



HIL/LHD/ENV/MoEF/978

Date: 20.11.2024

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 Bagru (75.41 ha) Bauxite Mining project of M/s Hindalco Industries Limited located in Lohardaga District of Jharkhand for the period April'24 to September'24.

Ref: Environmental Clearance letters no J-11015/585/2007-IA. II (M) dated 04th Feb 2011

Sir,

With reference to the above, we are submitting herewith the Compliance status report of EC conditions for **Bagru (75.41 ha)** Bauxite Mining project of **M/s Hindalco Industries Limited**, located in Lohardaga District of Jharkhand for the period April'24 to September'24. The lease detail is as below.

Lease area (ha)	Production Capacity (MT)	Lease Period
75.41	85000	22.01.1974 to 31.03.2030

Hope you will find the same in order.

Thanking You

Yours Sincerely
FOR M/s Hindalco Industries Limited,

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

Enclosure: - As Above

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

Hindalco Industries Limited

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

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

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Corporate ID No.: L27020MH1958PLC011238

Name of the Project : **Bagru Bauxite Mine (75.41 ha)**
M/s Hindalco Industries Ltd

Environment Clearance No & date : **J – 11015/585/2007-IA.II (M), dated 04.02.2011**

Period of compliance Report : **From 1st April 2024 to 30th September 2024**

CONDITIONS: -

Specific Conditions: -

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

Reply: - Implementations of stipulated conditions in NOC are fulfilled post which consent to operate has been obtained from time to time when mine was operational. Presently, Mine is not in operation since November 2013.

Condition ii: - The environmental clearance is subject to grant of forestry clearance for diversion of 19.56 ha forestland.

Reply: - Compensatory land for forest diversion has been identified and NOC from DFO, DC and Registrar has already been obtained. Registration and Mutation in favor of State Forest Department for CA land have been completed. Obtaining forest clearance is under process (Bagru FC proposal has been recommended by the DFO and CF and has been forwarded to Nodal for further needful action). Presently, Mine is not in operation since November 2013.

Condition iii:- The mining operation shall be restricted to above ground water table and it should not intersect groundwater table. In case of working below ground water table, prior approval of the Ministry of Environment & Forest and Central Ground Water Authority shall be obtained for which a detailed hydro-geological study shall be carried out.

Reply: - No mining operation has been carried out during the above period. The Mine is not in operation since November 2013.

Condition iv: - The project proponent shall ensure that no natural water course and/or water resources shall be obstructed due to any mining operations.

Reply: - No mining operation was carried out during above period. Mine has not been in operation since November 2013. No natural water course /water resource was obstructed /will be obstructed due to mining operation.

Condition v: - Topsoil should be temporarily stacked with proper slope at earmarked site(s) only with adequate measures and it should not be kept unutilized for a period of more than 3 years. The topsoil shall be used for land reclamation and rehabilitation of mined out areas.

Reply: - Sequential backfilling and reclamation of mined out area were exercised when mine was operational. No mining operation was being carried out during the above period and as on date. Mine has not been in operation since November 2013.

Condition vi :- The entire waste generated shall be backfilled and there shall be no external overburden dump left at the end of the mine life. The entire backfilled area shall be reclaimed by plantation. The backfilling should be carried out in such a manner that it is restored to the normal ground level. 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 and its Regional Office, Bhubaneswar on six monthly basis.

Reply: - No mining operation was carried out during above period and as on date. Cumulative 32.05 ha areas have been planted till date. Monitoring and management of rehabilitated areas is in progress through supervision. Old dumps are stabilized. There is no active external dump as Mine has not been in operation since November 2013. Currently, the MoEF&CC regional office is located at Ranchi.

Condition vii: - The void left unfilled in an area of 1.76 ha shall be converted into water body. The higher benches of excavated void/mining pit shall be traced and plantation done to stabilize the slopes. The slopes of higher benches shall be made gentler for easy accessibility by local people to use the water body. Peripheral fencing shall be carried out along the excavated area.

Reply: - The earlier mined out area converted into water body which still exist. No mining operation has been carried out during the above period and as on date. Mine has not been in operation since November 2013.

Condition viii :- Catch drains and siltation ponds of appropriate size shall be constructed around the working pit, sub-grade dump, and mineral dumps to arrest flow of silt and sediment directly into Chanpi Nallah, Sukri Nadi and others water bodies. The water so collected should be utilized for watering the mine area, roads, green belt development etc. The drains should be regularly desilted, particularly after monsoon, and maintained properly. Garland drains settling tanks and check dams of appropriate size, gradient and length shall be constructed for both around the mine pit and sub-grade dump to prevent run off of water and flow sediments directly into Chanpi Nallah, Sukri Nadi and other water

bodies and sump capacity should be designed keeping 50% safety margin over and above peak sudden rainfall (based on 50 years date) and maximum discharge in the area adjoin the mine site. Sump capacity should also provide adequate retention period to allow proper settling of silt material. Sedimentation pits should be constructed at the corners of the garland drains and desilted at regular intervals.

Reply: - Mine has not been in operation since November 2013. No mining operation was carried out during the above period and as on date. To collect and manage rainwater during monsoon rains, pit sumps were made, part of mined out area were used as settling tank. Settled water was used for sprinkling quarry, roads, green belt development, etc. Compliance to this provision will further continue post resumption of mining operation. Water harvesting pond and sump of adequate capacity exist in lease area to harvest rainwater.



Rainwater Harvesting Pond

Condition ix: - Dimension of the retaining wall at the toe of sub grade dump and OB benches within the mine to check run-off and siltation should be based on the rain fall data.

Reply: - The dimensions of retaining wall of OB dumps are based on average rain fall. The dump is stabilized. The compliance to this provision was being practiced when mine was in operation and same will continue post resumption of mining operation. Mine has not in operation since November 2013. No active external dump exists in the mine lease area.

Condition x: - Plantation shall be raised in an area of 50.11 ha including a 7.5m wide green belt in the safety zone around the mining lease by planting the native species around ML area, backfilled and reclaimed area, around water body, roads etc. in consultation with the local DFO/Agriculture Department. At least 1500 trees per year shall be planted with a tree density of 1000 trees per hectare.

Reply: - Plantation on Bagru plateau was carried out progressively. Till date 32.05 Ha areas are already planted.



Plantation at mine

Bio-diversity Park - A classic bio park (Birsa Upvan) has been created to validate that all species can grow. We have also developed tea garden, strawberry garden, spice garden, medicinal garden, Nakshatra Van, VR-DOME & butterfly garden to build a unique Bio-diversity Park.



Biodiversity Park at Bagru mine in reclaimed area

Condition xi:- Effective safeguard measures, such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as around crushing and screening plant, loading and unloading point and all transfer points. Extensive water sprinkling shall be carried out on haul roads. It should be ensured that the AAQ parameters conform to the norms prescribed by the central Pollution Control Board in this regard.

Reply: - Water sprinkling is being carried out regularly. AAQ and water quality are monitored. Measured AAQ parameters reported are within permissible limit.



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

Reply: - System is in place and same will continue in future post resumption of mining activity. Mine is not in operation since November 2013. Rainwater harvesting pond and sump is already in place as water conservation measures.

Condition xiii:- 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, its Regional Office, Bhubaneswar; Central Ground Water Authority and Central Ground Water Board.

Reply: - We are not using ground water for any mining purpose. There is no chance of intersection ground water table during mining operation as it is much below mining horizon.


A piezometer has been installed for monitoring of ground water level. Water quality and level report are attached herewith as **Annexure 1**. Mine is not in operation since November 2013



Piezometer

Condition xiv: -The project authority shall obtain necessary prior approval of the competent authority for drawl of requisite quantity of water (surface water and ground water) for the project.

Reply: - Rainwater harvested during rainy season is being used for sprinkling on haul roads and raising plantation. No surface water from natural resource was/is being/will be used for mining operation. Mine is not in operation since November 2013. However, we have obtained NOC for ground water abstraction from CGWA/CGWB for drinking purpose only.



भारत सरकार
जल संधारण, नदी विकास
और नगरीय आपूर्ति विभाग
श्रीलोक नगरीय संधारण
Government of India
Ministry of Jal Shakti
Department of Water Resources,
River Development & Ganga Rejuvenation
Central Ground Water Authority

(भूखण्ड विकास हेतु अनापत्ति प्रमाण पत्र)
NO OBJECTION CERTIFICATE (NOC) FOR GROUND WATER ABSTRACTION

Project Name:	Bagru Bauxite Mining Project (75.41 Ha)						
Project Address:	Bagru Bauxite Mining Project, Village - Bagru, Bhusar And Hsiri, Tehsil - Kisko						
Village:	Bagru	Block:	Kisko				
District:	Lohardaga	State:	Jharkhand				
Pin Code:							
Communication Address:	Hindalco Industries Limited, Bagru Bauxite Mine, Court Road Lohardaga, Lohardaga, Kisko, Lohardaga, Jharkhand - 835302						
Address of CGWB Regional Office:	Central Ground Water Board Mid Eastern Region, 6th & 7th Floor, Lok Nayak Jai Prakash Bhawan, Frazer Road Dak Banglow, Patna, Bihar - 800011						

1. NOC No.:	CGWA/NOC/MIN/REN/1/2023/7576	2. Date of Issuance	03/04/2023
3. Application No.:	21-4/494/JH/MIN/2019	4. Category (GWRE 2020)	Safe
5. Project Status:	Existing Ground Water	6. NOC Type:	Renewal
7. Valid from:	16/02/2023	8. Valid up to:	15/02/2025

9. 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	3467.50						

10. Details of ground water abstraction /Dewatering structures											
Total Existing No.-1						Total Proposed No.-0					
DW	DCB	BW	TW	MP	MPu	DW	DCB	BW	TW	MP	MPu
0	0	1	0	0	0	0	0	0	0	0	0

*DW: Dug Well; DCB-Dug-cum-Bore Well; BW-Bore Well; TW-Tube Well; MP-Mine Pit;MPu-Mine Pumps

11. Ground Water Abstraction/Restoration Charges paid (Rs.):	13870.00
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(Compliance Conditions given overleaf)
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Ground Water NOC

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

Reply: - Mine is not in operation since November 2013. No mining operation was being carried out during above period and as on date.

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

Reply: - Mine is not in operation since November 2013. No mining operation was carried out during above period and as on date. However, blasting time is fixed during Lunch Time i.e. 1.00 PM -2.00 PM (whenever will be done post resumption of mining operation). Controlled blasting method will be practiced once mine becomes operational. All efforts will be taken to mitigate impact of blasting post resumption of mining activities.

