

HIL/LHD/ENV/MoEF/717

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

**Sub:** Compliance Report of EC conditions for Gurdari (584.19 ha) Bauxite Mining project of M/s Hindalco Industries Limited located in Gumla, Jharkhand for the period October'23 to March'24

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

Sir,

With reference to the above, we are submitting herewith the Compliance status report of EC conditions for **Gurdari (584.19 ha)** Bauxite Mining project of **M/s Hindalco Industries Limited** located in Gumla, Jharkhand for the period October'23 to March'24.

The lease details are below.

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

Hope you will find the same in order.

Thanking You

Yours Sincerely FOR HINDALCO INDUSTRIES LIMITED

Date: 23.05.2024

(Basudev Gangopadhyay)

AVP (Planning, Environment & Compliance)

Enclosure: - As Above

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

Name of the Project : Gurdari Bauxite Mine (584.19 ha)

M/s Hindalco Industries Ltd

**Environment Clearance No & date** 

: J-11015/136/2006-IA.II (M), dated 07.02.2007.

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

### A. Specific Conditions

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

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

Condition 2- The environmental clearance is subject to approval of the state land use Department, Government of Jharkhand for diversion of agricultural land for non-agricultural use.

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

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

**Reply to Condition 3-** Required exploration is already done. Mining plan/ Mining Scheme based on current reserves/resource estimate is duly approved by IBM. The reclamation plan, post mine land use and progressive greenbelt development plan have been covered in Mining Plan/Mining scheme which is approved by IBM. The current mining scheme is valid till 31.03.2029.

Condition 4- Mining shall not intersect groundwater. The mine working shall be restricted to ground water table. Prior approval of the Ministry of Environment & Forests and Central Ground Water Authority shall be obtained for mining below water table.

**Reply to Condition 4-** Since shallow depth mining is being carried out, hence there is no intersection with the groundwater table. In future also, working zones will be restricted to above ground water table. We undertake that no mining is/was carried out below ground water table and the same status will be 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 5- Topsoil shall be stacked properly with proper slope with adequate measures and should be used for reclamation and rehabilitation of mined out areas.

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

Condition 6- The waste generated shall be concurrently backfilled in the mined-out area. There shall be no external OB dump. Monitoring and management of rehabilitated areas should continue until the vegetation becomes self-sustaining. Compliance status should be submitted to the Ministry of Environment & Forest on a six-month basis.

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

Condition 7- Catch drains and siltation ponds of appropriate size should be constructed to arrest silt and sediment flows from mine working. The water so collected should be utilized for watering the mine area, roads, green belt development etc. The drains should be regularly desilted particularly after monsoon and maintained properly.

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

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

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



Garland drain around mine pit.



Catch drain Near mine pit.

Condition 8- Plantation shall be raised in an area of 78.44 ha including a green belt of adequate width by planting the native species around the ML area, roads, reclaimed area etc. in consultation with the local DFO / Agriculture Department. The density of the trees should be around 1500 plants per ha.

**Reply to Condition 8-** Progressive plantation of native species is being carried out in and around mining lease, reclaimed area etc. in consultation with local forest department on regular basis. During FY 2023-24, a total of 6000 nos. saplings have been planted on reclaimed area. Total of 20.99 ha areas have been planted till date. In addition to this agricultural activity is going on reclaimed land as per the consent from the landowners. Rest to be complied during project period.



Plantation and Agriculture on Reclaimed land

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

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



Rainwater Harvesting Pond.

Condition 10- Regular monitoring of ground water level and quality should be carried out by establishing a network of existing wells and constructing new piezometers during the mining operation. The monitoring should be carried out four times in a year – pre-monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January) and the data thus collected may be sent regularly to MOEF, Central Ground water Authority and Regional Director Central Ground Water Board.

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



Piezometer Installed at Mine

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

**Reply to Condition 11-** We are not using any water from natural streams/ ground water for mining operation. Rainwater harvesting ponds with proper fencing have been already constructed in the mine premises. Rainwater harvested during 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 Extraction





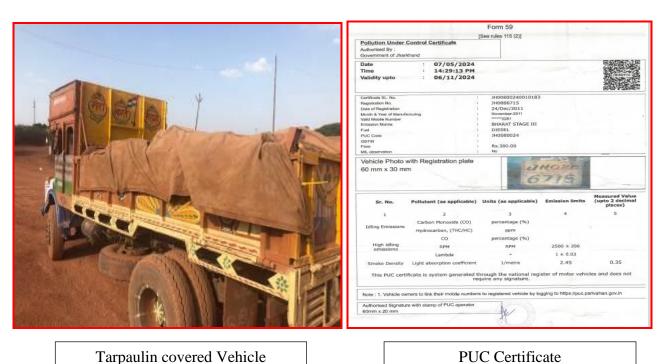
Rainwater Harvesting Pond at mines.

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

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

Condition 13- Vehicular emissions should be kept under control and regularly monitored. Measures shall be taken for maintenance of vehicles used in mining operations and transportation of minerals. The vehicles should be covered with a tarpaulin and shall not be overloaded.

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



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

**Reply to Condition 14-** Wet drilling is in practice.



Wet drilling is being carried out.

Condition 15- Blasting operation should be carried out only during the daytime. Controlled blasting should be practiced. The mitigative measures for control of ground vibration and to arrest fly rocks and boulders should be implemented.

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

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

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

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

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

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

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



Washing Ramp with Oil and Grease trap

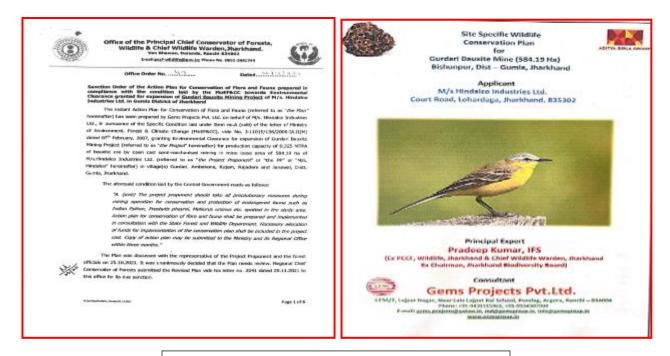
Condition 18- The project proponent should take all precautionary measures during mining operation for conservation and protection of endangered fauna such as Indian Python, <u>Presbytis phayrei</u>, <u>Melsurus ursinus</u> etc. Spotted in the study area. Action plan for conservation of flora and fauna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

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

- 1. Minimum level of Noise during Mining.
- 2. Permanent pillars are established within in the mine lease area.
- 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 Site-Specific Wildlife Conservation Plan (WLCP) in consultation with State Forest Department and obtained approval letter from Principal Chief Conservator of Forest, Wildlife & Chief Wildlife Warden, Jharkhand via Office Order No. 48 dated 02.12.2021 for conservation and protection of flora and fauna in the core and buffer zone for Gurdari Bauxite Mine.

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



Site Specific Wildlife Conservation Plan

Condition 19- A Final Mine Closure plan along with details of Corpus Fund should be submitted to the Ministry of Environment & Forest 5 years in advance of final mine closure for approval.

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

### **B.** General Conditions

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

**Reply to Condition 1-** Noted.

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

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

Condition 3- Four ambient air quality-monitoring stations should be established in the core zone as well as in the buffer zone for RPM, SPM, SO<sub>2</sub>, NO<sub>x</sub> monitoring. Location of the stations should be decided based on the metrological data, topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board

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

Condition 4- Data on ambient air quality (RPM, SPM, SO<sub>2</sub>, NO<sub>x</sub>) should be regularly submitted to the Ministry including its Regional office located at Bhubneshwar and the State Pollution Control Board / Central pollution Control Board once in six months.

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

Condition 5- Fugitive dust emission from all the sources should be controlled regularly. Water spraying arrangements on haul roads, loading and unloading and at transfer points should be provided and properly maintained.

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



Water Tanker for dust suppression

Condition 6- Measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in operation of HEMM, etc. should be provided with ear plug / muffs.

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

Condition 7- Industrial wastewater (workshops and wastewater from the mine) Should be properly collected and treated so as to conform to the standards prescribed under GSR 422 (E) dated 19<sup>th</sup> May 1993 and 31<sup>st</sup> December 1993 or as amended from time to time. Oil and grease traps should be installed before discharge of workshop effluents.

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

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



Washing Ramp with Oil and Grease trap

Condition 8- Personnel working in dusty areas should wear protective respiratory devices and they should also provide with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.

**Reply to Condition 8-** All the workers have been provided with PPEs including dust mask and dust respirators. Apart from PPEs distribution to all workers, we are also providing adequate safety training and conducting awareness session on Safety and health aspects on regular basis. Periodical Occupational health surveillance program of the workers is being carried out and records maintained as per statute.

Condition 9- A separate environmental management cell with suitable qualified personnel should be set up under the control of a Senior Executive, who will report directly to the Head of the Organization.

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

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

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

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

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

Condition 12- The Regional Office of this Ministry located at Bhubaneshwar shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information / monitoring reports.

Reply to Condition 12- Noted and Agreed.

Condition 13- A copy of clearance letter will be marked to concerned Panchayat / local NGO, if any, from whom suggestion / representation has been received while processing the proposal.

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

Condition 14- State Pollution Control Board should display a copy of the clearance letter at the Regional office, District Industry Center and Collector's office / Tehsildar's Office for 30 days.

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

Condition 15- The project authorities should advertise at least in two local newspapers widely circulated, one of which locality concerned, within 7days of the issue of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and also at web site of the Ministry of Environment and Forests at <a href="http://envfor.nic.in">http://envfor.nic.in</a> and a copy of the same should be forwarded to the Regional Office of this Ministry located Bhubaneshwar.

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

### Annexure 1

Piez	Piezometer Reading - Gurdari Bauxite Mine					
S No	Month	Depth (meter)				
1	Oct-23	31.55				
2	Nov-23	31.05				
3	Dec-23	31.75				
4	Jan-24	32.17				
5	Feb-24	32.58				
6	Mar-24	33.15				



PLOT NO-30, MANSARDVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (IHARKHAND) 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/2023/4365	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/3796 : Entrance Gate/Near Mine Office Gurdari Bauxite Mine (584.19ha)
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 05,10,2023 to 06,10,2023 : 17,10,2023
Mines Status	: Operational	Type of Sample Sampling Procedure Sample Drawn By	: Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.
Period of Analysis	: 17.10.2023 to 23.10.2023	Sample Condition	: Sealed & Preserved

M	ETEOROLOGICAL INFO	RMATION			
1.	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 58	4	Weather Condition	; Clear
5	Longitude	: 84°14'43.25"N	6	Latitude	: 23°19'0.21"E

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	51	100 (24hrs)	
Particulate Matter (PM2,5)	µg/m³	IS 5182 (Part- 24): 2019	25	60 (24hrs)	
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part-2): 2001; RA2022	6.1	80 (24hrs)	
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part-6): 2006; RA2022	17.5	80 (24hrs)	
Ozone (O <sub>3</sub> )	μg/m <sup>5</sup>	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)	
Ammonia (NH <sub>3</sub> )	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	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 (JHARKHAND) GST NO:- 20AAECE9713D124

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

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

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Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

Discipline : Chemi	Group:	Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C <sub>6</sub> H <sub>6</sub> )*	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 Kurnar Sinha Ph. D. Environmental Boda ELES Pvi. Utd. Technical Manager

Page 2 of 2

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

## ENGINEERING SERVICES PVT. LTD.

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

Website: www.elespl.co.in

### TEST REPORT

Test Report No.	: ELES/RNC/2023/4366	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/3797 : Near Kathuwapani Pit-23 Gurdari Bauxite Mine (584.19ha)	
Address	ress : Lohardaga, Jharkhand-835302 Sampling Date Sample Received Da		: 05.10.2023 to 06.10.2023	
Mines Status	: Operational	Type of Sample Sampling Procedure Sample Drawn By	: Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.	
Period of Analysis	: 17.10.2023 to 23.10.2023	Sample Condition	: Sealed & Preserved	

M	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	:742
3	Relative Humidity (%)	: 58	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	55	100 (24hrs)		
Particulate Matter (PM2,5)	μg/m³	IS 5182 (Part- 24): 2019	29	60 (24hrs)		
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part-2): 2001; RA2022	6.4	80 (24hrs)		
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part-6): 2006; RA2022	19.1	80 (24hrs)		
Ozone (O <sub>3</sub> )	μg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)		
Ammonia (NH <sub>3</sub> )	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	0.012	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)		

#### Page 1 of 2

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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 Website: www.elespl.co.in

### TEST REPORT

Test Report No.	: ELES/RNC/2023/4366	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 <sub>6</sub> H <sub>6</sub> )*	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 b

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

Authorised Signatory

Dr. Deependrik Kurgar Sinha

Fh. D. Environmental Enga ELES Pvr. Ltd. Technical Manager

### Page 2 of 2

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## ENGINEERING SERVICES PVT. LTD.

Email: Info@elespl.co.in , eles.ranchi@gmail.com Phone na.: 0651-2290103

Website: www.elespl.co.in

#### TEST REPORT

Test Report No.	: ELES/RNC/2023/4367	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/3798 : Near Mine Weigh Bridge Gurdari Bauxite Mine (584.19ha)	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 05.10.2023 to 06.10.2023 : 17.10.2023	
Mines Status	: Operational	Type of Sample Sampling Procedure Sample Drawn By	: Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.	
Period of Analysis	: 17.10.2023 to 23.10.2023	Sample Condition	: Sealed & Preserved	

MI	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg	742
3	Relative Humidity (%)	: 58	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	59	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	(S 5182 (Part- 24): 2019	32	60 (24hrs)	
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part-2): 2001; RA2022	6.4	80 (24hrs)	
Nitrogen Di-Oxide (NO <sub>1</sub> )	μg/m³	IS 5182 (Part-6): 2006; RA2022	20.1	80 (24hrs)	
Ozone (O <sub>3</sub> )	μg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)	
Ammonia (NH <sub>3</sub> )	μg/m <sup>‡</sup>	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 <sup>1</sup>	IS 5182 (Part-22): 2004; RA2019	0.010	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)	

#### Page 1 of 2

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## ENGINEERING SERVICES PVT. LTD.

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

Website: www.elespl.co.in

### TEST REPORT

Test Report No.	: ELES/RNC/2023/4367	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 <sub>6</sub> H <sub>6</sub> )*	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.

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

Authorised Signatory

Dr. Deependra Kumai Sinha

Ph. D. Environmental Empo El Es Pvt. Ltd. Technical Manager

Page 2 of 2

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### ENGINEERING SERVICES PVT. LTD.

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

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

### TEST REPORT

Test Report No.	: ELES/RNC/2023/4368	Report Release Date	: 22.11.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DET/	AILS	SAMPLE DETAILS		
Customer Name Address	: Hindalco Industries Limited : Lohardaga, Jharkhand-835302	Sample Ref. No. Location	: ELES/RNC/2023/AA/3799 : Near Ambakana Pit / NKCPL Camp; Gurdari Bauxite Mine (584,19ha)	
Audiess	: Lonardaga, markhand-633302	Sampling Date Sample Received Date	: 05.10.2023 to 06.10.2023 : 17.10.2023	
Mines Status	: Operational	Type of Sample Sampling Procedure	: Ambient Air : ELES/DOC/SMPL/02	
Period of Analysis	: 17.10.2023 to 23.10.2023	Sample Drawn By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved	

METEOROLOGICAL INFORMATION						
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mm)	Hg) = 742	
3	Relative Humidity (%)	: 58	4	Weather Condition	: Clear	

Discipline : Chemica	al	Group: A	Atmospheric .	Pollution
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	μg/m³	IS 5182 (Part-23): 2006; RA2022	56	100 (24hrs)
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	33	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part-2); 2001; RA2022	6.2	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part-6): 2006; RA2022	19.1	80 (24hrs)
Ozone (O <sub>3</sub> )	μg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	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	0.009	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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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST ND:- 2044ECE9713D124

### 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/RNC/2023/4368	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 <sub>6</sub> H <sub>6</sub> )*	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 Kumai Siriha Ph. D. Environmunist Edgo ELES Pvi. Lin. Trichnical Manager

Page 2 of 2

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PLOT NO 30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (IHARKHAND) GST NG - ZONASCENTISDIZA

## ENGINEERING SERVICES PVT. 27D.

Emall: Info@eiespl.co.la., eies.ronchi@amail.com Phone no.: 0651-2250103 Website: www.eiesel.co.in

### TEST REPORT

Test Report No.	: ELES/RNC/2023/4369	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 Sampling Date	: ELES/RNC/2023/AA/3800 : Near Pakri Gada Village : 05.10.2023 to 06.10.2023
Address	: Lohardaga, Jharkhand-835302	Sample Received Date Type of Sample Sampling Procedure	: 17.10.2023 : Ambient Air : ELES/DOC/SMPL/02
Mines Status	: Operational	Sample Drawn By	: ELES Pvt. Ltd.
Period of Analysis	: 17.10.2023 to 23.10.2023	Sample Condition	: Sealed & Preserved

M	ETEOROLOGICAL INFO	RMATION			
1	Average Temperature (*C)	:25	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 58	4	Weather Condition	: Clear
5	Longitude	: 84°14'52,25"N	6	Latitude	: 23°17'41.21"E

Discipline: Chemica	al .	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	31	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part-2); 2001; RA2022	6.4	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part-6); 2006; RA2022	23.8	80 (24hrs)
Ozone (O <sub>3</sub> )	mg/m3	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mig/m <sup>3</sup>	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)
Arsenie (A4)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)

Page 1 of 2

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Email: Info@elesal.co.in \_eles.ranchi@amail.com Phone no.: 0651-2290103 Website: www.elespl.so.in

### TEST REPORT

Test Report No.	: ELES/RNC/2023/4369	Report Release Date	: 22.11.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

Discipline : Chemi	cai	Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Benzene (C <sub>6</sub> H <sub>6</sub> ) <sup>6</sup>	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

- Lieependre Garrini olipha Phili Tomor of Pos Shiri 141 Demical Manager

Page 2 of 2

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PKOT NO 30, MANSAROVAR ENGLAVE, TURUDANA HATIA, RANCHIGAGOS (IHARRHAND) EST NO:- 20ALECESTISSISA Email: Info@elespi.co.in eles.ranchi@amail.com

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

### TEST REPORT

Test Report No.	: ELES/RNC/2023/4370	Report Release Date	: 22.11.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04,2023	

CUSTOMER DET	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location Sampling Date	: ELES/RNC/2023/AA/3801 : Near Pol Pol Village : 05.10.2023 to 06.10.2023
Address	: Lohardaga, Jharkhand-835302	Sample Received Date Type of Sample	: 17.10.2023 : Ambient Air
Mines Status	: Operational	Sampling Procedure Sample Drawn By	: ELES/DOC/SMPL/02 : ELES Pvt. Ltd.
Period of Analysis	: 17.10.2023 to 23.10.2023	Sample Condition	: Sealed & Preserved

MI	ETEOROLOGICAL INFORMAT	TON		
1	Average Temperature (°C) : 25	2.	Barometric Pressure (mmH	g) : 742
3	Relative Humidity (%) : 58	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	29	60 (24hrs)	
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m³	IS 5182 (Part-2); 2001; RA2022	6.2	80 (24hrs)	
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	1S 5182 (Part-6); 2006; RA2022	19.1	80 (24hrs)	
Ozone (O <sub>3</sub> )	μg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)	
Ammonia (NH <sub>3</sub> )	pg/m <sup>2</sup>	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)	

#### Page 1 of 2

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Email: info@elespl.ca.in , e)es.ranchi@amail.cam Phone na:: 0651-2290103 Website : www.elespl.co.in

### TEST REPORT

Test Report No.	: ELES/RNC/2023/4370	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 <sub>6</sub> H <sub>6</sub> )*	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: (4)-Parameters are outsourced to other Lab.

