

HIL/LHD/ENV/MoEF&CC/**071**

Date: 16.05.2025

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: Compliance Report of EC conditions for Gurdari Bauxite Mining project of M/s Hindalco Industries Limited located in Gumla, Jharkhand for the period October'24 to March'25.

Ref: Environmental Clearance letter no J-11015/136/2006-IA II (M) dated 7th February 2007

Sir,

With reference to the above, we are submitting herewith the Compliance status report of EC conditions for **Gurdari (584.19 ha)** Bauxite Mining project of **M/s Hindalco Industries Limited** located in Gumla, Jharkhand for the period October'24 to March'25.

The lease details are below:

Lease area (ha)	Production Capacity (MT)	Lease Period
584.19	325000	23.03.1985 to 22.03.2035

Hope you will find the same in order.

Thanking You

Yours Sincerely

FOR **HINDALCO INDUSTRIES LIMITED**

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

Enclosure: - As Above

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Name of the Project : **Gurdari Bauxite Mine (584.19 ha)**
M/s Hindalco Industries Ltd

Environment Clearance No & date : **J-11015/136/2006-IA. II (M), dated 07.02.2007.**

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

A. Specific Conditions

Condition 1- All the conditions stipulated by the State Pollution Control Board in their NOC should be effectively implemented.

Reply to Condition 1 - Implementations of stipulated conditions in NOC are fulfilled post which consent to operate has been granted by SPCB from time to time. The existing consent to operate is valid up to 31.03.2027. Production of bauxite is within limits specified in Consent to Operate.

Condition 2- 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 to Condition 2- Land acquisition is being done with the permission of competent authority of State Government i.e. concerned Deputy Commissioner (D.C.) under CNT Act. The land lease agreement is being done with raiyat (Landowner) after permission of State Govt with provision of returning the land as per the norms set by D.C. The compensation and facilities are being provided as per the norms set in the agreement. Thus, land acquisition has the approval of the State Government.

Condition 3- The exploration shall be completed within 2.5 years and thereafter the proponent shall come up with a firm proposal for mining, based on the estimated reserves. The reclamation plan, post mine land use and progressive greenbelt development plan shall also be prepared and submitted with the revised proposal.

Reply to Condition 3- Required exploration is already done. Mining plan/ Mining Scheme based on current reserves/resource estimate is duly approved by IBM. The reclamation plan, post mine land use and progressive greenbelt development plan have been covered in Mining Plan/Mining scheme which is approved by IBM.

Condition 4- 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 to Condition 4- Since shallow depth mining is being carried out, hence there is no intersection with the groundwater table. In future also, working zones will be restricted to above ground water table. We undertake that no mining is/was carried out below ground water table and the same status will be maintained in future also. Moreover, we regularly monitoring the groundwater table through the installation of a piezometer. A copy of the water level report is attached herewith as **Annexure-1**.

Condition 5- Topsoil shall be stacked properly with proper slope with adequate measures and should be used for reclamation and rehabilitation of mined out areas.

Reply to Condition 5- Topsoil is being stacked properly with proper slope as and when required for reclamation and rehabilitation. Sequential backfilling and reclamation of the mined-out area are being exercised for which topsoil is being spread on backfilled area for reclamation. The mining is being carried out as per the approved mining plan. Monitoring and management of rehabilitated areas is being done through effective supervision. Data pertaining to backfilling is enclosed as **Annexure 4**.

Condition 6- 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 a six-month basis.

Reply to Condition 6- Overburden and waste rock are being used for concurrent backfilling, and topsoil is being spread on the backfilled area for reclamation. Currently, there is no OB dump present in the mine lease area. Monitoring and management of rehabilitated areas is continuing until vegetation becomes self-sustaining through supervision. Data pertaining to backfilling is enclosed as **Annexure 4**. Compliance status is being submitted to MoEF&CC on six monthly basis.

Condition 7- 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 drains (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 to Condition 7- To collect & manage rainwater during monsoon, part of mined out area is used as a settling tank for the runoff. Rainwater stored is being used for watering the mine area, roads, green belt development and sprinkling as necessary.

Catch drains, Garland drains of appropriate size are being constructed in both around the mine pit to prevent runoff of water and flow of sediments directly into the agricultural field and water bodies, if applicable.



Garland drain around mine pit.



Catch drain Near mine pit.

Condition 8- Plantation shall be raised in an area of 78.44 ha 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 to Condition 8- Progressive plantation of native species is being carried out in and around mining lease, reclaimed area etc. in consultation with local forest department on a regular basis. During FY 2024-25, a total 11,016 saplings have been planted on reclaimed areas. Cumulative 25.58 ha areas have been planted till date. In addition to this agricultural activity is going on reclaimed land as per the consent from the landowners. Rest to be complied during project period.



Plantation and Agriculture on Reclaimed land

Condition 9- The project authority should implement suitable conservation measures to augment ground water resources in area in consultation with Regional Director, Central Ground Water Board.

Reply to Condition 9- A detailed plan to augment groundwater has been prepared, and suitable measures like the creation of water harvesting ponds, etc., are being taken for the augmentation of groundwater in the area, in consultation with the Central Ground Water Board.



Rainwater Harvesting Pond.

Condition 10- 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 to Condition 10- We are not using ground water for mining purposes. Shallow depth mining is being carried out, hence there is no intersection of ground water table during the mining operation at present and in future. A piezometer has been installed for monitoring of ground water level. The Water level and water quality reports are being sent regular to regional office of Ministry, CGWA and JSPCB. The same is attached herewith as **Annexure 1 & 2**



Piezometer Installed at Mine

Condition 11- Prior permission from the competent authority should be obtained for drawl of water from the surface water bodies.

Reply to Condition 11- We are not using any water from natural streams/ ground water for mining operation. Rainwater harvesting ponds with proper fencing have been already constructed in the mine premises. Rainwater harvested during the rainy season is being used for sprinkling on haul roads and raising plantation.

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

भारत सरकार जल संधि, नदी विकास और मत्स्य संसाधन विभाग संयुक्त जल संधि विभाग Government of India Ministry of Jal Shakti Department of Water Resources, River Development & Ganga Rejuvenation Central Ground Water Authority										
(भूजल निकासी हेतु अनापत्ति प्रमाण पत्र NO OBJECTION CERTIFICATE (NOC) FOR GROUND WATER ABSTRACTION										
Project Name:	Gurdari Bauxite Mining									
Project Address:	Gurdari Bauxite Mining (516.19 Ha), Villages - Gurdari, Ambakona, Rajadara And Janawal, Tehsil - Bishnupur									
Village:	Gurdari	Block:	Bishnupur							
District:	Gumla	State:	Jharkhand							
Pin Code:										
Communication Address:	Hindalco Industries Limited, Ichardaga, , Lehardaga, Jharkhand - 835302									
Address of CGWB Regional Office :	Central Ground Water Board Mid Eastern Region, 8th & 7th Floor, Lok Nayak Jai Prakash Bhawan, Frazer Road Dak Banglow, Patna, Bihar - 800011									
1. NOC No.:	CGWA/NOC/MIN/REN/2/2023/8045									
2. Application No.:	21-4/483/JH/MIN/2019	3. Category: (GWRE 2022)	Safe							
4. Project Status:	Existing Ground Water	5. NOC Type:	2nd Renewal							
6. Valid from:	09/09/2023	7. Valid up to:	08/09/2025							
8. Ground Water Abstraction Permitted:										
Fresh Water		Saline Water		Dewatering		Total				
m ³ /day	m ³ /year	m ³ /day	m ³ /year	m ³ /day	m ³ /year	m ³ /day	m ³ /year			
9.50	3487.50									
9. Details of ground water abstraction /Dewatering structures										
Total Existing No.:1				Total Proposed No.:0						
	DW	DCB	BW	TW	MP	DW	DCB	BW	TW	MP
Abstraction Structure*	0	0	1	0	0	0	0	0	0	0
*DW- Dug Well; DCB-Dug-cum-Bore Well; BW-Bore Well; TW-Tube Well; MP-Mina Pt										
10. Ground Water Abstraction/Restoration Charges paid (Rs.):							6936.00			
(Compliance Conditions given overleaf) This is an auto generated document & need not to be signed.										

NOC for Ground water Extraction

Condition 12- Water monitoring both for quality and quantity shall be carried out at four locations namely one spring and three streams. Six monthly report should be submitted to the Ministry of Environment and Forest and its Regional Office located at Bhubaneshwar.

Reply to Condition 12- Water Monitoring of Spring and Stream water are being monitored and Analysis report is attached as **Annexure 2**. Six monthly report is being submitted regularly. Now, the Regional office of MoEF&CC is located in Ranchi.

Condition 13- 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 to Condition 13- To keep vehicular emissions under control, vehicles are periodically checked & repaired. All measures are being taken to control vehicular emission. All vehicles are covered with tarpaulins, and non-overloading guidelines are being followed during transportation of mineral. Photographs of Tarpaulin Covered Vehicle and PUC Certificate are attached below.



Tarpaulin covered Vehicle

Form 59
(See rules 119 (2))

Pollution Under Control Certificate

Authorized By :
Government of Jharkhand

Date : 03/05/2025
Time : 13:49:44 PM
Validity upto : 02/11/2025

Vehicle No. : 340002560005946
Registration No. : 340802323
Date of Registration : 17/04/2019
Month & Year of Manufacturing : Jan-2015
Veh-Model Number : 340802323
Extension Name : BHARAT STAGE II
Fuel : DIESEL
PUC Code : 34000256
GSTIN :
Fees : Rs.300.00
NIC Number :
No.

Vehicle Photo with Registration plate
60 mm x 30 mm

Sr. No.	Pollutant (as applicable)	Units (as applicable)	Emission limits	Measured Value (upto 5 decimal places)
1	Carbon Monoxide (CO)	percentage (%)		
2	Hydrocarbon, (THC/HC)	ppm		
3	CO	percentage (%)		
4	High idling emissions	dB	2000 ± 300	
5	Lambda	-	1 ± 0.03	
6	Smoke Density	1/metre	2.45	0.66
7	Light absorption coefficient	-		

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

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

Authorized Signature with stamp of PUC Operator
60mm x 30 mm

PUC Certificate

Condition 14- Drills should either be operated with dust extractors or should be equipped with a water injection system.

Reply to Condition 14- Wet drilling is in practice.



Wet drilling is being carried out.

Condition 15- 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 to Condition 15- Blasting time is fixed during Lunch Time i.e. 1.00 PM-2.00 PM. We have control blasting permission. Controlled blasting method is in practice. Ground vibration study has been conducted periodically. Efforts and mitigative measures are being taken to reduce the impact of the blast.

Condition 16- Consent to operate should be obtained from SPCB prior to start of enhanced production from the mine.

Reply to Condition 16- We have already obtained the Consent to Operate for Bauxite Ore as per production capacity mentioned in EC.

Condition 17- Sewage treatment plant should be installed for the colony. ETP should also be provided for workshops and wastewater generated from mining operations.

Reply to Condition 17- No wastewater is generated from our mining operation. However, only negligible amount of effluent is being generated from workshop and Oil & grease trap system is already installed for treatment of this effluent. The treated water is in close circuit and being reused for washing of vehicle in the workshop. We are not discharging any wastewater outside the mine lease area. Furthermore, the quality of this treated water is being monitored regularly and the monitoring report is enclosed herewith as **Annexure 2**.

The sewage water from domestic uses is being collected through individual Septic Tank and followed by Soak Pit.



Washing Ramp with Oil and Grease trap

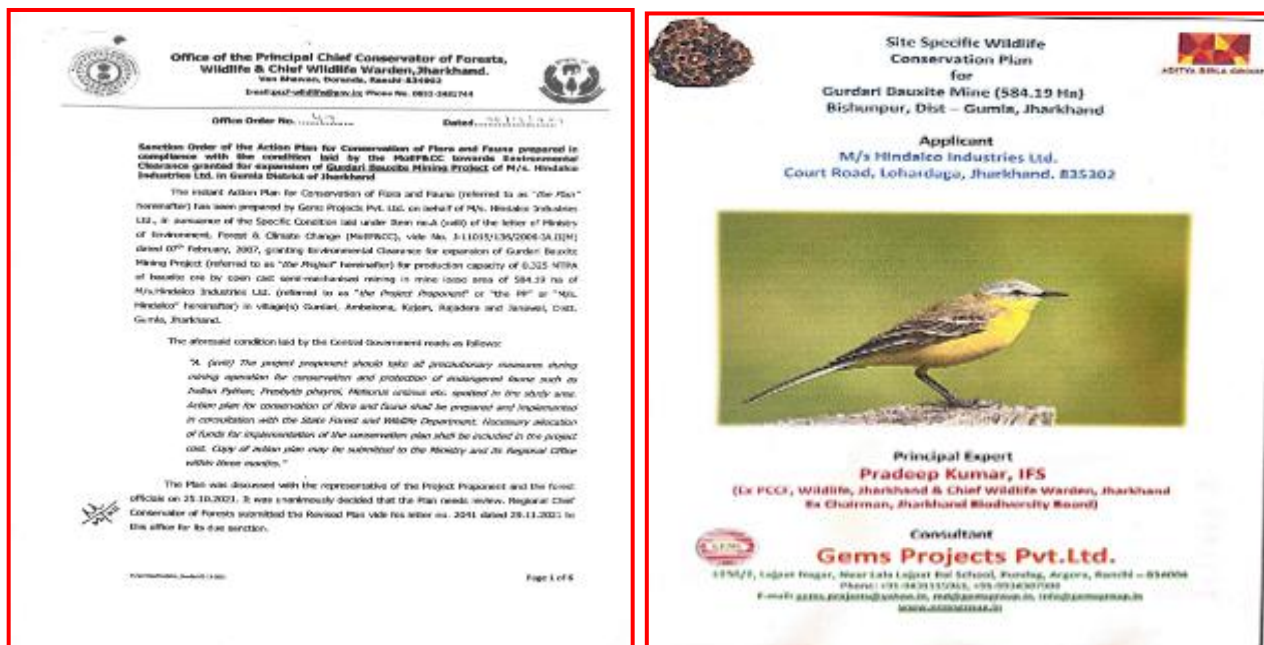
Condition 18- The project proponent should take all precautionary measures during mining operation for conservation and protection of endangered fauna such as Indian Python, *Presbytis phayrei*, *Melursus ursinus* etc. Spotted in the study area. Action plan for conservation of flora and fauna shall be prepared and implemented in consultation with the State Forest and Wildlife Department. The necessary allocation of funds for implementation of the conservation plan shall be made and the funds so allocated shall be included in the project cost. A copy of the action plan may be submitted to the Ministry and its Regional Office within 3 months.

