

HIL/LHD/ENV/MoEF/705

Date: 23.05.2024

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 Shrengdag (155.81 ha) Bauxite Mining project of M/s Hindalco Industries Limited located in Gumla, for the period ○ctober'23 to March'2 4.

Ref: Environmental Clearance letter no J-11015/125/2006-IA II(M) dated 13th April 2007

Sir,

With reference to the above, we are submitting herewith the Compliance status report of EC conditions for **Shrengdag (155.81 ha)** Bauxite Mining project of **M/s Hindalco Industries Limited** located in Gumla, Jharkhand for the period October'23 to March'2

The lease detail is as below.

Lease area (ha)	Production Capacity (MT)	Lease Period
155.81	260000	16.10.1974 to 31.03.2030

Hope you will find the same in order.

Thanking You

Yours Sincerely FOR HINDALCO INDUSTRIES LIMITED

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

Enclosure: - As Above

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

Corporate ID No.: L27020MH1958PLC011238

Name of the Project : Sherangdag Bauxite Mine (155.81 ha)

M/s Hindalco Industries Limited

Environment Clearance No. & date : J-11015/125/2006-IA.II (M), dated 13.04.2007

Period of compliance Report : From 1st October' 2023 to 31st March'2024

Specific Conditions: -

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

Reply: - Implementations of the stipulated conditions in NOC are fulfilled after which Consent to Operate (CTO) has been obtained from time to time. The current CTO is valid up to 31/12/2026. Production of bauxites is within limits specified in Consent to Operate.

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

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

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

Reply: - Required exploration is already done. Mining plan/ Mining Scheme based on current reserves/resource estimate is duly approved by IBM. The reclamation plan, post mine land use and progressive greenbelt development plan have been covered in Mining Plan/Mining scheme which is approved by IBM. The current mining scheme is valid till 31.03.2025.

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

Reply: - Mining is being done at shallow depth. Thus, there is no chance to intersect ground water table during mining operation. Working zone restricted to above ground water table. We undertake that no mining is/was carried out below ground water table and the same status will be maintained in future also.

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

Reply: - Since shallow depth mining is being carried out, hence there is no intersection with the groundwater table. In future also, working zones will be restricted to above ground water table. We undertake that no mining is/was carried out below ground water table and the same status will be maintain in future also.

Moreover, we are regularly monitoring the groundwater table through the installation of a piezometer.

A copy of the water level report is attached herewith as **Annexure-1**.

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

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



Reclaimed land

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

Reply: - Overburden and waste rock from the mining pit are being used for back filling. Backfilling and plantation detail provided in **Annexure** – **4**. No external OB dump is in the project area. Monitoring and management of rehabilitated areas is continuous through supervision.

Condition viii: - Catch drains and siltation ponds of appropriate size should be constructed to arrest silt and sediment flows from mine working. The water so collected should be utilized for watering the mine area, roads, green belt development etc. The drains should be regularly desilted particularly after monsoon and maintained properly.

Garland drain (size, gradient and length) shall be constructed for mine pit and sump capacity should be designed keeping 50% safety margin over and above peak sudden rainfall (based on 50 years data) and maximum discharge in the area adjoining the mine site. Sump capacity should also provide adequate retention period to allow proper setting of silt material. Sedimentation pits should be constructed at the corners of the garland drains and desilted at regular intervals.

Reply: - To collect & manage rainwater during monsoon, part of mined out area is used as a settling tank for the runoff. Rainwater stored is being used for watering the mine area, roads, green belt development and sprinkling as necessary. Catch drains, Garland drains of appropriate size are being constructed in both around the mine pit to prevent runoff of water and flow of sediments directly into the agricultural field and water bodies, if applicable. Sump of adequate capacity is being provided and maintained as required. Photographs of the same is attached below.





Garland Drain

Siltation Pond

Condition ix: - Plantation shall be raised in an area of 70.68 ha including a green belt of adequate width by planting the native species around the ML area, roads, reclaimed area etc. in consultation with the local DFO / Agriculture Department. The density of the trees should be around 1500 plants per ha.

Reply: - Progressive plantation of native species is being carried in and out around mining lease, reclaimed area etc. in consultation with local forest department. Total 5000 nos. saplings have been planted in FY 2023-24 within the lease. Total 27.12 ha areas have been planted till date.

In addition to this agricultural activity is going on reclaimed land as per the consent from landowners. Green belt development program is in progress with progress of mining activities in a phased manner.



Plantation at Mines

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

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



Rainwater Harvesting Pond

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

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



Piezometer

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

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

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



NOC for Ground Water

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

Reply: - Water quality of the Spring and streams is being monitored. Analysis report is attached as **Annexure 2.** Six monthly report is being submitted regularly. Now, the Regional office of MoEF&CC is located in Ranchi.

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

Reply: - To keep vehicular emissions under control, vehicles are periodically checked & repaired. All measures are being taken to control vehicular emission. All vehicles are covered with tarpaulins, and non-overloading guidelines are being followed during transportation of mineral.



Tarpaulin covered Truck

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

Reply: - Wet drilling is in practice.



Wet drilling

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

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

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

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

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 being collected through individual Septic Tank and followed by Soak Pit.

No wastewater is generated from our mining operation. However, only negligible amount of effluent is being generated from workshop and Oil & grease trap system is already installed to treat this effluent. The treated water is in close circuit and being reused for washing of vehicle in the workshop.

Furthermore, the quality of this treated water is being monitored regularly and the monitoring report is attached herewith as **Annexure 2.**



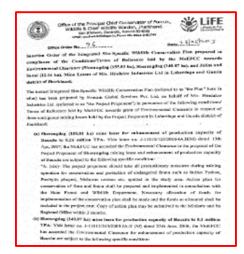
Washing Ramp and Oil and Grease Trap

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

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

- 1. Minimum level of Noise during Mining.
- 2. Permanent pillars are established within in the mine lease area at 7.5m from the forest boundary.
- 3. Daily water sprinkling on haul road.
- 4. Transportation is carried out during daytime only.
- 5. Maintenance of mineral transportation road is being done regularly.
- 6. Social activities are being undertaken in nearby areas etc.

We have also prepared Integrated Site-specific Wildlife Conservation in consultation with State Forest Department and obtained approval letter from Principal Chief Conservator of Forest, Wildlife & Chief Wildlife Warden, Jharkhand via Office Order No.26 dated 26.05.2023 for conservation and protection of flora and fauna in the core and buffer zone for Sherengdag Group of Mines.





Integrated Site-specific Wildlife Conservation Plan for Sherengdag Group of Mines

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

Reply: - Final Mine Closure Plan of surrendered (part) area duly approved by Indian Bureau of Mines. The final mine closure plan along with details of corpus fund for entire life of the mine will be submitted to MoEF in due time as per applicable guideline and timelines mentioned in MCDR/IBM guideline who are competent authority to approve the same. Based on the present resource estimate, and peak rated production capacity mentioned in EC, Mining operation is being carried out.

General Conditions: -

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

Reply: - Noted.

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

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

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

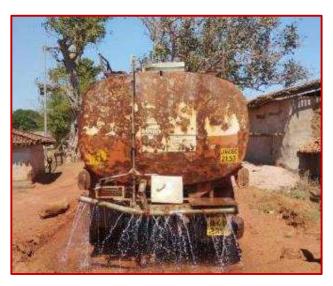
Reply: - We have already established four ambient air quality monitoring stations in the core zone as well as buffer zone. Monitoring is being carried out and reported to the concerned authorities. Monitoring Report is attached as **Annexure 2.**

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

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

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

Reply: - Water tankers have been provided for sprinkling of water on haul roads, at loading and unloading areas, and at transfer points to control fugitive dust emissions. Water spraying at loading, unloading, and transfer points is being done.



Water sprinkling through tanker.

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

Reply: - Measures are being taken for control of noise levels below 85 dB (A) in the work environment. Workers engaged in operation of HEMM, etc. has been provided with ear plug / muffs. The noise level monitoring is being conducted at a regular interval. The noise level is within the prescribed norms. Report has been attached as **Annexure 2**.

Condition vii: - Industrial wastewater (workshops 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 traps should be installed before discharge of workshop effluents.

Reply: - No wastewater is generated from our mining operation. However, only negligible amount of effluent is being generated from workshop and Oil & grease trap system is already installed to treat this effluent. The treated water is in close circuit and being reused for washing of vehicle in the workshop. We are not discharging any wastewater outside mine lease area.

Furthermore, the quality of this treated water is being monitored regularly and the monitoring report is attached herewith as **Annexure 2**.



Washing Ramp and Oil and Grease Trap

Condition viii: - Personnel working in dusty areas should wear protective respiratory devices and they should also provided with adequate training and information on safety and health aspects.

Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.

Reply: - All the workers have been provided with PPEs including dust mask and dust respirators. Apart from PPEs distribution to all workers, we are also providing adequate safety training and conducting awareness session on Safety and health aspects on regular basis.

Periodical Occupational health surveillance program of the workers is being carried out and records maintained as per statute.

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

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

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

Reply: - This is an operating mine and hence the provision related to financial closure is not applicable. Now, the Regional office of MoEF&CC is in Ranchi.

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

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

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

Reply: - Noted and Agreed. Now, the Regional Office of MoEF&CC is in at Ranchi.

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

Reply: - Six monthly reports on status of implementation of the stipulated environmental safeguards as per EC conditions, including monitoring report are being submitted to the MoEFCC, Zonal office of CPCB & JSPCB, Ranchi and also uploaded on the website of the company. Now, the Regional Office of MoEF&CC is in Ranchi.

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

Reply: - Complied. A copy of clearance letter has already been submitted.

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

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

Condition xvi: - The project authorities should advertise at least in two local newspapers widely circulated, one of which locality concerned, within 7days of the issue of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and

also at web site of the Ministry of Environment and Forests at http://envfor.nic.in and a copy of the same should be forwarded to the Regional Office of this Ministry located Bhubneshwar.

Reply: - Noted and complied. The information on grant of the EC has been published in two local newspapers. The copy of the advertisement has already been submitted to the Regional Office of the MoEF&CC. Now, the Regional office of MoEF&CC is in Ranchi.

Annexure 1						
Piezometer Reading - Shrengdag-A (155.81)						
S No Month Depth (meter)						
1	Oct-23	30.95				
2	Nov-23	30.35				
3	Dec-23	30.75				
4	Jan-24	31.15				
5	Feb-24	31.50				
6	Mar-24	31.15				



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

ENGINEERING SERVICES PYT. LTD.

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

TEST REPORT

Test Report No.	: ELES/RNC/2023/4389	Report Release Date	: 22.11.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name Address	: Hindalco Industries Limited : Lohardaga, Jharkhand-835302	Sample Ref. No. Location	: ELES/RNC/2023/AA/3915 : Near Weigh Bridge Serengdag-A Bauxite Mines (155,81ha)	
71341237	: Lonaroaga, marknano-833302	Sampling Date Sample Received Date Type of Sample	: 10.10.2023 to 11.10.2023 : 28.10.2023 : Ambient Air	
Mines Status	: Operational	Sampling Procedure	: ELES/DOC/SMPL/02	
Period of Analysis	: 28.10.2023 to 09.11.2023	Sample Drawn By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved	

MI	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 26	2	Barometric Pressure (mmHg)	1736
3	Relative Humidity (%)	: 55	4	Weather Condition	2 Clear

Discipline : Chemica	ıl	Group: A	Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	μg/m³	IS 5182 (Part-23): 2006; RA2022	65	100 (24hrs)	
Particulate Matter (PM2,5)	μg/m³	IS 5182 (Part- 24): 2019	38	60 (24hrs)	
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2): 2001; RA2022	7.9	80 (24hrs)	
Nitrogen Di-Oxide (NO ₂)	μg/m³	IS 5182 (Part-6): 2006; RA2022	23.2	80 (24hrs)	
Ozone (O ₃)	μg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)	
Ammonia (NH ₃)	μg/m³	IS 5182 (Part- 25); 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10); 1999; RA2019	<1.0	2 (8hrs)	
Lead (Pb)	μg/m³	IS 5182 (Part-22): 2004; RA2019	0.009	1 (24hrs)	
Nickel (Ni)	ng/m³	IS 5182 (Part-26):2020	<6.0	20 (Annual)	
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)	

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Website: www.elespl.co.in

TEST REPORT

Test Report No.	: ELES/RNC/2023/4389	Report Release Date	: 22.11.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

Discipline : Chemi	ical	Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Benzene (C ₆ H ₆)*	μg/m³	IS 5182 (Part-11)2006;RA2017	<1.0	05(Annual)	
Benzo-(a)-Pyrene*	ng/m³	1S 5182 (Part-12)2004;RA2019	<0.5	01(Annual)	

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

Reviewed by

****End of Report****

Authorised Signatory

Or. Deependra Kumar Sinha Ph. D. Environtesial Error ELES Pvi. Ud. Technical Minager

Page 2 of 2

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TEST REPORT

Test Report No.	: ELES/RNC/2023/4390	Report Release Date	: 22.11.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

CUSTOMER DETA	CUSTOMER DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/3916 : BKB Quarry Serengdag-A Bauxite Mines
Address	Lohardaga, Jharkhand-835302	Sampling Date	(155.81ha) - 10.10.2023 to 11.10.2023
Mines Status	: Operational	Sample Received Date Type of Sample Sampling Procedure	: 28.10.2023 : Ambient Air : ELES/DOC/SMPL/02
Period of Analysis	: 28.10.2023 to 09.11.2023	Sample Drawn By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved

MI	ETEOROLOGICAL INFORMATION		to the same of the	
1	Average Temperature (°C) : 26	2	Barometric Pressure (mm	Hg) : 736
3	Relative Humidity (%) : 55	4	Weather Condition	Clear

Discipline : Chemica	d	Group:	Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Particulate Matter (PM10)	μg/m³	IS 5182 (Part-23): 2006; RA2022	54	100 (24hrs)		
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	33	60 (24hrs)		
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2): 2001; RA2022	5.9	80 (24hrs)		
Nitrogen Di-Oxide (NO _z)	µg/m³	IS 5182 (Part-6): 2006; RA2022	18.1	80 (24hrs)		
Ozone (O ₃)	jug/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)		
Ammonia (NH ₃)	μg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)		
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)		
Lead (Pb)	μg/m³	IS 5182 (Part-22); 2004; RA2019	0.01	1 (24hrs)		
Nickel (Ni)	ng/m³	IS 5182 (Part-26):2020	<6.0	20 (Annual)		
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)		

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

ENGINEERING SERVICES PVT. LTD.

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

Website: www.elespl.co.in

TEST REPORT

Test Report No.	: ELES/RNC/2023/4390	Report Release Date	: 22.11.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

Discipline: Chemi	ical	Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Benzene (C ₆ H ₆)*	μg/m³	IS 5182 (Part-11)2006;RA2017	<1.0	05(Annual)	
Benzo-(a)-Pyrene*	ng/m ⁷	1S 5182 (Part-12)2004;RA2019	<0.5	01(Annual)	

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

Reviewed by

End of Report*

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

ELES PVI Ltd. Technical Manager

Page 2 of 2

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TEST REPORT

Test Report No.	: ELES/RNC/2023/4391	Report Release Date	: 22.11.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DETA	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	ELES/RNC/2023/AA/3917 Mine Pit Quarry No.2A Serengdag-A Bauxite Mines	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	(155,81ha) : 10,10,2023 to 11,10,2023 : 28,10,2023	
Mines Status	: Operational	Type of Sample Sampling Procedure	: Ambient Air : ELES/DOC/SMPL/02	
Period of Analysis	: 28.10.2023 to 09.11.2023	Sample Drawn By Sample Condition	: ELES Pyt. Ltd. : Sealed & Preserved	

MI	ETEOROLOGICAL INFOR	RMATION			
T	Average Temperature (°C)	: 26	2	Barometric Pressure (mmHg)	: 736
3.	Relative Humidity (%)	: 55	4	Weather Condition	: Clear

Discipline : Chemica	d	Group: A	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit			
Particulate Matter (PM10)	μg/m³	IS 5182 (Part-23): 2006; RA2022	46	100 (24hrs)			
Particulate Matter (PM2.5)	μg/m³	JS 5182 (Part- 24): 2019	28	60 (24hrs)			
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2): 2001; RA2022	5.9	80 (24hrs)			
Nitrogen Di-Oxide (NO ₂)	μg/m ³	IS 5182 (Part-6): 2006; RA2022	19.1	80 (24hrs)			
Ozone (O ₁)	μg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)			
Ammonia (NH ₂)	μg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)			
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)			
Lead (Pb)	μg/m ³	1S 5182 (Part-22); 2004; RA2019	0.007	1 (24hrs)			
Nickel (Ni)	ng/m³	IS 5182 (Part-26):2020	<6.0	20 (Annual)			
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)			

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TEST REPORT

Test Report No.	: ELES/RNC/2023/4391	Report Release Date	: 22.11.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

Discipline : Chemi	ical	Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Benzene (C ₆ H ₆)*	μg/m³	IS 5182 (Part-11)2006;RA2017	<1.0	05(Annual)	
Benzo-(a)-Pyrene*	ng/m³	IS 5182 (Part-12)2004;RA2019	<0.5	01(Annual)	

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

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****End of Report****

Authorised Signatory
Or. Deependra Kumar Sinha

PN. D. Environmental Engg. ELES Pvt. Ud. Technical Manage.

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TEST REPORT

Test Report No.	: ELES/RNC/2023/4392	Report Release Date	: 22.11.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DETA	AILS	SAMPLE DETAILS		
Customer Name Address	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/3918 : Mine Pit Quarry No.2B Serengdag-A Bauxite Mines (155.81ha)	
Audress	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 10.10.2023 to 11.10.2023 : 28.10.2023	
Mines Status	: Operational	Type of Sample Sampling Procedure	: Ambient Air : ELES/DOC/SMPL/02	
Period of Analysis	: 28.10.2023 to 09.11.2023	Sample Drawn By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved	

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 26	2	Barometric Pressure (mmH	g) : 736
3.	Relative Humidity (%)	: 55	4	Weather Condition	: Clear

Discipline : Chemica	ıl	Group : A	Atmospheric	Pollution
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	μg/m³	IS 5182 (Part-23): 2006; RA2022	48	100 (24hrs)
Particulate Matter (PM2.5)	µg/m³	IS 5182 (Part- 24): 2019	26	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2): 2001; RA2022	<5.0	80 (24hrs)
Nitrogen Di-Oxide (NO2)	μg/m³	IS 5182 (Part-6): 2006; RA2022	16.3	80 (24hrs)
Ozone (O ₃)	μg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	μg/m³	IS 5182 (Part- 25); 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m³	1S 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m³	IS 5182 (Part-22): 2004; RA2019	0.007	1 (24hrs)
Nickel (Ni)	ng/m³	1S 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)

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TEST REPORT

Test Report No.	: ELES/RNC/2023/4392	Report Release Date	: 22.11.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

Discipline: Chemi	cal	Group:	Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene (C ₆ H ₆)*	μg/m³	IS 5182 (Part-11)2006;RA2017	<1.0	05(Annual)		
Benzo-(a)-Pyrene*	ng/m³	IS 5182 (Part-12)2004;RA2019	<0.5	01(Annual)		

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

Reviewed by

****End of Report****

Authorised Signatory

Or. Deependra Kumar Sinha Ph. D. Environmental Goog ELES PM. Urd. Technical Manager

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TEST REPORT

Test Report No.	: ELES/RNC/2023/4393	Report Release Date	: 22.11.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DETA	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3919
		Location	: Near Banjari Village
			Serengdag-A Bauxite Mines
Address	: Lohardaga, Jharkhand-835302		(155.81ha)
	61	Sampling Date	: 10.10.2023 to 11.10.2023
		Sample Received Date	: 28.10.2023
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
Mines Status	; Operational	Sample Drawn By	: ELES Pvt. Ltd.
Period of Analysis	: 28.10.2023 to 09.11.2023	Sample Condition	: Sealed & Preserved

MI	ETEOROLOGICAL INFORMATION	- A		
1	Average Temperature (°C) : 26	2	Barometric Pressure (mn	Hg) : 736
3	Relative Humidity (%) : 55	4	Weather Condition	: Clear

Discipline : Chemica	ıl	Group : A	Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Particulate Matter (PM10)	μg/m³	IS 5182 (Part-23): 2006; RA2022	45	100 (24hrs)		
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	22	60 (24hrs)		
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2); 2001; RA2022	5.9	80 (24hrs)		
Nitrogen Di-Oxide (NO ₂)	μg/m ³	1S 5182 (Part-6): 2006; RA2022	17.1	80 (24hrs)		
Ozone (O ₃)	μg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)		
Ammonia (NH ₃)	µg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)		
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)		
Lead (Pb)	µg/m³	IS 5182 (Part-22): 2004; RA2019	< 0.002	1 (24hrs)		
Nickel (Ni)	ng/m³	IS 5182 (Part-26):2020	<6.0	20 (Annual)		
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)		

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TEST REPORT

Test Report No.	: ELES/RNC/2023/4393	Report Release Date	: 22.11.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

Discipline : Chemi	cal	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene (C ₆ H ₆)*	µg/m³	IS 5182 (Part-I1)2006;RA2017	<1.0	05(Annual)		
Benzo-(a)-Pyrene*	ng/m³	IS 5182 (Part-12)2004;RA2019	<0.5	01(Annual)		

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

Reviewed by

****End of Report****

Authorised Signatory

Or. Deependra Romar Sinha

Ph. D. Environmental Greg

SLES Pvt Ltd. Technical Manager

Page 2 of 2

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Website: www.elespl.co.in

TEST REPORT

Test Report No.	: ELES/RNC/2023/4394	Report Release Date	: 22.11.2023	
Work Order No.	: 13612310218	Work Order Date	; 21.04.2023	

CUSTOMER DETA	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/3920 : Near Pauri Village Serengdag-A Bauxite Mines	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample	(155.81ha) : 10.10.2023 to 11.10.2023 : 28.10.2023 : Ambient Air	
Mines Status	: Operational	Sampling Procedure Sample Drawn By	: ELES/DOC/SMPL/02 : ELES Pvl. Ltd.	
Period of Analysis	: 28.10.2023 to 09.11.2023	Sample Condition	: Sealed & Preserved	

M	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	26	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 55	4	Weather Condition	: Clear

Discipline : Chemica	d	Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	μg/m³	IS 5182 (Part-23): 2006; RA2022	48	100 (24hrs)	
Particulate Matter (PM2,5)	µg/m³	IS 5182 (Part- 24): 2019	25	60 (24hrs)	
Sulphur Di-Oxide (SO ₂)	µg/m³.	IS 5182 (Part-2); 2001; RA2022	6.5	80 (24hrs)	
Nitrogen Di-Oxide (NO ₂)	μg/m³	IS 5182 (Part-6); 2006; RA2022	16.3	80 (24hrs)	
Ozone (O ₃)	µg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)	
Ammonia (NH ₃)	µg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)	
Lead (Pb)	µg/m³	IS 5182 (Part-22): 2004; RA2019	0.009	1 (24hrs)	
Nickel (Ni)	ng/m³	1S 5182 (Part-26):2020	<6.0	20 (Annual)	
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)	

Page 1 of 2

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TEST REPORT

Test Report No.	: ELES/RNC/2023/4394	Report Release Date	: 22.11.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

Discipline : Chemi	cal	Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Benzene (C ₆ H ₆)*	μg/m³	IS 5182 (Part-11)2006;RA2017	<1.0	05(Annual)	
Benzo-(a)-Pyrene*	ng/m ³	IS 5182 (Part-12)2004;RA2019	<0.5	01(Annual)	

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

Reviewed by

****End of Report****

Authorised Signatory
On Deepandra Kurnar Sinha
Ph. D. Environmental Engg

ELES PVI Ltd. Tircholcal Manager

Page 2 of 2

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPLIDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20A46CE97130124

ENGINEERING SERVICES PVT. LTD.