Reviewed by

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

Authorised Signatory

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- SERVI H. Tierlinical Manager

Page 2 of 2

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (HARKHANO) GST NO: 20AA8C207130124 ENGINEERING SERVICES PUT AND

Email: infa@elesal.co.ln . elex.ranchl@amail.com Phone no.: 0651-2290103 Website : www.elesal.co.ln

## TEST REPORT

Test Report No.	: ELES/RNC/2023/4371	Report Release Date	: 22.11.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DETA	AILS	SAMPLE DETAILS		
Customer Name	: Hindaico Industries Limited	Sample Ref. No. Location Sampling Date	: ELES/RNC/2023/AA/3802 : Near Shakhuapani Village : 06.10.2023 to 07.10.2023	
Address	: Lohardaga, Jharkhand-835302	Sample Received Date Type of Sample Sampling Procedure	: 17.10.2023 : Ambient Air : ELES/DOC/SMPL/02	
Mines Status	: Operational	Sampling Procedure Sample Drawn By	: ELES PVL Ltd.	
Period of Analysis	: 17.10,2023 to 23.10,2023	Sample Condition	: Sealed & Preserved	

MI	ETEOROLOGICAL INFO	RMATION			
1	Average Temperature (°C)	:25	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 58	. 4	Weather Condition	: Clear

Discipline: Chemica	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 (Parts 24): 2019	22	60 (24hrs)	
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part-2); 2001; RA2022	5.9	80 (24hrs)	
Nitrogen Di-Oxide (NO2)	μg/m³	IS 5182 (Part-6): 2006; RA2022	22.7	80 (24hrs)	
Ozone (O <sub>3</sub> )	μg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)	
Ammonia (NH <sub>2</sub> )	µg/m²	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)	
Lead (Pb)	μg/m³	IS 5182 (Part-22): 2004; RA2019	0.008	1 (24hrs)	
Nickel (Ni)	ng/m¹	15 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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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (INARKHANII) GST NO:- 30A466E97130124

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### TEST REPORT

Test Report No.	; ELES/RNC/2023/4371	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 <sub>6</sub> H <sub>6</sub> )*	μg/m³	IS 5182 (Part-11)2006;RA2017	<1.0	05(Annual)	
Benzo-(a)-Pyrene+	ng/m <sup>1</sup>	IS 5182 (Part-12)2004;RA2019	<0.5	01(Annual)	

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

Reviewed by

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

Authorised Signatory

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## TEST REPORT

Test Report No.	: ELES/RNC/2023/4372	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 Sampling Date	: ELES/RNC/2023/AA/3803 : Near Dipa Kujam Village : 06.10.2023 to 07.10.2023
Address	: Lohardaga, Jharkhand-835302	Sample Received Date Type of Sample Sampling Procedure	: 17,10.2023 : Ambient Air : ELES/DOC/SMPL/02
Mines Status	: Operational	Sample Drawn By	: ELES Pvt. Ltd.
Period of Analysis	: 17.10.2023 to 23.10.2023	Sample Condition	: Sealed & Preserved

MI	ETEOROLOGICAL INFORMATION			
1	Average Temperature (°C) : 25	2	Barometric Pressure (mm	Hg) : 742
3	Relative Humidity (%) : 58	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	48	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	24	60 (24hrs)	
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part-2): 2001; RA2022	<5.0	80 (24hrs)	
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	TS 5182 (Part-6): 2006; RA2022	17.3	80 (24hrs)	
Ozone (O <sub>3</sub> )	μg/m <sup>2</sup>	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)	
Ammonia (NH <sub>3</sub> )	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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Email: Info@elesol.co.in , eles.ranchi@amail.com Phane no.: 0651-2290103

Website: www.elespl.co.in

### TEST REPORT

Test Report No.	: ELES/RNC/2023/4372	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 <sub>6</sub> H <sub>6</sub> )*	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

T. Despendre Kurner einhe St. T. Tminner in Georg of EA on 135 Technical Manager

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

Website: www.elespi.co.in



### TEST REPORT

Test Report No.	: ELES/RNC/2023/4708	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/4111 : Entrance Gate/Near Mine Office Gurdari Bauxite Mine (584.19ha)	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 03.11.2023 to 04.11.2023 : 16.11.2023	
Mines Status	: Operational	Type of Sample Sampling Procedure Sample Drawn By	: Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.	
Period of Analysis	= 16.11.2023 to 22.11.2023	Sample Condition	: Sealed & Preserved	

M	ETEOROLOGICAL INFO	RMATION			
1	Average Temperature (°C)	:21	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 53	4	Weather Condition	: Clear
5	Longitude	: 84°14'43.25"N	6	Latitude	: 23°19'0.21"E

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	59	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part-24): 2019	34	60 (24hrs)	
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m <sup>3</sup>	1S 5182 (Part-2): 2001; RA2022	7.8	80 (24hrs)	
Nitrogen Di-Oxide (NO <sub>1</sub> )	μg/m³	IS 5182 (Part-6): 2006; RA2022	20.3	80 (24hrs)	
Ozone (O <sub>3</sub> )	μg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)	
Ammonia (NH <sub>2</sub> )	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	0.011	1 (24hrs)	
Nickel (Ni)	ng/m <sup>5</sup>	IS 5182 (Part-26):2020	<6.0	20 (Annual)	
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)	

Reviewed by

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

Authorised Signatory Dr. Deependra Kumar Sinha

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

### TEST REPORT

Test Report No.	: ELES/RNC/2023/4708	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/4111 : Entrance Gate/Near Mine Office Gurdari Bauxite Mine (584.19ha)	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 03.11.2023 to 04.11.2023 : 16.11.2023	
Mines Status	: Operational	Type of Sample Sampling Procedure Sample Drawn By	: Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.	
Period of Analysis	: 16.11.2023 to 22.11,2023	Sample Condition	: Sealed & Preserved	

MI	ETEOROLOGICAL INFOI	RMATION			
1	Average Temperature (°C)	; 21	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 53	4	Weather Condition	: Clear
5	Longitude	: 84°14'43.25"N	6	Latitude	:: 23°19'0.21"E

Discipline : Chemi	cal	Group:	Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Benzene (C <sub>6</sub> H <sub>6</sub> )*	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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## TEST REPORT

Test Report No.	: ELES/RNC/2023/4709	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/4112 : Near Kathuwapani Pit-23 Gurdari Bauxite Mine (584.19ha)	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 03.11,2023 to 04.11,2023 : 16.11,2023	
Mines Status	: Operational	Type of Sample Sampling Procedure Sample Drawn By	: Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt, Ltd.	
Period of Analysis	: 16.11.2023 to 22.11.2023	Sample Condition	: Sealed & Preserved	

MI	ETEOROLOGICAL INFO	RMATION				
1	Average Temperature (°C)	: 21	2	Barometric Pressure (mm	Hg) +742	
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	62	100 (24hrs)		
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	36	60 (24hrs)		
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part-2): 2001; RA2022	8.1	80 (24hrs)		
Nitrogen Dî-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part-6): 2006; RA2022	23.4	80 (24hrs)		
Ozone (O <sub>3</sub> )	μg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)		
Ammonia (NH <sub>3</sub> )	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/m	IS 5182 (Part-22): 2004; RA2019	0.009	1 (24hrs)		
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part-26):2020	<6.0	20 (Annual)		
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01	<2.0	06 (Annual)		

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

Reviewed by

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Dr. Deependra Kumar Sinh

Page 1 of 1

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## ENGINEERING SERVICES PVT. LTD.

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

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### TEST REPORT

Test Report No.	: ELES/RNC/2023/4709	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/4112 : Near Kathuwapani Pit-23 Gurdari Bauxite Mine (584,19ha)	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample Sampling Procedure Sample Drawn By	: 03.11.2023 to 04.11.2023	
Mines Status	: Operational			
Period of Analysis	: 16.11.2023 to 22.11,2023	Sample Condition		

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C')	:21	2	Barometric Pressure (mmHg)	±742
3	Relative Humidity (%)	± 53	- 4	Weather Condition	; Clear

Discipline : Chemi	cal	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene (C <sub>6</sub> H <sub>6</sub> )*	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 Company of the Party of the Part

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

Authorised Signatory
Dr. Deependra Kumar Sinha
Ph. D Environmental Engg.
ELES Pvt. Ltd. Technical Manage\*

Page 1 of 1

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

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

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



TC-8839

#### TEST REPORT

Test Report No.	: ELES/RNC/2023/4710	Report Release Date	: 21.12.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DET	CUSTOMER DETAILS			
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4113	
		Location	: Near Mine Weigh Bridge Gurdari Bauxite Mine (584,19ha)	
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 03.11.2023 to 04.11.2023	
	Mr. and Art of Annual Co.	Sample Received Date	: 16.11.2023	
		Type of Sample	: Ambient Air	
Mines Status	: Operational	Sampling Procedure Sample Drawn By	: ELES/DOC/SMPL/02 : ELES Pvt. Ltd.	
Period of Analysis	: 16.11.2023 to 22.11.2023	Sample Condition	: Sealed & Preserved	

MI	ETEOROLOGICAL INFORMATION			
1	Average Temperature ("C) : 21	2	Barometric Pressure (mn	nHg) : 742
3	Relative Humidity (%) : 53	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	68	100 (24hrs)		
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	41	60 (24hrs)		
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m <sup>3</sup>	1S 5182 (Part-2); 2001; RA2022	7.5	80 (24hrs)		
Nitrogen Di-Oxide (NO <sub>z</sub> )	μg/m³	IS 5182 (Part-6): 2006; RA2022	23.7	80 (24hrs)		
Ozone (O <sub>3</sub> )	μg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)		
Ammonia (NH <sub>3</sub> )	μg/m³	15 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	0.007	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)		

atories a Reviewed by

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

Authorised Signatory Dr. Deependra Kumar Sinha

i. D Environmental Engg

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.co.in , eles.ranchi@gmail.com

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

#### TEST REPORT

Test Report No.	: ELES/RNC/2023/4710	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/4113 : Near Mine Weigh Bridge Gurdari Bauxite Mine (584.19ha)	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 03.11.2023 to 04.11.2023 : 16.11.2023	
Mines Status	; Operational	Type of Sample Sampling Procedure Sample Drawn By	: Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.	
Period of Analysis	; 16.11.2023 to 22.11.2023	Sample Condition	: Sealed & Preserved	

MI	ETEOROLOGICAL INFO	RMATION			
1	Average Temperature (°C)	:21	- 2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 53	4	Weather Condition	: Clear

Discipline: Chemi	cal	Group:	Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Benzene (C <sub>6</sub> H <sub>6</sub> )*	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.

AVES & E

Reviewed by

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

### ENGINEERING SERVICES PVT. LTD.

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

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



TEST REPORT

THE STATE OF THE S				
Test Report No.	: ELES/RNC/2023/4711	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.	: ELES/RNC/2023/AA/4114	
Address	: Lohardaga, Jharkhand-835302	Location	: Near Ambakana Pit / NKCPL Camp; Gurdari Bauxite Mine (584.19ha)	
		Sampling Date Sample Received Date	: 03,11,2023 to 04,11,2023 : 16,11,2023	
Mines Status	: Operational	Type of Sample Sampling Procedure	: Ambient Air : ELES/DOC/SMPL/02	
Period of Analysis	: 16.11.2023 to 22.11.2023	Sample Drawn By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved	

M	ETEOROLOGICAL INFOR	RMATION			
1	Average Temperature (°C)	:21	2	Barometric Pressure (mmHg)	: 742
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	59	100 (24hrs)		
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	37	60 (24hrs)		
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	1S 5182 (Part-2): 2001; RA2022	6.9	80 (24hrs)		
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part-6): 2006; RA2022	22.5	80 (24hrs)		
Ozone (O <sub>3</sub> )	µg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)		
Ammonia (NH <sub>3</sub> )	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	0.011	1 (24hrs)		
Nickel (Ni)	ng/m³	IS 5182 (Part-26):2020	<6.0	20 (Annual)		
Arsenic (As)	ng/m <sup>1</sup>	ELES/AIR/SOP/01	<2.0	06 (Annual)		

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

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Dr. Deependra Kumar Sinha

Pr. D Environmental Engg.

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Page 1 of 1



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

### ENGINEERING SERVICES PVT. LTD.

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

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

#### TEST REPORT

Test Report No.	: ELES/RNC/2023/4711	Report Release Date	: 21.12.2023			
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023			

CUSTOMER DETA	AILS	SAMPLE DETAILS		
Çustomer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/4114 : Near Ambakana Pit / NKCPL Camp; Gurdari Bauxite Mine	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample	(584.19ha) : 03.11.2023 to 04.11.2023 : 16.11.2023 : Ambient Air	
Mines Status	: Operational	Sampling Procedure	: ELES/DOC/SMPL/02	
Period of Analysis	: 16.11.2023 to 22.11.2023	Sample Drawn By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved	

MI	ETEOROLOGICAL INFOR	RMATION			
1.	Average Temperature (°C)	: 21	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 53	4	Weather Condition	: Clear

Discipline : Chemi	cal	Group:	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit			
Benzene (C <sub>6</sub> H <sub>6</sub> )*	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

Page 1 of 1

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO.-2044ECE9713D124

### ENGINEERING SERVICES FYT, LTD.

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

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



Test Report No.	: ELES/RNC/2023/4712	Report Release Date	: 21.12.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

TEST REPORT

CUSTOMER DETA	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location Sampling Date	: ELES/RNC/2023/AA/4115 : Near Pakri Gada Village : 05,11,2023 to 06,11,2023	
Address	: Lohardaga, Jharkhand-835302	Sample Received Date Type of Sample Sampling Procedure	: 16.11.2023 : Ambient Air : ELES/DOC/SMPL/02	
Mines Status	: Operational	Sample Drawn By	: ELES Pvt. Ltd.	
Period of Analysis	: 16.11.2023 to 22.11.2023	Sample Condition	: Sealed & Preserved	

MI	ETEOROLOGICAL INFOR	RMATION			
1	Average Temperature (°C)	:21	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 53	4	Weather Condition	: Clear
5	Longitude	: 84°14'52.25"N	6	Latitude	: 23°17'41.21"E

Discipline: Chemica	ıl	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	1S 5182 (Part- 24): 2019	34	60 (24hrs)		
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part-2): 2001; RA2022	7.1	80 (24hrs)		
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part-6): 2006; RA2022	24.3	80 (24hrs)		
Ozone (O <sub>3</sub> )	µg/m³	1S 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)		
Ammonia (NH <sub>3</sub> )	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)		

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

Reviewed by

Authorised Signatory 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 (IHARKHAND) 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/2023/4712	Report Release Date	: 21.12.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DET.	AILS	SAMPLE DETAILS	
Customer Name	3 Hindalco Industries Limited	Sample Ref. No. Location Sampling Date	: ELES/RNC/2023/AA/4115 : Near Pakri Gada Village : 05.11.2023 to 06.11.2023
Address	: Lohardaga, Jharkhand-835302	Sample Received Date Type of Sample Sampling Procedure	: 16.11.2023 : Ambient Air : ELES/DOC/SMPL/02
Mines Status	: Operational	Sample Drawn By	: ELES Pvt. Ltd.
Period of Analysis	: 16.11.2023 to 22.11.2023	Sample Condition	: Sealed & Preserved

M	ETEOROLOGICAL INFO	RMATION			
1	Average Temperature (°C)	; 21	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 53	-4	Weather Condition	: Clear
5	Longitude	: 84°14'52.25"N	6	Latitude	: 23°17'41.21"E

Discipline: Chemi	cal	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene (C <sub>s</sub> H <sub>6</sub> )*	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
Ph. D Environmental Engg.

ELES Pvt. Ltd. Technical Manager

Page 1 of 1

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*WIRONMENTAL LABO* 

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) G5T NO. 2044ECR97130174



Email, info@elespl.co in , eles ranchi@amail.com

Phone no.: 0651-2290103 Website: www.ziespl.ca.in.



TEST REPORT

Test Report No.	: ELES/RNC/2023/4713	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 Sampling Date	: ELES/RNC/2023/AA/4116 : Near Pol Pol Village : 05.11.2023 to 06.11.2023
Address	: Lohardaga, Jharkhand-835302	Sample Received Date Type of Sample Sampling Procedure	: 16.11.2023 : Ambient Air : ELES/DOC/SMPL/02
Mines Status	t Operational	Sample Drawn By	: ELES Pvt. Ltd.
Period of Analysis	: 16.11.2023 to 22.11.2023	Sample Condition	: Sealed & Preserved

MI	TEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	:21	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 53	4	Weather Condition	: Clear

Discipline: Chemica	rl	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	27	60 (24hrs)	
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part-2): 2001; RA2022	6.8	80 (24hrs)	
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	JS 5182 (Part-6): 2006; RA2022	22.5	80 (24hrs)	
Ozone (O <sub>3</sub> )	µg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)	
Ammonia (NH <sub>3</sub> )	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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Page 1 of 1

Authorised Signatory Dr. Deependra Kumar Sinha

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EVEERING SERVICES PVT. LTD.

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

Website : www.elespi.co.in

TEST REPORT

Test Report No.	: ELES/RNC/2023/4713	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 Sampling Date	: ELES/RNC/2023/AA/4116 : Near Pol Pol Village : 05.11.2023 to 06.11.2023
Address	; Lohardaga, Jharkhand-835302	Sample Received Date Type of Sample Sampling Procedure	: 16.11.2023 : Ambient Air : ELES/DOC/SMPL/02
Mines Status	: Operational	Sample Drawn By	: ELES Pvt. Ltd.
Period of Analysis	: 16.11.2023 to 22.11.2023	Sample Condition	: Sealed & Preserved

Mi	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	:21	-2	Barometric Pressure (mmHg	742
3	Relative Humidity (%)	: 53	- 4	Weather Condition	: Clear

Discipline: Chemi	cal	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene (C <sub>8</sub> H <sub>6</sub> )*	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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Email: Info@elespl.co.In . eles,ranchi@gmall.com

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



#### TEST REPORT

Test Report No.	: ELES/RNC/2023/4714	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/4117 : Near Shakhuapani Village
Addesse		Sampling Date	: 06.11.2023 to 07.11.2023

Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample Sampling Procedure	: 06.11.2023 to 07.11.2023 : 16.11.2023 : Ambient Air : ELES/DOC/SMPL/02
Mines Status	: Operational	Sample Drawn By	: ELES Pvt. Ltd.
Period of Analysis	: 16.11.2023 to 22.11.2023	Sample Condition	: Sealed & Preserved

M	ETEOROLOGICAL INFOR	MATION			
1.	Average Temperature (°C)	:21	2	Barometric Pressure (mmHg	() : 742
3	Relative Humidity (%)	: 53	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	55	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	26	60 (24hrs)	
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part-2): 2001; RA2022	6.4	80 (24hrs)	
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part-6): 2006; RA2022	24.1	80 (24hrs)	
Ozone (O <sub>3</sub> )	μg/m³	IS 5182 (Part-9); 1974; RA2019	<20.0	100 (8hrs)	
Ammonia (NH <sub>3</sub> )	μg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m <sup>1</sup>	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)	
Lead (Pb)	μg/m³	IS 5182 (Part-22); 2004; RA2019	0.005	1 (24hrs)	
Nickel (Ni)	ng/m²	IS 5182 (Part-26):2020	<6.0	20 (Annual)	
Arsenic (As)	ng/m <sup>4</sup>	ELES/AIR/SOP/01	<2.0	06 (Annual)	

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### ENGINEERING SERVICES PYT. LTD.

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

#### TEST REPORT

Test Report No.	: ELES/RNC/2023/4714	Report Release Date	: 21.12.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DETA	AILS	SAMPLE DETAILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location Sampling Date	: ELES/RNC/2023/AA/4117 : Near Shakhuapani Village : 06.11.2023 to 07.11.2023		
Address	: Lohardaga, Jharkhand-835302	Sample Received Date Type of Sample Sampling Procedure	: 16.11,2023 : Ambient Air : ELES/DOC/SMPL/02		
Mines Status	: Operational	Sample Drawn By	: ELES Pvt. Ltd.		
Period of Analysis	; 16.11.2023 to 22.11.2023	Sample Condition	: Sealed & Preserved		

MI	ETEOROLOGICAL INFOR	RMATION			
1	Average Temperature ("C)	1.21	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 53	4	Weather Condition	: Clear

Discipline: Chemi	cal	Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Benzene (C <sub>6</sub> H <sub>8</sub> )*	µg/m²	IS 5182 (Part-11)2006; RA2017	<1.0	05(Annual)	
Benzo-(a)-Pyrene*	ng/m <sup>1</sup>	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 Ph. D Environmental Engg. ELES Pvt. Ltd. Technical Manager

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

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



TEST REPORT

Test Report No.	: ELES/RNC/2023/4715	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 Sampling Date	: ELES/RNC/2023/AA/4118 : Near Dipa Kujam Village : 06.11.2023 to 07.11.2023	
Address	: Lohardaga, Jharkhand-835302	Sample Received Date Type of Sample Sampling Procedure	: 16.11.2023 : Ambient Air : ELES/DOC/SMPL/02	
Mines Status	: Operational	Sample Drawn By	: ELES Pvt. Ltd.	
Period of Analysis	: 16.11.2023 to 22.11.2023	Sample Condition	: Sealed & Preserved	

M	ETEOROLOGICAL INFO	RMATION			
1	Average Temperature (°C)	:21	2	Barometric Pressure (mmH	g) : 742
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	1S 5182 (Part-23): 2006; RA2022	54	100 (24hrs)		
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	29	60 (24hrs)		
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part-2); 2001; RA2022	6.4	80 (24hrs)		
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part-6): 2006; RA2022	19.7	80 (24hrs)		
Ozone (O <sub>3</sub> )	µg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)		
Ammonia (NH <sub>3</sub> )	µg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)		
Carbon Monoxide (CO)	mg/m <sup>3</sup>	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/m <sup>3</sup>	JS 5182 (Part-26):2020	<6.0	20 (Annual)		
Arsenie (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)		

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Dr. Deeleriora Vierrerosinha

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CNV: U74999/H2018P7C011133

## ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE TUPLIDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 204AECE9713D274

## ENGINEERING SERVICES PYT. LTD.

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

Website: www.elespl.co.in

#### TEST REPORT

Test Report No.	: ELES/RNC/2023/4715	Report Release Date	: 21.12.2023	
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 Sampling Date	: ELES/RNC/2023/AA/4118 : Near Dipa Kujam Village : 06.11.2023 to 07.11.2023		
Address	: Lohardaga, Jharkhand-835302	Sample Received Date Type of Sample	: 16.11.2023 : Ambient Air		
Mines Status	: Operational	Sampling Procedure Sample Drawn By	: ELES/DOC/SMPL/02 : ELES Pvt, Ltd.		
Period of Analysis	: 16.11.2023 to 22.11.2023	Sample Condition	: Sealed & Preserved		

M	ETEOROLOGICAL INFORMATION			
1	Average Temperature (°C) : 21	-2	Barometric Pressure (mm	nHg) : 742
3	Relative Humidity (%) : 53	4	Weather Condition	: Clear

Discipline: Chemi	eal	Group: Atmospheric Poliution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene (C <sub>6</sub> H <sub>6</sub> )*	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 Manage

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### 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/RAN/2023/3115	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/3002 : 03.11,2023 : 16.11,2023	
Address	; Lohardaga, Jharkhand-835302	Type of Sample Source/Location of Sample	: Drinking Water : Gurdari Bauxite Mines (584,19ha)	
Mines Status	: Operational	Sampling Procedure Sample Collected By	: ELES/DOC/SMPL/0) : ELES Pvt. Ltd.	
Period of Analysis	: 16.11.2023 to 05.12.2023	Sample Condition	† Sealed & Preserved	

Discipline : Chem	ical	Group : Water			ory Limit 10500:2012
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
pH (at 24.8 °C)	9.1	APHA 23 <sup>rd</sup> Ed.2017, 4500-H <sup>+</sup>	6,58	6.5-8.5	No Relaxation
Turbidity	NTU	APHA 23 <sup>rd</sup> Ed.2017, 2130 B	0.24	1.0	5.0
Taste	. 6.	APHA 23rd Ed.2017, 2160 C	Agreeable	Agreeable	Agreeable
Odour	1	IS 3025 (Part-5) :2018	Agreeable	Agreeable	Agreeable
Colour	Hazen	APHA 23rd Ed.2017, 2120B&D	1.0	5	15
Total Dissolved Solids (TDS)	mg/L	APHA 23rd Ed.2017, 2540B,C&D	112	500	2000
Chloride (as CI)	mg/L	APHA 23rd Ed.2017, 4500 CI B	18.8	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 <sub>3</sub> )	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 2320 B	50.8	200	600
Total Hardness (as CaCO <sub>1</sub> )	mg/L	APHA 23rd Ed,2017, 2340 C	62.4	200	600
Sulphate (as SO <sub>4</sub> )	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 4500 SO <sub>4</sub> -2-E	3.8	200	400
Nitrate (as NO <sub>3</sub> )	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 4500 NO <sub>3</sub> -B	BDL (DL: 0.5)	45	No Relaxation
Phenolic Compound (as C <sub>6</sub> H <sub>5</sub> OH)	mg/L	1S 3025 (Part-43):1992;RA2019	BDL (DL: 0.0005)	0.001	0.002

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

### ENGINEERING SERVICES PVT. LTD.

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

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

#### TEST REPORT

Test Report No. : ELES/RAN/2023/3115 Report Release Date : 21.12.2023

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 <sup>rd</sup> 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 <sup>rd</sup> Ed.2017, 3500 Ca B	5.8	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)	10.0	No Relaxation
Boron (as B)	mg/L	IS 3025(Part-57); 2005; RA2021	BDL (DL: 0.2)	0.5	1.0
Cadmium (as Cd)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 3111B	BDL (DL: 0.003)	0.003	No Relaxation
Total Chromium (as Cr)	mg/L	APHA 23 <sup>rd</sup> Ed,2017, 3111B	BDL (DL: 0.03)	0.05	No Relaxation
Copper (as Cu)	mg/L	APHA 23rd Ed.2017, 3111B	BDL (DL: 0.03)	0.05	1.5
Iron (as Fe)	mg/L	APHA 23rd Ed,2017,3111B	0.327	1.0	1.0
Lead (as Pb)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 3111B	BDL (DL: 0.01)	0.01	No Relaxation
Manganese (as Mn)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 3111B	BDL (DL: 0.05)	0.1	0.3
Mercury (as Hg)	mg/L	IS 3025 (Part-48): 1994; RA2019	BDL (DL: 0.001)	0.001	No Relaxation
Selenium (as Se)	mg/L	IS 3025 (Part-56): 2003; RA2019	BDL (DL: 0.01)	0.01	No Relaxation
Zinc (as Zn)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 3111B	BDL (DL: 0.1)	5	15

Remarks: I, pH & RFC done at Lab.