Reply to Condition 18- Safeguard Measures already implemented and being implemented as suggested by forest department are as follows: -

1. Minimum level of Noise during Mining.
2. Permanent pillars are established within the mine lease area.
3. Daily water sprinkling on haul road.
4. Transportation is carried out during the daytime only.
5. Maintenance of mineral transportation road is being done regularly.
6. Social activities are being undertaken in nearby areas etc.

We have also prepared Site-Specific Wildlife Conservation Plan (WLCP) in consultation with State Forest Department and obtained approval letter from Principal Chief Conservator of Forest, Wildlife & Chief Wildlife Warden, Jharkhand via Office Order No. 48 dated 02.12.2021 for conservation and protection of flora and fauna in the core and buffer zone for Gurdari Bauxite Mine.

A copy of same Approval letter has been submitted to your good office on 21.02.2022



Site Specific Wildlife Conservation Plan

Condition 19- 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 to Condition 19- Mining Plan along with progressive mine closure plan has been approved by Indian Bureau of Mines. Final Mine Closure Plan will be submitted in due time as per applicable guideline and timelines mentioned in MCDR/IBM guidelines who are competent authority to approve the same. Based on present resource estimate and peak rated production capacity mentioned in EC, Mining operation is being carried out.

B. General Conditions

Condition 1- No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment & Forest.

Reply to Condition 1- Noted.

Condition 2- No change in the calendar plan including excavation, quantum of mineral bauxite and waste should be made.

Reply to Condition 2- Calendar plan including excavation, quantum of mineral bauxite and waste is being done as per IBM approved mining scheme and in scientific manner. Data pertaining to excavation, quantum of mineral bauxite etc. are mentioned in report attached as **Annexure 4**.

Condition 3- Four ambient air quality-monitoring stations 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 to Condition 3- We have already established four ambient air quality monitoring stations in the core zone as well as the buffer zone. Monitoring is being carried out and reported to the concerned authorities. Monitoring Report is attached as **Annexure 2**.

Condition 4- 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 to Condition 4- Being adhered to. Monitoring Reports for the reporting period are attached as **Annexure-2**. Now, the Regional office of MoEF&CC is in Ranchi.

Condition 5- 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 to Condition 5- Water tankers have been provided for sprinkling of water on haul roads and active mining areas to suppress the fugitive dust. Water spraying at loading, unloading, etc. is also being done regularly.



Water Tanker for dust suppression

Condition 6- 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 to Condition 6- Noise monitoring is being done regularly. Workers engaged in the operation of HEMMs, etc., have also been provided with PPEs such as ear plugs and earmuffs. Monitoring of noise levels is being conducted at various locations of the work zone area. The report is attached as **Annexure 2**.

Condition 7- Industrial wastewater (workshops and wastewater from the mine) Should be properly collected and 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 traps should be installed before discharge of workshop effluents.

Reply to Condition 7- There is no industrial wastewater generation from mining operation. We are not discharging any wastewater outside the mine lease area. However, negligible amount of wastewater is generated in workshop from washing vehicles and Oil & grease trap system is already installed for treatment of this effluent. The treated water is in a closed circuit and being reused for washing vehicles in the workshop.

Furthermore, the quality of this treated water is monitored regularly, and all water parameters are within permissible limits. The monitoring report is attached herewith as **Annexure- 2**.

Photograph of Oil and grease traps is already attached below.



Washing Ramp with Oil and Grease trap

Condition 8- Personnel working in dusty areas should wear protective respiratory devices and they should also provide 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 to Condition 8- All the workers have been provided with PPEs including dust mask and dust respirators. Apart from PPEs distribution to all workers, we are also providing adequate safety training and conducting awareness session on Safety and health aspects on regular basis. Periodical Occupational health surveillance program of the workers is being carried out and records maintained as per statute.

Condition 9- 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 to Condition 9- A separate environmental management cell with suitable qualified personnel has been set up under the control of a Senior Executive, who is reporting directly to the Head of the Organization. The same is attached herewith as **Annexure 3**.

Condition 10- The project authorities should inform the Regional Office located at Bhubaneswar regarding the date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.

Reply to Condition 10- This is an operating mine. Hence, the provision related to financial closure is not applicable. Now, the regional office of MoEF&CC is in Ranchi.

Condition 11- The funds earmarked for environmental protection measures should be kept in separate accounts and should not be diverted for other purposes. Year-wise expenditure should be reported to the Ministry and its Regional Office located at Bhubaneswar.

Reply to Condition 11- Every year, the funds earmarked for environmental protection measures is being budgeted separately and its expenditure is being reported to the Ministry. The copy of the same is attached as **Annexure 5**. Now, the Regional Office of MoEF&CC is in Ranchi

Condition 12- The Regional Office of this Ministry located at Bhubaneshwar 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 to Condition 12- Noted and Agreed.

Condition 13- 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 to Condition 13- Complied. A copy of the clearance letter has already been submitted.

Condition 14- 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 to Condition 14- Noted. The EC Letter has been submitted to JSPCB for display of same at its regional office and other government offices.

Condition 15- 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 Bhubaneshwar.

Reply to Condition 15- Noted and complied. The information on grant of the EC has been published in two local newspapers. The copy of the advertisement has already been submitted to the Regional Office vide letter no HIL/GMO(M)/ENV/140 Dated 23.04.2007. Now, the regional office of MoEF&CC is in Ranchi.

Piezometer Monitoring Report

Mine: Gurdari Bauxite Mine

S No	Month	Ground Water Level (BGL) (in meters)
1	Oct-24	32.56
2	Nov-24	32.51
3	Dec-24	32.13
4	Jan-25	32.07
5	Feb-25	32.79
6	Mar-25	33.38

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

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

Gurdari Bauxite Mine-Environmental Monitoring Report

October 2024



CONTENT

Hindalco Industries : Gurdari Bauxite Mine Environmental Monitoring Report		October 2024
Gurdari Bauxite Mine		
AMBIENT AIR QUALITY- CORE ZONE		
1	Entrance Gate / Near Mine Office	
2	Near Karkang Mines	
3	Near Mine Weigh Bridge	
4	Near Dhobi Kutumb	
AMBIENT AIR QUALITY- BUFFER ZONE		
1	Near Pakri Gada Village	
2	Near Pol Pol Village	
3	Near Shakhupani Village	
4	Near Dipa Kujam Village	





ENVIRONMENTAL LABORATORIES &

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ENGINEERING SERVICES PVT. LTD.

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



TEST REPORT

Test Report No.	: ELES/RNC/2024/6197	Report Release Date	: 25.10.2024
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC135872400004088F		


CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/7226
Address	: Lohardaga, Jharkhand-835302	Location	: Entrance Gate/Near Mine Office Gurdari Bauxite Mine (584.19ha)
		Sampling Date	: 15.10.2024 to 16.10.2024
Mines Status	: Operational	Sample Received Date	: 18.10.2024
		Type of Sample	: Ambient Air
Period of Analysis	: 18.10.2024 to 24.10.2024	Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 27	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 65	4	Weather Condition	: Partly Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part- 23): 2022	62	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	34	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- 2/Sec1): 2023	7.8	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	24.4	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)	<1.0	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)


Reviewed by
Akash Kumar
Quality Manager

****End of Report****


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

The Document stated as Test Report, is issued by the Laboratory under General Terms and Conditions, only on Company letter head or pre-approved format. The results shown in the Test Report apply or relate only to the job/task/analysis done by the Laboratory only. The information stated on the Test Report reflects the findings done by the Laboratory at the time of involvement only and within the limits of client's instructions. The Laboratory is responsible for all the information or data provided on the report, except the information which is provided by the client. The Report cannot be reproduced except in full and any part of the report is not taken out of context, without prior written approval of the Laboratory. The Report is 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 retained 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 Terms schedule mentioned in Test Report is in 24 hours format. Abbreviations used: N/A (Not Applicable); ND (Not Detected); LOD (Lower Detection Limit); LLO (Lower Detection Limit).

TEST REPORT

Test Report No. : ELES/RNC/2024/6198	Report Release Date : 25.10.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400004089F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/7227
Address	: Lohardaga, Jharkhand-835302	Location	: Near Karkang Mines Gurdari Bauxite Mine (584.19ha)
Mines Status	: Operational	Sampling Date	: 15.10.2024 to 16.10.2024
Period of Analysis	: 18.10.2024 to 24.10.2024	Sample Received Date	: 18.10.2024
		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)	: 27	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 65	4	Weather Condition	: Partly Cloudy

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	36	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	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)	<1.0	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)



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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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/6199	Report Release Date : 25.10.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400004090F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/7228
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Weigh Bridge Gurdari Bauxite Mine (584.19ha)
		Sampling Date	: 15.10.2024 to 16.10.2024
Mines Status	: Operational	Sample Received Date	: 18.10.2024
		Type of Sample	: Ambient Air
Period of Analysis	: 18.10.2024 to 24.10.2024	Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 27	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 65	4	Weather Condition	: Partly Cloudy

Discipline : Chemical

Group : Atmospheric Pollution

Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 23): 2022	74	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	13.1	80 (24hrs)
Nitrogen Di-Oxide (NO_2)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	30.5	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	0.009	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_6H_6)	$\mu\text{g}/\text{m}^3$	ELES/GC/SOP/06: 2023	<1.5	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/2024/6200	Report Release Date	: 25.10.2024
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC135872400004091F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/7229
Address	: Lohardaga, Jharkhand-835302	Location	: Near Dhobi Kutumb Gudari Bauxite Mine (584.19ha)
Mines Status	: Operational	Sampling Date	: 15.10.2024 to 16.10.2024
Period of Analysis	: 18.10.2024 to 24.10.2024	Sample Received Date	: 18.10.2024
		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)	: 27	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 65	4	Weather Condition	: Partly Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part- 23): 2022	61	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	33	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- 2/Sec1): 2023	9.8	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	0.009	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)



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/2024/6202	Report Release Date : 25.10.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400004093F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/7331
Address	: Lohardaga, Jharkhand-835302	Location	: Near Poi Poi Village
		Sampling Date	: 16.10.2024 to 17.10.2024
Mines Status	: Operational	Sample Received Date	: 18.10.2024
		Type of Sample	: Ambient Air
Period of Analysis	: 18.10.2024 to 24.10.2024	Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION							
1	Average Temperature (°C)		: 27	2	Barometric Pressure (mmHg)	: 742	
3	Relative Humidity (%)		: 64	4	Weather Condition		: Partly Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 23): 2022	59	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	33	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 2/Sec1): 2023	6.9	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	23.7	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	<0.002	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	<1.5	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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GST NO:- 29AAACE37130124

ENGINEERING SERVICES PVT. LTD.

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TEST REPORT

Test Report No.	: ELES/RNC/2024/6203	Report Release Date	: 25.10.2024
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC135872400004094F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/7232
Address	: Lohardaga, Jharkhand-835302	Location	: Near Shakhupani Village
		Sampling Date	: 16.10.2024 to 17.10.2024
Mines Status	: Operational	Sample Received Date	: 18.10.2024
		Type of Sample	: Ambient Air
Period of Analysis	: 18.10.2024 to 24.10.2024	Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 27	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 64	4	Weather Condition	: Partly Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 23): 2022	58	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	30	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	20.8	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)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	0.010	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)
Benz(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. Desendra Kumar Sinha
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Technical Manager

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TEST REPORT

Test Report No. : ELES/RNC/2024/6204	Report Release Date : 25.10.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400004095F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/7233
Address	: Lohardaga, Jharkhand-835302	Location	: Near Dipa Kujam Village
		Sampling Date	: 16.10.2024 to 17.10.2024
		Sample Received Date	: 18.10.2024
Mines Status	: Operational	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
Period of Analysis	: 18.10.2024 to 24.10.2024	Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 27	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 64	4	Weather Condition	: Partly Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 23): 2022	53	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	27	60 (24hrs)
Sulphur Di-Oxide (SO_2)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 2/Sec1): 2023	6.6	80 (24hrs)
Nitrogen Di-Oxide (NO_2)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	22.8	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)	<1.0	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_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
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Technical Manager

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

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

Gurdari Bauxite Mine-Environmental Monitoring Report

November 2024



CONTENT

Hindalco Industries : Gurdari Bauxite Mine Environmental Monitoring Report		November 2024
Gurdari Bauxite Mine		
	AMBIENT AIR QUALITY- CORE ZONE	
1	Entrance Gate / Near Mine Office	
2	Near Karkang Mines	
3	Near Mine Weigh Bridge	
4	Near Dhobi Kutumb	
	AMBIENT AIR QUALITY- BUFFER ZONE	
1	Near PakriGada Village	
2	Near Pol Pol Village	
3	Near Shakhupani Village	
4	Near DipaKujam Village	
	Drinking Water	
	Effluent Water	





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TEST REPORT

Test Report No. : ELES/RNC/2024/7013	Report Release Date : 02.12.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400004882F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/8219
Address	: Lohardaga, Jharkhand-835302	Location	: Entrance Gate/Near Mine Office Gurdari Bauxite Mine (584.19ha)
		Sampling Date	: 20.11.2024 to 21.11.2024
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)	: 21	2	Barometric Pressure (mmHg)	: 740
3	Relative Humidity (%)	: 45	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	70	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	39	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 2/Sec I): 2023	12.2	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	27.2	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)	1.06	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	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)	$\mu\text{g}/\text{m}^3$	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m^3	ELES/GC/SOP/05: 2023	<0.5	01(Annual)