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

Reply: - Mine is not in operation since November 2013. No mining operation was being carried out during above period and as on date.

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

Reply: - The sewage water from domestic uses is collected and treated in Sewage Treatment Plant. No effluent is generated as Mine is not in operation since November 2013. However, Effluent treatment plant (ETP) has been installed in plateau for entire Bagru group of Mines. Photograph of ETP is attached below:



Effluent treatment plant (ETP)

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

Reply: - No mining operation was carried out during the above period and as on date. Mine will be operative post obtaining renewed consent to operate and other clearances as applicable.

Condition xx:- Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.

Reply: - We believe that the wellbeing of all the labours working within the site should be taken care of on a priority basis, so that they can work in a stress-free environment. Therefore, all the necessary infrastructure and basic facilities mentioned above are being taken care of.

Condition xxi:- The critical parameters such as RSPM (Particulate matter with size less than 10micron (i.e., PM10, PM2.5) and NOX in the ambient air within the impact zone, peak particle velocity at 300m distance or within the nearest habitation, whichever is closed shall be monitored periodically. Further, quantity of discharged water shall also be monitored [TDS, DO, PH and TSS}. The monitored data shall be uploaded on the website of the company as well as displayed on a display board at the project site at a suitable location near the main gate of the Company in public domain. The Circular No. J-20012/1/2006-IA.II (M) dated 27.05.2009 issued by Ministry of Environment and Forest, which is available on the website of the Ministry www.envfor.nic.in shall also be referred in this regard for its compliance.

Reply: - Monitoring of AAQ and water quality is being done. Monitored data is being uploaded on the website of the company as well as displayed on a display board at the project site at a suitable location near the main gate of the Company in public domain. Report is attached as **Annexure 2**.

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

Reply: - Progressive mine closure plan along with mining scheme has been approved by IBM. FMCP (part area) has also been approved by IBM. Final mine closure plan (FMCP) for total lease area will be prepared in due time as per applicable guideline and timelines mentioned in MCDR/IBM guideline who are competent authority to approve the same. Based on present resource estimate and peak rated production capacity, mining operation will be done post resumption of mining operations. Currently, Mine is not in operation since November 2013

General Conditions: -

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

Reply: - Noted. The Mine is not in operation since November 2013.

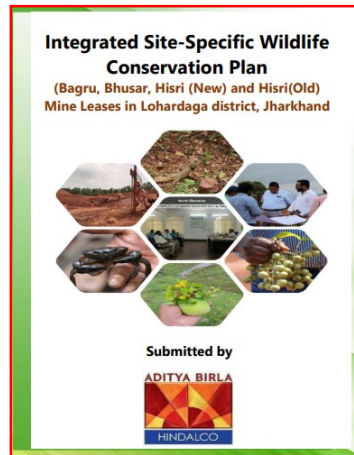
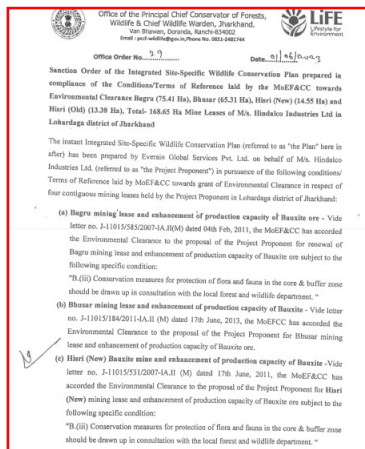
Condition ii: - No change in the calendar plan including excavation, quantum of mineral bauxite and waste should be made.

Reply: - The Mine is not in operation since November 2013. No mining operation was carried out during the above period and as on date. Data pertaining to excavation, quantum of mineral bauxite etc. are attached as **Annexure 4**. We agree to comply with the provision stipulated herein post resumption of mining operations.

Condition iii: - Conservation measures for protection of flora and fauna in the core and buffer zone should be drawn up in consultation with the local forest and wildlife department.

Reply: - The Mine is not in operation since November 2013. Suitable conservation measures were undertaken in past when mine was operational as per plan submitted and is being done continuously.

Also, we have been granted letter of approval for the Integrated Site-specific Wildlife Conservation Plan via Office Order No.29 dated 01.06.2023 by PCCF, Wildlife, Ranchi.



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

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

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

Reply: - Monitoring reports are attached as **Annexure-2**.

Condition vi: **Fugitive dust emissions from all the sources should be controlled regularly. Water spraying arrangement on haul roads, loading and unloading and at transfer points should be provided and properly maintained.**

Reply: - The Mine is not in operation since November 2013. No mining operation was carried out during the above period and as on date. We agree to comply with the provision stipulated herein post resumption of mining operations.

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

Reply: - The Mine is not in operation since November 2013. No mining operation was carried out during the above period and as on date.

We agree to comply with the provision stipulated herein post resumption of mining operation as complied in past.

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

Reply: - The Mine is not in operation since November 2013. No mining operation was carried out during the above period and as on date.

However, Effluent treatment plant (ETP) has been installed for workshop effluent in plateau for entire Bagru group of Mines. Photograph of ETP is already attached in specific condition xviii.

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

Reply: - The Mine is not in operation since November 2013. No mining operation was carried out during the above period and as on date.

We agree to comply with the provision stipulated herein post resumption of mining operation as complied in past.

Condition x:- 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: - Adhering to our environmental policies and in order to create more awareness at mines site regarding environment, separate Environmental Management Cell (EMC) has been constituted and is functioning effectively. Copy of the same is enclosed as **Annexure-3**.

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

Reply: - Mining Plan along with Progressive mine Closure Plan has been approved by IBM, Ranchi. This was an operating Mine, hence provision related to Financial closure is not applicable. Currently, the MOEF&CC Regional Office is located at Ranchi.

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

Reply: - The funds earmarked for environmental protection measures is being budgeted. Annual expenditure is being reported to the Ministry as attached as **Annexure 5**.

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

Reply: - Being complied with. Currently, the MOEF&CC Regional Office is located at Ranchi.

Condition xiv: -The project proponent shall submit six monthly reports on the status of compliance of the stipulated environmental clearance conditions including results of monitored data (both in hard copies as well as by e-mail to the Ministry of Environment and Forests, its Regional office Bhubaneswar, the respective Zonal office of Central Pollution Control Board the State Pollution Control Board. The proponent shall upload the status of compliance of the environmental clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the Ministry of Environment and Forest, Bhubaneswar, the respective zonal office of Central Pollution Control Board and the State Pollution Control Board.

Reply: - Six monthly reports on the status of compliance of the stipulated environmental clearance conditions including results of monitored data are being submitted by e-mail to the Ministry of Environment and Forests, its Regional office Ranchi, the respective Zonal office of Central Pollution Control Board the State Pollution Control Board and uploaded in company's website.

Condition xv: -A copy of clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parisad / Municipal corporation, urban local body and the local NGO, if any, from whom and suggestions / representations if any were received while processing the proposal. The clearance letter shall also be put on the website of the company by the proponent.

Reply: - A copy of clearance letter has been sent to concerned Panchayat, Zila Parishad / Municipal corporation, urban local body and the local NGO.

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

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

Condition xvii: - The environment statement for each financial year ending 31st March in Form V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental clearance conditions and shall also be sent to the Regional Office of the Ministry of Environment and Forests, Bhubaneswar by e-mail.

Reply: - Environment statement is being submitted regularly to Member Secretary, JSPCB. Also, the status of compliance of EC is uploaded on the website of the company and sent to regional office of MoEF&CC and JSPCB, Ranchi on regular basis. Currently, the MOEF&CC Regional Office is located at Ranchi.

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

Reply: - Noted and already complied.

Annexure 1		
Piezometer Reading - Bagru		
S No	Month	Depth (meter)
1	Apr-24	35.6
2	May-24	35.46
3	Jun-24	35.28
4	Jul-24	34.9
5	Aug-24	34.75
6	Sep-24	34.53

ENVIROCHECK

Lab: MIG, R-3 Housing Colony, Dhanbad, Pin-826001,

State- Jharkhand.

Bagru Bauxite Mine-Environmental Monitoring Report

April 2024

TEST REPORT

Test Report No. : ENVJK/1127/APR/TR(W)24-25	Report Release Date : 18.04.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ENVJK/2024/AA/1652
Address	: Lohardaga, Jharkhand-835302	Location	: Entrance Gate (Ropeway Loading Stn); Bagru Bauxite Mine(75.41ha)
		Sampling Date	: 08.04.2024 to 09.04.2024
Mines Status	: Non Operational	Sample Received Date	: 12.04.2024
Period of Analysis	: 12.04.2024 to 18.04.2024	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)	: 32	2	Barometric Pressure (mmHg)	: 736
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): 2006	65	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	USEPA 1997a,40 CFR Part 50, Appendix L: 2006	31	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part 2): 2001	13.1	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part 6): 2006	23.2	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.012	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	USEPA Method - IO-3.5 (ICP-MS Method)	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m ³	USEPA Method - TO-3 (GC-MS Method)	<2.5	05 (Annual)
Benzo-(a)-Pyrene	ng/m ³	USEPA Method - TO-3A (GC-MS Method)	<0.5	01 (Annual)

Reviewed by :



(Saswata Burman Roy, Dy. Quality Manager)

****End of Report****



Authorised Signatory :



(Bapan Das, Dy. Technical Manager)

TEST REPORT

Test Report No. : ENVJK/1128/APR/TR(W)24-25	Report Release Date : 19.04.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ENVJK/2024/AA/1653
Address	: Lohardaga, Jharkhand-835302	Location	: Administrative Office Bagru Bauxite Mine(75.41ha)
		Sampling Date	: 08.04.2024 to 09.04.2024
Mines Status	: Non Operational	Sample Received Date	: 13.04.2024
Period of Analysis	: 13.04.2024 to 19.04.2024	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)	: 32	2	Barometric Pressure (mmHg)	: 736
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): 2006	66	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	USEPA 1997a,40 CFR Part 50, Appendix L: 2006	38	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part 2): 2001	8.7	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part 6): 2006	25.1	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.008	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	USEPA Method – IO-3.5 (ICP-MS Method)	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m ³	USEPA Method – TO-3 (GC-MS Method)	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m ³	USEPA Method – TO-3A (GC-MS Method)	<0.5	01(Annual)

Reviewed by :



(Saswata Burman Roy, Dy. Quality Manager)

****End of Report****



Authorised Signatory :



(Bapan Das, Dy. Technical Manager)