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20A4ECE9713D1Z4

#### ENGINEERING SERVICES PVT. LTD.

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

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

#### TEST REPORT

Test Report No.	: ELES/RAN/2023/3115	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				
Alachlor*	μg/L	APHA	BDL (DL: 1.0)	20
Atrazine*	μg/L	АРНА	BDL (DL: 1.0)	2.
Aldrin/Dieldrin*	μg/L	APHA	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	APHA	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	APHA	BDL (DL: 0.1)	0.4
Ethion*	μg/L	APHA	BDL (DL: 0.5)	3
Gamma HCH (Lindane)*	μg/L	APHA	BDL (DL: 0.5)	2
Isoproturon*	μg/L	APHA	BDL (DL; 0.5)	9

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

### ENGINEERING SERVICES PVT. LTD.

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

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

#### TEST REPORT

Test Report No.	: ELES/RAN/2023/3115	Report Release Date	: 21.12.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

Discipline : Bi	iological	Group: \	Group: Water		ory Limit (0500:2012
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
Total Coliform	Per 100 mL	IS 15185:2016; RA 2021	Not Detected	ev a seci	Market 1
Escherichia Coli (E. Coli)	Per 100 mL	IS 15185:2016; RA 2021	Not Detected	Shall not be detect	
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 <sup>rd</sup> Edition	BDL (DL: 0.0001)	0.0001	No relaxation
Polychlorinated Biphenyls (PCB)*	mg/L	APHA 23 <sup>rd</sup> Edition	BDL (DL: 0.0005)	0.0005	No relaxation

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

Reviewed by

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

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

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

### ENGINEERING SERVICES PVT. LTD.

Email: info@elespl.ca.in , eles.ranchi@gmail.com Phone na.: 0651-2290103 Website : www.elespl.co.in

#### TEST REPORT

Test Report No.	: ELES/RAN/2023/3113	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.	: ELES/RAN/2023/EF/3000	
	The state of the s	Sampling Date	: 03.11.2023	
		Sample Received Date	: 16.11.2023	
Address	: Lohardaga, Jharkhand-835302	Type of Sample	: Effluent Water	
		Source of Sample	: Work Shop Effluent - Gurdar Bauxite Mines (584.19 ha)	
		Sampling Procedure	: ELES/DOC/SMPL/01	
Mines Status	: Operational	Sample Collected By	: ELES Pvt. Ltd.	
Period of Analysis	: 16.11.2023 to 25.11.2023	Sample Condition	: Sealed & Preserved	

Discipline: Chemical		Group: Pollution & Er	Group: Pollution & Environment		its – CPCB hedule VI
Parameter	Unit	Test Protocol	Result	Inland Surface Water	Land for Irrigation
Dissolved Oxygen (as DO)	mg/L	15 3025 (Part-38):1989; RA2019	5.6	-	-
Fluoride (as F)	mg/L	IS 3025 (Part-60) :2008; RA2019	0.308	2.0	***
Sulphide (as S)	mg/L	IS 3025 (Part-29):1986; RA2019	0.20	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	
Manganese (as Mn)	mg/L	APHA 23rd Ed.2017; 3111 B	BDL (DL: 0.05)	2.0	0.00
Mercury (as Hg)	mg/L	IS 3025 (Part-48) :1994; RA2019	BDL (DL: 0.001)	0.01	-
Nickel (as Ni)	mg/L	APHA 23 <sup>rd</sup> Ed.2017; 3111 B	BDL (DL: 0.01)	3.0	**



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Authorized 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, KANCHI-834003 (IHARKHAND) GST NO:- 20AAECE97130124

### ENGINEERING SERVICES PVT. LTD.

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

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



TEST REPORT

Test Report No.	: ELES/RNC/2024/0175	Report Release Date	: 15.01.2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	
ULR No.	: TC883924000000158F			

CUSTOMER DETA	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	ELES/RNC/2023/AA/4498 Entrance Gate/Near Mine Office Gurdari Bauxite Mine (584.19ha)
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 09.12.2023 to 10.12.2023 : 16.12.2023
Mines Status	: Operational	Type of Sample Sampling Procedure Sampling Done By	: Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.
Period of Analysis	: 16.12.2023 to 28.12.2023	Sample Condition	: Sealed & Preserved

M	ETEOROLOGICAL INFOI	RMATION			
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear
5	Longitude	: 84°14'43,25"N	6	Latitude	: 23°19'0.21"E

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	38	60 (24hrs)	
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part-2): 2001; RA2022	8.9	80 (24hrs)	
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part-6): 2006; RA2022	22.5	80 (24hrs)	
Ozone (O <sub>3</sub> )	μg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)	
Ammonía (NH <sub>3</sub> )	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	0.015	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\*\*\*\*

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Pli D Environmental Engl.

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#### ENGINEERING SERVICES PVT. LTD.

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

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

#### TEST REPORT

Test Report No.	: ELES/RNC/2024/0175	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/4498 : Entrance Gate/Near Mine Office Gurdari Bauxite Mine (584.19ha)
Address	; Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 09.12.2023 to 10.12.2023 : 16.12.2023
Mines Status	Operational	Type of Sample Sampling Procedure Sampling Done By	: Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.
Period of Analysis	: 16.12.2023 to 28.12.2023	Sample Condition	: Sealed & Preserved

MI	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature ("C)	: 18	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear
5	Longitude	184°14'43.25"N	6	Latitude	: 23°19'0.21"E

Discipline : Chem	ical	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene (C <sub>6</sub> H <sub>6</sub> )*	ag/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.



\*\*\*\*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:- 20A4ECE9713D1Z4

### NGINEERING SERVICES PVT. LTD.

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

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



TEST REPORT

Test Report No.	: ELES/RNC/2024/0176	Report Release Date	: 15.01.2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

ULR No. : TC883924000000159F

Reviewed by

CUSTOMER DETA	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/4499 : Near Kathuwapani Pit-23 Gurdari Bauxite Mine (584.19ha
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 09.12.2023 to 10.12.2023 : 16.12.2023
Mines Status	: Operational	Type of Sample Sampling Procedure Sampling Done By	: Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.
Period of Analysis	= 16.12.2023 to 28.12.2023	Sample Condition	: Sealed & Preserved

M	ETEOROLOGICAL INFO	RMATION			
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	:48	4	Weather Condition	: Clear

Discipline : Chemics	d'	Group: A	tmospheric	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	33	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part-2): 2001; RA2022	7.4	80 (24hrs)
Nitrogen Di-Oxide (NO2)	μg/m³	IS 5182 (Part-6): 2006; RA2022	21.8	80 (24hrs)
Ozone (O <sub>3</sub> )	μg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	μg/m <sup>1</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	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)

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

Dri Deleperiore Ramar Sinha

Ph D Environmental Engg.

Page 1 of I

ELES Pvt. Ltd. Technical Manager

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

### 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/RNC/2024/0176	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/4499 : Near Kathuwapani Pit-23 Gurdari Bauxite Mine (584.19ha)
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 09.12.2023 to 10.12.2023 : 16.12.2023
Mines Status	: Operational	Type of Sample Sampling Procedure Sampling Done By	: Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.
Period of Analysis	: 16.12.2023 to 28.12.2023	Sample Condition	: Sealed & Preserved

MI	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	. 18	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear

Discipline : Chem	ical	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene (C <sub>6</sub> H <sub>6</sub> )*	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 Engg

ELES Pvt. Ltd. Technical Management

Page 1 of 1

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### ENGINEERING SERVICES PVT. LTD.

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

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



TEST REPORT

Test Report No.	; ELES/RNC/2024/0177	Report Release Date	: 15.01.2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	
ULR No.	: TC883924000000160F			

CUSTOMER DETA	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/4500 : Near Mine Weigh Bridge Gurdari Bauxite Mine (584,19ha)
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 09.12.2023 to 10.12.2023 : 16.12.2023
Mines Status	: Operational	Type of Sample Sampling Procedure Sampling Done By	: Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.
Period of Analysis	= 16.12.2023 to 28.12.2023	Sample Condition	: Sealed & Preserved

MI	ETEOROLOGICAL INFORMATION			
1	Average Temperature (°C) : 18	2	Barometric Pressure (mml	lg) : 742
3	Relative Humidity (%) : 48	4	Weather Condition	: Clear

Discipline : Chemica	al	Group : A	Atmospheric	Pollution
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	μg/m³	IS 5182 (Part-23): 2006; RA2022	72	100 (24hrs)
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	38	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part-2): 2001; RA2022	9.2	80 (24hrs)
Nitrogen Di-Oxide (NO2)	μg/m³	IS 5182 (Part-6): 2006; RA2022	25.7	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	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	0.011	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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INES & F

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

Authorised Signatory Dr. Deependra Kumar Sinha

Page 1 of 1

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO- 20AAECE97130124 ENGINEERING SERVICES PVT. LTD.

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

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

#### TEST REPORT

Test Report No.	: ELES/RNC/2024/0177	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/4500 : Near Mine Weigh Bridge Gurdari Bauxite Mine (584.19ha)
Address	Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 09.12.2023 to 10.12.2023
Mines Status	: Operational	Type of Sample Sampling Procedure Sampling Done By	: Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.
Period of Analysis	: 16.12.2023 to 28.12.2023	Sample Condition	: Sealed & Preserved

MI	ETEOROLOGICAL INFOR	MATION			
T	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear

Discipline : Chem	ical	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene (C <sub>6</sub> H <sub>6</sub> )*	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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#### ENGINEERING SERVICES PVT. LTD.

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

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



#### TEST REPORT

Test Report No.	: ELES/RNC/2024/0178	Report Release Date	; 15.01,2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	
ULR No.	: TC883924000000161F			

CUSTOMER DETA	CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/4501 : Near Ambakana Pit / NKCPL Camp; Gurdari Bauxite Mine (584,19ha)		
Address Mines Status	: Lohardaga, Jharkhand-835302 : Operational	Sampling Date Sample Received Date Type of Sample Sampling Procedure Sampling Done By	: 09.12.2023 to 10.12.2023 : 16.12.2023 : Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.		
Period of Analysis	: 16.12.2023 to 28.12.2023	Sample Condition	: Sealed & Preserved		

MI	ETEOROLOGICAL INFO	RMATION			
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 48	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	63	100 (24hrs)		
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	40	60 (24hrs)		
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part-2): 2001; RA2022	7.2	80 (24hrs)		
Nitrogen Di-Oxide (NO <sub>1</sub> )	μg/m³	IS 5182 (Part-6): 2006; RA2022	24.2	80 (24hrs)		
Ozone (O <sub>3</sub> )	μg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)		
Ammonia (NH <sub>3</sub> )	μg/m <sup>3</sup>	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	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. Wester Sier Ruffiar Sinha

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### ENGINEERING SERVICES PVT. LTD.

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

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

#### TEST REPORT

Test Report No.	: ELES/RNC/2024/0178	Report Release Date	: 15.01.2024	
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/2023/AA/4501 : Near Ambakana Pit / NKCPL Camp; Gurdari Bauxite Mine (584.19ha)	
Address Mines Status	: Lohardaga, Jharkhand-835302 : Operational	Sampling Date Sample Received Date Type of Sample Sampling Procedure Sampling Done By	: 09.12.2023 to 10.12.2023 : 16.12.2023 : Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.	
Period of Analysis	: 16.12.2023 to 28.12.2023	Sample Condition	: Sealed & Preserved	

MI	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	3 48	4	Weather Condition	: Clear

Discipline : Chem	ical	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene (C <sub>6</sub> H <sub>6</sub> )*	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
Ph. D Environmental Engg.
ELES Pvt. Ltd. Technical Management

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) G5T NO:- 20AAECE97130124

#### ENGINEERING SERVICES PVT. LTD.

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

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



TEST REPORT

Test Report No.	: ELES/RNC/2024/0179	Report Release Date	: 15.01.2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	
ULR No.	: TC883924000000162F			

CUSTOMER DET/	CUSTOMER DETAILS		
Customer Name	:: Hindalco Industries Limited	Sample Ref. No. Location Sampling Date	: ELES/RNC/2023/AA/4502 : Near Pakri Gada Village : 09.12.2023 to 10.12.2023
Address	= Lohardaga, Jharkhand-835302	Sample Received Date Type of Sample Sampling Procedure	: 16.12.2023 : Ambient Air : ELES/DOC/SMPL/02
Mines Status	: Operational	Sampling Done By	ELES Pvt. Ltd.
Period of Analysis	: 16.12.2023 to 28.12.2023	Sample Condition	: Sealed & Preserved

M	ETEOROLOGICAL INFOR	RMATION			
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 48	- 4	Weather Condition	: Clear
5	Longitude	: 84°14'52.25"N	6	Latitude	:: 23°17'41.21"E

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	30	60 (24hrs)		
Sulphur Di-Oxide (SO <sub>1</sub> )	μg/m³	IS 5182 (Part-2): 2001; RA2022	6.9	80 (24hrs)		
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	15 5182 (Part-6): 2006; RA2022	22,5	80 (24hrs)		
Ozone (O <sub>1</sub> )	µg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)		
Ammonia (NH <sub>3</sub> )	μg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)		
Carbon Monoxide (CO)	mg/m¹	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)		
Lead (Pb)	μg/m <sup>3</sup>	IS 5182 (Part-22): 2004; RA2019	< 0.002	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)		

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

Dr. Deependra Kumar Sinha

Ph D Environmental For

Page 1 of 1 ELES Pvt. Ltd. Technical Manager
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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D1Z4

#### 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/RNC/2024/0179	Report Release Date	: 15.01.2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location Sampling Date	: ELES/RNC/2023/AA/4502 : Near Pakri Gada Village : 09.12.2023 to 10.12.2023	
Address	: Lohardaga, Jharkhand-835302	Sample Received Date Type of Sample	: 16,12.2023 : Ambient Air	
Mines Status	: Operational	Sampling Procedure Sampling Done By	: ELES/DOC/SMPL/02 : ELES Pvt. Ltd.	
Period of Analysis	:: 16.12.2023 to 28.12,2023	Sample Condition	: Sealed & Preserved	

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 48	- 4	Weather Condition	: Clear
5	Longitude	: 84°14'52.25"N	6	Latitude	: 23°17'41.21"E

Discipline: Chem	ical	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene (CsHa)*	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.

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\*\*\*\*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 (IHARKHAND) G5T NO:- 20AAECE9713D1Z4

### NGINEERING SERVICES PVT. LTD.

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

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



TEST REPORT

Test Report No.	: ELES/RNC/2024/0180	Report Release Date	: 15.01.2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	
ULR No.	· TC883924000000163F			

CUSTOMER DET	VILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location Sampling Date	: ELES/RNC/2023/AA/4503 : Near Pol Pol Village : 09.12.2023 to 10.12.2023	
Address	: Lohardaga, Jharkhand-835302	Sample Received Date Type of Sample Sampling Procedure	: 16.12.2023 : Ambient Air : ELES/DOC/SMPL/02	
Mines Status	: Operational	Sampling Done By	: ELES Pvt. Ltd.	
Period of Analysis	: 16.12.2023 to 28.12.2023	Sample Condition	: Sealed & Preserved	

MI	ETEOROLOGICAL INFORM	ATION			
1	Average Temperature (°C)	18	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	48	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	55	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	29	60 (24hrs)	
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part-2): 2001; RA2022	7.3	80 (24hrs)	
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	1S 5182 (Part-6); 2006; RA2022	24.1	80 (24hrs)	
Ozone (O <sub>3</sub> )	μg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)	
Ammonia (NH <sub>1</sub> )	μg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m²	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/m	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
Ph. D Environmental Enga.

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### 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/RNC/2024/0180	Report Release Date	: 15.01.2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location Sampling Date	: ELES/RNC/2023/AA/4503 : Near Pol Pol Village : 09.12.2023 to 10.12.2023	
Address	: Lohardaga, Jharkhand-835302	Sample Received Date Type of Sample Sampling Procedure	: 16.12.2023 : Ambient Air : ELES/DOC/SMPL/02	
Mines Status	: Operational	Sampling Done By	: ELES Pvt, Ltd.	
Period of Analysis	: 16.12.2023 to 28.12.2023	Sample Condition	: Sealed & Preserved	

M	ETEOROLOGICAL INFOR	MATION		A STATE OF THE RESERVE OF THE PARTY OF THE P	
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	1742
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear

Discipline : Chemical		Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Benzene (C <sub>6</sub> H <sub>6</sub> )*	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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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:- 20AAECE97130124

#### ENGINEERING SERVICES PVT. LTD.

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

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



TC-8839

#### TEST REPORT

Test Report No.	: ELES/RNC/2024/0181	Report Release Date	: 15.01.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883924000000164F		

CUSTOMER DETA	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location Sampling Date	: ELES/RNC/2023/AA/4504 : Near Shakhuapani Village : 09.12.2023 to 10.12.2023
Address	: Lohardaga, Jharkhand-835302	Sample Received Date Type of Sample Sampling Procedure	: 16.12.2023 : Ambient Air : ELES/DOC/SMPL/02
Mines Status	: Operational	Sampling Done By	: ELES Pvi. Lid.
Period of Analysis	: 16.12.2023 to 28.12,2023	Sample Condition	: Sealed & Preserved

MI	ETEOROLOGICAL INFOR	RMATION			
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 48	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 <sub>2</sub> )	µg/m³	IS 5182 (Part-2): 2001; RA2022	7.1	80 (24hrs)		
Nitrogen Di-Oxide (NO <sub>1</sub> )	μg/m³	IS 5182 (Part-6): 2006; RA2022	26.3	80 (24hrs)		
Ozone (O <sub>3</sub> )	μg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)		
Ammonia (NH <sub>3</sub> )	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 <sup>3</sup>	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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Dr. Deependra Kumar Sinha

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

#### ENGINEERING SERVICES PVT. LTD.

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

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

#### TEST REPORT

Test Report No.	: ELES/RNC/2024/0181	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 Sampling Date	: ELES/RNC/2023/AA/4504 : Near Shakhuapani Village : 09.12.2023 to 10.12.2023
Address	: Lohardaga, Jharkhand-835302	Sample Received Date Type of Sample Sampling Procedure	: 16.12.2023 : Ambient Air : ELES/DOC/SMPL/02
Mines Status	: Operational	Sampling Done By	: ELES Pvt. Ltd.
Period of Analysis	; 16,12,2023 to 28,12,2023	Sample Condition	: Sealed & Preserved

MI	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	±742
3	Relative Humidity (%)	: 48	4	Weather Condition	‡ Clear

Discipline : Chem	ical	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene (C <sub>6</sub> H <sub>6</sub> )*	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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#### ENGINEERING SERVICES PVT, LTD.

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

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



#### TEST REPORT

Test Report No.	: ELES/RNC/2024/0182	Report Release Date	: 15.01.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883924000000165F		

CUSTOMER DETA	AILS	SAMPLE DETAILS	The state of the state of the state of
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location Sampling Date	: ELES/RNC/2023/AA/4505 : Near Dipa Kujam Village : 09.12.2023 to 10.12.2023
Address	: Lohardaga, Jharkhand-835302	Sample Received Date Type of Sample Sampling Procedure	: 16.12.2023 : Ambient Air : ELES/DOC/SMPL/02
Mines Status	: Operational	Sampling Done By	: ELES Pvt. Ltd.
Period of Analysis	: 16.12.2023 to 28.12,2023	Sample Condition	: Sealed & Preserved

MI	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear

Discipline : Chemica	al	Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	μg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2022	58	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	32	60 (24hrs)	
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part-2): 2001; RA2022	6.9	80 (24hrs)	
Nitrogen Di-Oxide (NO2)	μg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	22.1	80 (24hrs)	
Ozone (O <sub>3</sub> )	μg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)	
Ammonia (NH <sub>3</sub> )	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	0.008	I (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)	

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### ENGINEERING SERVICES PVT. LTD.