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Website: www.elespi.co.in

TEST REPORT

Test Report No.	: ELES/RNC/2023/4395	Report Release Date	: 22.11.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DETA	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	= ELES/RNC/2023/AA/3921
	U SALL PLANTED TO SALL	Location	: Near Harup Village
Address	: Lohardaga, Jharkhand-835302		Serengdag-A Bauxite Mines (155.81ha)
		Sampling Date	: 10.10.2023 to 11.10.2023
		Sample Received Date	: 28.10.2023
		Type of Sample	: Ambient Air
	100.000	Sampling Procedure	: ELES/DOC/SMPL/02
Mines Status	: Operational	Sample Drawn By	: ELES Pvt. Ltd.
Period of Analysis	: 28.10.2023 to 09.11.2023	Sample Condition	: Sealed & Preserved

M	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	26	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	:55	4	Weather Condition	: Clear

Discipline : Chemica	d	Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	μg/m³	IS 5182 (Part-23): 2006; RA2022	49	100 (24hrs)	
Particulate Matter (PM2.5)	µg/m³	IS 5182 (Part- 24): 2019	22	60 (24hrs)	
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2): 2001; RA2022	5.8	80 (24hrs)	
Nitrogen Di-Oxide (NO ₃)	μg/m³	IS 5182 (Part-6): 2006; RA2022	18.2	80 (24hrs)	
Ozone (O ₃)	µg/m³	IS 5182 (Part-9); 1974; RA2019	<20.0	100 (8hrs)	
Ammonia (NH ₃)	μg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)	
Lead (Ph)	µg/m³	IS 5182 (Part-22): 2004; RA2019	< 0.002	1 (24hrs)	
Nickel (Ni)	ng/m³	IS 5182 (Part-26):2020	<6.0	20 (Annual)	
Arsenie (As)	ng/m³	ELES/AIR/SOP/01	<2.0	.06 (Annual)	

Page 1 of 2

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TEST REPORT

Test Report No.	: ELES/RNC/2023/4395	Report Release Date	: 22.11.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

Discipline: Chemi	cal	Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Benzene (C ₆ H ₆)*	μg/m³	IS 5182 (Part-11)2006;RA2017	<1.0	05(Annual)	
Benzo-(a)-Pyrene*	ng/m³	IS 5182 (Part-12)2004;RA2019	<0.5	01(Annual)	

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

Reviewed by

****End of Report****

Authorised Signatory

Dr. Deependra Kumar Sinha
Ph. D. Environmental Engo
El ES Pvi. Lid. Technical Manager

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TEST REPORT

Test Report No.	: ELES/RNC/2023/4396	Report Release Date	: 22.11.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DETA	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/3922 : Near Paintoli Village Serengdag-A Bauxite Mines
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	(155.81ha) : 10.10.2023 to 11.10.2023 : 28.10.2023
Mines Status	: Operational	Type of Sample Sampling Procedure	: Ambient Air : ELES/DOC/SMPL/02
Period of Analysis	: 28.10.2023 to 09.11.2023	Sample Drawn By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved

MI	ETEOROLOGICAL INFORMATION		Annual Control	
1	Average Temperature (°C) : 26	2	Barometric Pressure (mml	lg) :: 736
3	Relative Humidity (%) : 55	4	Weather Condition	:: Clear

Discipline : Chemica	ıl .	Group: A	Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Particulate Matter (PM10)	μg/m³	IS 5182 (Part-23): 2006; RA2022	49	100 (24hrs)		
Particulate Matter (PM2.5)	µg/m³	IS 5182 (Part- 24): 2019	31	60 (24hrs)		
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2); 2001; RA2022	5.7	80 (24hrs)		
Nitrogen Di-Oxide (NO ₂)	μg/m³	IS 5182 (Part-6): 2006; RA2022	18.2	80 (24hrs)		
Ozone (O ₃)	μg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)		
Ammonia (NH ₃)	μg/m ¹	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)		
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)		
Lead (Pb)	µg/m³	1S 5182 (Part-22): 2004; RA2019	< 0.002	1 (24hrs)		
Nickel (Ni)	ng/m³	IS 5182 (Part-26):2020	<6.0	20 (Annual)		
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)		

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TEST REPORT

Test Report No.	: ELES/RNC/2023/4396	Report Release Date	: 22.11.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

Discipline : Chemi	cal	Group :	Atmospheric	Pollution
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C ₆ H ₆)*	µg/m³	IS 5182 (Part-11)2006;RA2017	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m³	IS 5182 (Part-12)2004;RA2019	<0.5	01(Annual)

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

Reviewed by

****End of Report****

Authorised Signatory

Dr. Deependra Kurnar sinha Ph. D. Environmental Engo ELES Pvt. Ltd. Technical Manager

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TEST REPORT

Test Report No.	: ELES/RNC/2023/4732	Report Release Date	: 21.12.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/4202 : Near Weigh Bridge Serengdag-A Bauxite Mines	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	(155.81ha) : 08.11.2023 to 09.11.2023 : 24.11.2023	
Mines Status	: Operational	Type of Sample Sampling Procedure	: Ambient Air : ELES/DOC/SMPL/02	
Period of Analysis	: 24.11.2023 to 08.12.2023	Sample Drawn By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved	

MI	ETEOROLOGICAL INFOR	RMATION			
1	Average Temperature (°C)	: 22	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 55	4	Weather Condition	: Clear

Discipline : Chemica	al	Group : /	Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	μg/m³	IS 5182 (Part-23): 2006; RA2022	71	100 (24hrs)	
Particulate Matter (PM2.5)	µg/m³	IS 5182 (Part- 24); 2019	44	60 (24hrs)	
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2); 2001; RA2022	9.5	80 (24hrs)	
Nitrogen Di-Oxide (NO ₂)	μg/m³	IS 5182 (Part-6): 2006; RA2022	27.1	80 (24hrs)	
Ozone (O ₃)	μg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)	
Ammonia (NH ₃)	μg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)	
Lead (Pb)	μg/m³	IS 5182 (Part-22): 2004; RA2019	0.015	1 (24hrs)	
Nickel (Ni)	ng/m²	IS 5182 (Part-26):2020	<6.0	20 (Annual)	
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)	

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Authorised Signatory

****End of Report****

Dr. Deependra Kumar Sinha

Page 1 of 1

Ph. D Environmental Engg.

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:-20AAECE97130124

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TEST REPORT

Test Report No.	: ELES/RNC/2023/4732	Report Release Date	: 21.12.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DET	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/4202 : Near Weigh Bridge Serengdag-A Bauxite Mines
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	(155.81ha) : 08.11.2023 to 09.11.2023 : 24.11.2023
Mines Status	: Operational	Type of Sample Sampling Procedure	: Ambient Air : ELES/DOC/SMPL/02
Period of Analysis	; 24.11.2023 to 08.12.2023	Sample Drawn By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved

METEOROLOGICAL INFORMATION			
1 Average Temperature (°C) : 22	2	Barometric Pressure (mmHg)	: 736
3 Relative Humidity (%) : 55	-4	Weather Condition	: Clear

Discipline : Chemical		Group:	Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Benzene (C ₆ H ₆)*	μg/m³	IS 5182 (Part-11)2006;RA2017	<1.0	05(Annual)	
Benzo-(a)-Pyrene*	ng/m³	IS 5182 (Part-12)2004;RA2019	<0.5	01(Annual)	

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

Reviewed by

****End of Report****

Authorised Signatory

Dr. Deependra Kumar Sinha

Ph. D Environmental Engg.

ELES Pvt. Ltd. Technical Mann-

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TEST REPORT

Test Report No.	; ELES/RNC/2023/4733	Report Release Date	: 21.12.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/4203 : BKB Quarry Serengdag-A Bauxite Mines	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	(155.81ha) : 08.11.2023 to 09.11.2023 : 24.11.2023	
Mines Status	Operational	Type of Sample Sampling Procedure Sample Drawn By	: Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.	
Period of Analysis	: 24.11.2023 to 08.12.2023	Sample Condition	: Sealed & Preserved	

MI	ETEOROLOGICAL INFOR	MATION			44.400.0
1	Average Temperature (°C)	: 22	2	Barometric Pressure (mmH	lg) ±736
3	Relative Humidity (%)	: 55	4	Weather Condition	; Clear

Discipline : Chemica	d	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Particulate Matter (PM10)	µg/m³	IS 5182 (Part-23): 2006; RA2022	62	100 (24hrs)		
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	36	60 (24hrs)		
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2): 2001; RA2022	7.1	80 (24hrs)		
Nitrogen Di-Oxide (NO ₂)	μg/m³	IS 5182 (Part-6): 2006; RA2022	22.7	80 (24hrs)		
Ozone (O ₃)	дg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)		
Ammonia (NH ₃)	µg/m ⁵	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)		
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)		
Lead (Pb)	µg/m³	IS 5182 (Part-22): 2004; RA2019	0.015	I (24hrs)		
Nickel (Ni)	ng/m³	IS 5182 (Part-26):2020	<6.0	20 (Annual)		
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)		

Reviewed by

****End of Report****

Authorised Signatory Dr. Deependra Kumar Sinha

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TEST REPORT

Test Report No.	: ELES/RNC/2023/4733	Report Release Date	: 21.12.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DETA	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/4203 : BKB Quarry Serengdag-A Bauxite Mines	
Address	: Lohardaga, Jharkhand-835302	Sampling Date	(155.81ha) : 08.11.2023 to 09.11.2023	
Mines Status	Operational	Sample Received Date Type of Sample Sampling Procedure	: 24.11.2023 : Ambient Air : ELES/DOC/SMPL/02	
Period of Analysis	: 24.11.2023 to 08.12.2023	Sample Drawn By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved	

METEOROLOGICAL INFORMATION						
1	Average Temperature (°C)	: 22	2	Barometric Pressure (mmHg)	: 736	
3	Relative Humidity (%)	: 55	4	Weather Condition	: Clear	

Discipline: Chemi	cal	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene (C ₆ H ₆)*	µg/m³	IS 5182 (Part-11)2006;RA2017	<1.0	05(Annual)		
Benzo-(a)-Pyrene*	ng/m³	IS 5182 (Part-12)2004;RA2019	<0.5	01(Annual)		

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



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Dr. Deependra Kumar Sinha
Ph. D Environmental Engg.

ELES Pvt. Ltd. Technical Manager

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

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TEST REPORT

Test Report No.	: ELES/RNC/2023/4734	Report Release Date	: 21.12.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DETA	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/4204 : Mine Pit Quarry No.2A Serengdag-A Bauxite Mines	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	(155.81ha) : 08.11.2023 to 09.11.2023 ; 24.11.2023	
Mines Status	: Operational	Type of Sample Sampling Procedure	: Ambient Air : ELES/DOC/SMPL/02	
Period of Analysis	: 24.11.2023 to 08.12.2023	Sample Drawn By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved	

MI	ETEOROLOGICAL INFORT	MATION		and the same of th	
1	Average Temperature (°C)	: 22	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 55	4	Weather Condition	: Clear

Discipline : Chemica	ıl	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Particulate Matter (PM10)	μg/m³	IS 5182 (Part-23): 2006; RA2022	55	100 (24hrs)		
Particulate Matter (PM2,5)	μg/m³	IS 5182 (Part- 24): 2019.	34	60 (24hrs)		
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2): 2001; RA2022	6.8	80 (24hrs)		
Nitrogen Di-Oxide (NO ₂)	μg/m³	IS 5182 (Part-6): 2006; RA2022	22.6	80 (24hrs)		
Ozone (O ₃)	µg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)		
Ammonia (NH ₃)	μg/m³	IS 5182 (Part- 25): 2018.	<10.0	400 (24hrs)		
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)		
Lead (Pb)	µg/m³	IS 5182 (Part-22): 2004; RA2019	0.011	1 (24hrs)		
Nickel (Ni)	ng/m³	IS 5182 (Part-26):2020	<6.0	20 (Annual)		
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)		

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TEST REPORT

Test Report No.	: ELES/RNC/2023/4734	Report Release Date	: 21.12.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DETA	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/4204 : Mine Pit Quarry No.2A Serengdag-A Bauxite Mines
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	(155.81ha) ; 08.11.2023 to 09.11.2023 ; 24.11.2023
Mines Status	: Operational	Type of Sample Sampling Procedure	: Ambient Air : ELES/DOC/SMPL/02
Period of Analysis	: 24.11.2023 to 08.12.2023	Sample Drawn By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 22	2	Barometric Pressure (mm	Hg) : 736
3	Relative Humidity (%)	: 55	4	Weather Condition	: Clear

Discipline : Chemi	cal	Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Benzene (C ₆ H ₆)*	μg/m³	1S 5182 (Part-11)2006;RA2017	<1.0	05(Annual)	
Benzo-(a)-Pyrene*	ng/m³	1S 5182 (Part-12)2004;RA2019	<0.5	01(Annual)	

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

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Dr. Deependra Kumar Sinha Ph. D Environmental Engg.

LES Pvt. Ltd. Technical Manager

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TEST REPORT

Test Report No.	: ELES/RNC/2023/4735	Report Release Date	: 21.12.2023		
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023		

CUSTOMER DETA	AILS	SAMPLE DETAILS	
Customer Name Address	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/4205 : Mine Pit Quarry No.2B Serengdag-A Bauxite Mines (155.81ha)
Mines Status	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample Sampling Procedure	: 08.11.2023 to 09.11.2023 : 24.11.2023 : Ambient Air : ELES/DOC/SMPL/02
Millies Status	- Operational	Sampling Procedure Sample Drawn By	: ELES Pvt. Ltd.
Period of Analysis	: 24,11,2023 to 08,12,2023	Sample Condition	: Sealed & Preserved

MI	ETEOROLOGICAL INFO	RMATION			- A
1	Average Temperature (°C)	: 22	2	Barometric Pressure (mm	Hg) : 736
3	Relative Humidity (%)	: 55	4	Weather Condition	: Clear

Discipline : Chemica	it	Group : A	Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Particulate Matter (PM10)	μg/m³	IS 5182 (Part-23): 2006; RA2022	57	100 (24hrs)		
Particulate Matter (PM2.5)	μg/m ³	IS 5182 (Part- 24): 2019	29	60 (24hrs)		
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2): 2001; RA2022	5.9	80 (24hrs)		
Nitrogen Di-Oxide (NO2)	μg/m³	IS 5182 (Part-6): 2006; RA2022	18.9	80 (24hrs)		
Ozone (O ₃)	µg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)		
Ammonia (NH ₁)	μg/m³	IS 5182 (Part- 25); 2018	<10.0	400 (24hrs)		
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)		
Lead (Pb)	μg/m²	IS 5182 (Part-22): 2004; RA2019	0.012	1 (24hrs)		
Nickel (Ni)	ng/m³	IS 5182 (Part-26):2020	<6.0	20 (Annual)		
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)		

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TEST REPORT

Test Report No.	: ELES/RNC/2023/4735	Report Release Date	: 21.12.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

CUSTOMER DETA	AILS	SAMPLE DETAILS		
Customer Name	3 Hindaico Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4205	
	1	Location	: Mine Pit Quarry No.2B	
Address	: Lohardaga, Jharkhand-835302		Serengdag-A Bauxite Mines (155.81ha)	
	a drag - Birth - mar the dist.	Sampling Date	: 08.11.2023 to 09.11.2023	
		Sample Received Date	: 24.11.2023	
		Type of Sample	: Ambient Air	
Mines Status	: Operational	Sampling Procedure	: ELES/DOC/SMPL/02	
Period of Analysis	: 24.11.2023 to 08.12.2023	Sample Drawn By Sample Condition	: ELES Pvt, Ltd. : Sealed & Preserved	

MI	ETEOROLOGICAL INFORMATION			
1	Average Temperature (°C) : 22	2	Barometric Pressure (mm	Hg) : 736
3	Relative Humidity (%) : 55	4	Weather Condition	: Clear

Discipline : Chemi	cal	Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Benzene (C ₆ H ₆)*	μg/m³	1S 5182 (Part-11)2006;RA2017	<1.0	05(Annual)	
Benzo-(a)-Pyrene*	ng/m ^T	IS 5182 (Part-12)2004;RA2019	<0.5	01(Annual)	

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

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Dr. Deependra Kumar Sinha
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LES Pvt. Ltd. Technical Manager

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

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Website : www.elespl.co.in

TEST REPORT

Test Report No.	: ELES/RNC/2023/4736	Report Release Date	: 21.12.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DETA	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/4206 : Near Banjari Village Serengdag-A Bauxite Mines
Address	: Lohardaga, Jharkhand-835302	Sampling Date	(155.81ha) : 08.11.2023 to 09.11.2023
		Sample Received Date Type of Sample Sampling Procedure	: 24.11.2023 : Ambient Air : ELES/DOC/SMPL/02
Mines Status	Operational	Sample Drawn By	: ELES Pvt. Ltd.
Period of Analysis	: 24.11.2023 to 08.12,2023	Sample Condition	: Sealed & Preserved

MI	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 22	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 55	4	Weather Condition	: Clear

Discipline : Chemica	il	Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	μg/m³	IS 5182 (Part-23): 2006; RA2022	57	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	29	60 (24hrs)	
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2): 2001; RA2022	6.8	80 (24hrs)	
Nitrogen Di-Oxide (NO ₂)	µg/m³	IS 5182 (Part-6): 2006; RA2022	22.6	80 (24hrs)	
Ozone (O ₃)	μg/m³ ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)	
Ammonia (NH ₃)	µg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)	
Lead (Pb)	μg/m³	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)	
Nickel (Ni)	ng/m³	IS 5182 (Part-26):2020	<6.0	20 (Annual)	
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)	

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Dr. Deependra Kumar Sinha

Page 1 of 1

Ph. D Environmental Engg.

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NGINEERING SERVICES PVT. LTD.

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Website : www.elespl.co.in

TEST REPORT

Test Report No.	: ELES/RNC/2023/4736	Report Release Date	: 21.12.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DETA	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/4206 : Near Banjari Village Serengdag-A Bauxite Mines	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	(155.81ha) ; 08.11.2023 to 09.11.2023 ; 24.11.2023	
Mines Status	: Operational	Type of Sample Sampling Procedure	: Ambient Air : ELES/DOC/SMPL/02	
Period of Analysis	: 24.11.2023 to 08.12.2023	Sample Drawn By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved	

MI	ETEOROLOGICAL INFORMA	TION		
1	Average Temperature (°C) : 27	2 2	Barometric Pressure (mmH	g) : 736
3	Relative Humidity (%) : 55	5 4	Weather Condition	: Clear

Discipline : Chemi	cal	Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Benzene (C ₆ H ₆)*	µg/m³	IS 5182 (Part-11)2006;RA2017	<1.0	05(Annual)	
Benzo-(a)-Pyrene*	ng/m³	IS 5182 (Part-12)2004;RA2019	<0.5	01(Annual)	

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

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****End of Report****

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

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) G5T NO:- 20AAECE9713D1Z4

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TEST REPORT

Test Report No.	: ELES/RNC/2023/4737	Report Release Date	: 21.12,2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DETA	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/4207 : Near Pauri Village Serengdag-A Bauxite Mines
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	(155.81ha) ; 08.11.2023 to 09.11.2023 ; 24.11.2023
Mines Status	: Operational	Type of Sample Sampling Procedure Sample Drawn By	: Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.
Period of Analysis	: 24.11.2023 to 08.12.2023	Sample Condition	: Sealed & Preserved

M	ETEOROLOGICAL INFORM	IATION			
1	Average Temperature (°C)	22	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 55	4	Weather Condition	: Clear

Discipline : Chemica	d	Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	μg/m ³	IS 5182 (Part-23): 2006; RA2022	54	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24); 2019	28	60 (24hrs)	
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2): 2001; RA2022	7.1	80 (24hrs)	
Nitrogen Di-Oxide (NO ₂)	μg/m³	IS 5182 (Part-6): 2006; RA2022	19.8	80 (24hrs)	
Ozone (O ₃)	µg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)	
Ammonia (NH ₂)	µg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)	
Lead (Pb)	μg/m ^J	IS 5182 (Part-22): 2004; RA2019	0.016	1 (24hrs)	
Nickel (Ni)	ng/m³	IS 5182 (Part-26):2020	<6.0	20 (Annual)	
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)	
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****End of Report****

Dr. Deependra Kumar Sinha

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

ENGINEERING SERVICES PVT. LTD.

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TEST REPORT

Test Report No.	: ELES/RNC/2023/4737	Report Release Date	: 21.12.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04,2023

CUSTOMER DETA	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/4207 : Near Pauri Village Serengdag-A Bauxite Mines
Address	: Lohardaga, Jharkhand-835302	Sampling Date	(155.81ha) : 08.11.2023 to 09.11.2023
	W. 74-74	Sample Received Date Type of Sample Sampling Procedure	: 24.11.2023 : Ambient Air : ELES/DOC/SMPL/02
Mines Status	: Operational	Sample Drawn By	: ELES Pvt. Ltd.
Period of Analysis	: 24.11.2023 to 08.12.2023	Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 22	2	Barometric Pressure (mmHg)	c 736
3	Relative Humidity (%)	: 55	4	Weather Condition	3 Clear

Discipline : Chemi	cal	Group:	Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene (C ₆ H ₆)*	μg/m³	IS 5182 (Part-11)2006;RA2017	<1.0	05(Annual)		
Benzo-(a)-Pyrene	ng/m ³	IS 5182 (Part-12)2004;RA2019	< 0.5	01(Annual)		

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

Reviewed by

****End of Report****

Authorised Signatory

Dr. Deependra Kurnar Sinha Ph. D Environmental Engg. =LES Pvt. Ltd. Technical Manager

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) G5T NO:- 20AAECE9713D1Z4

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TEST REPORT

Test Report No.	: ELES/RNC/2023/4738	Report Release Date	: 21.12.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DETA	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/4208 : Near Harup Village Serengdag-A Bauxite Mines
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	(155.81ha) : 10.11.2023 to 11.11.2023 : 24.11.2023
Mines Status	: Operational	Type of Sample Sampling Procedure Sample Drawn By	: Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.
	3 d Dry Back and		
Period of Analysis	=24.11.2023 to 08.12.2023	Sample Condition	: Sealed & Preserved

MI	ETEOROLOGICAL INFORMATION			
1	Average Temperature (°C) : 22	2	Barometric Pressure (mm)	Hg) : 736
3	Relative Humidity (%) : 53	4	Weather Condition	: Clear

Discipline : Chemica	d	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Particulate Matter (PM10)	μg/m³	IS 5182 (Part-23): 2006; RA2022	52	100 (24hrs)		
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	26	60 (24hrs)		
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2): 2001; RA2022	5.1	80 (24hrs)		
Nitrogen Di-Oxide (NO ₂)	μg/m³	IS 5182 (Part-6); 2006; RA2022	20.5	80 (24hrs)		
Ozone (O ₃)	μg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)		
Ammonia (NH ₁)	μg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)		
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10): 1999; RA2019	<1,0	2 (8hrs)		
Lead (Pb)	μg/m³	IS 5182 (Part-22): 2004; RA2019	< 0.002	1 (24hrs)		
Nickel (Ni)	ng/m³	IS 5182 (Part-26):2020	<6.0	20 (Annual)		
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)		

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****End of Report**** Dr. Deependra Kumar Sinha

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Website: www.elespi.co.in

TEST REPORT

Test Report No.	: ELES/RNC/2023/4738	Report Release Date	: 21.12.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

CUSTOMER DETA	AILS	SAMPLE DETAILS	
Customer Name	† Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/4208 : Near Harup Village Serengdag-A Bauxite Mines
Address	: Lohardaga, Jharkhand-835302	Sampling Date	(155.81ha) ; 10.11.2023 to 11.11.2023
		Sample Received Date Type of Sample Sampling Procedure	: 24.11.2023 : Ambient Air : ELES/DOC/SMPL/02
Mines Status	: Operational	Sample Drawn By	: ELES Pvt. Ltd.
Period of Analysis	: 24.11.2023 to 08.12.2023	Sample Condition	: Sealed & Preserved

MI	ETEOROLOGICAL INFORM.	ATION				
1	Average Temperature (°C) ::	22	2	Barometric Pressure (mmH	lg) : 736	
3	Relative Humidity (%)	53	4	Weather Condition	: Clear	

Discipline : Chemi	cal	Group:	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit			
Benzene (C ₆ H ₆)*	μg/m³	IS 5182 (Part-11)2006;RA2017	<1.0	05(Annual)			
Benzo-(a)-Pyrene*	ng/m³	IS 5182 (Part-12)2004;RA2019	<0.5	01(Annual)			

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

Reviewed by

End of Report*

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

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TEST REPORT

The Desire No.	. E) EC/DNC/2021/4730	Report Release Date	: 21.12.2023	
Test Report No.	: ELES/RNC/2023/4739	Report Release Date	, 21,12,2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DETA	AILS	SAMPLE DETAILS	
Customer Name	Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/4209 : Near Paintoli Village Serengdag-A Bauxite Mines (155.81ha)
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 10.11,2023 to 11.11.2023 : 24.11,2023
Mines Status	: Operational	Type of Sample Sampling Procedure	: Ambient Air : ELES/DOC/SMPL/02
Period of Analysis	: 24.11.2023 to 08.12.2023	Sample Drawn By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved

MI	ETEOROLOGICAL INFORM	IATION			
1	Average Temperature (°C)	22	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	53	4	Weather Condition	: Clear

Discipline : Chemica	ıl	Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	µg/m³	IS 5182 (Part-23): 2006; RA2022	58	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	36	60 (24hrs)	
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2): 2001; RA2022	6.6	80 (24hrs)	
Nitrogen Di-Oxide (NO ₂)	μg/m³	IS 5182 (Part-6); 2006; RA2022	20.8	80 (24hrs)	
Ozoně (O _t)	µg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)	
Ammonia (NH ₃)	μg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)	
Lead (Pb)	µg/m³	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)	
Nickel (Ni)	ng/m³	IS 5182 (Part-26):2020	<6.0	20 (Annual)	
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)	

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****End of Report****

Authorised Signatory

Dr. Deependra Kumar Sinha

Page 1 of 1

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TEST REPORT

Test Report No.	: ELES/RNC/2023/4739	Report Release Date	: 21.12.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DET	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/4209 : Near Paintoli Village Serengdag-A Bauxite Mines	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	(155.81ha) 10.11.2023 to 11.11.2023 24.11.2023	
Mines Status	: Operational	Type of Sample Sampling Procedure	: Ambient Air : ELES/DOC/SMPL/02	
Period of Analysis	: 24.11.2023 to 08.12.2023	Sample Drawn By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved	

M	ETEOROLOGICAL INFORMATIO	N	the second second	
1	Average Temperature (°C) : 22	2	Barometric Pressure (mm	1Hg) : 736
3	Relative Humidity (%) : 53	4	Weather Condition	: Clear

Discipline : Chemi	cal	Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C ₆ H ₆)*	μg/m³	IS 5182 (Part-11)2006;RA2017	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m³	IS 5182 (Part-12)2004;RA2019	<0.5	01(Annual)

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

Reviewed by

****End of Report****

Authorised Signatory

Dr. Deependra Kurnar Sinha Ph. D Environmental Engg. :uES Pvt. Ltd. Technical Manar

Page 1 of 1

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TEST REPORT

Test Report No.	: ELES/RAN/2023/3128	Report Release Date	: 21.12.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

