	APHA 24 th Ed.2023, 2130 B	0.75	1.0	5.0
Taste	-	APHA 24 th Ed.2023, 2160 C	Agreeable	Agreeable	Agreeable
Odour	-	IS 3025 (Part-5) :2018	Agreeable	Agreeable	Agreeable
Colour	Hazen	APHA 24 th Ed.2023, 2120B&D	1.2	5.0	15
Total Dissolved Solids (TDS)	mg/L	APHA 24 th Ed.2023, 2540B,C&D	304	500	2000
Chloride (as Cl)	mg/L	APHA 24 th Ed.2023, 4500 Cl B	19.9	250	1000
Fluoride (as F)	mg/L	APHA 24 th Ed.2023, 4500 F-D	BDL (DL: 0.1)	1.0	1.5
Total Alkalinity (as CaCO ₃)	mg/L	APHA 24 th Ed.2023, 2320 B	123	200	600
Total Hardness (as CaCO ₃)	mg/L	APHA 24 th Ed.2023, 2340 C	146	200	600
Sulphate (as SO ₄)	mg/L	APHA 24 th Ed.2023, 4500 SO ₄ ²⁻ -E	7.12	200	400
Nitrate (as NO ₃)	mg/L	APHA 24 th Ed.2023, 4500 NO ₃ -B	2.82	45	No Relaxation

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TEST REPORT

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

Discipline : Chemical		Group : Water		Regulatory Limit as per IS10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
Phenolic Compound (as C ₆ H ₅ OH)	mg/L	IS 3025 (Part 43/Sec1): 2022	BDL (DL: 0.001)	0.001	0.002
Free Residual Chlorine (RFC)	mg/L	IS 3025 (Part-26): 2021	BDL (DL: 0.1)	0.2(Min)	1.0(Min)
Calcium (as Ca)	mg/L	APHA 24 th Ed.2023, 3500 Ca B	38.8	75	200
Anionic Surfactants (as MBAS)	mg/L	APHA 24 th Ed.2023, 5540-C	BDL (DL: 0.025)	0.2	1.0
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) : 2021	BDL (DL: 0.2)	0.5	1.0
Cadmium (as Cd)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.003)	0.003	No Relaxation
Total Chromium (as Cr)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.03)	0.05	No Relaxation
Copper (as Cu)	mg/L	IS 3025 (Part 42): 2019	BDL (DL: 0.03)	0.05	1.5
Cyanide (as CN)	mg/L	APHA 24 th Ed.2023, 4500 CN-E	BDL (DL: 0.012)	0.05	No Relaxation
Iron (as Fe)	mg/L	APHA 24 th Ed.2023; 3111B	0.049	1.0	No Relaxation
Lead (as Pb)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.01)	0.01	No Relaxation
Manganese (as Mn)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.05)	0.1	0.3
Mercury (as Hg)	mg/L	IS 3025 (Part-48): 2019	BDL (DL: 0.001)	0.001	No Relaxation
Selenium (as Se)	mg/L	IS 3025 (Part-56): 2019	BDL (DL: 0.01)	0.01	No Relaxation

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TEST REPORT

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

Discipline : Chemical		Group : Residues in Water		Regulatory Limit as per IS10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
Zinc (as Zn)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.1)	5.0	15
Polynuclear Aromatic Hydrocarbons (PAH)	µg/L	ELES/GC/SOP/04: 2023	BDL (DL: 0.05)	0.1	No Relaxation
Polychlorinated biphenyls (PCB)	µg/L	ELES/GC/SOP/03: 2023	BDL (DL: 0.1)	0.5	No Relaxation
Pesticides				Limit	
Alachlor	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	20	
Atrazine	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	2.0	
Butachlor	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	125	
Chlorpyrifos	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	30	
Ethion	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	3.0	
Malathion	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	190	
Methyl parathion	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.1)	0.30	
Monocrotophos	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	1.0	
Phorate	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	2.0	
Phorate Sulphone	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	--	
Dieldrin	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.01)	0.03	
Alpha HCH	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.006)	0.01	
Beta HCH	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.02)	0.04	

TEST REPORT

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

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

Remarks: pH done at Site.