TEST REPORT

Test Report No. : ENVJK/1129/APR/TR(W)24-25	Report Release Date : 21.04.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ENVJK/2024/AA/1654
Address	: Lohardaga, Jharkhand-835302	Location	: Near Shiv Temple Compound Bagru Bauxite Mine(75.41ha)
		Sampling Date	: 09.04.2024 to 10.04.2024
Mines Status	: Non Operational	Sample Received Date	: 14.04.2024
Period of Analysis	: 14.04.2024 to 21.04.2024	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)	: 32	2	Barometric Pressure (mmHg)	: 736
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): 2006	65	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	USEPA 1997a, 40 CFR Part 50, Appendix L: 2006	34	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part 2): 2001	9.5	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part 6): 2006	24.1	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	0.007	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	USEPA Method - IO-3.5 (ICP-MS Method)	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m ³	USEPA Method - TO-3 (GC-MS Method)	<2.5	05 (Annual)
Benzo-(a)-Pyrene	ng/m ³	USEPA Method - TO-3A (GC-MS Method)	<0.5	01 (Annual)

Reviewed by :



(Saswata Burman Roy, Dy. Quality Manager)

****End of Report****



Authorised Signatory :



(Bapan Das, Dy. Technical Manager)

TEST REPORT

Test Report No. : ENVJK/1130/APR/TR(W)24-25	Report Release Date : 22.04.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ENVJK/2024/AA/1655
Address	: Lohardaga, Jharkhand-835302	Location	: Near Weigh Bridge Bagru Bauxite Mine(75.41ha)
		Sampling Date	: 10.04.2024 to 11.04.2024
Mines Status	: Non Operational	Sample Received Date	: 15.04.2024
Period of Analysis	: 15.04.2024 to 22.04.2024	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)	: 32	2	Barometric Pressure (mmHg)	: 736
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): 2006	93	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	USEPA 1997a, 40 CFR Part 50, Appendix L: 2006	59	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part 2): 2001	14.5	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part 6): 2006	31.2	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.009	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	USEPA Method - IO-3.5 (ICP-MS Method)	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m ³	USEPA Method - TO-3 (GC-MS Method)	<2.5	05 (Annual)
Benzo-(a)-Pyrene	ng/m ³	USEPA Method - TO-3A (GC-MS Method)	<0.5	01 (Annual)

Reviewed by :



(Saswata Burman Roy, Dy. Quality Manager)



Authorised Signatory :



(Bapan Das, Dy. Technical Manager)

Page 1 of 1

TEST REPORT

Test Report No. : ENVJK/1131/APR/TR(W)24-25	Report Release Date : 22.04.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ENVJK/2024/AA/1656
Address	: Lohardaga, Jharkhand-835302	Location	: Near Daldaliya Village Bagru Bauxite Mine (75.41ha)
		Sampling Date	: 11.04.2024 to 12.04.2024
Mines Status	: Non Operational	Sample Received Date	: 16.04.2024
Period of Analysis	: 16.04.2024 to 22.04.2024	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)	: 33	2	Barometric Pressure (mmHg)	: 736
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): 2006	66	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	USEPA 1997a, 40 CFR Part 50, Appendix L: 2006	32	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part 2): 2001	12.9	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part 6): 2006	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)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.012	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	USEPA Method - IO-3.5 (ICP-MS Method)	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m ³	USEPA Method - TO-3 (GC-MS Method)	<2.5	05 (Annual)
Benzo-(a)-Pyrene	ng/m ³	USEPA Method - TO-3A (GC-MS Method)	<0.5	01 (Annual)

Reviewed by :



(Saswata Burman Roy, Dy. Quality Manager)



Authorised Signatory :



(Bapan Das, Dy. Technical Manager)

TEST REPORT

Test Report No. : ENVJK/1132/APR/TR(W)24-25	Report Release Date : 23.04.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ENVJK/2024/AA/1657
Address	: Lohardaga, Jharkhand-835302	Location	: Aditya School Gangupara Bagru Bauxite Mine (75.41ha)
		Sampling Date	: 12.04.2024 to 13.04.2024
Mines Status	: Non Operational	Sample Received Date	: 17.04.2024
Period of Analysis	: 17.04.2024 to 23.04.2024	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)	: 32	2	Barometric Pressure (mmHg)	: 736
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): 2006	62	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	USEPA 1997a, 40 CFR Part 50, Appendix L: 2006	45	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part 2): 2001	11.1	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part 6): 2006	24.6	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.011	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	USEPA Method - IO-3.5 (ICP-MS Method)	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m ³	USEPA Method - TO-3 (GC-MS Method)	<2.5	05 (Annual)
Benzo-(a)-Pyrene	ng/m ³	USEPA Method - TO-3A (GC-MS Method)	<0.5	01 (Annual)

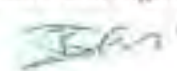
Reviewed by :



(Saswata Burman Roy, Dy. Quality Manager)



Authorised Signatory :



(Bapan Das, Dy. Technical Manager)

TEST REPORT

Test Report No. : ENVJK/1133/APR/TR(W)24-25	Report Release Date : 24.04.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ENVJK/2024/AA/1658
Address	: Lohardaga, Jharkhand-835302	Location	: Ropeway Unloading Station Bagru Bauxite Mine (75.41ha)
		Sampling Date	: 13.04.2024 to 14.04.2024
Mines Status	: Non Operational	Sample Received Date	: 18.04.2024
Period of Analysis	: 18.04.2024 to 24.04.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

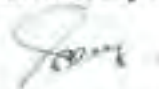
METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 32	2	Barometric Pressure (mmHg)	: 736
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): 2006	71	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	USEPA 1997a, 40 CFR Part 50, Appendix L: 2006	34	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part 2): 2001	9.3	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part 6): 2006	22.8	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.009	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	USEPA Method - IO-3.5 (ICP-MS Method)	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m ³	USEPA Method - TO-3 (GC-MS Method)	<2.5	05 (Annual)
Benzo(a)-Pyrene	ng/m ³	USEPA Method - TO-3A (GC-MS Method)	<0.5	01 (Annual)

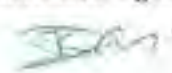
Reviewed by :



(Saswata Burman Roy, Dy. Quality Manager)



Authorised Signatory :



(Bapan Das, Dy. Technical Manager)

TEST REPORT

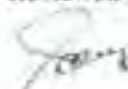
Test Report No. : ENVJK/1134/APR/TR(W)24-25	Report Release Date : 25.04.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ENVJK/2024/AA/1659
Address	: Lohardaga, Jharkhand-835302	Location	: Ropeway Angle Station Bagru Bauxite Mine (75.41ha)
		Sampling Date	: 14.04.2024 to 15.04.2024
Mines Status	: Non Operational	Sample Received Date	: 19.04.2024
Period of Analysis	: 19.04.2024 to 25.04.2024	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)	: 33	2	Barometric Pressure (mmHg)	: 736
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): 2006	63	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	USEPA 1997a, 40 CFR Part 50, Appendix L: 2006	38	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part 2): 2001	10.1	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part 6): 2006	24.3	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.012	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	USEPA Method - IO-3.5 (ICP-MS Method)	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m ³	USEPA Method - TO-3 (GC-MS Method)	<2.5	05 (Annual)
Benzo-(a)-Pyrene	ng/m ³	USEPA Method - TO-3A (GC-MS Method)	<0.5	01 (Annual)

Reviewed by :

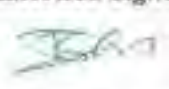


(Siswata Burman Roy, Dy. Quality Manager)

****End of Report****



Authorised Signatory :



(Bapan Das, Dy. Technical Manager)

Page 1 of 1

CONTENT

Hindalco Industries :Bagru Bauxite Mine Environmental Monitoring Report		May2024
Bagru Bauxite Mine		
AMBIENT AIR QUALITY- CORE ZONE		
1	Entrance Gate (Ropeway Loading Station)	
2	Administrative Office	
3	Near Shiv Temple Compound	
4	Near Weigh Bridge	
AMBIENT AIR QUALITY- BUFFER ZONE		
1	Near Daldaliya Village	
2	Aditya School Gangupara	
3	Ropeway unloading station	
4	Ropeway Angle Station	
Drinking Water		
Effluent Water		
1	ETP	
2	STP	





CTN: U74999JH2018PTC011125

ENVIRONMENTAL LABORATORIES &

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

ENGINEERING SERVICES PVT. LTD.

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Website : www.elespl.co.in



TEST REPORT

Test Report No.	: ELES/RNC/2024/2587	Report Release Date	: 15.05.2024
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC135872400000556F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/2904
Address	: Lohardaga, Jharkhand-835302	Location	: Entrance Gate (Ropeway Loading Stn); Bagru Bauxite Mine(75.41ha)
		Sampling Date	: 07.05.2024 to 08.05.2024
Mines Status	: Non Operational	Sample Received Date	: 10.05.2024
Period of Analysis	: 10.05.2024 to 15.05.2024	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)	: 30	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 58	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 23): 2022	68	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	37	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- II/Sec- 1): 2023	13.8	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	25.4	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	0.015	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)

Page 1 of 2

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ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
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CIN: U74999JH2018PTC011125

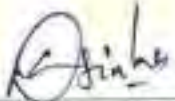
TEST REPORT

Test Report No. : ELES/RNC/2024/2587	Report Release Date : 15.05.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400000556F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
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
ELES PVT. LTD.

****End of Report****


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



ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
HATIA, RANCHI-834003 (JHARKHAND)
GST NO:- 20AAECE97130T24

ENGINEERING SERVICES PVT. LTD.

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



TEST REPORT

Test Report No. : ELES/RNC/2024/2588	Report Release Date : 15.05.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400000557F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/2905
Address	: Lohardaga, Jharkhand-835302	Location	: Administrative Office Bagru Bauxite Mine(75.4)ha
		Sampling Date	: 07.05.2024 to 08.05.2024
Mines Status	: Non Operational	Sample Received Date	: 10.05.2024
Period of Analysis	: 10.05.2024 to 15.05.2024	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)	: 30	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 58	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part- 23): 2022	69	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	42	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- II/Sec- 1): 2023	12.5	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	28.8	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.005	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)

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CIN: U74999JH2016PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/2588	Report Release Date : 15.05.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400000557F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
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
ELES PVT. LTD.