CUSTOMER DET	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Sampling Date Sample Received Date	: ELES/RAN/2023/DW/3015 : 16.11.2023 : 24.11.2023	
Address	; Lohardaga, Jharkhand-835302	Type of Sample Source/Location of Sample	: Drinking Water : Serengdag-A Bauxite Mines (155.81ha)	
Mines Status	: Operational	Sampling Procedure Sample Collected By	: ELES/DOC/SMPL/01 : ELES Pvt, Ltd.	
Period of Analysis	: 24.11.2023 to 08.12.2023	Sample Condition	: Sealed & Preserved	

Discipline : Chem	ical	Group : Water	r		ory Limit 10500:2012
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
pH (at 24.6°C)	Les I	APHA 23rd Ed.2017, 4500-H	6.58	6.5-8.5	No Relaxation
Turbidity	NTU	APHA 23rd Ed.2017, 2130 B	0.96	1.0	5.0
Taste		APHA 23 rd Ed.2017, 2160 C	Agrecable	Agreeable	Agreeable
Odour	14	IS 3025 (Part-5) :2018	Agreeable	Agreeable	Agreeable
Colour	Hazen	APHA 23rd Ed.2017, 2120B&D	2.0	5.0	15
Total Dissolved Solids (TDS)	mg/L	APHA 23 nd Ed.2017, 2540B,C&D	212	500	2000
Chloride (as Cl)	mg/L	APHA 23 rd Ed.2017, 4500 CI B	24.8	250	1000
Fluoride (as F)	mg/L	APHA 23rd Ed.2017, 4500 F-D	BDL (DL: 0.1)	1.0	1,5
Total Alkalinity (as CaCO ₃)	mg/L	APHA 23 rd Ed.2017, 2320 B	68.8	200	600
Total Hardness (as CaCO ₃)	mg/L	APHA 23 rd Ed.2017, 2340 C	110	200	600
Sulphate (as SO ₄)	mg/L	APHA 23rd Ed.2017, 4500 SO ₄ -2-E	9.50	200	400
Nitrate (as NO ₃)	mg/L	APHA 23 rd Ed.2017, 4500 NO ₃ -B	BDL (DL: 0.5)	45	No Relaxation
Phenolic Compound (as C ₆ H ₅ OH)	mg/L	IS 3025 (Part-43):1992;RA2019	BDL (DL: 0.0005)	0.001	0.002

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PLDT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 26AAECE9713D124

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TEST REPORT

Test Report No. : ELES/RAN/2023/3128 Report Release Date : 21.12.2023

Work Order No. : 13612310218 Work Order Date : 21.04.2023

Discipt	ine: Che	mical Group: W	Vater		ory Limit 10500:2012
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
Cyanide (as CN)	mg/L	APHA 23 rd Ed.2017, 4500 CN-E	BDL (DL: 0.012)	0.05	No Relaxation
Residual Free Chlorine (RFC)	mg/L	IS 3025 (Part-26):2021	BDL (DL: 0.1)	0.02	1.0
Calcium (as Ca)	mg/L	APHA 23 rd Ed,2017, 3500 Ca B	28.6	75	200
Discipl	ine : Che	mical Group	: Residues in	Water	
Aluminum (as Al)	mg/L	IS 3025 (Part-55): 2003; RA2019	BDL (DL: 0.02)	0.03	0.2
Arsenic (as As)	mg/L	IS 3025 (Part 37): 2022	BDL (DL: 0.005)	0.01	No Relaxation
Boron (as B)	mg/L	IS 3025(Part-57); 2005; RA2021	BDL (DL: 0.2)	0.5	1.0
Cadmium (as Cd)	mg/L	APHA 23rd Ed.2017, 3111B	BDL (DL: 0.003)	0.003	No Relaxation
Total Chromium (as Cr)	mg/L	APHA 23 rd Ed;2017, 3111B	BDL (DL: 0.03)	0.05	No Relaxation
Copper (as Cu)	mg/L	APHA 23 rd Ed,2017, 3111B	BDL (DL: 0.03)	0.05	1.5
Iron (as Fe)	mg/L	APHA 23 rd Ed.2017, 3111B	0.214	1.0	1.0
Lead (as Pb)	mg/L	APHA 23 rd Ed.2017, 3111B	BDL (DL: 0.01)	0.01	No Relaxation
Manganese (as Mn)	mg/L	APHA 23 rd Ed.2017, 3111B	BDL (DL: 0.05)	0.1	0.3
Mercury (as Hg)	mg/L	IS 3025 (Part-48): 1994; RA2019	BDL (DL; 0.001)	0.001	No Relaxation
Selenium (as Se)	mg/L	IS 3025 (Part-56): 2003; RA2019	BDL (DL: 0.01)	10.0	No Relaxation
Zinc (as Zn)	mg/L	APHA 23 rd Ed.2017, 3111B	BDL (DL: 0.1)	5	15

Remarks: 1. pH & RFC done at Lab.

Page 2 of 4

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

ENGINEERING SERVICES PVT. LTD.

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

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

TEST REPORT

Test Report No.	: ELES/RAN/2023/3128	Report Release Date	: 21.12.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

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

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TEST REPORT

Test Report No.	: ELES/RAN/2023/3128	Report Release Date	: 21.12.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

Discipline : Bi	ological	Group: 1	Water		ory Limit 10500:2012
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
Total Coliform	Per 100 mL	IS 15185:2016; RA 2021	Not Detected	Challmat	to determine
Escherichia Coli (E. Coli)	Per 100 mL	IS 15185:2016; RA 2021	Not Detected	Shall not be detecte	
Discipline :	Chemical	Group:	Water	The second secon	ory Limit 10500:2012
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
Anionic Surfactants (as MBAS)*	mg/L	IS 3025 Part 68	BDL (DL: 0.1)	0.2	1.0
Mineral Oil*	mg/L	CL-6, IS: 3025 (P-39)	BDL (DL: 0.1)	1.0	No relaxation
Polynuclear Aromatic Hydrocarbons (PAH)*	mg/L	APHA 23 rd Edition	BDL (DL: 0.0001)	0.0001	No relaxation
Polychlorinated Biphenyls (PCB)*	mg/L	APHA 23rd Edition	BDL (DL: 0.0005)	0.0005	No relaxation

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

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****End of Report****

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

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TEST REPORT

Test Report No.	: ELES/RAN/2023/3136	Report Release Date	: 21.12.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DET	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Sampling Date Sample Received Date	: ELES/RAN/2023/EF/3023 : 16.11.2023 : 24.11.2023
Address	: Lohardaga, Jharkhand-835302	Type of Sample Source of Sample	: Effluent Water : Serengdag-A Bauxite Mines (155.81 ha)
Mines Status	: Operational	Sampling Procedure Sample Collected By	: ELES/DOC/SMPL/01 : ELES Pvt, Ltd.
Period of Analysis	: 24.11.2023 to 02.12.2023	Sample Condition	: Sealed & Preserved

Discipline: Chemical		Group: Pollution & E	Group: Pollution & Environment Discharge Lim EPR, 1986 Sc		
Parameter	Unit	Test Protocol	Result	Inland Surface Water	Land for Irrigation
Dissolved Oxygen (as DO)	mg/L	IS 3025 (Part-38):1989; RA2019	5.2	-	*
Fluoride (as F)	mg/L	IS 3025 (Part-60) :2008; RA2019	0.23	2.0	*
Sulphide (as S)	mg/L	IS 3025 (Part-29) :1986; RA2019	0.26	2.0	-
Discipline: Chem	ical	Group: Re	sidues in Wate	r	
Lead (as Pb)	mg/L	APHA 23rd Ed.2017; 3111 B	BDL (DL: 0.01)	.0,1	1,2,
Manganese (as Mn)	mg/L	APHA 23 rd Ed.2017; 3111 B	BDL (DL: 0.05)	2.0	**
Mercury (as Hg)	mg/L	IS 3025 (Part-48):1994; RA2019	BDL (DL: 0.001)	0.01	(Sees)
Nickel (as Ni)	mg/L	APHA 23 rd Ed.2017; 3111 B	BDL (DL: 0.01)	3.0	-



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Dr. Deependra Kumar Sinha Ph. D Environmental Engg.

ELES Pvt. Ltd. Technical Manager

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TEST REPORT

Test Report No.	: ELES/RNC/2024/0187	Report Release Date	: 15.01.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883924000000170F		

CUSTOMER DET	AILS	SAMPLE DETAILS		
Customer Name	Hindalco Industries Limited	Sample Ref. No. Location	ELES/RNC/2023/AA/4786 Near Weigh Bridge Serengdag-A Bauxite Mines (155.81ha)	
Address Mines Status	: Löhardaga. Jharkhand-835302	Sampling Date Sample Received Date Type of Sample Sampling Procedure Sampling Done By	† 12,12,2023 to 13,12,2023 ; 26,12,2023 ; Ambient Air ; ELES/DOC/SMPL/02 ; ELES Pvt. Ltd.	
Period of Analysis	: 26.12.2023 to 08.01.2024	Sample Condition	: Sealed & Preserved	

MI	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 49	4	Weather Condition	: Clear

Discipline : Chemica	d	Group: A	Atmospheric	Pollution
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m³	IS 5182 (Part-23): 2006; RA2022	74	100 (24hrs)
Particulate Matter (PM2.5)	µg/m³	IS 5182 (Part- 24): 2019	48	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2): 2001; RA2022	10.3	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m³	1S 5182 (Part-6): 2006; RA2022	30.2	80 (24hrs)
Ozone (O ₃)	µg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	μg/m ³	IS 5182 (Part- 25); 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m³	1S 5182 (Part-10); 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	μg/m³	IS 5182 (Part-22): 2004; RA2019	0.011	1 (24hrs)
Nickel (Ni)	ng/m³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)

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Page 1 of 1

Dr. Deependra Kumar Sinha

Ph B Environmental engg

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Save Environment, Spile Father



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

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Website: www.elespl.co.in

TEST REPORT

Test Report No.	: ELES/RNC/2024/0187	Report Release Date	; 15.01.2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DET/	CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/4786 : Near Weigh Bridge Serengdag-A Bauxite Mines (155.81ha)		
Address Mines Status	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample Sampling Procedure Sampling Done By	: 12.12.2023 to 13.12.2023 : 26.12.2023 : Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.		
Willies Status	1000		TO THE REST OF TAXABLE PARTY.		
Period of Analysis	: 26.12.2023 to 08.01.2024	Sample Condition	: Sealed & Preserved		

MI	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 49	4	Weather Condition	: Clear

Discipline : Chem	ical	Group:	Atmospheric	Pollution
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C _c H _b)*	µg/m³	IS 5182 (Part-11)2006;RA2017	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m³	IS 5182 (Part-12)2004;RA2019	<0.5	01(Annual)

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



****End of Report****

Authorised Signatory Dr. Deependra Kumar Sinna Ph D Environmental Engg. ELES Pvt. Ltd. Technical Managers

Page 1 of 1

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

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TEST REPORT

Test Report No.	: ELES/RNC/2024/0188	Report Release Date	: 15.01.2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

ULR No. : TC883924000000171F

CUSTOMER DETA	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	± ELES/RNC/2023/AA/4787 ± BKB Quarry Serengdag-A Bauxite Mines (155.81ha)	
Address Mines Status	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample Sampling Procedure Sampling Done By	: 12.12.2023 to 13.12.2023 : 26.12.2023 : Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.	
Period of Analysis	26.12.2023 to 08.01.2024	Sample Condition	: Sealed & Preserved	

MI	ETEOROLOGICAL INFORM	ATION			
1	Average Temperature (°C) :	18	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	49	4	Weather Condition	: Clear

Discipline : Chemica	il	Group : A	Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	µg/m³	IS 5182 (Part-23): 2006; RA2022	67	100 (24hrs)	
Particulate Matter (PM2,5)	μg/m³	1S 5182 (Part- 24): 2019	39	60 (24hrs)	
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2): 2001; RA2022	8.3	80 (24hrs)	
Nitrogen Di-Oxide (NO ₂)	μg/m³	IS 5182 (Part-6): 2006; RA2022	24.1	80 (24hrs)	
Ozone (O ₃)	µg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)	
Ammonia (NH ₃)	µg/m ⁵	IS 5182 (Part-25); 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)	
Lead (Pb)	µg/m³	IS 5182 (Part-22): 2004; RA2019	0.019	1 (24hrs)	
Nickel (Ni)	ng/m³	IS 5182 (Part-26):2020	<6.0	20 (Annual)	
Arsenic (As)	ng/m²	ELES/AIR/SOP/01	<2.0	06 (Annual)	

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****End of Report****
Page | of |

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TEST REPORT

Test Report No.	: ELES/RNC/2024/0188	Report Release Date	: 15.01.2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DETA	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/4787 : BKB Quarry Serengdag-A Bauxite Mines (155.81ha)	
Address Mines Status	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample Sampling Procedure Sampling Done By	: 12.12,2023 to 13.12,2023 : 26.12,2023 : Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.	
		Sample Condition	: Sealed & Preserved	
Period of Analysis	; 26.12.2023 to 08.01.2024	Sample Condition	. Senied de l'ieser red	

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 49	4	Weather Condition	; Clear

Discipline : Chem	ical	Group:	Atmospheric	Pollution
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C ₆ H ₆)*	μg/m³	IS 5182 (Part-11)2006;RA2017	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m³	IS 5182 (Part-12)2004;RA2019	< 0.5	01(Annual)

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

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****End of Report****

Dr. Deependra Kumar Sinha Ph. D Environmental Enga. ELES Pvt. Ltd. Technical Managers

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TEST REPORT

Test Report No.	: ELES/RNC/2024/0189	Report Release Date	: 15.01.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883924000000172F		

CUSTOMER DETA	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	ELES/RNC/2023/AA/4788 Mine Pit Quarry No.2A Serengdag-A Bauxite Mines (155.81ha)	
Address Mines Status	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample Sampling Procedure Sampling Done By	: 12.12.2023 to 13.12.2023 : 26.12.2023 : Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.	
Period of Analysis	: 26.12.2023 to 08.01.2024	Sample Condition	: Sealed & Preserved	

MI	TEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 49	4	Weather Condition	: Clear

Discipline : Chemica	d	Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	µg/m³	IS 5182 (Part-23): 2006; RA2022	59	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24); 2019	37	60 (24hrs)	
Sulphur Di-Oxide (SO ₃)	μg/m³	IS 5182 (Part-2): 2001; RA2022	7.3	80 (24hrs)	
Nitrogen Di-Oxide (NO ₂)	μg/m³	IS 5182 (Part-6): 2006; RA2022	24.1	80 (24hrs)	
Ozone (O ₃)	ug/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)	
Ammonia (NH ₃)	µg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)	
Lead (Pb)	µg/m³	IS 5182 (Part-22): 2004; RA2019	0.014	1 (24hrs)	
Nickel (Ni)	ng/m³	IS 5182 (Part-26):2020	<6.0	20 (Annual)	
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)	

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Dr. Deependra Kumar Sinha

Ph O Environmental Engg.

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

NGINEERING SERVICES PVT. LTD.

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Website: www.elespl.co.in

TEST REPORT

Test Report No.	: ELES/RNC/2024/0189	Report Release Date	: 15.01.2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DETA	AILS	SAMPLE DETAILS		
Customer Name	; Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/4788 : Mine Pit Quarry No.2A Serengdag-A Bauxite Mines (155.81ha)	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample Sampling Procedure	: 12.12.2023 to 13.12.2023 : 26.12.2023 : Ambient Air : ELES/DOC/SMPL/02	
Mines Status	: Operational	Sampling Done By	: ELES Pvt. Ltd.	
Period of Analysis	: 26.12.2023 to 08.01.2024	Sample Condition	: Sealed & Preserved	

MI	ETEOROLOGICAL INFOR	MATION	-			
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mml	Ig) : 736	
3	Relative Humidity (%)	: 49	4	Weather Condition	: Clear	

Discipline : Chem	ical	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene (C ₆ H ₆)*	μg/m³	IS 5182 (Part-11)2006;RA2017	<1.0	05(Annual)		
Benzo-(a)-Pyrene*	ng/m³	IS 5182 (Part-12)2004;RA2019	<0.5	01(Annual)		

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



****End of Report****

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

Page 1 of 1

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE97130124

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TEST REPORT

Test Report No.	: ELES/RNC/2024/0190	Report Release Date	: 15.01.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883924000000173F		

CUSTOMER DETA	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4789
		Location	: Mine Pit Quarry No.2B
		1	Serengdag-A Bauxite Mines
			(155.81ha)
Address	: Lohardaga, Jharkhand-835302	Sampling Date	; 12.12.2023 to 13.12.2023
		Sample Received Date	: 26.12.2023
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
Mines Status	: Operational	Sampling Done By	: ELES Pvt. Ltd.
Period of Analysis	: 26.12.2023 to 08.01.2024	Sample Condition	: Sealed & Preserved

M	ETEOROLOGICAL INFORMATION			
1	Average Temperature (°C) : 18	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%) : 49	4	Weather Condition	: Clear

Discipline : Chemica	il	Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	µg/m³	IS 5182 (Part-23): 2006; RA2022	63	100 (24hrs)	
Particulate Matter (PM2.5)	µg/m³	IS 5182 (Part- 24): 2019	35	60 (24hrs)	
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2): 2001; RA2022	7.1	80 (24hrs)	
Nitrogen Di-Oxide (NO ₂)	μg/m³	IS 5182 (Part-6): 2006; RA2022	22.5	80 (24hrs)	
Ozone (O ₃)	μg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)	
Ammonia (NH ₃)	μg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m³	1S 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)	
Lead (Pb)	μg/m³	IS 5182 (Part-22): 2004; RA2019	0.015	1 (24hrs)	
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)	
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)	

Reviewed by

****End of Report****

Auto Dempesionar Visumar Sinha

Ph. D Environmental Enga.

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ELES Pvt. Ltd. Technical Manager

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

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

TEST REPORT

Test Report No.	: ELES/RNC/2024/0190	Report Release Date	: 15.01.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

CUSTOMER DETA	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/4789 : Mine Pit Quarry No.2B Serengdag-A Bauxite Mines (155.81ha)
Address Mines Status	: Lohardaga, Jharkhand-835302 : Operational	Sampling Date Sample Received Date Type of Sample Sampling Procedure Sampling Done By	: 12.12.2023 to 13.12.2023 : 26.12.2023 : Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.
Period of Analysis	: 26.12.2023 to 08.01.2024	Sample Condition	: Sealed & Preserved

M	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	736
3	Relative Humidity (%)	:49	240	Weather Condition	; Clear

Discipline : Chem	ical	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene (C ₆ H ₆)*	μg/m³	IS 5182 (Part-11)2006;RA2017	<1,0	05(Annual)		
Benzo-(a)-Pyrene*	ng/m³	IS 5182 (Part-12)2004;RA2019	<0.5	01(Annual)		

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



****End of Report****

Authorised Signatory

Dr. Deependra Kumar Sinna
Ph. D Environmental Engg.

ELES Pvt. Ltd. Technical Manager

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TEST REPORT

Test Report No.	: ELES/RNC/2024/0191	Report Release Date	: 15.01.2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	
ULR No.	: TC883924000000174F			

CUSTOMER DETA	MLS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/4790 : Near Banjari Village Serengdag-A Bauxite Mines (155.81ha)
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample Sampling Procedure	: 12.12.2023 to 13.12.2023 : 26.12.2023 : Ambient Air : ELES/DOC/SMPL/02
Mines Status	: Operational	Sampling Done By	: ELES Pvt. Ltd.
Period of Analysis	: 26.12.2023 to 08.01.2024	Sample Condition	: Sealed & Preserved

MI	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature ("C)	± 18	2	Barometric Pressure (mmHg)	; 736
3	Relative Homidity (%)	149	4	Weather Condition	: Clear

Discipline : Chemica	d	Group: A	Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Particulate Matter (PM10)	µg/m ¹	IS 5182 (Part-23): 2006; RA2022	62	100 (24hrs)		
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	33	60 (24hrs)		
Sulphur Di-Oxide (SO ₂)	µg/m³	IS 5182 (Part-2): 2001; RA2022	7.4	80 (24hrs)		
Nitrogen Di-Oxide (NO ₂)	µg/m³	15 5182 (Part-6); 2006; RA2022	28.1	80 (24hrs)		
Ozone (O ₃)	µg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)		
Ammonia (NH ₃)	µg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)		
Carbon Monoxide (CO)	mg/m ^J	IS 5182 (Part-10); 1999; RA2019	<1.0	2 (8hrs)		
Lead (Pb)	µg/m²	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)		
Nickel (Ni)	ng/m³-	IS 5182 (Part-26):2020	<6.0	20 (Annual)		
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)		

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TEST REPORT

Test Report No.	: ELES/RNC/2024/0191	Report Release Date	: 15.01.2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04,2023	

CUSTOMER DET/	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/4790 : Near Banjari Village Serengdag-A Bauxite Mines (155.81ha)	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample Sampling Procedure	: 12.12.2023 to 13.12.2023 : 26.12.2023 : Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.	
Mines Status	: Operational	Sampling Done By	The state of the s	
Period of Analysis	: 26.12.2023 to 08.01.2024	Sample Condition	: Sealed & Preserved	

MI	TEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 49	4	Weather Condition	: Clear

Discipline: Chem	ical	Group:	Atmospheric	Pollution
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C ₆ H ₆)*	µg/m³	IS 5182 (Part-11)2006;RA2017	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m³	IS 5182 (Part-12)2004;RA2019	<0.5	01(Annual)

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



****End of Report****

Dr. Deependra Kumar Sinha
Ph. D Environmental Engg.

ELES Pvt. Ltd. Technical Manager

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (IHARKHAND) GST NO: 20AAECE97130174

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TEST REPORT

Test Report No.	: ELES/RNC/2024/0192	Report Release Date	: 15.01.2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	
ULR No.	: TC883924000000175F			

CUSTOMER DETA	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/4791 : Near Pauri Village Serengdag-A Bauxite Mines (155,81ha)	
Address Mines Status	: Lohardaga, Jharkhand-835302 : Operational	Sampling Date Sample Received Date Type of Sample Sampling Procedure Sampling Done By	: 12.12.2023 to 13.12.2023 : 26.12.2023 : Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.	
Period of Analysis	: 26.12.2023 to 08.01.2024	Sample Condition	: Sealed & Preserved	

MI	ETEOROLOGICAL INFOR	RMATION			
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	; 49	4	Weather Condition	± Clear

Discipline : Chemica	ot	Group: /	Atmospheric	Pollution
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	μg/m³	IS 5182 (Part-23): 2006; RA2022	60	100 (24hrs)
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	31	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2); 2001; RA2022	7.9	80 (24hrs)
Nitrogen Di-Oxide (NO2)	µg/m³	1S 5182 (Part-6): 2006; RA2022	22.3	80 (24hrs)
Ozone (O ₃)	μg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₂)	μg/m³	1S 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m³	IS 5182 (Part-22): 2004; RA2019	0.012	1 (24hrs)
Nickel (Ni)	ng/m³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)

****End of Report****

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Reviewed by

Drulli ora per silga dkumar Sinha

Ph. D Environmental Enga.

ELES Pyt. Ltd. Technical Manager Page 1 of 1

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20A4ECE9713D124

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TEST REPORT

Test Report No.	: ELES/RNC/2024/0192	Report Release Date	: 15.01.2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DET	AILS	SAMPLE DETAILS		
Customer Name	.; Hindalco Industries Limited	Sample Ref. No. Location	LELES/RNC/2023/AA/4791 Near Pauri Village Serengdag-A Bauxite Mines (155.81ha)	
Address Mines Status	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample Sampling Procedure Sampling Done By	: 12.12.2023 to 13.12.2023 : 26.12.2023 : Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.	
	The second secon		And the second s	
Period of Analysis	: 26.12.2023 to 08.01.2024	Sample Condition	: Sealed & Preserved	

MI	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	:18	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 49	4	Weather Condition	: Clear

Discipline : Chem	ical	Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Benzene (C _s H ₆)*	μg/m³	IS 5182 (Part-11)2006;RA2017	<1.0	05(Annual)	
Benzo-(a)-Pyrene*	ng/m³	1S/5182 (Part-12)2004;RA2019	< 0.5	01(Annual)	

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



****End of Report****

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

Page I of I

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PLOT NO-30, MANSAROVAR ENCLAYE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE97130124

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YC-8839

TEST REPORT

Test Report No.	: ELES/RNC/2024/0193	Report Release Date	: 15.01.2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	
ULR No.	: TC883924000000176F			

CUSTOMER DETA	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	; ELES/RNC/2023/AA/4792 ; Near Harup Village Serengdag-A Bauxite Mines (155.81ha)	
Address Mines Status	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample Sampling Procedure Sampling Done By	: 12.12.2023 to 13.12.2023 : 26.12.2023 : Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.	
Period of Analysis	: 26.12.2023 to 08.01.2024	Sample Condition	: Sealed & Preserved	

MI	ETEOROLOGICAL INFOI	RMATION				
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 736	
3	Relative Humidity (%)	7.49	4	Weather Condition	: Clear	

Discipline : Chemica	d	Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	µg/m³	IS 5182 (Part-23): 2006; RA2022	58	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	31	60 (24hrs)	
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2): 2001; RA2022	6.4	80 (24hrs)	
Nitrogen Di-Oxide (NO2)	μg/m³	IS 5182 (Part-6): 2006; RA2022	22.1	80 (24hrs)	
Ozone (O ₃)	μg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)	
Ammonia (NH ₃)	μg/m³	IS 5182 (Part- 25); 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)	
Lead (Pb)	µg/m³	IS 5182 (Part-22): 2004; RA2019	< 0.002	1 (24hrs)	
Nickel (Ni)	ng/m³	IS 5182 (Part-26):2020	<6.0	20 (Annual)	
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)	

Reviewed by

****End of Report****

Authorised Signatory Dr. Deependra Kumar Sinha

Ph. D Environmental engg.