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

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

#### TEST REPORT

Test Report No.	: ELES/RNC/2024/0182	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 Sampling Date	: ELES/RNC/2023/AA/4505 : Near Dipa Kujam Village : 09.12.2023 to 10.12.2023
Address	: Lohardaga, Jharkhand-835302	Sample Received Date Type of Sample Sampling Procedure	: 16.12.2023 : Ambient Air : ELES/DOC/SMPL/02
Mines Status	: Operational	Sampling Procedure Sampling Done By	: ELES PVL Ltd.
Period of Analysis	: 16.12.2023 to 28.12.2023	Sample Condition	: Sealed & Preserved

M	ETEOROLOGICAL INFOR	MATION			
T	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear

Discipline: Chem	ical	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene (C <sub>6</sub> H <sub>6</sub> )*	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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Email: info@elespl.co.in , eles.ranchi@amail.com

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



#### TEST REPORT

Test Report No.	; ELES/RNC/2024/0477	Report Release Date	: 05.02.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883924000000448F		

CUSTOMER DET/	ULS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/0168 : Entrance Gate/Near Mine Office Gurdari Bauxite Mine (584.19ha	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample	: 09.01.2024 to 10.01.2024 : 15.01.2024 : Ambient Air	
Mines Status	: Operational	Sampling Procedure Sampling Done By	: ELES/DOC/SMPL/02 : ELES Pvt. Ltd.	
Period of Analysis	: 15.01,2024 to 25.01.2024	Sample Condition	: Sealed & Preserved	

м	ETEOROLOGICAL INFOI	RMATION			
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 45	4	Weather Condition	: Clear
5	Longitude	: 84°14'43.25"N	6	Latitude	: 23°19'0.21"E

Discipline : Chemica	al	Group : A	tmospheric	Pollution
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	μg/m <sup>1</sup>	IS 5182 (Part-23): 2006; RA2022	66	100 (24hrs)
Particulate Matter (PM2.5)	µg/m³	IS 5182 (Part- 24): 2019	41	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part-2): 2001; RA2022	9.2	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	1S 5182 (Part-6): 2006; RA2022	24.3	80 (24hrs)
Ozone (O <sub>3</sub> )	μg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH <sub>2</sub> )	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	0.018	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 (JHARKHAND) GST NO:- 20AAECE9713D124

### ENGINEERING SERVICES PVT. LTD.

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

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

#### TEST REPORT

Test Report No.	: ELES/RNC/2024/0477	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/0168 : Entrance Gate/Near Mine Office Gurdari Bauxite Mine (584.19ha	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 09.01.2024 to 10.01.2024 : 15.01.2024	
Mines Status	2 Operational	Type of Sample Sampling Procedure Sampling Done By	: Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.	
Period of Analysis	: 15.01.2024 to 25.01.2024	Sample Condition	: Sealed & Preserved	

M	TEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 45	4	Weather Condition	: Clear
	Longitude	: 84°14'43.25"N	6	Latitude	: 23°19'0.21"E

Discipline : Chem	ical	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene (C <sub>0</sub> H <sub>b</sub> )*	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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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.elespl.co.in



TEST REPORT

Test Report No.	; ELES/RNC/2024/0478	Report Release Date	: 05.02.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883924000000449F		

CUSTOMER DET/	ULS	SAMPLE DETAILS		
Customer Name	Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/0169 : Near Kathuwapani Pit-23 Gurdari Bauxite Mine (584.19ha	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 09.01.2024 to 10.01.2024 : 15.01.2024	
Mines Status	: Operational	Type of Sample Sampling Procedure Sampling Done By	: Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.	
Period of Analysis	: 15.01.2024 to 25.01.2024	Sample Condition	: Sealed & Preserved	

METEOROLOGICAL INFORMATION						
I	Average Temperature (°C) : 18	2	Barometric Pressure (mmHg	g) : 742		
3	Relative Humidity (%) : 45	4	Weather Condition	: Clear		

Discipline : Chemica	ıl	Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	μg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2022	60	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	40	60 (24hrs)	
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m³	IS 5182 (Part-2); 2001; RA2022	9.4	80 (24hrs)	
Nitrogen Di-Oxide (NO <sub>1</sub> )	μg/m³	1S 5182 (Part-6): 2006; RA2022	25.2	80 (24hrs)	
Ozone (O <sub>3</sub> )	µg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)	
Ammonia (NH <sub>3</sub> )	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/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

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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 Website: www.elespl.co.in

#### TEST REPORT

Test Report No.	: ELES/RNC/2024/0478	Report Release Date	: 05.02.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

CUSTOMER DETA	AILS	SAMPLE DETAILS		
Customer Name	: Hindulco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/0169 : Near Kathuwapani Pit-23 Gurdari Bauxite Mine (584.19ha	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 09.01,2024 to 10.01.2024 : 15.01,2024	
Mines Status	: Operational	Type of Sample Sampling Procedure Sampling Done By	: Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.	
Period of Analysis	: 15.01,2024 to 25.01.2024	Sample Condition	: Sealed & Preserved	

MI	TEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 45	4	Weather Condition	: Clear

Discipline : Chem	ical	Group: A	Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Benzene (C <sub>6</sub> H <sub>6</sub> )*	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\*\*\*\*

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

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### VGINEERING SERVICES PVT. LTD.

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

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



TC-8839

### TEST REPORT

Test Report No.	: ELES/RNC/2024/0479	Report Release Date	: 05.02.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883924000000450F		

CUSTOMER DETA	UILS .	SAMPLE DETAILS	
Customer Name	# Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/0170 : Near Mine Weigh Bridge Gurdari Bauxite Mine (584.19ha
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 09.01.2024 to 10.01.2024 : 15.01.2024
Mines Status	: Operational	Type of Sample Sampling Procedure Sampling Done By	: Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt, Ltd.
Period of Analysis	: 15.01,2024 to 25.01.2024	Sample Condition	: Sealed & Preserved

M	ETEOROLOGICAL INFORMATION			
1	Average Temperature (°C) : 18	- 2	Barometric Pressure (mmHg)	742
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	77	100 (24hrs)			
Particulate Matter (PM2.5)	μg/m³	1S 5182 (Part- 24): 2019	45	60 (24hrs)			
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part-2): 2001; RA2022	11.8	80 (24hrs)			
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part-6): 2006; RA2022	29.3	80 (24hrs)			
Ozone (O <sub>3</sub> )	μg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)			
Ammonia (NH <sub>3</sub> )	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)			

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

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**Authorised Signatory** Dr. Deependra Kumar Sinha

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### ENGINEERING SERVICES PVT. LTD.

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

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

#### TEST REPORT

Test Report No.	: ELES/RNC/2024/0479	Report Release Date	: 05.02.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

CUSTOMER DETA	MLS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	ELES/RNC/2024/AA/0170     Near Mine Weigh Bridge     Gurdari Bauxite Mine (584.19ha)
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 09.01.2024 to 10.01.2024 : 15.01.2024
Mines Status	: Operational	Type of Sample Sampling Procedure Sampling Done By	: Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.
Period of Analysis	: 15.01.2024 to 25.01.2024	Sample Condition	: Sealed & Preserved

MI	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	742
3.	Relative Humidity (%)	: 45	4	Weather Condition	: Clear

Discipline : Chem	ical	Group:	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit			
Benzene (C <sub>6</sub> H <sub>6</sub> )*	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 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

## ENGINEERING SERVICES PVT. LTD.

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

Website: www.elespl.co.in



### TEST REPORT

Test Report No.	: ELES/RNC/2024/0480	Report Release Date	: 05.02.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883924000000451F		

CUSTOMER DET	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/0171
		Location	: Near Dhobi Kutumb;
			Gurdari Bauxite Mine (584.19ha)
	la de la composición del composición de la compo	Sampling Date	: 09.01.2024 to 10.01.2024
Address	: Lohardaga, Jharkhand-835302	Sample Received Date	£15.01.2024
	230.30,000.00.00.00.00.00.00.00.00.00.00.00.0	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
Mines Status	Operational	Sampling Done By	: ELES Pvt. Ltd.
Period of Analysis	: 15.01.2024 to 25.01.2024	Sample Condition	± Sealed & Preserved

M	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 45	- 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	67	100 (24hrs)			
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	43	60 (24hrs)			
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part-2): 2001; RA2022	7.9	80 (24hrs)			
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part-6): 2006; RA2022	26.7	80 (24hrs)			
Ozone (O <sub>3</sub> )	μg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)			
Ammonia (NH <sub>3</sub> )	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	0.015	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 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.ranchi@gmail.com

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

### TEST REPORT

Test Report No.	: ELES/RNC/2024/0480	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/0171 : Near Dhobi Kutumb; Gurdari Bauxite Mine (584,19ha)
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 09.01.2024 to 10.01.2024 : 15.01.2024
		Type of Sample Sampling Procedure	: Ambient Air : ELES/DOC/SMPL/02
Mines Status	: Operational	Sampling Done By	; ELES Pvt. Ltd.
Period of Analysis	: 15.01.2024 to 25.01.2024	Sample Condition	: Sealed & Preserved

MI	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmH)	g) : 742
3	Relative Humidity (%)	: 45	4	Weather Condition	: Clear

Discipline : Chem	ical	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene (C <sub>6</sub> H <sub>6</sub> )*	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 Kumar Sinha 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:-26AAECE9713D124

# ENGINEERING AUTORS FOR LING

Email: Infa@elesal.co.ia , eles ranchi@gmail.com

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



### TEST REPORT

Test Report No.	: ELES/RNC/2024/0481	Report Release Date	: 05.02,2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	; TC883924000000452F		

CUSTOMER DETA	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location Sampling Date	: ELES/RNC/2024/AA/0172 : Near Pakri Gada Village : 09.01.2024 to 10.01.2024
Address	; Lohardaga, Jharkhand-835302	Sample Received Date Type of Sample Sampling Procedure	: 15.01.2024 : Ambient Air : ELES/DOC/SMPL/02
Mines Status	: Operational	Sampling Done By	: ELES Pvt, Ltd.
Period of Analysis	: 15.01.2024 to 25.01.2024	Sample Condition	: Sealed & Preserved

M	ETEOROLOGICAL INFOI	RMATION			
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	1.742
3	Relative Humidity (%)	: 45	4	Weather Condition	: Clear
5	Longitude	: 84°14'52.25"N	6	Latitude	: 23°17'41.21"E

Discipline: Chemies	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	35	60 (24hrs)		
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part-2): 2001; RA2022	8.2	80 (24hrs)		
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part-6): 2006; RA2022	25.8	80 (24hrs)		
Ozone (O <sub>3</sub> )	μg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)		
Ammonia (NH <sub>3</sub> )	μg/m³	IS 5182 (Part- 25); 2018	<10.0	400 (24hrs)		
Carbon Monoxide (CO)	mg/m <sup>3</sup>	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/m <sup>3</sup>	ELES/AIR/SOP/01	<2.0	06 (Annual)		

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

LUICER

Reviewed by

Authorised Signatory Dr. Deependra Kumar Sinha

Ph D.Environmantal Front

Page 1 of 1 ELES Pvt. Ltd. Technical Manager

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PLOT HO-30, MANSAROVAR ENCLAVE, TUPLIDANA HATIA, RANCHI-838003 (JHARKHAND) GST NO:- 30AAECEST130124 ENGINEERING SERVICES FYT. LTD.

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

### TEST REPORT

Test Report No.	: ELES/RNC/2024/0481	Report Release Date	: 05,02,2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

CUSTOMER DET	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location Sampling Date	: ELES/RNC/2024/AA/0172 : Near Pakri Gada Village : 09.01.2024 to 10.01.2024
Address	: Lohardaga, Jharkhand-835302	Sample Received Date Type of Sample Sampling Procedure	: 15.01.2024 : Ambient Air : ELES/DOC/SMPL/02
Mines Status	: Operational	Sampling Done By	: ELES Pvt. Ltd.
Period of Analysis	: 15.01.2024 to 25.01.2024	Sample Condition	: Sealed & Preserved

MI	ETEOROLOGICAL INFOR	RMATION			
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 742
	Relative Humidity (%)	: 45	- 4	Weather Condition	: Clear
5	Longitude	: 84°14'52,25"N	6	Latitude	: 23"1741.21"E

Discipline: Chem	ical	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene (C <sub>t</sub> H <sub>b</sub> )*	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.

Reviewed by

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

Authorised Signatory

Dr. Deapendra Kumar Sinhu Ph. D Environmental Engg ELES Pvi. Ltd. Technical Manarri

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

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



### TEST REPORT

Test Report No.	: ELES/RNC/2024/0482	Report Release Date	: 05.02.2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	
ULR No.	: TC883924000000453F			

CUSTOMER DETA	AILS	SAMPLE DETAILS	The Translate
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location Sampling Date	: ELES/RNC/2024/AA/0173 : Near Pol Pol Village : 09.01.2024 to 10.01.2024
Address	: Lohardaga, Jharkhand-835302	Sample Received Date Type of Sample Sampling Procedure	: 15.01,2024 : Ambient Air : ELES/DOC/SMPL/02
Mines Status	: Operational	Sampling Done By	: ELES Pvt. Ltd.
Period of Analysis	: 15.01.2024 to 25.01.2024	Sample Condition	Sealed & Preserved

MI	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	:18	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 45	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	59	100 (24hrs)		
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	33	60 (24hrs)		
Sulphur Di-Oxide (SO <sub>1</sub> )	μg/m³	IS 5182 (Part-2): 2001; RA2022	8.8	80 (24hrs)		
Nitrogen Di-Oxide (NO2)	μg/m³	IS 5182 (Part-6): 2006; RA2022	26.7	80 (24hrs)		
Ozone (O <sub>3</sub> )	μg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)		
Anunonia (NH <sub>1</sub> )	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	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)		

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

Authorised Signatory

Dr. Deependra Kumar Sinha

Ph. D Environmental Engo

Page I of I

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPLIDANA HATIA, RANCHI-834003 (IHABIKRAND) GST NO> 20AAEC22713D124

# ENGINEERING SERVICES PVE. LTD.

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

#### TEST REPORT

Test Report No.	: ELES/RNC/2024/0482	Report Release Date	± 05.02.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

CUSTOMER DETA	AILS	SAMPLE DETAILS	
Customer Namé	: Hindalco Industries Limited	Sample Ref. No. Location Sampling Date	: ELES/RNC/2024/AA/0173 : Near Pol Pol Village : 09.01.2024 to 10.01.2024
Address	: Lohardaga, Jharkhand-835302	Sample Received Date Type of Sample Sampling Procedure	: 15.01.2024 : Ambiem Air : ELES/DOC/SMPL/02
Mines Status	: Operational	Sampling Done By	: ELES Pvt. Ltd.
Period of Analysis	: 15.01.2024 to 25.01.2024	Sample Condition	: Sealed & Preserved

M	ETEOROLOGICAL INFORM	MATION			
1	Average Temperature (aC)	:18	2	Barometric Pressure (mmHg)	: 742
-	Relative Humidity (%)	: 45	4	Weather Condition	: Clear

Discipline : Chem	ical	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene (C <sub>6</sub> H <sub>6</sub> )*	μg/m³	1S 5182 (Part-11); 2006; RA2022	<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

Dr. Deependra Kumar Sinha Ph. D Environmental Engg

ELES Pvi. Ltd. Technical Managing

Page 1 of I

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20146CE97130124

# DEGLERANG ALBUIDES PVP. LED.

Email: info@elesal.ca.in , eles.ranchi@amail.cam

Phone na.: 0651-2290103 Website: www.elespi.co.in



TEST REPORT

Test Report No.	; ELES/RNC/2024/0483	Report Release Date	: 05.02.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	; TC883924000000454F		

CUSTOMER DETA	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location Sampling Date	: ELES/RNC/2024/AA/0174 : Near Shakhuapani Village : 09.01.2024 to 10.01.2024
Address	: Lohardaga, Jharkhand-835302	Sample Received Date Type of Sample Sampling Procedure	: 15.01.2024 : Ambient Air : ELES/DOC/SMPI/02
Mines Status	: Operational	Sampling Done By	: ELES Pvt. Ltd.
Period of Analysis	: 15.01.2024 to 25.01,2024	Sample Condition	: Sealed & Preserved

MI	TEOROLOGICAL INFOR	RMATION			
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 45	4	Weather Condition	: Clear

Discipline: Chemica	aF	Group: /	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	35	60 (24hrs)			
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part-2): 2001; RA2022	7.9	80 (24hrs)			
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part-6): 2006; RA2022	28.1	80 (24hrs)			
Ozone (O <sub>3</sub> )	μg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)			
Ammonia (NH <sub>3</sub> )	µg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)			
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)			
Lead (Ph)	μg/m³	IS 5182 (Part-22): 2004; RA2019	0.012	1 (24hrs)			
Nickel (Ni)	ng/m <sup>T</sup>	IS 5182 (Part-26):2020	<6.0	20 (Annual)			
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01	<2.0	06 (Annual)			

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RAIVCHI-834003 (JHARKHAND) GST NO:- 20AAECE9733D1Z4

Email: info@elespl.co.ln , eles.ranchl@amail.com Phone no.: 0651-2290103

Website: www.elespl.cp.in

### TEST REPORT

Test Report No.	: ELES/RNC/2024/0483	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 Sampling Date	: ELES/RNC/2024/AA/0174 : Near Shakhuapani Village : 09.01.2024 to 10.01.2024
Address	: Lohardaga, Jharkhand-835302	Sample Received Date Type of Sample Sampling Procedure Sampling Done By	: 15.01.2024 : Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.
Mines Status	: Operational	The state of the s	The state of the s
Period of Analysis	: 15.01,2024 to 25.01.2024	Sample Condition	: Sealed & Preserved

M	ETEOROLOGICAL INFORMATI	ON		
1	Average Temperature (°C) : 18	2	Barometric Pressure (mmHg)	: 742
	Relative Humidity (%) : 45	4	Weather Condition	: Clear

Discipline: Chem	ical	Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Benzene (C <sub>s</sub> H <sub>6</sub> )*	μg/m <sup>3</sup>	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.

Reviewed by

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

Authorised Signatory

Dr. Deependra Kumar Sinha Ph. D Environmental Engg.

ELES PVI, Ltd. Technical Manacar

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECES7130124

### ENVINCERING SERVICES PAY, LIE

Email: info@elespl.co.in , eles.renchi@amail.com

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



TEST REPORT

Test Report No.	: ELES/RNC/2024/0484	Report Release Date	: 05.02.2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	
ULR No.	: TC883924000000455F			

CUSTOMER DETA	ATLS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location Sampling Date	: ELES/RNC/2024/AA/0175 : Near Dipa Kujam Village : 09.01.2024 to 10.01,2024
Address	: Lohardaga, Jharkhand-835302	Sample Received Date Type of Sample Sampling Procedure	: 15.01.2024 : Ambient Air : ELES/DOC/SMPL/02
Mines Status	: Operational	Sampling Done By	: ELES Pvt. Ltd.
Period of Analysis	: 15.01.2024 to 25.01.2024	Sample Condition	: Sealed & Preserved

M	ETEOROLOGICAL INFO	RMATION			
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 45	4	Weather Condition	: Clear

Discipline: Chemics	al	Group: A	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	1S 5182 (Part- 24): 2019	34	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	1S 5182 (Part-2): 2001; RA2022	7.2	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	1S 5182 (Part-6); 2006; RA2022	24.7	80 (24hrs)
Ozone (O <sub>3</sub> )	μg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH <sub>2</sub> )	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 (Shrs)
Lead (Pb)	µg/m³	IS 5182 (Part-22): 2004; RA2019	0.06	l (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	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\*\*\*\*

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Authorised Signatory

Dr. Deependra Kumar Sinha

Ph. D Environmental Engg.

Page 1 of 1 ELES PVI. Ltd. rechmodrivenage

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPLIDANA HATIA, RANCHI-834003 (JHARKHAND) 651 NO:-20AAECE9723D124

# ENDINEERING SERVICES PVT, LTD.

Email: Info@elespl.co.in , eles.ranchi@gmail.com Phone no.: 0951-2290103 Website : www.elespl.co.in

### TEST REPORT

Test Report No.	: ELES/RNC/2024/0484	Report Release Date	; 05.02.2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DETA	AILS	SAMPLE DETAILS	the section was been also as the
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location Sampling Date	: ELES/RNC/2024/AA/0175 : Near Dipa Kujam Village : 09.01.2024 to 10.01.2024
Address	: Lohardaga, Jharkhand-835302	Sample Received Date Type of Sample Sampling Procedure Sampling Done By	: 15.01.2024 : Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.
Mines Status	: Operational		
Period of Analysis	: 15.01.2024 to 25.01.2024	Sample Condition	: Sealed & Preserved

MI	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 18	1.2	Barometric Pressure (mmHg)	; 742
3	Relative Humidity (%)	: 45	4	Weather Condition	: Clear

Discipline : Chemical Gro			Group: Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C <sub>s</sub> H <sub>6</sub> )**	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\*\*\*\*

Dr. Deependra Kumar Sinha Ph. D Environmental Engo.

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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.

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



### TEST REPORT

Test Report No.	: ELES/RNC/2024/0580	Report Release Date	; 06.02.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883924000000551F		

CUSTOMER DET	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Sampling Date	: ELES/RNC/2024/SW/0615 : 10.01,2024
Addison	: Lohardaga, Jharkhand-835302	Sample Received Date Type of Sample	: 31.01.2024 : Surface Water
Address	, Lonardaga, marknand-655502	Source of Sample	: Near Ambakona Pit, Gurdari Bauxite Mines (584.19ha)
	Contract of	Sampling Procedure	: ELES/DOC/SMPL/01
Mines Status	: Operational	Sampling Done By	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)	4	IS 3025 (Part 11): 2022	8,37	6.5-8.5
Temperature	°C	1S 3025 (Part 9):1984; RA2017	24.7	·
Chemical Oxygen Demand (COD)		IS 3025 (Part-58) :2006; RA2017	8.0	
Biochemical Oxygen Demand (BOD) (@ 20°C for 5 days)	mg/L	APHA 23 <sup>rd</sup> Ed.2017; 5210B	1.8	3.0
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part 16):1984; RA2017	164	1500
Total Suspended Solids (TSS)	mg/L	IS 3025 (Part-17):2022	12.8	R
Oil & Grease	mg/L	IS 3025 (Part-39): 2021	BDL (DL: 0.1)	0.1
Calcium (as Ca)	mg/L	1S 3025 (Part-40):1991, RA2019	6.2	
Discipline : Cher	nical	Group:	Residues in W	ater
Aluminium (Al)	mg/L	IS 3025 (Part-55) :2003; RA2019	BDL (DL: 0.02)	0.03
Iron (as Fe)	mg/L	APHA23 <sup>rd</sup> Ed 2017; 3111B	0.309	50

Remarks: I. pH done at Lab

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

**Authorised Signatory** 

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:- 20AAECE9713D1Z4

### GINEERING SERVICES PVT. LTD.

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

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



TEST REPORT

: ELES/RNC/2024/0595 Report Release Date : 06.02.2024 Test Report No. : 13612310218 Work Order Date : 21.04.2023 Work Order No.