****End of Report****

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



ENVIRONMENTAL LABORATORIES &

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CIN: U74999JH3018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/2589	Report Release Date : 15.05.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TCL35872400000558F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/2906
Address	: Lohardaga, Jharkhand-835302	Location	: Near Shiv Temple Compound Bagru Bauxite Mine(75.41ha)
		Sampling Date	: 07.05.2024 to 08.05.2024
Mines Status	: Non Operational	Sample Received Date	: 10.05.2024
Period of Analysis	: 10.05.2024 to 15.05.2024	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)	: 30	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 58	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part- 23): 2022	79	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	44	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- II/Sec- I): 2023	13.7	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	27.1	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/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)

Page 1 of 2

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CIN: U74999JH2018PTC311125

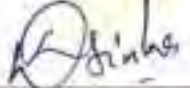
TEST REPORT

Test Report No. : ELES/RNC/2024/2589	Report Release Date : 15.05.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400000558F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
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
ELES PVT. LTD.

****End of Report****


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



ENVIRONMENTAL LABORATORIES &

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CIN: U74999JH2018PTC011175

TEST REPORT

Test Report No. : ELES/RNC/2024/2590	Report Release Date : 15.05.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400000559F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/2907
Address	: Lohardaga, Jharkhand-835302	Location	: Near Weigh Bridge Bagru Bauxite Mine (75.41 ha)
		Sampling Date	: 07.05.2024 to 08.05.2024
Mines Status	: Non Operational	Sample Received Date	: 10.05.2024
Period of Analysis	: 10.05.2024 to 15.05.2024	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)	: 30	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 58	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part- 23): 2022	98	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	57	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- II/Sec- 1): 2023	16.2	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	34.6	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.011	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)

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ENVIRONMENTAL LABORATORIES &

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CIN: U74999JH2018FTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/2590	Report Release Date : 15.05.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400000559F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
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
ELES PVT. LTD.

****End of Report****

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



CIN: U74909JH2018PTC031125

ENVIRONMENTAL LABORATORIES &

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TEST REPORT

Test Report No. : ELES/RNC/2024/2591	Report Release Date : 15.05.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400000560F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/2908
Address	: Lohardaga, Jharkhand-835302	Location	: Near Daldaliya Village Bagru Bauxite Mine (75.41ha)
		Sampling Date	: 07.05.2024 to 08.05.2024
Mines Status	: Non Operational	Sample Received Date	: 10.05.2024
Period of Analysis	: 10.05.2024 to 15.05.2024	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)	: 30	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 58	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 23): 2022	51	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	26	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- II/Sec- 1): 2023	8.8	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	23.2	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	0.007	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)

Page 1 of 2

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ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
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CIN: U74999JH30129PTC011225

TEST REPORT

Test Report No. : ELES/RNC/2024/2591	Report Release Date : 15.05.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400000560F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
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
ELES PVT. LTD.

****End of Report****


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



ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSARVAR ENCLAVE, TUPUDANA
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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/2592	Report Release Date : 15.05.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400000561F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/2909
Address	: Lohardaga, Jharkhand-835302	Location	: Aditya School Gangupara Bagru Bauxite Mine (75.41ha)
		Sampling Date	: 07.05.2024 to 08.05.2024
Mines Status	: Non Operational	Sample Received Date	: 10.05.2024
Period of Analysis	: 10.05.2024 to 15.05.2024	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)	: 30	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 58	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part- 23): 2022	73	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	42	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- II/Sec- 1): 2023	12.8	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	21.3	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)	<1.0	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)

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ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/2592	Report Release Date : 15.05.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400000561F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
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
ELES PVT. LTD.

****End of Report****

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



ENVIRONMENTAL LABORATORIES &

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



TEST REPORT

Test Report No.	: ELES/RNC/2024/2593	Report Release Date	: 15.05.2024
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC135872400000562F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/2910
Address	: Lohardaga, Jharkhand-835302	Location	: Ropeway Unloading Station Bagru Bauxite Mine (75.41ha)
		Sampling Date	: 07.05.2024 to 08.05.2024
Mines Status	: Non Operational	Sample Received Date	: 10.05.2024
Period of Analysis	: 10.05.2024 to 15.05.2024	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)	: 30	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 58	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part- 23): 2022	67	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- II/Sec- 1): 2023	11.2	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	25.5	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)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.005	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)

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TC-13307

TEST REPORT

Test Report No. : ELES/RNC/2024/2593	Report Release Date : 15.05.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400000562F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
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
ELES PVT. LTD.

****End of Report****


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



ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/2594	Report Release Date : 15.05.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400000563F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/2911
Address	: Lohardaga, Jharkhand-835302	Location	: Ropeway Angle Station Bagru Bauxite Mine (75.41 ha)
		Sampling Date	: 07.05.2024 to 08.05.2024
Mines Status	: Non Operational	Sample Received Date	: 10.05.2024
Period of Analysis	: 10.05.2024 to 15.05.2024	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)	: 30	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 58	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part- 23): 2022	59	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- 11/Sec- 1): 2023	7.9	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	26.5	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)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.007	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)

Page 1 of 2

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"Save Environment, Save Future"



ENVIRONMENTAL LABORATORIES &

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CIN: U74999JH2019PTC011125

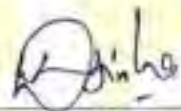
TEST REPORT

Test Report No. : ELES/RNC/2024/2594	Report Release Date : 15.05.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400000563F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
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
 ELES PVT. LTD.

****End of Report****


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

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TC-1387

TEST REPORT

Test Report No. : ELES/RNC/2024/2885	Report Release Date : 28.05.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400000845F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/DW/2921
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 07.05.2024
		Sample Received Date	: 10.05.2024
Mines Status	: Non Operational	Type of Sample	: Drinking Water
Period of Analysis	: 10.05.2024 to 18.05.2024	Source/Location of Sample	: Bagru Bauxite Mines (75.71 ha)
		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 25.8°C)	-	APHA 24 th Ed.2023, 4500-H	6.50	6.5-8.5	No Relaxation
Turbidity	NTU	APHA 24 th Ed.2023, 2130 B	0.33	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	15
Total Dissolved Solids (TDS)	mg/L	APHA 24 th Ed.2023, 2540B,C&D	78	500	2000
Chloride (as Cl)	mg/L	APHA 24 th Ed.2023, 4500 Cl B	3.8	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	32.9	200	600
Total Hardness (as CaCO ₃)	mg/L	APHA 24 th Ed.2023, 2340 C	34.8	200	600
Sulphate (as SO ₄)	mg/L	APHA 24 th Ed.2023, 4500 SO ₄ ²⁻ -E	1.22	200	400
Nitrate (as NO ₃)	mg/L	APHA 24 th Ed.2023, 4500 NO ₃ -B	3.23	45	No Relaxation

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TEST REPORT

Test Report No. : ELES/RNC/2024/2885	Report Release Date : 28.05.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400000845F	

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	1.0	
Calcium (as Ca)	mg/L	APHA 24 th Ed.2023, 3500 Ca B.	9.0	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	2.4	
Cadmium (as Cd)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.003)	0.003	No Relaxation	
Total Chromium(as Cr)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.03)	0.05	No Relaxation	
Copper (as Cu)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.03)	0.05	1.5	
Cyanide (as CN)	mg/L	APHA 24 th Ed.2023, 4500 CN-E	BDL (DL: 0.012)	0.05	No Relaxation	
Iron (as Fe)	mg/L	APHA 24 th Ed.2023; 3111B	0.081	1.0	1.0	
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/2024/2885	Report Release Date : 28.05.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400000845F	

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	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	



ENVIRONMENTAL LABORATORIES &

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CIN: U74999JH2018PTC011125

TC-1387

TEST REPORT

Test Report No. : ELES/RNC/2024/2885	Report Release Date : 28.05.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400000845F	

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,DDEand 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: 1. pH and RFC done at Lab.

Reviewed by
AKASH KUMAR
Quality Manager
ELES PVT. LTD.

****End of Report****

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



ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/2885	Report Release Date : 28.05.2024
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/2921
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 07.05.2024
		Sample Received Date	: 10.05.2024
Mines Status	: Non Operational	Type of Sample	: Drinking Water
		Source/Location of Sample	: Bagru Bauxite Mines (75.71 ha)
Period of Analysis	: 10.05.2024 to 18.05.2024	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	CL-6, IS: 3025 (P-39)	BDL (DL: 0.1)	1.0	No Relaxation

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

Reviewed by
AKASH KUMAR
Quality Manager
ELES PVT. LTD.

****End of Report****

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



ENVIRONMENTAL LABORATORIES &

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TC-1287

TEST REPORT

Test Report No. : ELES/RNC/2024/2904	Report Release Date : 28.05.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400000864F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/EF/2924
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 08.05.2024
		Sample Received Date	: 10.05.2024
Mines Status	: Non Operational	Type of Sample	: Effluent Water
Period of Analysis	: 10.05.2024 to 18.05.2024	Source of Sample	: Work Shop Effluent - Bagru Bauxite Mines (75.41 ha)
		Sampling Procedure	: ELES/DOC/SMPL/01
		Sample Collected 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 25.8°C)	-	APHA 24 th Ed.2023.4500-H	8.38	5.5-9.0	5.5-9.0
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part-16): 2023	522	--	--
Total Suspended Solids (TSS)	mg/L	IS 3025 (Part-17): 2022	30.2	100	200
Dissolved Oxygen (DO)	mg/L	IS 3025 (Part-38): 2019	6.4	--	--
Biochemical Oxygen Demand (BOD) (at 27 °C for 3 days)	mg/L	IS 3025 (Part-44): 2023	5.8	30	100
Chemical Oxygen Demand (COD)	mg/L	IS 3025 (Part-58): 2023	45.6	250	--
Dissolved Phosphate (as P)	mg/L	IS 3025 (Part-31/Sec-1): 2022	BDL (DL: 0.04)	5.0	--
Fluoride (as F)	mg/L	IS 3025 (Part-60): 2019	0.963	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	BDL (DL: 1.0)	10	10

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TC-1308T

CIN: U74999JH2018PTC031125

TEST REPORT

Test Report No. : ELES/RNC/2024/2904	Report Release Date : 28.05.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC13587240000864F	

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	0.112	2.0	--
Mercury (as Hg)	mg/L	IS 3025(Part-48): 1994; RA2019	BDL (DL: 0.001)	0.01	--
Nickel (as Ni)	mg/L	APHA 24 th Ed.2023, 3111 B	BDL (DL: 0.01)	3.0	--
Zinc (as Zn)	mg/L	APHA 24 th Ed.2023, 3111 B	BDL (DL: 0.1)	5.0	--

Remarks: pH done at Lab.