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

ENGINEERING SERVICES PVT. LTD.

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

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

TEST REPORT

Test Report No.	: ELES/RNC/2024/0193	Report Release Date	: 15.01.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

CUSTOMER DET.	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/4792 : Near Harup Village Serengdag-A Bauxite Mines (155.81ha)
Address Mines Status	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample Sampling Procedure	: 12.12.2023 to 13.12.2023 : 26.12.2023 : Ambient Air : ELES/DOC/SMPL/02
Mines Status	: Operational	Sampling Done By	ELES Pvt. Ltd.
Period of Analysis	: 26.12.2023 to 08.01.2024	Sample Condition	: Sealed & Preserved

MI	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 49	4	Weather Condition	: Clear

Discipline : Chem	ical	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene (C ₆ H ₆)*	µg/m³	IS 5182 (Part-11)2006;RA2017	<1.0	05(Annual)		
Benzo-(a)-Pyrene*	ng/m³	IS 5182 (Part-12)2004;RA2019	<0.5	01(Annual)		

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



*** End of Report***

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

Page 1 of 1

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

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



TEST REPORT

Test Report No.	: ELES/RNC/2024/0194	Report Release Date	: 15.01.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	· TC883974000000177F		

CUSTOMER DETA	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/4793 : Near Paintoli Village Serengdag-A Bauxite Mines
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	(155.81ha) : 12.12.2023 to 13.12.2023 : 26.12.2023
Mines Status	: Operational	Type of Sample Sampling Procedure Sampling Done By	: Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.
Period of Analysis	: 26.12.2023 to 08.01.2024	Sample Condition	: Sealed & Preserved

M	ETEOROLOGICAL INFO	RMATION			
4	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 49	4	Weather Condition	: Clear

Discipline: Chemica	al	Group:	Atmospheric !	Pollution
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	μg/m³	IS 5182 (Part-23): 2006; RA2022	60	100 (24hrs)
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	33	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2): 2001; RA2022	7.1	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	μg/m³	IS 5182 (Part-6): 2006; RA2022	22.3	80 (24hrs)
Ozone (O ₁)	μg/m ¹	18 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	μg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m³	IS 5182 (Part-22): 2004; RA2019	< 0.002	1 (24hrs)
Nickel (Ni)	ng/m³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m¹	ELES/AIR/SOP/01	<2.0	06 (Annual)

****End of Report****

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

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

TEST REPORT

Test Report No.	: ELES/RNC/2024/0194	Report Release Date	: 15.01.2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DETA	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/4793 : Near Paintoli Village Screngdag-A Bauxite Mines (155.81ha)
Address	:: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample Sampling Procedure	: 12.12.2023 to 13.12.2023 : 26.12.2023 : Ambient Air : ELES/DOC/SMPL/02
Mines Status	: Operational	Sampling Done By	; ELES Pvt. Ltd.
Period of Analysis	: 26.12.2023 to 08.01.2024	Sample Condition	: Sealed & Preserved

MI	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 49	4	Weather Condition	: Clear

Discipline: Chem	ical	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene (C ₆ H ₆)*	µg/m¹	IS 5182 (Part-I1)2006;RA2017	<1.0	05(Annual)		
Benzo-(a)-Pyrene*	ng/m³	IS 5182 (Part-12)2004;RA2019	<0.5	01(Annual)		

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



****End of Report****

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

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Email: Info@elespi.co.in , eles.ranchi@amail.com

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TEST REPORT

Test Report No.	: ELES/RNC/2024/0507	Report Release Date	: 05.02,2024	
Work Order No.	: 13612310218	Work Order Date	; 21.04.2023	
ULR No	TC883924000000478F			

CUSTOMER DET/	CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/0292 : Near Weigh Bridge Serengdag-A Bauxite Mines (155.81ha)		
Address	□ Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample Sampling Procedure	: 15.01.2024 to 16.01.2024 : 20.01.2024 : Ambient Air : ELES/DOC/SMPL/02		
Mines Status	: Operational	Sampling Done By	: ELES Pvt. Ltd.		
Period of Analysis	: 20.01.2024 to 30.01.2024	Sample Condition	: Sealed & Preserved		

M	ETEOROLOGICAL INFORMATION			
1	Average Temperature (°C) : 19	2	Barometric Pressure (mmHg	g) : 736
3	Relative Humidity (%) : 45	4	Weather Condition	: Clear

Discipline : Chemica	d	Group : A	Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Particulate Matter (PM10)	μg/m³	IS 5182 (Part-23); 2006; RA2022	81	100 (24hrs)		
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	52	60 (24hrs)		
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2): 2001; RA2022	12.5	80 (24hrs)		
Nitrogen Di-Oxide (NO ₂)	μg/m³	IS 5182 (Part-6); 2006; RA2022	33.6	80 (24hrs)		
Ozone (O ₃)	µg/m³	1S 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)		
Ammonia (NH ₃)	μg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)		
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)		
Lead (Pb)	µg/m³	IS 5182 (Part-22): 2004; RA2019	0.013	1 (24hrs)		
Nickel (Ni)	ng/m³	(S 5182 (Part-26):2020	<6.0	20 (Annual)		
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)		

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Authorised Signatory

Dr. Deependra Kumar Sinh:

Page 1 of 1

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

ENGINEERING SERVICES PVT. LTD.

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

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

TEST REPORT

Test Report No.	: ELES/RNC/2024/0507	Report Release Date	: 05.02.2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/0292 : Near Weigh Bridge Serengdag-A Bauxite Mines (155.81ha)	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample Sampling Procedure	: 15.01.2024 to 16.01.2024 : 20.01.2024 : Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.	
Mines Status	: Operational	Sampling Done By	A STATE OF THE STA	
Period of Analysis	: 20.01.2024 to 30.01.2024	Sample Condition	: Sealed & Preserved	

MI	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 19	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 45	4	Weather Condition	: Clear

Discipline : Chemical		Group:	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit			
Benzene (C ₆ H ₆)*	µg/m³	IS 5182 (Part-11): 2006; RA2022	<1.0	05(Annual)			
Benzo-(a)-Pyrene*	ng/m²	IS 5182 (Part-12): 2004; RA2019	<0.5	01(Annual)			

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



****End of Report***

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

Page 1 of 1

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

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TEST REPORT

Test Report No. : ELES/RNC/2024/0508 Report Release Date : 05.02.2024

Work Order No. : 13612310218 Work Order Date : 21.04.2023

ULR No. : TC883924000000479F

CUSTOMER DET	MILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/0293 : BKB Quarry Serengdag-A Bauxite Mines (155.81ha)
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample Sampling Procedure	: 15.01.2024 to 16.01.2024 : 20.01.2024 : Ambient Air : ELES/DOC/SMPL/02
Mines Status	: Operational	Sampling Done By	: ELES PVL Ltd.
Period of Analysis	: 20.01.2024 to 30.01.2024	Sample Condition	: Sealed & Preserved

M	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 19	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 45	4	Weather Condition	: Clear

Discipline : Chemic	at	Group:	Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Particulate Matter (PMI0)	μg/m³	IS 5182 (Part-23): 2006; RA2022	71	100 (24hrs)		
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	42	60 (24hrs)		
Sulphur Di-Oxide (SO ₂)	μg/m³	1S 5182 (Part-2): 2001; RA2022	8.7	80 (24hrs)		
Nitrogen Di-Oxide (NO ₂)	μg/m³	IS 5182 (Part-6): 2006; RA2022	27.1	80 (24hrs)		
Ozone (O ₁)	μg/m³	1S 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)		
Ammonia (NH ₃)	μg/m ²	1S 5182 (Part- 25): 2018	<10.0	400 (24hrs)		
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)		
Lead (Pb)	μg/m³	IS 5182 (Part-22): 2004; RA2019	0.020	1 (24hrs)		
Nickel (Ni)	ng/m³	IS 5182 (Part-26):2020	<6.0	20 (Annual)		
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)		

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Dr. Deependra Kumar Sinha

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mentioned in Test Report is in 24hours format. Abbreviation used: N/A (Not Applicable), BDL (Below Detection Limit), LDL (Lower Detection Limit).



PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D1Z4

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TEST REPORT

Test Report No.	: ELES/RNC/2024/0508	Report Release Date	: 05.02.2024	
Work Order No.	; 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/0293 : BKB Quarry Serengdag-A Bauxite Mines (155.81ha)	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample Sampling Procedure	: 15.01.2024 to 16.01.2024 : 20.01.2024 : Ambient Air : ELES/DOC/SMPL/02	
Mines Status	: Operational	Sampling Done By	: ELES Pvt. Ltd.	
Period of Analysis	: 20,01.2024 to 30.01.2024	Sample Condition	: Sealed & Preserved	

MI	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	; 19	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 45	4	Weather Condition	: Clear

Discipline : Chem	ical	Group : /	Group : Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene (C _b H _b)*	μg/m ²	IS 5182 (Part-11); 2006; RA2022	<1.0	05(Annual)		
Benzo-(a)-Pyrene*	ng/m³	(S 5182 (Part-12): 2004; RA2019	< 0.5	01(Annual)		

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

Reviewed by

****End of Report****

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

Page 1 of 1

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

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TEST REPORT

Test Report No.	: ELES/RNC/2024/0509	Report Release Date	: 05.02.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	; TC883924000000480F		

CUSTOMER DETA	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/0294 : Mine Pit Quarry No.2A Serengdag-A Bauxite Mines (155.81ha)
Address Mines Status	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample Sampling Procedure Sampling Done By	: 15.01.2024 to 16.01.2024 : 20.01.2024 : Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.
Period of Analysis	: 20.01.2024 to 30.01.2024	Sample Condition	: Sealed & Preserved

MI	TEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 19	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 45	4	Weather Condition	: Clear

Discipline : Chemica	d	Group: A	Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Particulate Matter (PM10)	µg/m³	1S 5182 (Part-23): 2006; RA2022	63	100 (24hrs)		
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part-24): 2019	42	60 (24hrs)		
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2): 2001; RA2022	8.1	80 (24hrs)		
Nitrogen Di-Oxide (NO ₂)	µg/m³	IS 5182 (Part-6): 2006; RA2022	26.4	80 (24hrs)		
Ozone (O ₃)	µg/m ⁴	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)		
Ammonia (NH ₃)	μg/m	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)		
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10); 1999; RA2019	<1.0	2 (8hrs)		
Lead (Pb)	μg/m³	IS 5182 (Part-22); 2004; RA2019	0.017	1 (24hrs)		
Nickel (Ni)	ng/m²	1S 5182 (Part-26):2020	<6.0	20 (Annual)		
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)		

**** End of Report ****

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Dr. Deependra Kumar Sinna Ph. D Environmental Enga.

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE97130124

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TEST REPORT

Test Report No.	: ELES/RNC/2024/0509	Report Release Date	: 05.02.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

CUSTOMER DETA	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/0294 : Mine Pit Quarry No.2A Serengdag-A Bauxite Mines (155.81ha)	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample Sampling Procedure	: 15.01.2024 to 16.01.2024 : 20.01.2024 : Ambient Air : ELES/DOC/SMPL/02	
Mines Status	; Operational	Sampling Done By	: ELES Pvt. Ltd.	
Period of Analysis	: 20.01.2024 to 30.01.2024	Sample Condition	: Sealed & Preserved	

MI	TEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	:19	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 45	- 4	Weather Condition	: Clear

Discipline : Chem	ical	Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Benzene (C ₆ H ₆)*	μg/m³	IS 5182 (Part-11): 2006; RA2022	<1.0	05(Annual)	
Benzo-(a)-Pyrene*	ng/m³	IS 5182 (Part-12): 2004; RA2019	<0.5	01(Annual)	

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



****End of Report****

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

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TEST REPORT

Test Report No.	: ELES/RNC/2024/0510	Report Release Date	: 05.02.2024
Work Order No.	: 13612310218	Work Order Date	; 21.04.2023
ULR No.	: TC883924000000481F		

CUSTOMER DETA	AILS	SAMPLE DETAILS	
Customer Name	± Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/0295 : Mine Pit Quarry No.2B Serengdag-A Bauxite Mines (155.81ha)
Address Mines Status	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample Sampling Procedure Sampling Done By	: 15.01.2024 to 16.01.2024 : 20.01.2024 : Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.
DALLES SINION	STATE TO SELECT		The second secon
Period of Analysis	20.01.2024 to 30.01.2024	Sample Condition	: Sealed & Preserved

M	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 19	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 45	4	Weather Condition	: Clear

1	Group: A	Group: Atmospheric Pollution			
Unit	Test Protocol	Result	Regulatory Limit		
µg/m³	IS 5182 (Part-23): 2006; RA2022	68	100 (24hrs)		
µg/m³	IS 5182 (Part- 24): 2019	39	60 (24hrs)		
µg/m³	IS 5182 (Part-2): 2001; RA2022	7.8	80 (24hrs)		
ng/m³	IS 5182 (Part-6): 2006; RA2022	24.1	80 (24hrs)		
µg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)		
µg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)		
mg/m³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)		
µg/m ⁷	IS 5182 (Part-22): 2004; RA2019	0.019	1 (24hrs)		
ng/m³	IS 5182 (Part-26):2020	<6.0	20 (Annual)		
ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)		
	μg/m ³	Unit Test Protocol μg/m³ IS 5182 (Part-23): 2006; RA2022 μg/m³ IS 5182 (Part-24): 2019 μg/m³ IS 5182 (Part-2): 2001; RA2022 μg/m³ IS 5182 (Part-6): 2006; RA2022 μg/m³ IS 5182 (Part-6): 1974; RA2019 μg/m³ IS 5182 (Part-25): 2018 mg/m³ IS 5182 (Part-10): 1999; RA2019 μg/m³ IS 5182 (Part-22): 2004; RA2019 μg/m³ IS 5182 (Part-22): 2004; RA2019 μg/m³ IS 5182 (Part-26): 2020 Re/m³ IS 5182 (Part-26): 2020	Unit Test Protocol Result μg/m³ 1S 5182 (Part-23): 2006; RA2022 68 μg/m³ 1S 5182 (Part-24): 2019 39 μg/m³ 1S 5182 (Part-2): 2001; RA2022 7.8 μg/m³ 1S 5182 (Part-6): 2006; RA2022 24.1 μg/m³ 1S 5182 (Part-9): 1974; RA2019 <20.0		

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TEST REPORT

Test Report No.	: ELES/RNC/2024/0510	Report Release Date	; 05,02.2024			
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023			

CUSTOMER DETA	ILS	SAMPLE DETAILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/0295 : Mine Pit Quarry No.2B Serengdag-A Bauxite Mines (155.81ha)		
Address Mines Status	: Lohardaga, Jharkhand-835302 : Operational	Sampling Date Sample Received Date Type of Sample Sampling Procedure Sampling Done By	: 15.01.2024 to 16.01.2024 : 20.01.2024 : Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.		
Period of Analysis	: 20.01,2024 to 30.01,2024	Sample Condition	Sealed & Preserved		

MI	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 19	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	1.45	4	Weather Condition	: Clear

Discipline : Chem	ical	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene (C _s H _s)*	μg/m³	IS 5182 (Part-11): 2006; RA2022	<1.0	05(Annual)		
Benzo-(a)-Pyrene*	ng/m³	IS 5182 (Part-12): 2004; RA2019	< 0.5	01(Annual)		

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



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

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TEST REPORT

Test Report No.	: ELES/RNC/2024/0511	Report Release Date	: 05.02.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	; TC883924000000482F		

CUSTOMER DETA	AILS	SAMPLE DETAILS	the state of the s
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/0296 : Near Banjari Village Serengdag-A Bauxite Mines (155.81ha)
Address	_ Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample Sampling Procedure	: 15.01.2024 to 16.01.2024 : 20.01.2024 : Ambient Air : ELES/DOC/SMPL/02
Mines Status	Operational	Sampling Done By	: ELES Pvt. Ltd.
Period of Analysis	: 20.01.2024 to 30.01.2024	Sample Condition	: Sealed & Preserved

MI	ETEOROLOGICAL INFORMA	TION			
1	Average Temperature (°C) : 15		2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%) : 45		4	Weather Condition	; Clear

Discipline : Chemica	d	Group : A	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit			
Particulate Matter (PM10)	μg/m³	IS 5182 (Part-23): 2006; RA2022	67	100 (24hrs)			
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	38	60 (24hrs)			
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2): 2001; RA2022	8.2	80 (24hrs)			
Nitrogen Di-Oxide (NO ₂)	μg/m³	IS 5182 (Part-6): 2006; RA2022	31.5	80 (24hrs)			
Ozone (O ₃)	µg/m²	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)			
Ammonia (NH ₃)	µg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)			
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)			
Lead (Pb)	µg/m³	1S 5182 (Part-22): 2004; RA2019	< 0.002	1 (24hrs)			
Nickel (Ni)	ng/m³	1S 5182 (Part-26):2020	<6.0	20 (Annual)			
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)			

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TEST REPORT

Test Report No.	: ELES/RNC/2024/0511	Report Release Date	: 05.02.2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DETA	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/0296 : Near Banjari Village Serengdag-A Bauxite Mines (155.81ha)	
Address	; Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample Sampling Procedure	: 15.01.2024 to 16.01.2024 : 20.01.2024 : Ambient Air : ELES/DOC/SMPL/02	
Mines Status	2 Operational	Sampling Done By	: ELES PVL Ltd.	
Period of Analysis	: 20.01.2024 to 30.01.2024	Sample Condition	: Sealed & Preserved	

M	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	719	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 45	4	Weather Condition	: Clear

Discipline : Chem	ical	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene (C ₆ H ₆)*	μg/m ²	1S 5182 (Part-11): 2006; RA2022	<1.0	05(Annual)		
Benzo-(a)-Pyrene*	ng/m³	IS 5182 (Part-12): 2004; RA2019	<0.5	01(Annual)		

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



****End of Report****

Authorised Signatory

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

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

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TEST REPORT

Test Report No.	: ELES/RNC/2024/0512	Report Release Date	: 05.02.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883924000000483F		

CUSTOMER DETA	AILS	SAMPLE DETAILS	The second second second
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/0297 : Near Pauri Village Serengdag-A Bauxite Mines (155.81ha)
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 15.01.2024 to 16.01.2024 : 20.01.2024 : Ambient Air
Mines Status	: Operational	Type of Sample Sampling Procedure Sampling Done By	: ELES/DOC/SMPL/02 : ELES Pvt. Ltd.
Period of Analysis	: 20.01.2024 to 30.01.2024	Sample Condition	: Sealed & Preserved

M	ETEOROLOGICAL INFORM	ATION			
1	Average Temperature (°C)	[9	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	45	4	Weather Condition	; Clear

Discipline: Chemica	il	Group : A	Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Particulate Matter (PM10)	µg/m	IS 5182 (Part-23): 2006; RA2022	64	100 (24hrs)		
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	36	60 (24hrs)		
Sulphur Di-Oxide (SO ₂)	μg/m³	15 5182 (Part-2): 2001; RA2022	8.2	80 (24hrs)		
Nitrogen Di-Oxide (NO ₂)	μg/m ³	IS 5182 (Part-6): 2006; RA2022	25.1	80 (24hrs)		
Ozone (O ₁)	µg/m³	IS \$182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)		
Ammonia (NH ₃)	µg/m³	1S 5182 (Part- 25): 2018	<10.0	400 (24hrs)		
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)		
Lead (Pb)	µg/m³	IS 5182 (Part-22): 2004; RA2019	0.009	1 (24hrs)		
Nickel (Ni)	ng/m³	IS 5182 (Part-26):2020	<6.0	20 (Annual)		
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)		

****End of Report****

Reviewed by

Authorised Signatory

Dr. Deependra Kumar Sinh

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Ph. D Environmental Enga

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

ENGINEERING SERVICES PVT. LTD.

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

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

TEST REPORT

Test Report No.	: ELES/RNC/2024/0512	Report Release Date	: 05.02.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

CUSTOMER DETA	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/0297 : Near Pauri Village Serengdag-A Bauxite Mines (155.81ha)
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample Sampling Procedure	: 15.01.2024 to 16.01.2024 : 20.01.2024 : Ambient Air : ELES/DOC/SMPL/02
Mines Status	: Operational	Sampling Done By	: ELES Pvt. Ltd.
Period of Analysis	: 20.01.2024 to 30.01.2024	Sample Condition	: Sealed & Preserved

M	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 19	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 45	4	Weather Condition	; Clear

Discipline : Chem	ical	Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Benzene (C ₆ H ₆)*	μg/m³	IS 5182 (Part-11): 2006; RA2022	<1.0	05(Annual)	
Benzo-(a)-Pyrene*	ng/m³	IS 5182 (Part-12): 2004; RA2019	<0.5	01(Annual)	

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



****End of Report****

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

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAEEE97130124

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TEST REPORT

Test Report No.	: ELES/RNC/2024/0513	Report Release Date	: 05.02.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883924000000484F		

CUSTOMER DETA	AILS	SAMPLE DETAILS	
Customer Name	† Hindalco Industries Limited	Sample Ref. No. Location	ELES/RNC/2024/AA/0298 Near Harup Village Serengdag-A Bauxite Mines (155.81ha)
Address Mines Status	: Lohardaga, Jharkhand-835302 : Operational	Sampling Date Sample Received Date Type of Sample Sampling Procedure Sampling Done By	: 15.01.2024 to 16.01.2024 : 20.01.2024 : Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.
Period of Analysis	: 20.01.2024 to 30.01.2024	Sample Condition	: Sealed & Preserved

MI	ETEOROLOGICAL INFORMATIO	ON		
1	Average Temperature (°C) : 19	2	Barometric Pressure (mm	Hg) : 736
3	Relative Humidity (%) : 45	4	Weather Condition	: Clear

Discipline : Chemica	d	Group :	Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Particulate Matter (PM10)	µg/m³	IS 5182 (Part-23); 2006; RA2022	63	100 (24hrs)		
Particulate Matter (PM2.5)	µg/m³	IS 5182 (Part- 24): 2019	35	60 (24hrs)		
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2): 2001; RA2022	7.8	80 (24hrs)		
Nitrogen Di-Oxide (NO ₂)	μg/m³	IS 5182 (Part-6): 2006; RA2022	24.5	80 (24hrs)		
Özone (O ₁)	μg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)		
Ammonia (NH ₂)	μg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)		
Carbon Monoxide (CO)	mg/m ³	1S 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)		
Lead (Pb)	µy/m³	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)		
Nickel (Ni)	ng/m³	IS 5182 (Part-26):2020	<6.0	20 (Annual)		
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)		

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Authorised Signatory Dr. Deependra Kumar Sinha

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TEST REPORT

Test Report No.	: ELES/RNC/2024/0513	Report Release Date	: 05.02.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

CUSTOMER DETA	AILS	SAMPLE DETAILS	
Customer Name	2 Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/0298 : Near Harup Village Serengdag-A Bauxite Mines (155.81ha)
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample Sampling Procedure	: 15.01.2024 to 16.01.2024 : 20.01.2024 : Ambient Air : ELES/DOC/SMPL/02
Mines Status	: Operational	Sampling Done By	: ELES Pvt. Ltd.
Period of Analysis	: 20.01.2024 to 30.01.2024	Sample Condition	: Sealed & Preserved

M	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	:19	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 45	4	Weather Condition	: Clear

Discipline : Chem	ical	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene (C ₆ H ₆)*	µg/m³	IS 5182 (Part-11): 2006; RA2022	<1.0	05(Annual)		
Benzo-(a)-Pyrene*	ng/m ³	IS 5182 (Part-12): 2004; RA2019	<0.5	01(Annual)		

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



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

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D1Z4

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TEST REPORT

Test Report No.	: ELES/RNC/2024/0514	Report Release Date	: 05.02.2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	
III D No	TC883924000000185F	•		

CUSTOMER DETA	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/0299 : Near Paintoli Village Serengdag-A Bauxite Mines (155.81ha)
Address Mines Status	Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample Sampling Procedure Sampling Done By	: 15.01.2024 to 16.01.2024 : 20.01.2024 : Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.
Period of Analysis	: 20.01.2024 to 30.01.2024	Sample Condition	: Sealed & Preserved

MI	TEOROLOGICAL INFO	RMATION	10.00		
1	Average Temperature (°C)	: 19	-2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 45	4	Weather Condition	: Clear

Discipline : Chemica	il	Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	µg/m³	IS 5182 (Part-23): 2006; RA2022	64	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	IS-5182 (Part-24): 2019	35	60 (24hrs)	
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2): 2001; RA2022	8.5	80 (24hrs)	
Nitrogen Di-Oxide (NO ₂)	μg/m³)	IS 5182 (Part-6): 2006; RA2022	24.1	80 (24hrs)	
Ozone (O ₃)	μg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)	
Ammonia (NH ₁)	μg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10); 1999; RA2019	<1.0	2 (8hrs)	
Lead (Pb)	µg/m³	IS 5182 (Part-22): 2004; RA2019	<0.002	1.(24hrs)	
Nickel (Ni)	ng/m³	IS 5182 (Part-26):2020	< 6.0	20 (Annual)	
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)	

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Dr. Deependra Kumar Sinha

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TEST REPORT

Test Report No.	: ELES/RNC/2024/0514	Report Release Date	: 05.02.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

CUSTOMER DETA	alls	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/0299 : Near Paintoli Village Serengdag-A Bauxite Mines (155.81ha)
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample Sampling Procedure	: 15.01,2024 to 16.01,2024 : 20.01,2024 : Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.
Mines Status	: Operational	Sampling Done By	The second secon
Period of Analysis	: 20.01.2024 to 30.01.2024	Sample Condition	: Sealed & Preserved

M	ETEOROLOGICAL INFOR	MATION			
T	Average Temperature (°C)	: 19	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 45	4	Weather Condition	: Clear

Discipline: Chem	ical	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene (C _s H ₆)*	μg/m³	IS 5182 (Part-11): 2006; RA2022	<1.0	05(Annual)		
Benzo-(a)-Pyrene*	ng/m²	IS 5182 (Part-12): 2004; RA2019	<0,5	01(Annual)		

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



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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D1Z4

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TEST REPORT

Test Report No.	: ELES/RNC/2024/0585	Report Release Date	: 06.02.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883924000000556F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Sampling Date Sample Received Date	: ELES/RNC/2024/SW/0620 : 16.01.2024 : 31.01.2024
Address	: Lohardaga, Jharkhand-835302	Type of Sample Source of Sample	: Surface Water : Near Harhapat Village, Serengdag-A Bauxite Mines
Mines Status	; Operational	Sampling Procedure Sampling Done By	: ELES/DOC/SMPL/01 : ELES Pvt. Ltd.
Period of Analysis	: 31.01.2024 to 05.02.2024	Sample Condition	: Sealed & Preserved

Discipline : Chemical		Group	Water	Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water
pH (at 24.5°C)	0.097	IS 3025 (Part 11): 2022	6.54	6.5-8.5
Temperature	°C	IS 3025 (Part 9):1984; RA2017	24.6	
Chemical Oxygen Demand (COD)	+	IS 3025 (Part-58) :2006; RA2017	BDL (DL: 4.0)	-
Biochemical Oxygen Demand (BOD) (@ 20°C for 5 days)	mg/L	APHA 23 rd Ed.2017; 5210B	BDL (DL: 1.0)	3.0
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part 16):1984; RA2017	108	1500
Total Suspended Solids (TSS)	mg/L	IS 3025 (Part-17):2022	8.8	
Oil & Grease	mg/L	IS 3025 (Part-39): 2021	BDL, (DL: 0.1)	0.4
Calcium (as Ca)	mg/L	IS 3025 (Part-40):1991, RA2019	6.2	
Discipline : Cher	nical	Group:	Residues in W	ater
Aluminium (Al)	mg/L	1S 3025 (Part-55) :2003; RA2019	BDL (DL: 0.02)	0.03
Iron (as Fe)	mg/L	APHA23 rd Ed 2017; 3111B	0.110	50

Remarks: 1. pH done at Lub.