****End of Report****


Authorised Signatory
Akash Kumar
Quality Manager

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/7014	Report Release Date : 02.12.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400004883F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/8220
Address	: Lohardaga, Jharkhand-835302	Location	: Near Karkang Mines Gurdari Bauxite Mine (584.19ha)
		Sampling Date	: 20.11.2024 to 21.11.2024
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)	: 21	2	Barometric Pressure (mmHg)	: 740
3	Relative Humidity (%)	: 45	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	43	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- 2/Sec I): 2023	13.7	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	25.2	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)	1.12	2 (8hrs)
Lead (Pb)	µg/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)	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****

Akash Kumar
Authorised Signatory
Akash Kumar
Quality Manager

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TEST REPORT

Test Report No. : ELES/RNC/2024/7015	Report Release Date : 02.12.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400004884F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/8221
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Weigh Bridge Gurdari Bauxite Mine (584.19ha)
		Sampling Date	: 20.11.2024 to 21.11.2024
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)	: 21	2	Barometric Pressure (mmHg)	: 740
3	Relative Humidity (%)	: 45	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	49	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- 2/Sec1): 2023	15.4	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	33.1	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	0.013	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)



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Authorised Signatory
Akash Kumar
Quality Manager

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TEST REPORT

Test Report No. : ELES/RNC/2024/7016	Report Release Date : 02.12.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400004885F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/8222
Address	: Lohardaga, Jharkhand-835302	Location	: Near Dhobi Kutumb Gurdari Bauxite Mine (584.19ha)
		Sampling Date	: 20.11.2024 to 21.11.2024
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)	: 21	2	Barometric Pressure (mmHg)	: 740
3	Relative Humidity (%)	: 45	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	66	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	12.1	80 (24hrs)
Nitrogen Di-Oxide (NO_2)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	24.4	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	0.017	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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Authorised Signatory
Akshsh Kumar
Quality Manager

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IN: U74999JH2016PTC011125

TEST REPORT

Test Report No. :	ELES/RNC/2024/7017	Report Release Date :	02.12.2024
Work Order No. :	1361231213	Work Order Date :	28.03.2024
ULR No. :	TC135872400004886F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name :	Hindalco Industries Limited	Sample Ref. No. :	ELES/RNC/2024/AA/8223
Address :	Lohardaga, Jharkhand-835302	Location :	Near Pakri Gada Village
		Sampling Date :	21.11.2024 to 22.11.2024
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) : 20		2	Barometric Pressure (mmHg) : 740	
3	Relative Humidity (%) : 45		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	37	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- 2/Sec1): 2023	9.3	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)	1.19	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)



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Akash Kumar
Quality Manager

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TEST REPORT

Test Report No. : ELES/RNC/2024/7018	Report Release Date : 02.12.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400104887F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/8224
Address	: Lohardaga, Jharkhand-835302	Location	: Near Poi Poi Village
		Sampling Date	: 21.11.2024 to 22.11.2024
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)	: 20	2	Barometric Pressure (mmHg)	: 740
3	Relative Humidity (%)	: 45	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	8.6	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	22.4	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 (NIDIR 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)



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Quality Manager

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PLOT NO-30, MANSANOVAR (INCLAVE, TUPUDANA)
HATIA, RANCHI-834003 (JHARKHAND)
GST NO.: 20AAEC87130124

ENGINEERING SERVICES PVT. LTD.

Email: info@elespl.co.in, eles.ranchi@gmail.com
Phone no.: 0651-2290108
Website: www.elespl.co.in



REGD. NO. 07M8000102018PTC011125

TEST REPORT

Test Report No. :	ELES/RNC/2024/7019	Report Release Date :	02.12.2024
Work Order No. :	13612312113	Work Order Date :	28.03.2024
ULR No. :	TC1358724000048887		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name :	Hindalco Industries Limited	Sample Ref. No. :	ELES/RNC/2024/AA/8225
Address :	Lohardaga, Jharkhand-835302	Location :	Near Shakhupani Village
		Sampling Date :	21.11.2024 to 22.11.2024
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) : 20		2	Barometric Pressure (mmHg) : 740	
3	Relative Humidity (%) : 45		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	68	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	39	60 (24hrs)
Sulphur Di-Oxide (SO_2)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 2/Sec1): 2023	11.8	80 (24hrs)
Nitrogen Di-Oxide (NO_2)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	22.2	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	0.012	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_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)



****End of Report****


Authorised Signatory
Akash Kumar
Quality Manager

Page 1 of 1

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REGD. NO. 17428903018177001125

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TEST REPORT

Test Report No. : ELES/RNC/2024/T020	Report Release Date : 02.12.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400004889F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/8226
Address	: Lohardaga, Jharkhand-835302	Location	: Near Dipsa Kujam Village
		Sampling Date	: 21.11.2024 to 22.11.2024
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/SMP/L02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION						
1	Average Temperature (°C)		: 20	2	Barometric Pressure (mmHg)	: 740
3	Relative Humidity (%)		: 45	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	61	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	11.1	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	23.4	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	0.018	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)	$\mu\text{g}/\text{m}^3$	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo(a)-Pyrene	ng/m^3	ELES/GC/SOP/05: 2023	<0.5	01(Annual)



****End of Report****

Authorized Signatory
Anish Kumar
Quality Manager

Page 1 of 1

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TEST REPORT

Test Report No.	: ELES/RNC/2024/7046	Report Release Date	: 02.12.2024
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC135872400004915F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/DW/8252
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 21.11.2024
		Sample Received Date	: 25.11.2024
		Type of Sample	: Drinking Water
Mines Status	: Operational	Source of Sample	: Tap Water
		Location of Sample	: Near Entrance Gate (Gurdari Bauxite Mines)
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 ⁺	6.54	6.5-8.5	No Relaxation
Turbidity	NTU	APHA 24 th Ed.2023, 2130 B	0.64	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	1.0	5.0	15
Total Dissolved Solids (TDS)	mg/L	APHA 24 th Ed.2023, 2540B,C&D	46.7	500	2000
Chloride (as Cl)	mg/L	APHA 24 th Ed.2023, 4500 Cl B	11.5	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	14.4	200	600
Total Hardness (as CaCO ₃)	mg/L	APHA 24 th Ed.2023, 2340 C	21.4	200	600
Sulphate (as SO ₄)	mg/L	APHA 24 th Ed.2023, 4500 SO ₄ ²⁻ -E	2.59	200	400
Nitrate (as NO ₃)	mg/L	APHA 24 th Ed.2023, 4500 NO ₃ -B	BDL (DL: 0.5)	45	No Relaxation

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TEST REPORT

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Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400004915F	

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	4.8	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	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	0.067	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/2024/7046	Report Release Date : 02.12.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400004915F	

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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TC-13587

TEST REPORT

Test Report No. : ELES/RNC/2024/7046	Report Release Date : 02.12.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400004915F	

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
Akush Kumar
Quality Manager

****End of Report****

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



ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
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TEST REPORT

Test Report No. : ELES/RNC/2024/7046	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/8252
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 21.11.2024
		Sample Received Date	: 25.11.2024
		Type of Sample	: Drinking Water
Mines Status	: Operational	Source of Sample	: Tap Water
		Location of Sample	: Near Entrance Gate (Gurdari Bauxite Mines)
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

TEST REPORT

Test Report No. : ELES/RNC/2024/7053	Report Release Date : 02.12.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400004922F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/EF/8259
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 22.11.2024
		Sample Received Date	: 25.11.2024
Mines Status	: Operational	Type of Sample	: Effluent Water
		Source of Sample	: Work Shop Effluent - Gurdari Bauxite Mines (584.19 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 ⁺	6.21	5.5-9.0	5.5-9.0
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part-16): 2023	548	--	--
Total Suspended Solids (TSS)	mg/L	IS 3025 (Part-17): 2022	32.4	100	200
Dissolved Oxygen (DO)	mg/L	IS 3025 (Part-38): 2019	6.7	--	--
Biochemical Oxygen Demand (BOD) (at 27 °C for 3 days)	mg/L	IS 3025 (Part-44): 2023	7.6	30	100
Chemical Oxygen Demand (COD)	mg/L	IS 3025 (Part-58): 2023	58.4	250	--
Dissolved Phosphate (as P)	mg/L	IS 3025 (Part-31/Sec-1): 2022	BDL (DL: 0.5)	5.0	--
Fluoride (as F)	mg/L	IS 3025 (Part-60): 2019	0.582	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	1.6	10	10



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TEST REPORT

Test Report No. : ELES/RNC/2024/7053	Report Release Date : 02.12.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400004922F	

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	0.068	2.0	--
Mercury (as Hg)	mg/L	IS 3025 (Part-48): 2019	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	0.122	5.0	--

Reviewed by
Akash Kumar
Quality Manager

****End of Report****

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

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

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

Gurdari Bauxite Mine-Environmental Monitoring Report

December 2024



CONTENT

Hindalco Industries : Gurdari Bauxite Mine Environmental Monitoring Report		December 2024
Gurdari Bauxite Mine		
AMBIENT AIR QUALITY- CORE ZONE		
1	Entrance Gate / Near Mine Office	
2	Near Karkang Mines	
3	Near Mine Weigh Bridge	
4	Near Dhobi Kutumb	
AMBIENT AIR QUALITY- BUFFER ZONE		
1	Near PakriGada Village	
2	Near Pol Pol Village	
3	Near Shakhupari Village	
4	Near DipaKujam Village	





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TEST REPORT

Test Report No. : ELES/RNC/2024/7527	Report Release Date : 21.12.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400005382F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/8831
Address	: Lohardaga, Jharkhand-835302	Location	: Entrance Gate/Near Mine Office Gurdari Bauxite Mine (584.19ha)
		Sampling Date	: 11.12.2024 to 12.12.2024
Mines Status	: Operational	Sample Received Date	: 14.12.2024
Period of Analysis	: 14.12.2024 to 21.12.2024	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) : 21		2	Barometric Pressure (mmHg) : 720	
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	74	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	41	60 (24hrs)
Sulphur Di-Oxide (SO_2)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 2/Sec1): 2023	13.8	80 (24hrs)
Nitrogen Di-Oxide (NO_2)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	29.4	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)	1.13	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	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_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
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Technical Manager

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TEST REPORT

Test Report No. : ELES/RNC/2024/7528	Report Release Date : 21.12.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400005383F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/8832
Address	: Lohardaga, Jharkhand-835302	Location	: Near Karkang Mines Gurdari Bauxite Mine (584.19ha)
		Sampling Date	: 11.12.2024 to 12.12.2024
Mines Status	: Operational	Sample Received Date	: 14.12.2024
		Type of Sample	: Ambient Air
Period of Analysis	: 14.12.2024 to 21.12.2024	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 (%)	: 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	71	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	45	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 2/Sec I): 2023	14.2	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)	1.34	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
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/2024/7529	Report Release Date : 21.12.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400005384F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/8833
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Weigh Bridge Gurdari Bauxite Mine (584.19ha)
		Sampling Date	: 11.12.2024 to 12.12.2024
Mines Status	: Operational	Sample Received Date	: 14.12.2024
Period of Analysis	: 14.12.2024 to 21.12.2024	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)	: 21	2	Barometric Pressure (mmHg)	: 720
3	Relative Humidity (%)	: 50	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	87	100 (24hrs)
Particulate Matter (PM2.5)	µg/m³	IS 5182 (Part- 24): 2019	52	60 (24hrs)
Sulphur Di-Oxide (SO₂)	µg/m³	IS 5182 (Part- 2/Sec1): 2023	18.6	80 (24hrs)
Nitrogen Di-Oxide (NO₂)	µg/m³	IS 5182 (Part- 6): 2022	35.1	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)	1.42	2 (8hrs)
Lead (Pb)	µg/m³	IS 5182 (Part- 22): 2019	0.028	1 (24hrs)
Nickel (Ni)	ng/m³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (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****


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

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TEST REPORT

Test Report No. : ELES/RNC/2024/7530	Report Release Date : 21.12.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400005385F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindaleo Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/8834
Address	: Lohardaga, Jharkhand-835302	Location	: Near Dhobi Kutumb Gurdari Bauxite Mine (584.19ha)
		Sampling Date	: 11.12.2024 to 12.12.2024
Mines Status	: Operational	Sample Received Date	: 14.12.2024
		Type of Sample	: Ambient Air
Period of Analysis	: 14.12.2024 to 21.12.2024	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 (%)	: 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	74	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	13.7	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)	1.31	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
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Technical Manager

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TEST REPORT

Test Report No. : ELES/RNC/2024/7531	Report Release Date : 21.12.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400005386F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/8835
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pakri Gada Village
		Sampling Date	: 12.12.2024 to 13.12.2024
Mines Status	: Operational	Sample Received Date	: 14.12.2024
Period of Analysis	: 14.12.2024 to 21.12.2024	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)	: 21	2	Barometric Pressure (mmHg)	: 720
3	Relative Humidity (%)	: 49	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM ₁₀)	µg/m ³	IS 5182 (Part- 23): 2022	69	100 (24hrs)
Particulate Matter (PM _{2.5})	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	11.7	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)	1.19	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)


Reviewed by
Aksh Kumar
Quality Manager

****End of Report****


Authorised Signatory
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Technical Manager

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CIN: U74999JH001MPTC011125

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TEST REPORT

Test Report No.	: ELES/RNC/2024/7532	Report Release Date	: 21.12.2024
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC135872400005387F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/8836
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pol Pol Village
		Sampling Date	: 12.12.2024 to 13.12.2024
Mines Status	: Operational	Sample Received Date	: 14.12.2024
		Type of Sample	: Ambient Air
Period of Analysis	: 14.12.2024 to 21.12.2024	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 (%) : 49		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	67	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	10.3	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	24.7	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)	1.28	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	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)	$\mu\text{g}/\text{m}^3$	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****



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

Page 1 of 1

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Save Environment, Save Future



ENVIRONMENTAL LABORATORIES &

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

ENGINEERING SERVICES PVT. LTD.