Reviewed by
AKASH KUMAR
Quality Manager
ELES PVT. LTD.

****End of Report****

Authorised Signatory

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



ENVIRONMENTAL LABORATORIES &

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No.	: ELES/RNC/2024/2905	Report Release Date	: 28.05.2024
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC135872400000865F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/EF/2925
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 08.05.2024
		Sample Received Date	: 10.05.2024
Mines Status	: Non Operational	Type of Sample	: Effluent Water
Period of Analysis	: 10.05.2024 to 18.05.2024	Source of Sample	: STP Outlet- Bagru Bauxite Mines (75.41 ha)
		Sampling Procedure	: ELES/DOC/SMPL/01
		Sample Collected 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 25.8°C)	-	APHA 24 th Ed.2023,4500-H	6.65	5.5-9.0	5.5-9.0
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part-16): 2023	432	—	—
Total Suspended Solids (TSS)	mg/L	IS 3025 (Part-17): 2022	15.3	100	200
Biochemical Oxygen Demand (BOD) (at 27 °C for 3 days)	mg/L	IS 3025 (Part-44): 2023	6.4	30	100
Chemical Oxygen Demand (COD)	mg/L	IS 3025 (Part-58): 2023	56.1	250	—
Calcium (as Ca)	mg/L	IS 3025 (Part-40): 2019	11.4	—	—
Oil & Grease	mg/L	IS 3025 (Part-39): 2021	1.8	10	10
Discipline : Chemical		Group : Residues in 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	0.249	3.0	—

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CIN: U74999JH2018PTC011121

TEST REPORT

Test Report No. : ELES/RNC/2024/2905	Report Release Date : 28.05.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400000865F	

Discipline : Biological		Group : Pollution & Environment		Discharge Limits – CPCB EPR, 1986 Schedule VI	
Parameter	Unit	Test Protocol	Result	Inland Surface Water	Land for Irrigation
Faecal Coliform	MPN/100ml	APHA 24 th Ed.2023, 9221E	9.2×10 ³	--	—

Remarks: pH done at Lab.


Reviewed by
AKASH KUMAR
 Quality Manager
 ELES PVT. LTD.

****End of Report****


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

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CONTENT

Hindalco Industries : Bagru Bauxite Mine Environmental Monitoring Report		June2024
Bagru Bauxite Mine		
AMBIENT AIR QUALITY- CORE ZONE		
1	Entrance Gate (Ropeway Loading Station)	
2	Administrative Office	
3	Near Shiv Temple Compound	
4	Near Weigh Bridge	
AMBIENT AIR QUALITY- BUFFER ZONE		
1	Near Daldaliya Village	
2	Aditya School Gangupara	
3	Ropeway unloading station	
4	Ropeway Angle Station	





CIN: U74909JH2018PTC011125

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TC-12507

TEST REPORT

Test Report No. : ELES/RNC/2024/3240	Report Release Date : 19.06.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400001192F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/3577
Address	: Lohardaga, Jharkhand-835302	Location	: Entrance Gate (Ropeway Loading Stn); Bagru Bauxite Mine(75.41ha)
		Sampling Date	: 10.06.2024 to 11.06.2024
Mines Status	: Non Operational	Sample Received Date	: 13.06.2024
Period of Analysis	: 13.06.2024 to 19.06.2024	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)	: 37	2	Barometric Pressure (mmHg)	: 742
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	63	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- II/Sec- 1): 2023	11.5	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	28.1	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	0.008	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)

Page 1 of 2

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"Save Environment, Save Future"



CIN: U74999JH2018PTC011125

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TC-1987

TEST REPORT

Test Report No. : ELES/RNC/2024/3240	Report Release Date : 19.06.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400001192F	

Discipline: Chemical

Group: Atmospheric Pollution

Parameter	Unit	Test Protocol	Result	Regulatory Limit
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
ELES PVT. LTD.

****End of Report****

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



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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No.	: ELES/RNC/2024/3241	Report Release Date	: 19.06.2024
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC135872400001193F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/3578
Address	: Lohardaga, Jharkhand-835302	Location	: Administrative Office Bagru Bauxite Mine(75.41ha)
		Sampling Date	: 10.06.2024 to 11.06.2024
Mines Status	: Non Operational	Sample Received Date	: 13.06.2024
Period of Analysis	: 13.06.2024 to 19.06.2024	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)	: 37	2	Barometric Pressure (mmHg)	: 742
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	62	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	31	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- II/Sec- 1): 2023	10.2	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	22.6	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Amonia (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 (NIR 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)

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CIN: U74999JH2018PTC011125

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TC-11587

TEST REPORT

Test Report No. : ELES/RNC/2024/3241	Report Release Date : 19.06.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400001193F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
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
ELES PVT. LTD.

****End of Report****

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



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CIN: U74999IN2018PT011125

TEST REPORT

Test Report No. : ELES/RNC/2024/3242	Report Release Date : 19.06.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400001194F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/3579
Address	: Lohardaga, Jharkhand-835302	Location	: Near Shiv Temple Compound Bagru Bauxite Mine(75.41ha)
		Sampling Date	: 10.06.2024 to 11.06.2024
Mines Status	: Non Operational	Sample Received Date	: 13.06.2024
Period of Analysis	: 13.06.2024 to 19.06.2024	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)	: 37	2	Barometric Pressure (mmHg)	: 742
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	70	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	36	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- II/Sec- 1): 2023	10.4	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	24.2	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	0.006	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)

Page 1 of 2

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CIN: U74999JH2018PTC031125

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TC-15587

TEST REPORT

Test Report No. : ELES/RNC/2024/3242	Report Release Date : 19.06.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400001194F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
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
ELES PVT. LTD.

****End of Report****

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



ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSARDVAR ENCLAVE, TUPUDANA
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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/3243	Report Release Date : 19.06.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400001195F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/3580
Address	: Lohardaga, Jharkhand-835302	Location	: Near Weigh Bridge Bagru Bauxite Mine (75.41ha)
		Sampling Date	: 10.06.2024 to 11.06.2024
Mines Status	: Non Operational	Sample Received Date	: 13.06.2024
Period of Analysis	: 13.06.2024 to 19.06.2024	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)	: 37	2	Barometric Pressure (mmHg)	: 742
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	89	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	50	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 11/Sec- 1): 2023	13.5	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	30.1	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	0.014	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)

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/3243	Report Release Date : 19.06.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400001195F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
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
 ELES PVT. LTD.

****End of Report****


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



ENVIRONMENTAL LABORATORIES &

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/3244	Report Release Date : 19.06.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
U/LR No. : TC135872400001196F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/3581
Address	: Lohardaga, Jharkhand-835302	Location	: Near Daldaliya Village Bagru Bauxite Mine (75.41ha)
		Sampling Date	: 10.06.2024 to 11.06.2024
Mines Status	: Non Operational	Sample Received Date	: 13.06.2024
Period of Analysis	: 13.06.2024 to 19.06.2024	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)	: 37	2	Barometric Pressure (mmHg)	: 742
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	66	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- II/Sec- 1): 2023	12.2	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)	<1.0	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)

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/3244	Report Release Date : 19.06.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400001196F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
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
ELES PVT. LTD.

****End of Report****

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



CIN: U74999JH2018PTC011125

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TEST REPORT

Test Report No. : ELES/RNC/2024/3245	Report Release Date : 19.06.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400001197F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/3582
Address	: Lohardaga, Jharkhand-835302	Location	: Aditya School Gangupara Bagru Bauxite Mine (75.41ha)
		Sampling Date	: 10.06.2024 to 11.06.2024
Mines Status	: Non Operational	Sample Received Date	: 13.06.2024
Period of Analysis	: 13.06.2024 to 19.06.2024	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)	: 37	2	Barometric Pressure (mmHg)	: 742
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	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- II/Sec- 1): 2023	9.2	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	25.6	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	0.013	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)

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/3245	Report Release Date : 19.06.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400001197F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
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
ELES PVT. LTD.

****End of Report****

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



ENVIRONMENTAL LABORATORIES &

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TEST REPORT

Test Report No. : ELES/RNC/2024/3246	Report Release Date : 19.06.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400001198F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/3583
Address	: Lohardaga, Jharkhand-835302	Location	: Ropeway Unloading Station Bagru Bauxite Mine (75.41ha)
		Sampling Date	: 10.06.2024 to 11.06.2024
Mines Status	: Non Operational	Sample Received Date	: 13.06.2024
Period of Analysis	: 13.06.2024 to 19.06.2024	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)	: 37	2	Barometric Pressure (mmHg)	: 742
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	74	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	43	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- II/Sec- 1): 2023	12.7	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	20.2	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.011	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)

Page 1 of 2

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ENVIRONMENTAL LABORATORIES &

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CIN: U74999JH2018PTC011225

TEST REPORT

Test Report No. : ELES/RNC/2024/3246	Report Release Date : 19.06.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400001198F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
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
ELES PVT. LTD.

****End of Report****

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



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CIN: U74999JK0016PTC011225

TEST REPORT

Test Report No. : ELES/RNC/2024/3247	Report Release Date : 19.06.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400001199F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/3584
Address	: Lohardaga, Jharkhand-835302	Location	: Ropeway Angle Station Bagru Bauxite Mine (75.41ha)
		Sampling Date	: 10.06.2024 to 11.06.2024
Mines Status	: Non Operational	Sample Received Date	: 13.06.2024
Period of Analysis	: 13.06.2024 to 19.06.2024	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)	: 37	2	Barometric Pressure (mmHg)	: 742
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	65	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- II/Sec- 1): 2023	11.2	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	0.012	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)

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/3247	Report Release Date : 19.06.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400001199F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
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
ELES PVT. LTD.