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Authorised Signatory Dr. Deependra Kumar Sinhu

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 [JHARKHAND] GST NO:- 20AAECE971301Z4

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TEST REPORT

Test Report No.	: ELES/RNC/2024/0600	Report Release Date	: 06.02.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883924000000571F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Sampling Date Sample Received Date	: ELES/RNC/2024/SL/0635 : 16.01.2024 : 31.01.2024
Address	: Lohardaga, Jharkhand-835302	Type of Sample Location of Sample	: Soil : Barpat Village, Serengdag-A Bauxite Mines (155.81ha)
Mines Status	: Operational	Sampling Procedure Sampling Done By	: ELES/DOC/SMPL/05 ELES Pvt. Ltd.
Period of Analysis	: 31.01.2024 to 05.02.2024	Sample Condition	: Sealed

Discipline : Chemical		Group: Pollution & Environment		
Parameter	Unit	Test Protocol	Result	
pH (1:2) at 24.6 °C		IS 2720 (Part 26):1987; RA2021	4.82	
Conductivity (1:2) at 24.6 °C	μS/cm	IS 14767; 2000; RA2021	213	
Total Organic Carbon (TOC)	%	Soil Testing in India: 2011 (Walkley & Black Method)	0.21	
Available Phosphorus (as P) (1:10)	kg/ha	Soil Testing in India; 2011	1.68	
Potassium (as K)	mg/kg	IS 9497:1980; RA 2020	1550	
Available Nitrogen	%	Soil Testing in India: 2011	2.24	
Chloride (1:2)	%₀	ELES/SOIL/SOP/01	0.07	
Lead (as Pb)	mg/kg	US EPA 3050 A&B : 1996	BDL (DL: 0.1)	
Cadmium (as Cd)	mg/kg	US EPA 3050 A&B: 1996	BDL (DL: 0.1)	
Mercury (as Hg)	mg/kg	US EPA 7473 : 2007	BDL (DL: 0.01)	
Magnesium (as Mg)	mg/kg	Soil Testing in India: 2011	245	

Remarks: 1. pH done at Lab.

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

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TEST REPORT

Test Report No.	: ELES/RNC/2024/0600	Report Release Date	: 06.02.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Sampling Date Sample Received Date	: ELES/RNC/2024/SL/0635 : 16.01.2024 : 31.01.2024
Address	: Lohardaga, Jharkhand-835302	Type of Sample Location of Sample	: Soil : Barpat Village, Serengdag-A Bauxite Mines (155.81ha)
Mines Status	: Operational	Sampling Procedure Sampling Done By	: ELES/DOC/SMPL/05 : ELES Pvt. Ltd.
Period of Analysis	: 31.01.2024 to 05.02.2024	Sample Condition	: Sealed

Discipline: Chemical		Group: Pollution & Environment		
Parameter	Unit	Test Protocol	Result BDL (DL: 0.005)	
Arsenic (as As)	mg/kg	IS 3025 (Part 37): 2022		
Selenium (as Se)	mg/kg	IS 3025 (Part-56) :2003; RA 2019	BDL (DL: 0.01)	

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****End of Report****

Dr. Deependra Kumur Sinn ...
Ph. D Environmental Engg.
ELES Pvt. Ltd. Technical Manager

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

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TC-8839

TEST REPORT

Test Report No.	: ELES/RNC/2024/1193	Report Release Date	: 13,02,2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883924000001129F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/1115
		Location	: Near Weigh Bridge, Serengdag-A
			Bauxite Mines (155.81ha)
		Sampling Date	: 08.02,2024 to 09.02,2024
Address	: Lohardaga, Jharkhand-835302	Sample Received Date	: 12.02,2024
	2.000	Type of Sample	: Ambient Air
	A	Sampling Procedure	: ELES/DOC/SMPL/02
Mines Status	: Operational	Sampling Done By	e ELES Pvt. Ltd.
Period of Analysis	: 12.02.2024 to 13.02.2024	Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
T	Average Temperature (°C)	: 23	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 50	.4	Weather Condition	: Clear

Discipline	: Chemical	Group : Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	μg/m ⁵	IS 5182 (Part-23): 2006; RA2022	85	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	53	60 (24hrs)	
Sulphur Di-Oxide (SO ₂)	μg/m³	1S 5182 (Part-2): 2001; RA2022	13.7	80 (24hrs)	
Nitrogen Di-Oxide (NO ₂)	μg/m³	IS 5182 (Part-6): 2006; RA2022	35.2	80 (24hrs)	
Ozone (O _i)	µg/m [‡]	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)	
Ammonia (NH _y)	µg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10): 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)	
Lead (Ph)	μg/m³	IS 5182 (Part-22): 2004; RA2019	0.008	1 (24hrs)	
Nickel (Ni)	ng/m³	IS 5182 (Part-26):2020	<6.0	20 (Annual)	
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)	

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Dr. Deependra Kumar Sinna

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TEST REPORT

Test Report No.	: ELES/RNC/2024/1261	Report Release Date	: 26.02.2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DETA	alls	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/1115 : Near Weigh Bridge, Screngdag-A Bauxite Mines (155.81ha)	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample Sampling Procedure	: 08.02.2024 to 09.02.2024 : 12.02.2024 : Ambient Air : ELES/DOC/SMPL/02	
Mines Status	Operational	Sampling Done By	: ELES PVL Ltd.	
Period of Analysis	: 12.02.2024 to 21.02.2024	Sample Condition	: Sealed & Preserved	

MI	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 23	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 50	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Benzene (C ₆ H ₆)*	μg/m³	IS 5182 (Part-11): 2006; RA2022	<1.0	05(Annual)	
Benzo-(a)-Pyrene*	ng/m³	IS 5182 (Part-12): 2004; RA2019	<0.5	01(Annual)	

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

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Authorised Signatory

Dr. Deependra Kumar Sin, iu Ph. D Environmentel Enog.

ELES Pvt. Ltd: Technical Manag. r

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TC-8839

TEST REPORT

Test Report No.	: ELES/RNC/2024/1194	Report Release Date	; 13.02.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883924000001130F		223.4549488

CUSTOMER DETA	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/1116 : BKB Quarry Serengdag-A Bauxite Mines (155.81ha)
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample	: 08.02.2024 to 09.02.2024 : 12.02.2024 :: Ambient Air
Mines Status	: Operational	Sampling Procedure Sampling Done By	: ELES/DOC/SMPL/02 : ELES Pvt. Ltd.
Period of Analysis	: 12.02.2024 to 13.02.2024	Sample Condition	: Sealed & Preserved

M	ETEOROLOGICAL INFORMATION			
1	Average Temperature (°C) : 23	2	Barometric Pressure (mml	fg) : 736
3	Relative Humidity (%) : 50	4	Weather Condition	: Clear

Discipline	: Chemical	Group : Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	μg/m³	IS 5182 (Part-23): 2006; RA2022	67	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m ³	IS 5182 (Part- 24): 2019	38	60 (24hrs)	
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2): 2001; RA2022	6.3	80 (24hrs)	
Nitrogen Di-Oxide (NO ₂)	μg/m ³	IS 5182 (Part-6): 2006; RA2022	22.7	80 (24hrs)	
Ozone (O ₅)	µg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)	
Ammonia (NH ₃)	μg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m ¹	IS 5182 (Part-10); 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)	
Lead (Pb)	μg/m³	IS 5182 (Part-22): 2004; RA2019	0.011	1 (24hrs)	
Nickel (Ni)	ng/m³	IS 5182 (Part-26):2020	<6.0	20 (Annual)	
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)	

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Dr. Deependra Kumar Sinua

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TEST REPORT

Test Report No.	: ELES/RNC/2024/1262	Report Release Date	: 26,02.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

CUSTOMER DETA	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/1116 : BKB Quarry Serengdag-A Bauxite Mines (155.81ha)	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 08.02.2024 to 09.02.2024 : 12.02.2024	
		Type of Sample Sampling Procedure	: Ambient Air : ELES/DOC/SMPL/02	
Mines Status	: Operational	Sampling Done By	: ELES Pvt, Ltd.	
Period of Analysis	: 12.02,2024 to 21.02.2024	Sample Condition	: Sealed & Preserved	

MI	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 23	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 50	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Benzene (C ₀ H ₀)*	μg/m³	IS 5182 (Part-11): 2006; RA2022	<1.0	05(Annual)	
Benzo-(a)-Pyrene*	ng/m ³	IS 5182 (Part-12): 2004; RA2019	<0.5	01(Annual)	

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

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****End of Report****

Authorised Signatory

Dr. Deependra Kumar Sin, a Ph. D Environmental Enga. ELES Pvt. Ltd. Technical Manager

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70-8839

TEST REPORT

Test Report No.	: ELES/RNC/2024/1195	Report Release Date	: 13.02.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883924000001131F		

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/1117 : Mine Pit Quarry No.2A, Serengdag-A Bauxite Mines (155,81ha)	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 08.02,2024 to 09.02,2024 : 12.02,2024	
Mines Status	: Operational	Type of Sample Sampling Procedure Sampling Done By	: Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.	
Period of Analysis	: 12.02.2024 to 13.02.2024	Sample Condition	: Sealed & Preserved	

MI	ETEOROLOGICAL INFORMATION				
1	Average Temperature (°C) : 23	2	Barometric Pressure (mm	Hg) : 736	
3	Relative Humidity (%) : 50	4	Weather Condition	: Clear	

Discipline	: Chemical	Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	μg/m³	IS 5182 (Part-23): 2006; RA2022	66	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	39	60 (24hrs)	
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2): 2001; RA2022	9.3	80 (24hrs)	
Nitrogen Di-Oxide (NO ₂)	µg/m³	IS 5182 (Part-6): 2006; RA2022	23.7	80 (24hrs)	
Ozone (O ₃)	µg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)	
Ammonia (NH ₃)	µg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10): 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)	
Lead (Pb)	µg/m³	IS 5182 (Part-22): 2004; RA2019	0.013	1 (24hrs)	
Nickel (Ni)	ng/m³	IS 5182 (Part-26):2020	<6.0	20 (Annual)	
Arsenic (As)	ng/m ¹	ELES/AIR/SOP/01	<2.0	06 (Annual)	

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Dr. Deependra Kumar Sinha

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TEST REPORT

Test Report No.	: ELES/RNC/2024/1263	Report Release Date	: 26.02.2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DET	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/1117 : Mine Pit Quarry No.2A, Serengdag-A Bauxite Mines (155.81ha)	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 08.02.2024 to 09.02.2024 : 12.02.2024	
Mines Status	: Operational	Type of Sample Sampling Procedure Sampling Done By	: Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.	
Period of Analysis	: 12.02,2024 to 21.02.2024	Sample Condition	: Sealed & Preserved	

MI	ETEOROLOGICAL INFOR	MATION			
	Average Temperature (°C)	: 23	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 50	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Benzene (C ₆ H ₆)*	μg/m¹	IS 5182 (Part-11): 2006; RA2022	<1.0	05(Annual)	
Benzo-(a)-Pyrene*	ng/m³	IS 5182 (Part-12): 2004; RA2019	< 0.5	01(Annual)	

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



****End of Report****

Authorised Signatory
Dr. Deependra Kurmar Sinnu
Ph. D Environmental Engg
ELES Pvt. Ltd. Technical Manager

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TC-883

TEST REPORT

Test Report No.	: ELES/RNC/2024/1196	Report Release Date	: 13.02.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883924000001132F		

CUSTOMER DET	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/1118 : Minc Pit Quarry No.2B, Serengdag-A Bauxite Mines (155.81ha)	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 08.02.2024 to 09.02.2024 : 12.02.2024	
Mines Status	: Operational	Type of Sample Sampling Procedure Sampling Done By	: Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.	
Period of Analysis	: 12.02.2024 to 13.02.2024	Sample Condition	: Sealed & Preserved	

MI	ETEOROLOGICAL INFORMA	ATION			
1	Average Temperature (°C) : 2	23	2	Barometric Pressure (mmHg)	1.736
3	Relative Humidity (%)	60	4	Weather Condition	: Clear

Discipline	: Chemical	Group : Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	μg/m³	IS 5182 (Part-23); 2006; RA2022	71	100 (24hrs)	
Particulate Matter (PM2,5)	μg/m³	IS 5182 (Part- 24): 2019	43	60 (24hrs)	
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2): 2001; RA2022	8.2	80 (24hrs)	
Nitrogen Di-Oxide (NO ₂)	μg/m ³	IS 5182 (Part-6): 2006; RA2022	23.5	80 (24hrs)	
Ozone (O ₃)	μg/m ^λ	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)	
Ammonia (NH ₃)	µg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10): 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)	
Lead (Pb)	µg/m³	IS 5182 (Part-22): 2004; RA2019	0.013	1 (24hrs)	
Nickel (Ni)	ng/m ³	1S 5182 (Part-26):2020	<6.0	20 (Annual)	
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)	

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Dr. Deependra Kumar Sinha

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPLIDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D124 ENGINEERING SERVICES PVT, LTD.

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

TEST REPORT

Test Report No.	: ELES/RNC/2024/1264	Report Release Date	: 26.02.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/1118 : Mine Pit Quarry No.2B, Serengdag-A Bauxite Mines (155.81ha)	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample	: 08.02.2024 to 09.02.2024 : 12.02.2024 : Ambient Air	
Mines Status	: Operational	Sampling Procedure Sampling Done By	: ELES/DOC/SMPL/02 : ELES Pvt. Ltd.	
Period of Analysis	: 12.02.2024 to 21.02.2024	Sample Condition	: Sealed & Preserved	

METEOROLOGICAL INFORMATION					
	Average Temperature (°C)	: 23	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 50	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Benzene (C ₆ H ₆)*	μg/m²	15 5182 (Part-11): 2006; RA2022	<1.0	05(Annual)	
Benzo-(a)-Pyrene*	ng/m ³	IS 5182 (Part-12): 2004; RA2019	<0.5	01(Annual)	

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

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****End of Report****

Authorised Signatory

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

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



TEST REPORT

Test Report No.	: ELES/RNC/2024/1197	Report Release Date	: 13.02.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883924000001133F		

CUSTOMER DET	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/1119
		Location	: Near Banjari Village Serengdag-A Bauxite Mines (155,81ha)
		Sampling Date	: 08.02.2024 to 09.02.2024
Address	: Lohardaga, Jharkhand-835302	Sample Received Date	: 12.02,2024
		Type of Sample	: Ambient Air
	In Array of	Sampling Procedure	: ELES/DOC/SMPL/02
Mines Status	: Operational	Sampling Done By	: ELES Pvt. Ltd.
Period of Analysis	: 12.02.2024 to 13.02.2024	Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	:23	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 50	4	Weather Condition	; Clear

Discipline	: Chemical	Group : Atmosp	beric Pollutio	n
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	μg/m³	IS 5182 (Part-23): 2006; RA2022	60	100 (24hrs)
Particulate Matter (PM2,5)	μg/m³	IS 5182 (Part- 24): 2019	32	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2): 2001; RA2022	6.8	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m³	IS 5182 (Part-6): 2006; RA2022	24.3	80 (24hrs)
Ozone (O ₃)	µg/m³	1S 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m³	1S 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10): 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m²	IS 5182 (Part-22): 2004; RA2019	< 0.002	1 (24hrs)
Nickel (Ni)	ag/m³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)

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Dr. Deepender Kumar Sir

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TEST REPORT

Test Report No.	: ELES/RNC/2024/1265	Report Release Date	: 26.02.2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/1119 : Near Banjari Village Serengdag-A Bauxite Mines (155.81ha)	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample Sampling Procedure	: 08.02.2024 to 09.02.2024 : 12.02.2024 : Ambient Air : ELES/DOC/SMPL/02	
Mines Status	: Operational	Sampling Done By	: ELES Pvt. Ltd.	
Period of Analysis	: 12.02.2024 to 21.02.2024	Sample Condition	: Sealed & Preserved	

Mi	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 23	2	Barometric Pressure (mmHg)	: 736
3.	Relative Humidity (%)	: 50	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmo	Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene (C ₆ H ₆)*	μg/m³	IS 5182 (Part-11): 2006; RA2022	<1.0	05(Annual)		
Benzo-(a)-Pyrene*	ng/m²	IS 5182 (Part-12): 2004; RA2019	<0.5	01(Annual)		

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

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Dr. Deependre Kumar Sinha Ph. O Environmental Engg. ELES Pvt. Ltd. Technical Maneton

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10-8831

TEST REPORT

Test Report No.	: ELES/RNC/2024/1198	Report Release Date	: 13.02.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883924000001134F		

CUSTOMER DET	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/1120 : Near Pauri Village Serengdag-A Bauxite Mines (155.81ha)	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 08.02.2024 to 09.02.2024 : 12.02.2024	
Mines Status	: Operational	Type of Sample Sampling Procedure Sampling Done By	: Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.	
Period of Analysis	: 12.02,2024 to 13.02,2024	Sample Condition	: Sealed & Preserved	

M	ETEOROLOGICAL INFORMATION			
1	Average Temperature (°C) : 23	2	Barometric Pressure (mm	Hg) : 736
3	Relative Humidity (%) : 50	4	Weather Condition	: Clear

Discipline	e: Chemical	Group : Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	μg/m ^y	IS 5182 (Part-23): 2006; RA2022	59	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	1S 5182 (Part- 24): 2019	32	60 (24hrs)	
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2): 2001; RA2022	6.8	80 (24hrs)	
Nitrogen Di-Oxide (NO ₂)	μg/m³	IS 5182 (Part-6): 2006; RA2022	21.8	80 (24hrs)	
Ozone (O ₁)	µg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)	
Ammonia (NH _x)	µg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10); 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)	
Lead (Pb)	µg/m³	IS 5182 (Part-22): 2004; RA2019	0.006	1 (24hrs)	
Nickel (Ni)	ng/m²	IS 5182 (Part-26):2020	<6.0	20 (Annual)	
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	≤2.0	06 (Annual)	

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Dr. Deependra Kumar Sinha

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D124 ENGINEERING SERVICES PVT. LED.

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TEST REPORT

Test Report No.	: ELES/RNC/2024/1266	Report Release Date	: 26.02.2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DET.	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/1120 : Near Pauri Village Screngdag-A Bauxite Mines (155.81ha)
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample Sampling Procedure	: 08.02.2024 to 09.02.2024 : 12.02.2024 : Ambient Air : ELES/DOC/SMPL/02
Mines Status	: Operational	Sampling Done By	ELES Pvt. Ltd.
Period of Analysis	: 12.02.2024 to 21.02.2024	Sample Condition	: Sealed & Preserved

MI	ETEOROLOGICAL INFOR	MATION			
J	Average Temperature (°C)	: 23	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	:50	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmo	Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene (C ₄ H ₆)*	μg/m ¹	IS 5182 (Part-11): 2006; RA2022	<1.0	05(Annual)		
Benzo-(a)-Pyrene*	ng/m³	TS 5182 (Part-12): 2004; RA2019	< 0.5	01(Annual)		

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

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****End of Report****

Authorised Signatory
Dr. Deependra Kurner Sinula
Ph. D Environmental Engg.
ELES Pvi. Ltd. Technical Manney (

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TEST REPORT

Test Report No.	: ELES/RNC/2024/1199	Report Release Date	: 13.02.2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	
ULR No.	: TC883924000001135F		2.7011010.548	

CUSTOMER DET	AILS	SAMPLE DETAILS	
Customer Name	Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/1121 : Near Harup Village Serengdag-A Bauxite Mines (155,81ha)
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 08.02,2024 to 09.02,2024 : 12.02,2024
Mines Status	Operational	Type of Sample Sampling Procedure Sampling Done By	: Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.
Period of Analysis	: 12.02.2024 to 13.02.2024	Sample Condition	: Sealed & Preserved

IL INFORMATION				
ture (°C) : 23	-2	Barometric Pressure (mmHo	736	
y (%) : 50	4	Weather Condition		
	ture (°C) : 23	ture (°C) : 23 2	nure (°C) : 23 2 Barometric Pressure (mmHg	nure (°C) : 23 2 Barometric Pressure (mmHg) : 736

Disciplin	e: Chemical	Group : Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	μg/m ³	IS 5182 (Part-23): 2006; RA2022	60	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	IS-5182 (Part-24): 2019	32	60 (24hrs)	
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2): 2001; RA2022	6.9	80 (24hrs)	
Nitrogen Di-Oxide (NO2)	μg/m³	IS 5182 (Part-6): 2006; RA2022	21.8	80 (24hrs)	
Ozone (O ₃)	µg/m²	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)	
Ammonia (NH ₃)	μg/m³	IS 5182 (Part-25): 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)	
Lead (Pb)	μg/m³	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)	
Nickel (Ni)	ng/m³	IS 5182 (Part-26):2020	<6.0	20 (Annual)	
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)	

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Authorised Signatory

Dr. Deependra Kumar Sinna

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TEST REPORT

Test Report No.	; ELES/RNC/2024/1267	Report Release Date	: 26.02.2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DET	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/1121 : Near Harup Village Serengdag-A Bauxite Mines (155.81ha)	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample Sampling Procedure	: 08.02.2024 to 09.02.2024 : 12.02.2024 : Ambient Air : ELES/DOC/SMPL/02	
Mines Status	: Operational	Sampling Done By	ELES PVL Ltd.	
Period of Analysis	: 12.02.2024 to 21.02.2024	Sample Condition	: Sealed & Preserved	

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 23	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 50	14	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Benzene (C ₆ H ₆)*	μg/m³	IS 5182 (Part-11): 2006; RA2022	<1.0	05(Annual)	
Benzo-(a)-Pyrene*	ng/m³	IS 5182 (Part-12): 2004; RA2019	<0.5	01(Annual)	

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



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

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) G5T NO:- 20AAECE9713D1Z4

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TEST REPORT

Test Report No.	: ELES/RNC/2024/1200	Report Release Date	: 13.02.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883924000001136F		

CUSTOMER DET		SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/1122 : Near Paintoli Village Serengdag-A Bauxite Mines (155.81ha)	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample	: 08.02.2024 to 09.02.2024 : 12.02.2024 : Ambient Air	
Mines Status	Operational	Sampling Procedure Sampling Done By	: ELES/DOC/SMPL/02 : ELES Pvt. Ltd.	
Period of Analysis	÷12.02.2024 to 13.02.2024	Sample Condition	: Sealed & Preserved	

METEOROLOGICAL INFORMATION					
1.	Average Temperature (°C)	: 23	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 50	A	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	µg/m³	IS 5182 (Part-23): 2006; RA2022	61	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	30	60 (24hrs)	
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2): 2001; RA2022	7.3	80 (24hrs)	
Nitrogen Di-Oxide (NO ₂)	μg/m³	IS 5182 (Part-6): 2006; RA2022	21.8	80 (24hrs)	
Ozone (O ₃)	μg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)	
Ammonia (NH _y)	μg/m³	1S 5182 (Part- 25): 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m³	1S 5182 (Part-10): 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)	
Lead (Pb)	μg/m³	IS 5182 (Part-22): 2004; RA2019	< 0.002	1 (24hrs)	
Nickel (Ni)	ng/m³	1S 5182 (Part-26):2020	<6.0	20 (Annual)	
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)	

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****End of Report****

Authorised Signatory Dr. Deependia Kun

Page 1 of 1 The Document stated as Test Report, is issued by the Laboratory under General Terms and Conditions, only on Confessor head in Tree countries of the Contract o shown in the Test Report refer or relates only to the job analysis done by the Laboratory only. The information stated on the Test Report reflects the findings done by the Laboratory at the sime of involvement only and within the limits of client's instructions. The Laboratory is responsible for all the information or data provided on the report. except the information which is provided by the client. The Report cannot be reproduced except in full and any part of the report is not taken out of context, without print written approval of the Laboratory. The Report in full or in part shall not be published, advertise, used for any legal actions unless prior permission has been secured from the Management of the Laboratory. Attention is drawn to the limitation of liability, compensation and jurisdiction issues. Any unauthorized abetation & falsification of the content or appearance of the Test Report is unlawful and offenders may be prosecuted to the folless extent of the law. All the samples are retained for 30 days from the Date of refease/issue of the Test Report. The samples from Regulatory bodies are in be retained as specified. Any type of Observations or Compilators regarding the Reports shall be done within 15days from the Date of Test Report released/issued. After the time period stated before, no compilators will be accepted. The entire Time schedule mentioned in Test Report is in 24 hours furmat. Abbreviation used. N/A (Not Applicable), BDL (Below Detection Limit), LDL (Lower Detection Limit).



PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D1Z4 NGINGERING SERVICES PVT. LYD.

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

TEST REPORT

Test Report No.	: ELES/RNC/2024/1268	Report Release Date	: 26.02.2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DET.	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/1122 : Near Paintoli Village Serengdag-A Bauxite Mines (155.81ha)	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample	: 08.02.2024 to 09.02.2024 : 12.02.2024 : Ambient Air	
Mines Status	: Operational	Sampling Procedure Sampling Done By	: ELES/DOC/SMPL/02 : ELES Pvt. Ltd.	
Period of Analysis	: 12.02.2024 to 21.02.2024	Sample Condition	: Sealed & Preserved	

MI	TEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 23	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 50	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Benzene (C,H,)*	μg/m³	IS 5182 (Part-11): 2006; RA2022	<1.0	05(Annual)	
Benzo-(a)-Pyrene*	ng/m³	IS 5182 (Part-12): 2004; RA2019	<0.5	01(Annual)	

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

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****End of Report****

Authorised Signatory

Dr. Deependra Kumar Sinna Ph. D Environmental Bagg.

ELES PVI. Ltd. Technical Mension

Page 1 of 1

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

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TEST REPORT

Test Report No.	: ELES/RAN/2024/1315	Report Release Date	: 11.03.2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DET	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Sampling Date Sample Received Date	: ELES/RAN/2024/DW/1175 : 09.02.2024 : 14.02.2024	
Address	: Lohardaga, Jharkhand-835302	Type of Sample Source/Location of Sample	: Drinking Water : Serengdag-A Bauxite Mines (155.81ha)	
Mines Status	: Operational	Sampling Procedure	: ELES/DOC/SMPL/01	
Period of Analysis	: 14.02.2024 to 23.02.2024	Sample Collected By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved	

Discipline : Chemie	cal	Group : Wate	r		ory Limit 10500:2012
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
pH (at 24.4 °C)	4	APHA 23 rd Ed.2017, 4500-H	6.82	6.5-8.5	No Relaxation
Turbidity	NTU	APHA 23 ^{rs} Ed.2017, 2130 B	0.58	1.0	5.0
Taste	34	APHA 23 rd Ed.2017, 2160 C	Agreeable	Agreeable	Agreeable
Odour	1,200	IS 3025 (Part-5):2018	Agreeable	Agreeable	Agrecable
Colour	Hazen	APHA 23 rd Ed.2017, 2120B&D	2,0	5	15
Total Dissolved Solids (TDS)	mg/L	APHA 23rd Ed.2017, 2540B,C&D	284	500	2000
Chloride (as Cl)	mg/L	APHA 23 rd Ed.2017, 4500 Cl B	45.6	250	1000
Fluoride (as F)	mg/L	APHA 23rd Ed.2017, 4500 F-D	BDL (DL: 0,1)	1.0	1.5
Total Alkalinity (as CaCO ₃)	mg/L	APHA 23 rd Ed.2017, 2320 B	98.6	200	600
Total Hardness (as CaCO ₅)	mg/L	APHA 23rd Ed.2017, 2340 C	108	200	600
Sulphate (as SO ₄)	mg/L	APHA 23 rd Ed.2017, 4500 SO ₄ ⁻² -E	18.4	200	400
Nitrate (as NO ₃)	mg/L	APHA 23 rd Ed.2017, 4500 NO ₃ -B	2.48	45	No Relaxation
Phenolic Compound (as C ₆ H ₅ OH)	mg/L	IS 3025 (Part-43):1992;RA2019	BDL (DL: 0.001)	0.001	0.002

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TEST REPORT

 Test Report No.
 : ELES/RAN/2024/1315
 Report Release Date
 : 11.03.2024

 Work Order No.
 : 13612310218
 Work Order Date
 : 21.04.2023

Discipl	ine: Che	mical Group: V	Vater		tory Limit 10500:2012
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
Cyanide (as CN)	mg/L	APHA 23 rd Ed.2017, 4500 CN-E	BDL (DL: 0.012)	0.05	No Relaxation
Residual Free Chlorine (RFC)	mg/L	IS 3025 (Part-26):2021	BDL (DL: 0.1)	0.02	1.0
Calcium (as Ca)	mg/L	APHA 23 rd Ed.2017, 3500 Ca B	28.8	75	200
Discipl	ine : Che	mical Group	p: Residues in	Water	
Aluminum (as Al)	mg/L	1S 3025 (Part-55): 2003; RA2019	BDL (DL: 0.02)	0.03	0.2
Arsenic (as As)	mg/L	IS 3025 (Part 37); 2022	BDL (DL: 0.005)	0.01	No Relaxation
Boron (as B)	mg/L	IS 3025(Part-57); 2005; RA2021	BDL (DL: 0.2)	0.5	1.0
Cadmium (as Cd)	mg/L	APHA 23rd Ed.2017, 3111B	BDL (DL; 0.003)	0.003	No Relaxation
Total Chromium (as Cr)	mg/L	APHA 23 rd Ed.2017, 3111B	BDL (DL: 0.03)	0.05	No Relaxation
Copper (as Cu)	mg/L	APHA 23 rd Ed.2017, 3111B	BDL (DL: 0.03)	0.05	13
Iron (as Fe)	mg/L	APHA 23rd Ed.2017, 3111B	0.386	1.0	0.1
Lead (as Pb)	mg/L	APHA 23rd Ed.2017, 3111B	BDL (DL: 0.01)	0.01	No Relaxation
Manganese (as Mn)	mg/L	APHA 23 rd Ed.2017, 3111B	BDL (DL: 0.05)	0.1	0.3
Mercury (as Hg)	mg/L	IS 3025 (Pari-48): 1994; RA2019	BDL (DL: 0.001)	100.0	No Relaxation
Sclenium (as Se)	mg/L	IS 3025 (Part-56); 2003; RA2019	BDL (DL: 0.01)	0.01	No Relaxation
Zinc (as Zn)	mg/L	APHA 23 rd Ed.2017, 3111B	BDL (DL: 0.1)	5	15

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 200AECE97130124

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TEST REPORT

 Test Report No.
 : ELES/RAN/2024/1315
 Report Release Date
 : 11.03.2024

 Work Order No.
 : 13612310218
 Work Order Date
 : 21.04.2023

Discipline : Cl	Discipline : Chemical		Water	Regulatory Limit as per IS 10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
Pesticides					
Alachlor*	μg/L	APHA 23 rd Edition- 6630 B&C	BDL (DL: 1.0)	20	No Relaxation
Atrazine*	µg/L	APHA 23 rd Edition 6630 B&C	BDL (DL: 1.0)	2,0	No Relaxation
Aldrin/Dieldrin*	μg/L	APHA 23 rd Edition 6630 B&C	BDL (DL: 0.01)	0.03	No Relaxation
Alpha HCH*	μg/L	USEPA 508:1985	BDL (DL: 0.001)	0.01	No Relaxation
Beta HCH*	μg/L	USEPA 508:1985	BDL (DL: 0.01)	0.04	No Relaxation
Butachlor*	μg/L	APHA 23 rd Edition 6630 B&C	BDL (DL: 10)	125	No Relaxation
Chlorpyriphos*	$\mu g/L$	USEPA 8141 A	BDL (DL: 10)	30	No Relaxation
Delta HCH*	μg/L	USEPA 508:1985	BDL (DL: 0.01)	0,04	No Relaxation
2,4 dichlorophenoxyacetic acid*	μg/L	APHA 23 rd Edition 6640 B	BDL (DL: 10)	30	No Relaxation
DDT(o,p and p.p-isomers of DDT,DDE and DDD)*	μg/L	APHA 23 rd Edition 6630 B&C	BDL (DL: 0.5)	1.0	No Relaxation
Endosulfan (alpha, beta, and sulphate)*	µg/L	APHA 23rd Edition 6630 B&C	BDL. (DL: 0.1)	0.4	No Relaxation
Ethion*	μg/L	USEPA 1657 A	BDL (DL: 0.5)	3.0	No Relaxation
Gamma HCH (Lindane)*	µg/L	USEPA 508:1985	BDL (DL: 0.5)	2,0	No Relaxation
Isoproturon*	μg/L	USEPA 532:2000.	BDL (DL: 0.5)	9.0	No Relaxation

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TEST REPORT

Test Report No.	: ELES/RAN/2024/1315	Report Release Date	: 11.03.2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

Discipline : B	iological	Cann. V	Vatan	Regulate	ory Limit
Discipine: B	Discipline : Diological		Group: Water		10500:2012
Parameter Unit		Test Protocol	Result	Acceptable Limit	Permissible Limit
Total Coliform	Per 100 mL	IS 15185:2016; RA 2021	Not Detected	Shall not be detecte	
Escherichia Coli (E. Coli)	Per 100 mL	IS 15185:2016; RA 2021	Not Detected		
Man facilitate o	Charles	Comp. 1	Marin	Regulat	ory Limit
Discipline :	Chemical	Group: Water		as per IS 10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
Anionic Surfactants (as MBAS)*	mg/L	IS 3025 (Part- 68) : 2019 (RA2023)	BDL (DL: 0.1)	0.2	1.0
Polynuclear Aromatic Hydrocarbons (PAH)*	mg/L	APHA 23rd Edition: 6440 B	BDL (DL: 0.0001)	0.0001	No. Relaxation
Polychlorinated Biphenyls (PCB)*	mg/L	APHA 23 rd Edition; 6431B	BDL (DL: 0.0005)	0.0005	No Relaxation

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

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Reviewed b

****End of Report****

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

Page 4 of 4

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 201/AECE9713D1Z4

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TEST REPORT

Test Report No.	: ELES/RAN/2024/1327	Report Release Date	: 11.03.2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DET	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Sampling Date Sample Received Date	: ELES/RAN/2024/EF/1176 : 09.02.2024 : 14.02.2024
Address	: Lohardaga, Jharkhand-835302	Type of Sample Source of Sample	: Effluent Water : Serengdag-A Bauxite Mines (155.81 ha)
Mines Status	: Operational	Sampling Procedure Sample Collected By	: ELES/DOC/SMPL/01 : ELES Pvt. Ltd.
Period of Analysis	: 14.02.2024 to 21.02.2024	Sample Condition	: Sealed & Preserved

Discipline: Chem	ical	Group: Pollution & Environment		Discharge Limits - CPC EPR, 1986 Schedule V	
Parameter	Unit	Test Protocol	Result	Inland Surface Water	Land for Irrigation
Dissolved Oxygen (as DO)	mg/L	IS 3025 (Part-38):1989; RA2019	4.6	- 3	**
Fluoride (as F)	mg/L	IS 3025 (Part-60) ;2008; RA2019	0.618	2.0	-
Sulphide (as S)	mg/L	IS 3025 (Part-29) :1986; RA2019	0.52	2.0	-
Discipline: Chem	ical	Group: Re	esidues in Wate	r	
Lead (as Pb)	mg/L	APHA 23 rd Ed.2017; 3111 B	BDL (DL: 0.01)	0.1	~
Manganese (as Mn)	mg/L	APHA 23rd Ed.2017; 3111 B	BDL (DL: 0.05)	2.0	-8
Mercury (as Hg)	mg/L	IS 3025 (Part-48) :1994; RA2019	BDL (DL; 0.001)	0.01	100
Nickel (as Ni)	mg/L	APHA 23 rd Ed.2017; 3111 B	BDL (DL: 0.01)	3.0	-



****End of Report****

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

Page 1 of 1

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ENVIRONMENTAL LABORATORIES &

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

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TEST REPORT

Test Report No.	: ELES/RAN/2024/1333	Report Release Date	: 11.03.2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name Address	: Hindalco Industries Limited : Lohardaga, Jharkhand-835302	Sampling Date Sampling Received Date Type of Sample Sampling procedure Sampling Done By	: 09.02.2024 to 10.02.2024 : 14.02.2024 : Ambient Noise : ELES/DOC/SMPL/03 : ELES Pvt. Ltd.	
Mines Status	: Operational	Period of Analysis	: 14.02.2024 to 20.02.2024	

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 23	2	Barometric Pressure (mmHg)	: 738
3	Relative Humidity (%)	: 50	4	Weather Condition	: Clear

Location	Unit	Test Protocol	Resi	ult	Regulatory Limit (Industrial Zone)
Near Mine Office			Time	Leq	
Serengdag- A Bauxite Mines (155.81ha)		IS 9989:1981, RA 2020	Day Time	68	75 dB(A) Day Time &
Sample ID: ELES/RAN/2024/AN/1168		191-2055	Night Time	51	70 dB(A) Night Time



****End of Report****

Dr. Dettingised Styamar, Sinha Ph D Environmental Engg. ELES Pvt. Ltd. Technical Manager

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ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D124 ENGINEERING SERVICES PVT. LTD.

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

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

TEST REPORT

Test Report No.	: ELES/RAN/2024/1347	Report Release Date	: 11.03.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name Address	: Hindalco Industries Limited : Lohardaga, Jharkhand-835302	Sampling Date Sampling Received Date Type of Sample Sampling procedure Sampling Done By	: 09.02.2024 : 14.02.2024 : Workzone Noise : ELES/DOC/SMPL/03 : ELES Pvt. Ltd.	
Mines Status	: Operational	Period of Analysis	: 14:02:2024 to 20:02:2024	

M	ETEOROLOGICAL INFO	RMATION			
1	Average Temperature (°C)	: 23	2	Barometric Pressure (mmHg)	: 738
3	Relative Humidity (%)	: 50	4	Weather Condition	: Clear

Location	Unit	Test Protocol	Resi	ult	Regulatory Limit (Industrial Zone)
Near Poclain -			Time	Leq	
Serengdag-A Bauxite Mines (155.81ha)	dB(A)	IS 4758:1968; RA 2017	Day Tiles	75	90 dB (A)
Sample ID: ELES/RAN/2024/WN/1171			Day Time		



****End of Report****

Authorised Signatory

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

Page 1 of 1

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	1101	KELOKI	
Test Report No.	: ELES/RNC/2024/1489	Report Release Date	: 10.04.2024
Work Order No.	: 13612310218	Work Order Date	; 21.04.2023
CUSTOMER DET	AILS	SAMPLE DETAILS	
Customer Name	: Hindaleo Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/1437 : Near Weigh Bridge, Serengdag-A Bauxite Mines (155,81ha)
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample	: 14.03,2024 to 15.03,2024 : 18.03,2024 : Ambient Air
Mines Status	: Operational	Sampling Procedure Sampling Done By	: ELES/DOC/SMPL/02 : ELES Pvt. Ltd.
Period of Analysis	± 18.03.2024 to 23.03.2024	Sample Condition	; Sealed & Preserved

1	Average Temperature (°C) : 24	2	Barometric Pressure (mml	lg) : 736
3	Relative Humidity (%) : 46	- 4	Weather Condition	: Clear

Discipline:	Chemical	Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	µg/m ³	1S 5182 (Part-23): 2006; RA2022	79	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	47	60 (24hrs)	
Sulphur Di-Oxide (SO ₂)	µg/m³	IS 5182 (Part-2): 2001; RA2022	14,3	80 (24hrs)	
Nitrogen Di-Oxide (NO ₁)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	32.7	80 (24hrs)	
Ozone (O ₃)	µg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)	
Ammonia (NH ₂)	μg/m [†]	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m [‡]	IS 5182 (Part-10): 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)	
Lead (Pb)	µg/m³	15 5182 (Part-22): 2004; RA2019	0.011	1 (24hrs)	
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)	
Arsenie (As)	ng/m ²	ELES/AIR/SOP/01	<2.0	06 (Annual)	
Benzene (C ₆ H ₆)	μg/m³	ELES/GC/SOP/06	<2.5	05(Annual)	
Benzo-(a)-Pyrene	ng/m ³	ELES/GC/SOP/05	<0.5	01(Annual)	

Reviewed by:

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****End of Report****

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Jharkhand 826001

(Saswata Burman Roy, Dy. Quality Manager)

Authorised Signatory:

(Bapan Das, Dy. Technical Manager)

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	1151	REPORT	
Test Report No.	: ELES/RNC/2024/1490	Report Release Date	: 10.04.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
CUSTOMER DET	MLS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location Sampling Date	: ELES/RNC/2024/AA/1438 : BKB Quarry Serengdag-A Bauxite Mines (155.81ha) : 14.03.2024 to 15.03.2024
Address Mines Status	Lohardaga, Jharkhand-835302	Sample Received Date Type of Sample Sampling Procedure Sampling Done By	: 18.03,2024 : Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.
		A CONTRACTOR OF THE PARTY OF TH	TOTAL CONTRACTOR STATE OF THE PARTY OF THE P
Period of Analysis	: 18.03.2024 to 23.03.2024	Sample Condition	: Sealed & Preserved

3 Relative Humidity (%) : 46 4 Weather Condition : Clear Discipline: Chemical Group: Atmospheric Pollution		Parameter	11mit	Tage I	lengternes!	Docule	Donalatom: I losis
		Discipline	: Chemical		Group; Atm	ospheric Poll	lution
1 Average (emperature (C) 7.24 Entometric Pressure (mining) 1.756	3	Relative Humidity (%)	: 46	4	Weather Condition	3	Clear
Average Temperature (°C) : 24 2 Barometric Pressure (mmHg) : 736	1	Average Temperature (%	2) ÷24	2	Barometric Pressure	(mmHg) :	736

Discipline:	Chemical	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Particulate Matter (PM10)	µg/m³	IS:5182 (Part-23): 2006; RA2022	64	100 (24hrs)		
Particulate Matter (PM2.5)	µg/m³	IS 5182 (Part- 24): 2019	32	60 (24hrs)		
Sulphur Di-Oxide (SO ₂)	μg/m³	1S 5182 (Part-2): 2001; RA2022	7.6	80 (24hrs)		
Nitrogen Di-Oxide (NO:)	µg/m³	IS 5182 (Part-6): 2006; RA2022	20.9	80 (24hrs)		
Ozone (O ₃)	μg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)		
Ammonia (NH ₃)	µg/m ¹	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)		
Carbon Monoxide (CO)	mg/m ¹	IS 5182 (Part-10): 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)		
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	0.009	1 (24hrs)		
Nickel (Ni)	ng/m³	IS 5182 (Part-26):2020	<6.0	20 (Annual)		
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	D6 (Annual)		
Benzene (C ₆ H ₆)	μg/m ³	ELES/GC/SOP/06	<2.5	05(Annual)		
Benzo-(a)-Pyrene	ng/m ⁵	ELES/GC/SOP/05	< 0.5	Ol(Anneal)		

Reviewed by :

****End of Report****

Authorised Signatory:

(Saswata Burman Roy, Dy. Quality Manager)

dharkhand 826001

(Bapan Das, Dy. Technical Manager)





Take Gandar No.	The state of the s	Division Datases Datases	10.01.2024
Test Report No.	: ELES/RNC/2024/1491	Report Release Date	: 10.04.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
CUSTOMER DET	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/1439 : Mine Pit Quarry No.2A, Serengdag-A Bauxite Mines (155.81ha)
Address	Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample Sampling Procedure	14.03.2024 to 15.03.2024 18.03.2024 Ambient Air ELES/DOC/SMPL/02
Mines Status	: Operational	Sampling Done By	: ELES Pvt. Ltd.
Period of Analysis	: 18.03.2024 to 23.03.2024	Sample Condition	: Sealed & Preserved

MI	ETEOROLOGICAL INFO	RMATION			
1	Average Temperature (°C)	: 24	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	:46	4	Weather Condition	: Clear

Discipline:	Chemical	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Particulate Matter (PM10)	μg/m³	IS-5182 (Part-23): 2006; RA2022	61	100 (24hrs)		
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24); 2019	34	60 (24hrs)		
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2): 2001; RA2022	7.9	80 (24hrs)		
Nitrogen Di-Oxide (NO2)	μg/m³	IS 5182 (Part-6): 2006; RA2022	22.9	80 (24hrs)		
Ozone (O _s)	μg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)		
Ammonia (NH ₅)	μg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs).		
Carbon Monoxide (CO)	mg/m³	1S 5182 (Part-10): 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)		
Lead (Pb)	μg/m ¹	IS 5182 (Part-22): 2004; RA2019	0.009	1 (24hrs)		
Nickel (Ni)	ng/m ³	IS 5182 (Part-26): 2020	<6.0	20 (Annual)		
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)		
Benzene (C ₆ H ₆)	μg/m³	ELES/GC/SOP/06	<2.5	05(Annual)		
Венго-(а)-Ругене	ng/m ³	ELES/GC/SOP/05	<0.5	01(Annual)		

Reviewed by :

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****End of Report****

(Bapan Das, Dy Technical Manager)

Authorised Signatury:

(Saswata Burman Roy, Dy. Quality Manager)

Jharkhand 825001

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TEST REPORT

Test Report No.	: ELES/RNC/2024/1492	Report Release Date	: 10.04,2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
CUSTOMER DET	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location Sampling Date	: ELES/RNC/2024/AA/1440 : Mine Pit Quarry No.2B, Serengdag-A Bauxite Mines (155.81ha) : 14.03.2024 to 15.03.2024
Mines Status	Lohardaga, Jharkhand-835302 Operational	Sample Received Date Type of Sample Sampling Procedure Sampling Done By	: 18.03.2024 : Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt, Ltd.
Period of Analysis	: 18.03.2024 to 23.03.2024	Sample Condition	: Sealed & Preserved

MI	ETEOROLOGICAL INFORMATION				
4	Average Temperature (°C) : 24	2	Barometric Pressure (mml	lg) : 736	
3	Relative Humidity (%) : 46	4	Weather Condition	; Clear	

Discipline:	Chemical	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Particulate Matter (PM10)	µg/m³	IS 5182 (Part-23): 2006; RA2022	66	100 (24hrs)		
Particulate Matter (PM2,5)	μg/m³	IS 5182 (Part- 24): 2019	37	60 (24hrs)		
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2): 2001; RA2022	6.9	80 (24hrs)		
Nitrogen Di-Oxide (NO2)	µg/m³	IS 5182 (Part-6): 2006; RA2022	25.1	80 (24hrs)		
Ozone (O ₃)	µg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)		
Ammonia (NH ₂)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)		
Carbon Monoxide (CO)	mg/m ⁵	IS 5182 (Part-10): 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)		
Lead (Pb)	μg/m³	IS 5182 (Part-22): 2004; RA2019	0.017	1 (24hrs)		
Nickel (Ni)	ng/m ¹	IS 5182 (Part-26):2020	<6.0	20 (Annual)		
Arsenie (As)	ng/m"	ELES/AIR/SOP/01	<2.0	06 (Annual)		
Benzene (C ₆ H ₆)	µg/m	ELES/GC/SOP/06	<2.5	05(Amual)		
Benzo-(a)-Pyrene	ng/m³	ELES/GC/SOP/05	<0.5	01(Annual)		

Reviewed by ;

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****End of Report****

SVIROCA

Jharkhand 826001

(Saswata Burman Roy, Dy. Quality Manager).