Reviewed by
Akash Kumar
Quality Manager

****End of Report****



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



ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
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TEST REPORT

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

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/DW/1335
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 20.02.2025
		Sample Received Date	: 21.02.2025
		Type of Sample	: Drinking Water
Mines Status	: Operational	Source of Sample	: TAP Water
		Location of Sample	: Mines Site (Pakhar-115.13 Bauxite Mine)
Period of Analysis	: 21.02.2025 to 01.03.2025	Sampling Procedure	: ELES/DOC/SMPL/01
		Sampling Done 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
Mineral Oil*	mg/L	IS 3025 (Part-39): 2021, Clause 6 Infrared Spectroscopic method.	BDL (DL: 0.01)	0.5	No Relaxation

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

Reviewed by

Akash Kumar
Quality Manager

****End of Report****

Authorised Signatory

Dr. Deependra Kumar Sinha
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Technical Manager

TEST REPORT

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

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

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



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TEST REPORT

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

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

Remarks: pH & DO done at Site.

Reviewed by

Akash Kumar
Quality Manager

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Authorised Signatory

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

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

Pakhar (115.13) Bauxite Mine-Environmental Monitoring Report

March 2025



CONTENT

Hindalco Industries : Pakhar (115.13) Environmental Monitoring Report		March 2025
Pakhar (115.13)		
	AMBIENT AIR QUALITY- CORE ZONE	
1	Near Mine Block-B, Quarry No.3	
2	Near Mine Block-B, Quarry No.4	
3	Near Mine Block B, Quarry No - 6	
4	Near Mine Block-B, Quarry No.7	
	AMBIENT AIR QUALITY- BUFFER ZONE	
1	Near Bunglapart Village	
2	Yatri Shed (Near K-10)	
3	Near Utkarmit Rajkiya Prathamik Vidyalaya Bunglapart Village	
4	Near Utkarmit Rajkiya Prathamik Vidyalaya Dumrapart Village	
	AMBIENT NOISE	
	WORKZONE NOISE	





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TEST REPORT

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

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

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 720
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part- 23): 2022	88	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	53	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- 2/Sec1): 2023	10.2	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	44.6	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	1.23	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.025	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: 2021	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m ³	ELES/GC/SOP/06: 2023	<2.5	05 (Annual)
Benzo-(a)-Pyrene	ng/m ³	ELES/GC/SOP/05: 2023	<0.5	01 (Annual)



Reviewed by
Akash Kumar
Quality Manager

****End of Report****



Authorised Signatory
Dr. Deependra Kumar Sinha
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Technical Manager

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TEST REPORT

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

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/1838
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Block-B, Quarry No.4 Pakhar Bauxite Mine (115.13 ha)
		Sampling Date	: 07.03.2025 to 08.03.2025
Mines Status	: Operational	Sample Received Date	: 10.03.2025
		Type of Sample	: Ambient Air
Period of Analysis	: 10.03.2025 to 17.03.2025	Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 720
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part- 23): 2022	83	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	44	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- 2/Sec1): 2023	13.3	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	27.1	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	1.30	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.031	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: 2021	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m ³	ELES/GC/SOP/06: 2023	<2.5	05 (Annual)
Benzo-(a)-Pyrene	ng/m ³	ELES/GC/SOP/05: 2023	<0.5	01 (Annual)



Reviewed by
Akash Kumar
Quality Manager

****End of Report****



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Dr. Deependra Kumar Sinha
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Technical Manager

Page 1 of 1

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TEST REPORT

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

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

METEOROLOGICAL INFORMATION

1	Average Temperature (°C) : 25	2	Barometric Pressure (mmHg) : 720
3	Relative Humidity (%) : 59	4	Weather Condition : Clear

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): 2022	79	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	37	60 (24hrs)
Sulphur Di-Oxide (SO_2)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 2/Sec1): 2023	14.4	80 (24hrs)
Nitrogen Di-Oxide (NO_2)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	30.9	80 (24hrs)
Ozone (O_3)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 9): 2019	<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): 2019 (NDIR Method)	1.24	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	0.028	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: 2021	<2.0	06 (Annual)
Benzene (C_6H_6)	$\mu\text{g}/\text{m}^3$	ELES/GC/SOP/06: 2023	<2.5	05 (Annual)
Benzo-(a)-Pyrene	ng/m^3	ELES/GC/SOP/05: 2023	<0.5	01 (Annual)



Reviewed by
Akash Kumar
Quality Manager

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Ph. D. Environmental Engg.

Technical Manager

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TEST REPORT

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

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

METEOROLOGICAL INFORMATION

1	Average Temperature (°C) : 25	2	Barometric Pressure (mmHg) : 720
3	Relative Humidity (%) : 59	4	Weather Condition : Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part- 23): 2022	84	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	40	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- 2/Sec1): 2023	13.3	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	31.6	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	1.28	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.022	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: 2021	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m ³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m ³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)



Reviewed by
Akash Kumar
Quality Manager

****End of Report****



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Technical Manager

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ENGINEERING SERVICES PVT. LTD.