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



TEST REPORT

Test Report No.	: ELES/RNC/2024/7533	Report Release Date	: 21.12.2024
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC135872400005388F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/8837
Address	: Lohardaga, Jharkhand-835302	Location	: Near Shakhupani Village
		Sampling Date	: 12.12.2024 to 13.12.2024
Mines Status	: Operational	Sample Received Date	: 14.12.2024
		Type of Sample	: Ambient Air
Period of Analysis	: 14.12.2024 to 21.12.2024	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 (%)		: 49	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	65	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	10.5	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)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	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)	$\mu\text{g}/\text{m}^3$	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****

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

Page 1 of 1

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“Save Environment, Save Human”



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ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUJUDANA
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TC-13887

TEST REPORT

Test Report No.	: ELES/RNC/2024/7534	Report Release Date	: 21.12.2024
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC135872400005389F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/8838
Address	: Lohardaga, Jharkhand-835302	Location	: Near Dipa Kujam Village
		Sampling Date	: 12.12.2024 to 13.12.2024
Mines Status	: Operational	Sample Received Date	: 14.12.2024
		Type of Sample	: Ambient Air
Period of Analysis	: 14.12.2024 to 21.12.2024	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 (%)	: 49	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	65	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	13.3	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	25.7	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)	1.32	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	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)	$\mu\text{g}/\text{m}^3$	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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**ENVIRONMENTAL LABORATORIES & ENGINEERING
SERVICES PVT. LTD.**

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

Gurdari Bauxite Mine-Environmental Monitoring Report

January- 2025



CONTENT

Hindalco Industries : Gurdari Bauxite Mine Environmental Monitoring Report		January 2025
Gurdari Bauxite Mine		
	AMBIENT AIR QUALITY- CORE ZONE	
1	Entrance Gate / Near Mine Office	
2	Near Karkang Mines	
3	Near Mine Weigh Bridge	
4	Near Dhobi Kutumb	
	AMBIENT AIR QUALITY- BUFFER ZONE	
1	Near PakriGada Village	
2	Near Pol Pol Village	
3	Near Shakhupani Village	
4	Near DipaKujam Village	
	Surface Water	
	Soil	



TEST REPORT

Test Report No. : ELES/RNC/2025/0443	Report Release Date : 20.01.2025
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC1358725000000435F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/0262
Address	: Lohardaga, Jharkhand-835302	Location	: Entrance Gate/Near Mine Office Gurdari Bauxite Mine (584.19ha)
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) : 17	2	Barometric Pressure (mmHg) : 720
3	Relative Humidity (%) : 51	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	45	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- 2/Sec1): 2023	15.2	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	33.8	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)	1.29	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****



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/2025/0444	Report Release Date : 20.01.2025
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC1358725000000436F	


CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/0263
Address	: Lohardaga, Jharkhand-835302	Location	: Near Karkang Mines Gurdari Bauxite Mine (584.19ha)
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)	: 17	2	Barometric Pressure (mmHg)	: 720
3	Relative Humidity (%)	: 51	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	40	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- 2/Sec1): 2023	11.7	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	30.3	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)	1.44	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.021	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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"We are Environmentally Responsible"

TEST REPORT

Test Report No. : ELES/RNC/2025/0445	Report Release Date : 20.01.2025
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC1358725000000437F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/0264
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Weigh Bridge Gurdari Bauxite Mine (584.19ha)
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

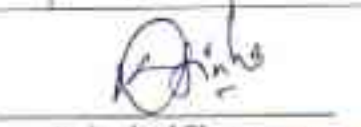
METEOROLOGICAL INFORMATION

1	Average Temperature (°C) : 17	2	Barometric Pressure (mmHg) : 720
3	Relative Humidity (%) : 51	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	91	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	55	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	33.4	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)	1.39	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
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Technical Manager

Page 1 of 1

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ENVIRONMENTAL LABORATORIES &

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TEST REPORT

Test Report No. : ELES/RNC/2025/0446	Report Release Date : 20.01.2025
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC1358725000000438F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/0265
Address	: Lohardaga, Jharkhand-835302	Location	: Near Dhobi Kutumb Gurdari Bauxite Mine (584.19ha)
		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

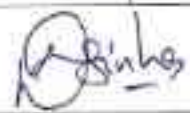
METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 17	2	Barometric Pressure (mmHg)	: 720
3	Relative Humidity (%)	: 51	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part- 23): 2022	70	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	11.4	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	22.9	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	<0.002	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)



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/2025/0511	Report Release Date	: 22.01.2025
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC1358725000000502F		


CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/0323
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pakri Gada Village
		Sampling Date	: 13.01.2025 to 14.01.2025
Mines Status	: Operational	Sample Received Date	: 15.01.2025
Period of Analysis	: 15.01.2025 to 21.01.2025	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) : 18		2	Barometric Pressure (mmHg) : 720	
3	Relative Humidity (%) : 53		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	73	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	44	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 2/Sec1): 2023	13.3	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	33.1	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)	1.23	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****


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

Page 1 of 1

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TC-13587

TEST REPORT

Test Report No.	: ELES/RNC/2025/0512	Report Release Date	: 22.01.2025
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC1358725000000503F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/0324
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pol Pol Village
		Sampling Date	: 13.01.2025 to 14.01.2025
Mines Status	: Operational	Sample Received Date	: 15.01.2025
		Type of Sample	: Ambient Air
Period of Analysis	: 15.01.2025 to 21.01.2025	Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 720
3	Relative Humidity (%)	: 53	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	69	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	41	60 (24hrs)
Sulphur Di-Oxide (SO_2)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 2/Sec1): 2023	12.6	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)	1.22	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	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_6H_6)	$\mu\text{g}/\text{m}^3$	ELES/GC/SOP/06: 2023	<1.5	05 (Annual)
Benzo-(a)-Pyrene	ng/m^3	ELES/GC/SOP/05: 2023	<0.5	01 (Annual)

Reviewed by
Anish 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/2025/0513	Report Release Date	: 22.01.2025
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC1358725000000504F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/0325
Address	: Lohardaga, Jharkhand-835302	Location	: Near Shakhupani Village
		Sampling Date	: 13.01.2025 to 14.01.2025
Mines Status	: Operational	Sample Received Date	: 15.01.2025
		Type of Sample	: Ambient Air
Period of Analysis	: 15.01.2025 to 21.01.2025	Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 720
3	Relative Humidity (%)	: 53	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	69	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	12.2	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	26.1	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	0.023	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 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****


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

Page 1 of 1

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TEST REPORT

Test Report No. : ELES/RNC/2025/0514	Report Release Date : 22.01.2025
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC1358725000000505F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/0326
Address	: Lohardaga, Jharkhand-835302	Location	: Near Dipa Kujam Village
		Sampling Date	: 13.01.2025 to 14.01.2025
Mines Status	: Operational	Sample Received Date	: 15.01.2025
Period of Analysis	: 15.01.2025 to 21.01.2025	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) : 18	2	Barometric Pressure (mmHg) : 720
3	Relative Humidity (%) : 53	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	69	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	34	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- 2/Sec 1): 2023	15.1	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	27.3	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)	1.23	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	<3.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m ³	ELES/GC/SOP/06: 2023	<1.5	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/2025/0502	Report Release Date	: 22.01.2025
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC1358725000000493F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/SW/0274
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 12.01.2025
		Sample Received Date	: 13.01.2025
		Type of Sample	: Surface Water
Mines Status	: Operational	Location of Sample	: Near Ambakona Pit, Gurdari Bauxite Mines (584.19ha)
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	6.80	6.5-8.5
Temperature	°C	IS 3025 (Part 9): 2023	18.0	--
Chemical Oxygen Demand (COD)	mg/L	IS 3025 (Part-58): 2023	7.8	--
Biochemical Oxygen Demand (BOD) (@ 20°C for 5 days)	mg/L	APHA 24 th Ed.2023; 5210B	2.0	3.0
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part-16): 2023	142	1500
Total Suspended Solids (TSS)	mg/L	IS 3025 (Part-17): 2022	15.0	--
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	7.3	--

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TEST REPORT

Test Report No. : ELES/RNC/2025/0502	Report Release Date : 22.01.2025
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC1358725000000493F	

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	0.266	50

Remarks: pH & Temperature done at site.



Reviewed by
Akash Kumar
Quality Manager

****End of Report****



Authorised Signatory

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



ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
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TEST REPORT

Test Report No.	: ELES/RNC/2025/0505	Report Release Date	: 22.01.2025
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC1358725000000496F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/SL/0277
Address	: Lohardaga, Jharichand-835302	Sampling Date	: 11.01.2025
		Sample Received Date	: 13.01.2025
Mines Status	: Operational	Type of Sample	: Soil
		Location of Sample	: Near Dhobi Kutumb, Gardari Bauxite Mine (584.19ha)
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	6.85
Conductivity (1:2) at 24.4 °C	µS/cm	IS 14767: 2021	185
Total Organic Carbon (TOC)	%	Soil Testing in India: 2011 (Walkley & Black Method)	0.65
Available Phosphorus (as P)	kg/ha	Soil Testing in India: 2011	4.2
Potassium (as K)	mg/kg	IS 9497: 2020	450
Available Nitrogen	%	Soil Testing in India: 2011	4.48
Chloride (as Cl) (1:2)	%	ELES/SOIL/SOP/01: 2021	0.017
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)

TEST REPORT

Test Report No. : ELES/RNC/2025/0505	Report Release Date : 22.01.2025
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC1358725000000496F	

Discipline : Chemical		Group : Pollution & Environment	
Parameter	Unit	Test Protocol	Result
Magnesium (as Mg)	mg/kg	Soil Testing in India: 2011	1785
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



CIN: U74999JH2018PTC011125

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TEST REPORT

Test Report No. : ELES/RNC/2025/0505	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/0277
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 11.01.2025
		Sample Received Date	: 13.01.2025
		Type of Sample	: Soil
Mines Status	: Operational	Location of Sample	: Near Dhobi Kutumb, Gurdari Bauxite Mine (584.19ha)
		Sampling Procedure	: ELES/DOC/SMPL/05
Period of Analysis	: 13.01.2025 to 22.01.2025	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

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

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

Gurdari Bauxite Mine-Environmental Monitoring Report

February 2025



CONTENT

Hindalco Industries : Gurdari Bauxite Mine Environmental Monitoring Report		February 2025
Gurdari Bauxite Mine		
	AMBIENT AIR QUALITY- CORE ZONE	
1	Entrance Gate / Near Mine Office	
2	Near Karkang Mines	
3	Near Mine Weigh Bridge	
4	Near Dhobi Kutumb	
	AMBIENT AIR QUALITY- BUFFER ZONE	
1	Near PakriGiada Village	
2	Near Pol Pol Village	
3	Near Shakhupani Village	
4	Near DipaKujam Village	
	Drinking Water	
	Effluent Water	
	Stack	



TEST REPORT

Test Report No. : ELES/RNC/2025/1214	Report Release Date : 25.02.2025
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC1358725000001185F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/1242
Address	: Lohardaga, Jharkhand-835302	Location	: Entrance Gate/Near Mine Office Gurdari Bauxite Mine (584.19ha)
Mines Status	: Operational	Sampling Date	: 15.02.2025 to 16.02.2025
Period of Analysis	: 19.02.2025 to 25.02.2025	Sample Received Date	: 19.02.2025
		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)	: 23	2	Barometric Pressure (mmHg)	: 720
3	Relative Humidity (%)	: 57	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	49	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- 2/Sec1): 2023	13.5	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)	1.26	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)

Susma Yadav
Reviewed by

Akash Kumar
Authorised Signatory

****End of Report****



ENVIRONMENTAL LABORATORIES &

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TEST REPORT

Test Report No. : ELES/RNC/2025/1215	Report Release Date : 25.02.2025
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC1358725000001186F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/1243
Address	: Lohardaga, Jharkhand-835302	Location	: Near Karkang Mines Gurdari Bauxite Mine (584.19ha)
		Sampling Date	: 15.02.2025 to 16.02.2025
Mines Status	: Operational	Sample Received Date	: 19.02.2025
		Type of Sample	: Ambient Air
Period of Analysis	: 19.02.2025 to 25.02.2025	Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C) : 23		2	Barometric Pressure (mmHg) : 720	
3	Relative Humidity (%) : 57		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	43	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- 2/Sec1): 2023	13.5	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)	1.2	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)

Susma Yadav
Reviewed by

Akash Kumar
Authorised Signatory
Quality Manager

****End of Report****

Page 1 of 1

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TEST REPORT

Test Report No.	: ELES/RNC/2025/1216	Report Release Date	: 25.02.2025
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC1358725000001187F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/1244
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Weigh Bridge Gurdari Bauxite Mine (584.19ha)
		Sampling Date	: 15.02.2025 to 16.02.2025
Mines Status	: Operational	Sample Received Date	: 19.02.2025
		Type of Sample	: Ambient Air
Period of Analysis	: 19.02.2025 to 25.02.2025	Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 23	2	Barometric Pressure (mmHg)	: 720
3	Relative Humidity (%)	: 57	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	94	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	56	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- 2/Sec1): 2023	12.5	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	38.3	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)	1.42	2 (8hrs)
Lead (Pb)	µg/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 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
Akash Kumar

Page 1 of 1

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TEST REPORT

Test Report No.	: ELES/RNC/2025/1217	Report Release Date	: 25.02.2025
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC1358725000001188F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/1245
Address	: Lohardaga, Jharkhand-835302	Location	: Near Dhobi Kutumb Gurdari Bauxite Mine (584.19ha)
		Sampling Date	: 15.02.2025 to 16.02.2025
Mines Status	: Operational	Sample Received Date	: 19.02.2025
		Type of Sample	: Ambient Air
Period of Analysis	: 19.02.2025 to 25.02.2025	Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 23	2	Barometric Pressure (mmHg)	: 720
3	Relative Humidity (%)	: 57	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	39	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- 2/Sec1): 2023	14.2	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	27.4	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)	1.33	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.021	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

[Signature]
Authorised Signatory

****End of Report****

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TC-13/87

TEST REPORT

Test Report No.	: ELES/RNC/2025/1218	Report Release Date	: 25.02.2025
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC1358725000001189F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/1246
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pakri Gada Village
		Sampling Date	: 17.02.2025 to 18.02.2025
Mines Status	: Operational	Sample Received Date	: 19.02.2025
		Type of Sample	: Ambient Air
Period of Analysis	: 19.02.2025 to 25.02.2025	Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 22	2	Barometric Pressure (mmHg)	: 720
3	Relative Humidity (%)	: 57	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	12.4	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	35.5	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)	1.42	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)

Supra Yadav
Reviewed by

****End of Report****

Akash Kumar
Authorised Signatory
Akash Kumar
Quality Manager

Page 1 of 1

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TC-13887

TEST REPORT

Test Report No. : ELES/RNC/2025/1219	Report Release Date : 25.02.2025
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC1358725000001190F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/1247
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pol Pol Village
		Sampling Date	: 17.02.2025 to 18.02.2025
Mines Status	: Operational	Sample Received Date	: 19.02.2025
		Type of Sample	: Ambient Air
Period of Analysis	: 19.02.2025 to 25.02.2025	Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 22	2	Barometric Pressure (mmHg)	: 720
3	Relative Humidity (%)	: 57	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	73	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	43	60 (24hrs)
Sulphur Di-Oxide (SO_2)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 2/Sec1): 2023	11.8	80 (24hrs)
Nitrogen Di-Oxide (NO_2)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	28.2	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)	1.28	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	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_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)

Susma Yadav
Reviewed by

****End of Report****

[Signature]
Authorised Signatory
Quality Manager



ENVIRONMENTAL LABORATORIES &

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

ENGINEERING SERVICES PVT. LTD.