(Bapan Das, Dy. Technical Manager)

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Authorised Signatory:





Test Report No.	: ELES/RNC/2024/1493	Report Release Date	: 10.04.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
CUSTOMER DE	TAILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/1441 : Near Banjari Village Serengdag-A

		3,444,55	Bauxite Mines (155.81ha)
2000	N ANGLES ENGLISHED I	Sampling Date	: 14.03.2024 to 15.03.2024
Address	: Lohardaga, Jharkhand-835302	Sample Received Date	18.03,2024
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
Mines Status	: Operational	Sampling Done By	: ELES Pvt. Ltd.
Period of Analysis	: 18.03.2024 to 23.03.2024	Sample Condition	: Sealed & Preserved

MI	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 24	- 2	Barometric Pressure (nmHg)	: 736
3	Relative Humidity (%)	:46	4	Weather Condition	: Clear

Discipline:	Chemical	Group: Atm	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit			
Particulate Matter (PM10)	μg/m³	fS 5182 (Part-23): 2006; RA2022	57	100 (24hrs)			
Particulate Matter (PM2.5)	µg/m³	IS 5182 (Part- 24); 2019	35	60 (24hrs)			
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2): 2001; RA2022	7.4	80 (24hrs)			
Nitrogen Di-Oxide (NO ₂)	μg/m³	1S 5182 (Part-6): 2006; RA2022	27.1	80 (24hrs)			
Ozone (Oz)	µg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)			
Ammonia (NHs)	μg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)			
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)			
Lead (Pb)	μg/m³	IS 5182 (Part-22): 2004; RA2019	0.009	1 (24hrs)			
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)			
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)			
Benzene (CsH ₆)	μg/m ³	ELES/GC/SOP/06	<2,5	05(Annual)			
Benzo-(a)-Pyrene	ng/m²	ELES/GC/SOP/05	< 0.5	Ol(Annual)			

Reviewed by :

1911

****End of Report***

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Jharkhand 820001

Authorised Signatory 2

(Saswata Burman Roy, Dy. Quality Manager)

(Bapan Dus, Dy. Technical Manager)

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	1.00	REPORT	
Test Report No.	: ELES/RNC/2024/1494	Report Release Date	: 10.04.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
CUSTOMER DET	AILS	SAMPLE DETAILS	
Address Mines Status	: Hindalco Industries Limited Lohardaga, Jharkhand-835302 : Operational	Sample Ref. No. Location Sampling Date Sample Received Date Type of Sample Sampling Procedure	: ELES/RNC/2024/AA/1442 : Near Pauri Village Serengdag-A Bauxite Mines (155.81ha) : 14.03.2024 to 15.03.2024 : 18.03.2024 : Ambient Air : ELES/DOC/SMPL/02
Period of Analysis	: 18.03.2024 to 23.03.2024	Sampling Done By Sample Condition	: ELES Pvt. Ltd. : Scaled & Preserved

M	ETEOROLOGICAL INFO	RMATION			
1	Average Temperature (%C)	024	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 46	4	Weather Condition	; Clear

Disciptine:	Chemical	Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	μg/m³	IS 5182 (Part-23): 2006; RA2022	55	100 (24hrs)	
Particulate Matter (PM2,5)	μg/m ³	1S 5182 (Part- 24): 2019	29	60 (24hrs)	
Sulphur Di-Oxide (SO ₂)	µg/m³	IS 5182 (Part-2); 2001; RA2022	7,5	80 (24hrs)	
Nitrogen Di-Oxide (NOs)	μg/m³	IS 5182 (Part-6): 2006; RA2022	24.2	80 (24hrs)	
Ozone (O ₂)	μg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)	
Ammonia (NH ₃)	pg/m'	IS 5182 (Part- 25); 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m²	IS 5182 (Part-10): 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)	
Lead (Pb)	µg/m³	1S 5182 (Part-22): 2004; RA2019	0.009	1 (24hrs)	
Nickel (Ni)	ng/m³	IS 5182 (Part-26):2020	<6.0	20 (Annual)	
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)	
Benzene (CaHa)	μg/m¹	ELES/GC/SOP/06	<2.5	05(Annual)	
Benzo-(a)-Pyrene	ng/m³	ELES/GC/SOP/05	< 0.5	01(Annuai)	

Reviewed by :

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**** End of Report****

Tharkhand

Authorised Signatory:

(Saswata Burman Roy, Dy. Quality Manager),

(Rango Das Da Toch

(Bapan Das, Dy. Technical Manager)





	1.00	I KEPUKI	
Test Report No.	: ELES/RNC/2024/1495	Report Release Date	: 10.04.2024
Work Order No.	: 13612310218	Work Order Date	; 21.04.2023
CUSTOMER DET	AILS	SAMPLE DETAILS	
Customer Name	Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/1443 : Near Harup Village Serengdag-A Bauxite Mines (155.81ha)
Address	Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample	: 14.03.2024 to 15.03.2024 : 18.03.2024 : Ambient Air
Mines Status	Operational	Sampling Procedure Sampling Done By	: ELES/DOC/SMPL/02 : ELES Pvt, Ltd.
Period of Analysis	; 18.03.2024 to 23.03.2024	Sample Condition	: Sealed & Preserved

1	Average Temperature (%) : 24	2	Barometric Pressure (mmHg)	; 736
3	Relative Humidity (%) : 46	4	Weather Condition	Clear

Discipline:	Chemical	Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	µg/m³	IS 5182 (Part-23): 2006; RA2022	55	100 (24hrs)	
Particulate Matter (PM2,5)	μg/m³	1S 5182 (Part- 24): 2019	28	60 (24hrs)	
Sulphur Di-Oxide (SO ₂)	μg/m²	IS 5182 (Part-2): 2001; RA2022	6.3	80 (24hrs)	
Nitrogen Di-Oxide (NO ₂)	μg/m ⁵	IS 5182 (Part-6): 2006; RA2022	24.2	80 (24hrs)	
Ozone (O ₁)	ug/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)	
Ammonia (NH ₃)	µg/m²	1S 5182 (Part- 25): 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10); 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)	
Lead (Pb)	µg/m³	1S 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)	
Nickel (Ni)	ng/m ³	IS:5182 (Part-26):2020	<6.0	20 (Annual)	
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)	
Benzene (C _s H _b)	µg/m³	ELES/GC/SOP/06	<2.5	05(Annual)	
Benzo-(a)-Pyrene	ng/m³	ELES/GC/SOP/05	< 0.5	01(Annual)	

Reviewed by :

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****End of Report****

Jharkhand 826001

WANTED IN

(Saswata Burman Roy, Dy. Quality Manager) /

Authorised Signatory:

Show.

(Bapan Das, Dy. Technical Manager)





Test Report No.	; ELES/RNC/2024/1496	Report Release Date	: 10.04.2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DET	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/1444 : Near Paintoli Village Serengdag-A Bauxite Mines (155.81ha)
Address	; Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample	: 14.03.2024 to 15.03.2024 : 18.03.2024 : Ambient Air
Mines Status	1 Operational	Sampling Procedure Sampling Done By	: ELES/DOC/SMPL/02 : ELES Pvt. Ltd.
Period of Analysis	÷ 18.03.2024 to 23.03.2024	Sample Condition	; Sealed & Preserved

MI	ETEOROLOGICAL INFO	RMATION			
t	Average Temperature (°C)	: 24	2	Barometric Pressure (mmHg)	736
3	Relative Humidity (%)	: 46	4	Weather Condition	: Clear

Discipline:	Chemical	Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	µg/m³	IS 5182 (Part-23): 2006; RA2022	53	100 (24hrs)	
Particulate Matter (PM2.5)	µg/m³	IS 5182 (Part- 24): 2019	27	60 (24hrs)	
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2): 2001; RA2022	9.6	80 (24hrs)	
Nitrogen Di-Oxide (NO ₂)	µg/m³	(S 5182 (Part-6): 2006; RA2022	24.2	80 (24hrs)	
Ozone (O ₁)	µg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)	
Ammonia (NHs)	µg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10): 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)	
Lead (Pb)	µg/m ¹	IS 5182 (Part-22): 2004; RA2019	0.009	1 (24hrs)	
Nickel (Ni)	ng/m	IS-5182 (Part-26):2020	<6.0	20 (Annual)	
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)	
Benzene (C ₆ H ₆)	µg/m³	ELES/GC/SOP/06	<2.5	05(Annual)	
Benzo-(a)-Pyrene	ng/m ³	ELES/GC/SOP/05	< 0.5	01(Annual)	

Reviewed by :

****End of Report****

VIROCA

Jharkhand

(Saswata Burman Roy, Dy. Quality Manager)

Authorised Signatory:

Owner Des Dr. Technical M.

(Bapan Das, Dy. Technical Manager)



Lab : MiG, R-3 Housing Colony, Dhambard, Pm - 826001, State - Jharkerand & 9830067044 / \$,9304513737

Test Report No.	: ELES/RNC/2024/1558	Report Release Date	: 10.04.2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DET	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/SM/1604 : Shrengdag A (140.07ha) Bauxite Mine DG (25 KVA)	
Address	: t.oburdaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample Sampling Procedure	: 14.03.2024 : 22.03.2024 : Plue Gas : ELES/DOC/SMPL/02(A)	
Mines Status	: Operational	Sampling Done By	: ELES Pvl. Ltd.	
Period of Analysis	: 22.03.2024 to 29.03.2024	Sample Condition	: Sealed & Preserved	

GE	NERAL INFORMATION	
Ī	Particular of the Plant	: Bauxite Mines
2	Emission Due to	: Burning of HSD
3	Stack Connected to	: DG 25 KVA
4	Material of Construction of Stack	: MS
5	Stack Height from Ground Level (m)	13.5
6	Height of Sampling Port from Ground Level (m)	13.5
7	Inner Diameter of Stack at Sampling Point (m)	: 0.07
8	Shape of the Stack	: Circular
9	Working Load of the Stack	: 25 KVA
10.	Pollution Control System	:N/A
II.	Ladder & Platform	: Temporary

F١	EL CHARACTERISTICS DETAILS		
1	Type of Fuel Used	:HSD	
2	Fuel Consumption	:N/A	
3	Catorific Value of Fuel (Keal/Kg)	: N/A	



Lab : M16, R-3 Housing Colony, Dhanbard, Pm - 826001, State - [harkhand £ 9830067044 / £ 9304513737

TEST REPORT

Test Report No.	: ELES/RNC/2024/1558	Report Release Date	: 10.04.2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

Discipline : Cl	nemical	Group : Atmospheric	Pollution
Parameter	Unit	Test Protocol	Results
Particulate Matter (PM)	mg/Nm ²	1S 11255 (Part-1): 1985; RA2019	36
Sulphur Di-Oxide (SO ₂)	mg/Nm ⁷	USEPA 6C:2017	28
Oxides of Nitrogen (NO _x)	mg/Nm²	USEPA 7E :2020	.75
Carbon Monoxide (CO)	mg/Nm³	USEPA 10B :2017	30
Carbon Di- Oxide (CO ₂)	96	IS 13270:1992; RA2019	4.8
Flue Gas Temperature	"C	IS 11255 (Part-3): 2008; RA2018	140
Barometric Pressure	mmHg	IS 11255 (Part-3): 2008; RA2018	740
Velocity of Flue Gas	m/sec	IS 11255 (Part-3): 2008; RA2018	11.20
Quantity of Gas Flow	Nm³/hr	IS 11255 (Part-3): 2008; RA2018	109
	the state of the s		

Reviewed by :

13000

****End of Report****

TROCH

Jharkhand 826001

Using Color

Authorised Signatory:

Jan'

(Saswata Burman Roy, Dy. Quality Manager)

(Bapan Das. Dy. Technical Manager)





Lab - MIG, 8-3 Housing Colony, Dhanbott, Pin - #26001, State - Darkkand \$ 9820067044 / \$ 9304513737.

Test Report No.	: ELES/RNC/2024/1546	Report Release Date	: 10.04.2024	
Work Order No.	; 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DET	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Sampling Date Sample Received Date Type of Sample	: ELES/RNC/2024/SW/1454 : 15.03.2024 18.03.2024 Surface Water
Address	: Lohardaga, Jharkhand-835302	Source of Sample Location of Sample	: Spring Water : Tengra Garha, Serengdag A Bauxite Mine (155.81ha)
Mines Status	: Operational	Sampling Procedure Sample Collected By	: ELES/DOC/SMPL/01 : ELES Pvt. Ltd.
Period of Analysis	: 18.03.2024 to 29.03.2024	Sample Condition	: Sealed & Preserved

Discipline: Chemic	lac	Group	or Water	Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per 1S 2296-1992 Class C (Inland Surface Water)
pH (at 25,1°C)	1	IS 3025 (Part 11): 2022	6.58	6.5-8.5
Colour	Hazen	1S 3025 (Part -1): 2021	2.0	300
Odour	100	IS 3025 (Part-5): 2018	Unobjectionable	-
Taste	-	APHA 23td Ed.2017, 2160 C	N/A	100
Turbidity	mg/L	IS 3025 (Part-10) :1984;RA2017	0.67	
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part 16):1984; RA2017	165	1500
Total Alkalinity (as CaCO ₂)	mg/L	IS 3025 (Part-23):1986; RA2019	52,4	-94
Total Hardness (as CaCO ₃)	mg/L	IS 3025 (Part-21): 2009; RA2019	78.6	-
Sulphate (as SO ₄)	mg/L	IS 3025 (Part 24): 1986; RA2019	4.8	400
Nitrate (as NO ₅)	mg/L	APHA 23th Ed.2017, 4500 NO2-B	1.29	50
Chloride (as Cl)	mg/L	IS 3025 (Part-32):1988; RA2019	9,6	600
Fluoride (as F)	mg/L	IS 3025 (Part-60) ;2008; RA2019	BDL (DL: 0.1)	1.5
Cyanide (as CN)	mg/L	APHA 23 rd Ed.2017, 4500 CN-E	BDL (DL: 0.012)	0.05
Phenols Compounds (as C ₀ H ₂ OH)	mg/L	IS 3025 (Part-43): 1992;RA2019	BDL (DL: 0.001)	0.005



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Lab : M16, R-3-Housing Colony; Dhantod, Pm - 826001, State - Harkband \$ 9830067044 / \$ 9304513737

TEST REPORT

Test Report No.	: ELES/RNC/2024/1546	Report Release Date	: 10.04.2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

Discipline: Chem	ical	Group: Wat	er	Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per 18 2296-1992 Class C (Inland Surface Water)
Calcium (as Ca)	mg/L	IS 3025 (Part-40): 1991:RA2019	20.9	**
Free Residual Chlorine (RFC)	mg/L	IS 3025 (Part-26) ;2021	BDL (DL; 0.1)	**
Anionic Surfactants (as MBAS)	mg/L	APHA 24 th Ed,2023, 5540-C	BDL (DL: 0.025)	1.0
Discipline: Chemis	tal	Group: Residu	es in Water	
Aluminium (as Al)	mg/L	15 3025 (Part-55) :2003; RA2019	BDL (DL: 0.02)	
Arsenic (as As)	mg/L	15 3025 (Part-37): 2022	BDL (DL: 0.005)	0,2
Boron (as B)	mg/L	IS 3025 (Part-57) (2021	BDL (DL: 0.2)	-
Cadmium (as Cd)	mg/L	APHA23 rd Ed.2017; 3111B	BDL (DL: 0.003)	0.01
Total Chromium (as Cr)	mg/L	APHA 23 rd Ed,2017; 3111B	BDL (DL: 0.03)	
Copper (as-Cu)	mg/L	APHA 23rd Ed.2017; 3111B	BDL (DL: 0.03)	1.5
Iron (as Fe)	mg/L	APHA 23rd Ed.2017; 3111B	0.090	50
Lead (as Pb)	mg/L	APHA 23rd Ed.2017, 3111 B	BDL (DL: 0.01)	0.1
Manganese (as Mn)	mg/L	APHA 23 rd Ed.2017; 3411 B	BDL (DL; 0.05)	
Mercury (as Hg)	mg/L	IS 3025 (Part-48) :1994; RA2019	BDL (DL: 0.001)	
Selenium (as Se)	mg/L	1S 3025 (Part-56) ;2003; RA2019	BDL (DL: 0.01)	0.05
Zinc (as Zn)	mg/L	APHA 23 rd Ed.2017, 3111 B	BDL (DL: 0.1)	15
Polynuclear Aromatic Hydrocarbons (PAH)	µg/L	ELES/GC/SOP/04	BDL (DL: 0.05)	4

Remarks: L. pH & RFC done at Lab.



Lab : MIG. R-3 Housing Colors: Dhumand, Pm - 826001, State - Brankhand (9830067044 / (9304813737



Test Report No.	: ELES/RNC/2024/1546	Report Release Date	; 10.04.2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

Parameter	Unit	Test Protocol	Result	as per 1S 2296-1992 Class C (Inland Surface Water)
Pesticides .			V	
Alachlor	(rg/L.	ELES/GC/SOP/01	BDL (DL: 0.5)	-
Atrazine	µg/L	ELES/GC/SOP/01	BD1. (DL: 0.5)	~
Butachlor	µg/L	ELES/GC/SOP/01	BDL (DL: 0.5)	4
Chlorpyriphos	ug/L	ELES/GC/SOP/01	BDL (DL: 0.5)	-
Ethion	µg/L	ELES/GC/SOP/01	BDL (DL: 0.5)	_ =
Malathion	µg/L	ELES/GC/SOP/01	BDL (DL: 0.5)	~
Methyl parathion	μg/L	ELES/GC/SOP/01	BDL (DL: 0.1)	
Monocrotophos	µg/L	ELES/GC/SOP/01	BDL (DL: 0.5)	
Phorate	ug/L	ELES/GC/SOP/01	BDL (DL: 0.5)	+
Phorate Sulphone	µg/L	ELES/GC/SOP/01	BDL (DL: 0.5)	(+)
Dieldrin	µg/L	ELES/GC/SOP/02	BDL (DL: 0.01)	+
Alpha HCH	µg/L	ELES/GC/SOP/02	BDL (DL: 0.006))÷
Beta HCH	µg/L	ELES/GC/SOP/02	BDL (DL; 0.02)	1-
Delta HCH	µg/L	ELES/GC/SOP/02	BDL (DL: 0.02)	-
Gamma HCH (Lindane)	µg/L	ELES/GC/SOP/02	BDL (DL: 0.02)	(+)
Endosulfan (alpha, beta and sulphate)	µg/L	ELES/GC/SOP/02	BDL (DL: 0.05)	7-
DDT(o,p and p,p-isomers of DDT,DDEand DDD)	ид/Т.	ELES/GC/SOP/02	BDL (DL: 0.05)	144



₩ 10-1,1501

Lab ; MIG, R-3 Housing Colony, Dhamburl, Pin - 826001; State - Brankhand (9830067044 / (9384513737

TEST REPORT

Test Report No.	: ELES/RNC/2024/1546	Report Release Date	: 10.04,2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

Discipline : Biological		Group: W:	Group: Water	
Parameter	Unit	Test Protocol	Result	as per 1S 2296-1992 Class C (Ioland Surface Water)
Total Coliform	CFU/100 mL	IS 15185: 2016, RA2021	2.18×10 ²	5000
Escherichia Coli	CFU/100 mL	1S 15 (85: 2016; RA202)	<1.0	

Reviewed by :

****End of Report***

Authorised Signatory:

Then.

(Saswata Burman Roy, Dy. Quality Manager)



(Bapan Das, Dy, Technical Manager)

Tub - MIG. R-3 Housing Colony, Dhimbird. Pin - 926001, State - Thurkhand \$ 9830067044 / \$ 9304513797

TC 33501

Test Report No.	: ELES/RNC/2024/1550	Report Release Date	: 10.04.2024
Work Order No.	: 13612310218	Work Order Date	21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name Address	: Hindalco Industries Limited : Lohardaga, Jharkhand-835302	Sample Ref. No. Sampling Date Sample Received Date Type of Sample Source of Sample Location of Sample	: ELES/RNC/2024/SW/1456 : 15.03.2024 : 18.03.2024 : Surface Water : Down Stream : Kanchki Nadi, Serengdag-A Bauxite Mines (155.81 ha)	
Mines Status Period of Analysis	: Operational : 18.03.2024 to 29.03.2024	Sampling Procedure Sample Collected By Sample Condition	: ELES/DOC/SMPL/01 : ELES Pvt. Ltd. : Sealed & Preserved	

Discipline : Chemic	al	Group	: Water	Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per 1S 2296-1992 Class C (Inland Surface Water)
pH (at 25.1°C)	-41	IS-3025 (Part 11):1 2022	6.53	6.5-8.5
Colour	Hazen	JS 3025 (Part -4): 2021	2.0	300
Odour	59	IS 3025 (Part-5): 2018	Unobjectionable	
Taste	10	APHA 23rd Ed.2017, 2160 C	N/A	12
Turbidity	mg/L	IS 3025 (Part-10):1984;RA2017	0.85	
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part 16):1984; RA2017	318	1500
Total Alkalinity (as CaCO ₅)	mg/L	18 3025 (Part-23):1986; RA2019	112	
Total Hardness (as CaCO ₃)	mg/L	IS 3025 (Part-21): 2009; RA2019	130	4
Sulphate (as SO ₄)	mg/L	IS 3025 (Part 24) : 1986; RA2019	8.5	400
Nitrate (as NO ₂)	mg/L	APHA 23rd Ed.2017, 4500 NO ₂ -B	1.98	50
Chloride (as Cl)	mg/L	IS 3025 (Part-32):1988; RA2019	41.4	600
Fluoride (as F)	mg/L	IS 3025 (Part-60) :2008; RA2019	0.145	1.5
Cyanide (as CN)	mg/L	APHA 23 rd Ed.2017, 4500 CN-E	BDL (DL: 0.012)	0.05
Phenols Compounds (as CoHsOH)	mg/L	IS 3025 (Part-43): 1992;RA2019	BDL (DL: 0.001)	0.005



 Test Report No.
 : ELES/RNC/2024/1550
 Report Release Date
 : 10.04.2024

 Work Order No.
 : 13612310218
 Work Order Date
 : 21.04.2023

Discipline: Chem	ical	Group: Wate	er .	Tolerance Limits
Parameter '	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water
Calcium (as Ca)	mg/L	IS 3025 (Part-40): 1991;RA2019	34.7	-
Free Residual Chlorine (RFC)	mg/L	IS 3025 (Part-26) ;2021	BDL (DL: 0.1)	4
Anionic Surfactants (as MBAS)	mg/L	APHA 24 th Ed.2023, 5540-C	BDL (DL: 0.025)	1.0
Discipline: Chemic	cai	Group: Residu	es in Water	
Aluminium (as Al)	mg/L	1S 3025 (Part-55) :2003; RA2019	BDL (DL: 0.02)	
Arsenic (as As)	mg/L	1S 3025 (Pan-37): 2022	BDL (DL: 0.005)	0,2
Boron (as B)	mg/L	18 3025 (Part-57) ;2021	BDL (DL; 0.2)	-
Cadmium (as Cd)	mg/L	APHA23 rd Ed.2017; 3111B	BDL (DL: 0.003)	10.0
Total Chromium (as Cr)	mg/L	APHA 23rd Ed.2017; 3111B	BDL (DL: 0.03)	*
Copper (as Cu)	mg/L	APHA 23rd Ed,2017; 3111B	BDL (DL: 0.03)	1,5
Iron (as Fe)	mg/L	APHA 23rd Ed.2017; 3111B	0.099	50
Lead (as Pb)	mg/L	APHA 23 rd Ed.2017, 3111 B	BDL (DL: 0.01)	0.1
Manganese (as Mn)	mg/L	APHA 23 rd Ed:2017; 3111 B	BDL (DL: 0.05)	**
Mercury (as Hg)	mg/L	IS 3025 (Part-48):1994; RA2019	BDL (DL: 0.001)	
Selenium (as Se)	mg/L	IS 3025 (Part-56) :2003; RA2019	BDL (DL: 0.01)	0.05
Zinc (as Zn)	mg/L	APHA 23 rd Ed.2017, 3111 B	BDL (DL: 0.1)	15
Polynuclear Aromatic Hydrocarbons (PAH)	µg/L	ELES/GC/SOP/04	BDL (DL: 0.05)	145

Remarks: L. pH & RFC done at Lab.