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

Test Report No. : ELES/RNC/2025/1648	Report Release Date : 17.03.2025
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC1358725000001612F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/1841
Address	: Lohardaga, Jharkhand-835302	Location	: Near Bunglapart Village Pakhar Bauxite Mine
		Sampling Date	: 07.03.2025 to 08.03.2025
Mines Status	: Operational	Sample Received Date	: 10.03.2025
		Type of Sample	: Ambient Air
Period of Analysis	: 10.03.2025 to 17.03.2025	Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

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

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



Reviewed by
Akash Kumar
Quality Manager

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

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TEST REPORT

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

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

METEOROLOGICAL INFORMATION

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

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

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Akash Kumar
Quality Manager

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

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TEST REPORT

Test Report No. : ELES/RNC/2025/1650	Report Release Date : 17.03.2025
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC1358725000001614F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/1843
		Location	: Near Utkarmit Rajkiya Prathamik Vidyalaya Bunglapart Village Pakhar Bauxite Mine
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 07.03.2025 to 08.03.2025
		Sample Received Date	: 10.03.2025
		Type of Sample	: Ambient Air
Mines Status	: Operational	Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
Period of Analysis	: 10.03.2025 to 17.03.2025	Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

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


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): 2022	76	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	37	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 2/Sec1): 2023	14.2	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	27.7	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 9): 2019	<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): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	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: 2021	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	$\mu\text{g}/\text{m}^3$	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m^3	ELES/GC/SOP/05: 2023	<0.5	01(Annual)



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Akash Kumar
Quality Manager

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TEST REPORT

Test Report No. : ELES/RNC/2025/1651	Report Release Date : 17.03.2025
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC1358725000001615F	

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

METEOROLOGICAL INFORMATION

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

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



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Quality Manager

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TEST REPORT

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

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sampling Date	: 07.03.2025 to 08.03.2025
		Sampling Received Date	: 10.03.2025
Address	: Lohardaga, Jharkhand-835302	Type of Sample	: Ambient Noise
		Sampling procedure	: ELES/DOC/SMPL/03
		Sampling Done By	: ELES Pvt. Ltd.
Mines Status	: Operational	Period of Analysis	: 10.03.2025 to 13.03.2025

METEOROLOGICAL INFORMATION			
1	Average Temperature (°C) : 25	2	Barometric Pressure (mmHg) : 720
3	Relative Humidity (%) : 59	4	Weather Condition : Clear

Discipline : Chemical		Group : Atmospheric Pollution			
Location	Unit	Test Protocol	Result		Regulatory Limit (Industrial Zone)
Quarry Mines Pit, Pakhar Bauxite Mine (115.13 ha)	dB(A)	IS 9989: 2020	Time	L _{eq}	75 dB(A) Day Time & 70 dB(A) Night Time
			Day Time	66	
Sample ID: ELES/RNC/2025/AN/1855			Night Time	48	


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Akash Kumar
Quality Manager

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Authorised Signatory
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Technical Manager

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TEST REPORT

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

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

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 28	2	Barometric Pressure (mmHg)	: 720
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear

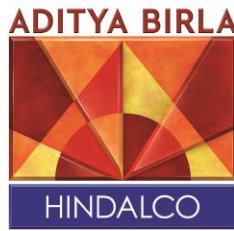
Location	Unit	Test Protocol	Result		Regulatory Limit (Industrial Zone)
Quarry No.7 – Pakhar Bauxite Mine (115.13 ha)	dB(A)	IS 4758: 2017	Time	L _{eq}	90 dB(A)
			Day Time	77	
Sample ID: ELES/RNC/2025/WN/1850					

Reviewed by
Akash Kumar
Quality Manager

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Authorised Signatory
Dr. Deependra Kumar Sinha
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Technical Manager

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Annexure 3

Date – 01.05.2025

Office Order

Environmental Cell has been re-constituted for Pakhar Group of Mines (Pakhar – 115.13 ha, Pakhar – 35.12 ha and Pakhar – 8.09 ha Bauxite Mines). This cell consists of the following team members who will ensure compliance with the Environment Acts, Rules & Regulations in respect of the said mines of Hindalco Industries Limited.

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

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

A handwritten signature in blue ink, appearing to be "Basudev Gangopadhyay", written over a horizontal line.

Basudev Gangopadhyay
AVP (Planning, Environment & Compliance)

Annexure 4

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

Annexure 4

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

*Static information about the mines included in the above table



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AVP (Planning, Environment and Compliance)

Annexure-5

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

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

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

**Part of OB removed cost



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