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Website : www.elespl.co.in



TEST REPORT

Test Report No.	: ELES/RNC/2025/1220	Report Release Date	: 25.02.2025
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC1358725000001191F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/1248
Address	: Lohardaga, Jharkhand-835302	Location	: Near Shakhupari Village
		Sampling Date	: 17.02.2025 to 18.02.2025
Mines Status	: Operational	Sample Received Date	: 19.02.2025
		Type of Sample	: Ambient Air
Period of Analysis	: 19.02.2025 to 25.02.2025	Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C) : 22		2	Barometric Pressure (mmHg) : 720	
3	Relative Humidity (%) : 57		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	42	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 2/Sec1): 2023	12.5	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	29.5	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	0.026	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

****End of Report****


Authorised Signatory
Akesh Kumar
Quality Manager



ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
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TEST REPORT

Test Report No.	: ELES/RNC/2025/1221	Report Release Date	: 25.02.2025
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC1358725000001192F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/1249
Address	: Lohardaga, Jharkhand-835302	Location	: Near Dipa Kujam Village
		Sampling Date	: 17.02.2025 to 18.02.2025
Mines Status	: Operational	Sample Received Date	: 19.02.2025
		Type of Sample	: Ambient Air
Period of Analysis	: 19.02.2025 to 25.02.2025	Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 22	2	Barometric Pressure (mmHg)	: 720
3	Relative Humidity (%)	: 57	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	13.5	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	31.6	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)	1.28	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	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)	$\mu\text{g}/\text{m}^3$	ELES/GC/SOP/06: 2023	<2.5	05 (Annual)
Benzo-(a)-Pyrene	ng/m^3	ELES/GC/SOP/05: 2023	<0.5	01 (Annual)

Seema Yadav
Reviewed by

****End of Report****

Akash Kumar
Authorised Signatory
Quality Manager

TEST REPORT

Test Report No.	: ELES/RNC/2025/1299	Report Release Date	: 28.02.2025
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC1358725000001270F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/DW/1253
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 15.02.2025
		Sample Received Date	: 19.02.2025
		Type of Sample	: Drinking Water
Mines Status	: Operational	Source of Sample	: TAP Water
		Location of Sample	: Near Entrance Gate (Gurdari Bauxite Mines)
Period of Analysis	: 19.02.2025 to 27.02.2025	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 24.8 °C)	-	APHA 24 th Ed.2023, 4500-H ⁺	6.56	6.5-8.5	No Relaxation
Turbidity	NTU	APHA 24 th Ed.2023, 2130 B	0.26	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	1.0	5.0	15
Total Dissolved Solids (TDS)	mg/L	APHA 24 th Ed.2023, 2540B,C&D	342	500	2000
Chloride (as Cl)	mg/L	APHA 24 th Ed.2023, 4500 Cl B	15.3	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	142	200	600
Total Hardness (as CaCO ₃)	mg/L	APHA 24 th Ed.2023, 2340 C	164	200	600
Sulphate (as SO ₄)	mg/L	APHA 24 th Ed.2023, 4500 SO ₄ ²⁻ -E	9.12	200	400
Nitrate (as NO ₃)	mg/L	APHA 24 th Ed.2023, 4500 NO ₃ -B	3.14	45	No Relaxation

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TEST REPORT

Test Report No. : ELES/RNC/2025/1299	Report Release Date : 28.02.2025
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC1358725000001270F	

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	43.9	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	0.047	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

TEST REPORT

Test Report No. : ELES/RNC/2025/1299	Report Release Date : 28.02.2025
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC1358725000001270F	

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/2025/1299	Report Release Date : 28.02.2025
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC1358725000001270F	

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 Engg.
Technical Manager



ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
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TEST REPORT

Test Report No. : ELES/RNC/2025/1299	Report Release Date : 28.02.2025
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/1253
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 15.02.2025
		Sample Received Date	: 19.02.2025
		Type of Sample	: Drinking Water
Mines Status	: Operational	Source of Sample	: TAP Water
		Location of Sample	: Near Entrance Gate (Gurdari Bauxite Mines)
Period of Analysis	: 19.02.2025 to 28.02.2025	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 Singh
Ph. D. Environmental Engg.
Technical Manager

TEST REPORT

Test Report No. : ELES/RNC/2025/1298	Report Release Date : 28.02.2025
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC1358725000001269F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/EF/1252
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 15.02.2025
		Sample Received Date	: 19.02.2025
Mines Status	: Operational	Type of Sample	: Effluent Water
		Source of Sample	: Work Shop Effluent - Gurdari Bauxite Mines (584.19 ha)
Period of Analysis	: 19.02.2025 to 27.02.2025	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 24.8 °C)	-	APHA 24 th Ed.2023,4500-H ⁺	6.82	5.5-9.0	5.5-9.0
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part-16): 2023	514	--	--
Total Suspended Solids (TSS)	mg/L	IS 3025 (Part-17): 2022	12.8	100	200
Dissolved Oxygen (DO)	mg/L	IS 3025 (Part-38): 2019	6.1	--	--
Biochemical Oxygen Demand (BOD) (at 27 °C for 3 days)	mg/L	IS 3025 (Part-44): 2023	5.0	30	100
Chemical Oxygen Demand (COD)	mg/L	IS 3025 (Part-58): 2023	62.9	250	--
Dissolved Phosphate (as P)	mg/L	IS 3025 (Part-31/Sec-1): 2022	BDL (DL: 0.5)	5.0	--
Fluoride (as F)	mg/L	IS 3025 (Part-60): 2019	0.612	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	1.6	10	10

TEST REPORT

Test Report No. : ELES/RNC/2025/1298	Report Release Date : 28.02.2025
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC1358725000001269F	

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	0.152	2.0	--
Mercury (as Hg)	mg/L	IS 3025 (Part-48): 2019	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	0.169	5.0	--

Remarks: pH & DO done at Site.



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/2025/1223	Report Release Date	: 25.02.2025
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC1358725000001194F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/SM/1251
Address	: Lohardaga, Jharkhand-835302	Location	: Gurdari (584.19ha) Bauxite Mine DG (62 KVA)
		Sampling Date	: 17.02.2025
Mines Status	: Operational	Sample Received Date	: 19.02.2025
		Type of Sample	: Flue Gas
Period of Analysis	: 19.02.2025 to 25.02.2025	Sampling Procedure	: ELES/DOC/SMPL/02(A)
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed

GENERAL INFORMATION- (Data Provided by Customer)		
1	Particular of the Plant	: Bauxite Mines
2	Emission Due to	: Burning of HSD
3	Stack Connected to	: DG 62 KVA
4	Material of Construction of Stack	: MS
5	Stack Height from Ground Level (m)	: 4.5
6	Height of Sampling Port from Ground Level (m)	: 4.5
7	Inner Diameter of Stack at Sampling Point (m)	: 0.102
8	Shape of the Stack	: Circular
9	Working Load of the Stack	: 62 KVA
10	Pollution Control System	: N/A
11	Ladder & Platform	: Temporary

FUEL CHARACTERISTICS DETAILS		
1	Type of Fuel Used	: HSD
2	Fuel Consumption	: N/A
3	Calorific Value of Fuel (Kcal/Kg)	: N/A

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TEST REPORT

Test Report No.	: ELES/RNC/2025/1223	Report Release Date	: 25.02.2025
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC1358725000001194F		

Discipline : Chemical		Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Results
Particulate Matter (PM)	mg/Nm ³	IS 11255(Part-1): 2023	44
Sulphur Di-Oxide (SO ₂)	mg/Nm ³	USEPA 6C: 2017	28
Oxides of Nitrogen (NO _x)	mg/Nm ³	USEPA 7E: 2020	85
Carbon Monoxide (CO)	mg/Nm ³	USEPA 10B: 2017	40
Carbon Di- Oxide (CO ₂)	%	USEPA 3A: 2017	4.9
Flue Gas Temperature	°C	IS 11255 (Part-3): 2018	161
Barometric Pressure	mmHg	IS 11255 (Part-3): 2018	720
Velocity of Flue Gas	m/sec	IS 11255 (Part-3): 2018	12.37
Quantity of Gas Flow	Nm ³ /hr	IS 11255 (Part-3): 2018	242

Susma Yadav
Reviewed by

****End of Report****

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

Gurdari Bauxite Mine-Environmental Monitoring Report

March 2025



CONTENT

Hindalco Industries : Gurdari Bauxite Mine Environmental Monitoring Report		March 2025
Gurdari Bauxite Mine		
	AMBIENT AIR QUALITY- CORE ZONE	
1	Entrance Gate / Near Mine Office	
2	Near Karkang Mines	
3	Near Mine Weigh Bridge	
4	Near Dhobi Kutumb	
	AMBIENT AIR QUALITY- BUFFER ZONE	
1	Near PakriGada Village	
2	Near Pol Pol Village	
3	Near Shakhupani Village	
4	Near DipaKujam Village	
	AMBIENT NOISE	
	WORKZONE NOISE	
	Spring Water	
1	Jhapa Jhuri	
	Stream Water	
1	Up Stream (Dhardhari Nadi)	
2	Down Stream (Dhardhari Nadi)	
3	Up Stream (Shankh Nadi)	
4	Down Stream (Shankh Nadi)	
5	Up Stream (Koyal River)	
6	Down Stream (Koyal River)	





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TEST REPORT

Test Report No.	: ELES/RNC/2025/1993	Report Release Date	: 24.03.2025
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC1358725000001951F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/2135
Address	: Lohardaga, Jharkhand-835302	Location	: Entrance Gate/Near Mine Office Gurdari Bauxite Mine (584.19ha)
		Sampling Date	: 11.03.2025 to 12.03.2025
Mines Status	: Operational	Sample Received Date	: 17.03.2025
		Type of Sample	: Ambient Air
Period of Analysis	: 17.03.2025 to 24.03.2025	Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION


1	Average Temperature (°C)	: 26	2	Barometric Pressure (mmHg)	: 715
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	88	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	51	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 2/Sec1): 2023	14.8	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	34.6	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)	1.23	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
Akash Kumar

Quality Manager

****End of Report****


Authorised Signatory

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

Page 1 of 1

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TEST REPORT

Test Report No. : ELES/RNC/2025/1994	Report Release Date : 24.03.2025
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC1358725000001952F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/2136
Address	: Lohardaga, Jharkhand-835302	Location	: Near Karkang Mines Gurdari Bauxite Mine (584.19ha)
		Sampling Date	: 11.03.2025 to 12.03.2025
Mines Status	: Operational	Sample Received Date	: 17.03.2025
		Type of Sample	: Ambient Air
Period of Analysis	: 17.03.2025 to 24.03.2025	Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C) : 26		2	Barometric Pressure (mmHg) : 715	
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	84	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	24.3	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	0.021	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
Ph. D. Environmental Engg.
Technical Manager

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TEST REPORT

Test Report No. : ELES/RNC/2025/1995	Report Release Date : 24.03.2025
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC1358725000001953F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/2137
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Weigh Bridge Gurdari Bauxite Mine (584.19ha)
Mines Status	: Operational	Sampling Date	: 11.03.2025 to 12.03.2025
Period of Analysis	: 17.03.2025 to 24.03.2025	Sample Received Date	: 17.03.2025
		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)	: 26	2	Barometric Pressure (mmHg)	: 715
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	87	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	48	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 2/Sec1): 2023	11.7	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	39.1	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)	1.57	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	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: 2023	<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****



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Technical Manager

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TEST REPORT

Test Report No. : ELES/RNC/2025/1996	Report Release Date : 24.03.2025
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC1358725000001954F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/2138
Address	: Lohardaga, Jharkhand-835302	Location	: Near Dhobi Kutumb Gurdari Bauxite Mine (584.19ha)
Mines Status	: Operational	Sampling Date	: 11.03.2025 to 12.03.2025
Period of Analysis	: 17.03.2025 to 24.03.2025	Sample Received Date	: 17.03.2025
		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)	: 26	2	Barometric Pressure (mmHg)	: 715
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	43	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 2/Sec1): 2023	12.6	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	29.4	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)	1.22	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	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)	$\mu\text{g}/\text{m}^3$	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****