: TC883924000000566F ULR No.

CUSTOMER DET	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Sampling Date Sample Received Date	: ELES/RNC/2024/SL/0630 : 10.01.2024 : 31.01.2024
Address	: Lohardaga, Jharkhand-835302	Type of Sample Location of Sample	: Soil : Gurdari Bauxite Mines (584.19ha Near Dhobi Kutumb
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 & Er	vironment
Parameter	Unit	Test Protocol	Result
pH (1:2) at 24.6 °C	-	IS 2720 (Part 26):1987; RA2021	5.35
Conductivity (1:2) at 24.6 °C	μS/cm	IS 14767: 2000; RA2021	141
Total Organic Carbon (TOC)	%	Soil Testing in India: 2011 (Walkley & Black Method)	0.62
Available Phosphorus (as P) (1:10)	kg/ha	Soil Testing in India; 2011	0.72
Potassium (as K)	mg/kg	IS 9497:1980; RA 2020	1750
Available Nitrogen	%	Soil Testing in India: 2011	0.28
Chloride (1:2)	%	ELES/SOIL/SOP/01	0.017
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	250

Remarks: 1. pH done at Lab.

Reviewed by

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Authorised Signatory Dr. Deependra Kumar Sinha

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

### ENGINEERING SERVICES PVT. LTD.

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

### TEST REPORT

Test Report No.	: ELES/RNC/2024/0595	Report Release Date	: 06.02.2024	
Work Order No.	: 13612310218	Work Order Date	; 21.04.2023	

CUSTOMER DET	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Sampling Date Sample Received Date	: ELES/RNC/2024/SL/0630 : 10.01.2024 : 31.01.2024
Address	; Lohardaga, Jharkhand-835302	Type of Sample Location of Sample	: Soil : Gurdari Bauxite Mines (584.19ha) Near Dhobi Kutumb
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
Arsenic (as As)	mg/kg	1S 3025 (Part 37): 2022	BDL. (DL: 0.005)
Selenium (as Se)	mg/kg	IS 3025 (Part-56) :2003; RA 2019	BDL (DL: 0.01)

Reviewed by

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

Dr. Deependra Kufnar Sini a
Ph. D Environmental Engg

ELES Pvt. Ltd. Technical Manager

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PLOT NO-3D, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE97130124

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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/2024/1144	Report Release Date	: 13.02.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883924000001080F		

CUSTOMER DETA	VILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/0883 : Entrance Gate/Near Mine Office Gurdari Bauxite Mine (584.19ha)	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	02.02.2024 to 03.02.2024 ; 07.02.2024	
Mines Status	: Operational	Type of Sample Sampling Procedure Sampling Done By	: Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.	
Period of Analysis	: 07.02.2024 to 13.02.2024	Sample Condition	: Sealed & Preserved	

M	ETEOROLOGICAL INFOR	RMATION			
1	Average Temperature (°C)	: 21	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear
5	Longitude	: 84°14'43.25"N	6	Latitude	: 23°19'0.21"E

Discipline: 0	Chemical	Group: Atmo	spheric Poll	ition
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m³	IS 5182 (Part-23): 2006; RA2022	72	100 (24hrs)
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	46.	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m <sup>3</sup>	IS 5182 (Part-2); 2001; RA2022	10.5	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>3</sub> )	μg/m³	IS 5182 (Part-6): 2006; RA2022	22.7	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m²	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	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/m³	IS 5182 (Part-22): 2004; RA2019	0.012	1 (24hrs)
Nickel (Ni)	ng/m1	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>1</sup>	ELES/AIR/SOP/01	<2.0	06 (Annual)

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Authorised Signatory Dr. Deependra Kumar Sinks

Ph. D Environmental Engl.

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

## 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/RNC/2024/1144	Report Release Date	: 13.02.2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DETA	MLS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/0883 : Entrance Gate/Near Mine Office Gurdari Bauxite Mine (584.19ha)	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	; 02.02.2024 to 03.02.2024 ; 07.02.2024	
Mines Status	: Operational	Type of Sample Sampling Procedure Sampling Done By	: Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt, Ltd.	
Period of Analysis	; 07.02.2024 to 13.02.2024	Sample Condition	: Sealed & Preserved	

MI	ETEOROLOGICAL INFOR	MATION			-
1	Average Temperature (°C)	:21	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 48	- 4	Weather Condition	: Clear
5	Longitude	: 84°14'43.25"N	6	Latitude	:: 23°19'0.21"E

Discipline	: Chemical	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene (C <sub>6</sub> H <sub>6</sub> )*	µg/m³	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 Kurnar Sinha. Ph. D Environmental Engg. GLES Pvt. Ltd. Technical Manager

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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 Website: www.elespl.co.in



TEST REPORT

Test Report No.	: ELES/RNC/2024/1145	Report Release Date	: 13.02.2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	
ULR No.	: TC883924000001081F			

CUSTOMER DET.	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/0884	
		Location	: Near Kathuwapani Pit-23	
			Gurdari Bauxite Mine (584.19ha)	
Address	: Lohardaga, Jhurkhand-835302	Sampling Date	: 02.02.2024 to 03.02.2024	
	1	Sample Received Date	: 07.02.2024	
		Type of Sample	: Ambient Air	
Mines Status	: Operational	Sampling Procedure Sampling Done By	: ELES/DOC/SMPL/02 : ELES Pvt. Ltd.	
Period of Analysis	: 07.02,2024 to 13.02.2024	Sample Condition	: Sealed & Preserved	

METEOROLOGICAL INFORMATION						
1	Average Temperature (°C) : 21	2	Barometric Pressure (mmHg)	:742		
3	Relative Humidity (%) 48	4	Weather Condition	; Clear		

Discipline: 0	Chemical	Group: Atme	spheric Pollu	ition	
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	μg/m <sup>5</sup>	IS 5182 (Part-23): 2006; RA2022	67	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	44	60 (24hrs)	
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part-2): 2001; RA2022	10.7	80 (24hrs)	
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part-6): 2006; RA2022	22,4	80 (24hrs)	
Ozone (O <sub>3</sub> )	μg/m³	1S 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)	
Ammonia (NH <sub>3</sub> )	µg/m¹	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m <sup>4</sup>	IS 5182 (Part-10); 1999; RA2019 (NDIR Method)	<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)	

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

Reviewed by

Dr. Dubpeired Signatury Sinha

Ph. D Environmental Engg

Page 1 of 1 ELES Pvt. Ltd. Technical Manage

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

### GINEERING SERVICES PVT. LTD.

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

Website: www.elespl.co.in

### TEST REPORT

Test Report No.	: ELES/RNC/2024/1145	Report Release Date	: 13.02.2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DETA	CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	; Flindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/0884 : Near Kathuwapani Pit-23 Gurdari Bauxite Mine (584,19ha)		
Address	: Lohardaga, Jharkhand-835302 Sampling Date Sample Received D		: 02.02,2024 to 03,02,2024 : 07.02,2024		
Mines Status	: Operational	Type of Sample Sampling Procedure Sampling Done By	: Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.		
Period of Analysis	: 07.02.2024 to 13.02.2024	Sample Condition	: Sealed & Preserved		

MI	ETEOROLOGICAL INFOR	MATION	-		
1	Average Temperature (°C)	: 21	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Benzene (C <sub>6</sub> H <sub>6</sub> )*	μg/m <sup>†</sup>	IS 5182 (Part-11): 2006; RA2022	<1.0	05(Annual)	
Benzo-(a)-Pyrene*	ng/m	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 PVI. Ltd. Technical Manager

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

### ENGINEERING SERVICES PVT. LTD

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

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



### TEST REPORT

Test Report No.	: ELES/RNC/2024/1146	Report Release Date	: 13.02.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883924000001082F		

CUSTOMER DETA	MLS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/0885 : Near Mine Weigh Bridge Gurdari Bauxite Mine (584,19ha)
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 02.02.2024 to 03.02.2024 : 07.02.2024
Mines Status	: Operational	Type of Sample Sampling Procedure Sampling Done By	: Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.
Period of Analysis	: 07.02.2024 to 13.02.2024	Sample Condition	: Sealed & Preserved

M	ETEOROLOGICAL INFO	RMATION			
1	Average Temperature (°C)	: 21	2	Barometric Pressure (mmHg	g) = 742
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear

Discipline: 0	Chemical	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	49	60 (24hrs)		
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part-2): 2001; RA2022	13.7	80 (24hrs)		
Nitrogen Di-Oxide (NO <sub>1</sub> )	μg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	32.5	80 (24hrs)		
Ozone (O <sub>3</sub> )	μg/m²	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)		
Ammonia (NH <sub>3</sub> )	μg/m³	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	IS 5182 (Part-22): 2004; RA2019	0.020	1 (24hrs)		
Nickel (Ni)	ng/m³	1S 5182 (Part-26):2020	<6.0	20 (Annual)		
Arsenic (As)	ng/m²	ELES/AIR/SOP/01	<2.0	06 (Annual)		

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

### TEST REPORT

Test Report No.	: ELES/RNC/2024/1146	Report Release Date	: 13.02.2024
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/0885 : Near Mine Weigh Bridge Gurdari Bauxite Mine (584.19ha)	
Address	: Lohardaga, Jharkhand-835302	mu-052502	: 02.02.2024 to 03.02.2024 : 07.02.2024	
Mines Status	: Operational	Type of Sample Sampling Procedure Sampling Done By	: Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.	
Period of Analysis	: 07.02.2024 to 13.02.2024	Sample Condition	: Sealed & Preserved	

MI	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	:21	2	Barometric Pressure (mmH	g) : 742
3	Relative Humidity (%)	:48	4	Weather Condition	: Clear

Discipline	: Chemical	Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Benzene (C <sub>6</sub> H <sub>6</sub> )*	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\*\*\*\*

Ph. D Environmental Engg.

Page 1 of 1

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

### GINEERING SERVICES PVT. LTD.

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

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



TEST REPORT

Test Report No.	: ELES/RNC/2024/1147	Report Release Date	: 13.02.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883924000001083F		

CUSTOMER DET/	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/0886 : Near Dhobi Kutumb; Gurdari Bauxite Mine (584.19ha)
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 02.02.2024 to 03.02.2024 : 07.02.2024
Mines Status	; Operational	Type of Sample Sampling Procedure Sampling Done By	: Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.
Period of Analysis	; 07.02.2024 to 13.02.2024	Sample Condition	: Sealed & Preserved

M	ETEOROLOGICAL INFORMATION			
1	Average Temperature (°C) : 21	2	Barometric Pressure (mml-	(g) 5.742
	Relative Humidity (%) : 48	4	Weather Condition	; Clear

Discipline: (	Chemical	Group: Atmospheric Pollution				
Parameter	Unit	it Test Protocol		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	33	60 (24hrs)		
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part-2): 2001; RA2022	6.7	80 (24hrs)		
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part-6): 2006; RA2022	23.5	80 (24hrs)		
Ozone (O <sub>1</sub> )	µg/m¹	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)		
Ammonia (NH <sub>3</sub> )	µg/m	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/m²	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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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D1Z4

### ENGINEERING SERVICES PVT. LTD.

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

Website: www.elespl.co.in

#### TEST REPORT

Test Report No.	: ELES/RNC/2024/1147	Report Release Date	: 13.02.2024	
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/0886 : Near Dhobi Kutumb; Gurdari Bauxite Mine (584.19ha)	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 02.02.2024 to 03.02.2024 : 07.02.2024	
Mines Status	: Operational	Type of Sample Sampling Procedure Sampling Done By	: Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.	
Period of Analysis	: 07.02,2024 to 13.02,2024	Sample Condition	: Sealed & Preserved	

MI	TEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 21	2	Barometric Pressure (mmHg)	742
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear

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

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



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PLOT NO-30, MANSARGVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20114ECE9713.0124

### ENGINEERING SERVICES PYT. ATD.

Email: Info@elespi.co.jn , eles.ranchi@gmail.com Phone no.: 0651-2290103 Website : www.elespi.co.in



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### TEST REPORT

Test Report No.	: ELES/RNC/2024/1148	Report Release Date	: 13.02.2024
Work Order No.	: 13612310218	Work Order Date	; 21.04.2023
ULR No.	: TC883924000001084F		

CUSTOMER DETA	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location Sampling Date	: ELES/RNC/2024/AA/0887 : Near Pakri Gada Village : 02.02.2024 to 03.02.2024
Address Mines Status	: Lohardaga, Jharkhand-835302 : Operational	Sample Received Date Type of Sample Sampling Procedure Sampling Done By	: 07,02,2024 : Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.
Period of Analysis	: 07.02.2024 to 13.02.2024	Sample Condition	: Sealed & Preserved

M	ETEOROLOGICAL INFOR	RMATION			
1	Average Temperature (°C)	: 21	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	; 48	4	Weather Condition	; Clear
5	Longitude	: 84°14'52.25"N	6	Latitude	: 23°17'41.21°E

Discipline: (	Chemical	Group: Atmo	spheric Pollu	tion
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	31	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m³	IS 5182 (Part-2): 2001; RA2022	7.2	80 (24hrs)
Nitrogen Di-Oxide (NO2)	μg/m³	IS 5182 (Part-6): 2006; RA2022	22.5	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH <sub>1</sub> )	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/m³	IS 5182 (Part-22): 2004; RA2019	< 0.002	1 (24hrs)
Nickel (Ni)	ng/m³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arşenîc (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)

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

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PLOT NO-30, MANSARQVAR ENCLAVE, TUPUDANA HATKA, RANCHI-834003 (JHARKHANO) 63T NO.-701AECE9713D124 Email: info@elespl.co.in , eles ranchi@amail.com

Phone no.: 0551-2290103 Website: www.elesal.co.in

#### TEST REPORT

Test Report No.	: ELES/RNC/2024/1148	Report Release Date	: 13.02.2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location Sampling Date	: ELES/RNC/2024/AA/0887 : Near Pakri Gada Village : 02.02.2024 to 03.02.2024	
Address	: Lohardaga, Jharkhand-835302	Sample Received Date Type of Sample Sampling Procedure	: 07.02.2024 : Ambient Air : ELES/DOC/SMPL/02	
Mines Status	: Operational	Sampling Done By	ELES Pvt. Ltd.	
Period of Analysis	: 07.02.2024 to 13.02.2024	Sample Condition	: Sealed & Preserved	

MI	ETEOROLOGICAL INFOR	RMATION			
1	Average Temperature (°C)	: 21	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	; 48	4	Weather Condition	: Clear
5	Longitude	: 84°14'52.25"N	6	Latitude	: 23°17'41.21"E

Discipline: Chemical		Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene (C <sub>s</sub> H <sub>6</sub> )*	μg/m³	IS 5182 (Part-11): 2006; RA2022	<1.0	05(Annual)		
Benzo-(a)-Pyrene*	ng/m²	1S 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 HATTA, RANCHI-834003 (JHARKHAND) GST NO: 20AAECEST13D124

Website: www.elespl.co.in

Email: Infa@elespl.co.in eles.ranchi@amail.com Phone no.: 0651-2290103



TC 8839

#### TEST REPORT

Test Report No.	: ELES/RNC/2024/1149	Report Release Date	: 13.02.2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	
ULR No.	: TC883924000001085F			

CUSTOMER DET.	CUSTOMER DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location Sampling Date	: ELES/RNC/2024/AA/0888 : Near Pol Pol Village : 02.02.2024 to 03.02.2024
Address	: Lohardaga, Jharkhand-835302	Sample Received Date Type of Sample	: 07.02.2024 : Ambient Air
Mines Status	: Operational	Sampling Procedure Sampling Done By	: ELES/DOC/SMPL/02 : ELES Pvt. Ltd.
Period of Analysis	: 07.02.2024 to 13.02.2024	Sample Condition	: Sealed & Preserved

MI	ETEOROLOGICAL INFOR	MATION			
I	Average Temperature (°C)	: 21	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 48	.4	Weather Condition	: Clear

Discipline:	Chemical	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Particulate Matter (PM10)	μg/m³	IS 5182 (Part-23): 2006; RA2022	50	100 (24hrs)		
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	29	60 (24hrs)		
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m <sup>3</sup>	IS 5182 (Part-2); 2001; RA2022	6.9	80 (24hrs)		
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part-6); 2006; RA2022	21.2	80 (24hrs)		
Ozone (O <sub>3</sub> )	µg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)		
Ammonia (NH <sub>z</sub> )	µg/m <sup>3</sup>	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	< 0.002	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. Claspendra Kumer Sicilia

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDAMA HATIA, RANCHI-834003 (IHARKHAND) GST NO:- 20A4ECE9713D124 ENGINEERING SERVICES PTT. ETD.

Emall: info@elesol.co.in , eles ranchi@gmuil.com Phone no.: 0651-2290103 Website : www.elesol.co.in

### TEST REPORT

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Test Report No.	: ELES/RNC/2024/1149	Report Release Date	: 13.02.2024		
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023		

CUSTOMER DETA	CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location Sampling Date	: ELES/RNC/2024/AA/0888 : Near Pol Pol Village : 02,02.2024 to 03.02,2024		
Address	: Lohardaga, Jharkhand-835302	Sample Received Date Type of Sample Sampling Procedure	: Ambient Air : ELES/DOC/SMPL/02		
Mines Status	: Operational	Sampling Done By	; ELES Pvt, Ltd.		
Period of Analysis	: 07.02.2024 to 13.02.2024	Sample Condition	: Sealed & Preserved		

MI	TEOROLOGICAL INFOR	MATION				
1	Average Temperature (°C)	:21	2	Barometric Pressure (mmHg)	; 742	
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear	

Discipline: Chemical		Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene (C <sub>6</sub> H <sub>6</sub> )*	µg/m³	IS 5182 (Part-11): 2006; RA2022	<1.0	05(Annual)		
Benzo-(a)-Pyrene*	ng/m²	1S 5182 (Part-12): 2004; RA2019	< 0.5	01(Annual)		

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

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Authorised Signatory

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

### ENGINEERING SERVICES PVT. LTD

Website: www.elespi.co.in

Email: Infa@elespl.co.ia , eles ranchi@amaii.com Phone no.: 0651-2290103



TC-8833

### TEST REPORT

Test Report No.	: ELES/RNC/2024/1150	Report Release Date	: 13.02.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883924000001086F		

CUSTOMER DETA	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location Sampling Date	: ELES/RNC/2024/AA/0889 : Near Shakhuapani Village : 02.02.2024 to 03.02.2024
Address	Lohardaga, Jharkhand-835302	Sample Received Date Type of Sample Sampling Procedure	: 07.02.2024 : Ambient Air : ELES/DOC/SMPL/02
Mines Status	: Operational	Sampling Done By	: ELES Pvt. Ltd.
Period of Analysis	± 07.02.2024 to 13.02.2024	Sample Condition	: Sealed & Preserved

M	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	:21	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear

Discipline: 0	Chemical	Group: Atmo	spheric Pollu	ition
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 <sup>3</sup>	IS 5182 (Part- 24): 2019	31	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	1S 5182 (Part-2): 2001; RA2022	6.8	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	18 5182 (Part-6): 2006; RA2022	22.6	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	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/m³	IS 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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\*\*\*\*End of Report\*\*\*\*

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Dr. Deependra Kumar Shitu

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

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

### TEST REPORT

Test Report No.	: ELES/RNC/2024/1150	Report Release Date	: 13.02.2024	
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 Sampling Date	: ELES/RNC/2024/AA/0889 : Near Shakhuapani Village : 02.02/2024 to 03.02/2024		
Address	: Lohardaga, Jharkhand-835302	Sample Received Date Type of Sample	: 07.02.2024 : Ambient Air		
Mines Status	: Operational	Sampling Procedure Sampling Done By	: ELES/DOC/SMPL/02 : ELES Pvt. Ltd.		
Period of Analysis	: 07.02.2024 to 13.02.2024	Sample Condition	: Scaled & Preserved		

MI	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 21	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene (C <sub>6</sub> H <sub>6</sub> )*	µg/m³	IS 5182 (Part-11): 2006; RA2022	<1.0	05(Armual)		
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

Cr. Bearrandra Kumar Sir II

7/ 0 Brighton hall Engl

CES.PV: LIM Teamnism (Above

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



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

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



TEST REPORT

Test Report No.	: ELES/RNC/2024/1151	Report Release Date	; 13.02,2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	
ULR No.	: TC883924000001087F			

CUSTOMER DETA	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location Sampling Date	: ELES/RNC/2024/AA/0890 : Near DipaKujam Village : 02.02.2024 to 03.02.2024	
Address	: Lohardaga, Jharkhand-835302	Sample Received Date Type of Sample Sampling Procedure	: 07:02.2024 : Ambient Air : ELES/DOC/SMPL/02	
Mines Status	: Operational	Sampling Done By	: ELES Pvt, Ltd.	
Period of Analysis	: 07.02,2024 to 13.02,2024	Sample Condition	: Sealed & Preserved	

MI	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	:21	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear

Discipline:	Chemical	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Particulate Matter (PM10)	μg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2022	55	100 (24hrs)		
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24); 2019	28	60 (24hrs)		
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	TS 5182 (Part-2): 2001; RA2022	6.2	80 (24hrs)		
Nitrogen Di-Oxide (NO <sub>2</sub> )	ng/m³	1S 5182 (Part-6): 2006; RA2022	17.8	80 (24hrs)		
Ozone (O <sub>3</sub> )	μg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)		
Ammonia (NH <sub>3</sub> )	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	0.06	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 (IHARKHAND) 65T NO:- 20AAECE97130124 Email: info@elespl.co.in , eles.ranch(@amail.com

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

### TEST REPORT

Test Report No.	: ELES/RNC/2024/1151	Report Release Date	: 13.02.2024	
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 Sampling Date	: ELES/RNC/2024/AA/0890 : Near DipaKujam Village : 02.02.2024 to 03.02.2024		
Address	: Lohardaga, Jharkhand-835302	Sample Received Date Type of Sample Sampling Procedure	: 07.02,2024 : Ambient Air : ELES/DOC/SMPL/02		
Mines Status	: Operational	Sampling Done By	: ELES Pvt. Ltd.		
Period of Analysis	: 07.02.2024 to 13.02.2024	Sample Condition	: Sealed & Preserved		

MI	ETEOROLOGICAL INFOR	MATION			
T.	Average Temperature (°C)	:21	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 48	4.	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Benzene (C <sub>6</sub> H <sub>6</sub> ) <sup>8</sup>	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.