****End of Report****


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

CONTENT

Hindalco Industries : Bagru Bauxite Mine Environmental Monitoring Report		July 2024
Bagru Bauxite Mine		
	AMBIENT AIR QUALITY- CORE ZONE	
1	Entrance Gate (Ropeway Loading Station)	
2	Administrative Office	
3	Near Shiv Temple Compound	
4	Near Weigh Bridge	
	AMBIENT AIR QUALITY- BUFFER ZONE	
1	Near Daldaliya Village	
2	Aditya School Gangupara	
3	Ropeway unloading station	
4	Ropeway Angle Station	





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CIN: U74999JH2018PTC011129

TEST REPORT

Test Report No. : ELES/RNC/2024/3970	Report Release Date : 18.07.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400001906F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/4580
Address	: Lohardaga, Jharkhand-835302	Location	: Entrance Gate (Ropeway Loading Stn): Bagru Bauxite Mine(75.41ha)
		Sampling Date	: 09.07.2024 to 10.07.2024
Mines Status	: Non Operational	Sample Received Date	: 12.07.2024
Period of Analysis	: 12.07.2024 to 18.07.2024	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)	: 31	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)	µg/m ³	IS 5182 (Part- 23): 2022	60	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	28	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- 11/Sec- 1): 2023	12.7	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	26.9	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)	<1.0	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)

Page 1 of 2

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Test Report generated using Test Report



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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/3970	Report Release Date : 18.07.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400001906F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
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
 ELES PVT. LTD

****End of Report****


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



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CIN: U74999JH2013PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/3971	Report Release Date : 18.07.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400001907F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/4581
Address	: Lohardaga, Jharkhand-835302	Location	: Administrative Office Bagru Bauxite Mine(75.41ha)
		Sampling Date	: 09.07.2024 to 10.07.2024
Mines Status	: Non Operational	Sample Received Date	: 12.07.2024
Period of Analysis	: 12.07.2024 to 18.07.2024	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)	: 31	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)	µg/m ³	IS 5182 (Part- 23): 2022	59	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	26	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- II/Sec- 1): 2023	8.5	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	19.7	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	0.008	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)

Page 1 of 2

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TC-12587

CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/3971	Report Release Date : 18.07.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400001907F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C ₆ H ₆)	µg/m ³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m ³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)


AKASH KUMAR
Quality Manager
ELES PVT. LTD.

****End of Report****


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



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CIN: U74999HR2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/3972	Report Release Date : 18.07.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400001908F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/4582
Address	: Lohardaga, Jharkhand-835302	Location	: Near Shiv Temple Compound Bagru Bauxite Mine(75.41ha)
		Sampling Date	: 09.07.2024 to 10.07.2024
Mines Status	: Non Operational	Sample Received Date	: 12.07.2024
Period of Analysis	: 12.07.2024 to 18.07.2024	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)	: 31	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	64	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	32	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- II/Sec- 1): 2023	11.8	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 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	0.005	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)

Page 1 of 2

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TC-19887

CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/3972	Report Release Date : 18.07.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400001908F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
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
ELES PVT. LTD.

****End of Report****

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



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TC-11887

TEST REPORT

Test Report No.	: ELES/RNC/2024/3973	Report Release Date	: 18.07.2024
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC135872400001909F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/4583
Address	: Lohardaga, Jharkhand-835302	Location	: Near Weigh Bridge Bagru Bauxite Mine (75.41ha)
		Sampling Date	: 09.07.2024 to 10.07.2024
Mines Status	: Non Operational	Sample Received Date	: 12.07.2024
Period of Analysis	: 12.07.2024 to 18.07.2024	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)	: 31	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	73	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	52	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- II/Sec- 1): 2023	14.8	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	28.3	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	0.009	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)

Page 1 of 2

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/3973	Report Release Date : 18.07.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400001909F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C ₆ H ₆)	µg/m ³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m ³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)


AKASH KUMAR
 Quality Manager
 ELES PVT. LTD.

****End of Report****


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



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TEST REPORT

Test Report No. : ELES/RNC/2024/3974	Report Release Date : 18.07.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400001910F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/4584
Address	: Lohardaga, Jharkhand-835302	Location	: Near Daldaliya Village Bagru Bauxite Mine (75.41ha)
		Sampling Date	: 09.07.2024 to 10.07.2024
Mines Status	: Non Operational	Sample Received Date	: 12.07.2024
Period of Analysis	: 12.07.2024 to 18.07.2024	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)	: 31	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)	µg/m ³	IS 5182 (Part- 23): 2022	61	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	30	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- II/Sec- 1): 2023	11.5	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	23.9	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)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.007	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)

Page 1 of 2

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"Save Environment, Save Future"



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TEST REPORT

Test Report No. : ELES/RNC/2024/3974	Report Release Date : 18.07.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400001910F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C ₆ H ₆)	µg/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
ELES PVT. LTD.

****End of Report****

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



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TEST REPORT

Test Report No. : ELES/RNC/2024/3975	Report Release Date : 18.07.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400001911F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/4585
Address	: Lohardaga, Jharkhand-835302	Location	: Aditya School Gangupara Bagru Bauxite Mine (75.41ha)
		Sampling Date	: 09.07.2024 to 10.07.2024
Mines Status	: Non Operational	Sample Received Date	: 12.07.2024
Period of Analysis	: 12.07.2024 to 18.07.2024	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)	: 31	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)	µg/m ³	IS 5182 (Part- 23): 2022	60	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- 11/Sec- 1): 2023	12.8	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	23.3	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)	<1.0	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)

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/3975	Report Release Date : 18.07.2024
Work Order No. : 136I23I2113	Work Order Date : 28.03.2024
ULR No. : TC135872400001911F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
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
ELES PVT. LTD.

****End of Report****

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



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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/3976	Report Release Date : 18.07.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400001912F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/4586
Address	: Lohardaga, Jharkhand-835302	Location	: Ropeway Unloading Station Bagru Bauxite Mine (75.41ha)
		Sampling Date	: 09.07.2024 to 10.07.2024
Mines Status	: Non Operational	Sample Received Date	: 12.07.2024
Period of Analysis	: 12.07.2024 to 18.07.2024	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)	: 31	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)	µg/m ³	IS 5182 (Part- 23): 2022	68	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- II/Sec- 1): 2023	10.3	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	18.7	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	0.009	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)

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CIN: U74909JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/3976	Report Release Date : 18.07.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400001912F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
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
ELES PVT. LTD.

****End of Report****

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



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TC-19MT

CIN: U74999JH2018PT0011125

TEST REPORT

Test Report No. : ELES/RNC/2024/3977	Report Release Date : 18.07.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400001913F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/4587
Address	: Lohardaga, Jharkhand-835302	Location	: Ropeway Angle Station Bagru Bauxite Mine (75.41ha)
		Sampling Date	: 09.07.2024 to 10.07.2024
Mines Status	: Non Operational	Sample Received Date	: 12.07.2024
Period of Analysis	: 12.07.2024 to 18.07.2024	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)	: 31	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)	µg/m ³	IS 5182 (Part- 23): 2022	61	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	32	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- 11/Sec- 1): 2023	8.5	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	22.8	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.008	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)

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TC-13587

TEST REPORT

Test Report No. : ELES/RNC/2024/3977	Report Release Date : 18.07.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400001913F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
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
ELES PVT. LTD.

****End of Report****

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

CONTENT

Hindalco Industries : Bagru Bauxite Mine Environmental Monitoring Report		August 2024
Bagru Bauxite Mine		
AMBIENT AIR QUALITY- CORE ZONE		
1	Entrance Gate (Ropeway Loading Station)	
2	Administrative Office	
3	Near Shiv Temple Compound	
4	Near Weigh Bridge	
AMBIENT AIR QUALITY- BUFFER ZONE		
1	Near Daldaliya Village	
2	Aditya School Gangupara	
3	Ropeway unloading station	
4	Ropeway Angle Station	
Drinking Water		
Effluent Water		
1	ETP	
2	STP	





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TC-13587

CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No.	: ELES/RNC/2024/4693	Report Release Date	: 20.08.2024
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC135872400002613F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/5383
Address	: Lohardaga, Jharkhand-835302	Location	: Entrance Gate (Ropeway Loading Stn); Bagru Bauxite Mine(75.41ha)
		Sampling Date	: 08.08.2024 to 09.08.2024
Mines Status	: Non Operational	Sample Received Date	: 12.08.2024
Period of Analysis	: 12.08.2024 to 19.08.2024	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 (%)	: 69	4	Weather Condition	: Cloudy

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part- 23): 2022	57	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	25	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- II/Sec- 1): 2023	10.8	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	27.5	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)	<1.0	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)

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/4693	Report Release Date : 20.08.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002613F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
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
ELES PVT. LTD.

****End of Report****

Authorised Signatory

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



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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/4694	Report Release Date : 20.08.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002614F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/5384
Address	: Lohardaga, Jharkhand-835302	Location	: Administrative Office Bagru Bauxite Mine(75.41ha)
		Sampling Date	: 08.08.2024 to 09.08.2024
Mines Status	: Non Operational	Sample Received Date	: 12.08.2024
Period of Analysis	: 12.08.2024 to 19.08.2024	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 (%)	: 69	4	Weather Condition	: Cloudy

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 23): 2022	55	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	24	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- II/Sec- 1): 2023	6.5	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	16.2	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	0.005	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/4694	Report Release Date : 20.08.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002614F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
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
ELES PVT. LTD.

****End of Report****


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

Page 2 of 2

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TEST REPORT

Test Report No. : ELES/RNC/2024/4695	Report Release Date : 20.08.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002615F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/5385
Address	: Lohardaga, Jharkhand-835302	Location	: Near Shiv Temple Compound Bagru Bauxite Mine(75.41ha)
		Sampling Date	: 08.08.2024 to 09.08.2024
Mines Status	: Non Operational	Sample Received Date	: 12.08.2024
Period of Analysis	: 12.08.2024 to 19.08.2024	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 (%)	: 69	4	Weather Condition	: Cloudy

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 23): 2022	58	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- II/Sec- 1): 2023	9.8	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	20.5	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	<0.002	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)

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TEST REPORT

Test Report No. : ELES/RNC/2024/4695	Report Release Date : 20.08.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002615F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
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
ELES PVT. LTD

****End of Report****

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



CIN: U74999JH2018PTC011225

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TEST REPORT

Test Report No. : ELES/RNC/2024/4696	Report Release Date : 20.08.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002616F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/5386
Address	: Lohardaga, Jharkhand-835302	Location	: Near Weigh Bridge Bagru Bauxite Mine (75.41ha)
		Sampling Date	: 08.08.2024 to 09.08.2024
Mines Status	: Non Operational	Sample Received Date	: 12.08.2024
Period of Analysis	: 12.08.2024 to 19.08.2024	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 (%)	: 69	4	Weather Condition	: Cloudy

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	47	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- 11/Sec- 1): 2023	12.4	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	25.7	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	0.012	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)

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/4696	Report Release Date : 20.08.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002616F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
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
ELES PVT. LTD.