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TEST REPORT

Test Report No. : ELES/RNC/2025/1997	Report Release Date : 24.03.2025
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC1358725000001955F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/2139
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pakri Gada Village
		Sampling Date	: 12.03.2025 to 13.03.2025
Mines Status	: Operational	Sample Received Date	: 17.03.2025
		Type of Sample	: Ambient Air
Period of Analysis	: 17.03.2025 to 24.03.2025	Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C) : 27		2	Barometric Pressure (mmHg) : 715	
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	72	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	41	60 (24hrs)
Sulphur Di-Oxide (SO_2)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 2/Sec1): 2023	13.8	80 (24hrs)
Nitrogen Di-Oxide (NO_2)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	32.4	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)	1.35	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_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****


Authorized Signatory
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/2025/1998	Report Release Date	: 24.03.2025
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC1358725000001956F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/2140
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pol Pol Village
		Sampling Date	: 12.03.2025 to 13.03.2025
Mines Status	: Operational	Sample Received Date	: 17.03.2025
		Type of Sample	: Ambient Air
Period of Analysis	: 17.03.2025 to 24.03.2025	Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION							
1	Average Temperature (°C)		: 27	2	Barometric Pressure (mmHg)	: 715	
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	77	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	45	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 2/Sec 1): 2023	12.3	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	26.5	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)	1.31	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	0.026	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****


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Technical Manager

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TEST REPORT

Test Report No. : ELES/RNC/2025/1999	Report Release Date : 24.03.2025
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC1358725000001957F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/2141
Address	: Lohardaga, Jharkhand-835302	Location	: Near Shakhupani Village
		Sampling Date	: 12.03.2025 to 13.03.2025
Mines Status	: Operational	Sample Received Date	: 17.03.2025
		Type of Sample	: Ambient Air
Period of Analysis	: 17.03.2025 to 24.03.2025	Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION						
1	Average Temperature (°C)		: 27	2	Barometric Pressure (mmHg)	: 715
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	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/Sec 1): 2023	9.8	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	24.3	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	0.033	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/2025/2000	Report Release Date : 24.03.2025
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC1358725000001958F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/2142
Address	: Lohardaga, Jharkhand-835302	Location	: Near Dipa Kujam Village
		Sampling Date	: 12.03.2025 to 13.03.2025
Mines Status	: Operational	Sample Received Date	: 17.03.2025
		Type of Sample	: Ambient Air
Period of Analysis	: 17.03.2025 to 24.03.2025	Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION						
1	Average Temperature (°C)		: 27	2	Barometric Pressure (mmHg)	: 715
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	79	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	45	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	29.2	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)	1.20	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****



Authorized Signatory
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Technologist Manager

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TEST REPORT

Test Report No. : ELES/RNC/2025/2018	Report Release Date : 24.03.2025
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC1358725000001976F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sampling Date	: 11.03.2025 to 12.03.2025
Address	: Lohardaga, Jharkhand-835302	Sampling Received Date	: 17.03.2025
		Type of Sample	: Ambient Noise
		Sampling procedure	: ELES/DOC/SMPL/03
		Sampling Done By	: ELES Pvt. Ltd.
Mines Status	: Operational	Period of Analysis	: 17.03.2025 to 22.03.2025

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 26	2	Barometric Pressure (mmHg)	: 715
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

Discipline : Chemical			Group : Atmospheric Pollution		
Location	Unit	Test Protocol	Result		Regulatory Limit (Industrial Zone)
Near Mine Office , Gurdari Bauxite Mine (584.19ha)	dB(A)	IS 9989: 2020	Time	L_{eq}	75 dB(A) Day Time & 70 dB(A) Night Time
			Day Time	63	
Sample ID: ELES/RNC/2025/AN/2160			Night Time	48	

Reviewed by
Akash Kumar
Quality Manager

****End of Report****

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TEST REPORT

Test Report No. : ELES/RNC/2025/2052	Report Release Date : 25.03.2025
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC1358725000002009F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/SW/2172
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 12.03.2025
		Sample Received Date	: 17.03.2025
		Type of Sample	: Surface Water
		Source of Sample	: Up Stream
Mines Status	: Operational	Location of Sample	: Sankh Nadi, Gurdari Bauxite Mine (584.19ha)
Period of Analysis	: 17.03.2025 to 24.03.2025	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 24.9 °C)	-	IS 3025 (Part-11) : 2022	6.81	6.5-8.5
Colour	Hazen	IS 3025 (Part-4) : 2021	3.8	300
Odour	-	IS 3025 (Part-5) : 2018	Unobjectionable	--
Turbidity	NTU	IS 3025 (Part-10): 2023	7.43	--
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part-16): 2023	70.0	1500
Total Alkalinity (as CaCO ₃)	mg/L	IS 3025 (Part-23) : 2023	22.4	--
Total Hardness (as CaCO ₃)	mg/L	IS 3025 (Part-21): 2019	29.4	--
Sulphate (as SO ₄)	mg/L	IS 3025 (Part-24/Sec1): 2022	7.2	400
Chloride (as Cl)	mg/L	IS 3025 (Part-32): 2019	9.7	600
Fluoride (as F)	mg/L	IS 3025 (Part-60): 2019	BDL (DL: 0.1)	1.5
Nitrate (as NO ₃)	mg/L	APHA 24 th Ed.2023, 4500 NO ₃ -B	1.42	50

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"Save Environment, Save Future"

TEST REPORT

Test Report No.	: ELES/RNC/2025/2052	Report Release Date	: 25.03.2025
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC1358725000002009F		

Discipline : Chemical		Group : Water		Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
Free Residual Chlorine (RFC)	mg/L	IS 3025 (Part-26) : 2021	BDL (DL: 0.1)	--
Phenols Compounds (as C ₆ H ₅ OH)	mg/L	IS 3025 (Part-43/Sec1): 2022	BDL (DL: 0.001)	0.005
Calcium (as Ca)	mg/L	IS 3025 (Part-40): 2019	7.8	--
Discipline : Chemical		Group : Residues in Water		
Aluminum (as Al)	mg/L	IS 3025 (Part-55): 2003;RA2019	BDL (DL: 0.02)	--
Arsenic (as As)	mg/L	IS 3025 (Part 37):2022	BDL (DL: 0.005)	0.2
Boron (as B)	mg/L	IS 3025 (Part-57): 2021	BDL (DL: 0.2)	--
Cadmium (as Cd)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.003)	0.01
Total Chromium (as Cr)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.03)	0.05
Copper (as Cu)	mg/L	IS 3025 (Part 42): 2019	BDL (DL: 0.03)	1.5
Iron (as Fe)	mg/L	APHA 24 th Ed.2023; 3111B	0.213	50
Lead (as Pb)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.01)	0.1
Manganese (as Mn)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.05)	--
Mercury (as Hg)	mg/L	IS 3025 (Part-48): 2019	BDL (DL: 0.001)	--
Selenium (as Se)	mg/L	IS 3025(Part-56): 2019	BDL (DL: 0.01)	0.05
Zinc (as Zn)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.1)	15

TEST REPORT

Test Report No. : ELES/RNC/2025/2052	Report Release Date : 25.03.2025
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC1358725000002009F	

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



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TC-13587

TEST REPORT

Test Report No. : ELES/RNC/2025/2052	Report Release Date : 25.03.2025
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC1358725000002009F	

Pesticides				Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
Alpha HCH	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.006)	--
Beta HCH	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.02)	--
Delta HCH	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.02)	--
Gamma HCH (Lindane)	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.02)	--
Endosulfan (alpha, beta and sulphate)	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.05)	--
DDT(o,p and p,p-isomers of DDT) (DDE and DDD)	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.05)	--
Discipline: Biological		Group : Water		
Total Coliform	CFU/100 mL	IS 15185: 2021	3.86×10^3	5000
Escherichia coli	CFU/100 mL	IS 15185: 2021	53.0	--

Remarks: pH & RFC done at site.

Reviewed by
Akash Kumar
Quality Manager

****End of Report****

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

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ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
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TEST REPORT

Test Report No. : ELES/RNC/2025/2052	Report Release Date : 25.03.2025
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/SW/2172
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 12.03.2025
		Sample Received Date	: 17.03.2025
		Type of Sample	: Surface Water
		Source of Sample	: Up Stream
Mines Status	: Operational	Location of Sample	: Sankh Nadi, Gurdari Bauxite Mine (584.19ha)
Period of Analysis	: 17.03.2025 to 25.03.2025	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)
Taste	-	APHA 24 th Ed.2023, 2160C	N/A	--
Anionic Surfactants (as MBAS)	mg/L	APHA 24 th Ed.2023, 5540-C	BDL (DL: 0.025)	1.0
Mineral Oil*	mg/L	IS 3025 (Part-39):2021 (Clause 6 Infrared Spectroscopic Method)	BDL (DL: 0.05)	--

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

Reviewed by
Akash Kumar
Quality Manager

****End of Report****

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



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TEST REPORT

Test Report No.	: ELES/RNC/2025/2053	Report Release Date	: 25.03.2025
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC1358725000002010F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/SW/2173
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 12.03.2025
		Sample Received Date	: 17.03.2025
		Type of Sample	: Surface Water
Mines Status	: Operational	Source of Sample	: Down Stream
		Location of Sample	: Sankh Nadi, Gurdari Bauxite Mine (584.19ha)
Period of Analysis	: 17.03.2025 to 24.03.2025	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 24.9 °C)	-	IS 3025 (Part-11) : 2022	6.59	6.5-8.5
Colour	Hazen	IS 3025 (Part-4) : 2021	4.0	300
Odour	-	IS 3025 (Part-5) : 2018	Unobjectionable	--
Turbidity	NTU	IS 3025 (Part-10): 2023	5.88	--
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part-16): 2023	106	1500
Total Alkalinity (as CaCO ₃)	mg/L	IS 3025 (Part-23) : 2023	32.6	--
Total Hardness (as CaCO ₃)	mg/L	IS 3025 (Part-21): 2019	41.1	--
Sulphate (as SO ₄)	mg/L	IS 3025 (Part-24/Sec1): 2022	8.9	400
Chloride (as Cl)	mg/L	IS 3025 (Part-32): 2019	16.5	600
Fluoride (as F)	mg/L	IS 3025 (Part-60): 2019	BDL (DL: 0.1)	1.5
Nitrate (as NO ₃)	mg/L	APHA 24 th Ed.2023, 4500 NO ₃ -B	1.95	50

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TEST REPORT

Test Report No. : ELES/RNC/2025/2053	Report Release Date : 25.03.2025
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC1358725000002010F	

Discipline : Chemical		Group : Water		Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
Free Residual Chlorine (RFC)	mg/L	IS 3025 (Part-26) : 2021	BDL (DL: 0.1)	--
Phenols Compounds (as C ₆ H ₅ OH)	mg/L	IS 3025 (Part-43/Sec1): 2022	BDL (DL: 0.001)	0.005
Calcium (as Ca)	mg/L	IS 3025 (Part-40): 2019	11.0	--
Discipline : Chemical		Group : Residues in Water		
Aluminum (as Al)	mg/L	IS 3025 (Part-55): 2003;RA2019	BDL (DL: 0.02)	--
Arsenic (as As)	mg/L	IS 3025 (Part 37):2022	BDL (DL: 0.005)	0.2
Boron (as B)	mg/L	IS 3025 (Part-57): 2021	BDL (DL: 0.2)	--
Cadmium (as Cd)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.003)	0.01
Total Chromium (as Cr)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.03)	0.05
Copper (as Cu)	mg/L	IS 3025 (Part 42): 2019	BDL (DL: 0.03)	1.5
Iron (as Fe)	mg/L	APHA 24 th Ed.2023; 3111B	0.248	50
Lead (as Pb)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.01)	0.1
Manganese (as Mn)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.05)	--
Mercury (as Hg)	mg/L	IS 3025 (Part-48): 2019	BDL (DL: 0.001)	--
Selenium (as Se)	mg/L	IS 3025(Part-56): 2019	BDL (DL: 0.01)	0.05
Zinc (as Zn)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.1)	15

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TEST REPORT

Test Report No. : ELES/RNC/2025/2053	Report Release Date : 25.03.2025
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC1358725000002010F	

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



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TEST REPORT

Test Report No. : ELES/RNC/2025/2053	Report Release Date : 25.03.2025
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC1358725000002010F	

Pesticides				Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
Alpha HCH	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.006)	--
Beta HCH	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.02)	--
Delta HCH	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.02)	--
Gamma HCH (Lindane)	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.02)	--
Endosulfan (alpha, beta and sulphate)	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.05)	--
DDT (o,p and p,p-isomers of DDT) (DDE and DDD)	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.05)	--
Discipline: Biological		Group: Water		
Total Coliform	CFU/100 mL	IS 15185: 2021	2.50×10^2	5000
Escherichia coli	CFU/100 mL	IS 15185: 2021	BDL (DL: 1.0)	--

Remarks: pH & RFC done at site.