Reviewed by

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

Authorised Signatory

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Page 1 of 1

The Doctiment mated at Test Report, is issued by the Laboratory inder General Terms and Conditions, only on Company letter head in pre-approved format. The results above in the Test Report reflects the findings done by the Laboratory at the time of involvement only and within the limits of cilent'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 pair of the report is not taken out of context, without proc 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 recurred from the Management of the Laboratory. Attention is drawn to the limitation of buildity, compensation and purisdiction issues. Any unauthorized alternation of the content or appearance of the Test Report is inflawful and offenders may be prosecuted to the fallest extent of the law. All the samples are retained for folding from the Date of release/issue of the Test Report. The samples from Regulatory bodies are to be retained as specified. Any type of Observations or Complaints regarding the Reports shall be done outline. Education is an 24hours format. Albervation used. N.A. (Not. Applicable), BDL (Below Dotection Limit), LDL (Lower Detection Limit).



PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, HANCHI-834003 (JHARKHAND) GST ND:- 20AAECE9713D174

### ENGINEERING SERVICES PVT. LTD.

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

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



TC-8839

### TEST REPORT

Test Report No.	: ELES/RNC/2024/1176	Report Release Date	: 13.02.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883924000001112F		

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Sampling Date	: ELES/RNC/2024/DW/0915 : 02.02.2024	
Address	: Lohardaga, Jharkhand-835302	Sample Received Date Type of Sample Source/Location of Sample	: 07.02.2024 : Drinking Water : Gurdari Bauxite Mines	
Mines Status	; Operational	Sampling Procedure	(584.19ha) : ELES/DOC/SMPL/01	
Period of Analysis	: 07.02.2024 to 13.02.2024	Sample Collected By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved	

Discipline : Chemical		Group : Water		The second secon	ory Limit 10500:2012
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
pH (at 24.6 °C)	100	APHA 23 <sup>rd</sup> Ed.2017, 4500-H <sup>+</sup>	6.77	6.5-8.5	No Relaxation
Turbidity	NTU	APHA 23 <sup>rd</sup> Ed.2017, 2130 B	0.03	1.0	5.0
Taste	+4-	APHA 23rd Ed.2017, 2160 C	Agreeable	Agreeable	Agreeable
Odour	-	IS 3025 (Part-5) :2018	Agreeable	Agreeable	Agreeable
Colour	Hazen	APHA 23 <sup>rd</sup> Ed.2017, 2120B&D	1.0	5	15
Total Dissolved Solids (TDS)	mg/L	APHA 23rd Ed.2017, 2540B,C&D	72	500	2000
Chloride (as Cl)	mg/L	APHA 23rd Ed.2017, 4500 Cl B	13.2	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 <sub>1</sub> )	mg/L	APHA 23 <sup>rd</sup> Ed:2017, 2320 B	6.0	200	600
Total Hardness (as CaCO <sub>1</sub> )	mg/L	APHA 23rd Ed.2017, 2340 C	12.5	200	600
Sulphate (as SO <sub>4</sub> )	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 4500 SO <sub>4</sub> <sup>-2</sup> -E	BDL (DL: L0)	200	400
Nitrate (as NO <sub>3</sub> )	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 4500 NO <sub>3</sub> -B	BDL (DL: 0.5)	45	No Relaxation
Phenolic Compound (as C <sub>5</sub> H <sub>2</sub> OH)	mg/L	IS 3025 (Part-43):1992:RA2019	BDL (DL: 0.001)	0.001	0.002
Cyanide (as CN)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 4500 CN-E	BDL (DL: 0.012)	0.05	No Relaxation

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

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

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



TEST REPORT

Test Report No.	: ELES/RNC/2024/1176	Report Release Date	: 13.02.2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

ULR No. : TC883924000001112F

Discipline :	Chemica	Group : Wa	iter	- H	tory Limit \$10500:2012
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
Residual Free Chlorine (RFC)	mg/L	1S 3025 (Part-26):2021	BDL (DL: 0.1)	0.02	1.0
Calcium (as Ca)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 3500 Ca B	3.3	75	200
Discipline :	Chemica	Group:	Residues in \	Vater	
Aluminum (as Al)	mg/L	IS 3025 (Part-55): 2003; RA2019	BDL (DL: 0.02)	0.03	0.2
Arsenic (as As)	mg/L	IS 3025 (Part 37): 2022	BDL (DL: 0.005)	0.01	No Relaxation
Boron (as B)	mg/L	IS 3025(Part-57): 2005; RA2021	BDL (DL: 0.2)	0.5	1.0
Cadmium (as Cd)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 3111B	BDL (DL: 0.003)	0.003	No Relaxation
Total Chromium (as Cr)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 3111B	BDL (DL: 0.03)	0.05	No Relaxation
Copper (as Cu)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 3111B	BDL (DL: 0.03)	0.05	1,5
Iron (as Fe)	mg/L	APHA 23rd Ed.2017, 3111B	0.114	1.0	1.0
Lead (as Pb)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 3111B	BDL (DL: 0.01)	0.01	No Relaxation
Manganese (as Mn)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 3111B	BDL (DL: 0.05)	0.1	0.3
Mercury (as Hg)	mg/L	IS 3025 (Part-48): 1994; RA2019	BDL (DL: 0.001)	0.001	No Relaxation
Selenium (as Se)	mg/L	IS 3025 (Part-56): 2003; RA2019	BDL. (DL: 0.01)	0.01	No Relaxation
Zinc (as Zn)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 3111B	BDL (DL: 0.1)	5	15

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Reviewed by

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

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Dr. Deependra Kumar Sinha

Page 2 of 2

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# ENGINEERING SERVICES PVT. LTD.

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

### TEST REPORT

Test Report No.	: ELES/RNC/2024/1176	Report Release Date	: 13.02.2024	
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/DW/0915 : 02.02.2024 : 07.02.2024	
Address	: Lohardaga, Jharkhand-835302	Type of Sample Source/Location of Sample	: Drinking Water : Gurdari Bauxite Mines (584.19ha)	
Mines Status	: Operational	Sampling Procedure	: ELES/DOC/SMPL/01	
Period of Analysis	; 07.02.2024 to 13.02.2024	Sample Collected By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved	

Distriction D	alastani	Comme N	Carro	Regulat	ory Limit
Discipline: B	Discipline : Biological		Group : Water as per IS 1		
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
Total Coliform	Per 100 mL	IS 15185:2016; RA 2021	Not Detected	Chall mad	ha distrusted
Escherichia Coli (E. Coli)	Per 100 mL	IS 15185:2016; RA 2021	Not Detected	Shall not be detected	
was where			0.70	Regulat	ory Limit
Discipline :	Chemical	Group : \	Vater	as per 18	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 23 <sup>rd</sup> Edition: 6440 B	BDL (DL: 0.0001)	0.0001	No Relaxation
Polychlorinated Biphenyls (PCB)*	mg/L	APHA 23 <sup>rd</sup> Edition: 6431B	BDL (DL: 0.0005)	0.0005	No Relaxation

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

GINEERING SERVICES PVT. LTD.

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

Website: www.elespl.co.in

### TEST REPORT

Test Report No. : ELES/RNC/2024/1176 Report Release Date : 13.02.2024 Work Order Date : 21.04.2023 Work Order No. : 13612310218

Discipline : Chemical		Group: Water		Regulatory Limit as per IS 10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
Pesticides					
Alachlor*	μg/L	APHA 23 <sup>rd</sup> Edition 6630 B&C	BDL (DL: 1.0)	20	No Relaxation
Atrazine*	µg/L	APHA 23 <sup>rd</sup> Edition 6630 B&C	BDL (DL: 1.0)	2.0	No Relaxation
Aldrin/Dieldrin*	μg/L	APHA 23rd 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 <sup>rd</sup> Edition 6630 B&C	BDL (DL: 10)	125	No Relaxation
Chlorpyriphos*	µg/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 <sup>rd</sup> 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 <sup>rd</sup> Edition 6630 B&C	BDL (DL: 0.5)	0.1	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

Remarks: 1

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Reviewed by

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

Dr. Deependra Kuntar Striha

Page 2 of 2

ELES Pvt. Ltd. Technical Manager

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# ENVIRONMENTAL LABORATORIES &

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

# ENGINEERING SERVICES PVT. LTD.

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

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



TEST REPORT

Test Report No.	: ELES/RNC/2024/1180	Report Release Date	: 13.02.2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	
ULR No.	: TC883924000001116F			

CUSTOMER DET	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Sampling Date Sample Received Date	÷ ELES/RNC/2024/EF/0919 = 06.02,2024 ± 07.02,2024
Address	: Lohardaga, Jharkhand-835302	Type of Sample Source of Sample	: Effluent Water : Work Shop Effluent - Gurdar Bauxite Mines (584.19 ha)
Mines Status	: Operational	Sampling Procedure Sampling Done By	: ELES/DOC/SMPL/01 : ELES Pvt. Ltd.
Period of Analysis	: 07.02.2024 to 13.02,2024	Sample Condition	: Sealed & Preserved

Discipline: Chem	ical	Group: Pollution & Er	vironment	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	6.8		**
Fluoride (as F)	mg/L	1S 3025 (Part-60) :2008; RA2019	0.382	2.0	- 14
Sulphide (as S)	mg/L	IS 3025 (Part-29) :1986; RA2019	BDL (DL: 0.04)	2.0	25
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	Φ.
Manganese (as Mn)	mg/I.	APHA 23rd Ed.2017; 3111 B	0.195	2,0	-
Mercury (as Hg)	mg/L	IS 3025 (Part-48) :1994; RA2019	BDL (DL: 0.001)	0.01	- 22
Nickel (as Ni)	mg/L	APHA 23 <sup>rd</sup> Ed.2017; 3111 B	BDL (DL: 0.01)	3.0	+



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

Authorized Signatory Dr. Deependra Kumar Sintia

Ph D Environmental Enon

Page 1 of 1

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Save Environment, Save Future



# ENVIRONMENTAL LABORATORIES &

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

### ENGINEERING SERVICES PVT. LTD.

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

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



## TEST REPORT

Test Report No.	: ELES/RNC/2024/1166	Report Release Date	: 13.02.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883924000001102F		

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name Address	: Hindalco Industries Limited : Lohardaga, Jharkhand-835302	Sampling Date Sampling Received Date Type of Sample Sampling procedure Sample Drawn By	: 02.02.2024 to 03.02.2024 : 07.02.2024 : Ambient Noise : ELES/DOC/SMPL/03 : ELES Pvt. Ltd.	
Mines Status	: Operational	Period of Analysis	: 07.02.2024 to 13.02.2024	

M	ETEOROLOGICAL INFORMATION			
1	Average Temperature (°C) = 21	2	Barometric Pressure (mmHg)	‡ <b>738</b>
3	Relative Humidity (%) : 48	4	Weather Condition	: Clear

Location	Unit	Test Protocol	Res	ult	Regulatory Limit (Industrial Zone)
			Time	$L_{eq}$	
Near Mine Office Gurdari Bauxite Mine (584.19ha)	dB(A)	IS 9989:1981, RA 2020	Day Time	63	75 dB(A) Day Time &
Sample ID: ELES/RNC/2024/AN/0905		104 2020	Night Time	39	70 dB(A) Night Time



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

Authorised Signatory

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

Page 1 of 1

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# ENVIRONMENTAL LABORATORIES &

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

## ENGINEERING SERVICES PVT. LTD.

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

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



TEST REPORT

Test Report No.	: ELES/RNC/2024/1171	Report Release Date	: 13.02.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883924000001107F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name Address	: Hindalco Industries Limited : Lohardaga, Jharkhand-835302	Sampling Date Sampling Received Date Type of Sample Sampling procedure	: 02.02.2024 : 07.02.2024 : Workzone Noise : ELES/DOC/SMPL/03 : ELES Pvt. Ltd.
Mines Status	: Operational	Sample Drawn By Period of Analysis	: 07.02.2024 to 13.02.2024

M	ETEOROLOGICAL INFORMATION			
1	Average Temperature (°C) : 21	2	Barometric Pressure (mmHg)	: 738
3	Relative Humidity (%) : 48	4	Weather Condition	: Clear

Location	Unit	Test Protocol	Resi	alt	Regulatory Limit (Industrial Zone)
Near Kathuwapani Pit -			Time	$L_{eq}$	
Gurdari Bauxite Mine (584.19ha)	dB(A)	IS 4758:1968; RA 2017	D. Tr		90 dB (A)
Sample ID: ELES/RNC/2024/WN/0910		1371 2011	Day Time	74	



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

Authorised Signatory

Dr. Deependra Kumar Sining

Ph. D Environmental Engg.

ELES Pvt. Ltd. Technical Management

Page 1 of 1

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Lab | MHs, R-3 Housing Colony, Dhanbad, Pin - 826001, State | Harkinand C9830067044 / C9304513737

#### TEST REPORT

Test Report No.	: ELES/RNC/2024/1457	Report Release Date	: 10.04.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

CUSTOMER DET	CUSTOMER DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/1293 : Entrance Gate/Near Mine Office Gurdari Bauxite Mine (584.19ha)
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample	: 06.03.2024 to 07.03.2024 : 12.03.2024 : Ambient Air
Mines Status	: Operational	Sampling Procedure Sampling Done By	: ELES/DOC/SMPL/02 : ELES Pvt. Ltd.
Period of Analysis	: 12.03.2024 to 19.03.2024	Sample Condition	: Sealed & Preserved

MI	ETEOROLOGICAL INFOI	RMATION			
1	Average Temperature (aC)	: 22	2	Barometric Pressure (mmHg)	0.742
3	Relative Humidity (%)	:49	4	Weather Condition	: Clear

Discipline:	Chemical	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 <sub>2</sub> )	μg/m³	IS 5182 (Part-2): 2001; RA2022	8.8	80 (24hrs)	
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	24.9	80 (24hrs)	
Ozone (Os)	µg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)	
Ammonia (NH <sub>3</sub> )	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	0.007	1 (24hrs)	
Nickel (Ni)	ng/m²	IS 5182 (Part-26):2020	<6.0	20 (Annual)	
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01	<2.0	06 (Annual)	
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m³	ELES/GC/SOP/06	<2.5	05(Annual)	
Benzo-(a)-Pyrene	ng/m¹	ELES/GC/SOP/05	< 0.5	01(Annual)	

Reviewed by :

1000

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

VIROCA

Jharkhand 826001

(Saswata Burman Roy, Dy. Quality Manager)

Authorised Signatory:

Then"

(Bapan Das, Dy. Technical Manager)

Page 1 of 1





Test Report No.	: ELES/RNC/2024/1458	Report Release Date	z 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. Location	: ELES/RNC/2024/AA/1294 : Near Kathuwapani Pit-23 Gurdari Bauxite Mine (584,19ha)	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 06.03.2024 to 07.03.2024 : 12.03.2024	
Mines Status	: Operational	Type of Sample Sampling Procedure Sampling Done By	: Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.	
Period of Analysis	: 12.03.2024 to 19.03.2024	Sample Condition	: Sealed & Preserved	

M	ETEOROLOGICAL INFORMATION			
1	Average Temperature (°C) : 22	2	Barometric Pressure (mml	fg) : 742
3	Relative Humidity (%) : 49	4	Weather Condition	; Clear

Discipline:	Chemical	Group: Atmospheric Pollution			
Parameter	Unit	Unit Test Protocol		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	41	60 (24hrs)	
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part-2): 2001; RA2022	8.2	80 (24hrs)	
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part-6): 2006; RA2022	20.2	80 (24hrs)	
Ozone (O <sub>3</sub> )	μg/m <sup>1</sup>	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)	
Ammonia (NH <sub>3</sub> )	µg/m	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m1	IS 5182 (Part-10): 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)	
Lead (Pb)	μg/m <sup>3</sup>	IS 5182 (Part-22): 2004; RA2019	0.008	1 (24hrs)	
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part-26):2020	<6.0	20 (Annual)	
Arsenic (As)	ng/m¹	ELES/AIR/SOP/01	<2.0	06 (Annual)	
Benzene (C <sub>6</sub> H <sub>0</sub> )	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:

(my

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

(Saswata Burman Roy, Dy. Quality Manager)

Authorised Signatory:

Story

(Bapan Das, Dy. Technical Manager)

Page 1 of 1

Jharkhand 826001



: Operational

: 12.03.2024 to 19.03.2024



#### TEST REPORT

Test Report No.	: ELES/RNC/2024/1459	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.	: ELES/RNC/2024/AA/1295
		Location	Near Mine Weigh Bridge Gurdari Bauxite Mine (584,19ha)
Address	Lohardaga, Jharkhand-835302	Sampling Date	: 06.03.2024 to 07.03.2024
	Paristan and a second	Sample Received Date	±12.03,2024
		Type of Sample	: Ambient Air
Missas Stores	Overestional	Sampling Procedure	: ELES/DOC/SMPL/02

M	ETEOROLOGICAL INFORMATION			
.1	Average Temperature (°C) : 22	2	Barometric Pressure (mmH)	g) ±742
3	Relative Humidity (%) : 49	- 4	Weather Condition	: Clear

Sampling Done By

Sample Condition

Discipline:	Chemical	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Particulate Matter (PM10)	μg/m³	IS 5182 (Part-23): 2006; RA2022	84	100 (24hrs)		
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	52	60 (24turs)		
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m³	IS 5182 (Part-2); 2001; RA2022	14.2	80 (24hrs)		
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m <sup>3</sup>	1S 5182 (Part-6): 2006; RA2022	34.2	80 (24hrs)		
Ozone (O <sub>3</sub> )	µg/m²	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)		
Ammonia (NHs)	µg/m	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/m³	IS 5182 (Part-22); 2004; RA2019	0.017	1 (24hrs)		
Nickel (Ni)	ng/m <sup>7</sup>	IS 5182 (Part-26):2020	<6.0	20 (Annual)		
Arsenic (As)	ng/m <sup>1</sup>	ELES/AIR/SOP/01	<2.0	06 (Annual)		
Benzene (C <sub>6</sub> H <sub>6</sub> )	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 :

Bert.

Mines Status

Period of Analysis

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

ROCA

Jharkhand 826001

(Saswata Burman Roy, Dy. Quality Manager),

Authorised Signatory:

: ELES Pvt. Ltd. : Sealed & Preserved.

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(Bapan Das, Dy. Technical Manager)

Page 1 of 1



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TC/11501

#### TEST REPORT

Test Report No.	: ELES/RNC/2024/1460	Report Release Date	± 10.04.2024	
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/2024/AA/1296 : Near Dhobi Kutumb; Gurdari Bauxite Mine (584,19ha)
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 06.03.2024 to 07.03.2024 : 12.03.2024
Mines Status	: Operational	Type of Sample Sampling Procedure Sampling Done By	: Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.
Period of Analysis	: 12.03.2024 to 19.03.2024	Sample Condition	; Sealed & Preserved

METEOROLOGICAL INFORMATION				
F	Average Temperature (°C) : 22	2	Barometric Pressure (mml	Hg) : 742
3	Relative Humidity (%) : 49	- 4	Weather Condition	: Clear

Discipline:	Chemical	Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	µg/m³	1S 5182 (Part-23): 2006; RA2022	59	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	31	60 (24hrs)	
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part-2): 2001; RA2022	7.3	80 (24hrs)	
Nitrogen Di-Oxide (NO2)	μg/m³	IS 5182 (Part-6): 2006; RA2022	22.8	80 (24hrs)	
Ozone (O <sub>1</sub> )	μg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)	
Ammonia (NH <sub>3</sub> )	µg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m <sup>2</sup>	IS 5182 (Part-10): 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)	
Lead (Pb)	μg/m³	1S 5182 (Part-22): 2004; RA2019	0.011	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)	
Benzene (C <sub>6</sub> H <sub>6</sub> )	μg/m³	FLES/GC/SOP/06	<2.5	05(Annual)	
Benzo-(a)-Pyrene	ng/m³	ELES/GC/SOP/05	<0.5	01(Annual)	
A STATE OF THE STA	1				

Reviewed by :

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

(Saswata Burman Roy, Dy. Quality Manager)

Jharkhand 826001

Authorised Signatory:

(Bapan Das, Dy. Technical Manager)

Page 1 of 1







Test Report No.	: ELES/RNC/2024/1461	Report Release Date	: 10.04.2024	
Work Order No.	: 13612310218	Work Order Date	t 21.04.2023	

CUSTOMER DET/	AILS	SAMPLE DETAILS		
Customer Name	: Hindaleo Industries Limited	Sample Ref. No. Location Sampling Date	: ELES/RNC/2024/AA/1297 : Near Pakri Gada Village : 06.03.2024 to 07.03.2024	
Address	: Lohardaga, Jharkhand-835302	Sample Received Date Type of Sample	± 12.03.2024 ± Ambient Air	
Mines Status	: Operational	Sampling Procedure Sampling Done By	: ELES/DOC/SMPL/02 : ELES Pvt. Ltd.	
Period of Analysis	: 12.03.2024 to 19.03.2024	Sample Condition	: Sealed & Preserved	

M	ETEOROLOGICAL INFOR	MATION				
1	Average Temperature (°C)	: 22	2	Barometric Pressure (mmHg)	r 742	
3	Relative Humidity (%)	: 49	4	Weather Condition	; Clear	

Discipline	Chemical	Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	μg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2022	69	100 (24hrs)	
Particulate Matter (PM2.5)	µg/m³	IS 5182 (Part- 24): 2019	33	60 (24hrs)	
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part-2): 2001; RA2022	8.1	80 (24hrs)	
Nitrogen Di-Oxide (NOz)	μg/m³	IS 5182 (Part-6): 2006; RA2022	16.5	80 (24hrs)	
Ozone (O <sub>3</sub> )	μg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)	
Ammonia (NHs)	μg/m <sup>1</sup>	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/	IS 5182 (Part-22); 2004; RA2019	0.019	1 (24hrs)	
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part-26):2020	<6.0	20 (Annual)	
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)	
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m³	ELES/GC/SOP/06	<2.5	05(Annual)	
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05	< 0.5	01(Annual)	

Reviewed by :

( Done

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

TROC

Jharkhand

(Saswata Burman Roy, Dy. Quality Manager)

Authorised Signatory:

(Bapan Das, Dy. Technical Manager)

Page | of |





Test Report No.	: ELES/RNC/2024/1462	Report Release Date	: 10.04.2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DETA	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location Sampling Date	: ELES/RNC/2024/AA/1298 : Near Pol Pol Village : 06.03,2024 to 07.03,2024	
Address	: Lohardaga, Jharkhand-835302	Sample Received Date Type of Sample Sampling Procedure	: 12.03.2024 : Ambient Air : ELES/DOC/SMPL/02	
Mines Status	: Operational	Sampling Done By	: ELES Pvt. Ltd.	
Period of Analysis	: 12.03.2024 to 19.03.2024	Sample Condition	: Sealed & Preserved	

MI	ETEOROLOGICAL INFO	RMATION				
1	Average Temperature (°C)	: 22	2	Barometric Pressure (mmHg.	: 742	
3	Relative Humidity (%)	: 49	4	Weather Condition	; Clear	

Discipline:	Chemical	Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	μg/m <sup>3</sup>	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 <sub>2</sub> )	μg/m³	IS 5182 (Part-2): 2001; RA2022	9.2	80 (24hrs)	
Nitrogen Di-Oxide (NO2)	μg/m³	IS 5182 (Part-6): 2006; RA2022	25,3	80 (24hrs)	
Ozone (O <sub>3</sub> )	µg/m <sup>2</sup>	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)	
Ammonia (NH <sub>3</sub> )	μg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m <sup>1</sup>	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/m1	ELES/AIR/SOP/01	<2.0	06 (Annual)	
Benzene (C <sub>6</sub> H <sub>6</sub> )	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\*\*\*\*

(Saswata Burman Roy, Dy. Quality Manager)

Jharkhand

Authorised Signatory:

Chr.