****End of Report****

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



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CIN: U74999JH2018PTL011125

TEST REPORT

Test Report No. : ELES/RNC/2024/4697	Report Release Date : 20.08.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002617F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/5387
Address	: Lohardaga, Jharkhand-835302	Location	: Near Daldaliya Village Bagru Bauxite Mine (75.41ha)
		Sampling Date	: 08.08.2024 to 09.08.2024
Mines Status	: Non Operational	Sample Received Date	: 12.08.2024
Period of Analysis	: 12.08.2024 to 19.08.2024	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 (%)	: 69	4	Weather Condition	: Cloudy

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part- 23): 2022	55	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	26	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- II/Sec- 1): 2023	9.2	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	21.4	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	0.013	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)

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CIN: U74999JH2018PTC011125

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TC-13587

TEST REPORT

Test Report No. : ELES/RNC/2024/4697	Report Release Date : 20.08.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002617F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
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
ELES PVT. LTD.

****End of Report****

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

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CIN: U74909JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/4698	Report Release Date : 20.08.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002618F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/5388
Address	: Lohardaga, Jharkhand-835302	Location	: Aditya School Gangupara Bagru Bauxite Mine (75.41 ha)
		Sampling Date	: 08.08.2024 to 09.08.2024
Mines Status	: Non Operational	Sample Received Date	: 12.08.2024
Period of Analysis	: 12.08.2024 to 19.08.2024	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 (%)	: 69	4	Weather Condition	: Cloudy

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 23): 2022	55	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- II/Sec- 1): 2023	10.4	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	21.8	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)

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ENGINEERING SERVICES PVT. LTD.

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CIN: U74599JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/4698	Report Release Date : 20.08.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002618F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
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
ELES PVT. LTD.

****End of Report****

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

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ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
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CIN: U74999JH2018PTL011123

TEST REPORT

Test Report No. : ELES/RNC/2024/4699	Report Release Date : 20.08.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002619F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/5389
Address	: Lohardaga, Jharkhand-835302	Location	: Ropeway Unloading Station Bagru Bauxite Mine (75.41ha)
		Sampling Date	: 08.08.2024 to 09.08.2024
Mines Status	: Non Operational	Sample Received Date	: 12.08.2024
Period of Analysis	: 12.08.2024 to 19.08.2024	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 (%) : 69	4	Weather Condition : Cloudy

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part- 23): 2022	63	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	30	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- II/Sec- 1): 2023	8.9	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	22.2	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	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)

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ENGINEERING SERVICES PVT. LTD.

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TC-1387

CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/4699	Report Release Date : 20.08.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002619F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
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
ELES PVT. LTD.

****End of Report****


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

Page 2 of 2

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"Save Environment, Save Future"



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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/4700	Report Release Date : 20.08.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002620F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/5390
Address	: Lohardaga, Jharkhand-835302	Location	: Ropeway Angle Station Bagru Bauxite Mine (75.41ha)
		Sampling Date	: 08.08.2024 to 09.08.2024
Mines Status	: Non Operational	Sample Received Date	: 12.08.2024
Period of Analysis	: 12.08.2024 to 19.08.2024	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 (%)	: 69	4	Weather Condition	: Cloudy

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 23): 2022	58	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- II/Sec- 1): 2023	9.1	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	20.3	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	0.010	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)

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ENVIRONMENTAL LABORATORIES &

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/4700	Report Release Date : 20.08.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002620F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
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
ELES PVT. LTD.

****End of Report****

Authorised Signatory

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



TEST REPORT

Test Report No. : ELES/RNC/2024/4750	Report Release Date : 22.08.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002669F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/DW/5406
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 09.08.2024
		Sample Received Date	: 12.08.2024
Mines Status	: Operational	Type of Sample	: Drinking Water
		Source of Sample	: Tap Water
Period of Analysis	: 12.08.2024 to 21.08.2024	Location of Sample	: Office (Bagru Bauxite Mines)
		Sampling Procedure	: ELES/DOC/SMPL/01
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

Discipline : Chemical			Group : Water		Regulatory Limit as per IS 10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit	
pH (at 24.7°C)	-	APHA 24 th Ed.2023, 4500-H ⁺	6.74	6.5-8.5	No Relaxation	
Turbidity	NTU	APHA 24 th Ed.2023, 2130 B	0.68	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	106	500	2000	
Chloride (as Cl)	mg/L	APHA 24 th Ed.2023, 4500 Cl B	10.3	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	39.4	200	600	
Total Hardness (as CaCO ₃)	mg/L	APHA 24 th Ed.2023, 2340 C	45.7	200	600	
Sulphate (as SO ₄)	mg/L	APHA 24 th Ed.2023, 4500 SO ₄ ²⁻ -E	3.40	200	400	
Nitrate (as NO ₃)	mg/L	APHA 24 th Ed.2023, 4500 NO ₃ -B	2.54	45	No Relaxation	



TEST REPORT

Test Report No. : ELES/RNC/2024/4750	Report Release Date : 22.08.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002669F	

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	0.34	0.2(Min)	1.0(Min)	
Calcium (as Ca)	mg/L	APHA 24 th Ed.2023, 3500 Ca B	12.2	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		
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
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	0.074	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/2024/4750	Report Release Date : 22.08.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002669F	

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	



CIN: U74999JH2018PTC011125

ENVIRONMENTAL LABORATORIES &

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TC-10587

TEST REPORT

Test Report No. : ELES/RNC/2024/4750	Report Release Date : 22.08.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002669F	

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) (o,p DDE and p,p 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: 1. pH and RFC done at Lab.

Reviewed by
AKASH KUMAR
Quality Manager
ELES PVT. LTD.

****End of Report****

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



ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/4750	Report Release Date : 22.08.2024
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/5406
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 09.08.2024
		Sample Received Date	: 12.08.2024
Mines Status	: Operational	Type of Sample	: Drinking Water
		Source of Sample	: Tap Water
Period of Analysis	: 12.08.2024 to 22.08.2024	Location of Sample	: Office (Bagru Bauxite Mines)
		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
ELES PVT. LTD.

****End of Report****

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



ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/4751	Report Release Date : 22.08.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002670F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindaleo Industries Limited	Sample Ref. No.	: ELES/RNC/2024/EF/5407
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 09.08.2024
		Sample Received Date	: 12.08.2024
Mines Status	: Non Operational	Type of Sample	: Effluent Water
		Source of Sample	: Work Shop Effluent - Bagru Bauxite Mines (75.41 ha)
Period of Analysis	: 12.08.2024 to 21.08.2024	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 ¹	7.89	5.5-9.0	5.5-9.0
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part-16): 2023	488	—	--
Total Suspended Solids (TSS)	mg/L	IS 3025 (Part-17): 2022	28.6	100	200
Dissolved Oxygen (DO)	mg/L	IS 3025 (Part-38): 2019	7.0	—	--
Biochemical Oxygen Demand (BOD) (at 27 °C for 3 days)	mg/L	IS 3025 (Part-44): 2023	6.4	30	100
Chemical Oxygen Demand (COD)	mg/L	IS 3025 (Part-58): 2023	37.4	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	0.48	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	BDL (DL: 1.0)	10	10

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/4751	Report Release Date : 22.08.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002670F	

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	0.110	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	0.114	5.0	--

Remarks: pH done at Lab.

Reviewed by
AKASH KUMAR
Quality Manager
ELES PVT. LTD.

****End of Report****

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



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TC-13587

CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/4752	Report Release Date : 22.08.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002671F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/EF/5408
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 09.08.2024
		Sample Received Date	: 12.08.2024
Mines Status	: Non Operational	Type of Sample	: Effluent Water
		Source of Sample	: STP Outlet- Bagru Bauxite Mines (75.41 ha)
Period of Analysis	: 12.08.2024 to 21.08.2024	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'	6.18	5.5-9.0	5.5-9.0
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part-16): 2023	458	--	--
Total Suspended Solids (TSS)	mg/L	IS 3025 (Part-17): 2022	18.4	100	200
Biochemical Oxygen Demand (BOD) (at 27 °C for 3 days)	mg/L	IS 3025 (Part-44): 2023	8.3	30	100
Chemical Oxygen Demand (COD)	mg/L	IS 3025 (Part-58): 2023	45.0	250	--
Calcium (as Ca)	mg/L	IS 3025 (Part-40): 2019	14.7	--	--
Oil & Grease	mg/L	IS 3025 (Part-39): 2021	1.6	10	10
Discipline : Chemical		Group : Residues in 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	0.248	3.0	--

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CIN: U74999JH2018PTC011125

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TC-13587

TEST REPORT

Test Report No. : ELES/RNC/2024/4752	Report Release Date : 22.08.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002671F	

Discipline : Biological		Group : Pollution & Environment		Discharge Limits - CPCB EPR, 1986 Schedule VI	
Parameter	Unit	Test Protocol	Result	Inland Surface Water	Land for Irrigation
Faecal Coliform	MPN/100ml	APHA 24 th Ed.2023, 9221E	5.4×10 ³	--	--

Remarks: pH done at Lab.

Reviewed by
AKASH KUMAR
Quality Manager
ELES PVT. LTD.

****End of Report****

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

CONTENT

Hindalco Industries ; Bagra Bauxite Mine Environmental Monitoring Report		September 2024
Bagra Bauxite Mine		
AMBIENT AIR QUALITY- CORE ZONE		
1	Entrance Gate (Ropeway Loading Station)	
2	Administrative Office	
3	Near Shiv Temple Compound	
4	Near Weigh Bridge	
AMBIENT AIR QUALITY- BUFFER ZONE		
1	Near Daldaliya Village	
2	Aditya School Gangupara	
3	Ropeway unloading station	
4	Ropeway Angle Station	
AMBIENT NOISE		
WORKZONE NOISE		





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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/5271	Report Release Date : 19.09.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400003184F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/6025
Address	: Lohardaga, Jharkhand-835302	Location	: Entrance Gate (Ropeway Loading Stn); Bagru Bauxite Mine(75.41ha)
		Sampling Date	: 09.09.2024 to 10.09.2024
Mines Status	: Non Operational	Sample Received Date	: 12.09.2024
Period of Analysis	: 12.09.2024 to 19.09.2024	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)	: 26	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 71	4	Weather Condition	: Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part- 23): 2022	55	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	28	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- 2/Sec1): 2023	7.9	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	20.6	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.013	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m ³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m ³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

Reviewed by
Akash Kumar
Quality Manager

****End of Report****

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

Technical Manager

Page 1 of 1

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TC-13587

CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/5272	Report Release Date : 19.09.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400003185F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/6026
Address	: Lohardaga, Jharkhand-835302	Location	: Administrative Office Bagru Bauxite Mine (75.41 ha)
		Sampling Date	: 09.09.2024 to 10.09.2024
Mines Status	: Non Operational	Sample Received Date	: 12.09.2024
Period of Analysis	: 12.09.2024 to 19.09.2024	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)	: 26	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 71	4	Weather Condition	: Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 23): 2022	49	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	23	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 2/Sec1): 2023	5.8	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	18.1	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	$\mu\text{g}/\text{m}^3$	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m^3	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

Reviewed by
Akash Kumar
Quality Manager

****End of Report****

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

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/5273	Report Release Date : 19.09.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400003186F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/6027
Address	: Lohardaga, Jharkhand-835302	Location	: Near Shiv Temple Compound Bagru Bauxite Mine (75.41ha)
		Sampling Date	: 09.09.2024 to 10.09.2024
Mines Status	: Non Operational	Sample Received Date	: 12.09.2024
Period of Analysis	: 12.09.2024 to 19.09.2024	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)	: 26	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 71	4	Weather Condition	: Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 23): 2022	53	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	25	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 2/Sec1): 2023	6.3	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	16.2	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	<0.002	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
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Ph. D. Environmental Engg.