Reviewed by
Akash Kumar
Quality Manager

****End of Report****

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



ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
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TEST REPORT

Test Report No. : ELES/RNC/2025/2053	Report Release Date : 25.03.2025
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/SW/2173
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 12.03.2025
		Sample Received Date	: 17.03.2025
		Type of Sample	: Surface Water
		Source of Sample	: Down Stream
Mines Status	: Operational	Location of Sample	: Sankh Nadi, Gurdari Bauxite Mine (584.19ha)
Period of Analysis	: 17.03.2025 to 25.03.2025	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)
Taste	-	APHA 24 th Ed.2023, 2160C	N/A	-
Anionic Surfactants (as MBAS)	mg/L	APHA 24 th Ed.2023, 5540-C	BDL (DL: 0.025)	1.0
Mineral Oil*	mg/L	IS 3025 (Part-39):2021 (Clause 6 Infrared Spectroscopic Method)	BDL (DL: 0.05)	-

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

Reviewed by
Akash Kumar
Quality Manager

****End of Report****

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



ENVIRONMENTAL LABORATORIES &

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TEST REPORT

Test Report No.	: ELES/RNC/2025/2054	Report Release Date	: 25.03.2025
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC1358725000002011F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/SW/2174
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 12.03.2025
		Sample Received Date	: 17.03.2025
		Type of Sample	: Surface Water
Mines Status	: Operational	Source of Sample	: Up Stream
		Location of Sample	: Dhardhari Nadi, Gurdari Bauxite Mine (584.19ha)
Period of Analysis	: 17.03.2025 to 24.03.2025	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 24.9 °C)	-	IS 3025 (Part-11) : 2022	6.51	6.5-8.5
Colour	Hazen	IS 3025 (Part-4) : 2021	6.2	300
Odour	-	IS 3025 (Part-5) : 2018	Unobjectionable	--
Turbidity	NTU	IS 3025 (Part-10): 2023	12.4	--
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part-16): 2023	58.0	1500
Total Alkalinity (as CaCO ₃)	mg/L	IS 3025 (Part-23) : 2023	12.2	--
Total Hardness (as CaCO ₃)	mg/L	IS 3025 (Part-21): 2019	19.6	--
Sulphate (as SO ₄)	mg/L	IS 3025 (Part-24/Sec1): 2022	5.8	400
Chloride (as Cl)	mg/L	IS 3025 (Part-32): 2019	10.6	600
Fluoride (as F)	mg/L	IS 3025 (Part-60): 2019	BDL (DL: 0.1)	1.5
Nitrate (as NO ₃)	mg/L	APHA 24 th Ed.2023, 4500 NO ₃ -B	0.76	50

TEST REPORT

Test Report No. : ELES/RNC/2025/2054	Report Release Date : 25.03.2025
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC1358725000002011F	

Discipline : Chemical		Group : Water		Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
Free Residual Chlorine (RFC)	mg/L	IS 3025 (Part-26) : 2021	BDL (DL: 0.1)	--
Phenols Compounds (as C ₆ H ₅ OH)	mg/L	IS 3025 (Part-43/Sec1): 2022	BDL (DL: 0.001)	0.005
Calcium (as Ca)	mg/L	IS 3025 (Part-40): 2019	5.2	--
Discipline : Chemical		Group : Residues in Water		
Aluminum (as Al)	mg/L	IS 3025 (Part-55): 2003;RA2019	BDL (DL: 0.02)	--
Arsenic (as As)	mg/L	IS 3025 (Part 37):2022	BDL (DL: 0.005)	0.2
Boron (as B)	mg/L	IS 3025 (Part-57): 2021	BDL (DL: 0.2)	--
Cadmium (as Cd)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.003)	0.01
Total Chromium (as Cr)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.03)	0.05
Copper (as Cu)	mg/L	IS 3025 (Part 42): 2019	BDL (DL: 0.03)	1.5
Iron (as Fe)	mg/L	APHA 24 th Ed.2023; 3111B	0.279	50
Lead (as Pb)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.01)	0.1
Manganese (as Mn)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.05)	--
Mercury (as Hg)	mg/L	IS 3025 (Part-48): 2019	BDL (DL: 0.001)	--
Selenium (as Se)	mg/L	IS 3025(Part-56): 2019	BDL (DL: 0.01)	0.05
Zinc (as Zn)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.1)	15

TEST REPORT

Test Report No. : ELES/RNC/2025/2054	Report Release Date : 25.03.2025
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC1358725000002011F	

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



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TC-13587

TEST REPORT

Test Report No. : ELES/RNC/2025/2054	Report Release Date : 25.03.2025
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC1358725000002011F	

Pesticides				Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
Alpha HCH	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.006)	--
Beta HCH	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.02)	--
Delta HCH	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.02)	--
Gamma HCH (Lindane)	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.02)	--
Endosulfan (alpha, beta and sulphate)	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.05)	--
DDT(o,p and p,p-isomers of DDT) (DDE and DDD)	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.05)	--
Discipline: Biological		Group : Water		
Total Coliform	CFU/100 mL	IS 15185: 2021	8.31×10^2	5000
Escherichia coli	CFU/100 mL	IS 15185: 2021	51.0	--

Remarks: pH & RFC done at site.

Reviewed by
Akash Kumar
Quality Manager

****End of Report****

Authorised Signatory
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Technical Manager



ENVIRONMENTAL LABORATORIES &

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TEST REPORT

Test Report No. : ELES/RNC/2025/2054	Report Release Date : 25.03.2025
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/SW/2174
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 12.03.2025
		Sample Received Date	: 17.03.2025
		Type of Sample	: Surface Water
		Source of Sample	: Up Stream
Mines Status	: Operational	Location of Sample	: Dhardhari Nadi, Gurdari Bauxite Mine (584.19ha)
Period of Analysis	: 17.03.2025 to 25.03.2025	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)
Taste	-	APHA 24 th Ed.2023, 2160C	N/A	-
Anionic Surfactants (as MBAS)	mg/L	APHA 24 th Ed.2023, 5540-C	BDL (DL: 0.025)	1.0
Mineral Oil*	mg/L	IS 3025 (Part-39):2021 (Clause 6 Infrared Spectroscopic Method)	BDL (DL: 0.05)	-

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

Reviewed by
Akash Kumar
Quality Manager

****End of Report****

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



ENVIRONMENTAL LABORATORIES &

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TEST REPORT

Test Report No.	: ELES/RNC/2025/2055	Report Release Date	: 25.03.2025
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC1358725000002012F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/SW/2175
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 12.03.2025
		Sample Received Date	: 17.03.2025
		Type of Sample	: Surface Water
		Source of Sample	: Down Stream
Mines Status	: Operational	Location of Sample	: Dhardhari Nadi, Gurdari Bauxite Mine (584.19ha)
Period of Analysis	: 17.03.2025 to 24.03.2025	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 24.9 °C)	-	IS 3025 (Part-11): 2022	6.56	6.5-8.5
Colour	Hazen	IS 3025 (Part -4): 2021	7.8	300
Odour	-	IS 3025 (Part-5): 2018	Unobjectionable	--
Turbidity	NTU	IS 3025 (Part-10): 2023	12.8	--
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part-16): 2023	60.0	1500
Total Alkalinity (as CaCO ₃)	mg/L	IS 3025 (Part-23): 2023	14.2	--
Total Hardness (as CaCO ₃)	mg/L	IS 3025 (Part-21): 2019	21.5	--
Sulphate (as SO ₄)	mg/L	IS 3025 (Part-24/Sec1): 2022	6.6	400
Chloride (as Cl)	mg/L	IS 3025 (Part-32): 2019	11.6	600
Fluoride (as F)	mg/L	IS 3025 (Part-60): 2019	BDL (DL: 0.1)	1.5
Nitrate (as NO ₃)	mg/L	APHA 24 th Ed,2023, 4500 NO ₃ -B	0.96	50

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TEST REPORT

Test Report No. : ELES/RNC/2025/2055	Report Release Date : 25.03.2025
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC1358725000002012F	

Discipline : Chemical		Group : Water		Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
Free Residual Chlorine (RFC)	mg/L	IS 3025 (Part-26) : 2021	BDL (DL: 0.1)	--
Phenols Compounds (as C ₆ H ₅ OH)	mg/L	IS 3025 (Part-43/Sec1): 2022	BDL (DL: 0.001)	0.005
Calcium (as Ca)	mg/L	IS 3025 (Part-40): 2019	5.7	--
Discipline : Chemical		Group : Residues in Water		
Aluminum (as Al)	mg/L	IS 3025 (Part-55): 2003;RA2019	BDL (DL: 0.02)	--
Arsenic (as As)	mg/L	IS 3025 (Part 37):2022	BDL (DL: 0.005)	0.2
Boron (as B)	mg/L	IS 3025 (Part-57): 2021	BDL (DL: 0.2)	--
Cadmium (as Cd)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.003)	0.01
Total Chromium (as Cr)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.03)	0.05
Copper (as Cu)	mg/L	IS 3025 (Part 42): 2019	BDL (DL: 0.03)	1.5
Iron (as Fe)	mg/L	APHA 24 th Ed.2023; 3111B	0.165	50
Lead (as Pb)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.01)	0.1
Manganese (as Mn)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.05)	--
Mercury (as Hg)	mg/L	IS 3025 (Part-48): 2019	BDL (DL: 0.001)	--
Selenium (as Se)	mg/L	IS 3025(Part-56): 2019	BDL (DL: 0.01)	0.05
Zinc (as Zn)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.1)	15

TEST REPORT

Test Report No. : ELES/RNC/2025/2055	Report Release Date : 25.03.2025
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC1358725000002012F	

Discipline : Chemical		Group : Residues in Water		Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
Cyanide (as CN)	mg/L	APIHA 24 th Ed.2023, 4500 CN-E	BDL (DL: 0.012)	0.05
Polynuclear Aromatic Hydrocarbons (PAH)	µg/L	ELES/GC/SOP/04: 2023	BDL (DL: 0.05)	--
Pesticides				
Alachlor	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	--
Atrazine	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	--
Butachlor	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	--
Chlorpyrifos	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	--
Ethion	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	--
Malathion	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	--
Methyl parathion	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.1)	--
Monocrotophos	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	--
Phorate	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	--
Phorate Sulphone	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	--
Dieldrin	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.01)	--



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TEST REPORT

Test Report No. : ELES/RNC/2025/2055	Report Release Date : 25.03.2025
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC1358725000002012F	

Pesticides				Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
Alpha HCH	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.006)	--
Beta HCH	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.02)	--
Delta HCH	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.02)	--
Gamma HCH (Lindane)	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.02)	--
Endosulfan (alpha, beta and sulphate)	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.05)	--
DDT (o,p and p,p-isomers of DDT) (DDE and DDD)	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.05)	--
Discipline: Biological		Group : Water		
Total Coliform	CFU/100 mL	IS 15185: 2021	3.59×10^2	5000
Escherichia coli	CFU/100 mL	IS 15185: 2021	BDL (DL: 1.0)	--

Remarks: pH & RFC done at site.

Reviewed by
Akash Kumar
Quality Manager

****End of Report****

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



ENVIRONMENTAL LABORATORIES &

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TEST REPORT

Test Report No. : ELES/RNC/2025/2055	Report Release Date : 25.03.2025
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/SW/2175
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 12.03.2025
		Sample Received Date	: 17.03.2025
		Type of Sample	: Surface Water
		Source of Sample	: Down Stream
Mines Status	: Operational	Location of Sample	: Dhardhari Nadi, Gurdari Bauxite Mine (584.19ha)
Period of Analysis	: 17.03.2025 to 25.03.2025	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)
Taste	-	APHA 24 th Ed.2023, 2160C	N/A	--
Anionic Surfactants (as MBAS)	mg/L	APHA 24 th Ed.2023, 5540-C	BDL (DL: 0.025)	1.0
Mineral Oil*	mg/L	IS 3025 (Part-39):2021 (Clause 6 Infrared Spectroscopic Method)	BDL (DL: 0.05)	--

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

Reviewed by
Akash Kumar
Quality Manager

****End of Report****

Authorised Signatory
Dr. Deependra Kumar Sinha
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TEST REPORT

Test Report No.	: ELES/RNC/2025/2056	Report Release Date	: 25.03.2025
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC1358725000002013F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/SW/2176
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 11.03.2025
		Sample Received Date	: 17.03.2025
		Type of Sample	: Surface Water
Mines Status	: Operational	Source of Sample	: Up Stream
		Location of Sample	: Koyal River, Gurdari Bauxite Mine (584.19ha)
Period of Analysis	: 17.03.2025 to 24.03.2025	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 24.9 °C)	-	IS 3025 (Part-11) : 2022	6.54	6.5-8.5
Colour	Hazen	IS 3025 (Part-4) : 2021	4.6	300
Odour	-	IS 3025 (Part-5) : 2018	Unobjectionable	--
Turbidity	NTU	IS 3025 (Part-10): 2023	16.2	--
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part-16): 2023	52.0	1500
Total Alkalinity (as CaCO ₃)	mg/L	IS 3025 (Part-23) : 2023	20.4	--
Total Hardness (as CaCO ₃)	mg/L	IS 3025 (Part-21): 2019	13.7	--
Sulphate (as SO ₄)	mg/L	IS 3025 (Part-24/Sec1): 2022	9.8	400
Chloride (as Cl)	mg/L	IS 3025 (Part-32): 2019	9.7	600
Fluoride (as F)	mg/L	IS 3025 (Part-60): 2019	BDL (DL: 0.1)	1.5
Nitrate (as NO ₃)	mg/L	APHA 24 th Ed.2023, 4500 NO ₃ -B	0.98	50

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TEST REPORT

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ULR No. : TC1358725000002013F	

Discipline : Chemical		Group : Water		Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
Free Residual Chlorine (RFC)	mg/L	IS 3025 (Part-26) : 2021	BDL (DL: 0.1)	--
Phenols Compounds (as C ₆ H ₅ OH)	mg/L	IS 3025 (Part-43/Sec1): 2022	BDL (DL: 0.001)	0.005
Calcium (as Ca)	mg/L	IS 3025 (Part-40): 2019	3.6	--
Discipline : Chemical		Group : Residues in Water		
Aluminum (as Al)	mg/L	IS 3025 (Part-55): 2003;RA2019	BDL (DL: 0.02)	--
Arsenic (as As)	mg/L	IS 3025 (Part 37):2022	BDL (DL: 0.005)	0.2
Boron (as B)	mg/L	IS 3025 (Part-57): 2021	BDL (DL: 0.2)	--
Cadmium (as Cd)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.003)	0.01
Total Chromium (as Cr)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.03)	0.05
Copper (as Cu)	mg/L	IS 3025 (Part 42): 2019	BDL (DL: 0.03)	1.5
Iron (as Fe)	mg/L	APHA 24 th Ed.2023; 3111B	0.113	50
Lead (as Pb)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.01)	0.1
Manganese (as Mn)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.05)	--
Mercury (as Hg)	mg/L	IS 3025 (Part-48): 2019	BDL (DL: 0.001)	--
Selenium (as Se)	mg/L	IS 3025(Part-56): 2019	BDL (DL: 0.01)	0.05
Zinc (as Zn)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.1)	15

Page 2 of 4

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"Save Environment, Save Future"



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TEST REPORT

Test Report No.	: ELES/RNC/2025/2056	Report Release Date	: 25.03.2025
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC1358725000002013F		

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



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TC-13587

TEST REPORT

Test Report No. : ELES/RNC/2025/2056	Report Release Date : 25.03.2025
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC1358725000002013F	

Pesticides				Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
Alpha HCH	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.006)	--
Beta HCH	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.02)	--
Delta HCH	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.02)	--
Gamma HCH (Lindane)	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.02)	--
Endosulfan (alpha, beta and sulphate)	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.05)	--
DDT(o,p and p,p-isomers of DDT) (DDE and DDD)	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.05)	--
Discipline: Biological		Group : Water		
Total Coliform	CFU/100 mL	IS 15185: 2021	7.18×10^2	5000
Escherichia coli	CFU/100 mL	IS 15185: 2021	BDL (DL: 1.0)	--

Remarks: pH & RFC done at site.