Test Report No. : ELES/RNC/2024/1550 Report Release Date : 10.04.2024

Work Order No. : 13612310218 Work Order Date : 21.04.2023

Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
Pesticides				
Alachlor	ug/L	ELES/GC/SOP/01	BDL (DL: 0.5)	*
Atrazine	µg/L	ELES/GC/SOP/01	BDL (DL: 0.5)	-
Butachlor	µg/L	ELES/GC/SOP/01	BDL (DL: 0.5)	-
Chlorpyriphos	µg/L	ELES/GC/SOP/01	BDL. (DL; 0.5)	-
Ethion	pg/L	ELES/GC/SOP/01	BDL (DL: 0.5)	*
Malathion	ug/L	ELES/GC/SOP/01	BDL (DL: 0.5)	-
Methyl parathion	µg/L	ELES/GC/SOP/01	BDL (DL: 0.1)	-
Monocrotophos	µg/L	ELES/GC/SOP/01	BDL (DL: 0.5)	+
Phorate	ng/l:	ELES/GC/SOP/01	BDL (DL: 0.5)	-
Phorate Sulphone	µg/L	ELES GC/SOP/01	BDL (DL: 0.5)	4
Dieldrin	µg/L	ELES/GC/SOP/02	BDL (DL: 0.01)	**
Alpha HCH	μg/L	ELES/GC/SOP/02	BDL (DL: 0.006)	as:
Beta HCH	µg/L	ELES/GC/SOP/02	BDL (DL: 0.02)	
Delta HCH	ug/L	ELES/GC/SOP/02	BDL (DL: 0.02)	-
Gamma HCH (Lindane)	µg/L	ELES/GC/SOP/02	BDL (DL: 0.02)	-
Endosulfan (alpha, beta and sulphate)	μg/L	ELES/GC/SOP/02	BDL (DL: 0.05)	-
DDT(o,p and p,p-isomers of DDT,DDEand DDD)	μg/t.	ELES/GC/SOP/02	BDL (DL; 0.05)	-



Test Report No.	: ELES/RNC/2024/1550	Report Release Date	: 10.04.2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

Discipline : Biological		Group : Water		Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per 1S 2296-1992 Class C (Inland Surface Water)
Total Coliform	CFU/100 mL	IS 15185: 2016, RA2021	2.27×10 ³	5000
Escherichia Cali	CFU/100 mL	IS 15185: 2016; RA2021	1.07×10 ²	

Reviewed by :

****End of Report****

Authorised Signatory:

Short

(Saswata Burman Roy, Dy. Quality Manager)



(Bapan Das, Dy. Technical Manager)



Late: MIG. 31-3 Housing Colony, Munhold, Pro. : 826003, State - Harbitano & 90300067044 / \$ 9394513737

Test Report No.	: ELES/RNC/2024/1548	Report Release Date	: 10,04,2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	; Hindalco Industries Limited	Sample Ref. No. Sampling Date Sample Received Date Type of Sample	: ELES/RNC/2024/SW/1458 : 15.03.2024 : 18.03.2024 : Surface Water	
Address	:: Lohardaga, Jharkhand-835302	Source of Sample Location of Sample	: Down Stream : Serengdag Nadi, Serengdag-A Bauxite Mines (155.81 ha)	
Mines Status	; Operational	Sampling Procedure Sample Collected By	: ELES/DOC/SMPL/01 : ELES Pvt. Ltd.	
Period of Analysis	: 18.03.2024 to 29.03.2024	Sample Condition	; Sealed & Preserved	

Discipline : Chemic	al	Group	: Water	Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per 18 2296-1992 Class C (Inland Surface Water)
pH (at 25.1 °C)	. 8	IS 3025 (Part 11): 2022	6.61	6.5-8.5
Colour	Hazen	IS 3025 (Part -4): 2021	15.0	300
Odour	-	IS 3025 (Part-5): 2018	Unobjectionable	**
Taste		APHA 23 rd Ed.2017, 2160 C	N/A	5
Turbidity	mg/L	IS 3025 (Part-10):1984;RA2017	3.82	44
Total Dissolved Solids (TDS)	mg/L	1S 3025 (Part 16):1984; RA2017	260	1500
Total Alkalinity (us CaCOa)	mg/L	IS 3025 (Part-23):1986; RA2019	83.5	-
Total Hardness (as CaCO ₅)	mg/L	18 3025 (Part-21): 2009; RA2019	125	-
Sulphate (as SO ₄)	mg/L	1S 3025 (Part 24): 1986; RA2019	7.5	400
Nitrate (as NO ₂)	mg/L	APHA 23 rd Ed.2017, 4500 NO ₃ -B	2.09	50
Chloride (as Cl)	mg/L	1S 3025 (Part-32):1988; RA2019	34.2	600
Fluoride (as F)	mg/L	IS 3025 (Part-60) :2008; RA2019	0.182	1.5
Cyanide (as CN)	mg/L	APHA 23rd Ed,2017, 4500 CN-E.	BDL (DL: 0.012)	0.05
Phenois Compounds (as C ₆ H ₈ OH)	mg/L	IS 3025 (Part-43): 1992;RA2019	BDL (DL: 0.001)	0.005



Test Report No.	: ELES/RNC/2024/1548	Report Release Date	: 10.04.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

Discipline: Chem	ical	Group: Wate	er	Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per 18 2296-1992 Class C (Inland Surface Water
Calcium (as Ca)	mg/L	IS 3025 (Part-40); 1991;RA2019	33.3	ω.
Free Residual Chlorine (RFC)	mg/L	JS 3025 (Part-26) (2021	BDL. (DL; 0.1)	
Anionic Surfactants (as MBAS)	mg/L	APHA 24th Ed.2023, 3540-C	BDL (DL: 0.025)	1.0
Discipline: Chemic	al	Group: Residu	es in Water	
Aluminium (as Al)	mg/L	IS 3025 (Part-55) :2003; RA2019	BDL (DL: 0.02)	
Arsenic (as As)	mg/L	IS 3025 (Part-37): 2022	BDL (DL: 0.005)	0.2
Boron (as B)	mg/L	IS 3025 (Part-57) ;2021	BDL (DL: 0.2)	**
Cadmium (as Cd)	mg/L	APHA23 rd Ed;2017; 3111B	BDL (DL: 0.003)	0.01
Total Chromium (as Cr)	mg/L	APHA 23 st Ed.2017; 3111B	BDL (DL: 0.03)	-
Copper (as Cu)	mg/L	APHA 23 ^{at} Ed.2017; 3111B	BDL (DL: 0.03)	1,5
Iron (as Fe)	mg/L	APHA 23th Ed.2017; 3111B	0.480	50
Lead (as Pb)	mg/L	APHA 23rd Ed.2017, 3111 B	BDL (DL: 0.01)	0.1
Manganese (as Mn)	mg/L	APHA 23 rd Ed.2017; 3111 B	BDL (DL: 0.05)	(8)
Mercury (as Hg)	mg/L	IS 3025 (Part-48):1994; RA2019	BDL (DL; 0.001)	121
Selenium (as Se)	mg/L	IS 3025 (Part-56) :2003; RA2019	BDL (DL: 0.01)	0.05
Zinc (as Zn)	mg/L	APHA 23 rd Ed.2017, 3111 B	BDL (DL: 0.1)	15
Polynuclear Aromatic Hydrocarbons (PAH)	μg/L	ELES/GC/SOP/04	BDL (DL: 0.05)	- 14

Remarks: 1. pH & RFC done at Lab.



Test Report No.	: ELES/RNC/2024/1548	Report Release Date	: 10.04.2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

Parameter	Unit	Test Protocol	Result	as per 1S 2296-1992 Class C (Inland Surface Water)
Pesticides				,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
Alachior	μg/L	ELES/GC/SOP/01	BDL (DL: 0.5)	*
Atrazine	μg/l.	ELES/GC/SOP/01	(DL: 0.5)	*
Butachlor	ug/L	ELES/GC/SOP/01	BDL (DL: 0.5)	-
Chlorpyriphos	μg/L	ELES/GC/SOP/01	BDL (DL: 0.5)	
Ethion	µg/L	ELES/GC/SOP/01	BDL (DL: 0.5)	7
Malathion	µg/L	ELES/GC/SOP/01	BDL (DL; 0.5)	-
Methyl parathion	µg/L	ELES/GC/SOP/01	BDL (DL: 0.1)	-
Monocrotophos	µg/L	ELES/GC/SOP/01	BDL (DL: 0.5)	-
Phorate	µg/L	ELES/GC/SOP/01	BDL (DL: 0.5)	-
Phorate Sulphone	μg/L	ELES/GC/SOP/01	BDL (DL: 0.5)	-,44
Dieldrin	ng/L	ELES/GC/SQP/02	BDL (DL: 0.01)	46
Alpha HCH	µg/L	ELES/GC/SOP/02	BDL (DL: 0.006)	1-81
Beta HCH	µg/L	EEES/GC/SOP/02	BDL (DL: 0.02)	(4)
Delta HCH	μg/L	ELES/GC/SOP/02	BDL (DL: 0.02)	
Gamma HCH (Lindane)	μg/1.	ELES/GC/SOP/02	BDL (DL: 0.02)	*
Endosulfan (alpha, beta and sulphate)	µg/L	ELES/GC/SOP/02	BDL (DL: 0.05)	H
DDT(o,p and p,p-isomers of DDT,DDEand DDD)	µg/L.	ELES/GC/SOP/02	BDL (DL: 0.05)	+



Lab : MOG, R-3 Housing Colony, Divanhad, Pin - 82600 I, Statz - Jharkbane (9830067044 / (9304513737



TEST REPORT

Test Report No.	: ELES/RNC/2024/1548	Report Release Date	: 10.04.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

Discipline : Biological		Group: Wa	iter	Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per 1S 2296-1992 Class C (Inland Surface Water)
Total Coliform	CFU/100 mL	IS 15185; 2016; RA2021	1.90×10 ³	5000
Escherichia Coli	CFU/100 mL	IS-15185; 2016; RA2021	1.03×10 ²	14

Reviewed by :

****End of Report****

VIROC

Jharkhand

Authorised Signatory:

(Bapan Das, Dy. Technical Manager)

(Saswata Burman Roy, Dy. Quality Manager)





Lab : MIG, R-3 Housing Colony, Dhambart, Pin -826001, State- Barkhand C-9870067044 / C-9304513737

Test Report No.	: ELES/RNC/2024/1549	Report Release Date	: 10.04.2024	
Work Order No.	: 13612310218	Work Order Date	; 21.04.2023	

CUSTOMER DET.	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Sampling Date Sample Received Date Type of Sample	: ELES/RNC/2024/SW/1455 : 15.03.2024 : 18.03.2024 ; Surface Water	
Address	: Lohardaga, Jharkhand-835302	Source of Sample Location of Sample	: Up Stream : Kanchki Nadi, Serengdag-A Bauxite Mines (155.81 ha)	
Mines Status	: Operational	Sampling Procedure Sample Collected By	: ELES/DOC/SMPL/01 : ELES Pvt, Ltd.	
Period of Analysis	: 18.03.2024 to 29.03.2024	Sample Condition	: Sealed & Preserved	

Discipline : Chemic	al	Group	: Water	Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
pH (at 25.1 °C)		IS 3025 (Part 11): 2022	6.85	6.5-8.5
Colour	Hazen	IS 3025 (Part -4): 2021	4.0	300
Odour	100	IS 3025 (Part-5): 2018	Unobjectionable	-
Taste	250	APHA 23rd Ed.2017, 2160 C	N/A	
Turbidity	mg/L	IS 3025 (Part-10):1984;RA2017	2.45	**
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part 16):1984; RA2017	194	1.500
Total Alkalinity (as CaCO ₃)	mg/L	IS 3025 (Part-23) :1986; RA2019	65.4	- 10
Total Hardness (as CaCO ₃)	mg/L	IS 3025 (Part-21): 2009; RA2019	84.0	146
Sulphate (as SO ₄)	mg/L	IS 3025 (Part 24): 1986; RA2019	8.4	400
Nitrate (as NO ₃)	mg/L	APHA 23rd Ed.2017, 4500 NOs-B	1.34	50
Chloride (as Cl)	mg/L	IS 3025 (Part-32):1988; RA2019	26.4	600
Fluoride (as F)	mg/L	IS 3025 (Part-60) :2008; RA2019	0.134	1.5
Cyanide (as CN)	mg/L	APHA 23 rd Ed.2017, 4500 CN-E	BDL (DL: 0.012)	0.05
Phenois Compounds (us C ₀ H ₂ OH)	mg/L	IS 3025 (Part-43): 1992;RA2019	BDL (DL: 0.001)	0.005

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Lab : MIG, R-3 Housing Colony, Dhanhad, Pin - 826001, State - Barkhand (9830067044 / (9304513737

TEST REPORT

Test Report No.	: ELES/RNC/2024/1549	Report Release Date	: 10.04.2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

Discipline: Chem	ical	Group: Wate	er	Tolerance Limits	
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)	
Calcium (as Ca)	mg/L	IS 3025 (Part-40): 1991;RA2019	22.4	94	
Free Residual Chlorine (RFC)	mg/L	IS 3025 (Part-26) ;2021	BDL (DL: 0.1)	9	
Anionic Surfactants (as MBAS)	mg/L	APHA 24th Ed.2023, 5540-C	BDL (DL: 0.025)	1.0	
Discipline: Chemic	al	Group: Residu	es in Water		
Aluminium (as Al)	mg/L	IS 3025 (Part-55) ;2003; RA2019	BDL (DL: 0.02)	1	
Arsenic (as As)	mg/L	15 3025 (Part-37); 2022	BDL (DL: 0.005)	0.2	
Boron (as B)	mg/L	IS 3025 (Part-57) :2021	BDL (DL: 0.2)	0.97	
Cadmium (as Cd)	mg/L	APHA23 rd Ed.2017: 3111B	BDL (DL: 0.003)	0.01	
Total Chromium (as Cr)	mg/L	APHA 23 rd Ed.2017; 3111B	BDL (DL: 0.03)	-	
Copper (as Cu)	mg/L	APHA 23 rd Ed,2017; 3111B	BDL (DL: 0.03)	1.5	
Iron (as Fe)	reg/L	APHA 23rd Ed.2017; 3111B	0.103	50	
Lead (as Pb)	mg/L	APHA 23rd Ed.2017, 3111 B	BDL (DL; 0.01)	0,1	
Manganese (as Mn)	mg/L	APHA 23rd Ed.2017; 3111 B	BDL (DL: 0.05)	=	
Mercury (as Hg)	mg/L	1S 3025 (Part-48) :1994; RA2019	BDL (DL: 0,001)		
Selenium (as Se)	mg/L	IS 3025 (Part-56) :2003; RA2019	BDL (DL: 0.01)	0.05	
Zine (as Zn)	mg/L	APHA 23 rd Ed.2017, 3111 B	BDL (DL: 0.1)	15	
Polynuclear Aromatic Hydrocarbons (PAH)	µg/L	ELES/GC/SOP/04	BDL (DL: 0.05)	-	

Remarks: L. pH & RFC done at Lab.



FOR THE PARTY AND ADDRESS OF THE PARTY AND PARTY. Lab : MIG-R-3 Housing Colony, Dhambad, Pm - 826001, State - (hackband \$ 9830067044 / \$ 9304513737



Test Report No.	: ELES/RNC/2024/1549	Report Release Date	: 10.04.2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

Parameter	Unit	Test Protocol	Result	as per 1S 2296-1992 Class C (Inland Surface Water)
Pesticides				
Alachlor	µg/L	ELES/GC/SOP/01	BDL (DL: 0.5)	-
Atrazine	μg/L	ELES/GC/SOP/01	BDL (DL: 0.5)	(8)
Butachlor	μg/L	ELES/GC/SOP/01	BDL (DL: 0.5)	77
Chlorpyriphos	µg/1,	ELES/GC/SOP/01	BDL (DL: 0.5)	-
Ethion	ug/L	ELES/GC/SOP/01	BDL (DL: 0.5)	-
Malathion	μg/t.	ELES/GC/SOP/01	BDL (DL: 0.5)	-
Methyl parathion	μg/L	ELES/GC/SOP/01	BDL (DL: 0.1)	-
Monocrotophos	ug/L	ELES/GC/SOP/01	BDL (DL: 0.5)	-
Phorate	μg/L	ELES/GC/SOP/01	BDL (DL: 0.5)	- 1
Phorate Sulphone	µg/L	ELES/GC/SOP/01	BDL (DL: 0.5)	4
Dieldrin	µg/L	ELES/GC/SOP/02	BDL (DL: 0.01)	19
Alpha HCH	µg/L	ELES/GC/SOP/02	BDL (DL: 0.006)	+
Beta HCH	µg/L	ELES/GC/SOP/02	BDL (DL: 0.02)	15.
Delta HCH	µg/L	ELES/GC/SOP/02	BDL (DL: 0.02)	(4)
Gamma HCH (Lindane)	µg/L	ELES/GC/SOP/02	BDL (DL: 0.02)	-
Endosulfan (alpha, beta and sulphate)	µg/L	ELES/GC/SOP/02	BDL (DL: 0.05)	-
DDT(o,p and p,p-isomers of DDT,DDEand DDD)	pg/L	ELES/GC/SOP/02	BDL (DL: 0.05)	(e-



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Lab : MIG, R-3 Housing Colony, Dhanbud, Pin - 826001, State - Jharkisand 4 9830067044 / 4 9304513737

TEST REPORT

Test Report No.	: ELES/RNC/2024/1549	Report Release Date	: 10.04.2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

Discipline : Bi	ological	Group : Wa	Tolerance Limits		
Parameter	Unit	Test Protocol	Result	as per 1S 2296-1992 Class C (Inland Surface Water	
Total Coliform	CFU/100 ml.	IS 15185: 2016, RA2021	4.63×10 ³	5000	
Escherichia Coli	CFU/100 mL	IS 15185; 2016; RA2021	86.0		

Reviewed by:

****End of Report****

Jharkhand 826001

(Saswata Burman Roy, Dy. Quality Manager)

Authorised Signatory:

The Con

(Bapan Das, Dy. Technical Manager)

TD-11501

lab (MMs, R-3 Housing Colony, Dhannad, Pm - 826001, State - Jhankhand & 9830067044 / \$ 9304513737.

Test Report No.	: ELES/RNC/2024/1547	Report Release Date	:: 10.04.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

CUSTOMER DET.	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Sampling Date Sample Received Date Type of Sample	: ELES/RNC/2024/SW/1457 : 15.03.2024 : 18.03.2024 : Surface Water	
Address	: Lohardaga, Jharkhand-835302	Source of Sample Location of Sample	: Up Stream : Serengdag Nadi, Serengdag-A Bauxite Mines (155.81 ha)	
Mines Status	: Operational	Sampling Procedure Sample Collected By	: ELES/DOC/SMPL/01 : ELES Pvt. Ltd.	
Period of Analysis	: 18.03.2024 to 29.03.2024	Sample Condition	: Sealed & Preserved	

Discipline: Chemic	nal.	Group	: Water	Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
pH (at 25.1 °C)	75	IS 3025 (Part 11): 2022	6.57	6.5-8.5
Colour	Hazen	1S 3025 (Part -4) : 2021	6.0	300
Odour	(24.5)	IS 3025 (Part-5): 2018	Unobjectionable	H
Taste	+	APHA 23rd Ed.2017, 2160 C	N/A	-
Turbidity.	mg/L	IS 3025 (Part-10):1984;RA2017	2.12	**
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part 16):1984; RA2017	182	1500
Total Alkalinity (as CaCO ₂)	mg/L	IS 3025 (Part-23):1986; RA2019	63.2	H
Total Hardness (as CaCO ₁)	mg/L	1S 3025 (Part-21): 2009; RA2019	74.8	φ.
Sulphate (as SO ₄)	mg/L	IS 3025 (Part 24): 1986; RA2019	6.2	400
Nitrate (as NO ₂)	mg/L	APHA 23 rd Ed.2017, 4500 NO ₁ -B	1.67	50
Chloride (as CI)	mg/L	IS 3025 (Part-32):1988; RA2019	22.8	600
Fluoride (as F)	mg/L	IS 3025 (Part-60) :2008; RA2019	0.138	1.5
Cyanide (as CN)	mg/L	APHA 23 rd Ed,2017, 4500 CN-E	BDL (DL: 0.012)	0.05
Phenols Compounds (as C _k H ₂ OH)	mg/L	IS 3025 (Part-43): 1992;RA2019	BDL (DL: 0.001)	0,005



Test Report No. : ELES/RNC/2024/1547 Report Release Date : 10.04.2024

Work Order No. : 13612310218 Work Order Date : 21.04.2023

Discipline: Chemical		Group: Wat	Tolerance Limits	
Parameter	Unit	Test Protocol	Result	as per 1S 2296-1992 Class C (Inland Surface Water
Calcium (as Ca)	mg/L	IS 3025 (Part-40): 1991;RA2019	19.9	π-
Free Residual Chlorine (RFC)	mg/L	IS 3025 (Part-26):2021	BDL (DL: 0.1)	
Anionic Surfactants- (as MBAS)	mg/L	APHA 24 th Ed.2023, 5540-C	BDL (DL: 0.025)	1.0
Discipline: Chemic	:al	Group: Residu	es in Water	
Aluminium (as Al)	mg/L	IS 3025 (Part-55) :2003; RA2019	BDL (DL: 0.02)	+
Arsenic (as As)	mg/L	IS 3025 (Part-37): 2022	BDL (DL: 0.005)	0,2
Boron (as B)	mg/L	IS 3025 (Part-57) :2021	BDL (DL: 0.2)	#
Cadmium (as Cd)	mg/L	APHA23 rd Ed.2017; 3111B	BDL (DL; 0.003)	0.01
Total Chromium (as Cr)	mg/L	APHA 23 rd Ed 2017; 3111B	BDL (DL: 0.03)	-
Copper (as Cu)	mg/L	APHA 23 rd Ed,2017; 3111B	BDL (DL: 0.03)	1.5
Iron (as Fe)	mg/L	APHA 23rd Ed.2017; 3111B	0.175	50
Lead (as Pb)	mg/L	APHA 23 rd Ed,2017, 3111 B	BDL (DL: 0.01)	0,1
Manganese (as Mn)	mg/L	APHA 23 rd Ed.2017; 3111 B	BDL (DL: 0.05)	- 4
Mercury (as Hg)	mg/L	IS 3025 (Part-48).:1994; RA2019	BDL (DL: 0.001)	-8
Selenium (as Se)	mg/L	IS 3025 (Part-56) ;2003; RA2019	BDL (DL: 0.01)	0.05
Zinc (as Zn)	mg/L	APHA 23 rd Ed.2017, 3111 B	BDL (DL: 0.1)	13
Polynuclear Aromatic Hydrocarbons (PAH)	µg/L	ELES/GC/SOP/04	BDL (DL: 0.05)	*

Remarks: L. pH & RFC done at Lab.



Test Report No.	: ELES/RNC/2024/1547	Report Release Date	: 10.04.2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
Pesticides				
Alachlor	μg/L	ELES/GC/SOP/01	BDL (DL: 9.5)	-
Atrazine	ng/L	ELES/GC/SOP/01	BDL (DL: 0.5)	
Butachlor	µg/L	ELES/GC/SOP/01	BDL (DL: 0.5)	3-4
Chlorpyriphos	µg/1_	ELES/GC/SOP/01	BDL (DL: 0.5)	~
Ethion	µg/L	ELES/GC/SOP/01	BDL (DL: 0.5)	-
Malathion	µg/L	ELES/GC/SOP/01	BDL (DL: 0.5)	-
Methyl parathion	µg/L	ELES/GC/SOP/01	BDL (DL: 0.1)	S
Monocrotophos	ug/L	ELES/GC/SOP/01	BDL (DL: 0.5)	-
Phorate	ng/L	ELES/GC/SOP/01	BDL (DL: 0.5)	В
Phorate Sulphone	µg/L	ELES/GC/SOP/01	BDL (DL: 0.5)	15
Dieldrin	µg/L	ELES/GC/SOP/02	BDL (DL: 0.01)	-
Alpha HCH	ng4.	ELES/GC/SOP/02	BDL (DL: 0.006)	-
Beta HCH	μg/l.	ELES/GC/SOP/02	BDL (DL: 0.02)	~
Delta HCH	μg/t.	ELES/GC/SOP/02	BDL (DL: 0.02)	-
Gamma HCH (Lindane)	μg/1.	ELES/GC/SOP/02	BDL (DL: 0.02)	-
Endosulfan (alpha, beta and sulphate)	μg/L.	ELES/GC/SOP/02	BDL (DL: 0.05)	-
DDT(o,p and p,p-isomers of DDT,DDEand DDD)	µg/1.	ELES/GC/SOP/02	BDL (DL: 0.05)	37



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TEST REPORT

Test Report No.	: ELES/RNC/2024/1547	Report Release Date	: 10.04.2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

Discipline : B	iological	Group: Wa	Tolerance Limits	
Parameter	Unit	Test Protocol Resu		as per IS 2296-1992 Class C (Inland Surface Water)
Total Coliform	CFU/100 mt.	IS 15185: 2016, RA2021	5.36×10 ³	5000
Escherichia Coli	CFU/100 mL	IS 15185: 2016; RA2021	3.72×10 ²	

Reviewed by :

****End of Report***

Authorised Signatory:

Short.

(Saswata Burman Roy, Dy. Quality Manager)



(Bapan Das, Dy. Technical Manager)



Annexure 3

Date - 20.05.2024

Office Order

Environmental Cell has been re-constituted at Sherengdag Bauxite Mine (Area 155.81 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. Ashish Kumar Mohanta (Coordinator)
- 2. Mr. Abhishek Kumar (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.

Basudev Gangopadhyay

AVP (Planning, Environment & Compliance)

Annexure 4

	Production, Mined Out, Back Filled and Over Burden removal from October'23 to March'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	102292	0.68	0.32	68480.59			
3	Hisri (New) Bauxite Mine	14.55	100000	19.07.1981 to 31.03.2030	42069	0.8	0.00	39067.98			
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	130749.2	2.06	0.56	534025.4			
7	Sherangdag-A Bauxite Mine	155.81	260000	16.10.1974 to 31.03.2030	11950	0.81	0.76	55693.68			
8	Serangdag-B Bauxite Mine	77.89	100000	04.10.1978 to 31.03.2030	36230	2.81	1.65	116122.92			
9	Jalim & Sanai Bauxite Mine	12.14	50000	16.10.1974 to 31.03.2030	16450	0.07	0.06	17533.27			
10	Gurdari Bauxite Mine	584.19	325000	23.03.1985 to 22.03.2035	145680	5.91	3.23	201022.508			
11	Kujam - I Bauxite Mine	80.87	150000	13.03.2006 to 12.03.2056	5480	0.46	2.91	72661.44			
12	Kujam - II Bauxite Mine	157.38	300000	24.03.2006 to 23.03.2056	66000	2.79	9.53	61380.23			
13	Amtipani Bauxite Mine	190.95	150000	13.03.2006 to 12.03.2056	48600	1.85	1.15	131087.65			

	Minerals & Minerals Limited									
14	Pakhar (109.507) Bauxite Mine	109.507	280000	26.07.2008 to 25.07.2058	142288	1.01	1.12	213450.18		
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	67450	3.41	3.29	101973.71		
17	Amtipani Chirodih Bauxite Mines	130.01	450000	11.01.2017 to 10.01.2067	123330	8.583	5.67	208720.97		

^{*}Static information about the mines included in the above table

Basudev Gangopadhyay
AVP (Planning, Environment and Compliance)

BREAK UP THE COST OF ENVIRONMENTAL MEASURES DURING THE YEAR 2023-24

The composite cost during the year 2023-24 for environmental protection & pollution control by Jharkhand Mines division of M/s Hindalco Industries Ltd & M/s Minerals & Minerals Ltd for implementation of the suggested measures in EC at our all the operating mines in the state of Jharkhand-namely Bagru (75.41 ha), Hisri New (14.55 ha), Bhusar (65.31 ha), Pakhar (115.13 ha), Pakhar (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 2023-24	Actual (in Rupees) FY 2023-24 (From Oct'23 to Mar'24)
1	Pollution Control & Environment monitoring	1,57,41,102.00	73,14,906.01
2	Reclamation/ Back filing & Rehabilitation**	1,36,62,095.00	6,53,29,973.21
3	Green belt, Plantation & Water sprinkling arrangement	67,45,898.00	32,08,288.90
4	Rural Development	6,19,33,534.00	2,08,14,673.36

^{**}Part of OB removed cost.

Basudev Gangopadhyay
AVP (Planning, Environment & Compliance)