Technical Manager

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"Save Environment, Save Future"



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CIN: U74999JH2018PTC031125

TEST REPORT

Test Report No. : ELES/RNC/2024/5274	Report Release Date : 19.09.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400003187F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/6028
Address	: Lohardaga, Jharkhand-835302	Location	: Near Weigh Bridge Bagru Bauxite Mine (75.41ha)
		Sampling Date	: 09.09.2024 to 10.09.2024
Mines Status	: Non Operational	Sample Received Date	: 12.09.2024
Period of Analysis	: 12.09.2024 to 19.09.2024	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)	: 26	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 71	4	Weather Condition	: 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	31	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- 2/Sec1): 2023	8.5	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	17.2	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.012	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m ³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m ³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

Reviewed by
Akash Kumar
Quality Manager

****End of Report****

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

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CIN: U74999JH2016PTD11125

TEST REPORT

Test Report No. : ELES/RNC/2024/5275	Report Release Date : 19.09.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400003188F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/6029
Address	: Lohardaga, Jharkhand-835302	Location	: Near Daldaliya Village Bagru Bauxite Mine (75.41ha)
		Sampling Date	: 09.09.2024 to 10.09.2024
Mines Status	: Non Operational	Sample Received Date	: 12.09.2024
Period of Analysis	: 12.09.2024 to 19.09.2024	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)	: 26	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 71	4	Weather Condition	: Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 23): 2022	51	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	23	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	17.7	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	0.008	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)

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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CIN: U74999JH2018PTC031125

TC-13587

TEST REPORT

Test Report No. : ELES/RNC/2024/5276	Report Release Date : 19.09.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400003189F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/6030
Address	: Lohardaga, Jharkhand-835302	Location	: Aditya School Gangupara Bagru Bauxite Mine (75.41ha)
Mines Status	: Non Operational	Sampling Date	: 09.09.2024 to 10.09.2024
Period of Analysis	: 12.09.2024 to 19.09.2024	Sample Received Date	: 12.09.2024
		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)	: 26	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 71	4	Weather Condition	: Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part- 23): 2022	59	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	31	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- 2/Sec1): 2023	7.5	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	19.8	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)	1.05	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****

Authorized Signatory
Dr. Deependra Kumar Sinha
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Technical Manager

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CIN: U74999/JH2018PTC031125

TEST REPORT

Test Report No. : ELES/RNC/2024/5277	Report Release Date : 19.09.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400003190F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/6031
Address	: Lohardaga, Jharkhand-835302	Location	: Ropeway Unloading Station Bagru Bauxite Mine (75.41ha)
		Sampling Date	: 09.09.2024 to 10.09.2024
Mines Status	: Non Operational	Sample Received Date	: 12.09.2024
Period of Analysis	: 12.09.2024 to 19.09.2024	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)	: 26	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 71	4	Weather Condition	: Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part- 23): 2022	55	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	26	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- 2/Sec1): 2023	7.1	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	19.3	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 (NIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.007	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01: 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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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/5278	Report Release Date : 19.09.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400003191F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/6032
Address	: Lohardaga, Jharkhand-835302	Location	: Ropeway Angle Station Bagru Bauxite Mine (75.41ha)
		Sampling Date	: 09.09.2024 to 10.09.2024
Mines Status	: Non Operational	Sample Received Date	: 12.09.2024
Period of Analysis	: 12.09.2024 to 19.09.2024	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)	: 26	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 71	4	Weather Condition	: Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 23): 2022	61	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	11.4	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)	1.08	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	0.006	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
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Technical Manager

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TC-13687

CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/5287	Report Release Date : 19.09.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400003200F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sampling Date	: 09.09.2024 to 10.09.2024
Address	: Lohardaga, Jharkhand-835302	Sampling Received Date	: 12.09.2024
		Type of Sample	: Ambient Noise
Mines Status	: Non Operational	Sampling procedure	: ELES/DOC/SMPL/03
		Sampling Done By	: ELES Pvt. Ltd.
		Period of Analysis	: 12.09.2024 to 19.09.2024

METEOROLOGICAL INFORMATION

1	Average Temperature (°C) : 26	2	Barometric Pressure (mmHg) : 742
3	Relative Humidity (%) : 71	4	Weather Condition : Cloudy

Discipline : Chemical			Group : Atmospheric Pollution		
Location	Unit	Test Protocol	Result		Regulatory Limit (Industrial Zone)
			Time	L _{eq}	
Near Mine Office Bagru Bauxite Mines (75.41ha)	dB(A)	IS 9989: 2020	Day Time	60	75 dB(A) Day Time & 70 dB(A) Night Time
			Night Time	46	
Sample ID: ELES/RNC/2024/AN/6041					



****End of Report****

Authorized Signatory
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Ph. D. Environmental Engg.
Technical Manager

Page 1 of 1

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TC-13587

CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/5291	Report Release Date : 19.09.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400003204F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindaleo Industries Limited	Sampling Date	: 09.09.2024
Address	: Lohardaga, Jharkhand-835302	Sampling Received Date	: 12.09.2024
		Type of Sample	: Workzone Noise
Mines Status	: Non Operational	Sampling procedure	: ELES/DOC/SMPL/03
		Sample Drawn By	: ELES Pvt. Ltd.
		Period of Analysis	: 12.09.2024 to 19.09.2024

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 26	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 69	4	Weather Condition	: Cloudy

Location	Unit	Test Protocol	Result		Regulatory Limit (Industrial Zone)
			Time	L _{eq}	
Bagru Crusher Site - Bagru Bauxite Mine (75.41ha)	dB(A)	IS 4758: 2017	Day Time	65	90 dB (A)
Sample ID: ELES/RNC/2024/WN/6045					



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"Save Environment, Save Future"



Annexure 3

Date – 22.11.2024

Office Order

Environmental Cell has been re-constituted at Bagru Bauxite Mine (Area 75.41 ha) comprising below mentioned team members. The team will ensure compliance of Environment Act, Regulation & Rule in respect of the said mines of Hindalco Industries Limited.

1. Mr. Dibakar Chetry (Coordinator)
2. Mr. Gauri Shankar Prasad (Geologist)
3. Ms. Abhilasha Singh-Environment Engineer
4. Mr. Anand Prakash Tiwari – Environment Engineer

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

A handwritten signature in blue ink, appearing to read "Basudev", is positioned above the printed name.

Basudev Gangopadhyay
AVP (Planning ,Environment &Compliance)

Annexure 4

Production, Mined Out, Back Filled and Over Burden removal from April'24 to September'24								
S No	Name of the Mines	Mining lease area (ha)	Production Capacity (MT)*	Lease Period*	Production (MT)	Mined out area (ha)	Back filled area (ha)	Over burden (Cu.M)
1	Bagru Bauxite Mine	75.41	85000	22.01.1974 to 31.03.2030	NIL	NIL	NIL	NIL
2	Bhusar Bauxite Mine	65.31	280000	11.07.1981 to 31.03.2030	82481	0.25	0.57	191521.65
3	Hisri (New) Bauxite Mine	14.55	100000	19.07.1981 to 31.03.2030	63197	0.45	0.35	26905.95
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	96744	4.29	8.89	365249.34
7	Sherangdag-A Bauxite Mine	155.81	260000	16.10.1974 to 31.03.2030	6200	0.23	0.2	10200.00
8	Serangdag-B Bauxite Mine	77.89	100000	04.10.1978 to 31.03.2030	49850	0.96	0.85	104303.82
9	Jalim & Sanai Bauxite Mine	12.14	50000	16.10.1974 to 31.03.2030	12450	0.14	0.12	13050.63
10	Gurdari Bauxite Mine	584.19	325000	23.03.1985 to 22.03.2035	96115	4.69	2.46	185023.98
11	Kujam - I Bauxite Mine	80.87	150000	13.03.2006 to 12.03.2056	7175	0.97	0.43	21377.24
12	Kujam - II Bauxite Mine	157.38	300000	24.03.2006 to 23.03.2056	49120	5.28	3.56	137098.55
13	Amtipani Bauxite Mine	190.95	150000	13.03.2006 to 12.03.2056	87109	2.153	0.987	225462.85

Annexure 4

Minerals & Minerals Limited								
14	Pakhar (109.507) Bauxite Mine	109.507	280000	26.07.2008 to 25.07.2058	147714.95	2.06	2.60	160334.49
15	Pakhar (15.58) Bauxite Mine	15.58	60000	28.04.1965 to 31.03.2030	NIL	NIL	NIL	NIL
16	Bimarla Bauxite Mine	134.526	300000	18.07.2009 to 17.07.2059	78750	4.44	7.35	116233.81
17	Amtipani Chirodih Bauxite Mine	130.01	450000	11.01.2017 to 10.01.2067	140900	4.25	1.50	235195.494

*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 2023-24 for environmental protection & pollution control by Jharkhand Mines division of M/s Hindalco Industries Ltd & M/s Minerals & Minerals Ltd for implementation of the suggested measures in EC at our all the operating mines in the state of Jharkhand-namely 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 Apr'24 to Sep'24)	Actual (in Rupees) FY 2024-25 (From Apr'24 to Sep'24)
1	Pollution Control & Environment monitoring	61,35,000.00	53,47,442.83
2	Reclamation/ Back filing & Rehabilitation**	5,62,80,000.00	5,60,24,564.93
3	Green belt, Plantation & Water sprinkling arrangement	73,42,000.00	69,41,114.17
4	Rural Development	2,75,00,000.00	2,05,55,592.67

**Part of OB removed cost.



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