Reviewed by
Akash Kumar
Quality Manager

****End of Report****

Authorised Signatory
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Technical Manager

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TEST REPORT

Test Report No. : ELES/RNC/2025/2056	Report Release Date : 25.03.2025
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/SW/2176
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 11.03.2025
		Sample Received Date	: 17.03.2025
		Type of Sample	: Surface Water
		Source of Sample	: Up Stream
Mines Status	: Operational	Location of Sample	: Koyal River, Gurdari Bauxite Mine (584.19ha)
Period of Analysis	: 17.03.2025 to 25.03.2025	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)
Taste	-	APHA 24 th Ed.2023, 2160C	N/A	-
Anionic Surfactants (as MBAS)	mg/L	APHA 24 th Ed.2023, 5540-C	BDL (DL: 0.025)	1.0
Mineral Oil*	mg/L	IS 3025 (Part-39):2021 (Clause 6 Infrared Spectroscopic Method)	BDL (DL: 0.05)	-

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

Reviewed by
Akash Kumar
Quality Manager

****End of Report****

Authorised Signatory
Dr. Deependra Kumar Sinha
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Technical Manager



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TEST REPORT

Test Report No.	: ELES/RNC/2025/2057	Report Release Date	: 25.03.2025
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC1358725000002014F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/SW/2177
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 11.03.2025
		Sample Received Date	: 17.03.2025
		Type of Sample	: Surface Water
		Source of Sample	: Down Stream
Mines Status	: Operational	Location of Sample	: Koyal River, Gurdari Bauxite Mine (584.19ha)
Period of Analysis	: 17.03.2025 to 24.03.2025	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 24.9 °C)	-	IS 3025 (Part-11) : 2022	6.52	6.5-8.5
Colour	Hazen	IS 3025 (Part-4) : 2021	6.2	300
Odour	-	IS 3025 (Part-5) : 2018	Unobjectionable	--
Turbidity	NTU	IS 3025 (Part-10): 2023	17.8	--
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part-16): 2023	50.0	1500
Total Alkalinity (as CaCO ₃)	mg/L	IS 3025 (Part-23) : 2023	16.3	--
Total Hardness (as CaCO ₃)	mg/L	IS 3025 (Part-21) : 2019	17.6	--
Sulphate (as SO ₄)	mg/L	IS 3025 (Part-24/Sec1): 2022	4.8	400
Chloride (as Cl)	mg/L	IS 3025 (Part-32): 2019	6.7	600
Fluoride (as F)	mg/L	IS 3025 (Part-60): 2019	BDL (DL: 0.1)	1.5
Nitrate (as NO ₃)	mg/L	APHA 24 th Ed.2023, 4500 NO ₃ -B	0.87	50

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TEST REPORT

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Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC1358725000002014F		

Discipline : Chemical		Group : Water		Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
Free Residual Chlorine (RFC)	mg/L	IS 3025 (Part-26): 2021	BDL (DL: 0.1)	--
Phenols Compounds (as C ₆ H ₅ OH)	mg/L	IS 3025 (Part-43/Sec1): 2022	BDL (DL: 0.001)	0.005
Calcium (as Ca)	mg/L	IS 3025 (Part-40): 2019	4.6	--
Discipline : Chemical		Group : Residues in Water		
Aluminum (as Al)	mg/L	IS 3025 (Part-55): 2003;RA2019	BDL (DL: 0.02)	--
Arsenic (as As)	mg/L	IS 3025 (Part 37):2022	BDL (DL: 0.005)	0.2
Boron (as B)	mg/L	IS 3025 (Part-57): 2021	BDL (DL: 0.2)	--
Cadmium (as Cd)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.003)	0.01
Total Chromium (as Cr)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.03)	0.05
Copper (as Cu)	mg/L	IS 3025 (Part 42): 2019	BDL (DL: 0.03)	1.5
Iron (as Fe)	mg/L	APHA 24 th Ed.2023; 3111B	0.235	50
Lead (as Pb)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.01)	0.1
Manganese (as Mn)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.05)	--
Mercury (as Hg)	mg/L	IS 3025 (Part-48): 2019	BDL (DL: 0.001)	--
Selenium (as Se)	mg/L	IS 3025(Part-56): 2019	BDL (DL: 0.01)	0.05
Zinc (as Zn)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.1)	15

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TEST REPORT

Test Report No. : ELES/RNC/2025/2057	Report Release Date : 25.03.2025
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC1358725000002014F	

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

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TC-13567

TEST REPORT

Test Report No. : ELES/RNC/2025/2057	Report Release Date : 25.03.2025
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC1358725000002014F	

Pesticides				Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
Alpha HCH	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.006)	--
Beta HCH	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.02)	--
Delta HCH	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.02)	--
Gamma HCH (Lindane)	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.02)	--
Endosulfan (alpha, beta and sulphate)	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.05)	--
DDT (o,p and p,p-isomers of DDT) (DDE and DDD)	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.05)	--
Discipline: Biological		Group : Water		
Total Coliform	CFU/100 mL	IS 15185: 2021	4.45×10^2	5000
Escherichia coli	CFU/100 mL	IS 15185: 2021	21.0	--

Remarks: pH & RFC done at site.

Reviewed by
Akash Kumar
Quality Manager

****End of Report****

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



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TEST REPORT

Test Report No. : ELES/RNC/2025/2057	Report Release Date : 25.03.2025
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/SW/2177
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 11.03.2025
		Sample Received Date	: 17.03.2025
		Type of Sample	: Surface Water
		Source of Sample	: Down Stream
Mines Status	: Operational	Location of Sample	: Koyal River, Gurdari Bauxite Mine (584.19ha)
Period of Analysis	: 17.03.2025 to 25.03.2025	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)
Taste	-	APHA 24 th Ed.2023, 2160C	N/A	--
Anionic Surfactants (as MBAS)	mg/L	APHA 24 th Ed.2023, 5540-C	BDL (DL: 0.025)	1.0
Mineral Oil*	mg/L	IS 3025 (Part-39):2021 (Clause 6 Infrared Spectroscopic Method)	BDL (DL: 0.05)	--

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

Reviewed by
Akash Kumar
Quality Manager

****End of Report****

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

Test Report No.	: ELES/RNC/2025/2051	Report Release Date	: 25.03.2025
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC1358725000002008F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/SW/2171
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 13.03.2025
		Sample Received Date	: 17.03.2025
		Type of Sample	: Surface Water
		Source of Sample	: Spring Water
Mines Status	: Operational	Location of Sample	: Jhapa Jhuri, Gurdari Bauxite Mine (584.19ha)
		Sampling Procedure	: ELES/DOC/SMPL/01
Period of Analysis	: 17.03.2025 to 24.03.2025	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 24.9 °C)	-	IS 3025 (Part-11) : 2022	6.50	6.5-8.5
Colour	Hazen	IS 3025 (Part-4) : 2021	2.6	300
Odour	-	IS 3025 (Part-5) : 2018	Unobjectionable	--
Turbidity	NTU	IS 3025 (Part-10): 2023	6.01	--
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part-16): 2023	60.0	1500
Total Alkalinity (as CaCO ₃)	mg/L	IS 3025 (Part-23) : 2023	18.3	--
Total Hardness (as CaCO ₃)	mg/L	IS 3025 (Part-21): 2019	23.5	--
Sulphate (as SO ₄)	mg/L	IS 3025 (Part-24/Sec1): 2022	6.9	400
Chloride (as Cl)	mg/L	IS 3025 (Part-32): 2019	8.7	600
Fluoride (as F)	mg/L	IS 3025 (Part-60): 2019	BDL (DL: 0.1)	1.5
Nitrate (as NO ₃)	mg/L	APHA 24 th Ed.2023, 4500 NO ₃ -B	0.98	50



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TEST REPORT

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Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC1358725000002008F		

Discipline : Chemical		Group : Water		Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
Free Residual Chlorine (RFC)	mg/L	IS 3025 (Part-26) : 2021	BDL (DL: 0.1)	--
Phenols Compounds (as C ₆ H ₅ OH)	mg/L	IS 3025 (Part-43/Sec1): 2022	BDL (DL: 0.001)	0.005
Calcium (as Ca)	mg/L	IS 3025 (Part-40): 2019	5.5	--
Discipline : Chemical		Group : Residues in Water		
Aluminum (as Al)	mg/L	IS 3025 (Part-55): 2003;RA2019	BDL (DL: 0.02)	--
Arsenic (as As)	mg/L	IS 3025 (Part 37):2022	BDL (DL: 0.005)	0.2
Boron (as B)	mg/L	IS 3025 (Part-57): 2021	BDL (DL: 0.2)	--
Cadmium (as Cd)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.003)	0.01
Total Chromium (as Cr)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.03)	0.05
Copper (as Cu)	mg/L	IS 3025 (Part 42): 2019	BDL (DL: 0.03)	1.5
Iron (as Fe)	mg/L	APHA 24 th Ed.2023; 3111B	0.101	50
Lead (as Pb)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.01)	0.1
Manganese (as Mn)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.05)	--
Mercury (as Hg)	mg/L	IS 3025 (Part-48): 2019	BDL (DL: 0.001)	--
Selenium (as Se)	mg/L	IS 3025(Part-56): 2019	BDL (DL: 0.01)	0.05
Zinc (as Zn)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.1)	15

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TEST REPORT

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Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC1358725000002008F	

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

TEST REPORT

Test Report No. : ELES/RNC/2025/2051	Report Release Date : 25.03.2025
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC1358725000002008F	

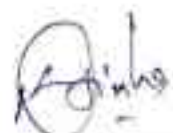
Pesticides				Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
Alpha HCH	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.006)	--
Beta HCH	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.02)	--
Delta HCH	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.02)	--
Gamma HCH (Lindane)	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.02)	--
Endosulfan (alpha, beta and sulphate)	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.05)	--
DDT(o,p and p,p-isomers of DDT) (DDE and DDD)	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.05)	--
Discipline: Biological		Group : Water		
Total Coliform	CFU/100 mL	IS 15185: 2021	5.04×10^3	5000
Escherichia coli	CFU/100 mL	IS 15185: 2021	BDL (DL: 1.0)	--

Remarks: pH & RFC done at site.



Reviewed by
Akash Kumar
Quality Manager

****End of Report****



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



ENVIRONMENTAL LABORATORIES &

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

ENGINEERING SERVICES PVT. LTD.

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

TEST REPORT

Test Report No. : ELES/RNC/2025/2051	Report Release Date : 25.03.2025
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/SW/2171
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 13.03.2025
		Sample Received Date	: 17.03.2025
		Type of Sample	: Surface Water
		Source of Sample	: Spring Water
Mines Status	: Operational	Location of Sample	: Jhapa Jhuri, Gurdari Bauxite Mine (584.19ha)
		Sampling Procedure	: ELES/DOC/SMPL/01
Period of Analysis	: 17.03.2025 to 25.03.2025	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)
Taste	-	APHA 24 th Ed.2023, 2160C	N/A	--
Anionic Surfactants (as MBAS)	mg/L	APHA 24 th Ed.2023, 5540-C	BDL (DL: 0.025)	1.0
Mineral Oil*	mg/L	IS 3025 (Part-39):2021 (Clause 6 Infrared Spectroscopic Method)	BDL (DL: 0.05)	--

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

Reviewed by
Akash Kumar
Quality Manager

****End of Report****

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



ENVIRONMENTAL LABORATORIES & ENGINEERING SERVICES PVT. LTD.

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TEST REPORT

Test Report No.	: ELES/RNC/2025/2023	Report Release Date	: 24.03.2025
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC1358725000001981F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sampling Date	: 12.03.2025
Address	: Lohardaga, Jharkhand-835302	Sampling Received Date	: 17.03.2025
		Type of Sample	: Workzone Noise
		Sampling procedure	: ELES/DOC/SMPL/03
		Sample Drawn By	: ELES Pvt. Ltd.
Mines Status	: Operational	Period of Analysis	: 17.03.2025 to 22.03.2025

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 27	2	Barometric Pressure (mmHg)	: 715
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

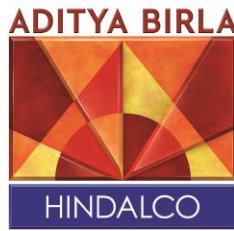
Location	Unit	Test Protocol	Result		Regulatory Limit (Industrial Zone)
Near Kathuwapani Pit – Gurdari Bauxite Mine (584.19ha)	dB(A)	IS 4758: 2017	Time	L _{eq}	90 dB(A)
			Day Time	75	
Sample ID: ELES/RNC/2025/WN/2165					

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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Annexure 3

Date – 06.11.2024

Office Order

Environmental Cell has been re-constituted at Gurdari Bauxite Mine (Area 584.19 ha) comprising below mentioned team members. The team will ensure compliance with the Environment Act, Regulation & Rule in respect of the said mines of Hindalco Industries Limited.

1. Mr. Vidya Singh (Coordinator)
2. Mr. Krishnendu Das (Geologist)
3. Mr. Ankit Das (Environment Engineer)
4. Mr. Anand Prakash Tiwari (Environment Engineer)

The Undersigned is the in charge of above Environment Management Cell constituted for the purpose of ensuring compliances of environmental act rule and regulation for the above mine.

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



Basudev Gangopadhyay
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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