(Bapan Das, Dy. Technical Manager)

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Test Report No.	: ELES/RNC/2024/1463	Report Release Date	: 10.04.2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DETA	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location Sampling Date	: ELES/RNC/2024/AA/1299 : Near Shakhuapani Village : 06.03.2024 to 07.03.2024	
Address Mines Status	: Lohardaga, Jharkhand-835302 : Operational	Sample Received Date Type of Sample Sampling Procedure Sampling Done By	: 12.03,2024 : Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.	
Period of Analysis	: 12.03,2024 to 19.03.2024	Sample Condition	: Sealed & Preserved	

MI	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 22	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 49	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	62	100 (24hrs)		
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	30	60 (24hrs)		
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m <sup>3</sup>	1S 5182 (Part-2): 2001; RA2022	6.5	80 (24hrs)		
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	25.2	80 (24hrs)		
Ozone (O <sub>3</sub> )	μg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)		
Ammonia (NH <sub>2</sub> )	μg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)		
Carbon Monoxide (CO)	mg/m <sup>3</sup>	1S 5182 (Part-10): 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)		
Lead (Pb)	μg/m <sup>1</sup>	IS 5182 (Part-22): 2004; RA2019	0.015	1 (24hrs)		
Nickel (Ni)	ng/m <sup>7</sup>	IS 5182 (Part-26):2020	<6.0	20 (Annual)		
Arsenic (As)	ng/m	ELES/AIR/SOP/01	<2.0	06 (Annual)		
Benzene (C <sub>6</sub> H <sub>6</sub> )	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\*\*\*\*

(Saswata Burman Roy, Dy. Quality Manager)

Authorised Signatory:

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(Bapan Das, Dy. Technical Manager).

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Test Report No.	: ELES/RNC/2024/1464	Report Release Date	: 10.04.2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04,2023	

CUSTOMER DETA	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location Sampling Date	: ELES/RNC/2024/AA/1300 : Near Dipa Kujam Village : 06.03.2024 to 07.03.2024
Address	: Lohardaga, Jharkhand-835302	Sample Received Date Type of Sample Sampling Procedure	: 12.03.2024 : Ambient Air : ELES/DOC/SMPL/02
Mines Status	:: Operational	Sampling Done By	: ELES Pvt. Ltd.
Period of Analysis	: 12,03,2024 to 19.03,2024	Sample Condition	: Sealed & Preserved

M	ETEOROLOGICAL INFORMATION			
1	Average Temperature (°C) : 22	2	Barometric Pressure (mml	(g) : 742
3	Relative Humidity (%) : 49	4	Weather Condition	; Clear

Discipline:	Chemical	Group: Atn	nospheric Pol	lution
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	μg/m³	IS 5182 (Part-23): 2006; RA2022	51	100 (24hrs)
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	39	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m <sup>3</sup>	IS-5182 (Part-2): 2001; RA2022	6.4	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m³	1S 5182 (Part-6); 2006; RA2022	21.5	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>1</sup>	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH <sub>2</sub> )	µg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m	1S 5182 (Part-10): 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	μg/m	15 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/m <sup>†</sup>	ELES/AIR/SOP/01	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	μg/m <sup>3</sup>	ELES/GC/SOP/06	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>1</sup>	ELES/GC/SOP/05	< 0.5	01(Annual)

Reviewed by :

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

Authorised Signatory:

San.

John .

(Saswata Burman Roy, Dy. Quality Manager)



(Bapan Das, Dy. Technical Manager)

Page 1 of 1



NAME OF THE PARTY OF THE PARTY





Test Report No.	: ELES/RNC/2024/1554	Report Release Date	: 10.04.2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

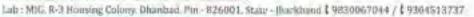
CUSTOMER DET	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/SM/1397 : Gurdari (584.19ha) Bauxite Mine DG (62 KVA)
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample	: 06.03.2024 : 15.03.2024 : Flue Gas
Mines Status	: Operational	Sampling Procedure Sampling Done By	: ELES/DOC/SMPL/02(A) : ELES Pvt. Ltd.
Period of Analysis	: 15.03.2024 to 23.03.2024	Sample Condition	: Sealed & Preserved

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

FL	EL CHARACTERISTICS DETAILS		
1	Type of Fuel Used	: HSD	
2	Fuel Consumption	= N/A.	
3	Caloritic Value of Fuel (Keal/Kg)	: N/A	



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#### TEST REPORT

Test Report Nu.	: ELES/RNC/2024/1554	Report Release Date	: 10.04.2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

Discipline ; Cl	remical	Group : Atmospheric	Pollution
Parameter	Unit	Test Protocol	Results
Particulate Matter (PM)	mg/Nm <sup>7</sup>	IS 11255 (Part-1): 1985; RA2019	48
Sulphur Di-Oxide (SO <sub>2</sub> )	mg/Nm <sup>3</sup>	USEPA 6C:2017	31
Oxides of Nitrogen (NO <sub>x</sub> )	mg/Nm <sup>3</sup>	USEPA 7E :2020	89
Carbon Monoxide (CO)	mg/Nm <sup>3</sup>	USEPA 10B :2017	44
Carbon Di- Oxide (CO <sub>2</sub> )	%	IS 13270:1992; RA2019	4.9
Flue Gas Temperature	°C	IS 11255 (Part-3); 2008; RA2018	166
Barometric Pressure	mmHg	IS 11255 (Part-3); 2008; RA2018	740
Velocity of Flue Gas	m/sec	IS 11255 (Part-3): 2008; RA2018	12.48
Quantity of Gas Flow	Nm³/hr	IS 11255 (Part-3); 2008; RA2018	242

Reviewed by :

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

(Saswata Burman Roy, Dy. Quality Manager)

Authorised Signatory:

(Bapan Das, Dy. Technical Manager





Test Report No.	: ELES/RNC/2024/1531	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/1317 : 06.03.2024 : 12.03.2024 : Surface Water	
Address	: Lohardagu, Jharkhand-835302	Source of Sample Location of Sample	: Spring Water : Jhapa Jhuri, Gordari Bauxite Mine (584,19ha)	
Mines Status	2 Operational	Sampling Procedure Sample Collected By	: ELES/DOC/SMPL/01 : ELES PVL Ltd.	
Period of Analysis	: 12.03.2024 to 29.03.2024	Sample Condition	: Sealed & Preserved	

Discipline: Chemic	al	Group	: Water	Tolerance Limits
Parameter U		Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water
pH (at 24.9 °C)	2,11	IS 3025 (Part 11): 2022	6.64	6.5-8.5
Colour	Hazen	IS 3025 (Part -4): 2021	2,0	300
Odour		IS 3025 (Part-5): 2018	Unobjectionable	+
Taste	~	APHA 23rd Ed.2017, 2160 C	N/A	
Turbidity	mg/L	IS 3025 (Part-10) :1984;RA2017	0.95	
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part 16):1984; RA2017	168	1500
Total Alkalinity (as CaCO <sub>3</sub> )	mg/L	1S 3025 (Part-23):1986; RA2019	56	
Total Hardness (as CaCO <sub>3</sub> )	mg/L	IS 3025 (Part-21); 2009; RA2019	68.4	
Sulphate (as SO <sub>4</sub> )	mg/L	IS 3025 (Part 24): 1986; RA2019	5.5	400
Nitrate (as NO <sub>2</sub> )	mg/L	APHA 23rd Ed.2017, 4500 NOs-B	1.43	50
Chloride (as Cl)	mg/L	1S 3025 (Part-32) :1988; RA2019	22.4	600
Fluoride (as F)	mg/L	1S 3025 (Part-60) :2008; RA2019	BDL (DL; 0,1)	1.5
Cyanide (as CN)	mg/L	APHA 23rd Ed.2017, 4500 CN-E.	BDL (DL: 0.012)	0.05
Phenols Compounds (as C,H+OH)	mg/L	IS 3025 (Part-43): 1992;RA2019	BDL (DL: 0.001)	0.005



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#### TEST REPORT

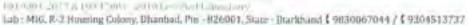
Test Report No.	: ELES/RNC/2024/1531	Report Release Date	: 10.04.2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

Discipline: Chemi	ical	Group: Wate	r	Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
Calcium (as Ca)	mg/L	1S 3025 (Part-40): 1991;RA2019	18.2	ree*
Free Residual Chlorine (RFC)	mg/L	IS 3025 (Part-26) :2021	BDL (DL; 0.1)	(44)
Anionic Surfactants (as MBAS)	mg/L	APHA 24th Ed.2023, 5540-C	BDL (DL: 0.025)	1.0
Discipline: Chemic	al	Group: Residue	es in Water	
Aluminium (as Al)	mg/L	1S 3025 (Part-55) :2003; RA2019	BDL (DL: 0.02)	p+
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 <sup>rd</sup> Ed,2017; 3111B	BDL (DL: 0.003)	0.01
Total Chromium (as Cr)	mg/L	APHA 23 <sup>rd</sup> Ed.2017; 3111B	BDL (DL; 0.03)	
Copper (as Cu)	mg/L	APHA 23 <sup>rd</sup> Ed.2017; 3111B	BDL (DL: 0.03)	1.5
Iron (as Fe)	mg/L	APHA 23 <sup>rd</sup> Ed.2017; 3111B	0.105	50
Lead (as Pb)	mg/L	APHA 23 <sup>rd</sup> Ed,2017, 3111 B	BDL (DL: 0.01)	0.1
Manganese (as Mn)	mg/L	APHA 23 <sup>rd</sup> 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 <sup>rd</sup> 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 Lah,



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Test Report No.	: ELES/RNC/2024/1531	Report Release Date	: 10.04.2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

Parameter	Unit	Test Protocol	Result	as per IS 22%-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)	-
Butachlor	μg/L	ELES/GC/SOP/01	BDL (DL: 0.5)	9.0
Chlorpyriphos	µg/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)	4
Monocrotophos	µg/L	ELES/GC/SOP/01	BDL (DL; 0.5)	*
Phorate	μg/L	ELES/GC/SOP/01	BDL (DL: 0.5)	4
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)	-
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)	-
DDT(o,p and p,p-isomers of DDT,DDEand DDD)	µg/L	ELES/GC/SOP/02	BDL (DL: 0.05)	- 2



PRODUCED & POSTORIE DELETE CONTENSANO Lab : MIG, R-3 Housing Colony, Dhanbad, Pin - 826001, State - Bankmand \$ 9830067044 / \$ 9304513737



## TEST REPORT

Test Report No.	: ELES/RNC/2024/1531	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 IS 2296-1992 Class C (Inland Surface Water)
Total Coliform	CFU/100 mL	IS 15185; 2016, RA2021	4.5×10 <sup>2</sup>	5000
Escherichia Coll	CFU/100 mL	IS 15185; 2016; RA2021	8.8×10 <sup>3</sup>	-

Reviewed by:

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

Authorised Signatory:

(Saswata Burman Roy, Dy. Quality Manager)



(Bapan Das, Dy. Technical Manager)



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Test Report No.	: ELES/RNC/2024/1537	Report Release Date	: 10.04.2024
Work Order No.	: 13612310218	Work Order Date	; 21.04.2023

CUSTOMER DET	CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Sampling Date Sample Received Date Type of Sample	: ELES/RNC/2024/SW/1323 : 06.03.2024 : 12.03.2024 : Surface Water		
Address	: Lohardaga, Jharkhind-835302	Source of Sample Location of Sample	; Down Stream ; Dhardhari Nadi, Gurdari Bauxite Mine (584.19ha)		
Mines Status	: Operational	Sampling Procedure Sample Collected By	: ELES/DOC/SMPL/01 : ELES Pvt. Ltd.		
Period of Analysis	: 12.03.2024 to 29.03.2024	Sample Condition	: Sealed & Preserved		

Discipline : Chemic	al	Group	: Water	Tolerance Limits
Parameter	Unit	Test Protocul	Result	as per IS 2296-1992 Class C (Inland Surface Water)
pH (at 24,9 °C)	-	IS 3025 (Part 11): 2022	6.65	6,5-8,5
Colour	Hazen	IS 3025 (Part -4): 2021	6.0	300
Odour	-	1S 3025 (Part-5): 2018	Unobjectionable	~
Taste	-	APHA 23* Ed.2017, 2160 C	N/A	
Turbidity	mg/L	IS 3025 (Part-10):1984;RA2017	2.57	
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part 16):1984; RA2017	269	1500
Total Alkalinity (as CaCO <sub>3</sub> )	mg/L	IS 3025 (Part-23):1986; RA2019	84.8	9
Total Hardness (as CaCO <sub>3</sub> )	mg/L	IS 3025 (Part-21) : 2009; RA2019	116	
Sulphate (as SO <sub>4</sub> )	mg/L	1S 3025 (Part 24): 1986; RA2019	8.5	400
Nitrate (as NO <sub>3</sub> )	mg/L	APHA-23 <sup>rd</sup> Ed.2017, 4500 NO <sub>3</sub> -B	2.35	.50
Chloride (as Cl)	mg/L	15-3025 (Part-32) :1988; RA2019	48.2	-600
Fluoride (as F)	mg/L	IS 3025 (Part-60) :2008; RA2019	0.131	1.5
Cyanide (as CN)	mg/L	APHA 23 <sup>14</sup> Ed,2017, 4500 CN-E	BDL (DL: 0.012)	0.05
Phenols Compounds (as CallyOH)	mg/L	1S 3025 (Part-43): 1992;RA2019	BDL (DL: 0.001)	0.005



Test Report No. : ELES/RNC/2024/1537 Report Release Date : 10.04.2024

Work Order No. : 15612310218 Work Order Date : 21.04.2023

Discipline: Chemi	cal	Group: Wate	r	Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per 1S 2296-1992 Class C (Inland Surface Water)
Calcium (as Ca)	mg/L	1S 3025 (Part-40): 1991:RA2019	26,3	- 4
Free Residual Chlorine (RFC)	mg/L	IS 3025 (Part-26) :2021	BDL (DL: 0.1)	
Anionic Surfactants (as MBAS)	mg/L	APHA 24th Ed.2023, 5540-C	BDL (DL: 0.025)	1.0
Discipline: Chemical Group: Residue			es in Water	
Aluminium (as AI)	mg/L	IS 3025 (Part-55) :2003; RA2019	BDL (DL: 0.02)	
Arsenic (as As)	mg/L	18 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 <sup>rd</sup> Ed.2017; 3111B	BDL (DL: 0,003)	0.01
Total Chromium (as Cr)	mg/L	APHA 23 <sup>rd</sup> Ed.2017; 3111B	BDL (DL: 0.03)	
Copper (as Cu)	mg/L	APHA 23 <sup>rd</sup> Ed.2017; 3111B	BDL (DL: 0.03)	1.5
Iran (as Fe)	mg/L	APHA 23 <sup>rd</sup> Ed.2017; 3111B	0.348	50
Lead (as Ph)	mg/L	APHA 23rd Ed.2017, 3111 B	BDL (DL: 0.01)	0.1
Manganese (as Mn)	mg/L	APHA 23 <sup>rd</sup> 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 23rd Ed.2017, 3111 B	BDL (DL: 0.1)	15
Pulynuclear Aromatic Hydrocarbons (PAH)	μg/L	ELES/GC/SOP/04	BDL (DL: 0.05)	-

Remarks: L. pH & RFC done at Lah.

Lab : MIG, R-3 Housing Colony, Dhanfied, Pin - 62600 L State - [harkhand \$ 9830067044 / \$ 9304513737



Test Report No.	: ELES/RNC/2024/1537	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)
l'esticides				
Alachlor	µg/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)	(44)
Chlorpyriphos	µg/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	µg/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)	1+1
Beta HCH	µg/L	ELES/GC/SOP/02	BDL (DL: 0.02)	)+-
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)	-
DDT(o,p and p,p-isomers of DDT,DDEand DDD)	µg/L	ELES/GC/SOP/02	BDL (DL: 0.05)	-



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## TEST REPORT

Test Report No.	: ELES/RNC/2024/1537	Report Release Date	: 10.04.2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

Discipline : Bi	iological	Group : Wa	ater	Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
Total Coliform	CFU/100 mL	IS 15185; 2016, RA2021	2.36×10 <sup>2</sup>	5000
Escherichia Coli	CFU/100 ml.	IS 15185; 2016; RA2021	8.0	-

Reviewed by:

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

Authorised Signatory :

(Saswata Burman Roy, Dy. Quality Manager)



(Bapan Das, Dy. Technical Manager)



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Test Report No.	: ELES/RNC/2024/1535	Report Release Date	: 10.04.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04,2023

CUSTOMER DET	CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Sampling Date Sample Received Date Type of Sample	: ELES/RNC/2024/SW/1321 : 06,03,2024 : 12,03,2024 : Surface Water		
Address	= Lohardaga, Jharkhand-835302	Source of Sample Location of Sample	: Down Stream : Koyal River, Gurdari Bauxite Mine (584,19ha)		
Mines Status	: Operational	Sampling Procedure Sample Collected By	: ELES/DOC/SMPL/01 : ELES Pvt. Ltd.		
Period of Analysis	: 12.03.2024 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 24.9°C)		IS 3025 (Part 11): 2022	6.74	6.5-8.5
Colour	Hazen	IS 3025 (Part -4): 2021	6.0	300
Odour	-	1S 3025 (Part-5) : 2018	Unobjectionable	-
Taste	-	APHA 23rd Ed.2017, 2160 C	N/A	A
Turbidity	mg/L	IS 3025 (Part-10):1984;RA2017	4,32	
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part 16):1984; RA2017	278	1500
Total Alkalinity (as CaCO <sub>1</sub> )	mg/L	15 3025 (Part-23) :1986; RA2019	86.2	100
Total Hardness (as CaCO <sub>3</sub> )	mg/L	1S 3025 (Part-21): 2009; RA2019	132	**
Sulphate (as SO <sub>4</sub> )	mg/L	1S 3025 (Part 24): 1986; RA2019	8.6	400
Nitrate (as NO <sub>2</sub> )	mg/L	APHA 23rd Ed.2017, 4500 NO3-B	2.05	50
Cliloride (as Cl)	mg/L	IS 3025 (Part-32) :1988; RA2019	38.2	600
Fluoride (as F)	mg/L	IS 3025 (Part-60) :2008; RA2019	0.182	1.5
Cyanide (as CN)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 4500 CN-E	BDL (DL; 0.012)	0,05
Phenols Compounds (as C <sub>n</sub> H <sub>2</sub> OH)	mg/L	IS 3025 (Part-43); 1992;RA2019	BDL (DL; 0.001)	0,005



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# TEST REPORT

Test Report No.	± ELES/RNC/2024/1535	Report Release Date	: 10.04.2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

Discipline: Chemi	cal	Group: Wate	r.	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	35.2	
Free Residual Chlorine (RFC)	mg/L	(\$ 3025 (Part-26) :2021	BDL (DL: 0.1)	
Anionic Surfactants (as MBAS)	mg/L	APHA 24th Ed.2023, 5540-C	BDL (DL: 0.025)	1.0
Discipline: Chemic	al	Group: Residue	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)	2
Cadmium (as Cd)	mg/L	APHA23 <sup>rd</sup> Ed.2017; 3111B	BDL (DL; 0.003)	0.01
Total Chromium (as Cr)	mg/L	APHA 23 <sup>rd</sup> Ed.2017; 3111B	BDL (DL: 0.03)	-
Copper (as Cu)	mg/L	APHA 23 <sup>rd</sup> Ed.2017; 3111B	BDL (DL: 0.03)	1.5
Iron (as Fe)	mg/L	APRA 23rd Ed,2017; 3111B	0.224	50
Lead (as Pb)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 3111 B	BDL (DL; 0.01)	0.1
Manganese (as Mn)	mg/L	APHA 23 <sup>rd</sup> 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
Zinc (as Zn)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 3111 B	BDL (DL: 0.1)	15
Polymuclear Aromatic Hydrocarbons (PAH)	μg/L	ELES/GC/SOP/04	BDL (DL: 0.05)	-

Remarks: L. pl 1 & RFC done at Lab.



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Test Report No.	: ELES/RNC/2024/1535	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	μ <u>u</u> /L	ELES/GC/SOP/01	BDL (DL: 0.5)	1-
Atrazine	µg/L	ELES/GC/SOP/01	BDL (DL: 0.5)	-
Butachlor	μg/L	ELES/GC/SOP/01	BDL (DL: 0.5)	-
Chlorpyriphas	µg/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)	(an
Methyl parathion	μg/L.	ELES/GC/SOP/01	BDL (DL: 0.1)	(an)
Monocrotophos	µg/L	ELES/GC/SOP/01	BDL, (DL: 0.5)	100
Phorate	µg/L	ELES/GC/SOP/01	BDL (DL: 0.5)	-
Phorate Sulphone	µg/L	ELES/GC/SOP/01	BDL (DL: 0.5)	- 24
Dieldrin	п9Л.	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)	-
Delta HCH	μg/L	ELES/GC/SOP/02	BDL (DL: 0.02)	-
Gamma HCH (Lindane)	µp/L	ELES/GC/SOP/02	BDL (DL: 0.02)	(AM)
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/L	ELES/GC/SOP/02	BDL (DL: 0.05)	-



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# TEST REPORT

Test Report No.	: ELES/RNC/2024/1535	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 IS 2296-1992 Class C (Inland Surface Water)
Total Coliform	CFU/100 ml.	IS 15185: 2016, RA2021	3.81×10 <sup>2</sup>	5000
Escherichia Coli	CFU/100 mL	IS 15185; 2016; RA2021	12.0	-

Reviewed by:

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

Authorised Signatory:

(Saswata Burman Roy, Dy. Quality Manager)



(Bapan Das, Dy. Technical Manager)



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Lab : MiG, R-3 Housing Colony, Dhumbad, Pin - 826061, State - (harbchand & 9830067044 / \$ 9364513737

Test Report No.	: ELES/RNC/2024/1533	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/RNO 2024/SW/1319 : 06.03.2024 : 12.03.2024 : Surface Water	
Address	: Lohardaga, Jharkhand-835302	Source of Sample Location of Sample	Down Stream     Sankh Nadi, Gurdari Bauxite     Mine (584.19ha)	
Mines Status	: Operational	Sampling Procedure Sample Collected By	: ELES/DOC/SMPL/01 : ELES Pvt. Ltd.	
Period of Analysis	: 12.03.2024 to 29.03.2024	Sample Condition	: Sealed & Preserved	

Discipline : Chemic	cal	Group	: Water	Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
pH (at 24.9 °C)	1.9	IS 3025 (Part 11): 2022	6.85	6.5+8.5
Colour	Hazen	IS 3025 (Part -4): 2021	3.0	300
Odour	-	1S 3025 (Part-5) : 2018	Unobjectionable	
Taste	120	APHA 23 <sup>rd</sup> Ed.2017, 2160 C	N/A	
Turbidity	mg/L	IS 3025 (Part-10) :1984;RA2017	2.43	
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part 16):1984; RA2017	297	1500
Total Alkalinity (as CaCO <sub>1</sub> )	mg/L	IS 3025 (Part-23) :1986; RA2019	98.2	
Total Hardness (as CaCO <sub>1</sub> )	mg/L	IS 3025 (Part-21): 2009; RA2019	124	2
Sulphate (as SO <sub>1</sub> )	mg/L	IS 3025 (Part 24): 1986; RA2019	15,8	400
Nitrate (as NO <sub>3</sub> )	mg/L	APHA 23 <sup>st</sup> Ed.2017, 4500 NO <sub>3</sub> -B	2.12	50
Chloride (as Cl)	mg/L	1S 3025 (Part-32):1988; RA2019	37.5	600
Fluoride (as F)	mg/L	IS 3025 (Part-60) :2008; RA2019	0.124	1.5
Cyanide (as CN)	mg/L	APHA 23 <sup>rd</sup> Ed,2017, 4500 CN-E	BDL (DL: 0.012)	0.05
Phenols Compounds (as C <sub>s</sub> H <sub>3</sub> 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, Dhanbad, Pin - 826001, State - (harkland \$ 9830067044 / \$ 9304513737

### TEST REPORT

Test Report No.	: ELES/RNC/2024/1533	Report Release Date	: 10.04.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

Discipline: Chemi	cal	Group: Wate	r	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	33.1	-
Free Residual Chlorine (RFC)	mg/L	IS 3025 (Part-26) ;2021	BDL (DL: 0.1)	ш.
Anionic Surfactants (as MBAS)	mg/L	APHA 24th Ed.2023, 5540-C	BDL (DL: 0.025)	1,0
Discipline: Chemic	al	Group: Residue	es in Water	
Aluminium (as Al)	mg/L	IS 3025 (Part-55) :2003; RA2019	BDL (DL: 0.02)	-
Arsenic (as As)	mg/L	(S 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 <sup>rd</sup> Ed.2017; 3111B	BDL (DL: 0.003)	0.01
Total Chromium (as Cr)	mg L	APHA 23 <sup>rd</sup> Ed.2017; 3111B	BDL (DL: 0.03)	-
Copper (as Cu)	mg/L	APHA 23 <sup>rd</sup> Ed.2017; 3111B	BDL (DL: 0.03)	1.5
Iron (as Fe)	mg/L	APHA 23rd Ed.2017; 3111B	0.151	50
Lead (as Pb)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 3111 B	BDL (DL: 0.01)	0.1
Manganese (as Mn)	mg/L	APHA 23 <sup>rd</sup> 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	JS 3025 (Part-56) :2003; RA2019	BDL (DL: 0.01)	0,05
Zinc (as Zn)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 3111 B	BDL (DL: 0.1)	15
Polynuclear Aromatic Hydrocarbons (PAH)	µg/L	ELES/GC/SOP/04	BDL (DL: 0.05)	-

Remarks: 1. pH & RFC done in Lab.



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Test Report No.	: ELES/RNC/2024/1533	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: 0.5)	
Atrazine	μg/L	ELES/GC/SOP/01	BDL (DL: 0.5)	
Butachlor	ug/L	ELES/GC/SOP/01	BDL (DL: 0.5)	-
Chlorpyriphos	ng/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)	- 5
Monocrotophos	μg/L-	ELES/GC/SOP/01	BDL (DL: 0.5)	'ж
Phorate	µg/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)	2
Delta HCH.	μg/L	ELES/GC/SOP/02	BDL (DL: 0.02)	7.6
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/L	ELES/GC/SOP/02	BDL (DL: 0.05)	imi





Test Report No.	: ELES/RNC/2024/1533	Report Release Date	: 10.04.2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

Discipline : Biological		Group : Wa	Group : Water	
Parameter	Unit	Test Protocol	Result	as per 1S 2296-1992 Class C (Inland Surface Water)
Total Coliform	CFU/100 mL	IS 15185; 2016, RA2021	1.16×10 <sup>2</sup>	5000
Escherichia Coli	CFU/100 mL	IS 15185: 2016; RA2021	<1.0	

Reviewed by :

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

Authorised Signatory:

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(Saswata Burman Roy, Dy. Quality Manager)



(Bapan Das. Dy. Technical Manager)



Test Report No.	: ELES/RNC/2024/1536	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/1322 : 06.03.2024 : 12.03.2024 : Surface Water
Address	: Lohardaga, Jharkhand-835302	Source of Sample Location of Sample	: Up Stream : Dhardhari Nadi, Gurdari Bauxite Mine (584,19ha)
Mines Status	: Operational	Sampling Procedure Sample Collected By	: ELES/DOC/SMPL/01 : ELES Pvt. Ltd.
Period of Analysis	: 12.03.2024 to 29.03,2024	Sample Condition	: Sealed & Preserved

Discipline: Chemic	cal	Group	: Water	Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
pH (at 24.9°C)	100	IS 3025 (Part 11): 2022	6.85	6.5-8.5
Colour	Hazen	1S 3025 (Part -4): 2021	5.0	300
Odour	13-	IS 3025 (Part-5): 2018	Unobjectionable	-
Taste	-	APHA 23 <sup>rd</sup> Ed.2017, 2160 C	N/A	- 20
Turbidity	mg/L	1S 3025 (Part-10):1984;RA2017	10.5	- 2
Total Dissolved Solids (TDS)	mg/L	1S 3025 (Part 16):1984; RA2017	235	1500
Total Alkalinity (as CaCO <sub>1</sub> )	mg/L	IS 3025 (Part-23) ;1986; RA2019	68.5	-
Total Hardness (as CaCO <sub>7</sub> )	mg/L	IS 3025 (Part-21); 2009; RA2019	98.8	2-
Sulphate (as SO <sub>4</sub> )	mg/L	1S 3025 (Part 24): 1986; RA2019	12.5	400
Nitrate (as NO <sub>2</sub> )	mg/L	APHA 23rd Ed.2017, 4500 NO3-B	2.15	50
Chloride (as Cl)	mg/L	IS 3025 (Part-32):1988; RA2019	40.4	600
Fluoride (as F)	mg/L	IS 3025 (Part-60) :2008; RA2019	0,153	1.3
Cyanide (as CN)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 4500 CN-E	BDL, (DL; 0.012)	0.05
Phenols Compounds (as C <sub>a</sub> H <sub>5</sub> OH)	mg/L	1S 3025 (Part-43): 1992;RA2019	BDL (DL: 0.001)	0.005

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Lab : MIG. R-3 Hearting Calony, Dhankad. Pin - 826001, State - Harkband I 9830067044 / I 9304513737

# TEST REPORT

Test Report No.	; ELES/RNC/2024/1536	Report Release Date	: 10.04.2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

Discipline: Chemi	ical	Group: Wate	er	Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C Unland Surface Water
Calcium (as Ca)	mg/L	IS 3025 (Part-40); 1991;RA2019	26.3	-
Free Residual Chlorine (RFC)	mg/L	(S 3025 (Part-26) :202)	BDL (DL: 0.1)	+
Anionic Surfactants (as MBAS)	mg/L	APHA 24th Ed.2023, 5540-C	BDL (DL: 0.025)	1.0
Discipline: Chemic	al	Group: Residue	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)	8
Cadmium (as Cd)	mg/L	APHA23 <sup>rd</sup> Ed.2017; 3111B	BDL (DL: 0.003)	0.01
Total Chromium (as Cr)	mg/L	APHA 23 <sup>rd</sup> Ed.2017; 3111B	BDL (DL: 0.03)	*
Copper (as Cu)	mg/L	APHA 23 <sup>rd</sup> Ed.2017; 3111B	BDL (DL: 0.03)	1.5
Iron (as Fc)	mg/L	APHA 23rd Ed,2017; 3111B	0.335	50
Lead (as Pb)	mg/L	APHA 23 <sup>rd</sup> Ed,2017, 3111 B	BDL (DL: 0.01)	0,1
Manganese (as Mn)	mg/L	APHA 23 <sup>rd</sup> Ed.2017; 3111 B	BDL (DL: 0.05)	
Mercury (as Hg)	mg/L	IS 3025 (Part-48) ;1994; RA2019	BDL (DL: 0.001)	100
Selenium (as Se)	mg/L	3S 3025 (Part-56) :2003; RA2019	BDL (DL: 0.01)	0.05
Zinc (as Zn)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 3111 B	BDL (DL: 0.1)	15
Polynuclear Aromatic Hydrocarbons (PAH)	pg/L	ELES/GC/SOP/04	BDL (DL: 0.05)	(4)

Remarks:1, pH & RFC done at Lab.



Test Report No.	: ELES/RNC/2024/1536	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			2	
Alachlor	µg/L	ELES/GC/SOP/01	BDL (DL: 0.5)	~
Atrazine	µg/L	ELES/GC/SOP/01	BDL (DL: 0.5)	-
Butachlor	ug/L	ELES/GC/SOP/01	BDL (DL: 0,5)	(44)
Chlorpyriphos	µg/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)	т.
Phorate	μg/1.	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)	-
Delta HCH	нд/Т.	ELES/GC/SOP/02	BDL (DL: 0.02)	
Gamma HCH (Lindane)	µg/L	ELES/GC/SOP/02	BDL (DL: 0.02)	186
Endosulfan (alpha, beta and sulphate)	µg/L	ELES/GC/SOP/02	BDL (DL: 0.05)	/46
DDT(o,p and p,p-isomers of DDT,DDEand DDD)	µg/L	ELES/GC/SOP/02	BDL (DL: 0.05)	



Test Report No.	: ELES/RNC/2024/1536	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	5,36×10 <sup>2</sup>	5000
Escherichia Coli	CFU/100 mL	IS 15185: 2016; RA2021	32.0	-

Reviewed by:

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

Authorised Signatory:

16

(Saswata Burman Roy, Dy. Quality Manager)



(Bapan Das, Dy. Technical Manager)



Test Report No.	: ELES/RNC/2024/1534	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/1320 : 06.03.2024 : 12.03.2024 : Surface Water
Address	: Lohardaga, Harkhand-835302	Source of Sample Location of Sample	: Up Stream : Koyal River, Gurdari Bauxite Mine (584.19ha)
Mines Status	: Operational	Sampling Procedure Sample Collected By	: ELES/DOC/SMPL/01 : ELES Pvt, Ltd.
Period of Analysis	: 12,03,2024 to 29,03,2024	Sample Condition	: Sealed & Preserved

Discipline: Chemic	cal	Group	: Water	Tolerance Limits	
Parameter U		Test Protocol	Result	as per 1S 2296-1992 Class C (Inland Surface Water	
pH (at 24.9°C)	110	IS 3025 (Part 11): 2022	6.68	6.5-8.5	
Colour	Hazen	IS 3025 (Part -4): 2021	5.0	300	
Odour		IS 3025 (Part-5): 2018	Unobjectionable	++	
Taste	- 4	APHA 23rd Ed.2017, 2160 C	N/A		
Turbidity	mg/L	IS 3025 (Part-10):1984;RA2017	1.02	**	
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part 16):1984; RA2017	285	1500	
Total Alkalinity (as CaCO <sub>3</sub> )	mg/L	IS 3025 (Part-23):1986; RA2019	85.4		
Total Hardness (as CaCO <sub>1</sub> )	mg/L	1S 3025 (Part-21): 2009; RA2019	120	2-	
Sulphate (as SO <sub>4</sub> )	mg/L	IS 3025 (Part 24) ; 1986; RA2019	9.2	400	
Nitrate (as NO <sub>3</sub> )	mg/L	APHA 2312 Ed.2017, 4500 NO <sub>3</sub> -B	2.08	50	
Chloride (as Cl)	mg/L	IS 3025 (Part-32):1988; RA2019	52,8	500	
Fluoride (as F)	mg/L	IS 3025 (Part-60) :2008; RA2019	0.123	1.5	
Cyanide (as CN)	mg/L	APHA 23rd Ed.2017, 4500 CN-E.	BDL (DL: 0.012)	0.05	
Phenols Compounds (as C <sub>0</sub> H <sub>2</sub> OH)	mg/L	IS 3025 (Part-43); 1992;RA2019	BDL. (DL: 0.001)	0.005	



Test Report No.	: ELES/RNC/2024/1534	Report Release Date	: 10.04.2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

Discipline: Chemi	eal	Group: Wate	er	Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per 15 2296-1992 Class C (Inland Surface Water)
Calcium (as Ca)	mg/L	IS 3025 (Part-40): 1991;RA2019	32.0	-
Free Residual Chlorine (RFC)	mg/L	IS 3025 (Part-26) :2021	BDL (DL: 0,1)	
Anionic Surfactants (as MBAS)	mg/L	APHA 24th Ed.2023, 5540-C	BDL (DL; 0.025)	0,1
Discipline: Chemical Group: R			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 <sup>rd</sup> Ed.2017; 3111B	BDL (DL; 0.003)	0.01
Total Chromium (as Cr)	mg/L	APHA 23th Ed.2017; 3111B	BDL (DL: 0.03)	~
Copper (as Cu)	mg/L	APHA 23 <sup>rd</sup> Ed.2017; 3111B	BDL (DL: 0.03)	1.5
fron (as Fe)	mg/L	APHA 23rd Ed,2017; 3111B	0.217	50
Lead (as Pb)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 3111 B	BDL (DL: 0.01)	0.1
Manganese (as Mn)	mg/L	APHA 23 <sup>rd</sup> 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 <sup>rd</sup> Ed.2017, 3111 B	BDL (DL: 0.1)	15
Polynuclear Aromatic Hydrocarbons (PAH)	µg/L	ELES/GC/SOP/04	BDL (DL: 0.05)	-

Remarks: 1. pH & RFC done at Lab.



Test Report No.	: ELES/RNC/2024/1534	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)	
Butachlor	µg/L	ELES/GC/SOP/01	BDL (DL: 0.5)	44
Chlorpyriphos	µg/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	11g/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)	-
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)	-
Delta HCH	µg/L	ELES/GC/SOP/02	BDL (DL: 0.02)	100
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/L	ELES/GC/SOP/02	BDL (DL: 0.05)	-



Lab - MIG, R-3 Housing Colony, Dhanbad, Pin - 826001, State - Iharkhand ( 9830067044 / ( 9304513737



# TEST REPORT

Test Report No.	: ELES/RNC/2024/1534	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 IS 2296-1992 Class C (Inland Surface Water)
Total Coliform	CFU/100 mL	IS 15185: 2016, RA2021	6.45×10 <sup>2</sup>	5000
Escherichia Coli	CFU/100 mL	IS 15185; 2016; RA2021	14.0	-

Reviewed by :

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

Authorised Signatory:

Shan.

(Saswata Burman Roy, Dy. Quality Manager)



(Bapan Das, Dy. Technical Manager)



Lab: MIG, R-3 Hossing Colony, Dhantool, Pin - 825001, State - Harkfrand 1 9830067044 / 1 9304513737



Test Report No.	: ELES/RNC/2024/1532	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/1318 : 06.03.2024 : 12.03.2024 : Surface Water
Address	: Lohardaga, Jharkhand-835302	Source of Sample Location of Sample	: Up Stream : Sankh Nadi, Gurdari Bauxite Mine (584.[9ha)
Mines Status	: Operational	Sampling Procedure Sample Collected By	: ELES/DOC/SMPL/01 : ELES Pvt. Ltd.
Period of Analysis	: 12.03.2024 to 29.03.2024	Sample Condition	: Sealed & Preserved

Discipline : Chemic	cal.	Group	: Water	Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
pH (at 24.9 °C)	1181	IS 3025 (Part 11): 2022	6.78	6.5-8.5
Colour	Hazen	IS 3025 (Part -4): 2021	4.0	300
Odour		IS 3025 (Part-5): 2018	Unobjectionable	
Taste	-	APHA 23rd Ed.2017, 2160 C	N/A	
Turbidity	mg/L	1S 3025 (Part-10);1984;RA2017	0.98	**
Total Dissolved Solids (TDS)	mg/L	1S 3025 (Part 16):1984; RA2017	195	1500
Total Alkalinity (as CaCO <sub>3</sub> )	mg/L	IS 3025 (Part-23):1986; RA2019	65.6	184
Total Hardness (as CaCO <sub>2</sub> )	mg/L	IS 3025 (Part-21) : 2009; RA2019	82	- 1
Sulphate (as SO <sub>4</sub> )	mg/L	IS 3025 (Part 24); 1986; RA2019	15.2	400
Nitrate (as NO <sub>2</sub> )	mg/L	APHA 23rd Ed.2017, 4500 NOs -B	1,59	50
Chloride (as Cl)	mg/L	1S 3025 (Part-32):1988; RA2019	24.2	600
Fluoride (as F)	mg/L	1S 3025 (Part-60) :2008; RA2019	0.138	1.5
Cyanide (as CN)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 4500 CN-E	BDL (DL: 0.012)	0.05
Phenols Compounds (as C <sub>0</sub> H <sub>3</sub> OH)	mg/L	1S 3025 (Part-43); 1992;RA2019	BDL (DL: 0.001)	0.005



Test Report No. : ELES/RNC/2024/1532 Report Release Date : 10.04.2024 Work Order No. Work Order Date : 21.04.2023 : 13612310218

Discipline: Chemi	ical	Group: Wate	r	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	21.8	
Free Residual Chlorine (RFC)	mg/L	IS 3025 (Part-26) :2021	BDL (DL: 0.1)	- 4
Anionic Surfactants (as MBAS)	mg/L	APHA 24th Ed:2023, 5540-C	BDL (DL: 0.025)	1.0
Discipline: Chemic	al	Group: Residue	es in Water	
Aluminium (as Āl)	mg/L	IS 3025 (Part-55) :2003; RA2019	BDL (DL: 0.02)	8
Arsenic (as As)	mg/L	18 3025 (Part-37): 2022	BDL (DL: 0.005)	0.2
Boron (as B)	mg/L	IS 3025 (Part-57) :2021	BDL (DL: 0.2)	12
Cadmium (as Cd)	mg/L	APHA23 <sup>rd</sup> Ed.2017; 3111B	BDL (DL: 0.003)	0.0
Total Chromium (as Cr)	mg/L	APHA 23 <sup>rd</sup> Ed.2017; 3111B	BDL (DL: 0.03)	Sec
Copper (as Cu)	mg/L	APHA 23 <sup>et</sup> Ed.2017; 3111B	BDL (DL: 0.03)	1.5
Iron (as Fe)	mg/L	APHA 23rd Ed,2017; 3111B	0.132	.50
Lead (as Pb)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 3111 B	BDL (DL: 0.01)	0.1
Manganese (as Mn)	mg/L	APHA 23 <sup>rd</sup> Ed.2017; 3111 B	BDL (DL: 0.05)	F
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 <sup>rd</sup> 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: 1. pH & RFC done at Lab.





Test Report No.	: ELES/RNC/2024/1532	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: 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	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	μg/L	ELES/GC/SOP/01	BDL (DL: 0.5)	
Phorate Sulphone	pg/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)	-
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)	-
DDT(o,p and p,p-isomers of DDT,DDEand DDD)	µg/L	ELES/GC/SOP/02	BDL (DL: 0.05)	





Lab : M3G; R-3 (Housing Colony; Dhumbad; Pin - 826001; State - Barkhand ( 9830067044 / ( 9304513737

#### TEST REPORT

Test Report No.	: ELES/RNC/2024/1532	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 IS 2296-1992 Class C (Inland Surface Water)
Total Coliform	CFU/100 mL	IS 15185; 2016, RA2021	2,72×10 <sup>3</sup>	5000
Escherichia Coli	CFU/100 mL	IS 15185; 2016; RA2021	43.0	in the second

Reviewed by:

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

Authorised Signatory:

(Saswata Burman Roy, Dy. Quality Manager)



(Bapan Das, Dy. Technical Manager)



Annexure 3

Date - 01.05.2024

# Office Order

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

- 1. Mr. Vidya Singh (Coordinator)
- 2. Mr. Krishnendu Das (Member)
- 3. 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

<sup>\*</sup>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	
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

<sup>\*\*</sup>Part of OB removed cost.

Basudev Gangopadhyay
AVP (Planning, Environment & Compliance)