

ADITYA BIRLA



HIL/LHD/ENV/MoEF/419

Date: 25.11.2023

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 Jalim & Sanai Bauxite Mining project of M/s Hindalco Industries Limited located in Gumla, Jharkhand for the period April'23 to September'23.

Ref: Environmental Clearance letter no J-11015/138/2006-IA II (M) dated 10th April 2007

Sir,

With reference to the above, we are submitting herewith the Compliance status report of EC conditions for **Jalim & Sanai Bauxite** mining project of **M/s Hindalco Industries Limited** located in Gumla, Jharkhand for the period April'23 to September'23.

The lease detail is as below.

Lease area (ha)	Production Capacity (MT)	Lease Period
12.14	50000	16.10.1974 to 31.03.2030

Hope you will find the same in order.

Thanking You

Yours Sincerely
FOR HINDALCO INDUSTRIES LIMITED

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

Enclosure: - As Above

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

Hindalco Industries Limited

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

T: +91 6526 224112/224015/223113 | E: hindalco@adityabirla.com | W: www.hindalco.com

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

T: +91 22 6691 7000 | F: +91 22 6691 7001

Corporate ID No.: L27020MH1958PLC011238

Name of the Project : **Jalim Sanai Bauxite Mine (12.14 ha)**
M/s Hindalco Industries Limited

Environment Clearance No. & date : **J-11015/138/2006-IA.II(M), dated 10.04.2007**

Period of compliance Report : **From 1st April 2023 to 30th September 2023 ,**

Specific Conditions

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

Reply: - Implementations of the stipulated conditions in NOC are fulfilled post which consent to operate has been obtained from time to time. The current Consent is valid up to 31/03/2024. Productions of bauxite are within limits specified in consent to operate.

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

Reply: - The 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 has been done with Raiyat (Landowner) for 20 years with 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 the agreement. Thus, land acquisition has the approval of the State Government.

Condition iii: - 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: - Bauxite mining is being done at shallow depth in this mine also, hence at no point it will intersect the ground water table. We undertake that no mining is/was carried out below ground water table and the same status will be maintained in future also.

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

Reply: - It is being ensured. No natural watercourse is obstructed during mining operation.

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

Reply: - Backfilling and reclamation is being done concurrently by overburden. No OB dump is present in mines. The mining is being carried out as per the approved mining plan. Monitoring and management of rehabilitated areas is being done through effective supervision. Details of land reclamation for April'23 to September'23 are enclosed as **Annexure 4**.



Reclaimed Land

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

Reply: - Backfilling and reclamation is being done concurrently by overburden. The mining is being carried out as per the approved mining plan. Data pertaining to backfilling is enclosed as **Annexure 4**. Monitoring and management of rehabilitated areas is being done through effective supervision. Compliance status is being submitted to MoEF on six monthly basis.

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

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

Reply: - No run-off is generated from mining activities. However, to collect & manage rainwater during monsoon, part of mined out area is used as a settling tank for the runoff. Rainwater stored is being used for watering the mine area, roads, green belt development and sprinkling as necessary. Catch drains, Garland drains of appropriate size are being constructed in both around the mine pit to prevent runoff of water and flow of sediments directly into the agricultural field and water bodies, if applicable. Sump of adequate capacity is being provided and maintained as required. No external dump exists in the project area as on date.



Garland drains



Siltation Pond

Condition viii: - Plantation shall be raised in an area of 10.58 ha including a green belt of adequate width by planting the native species around the ML area, roads, reclaimed area etc. in consultation with the local DFO / Agriculture Department. The density of the trees should be around 1500 plants per ha.

Reply: - Progressive plantation is being carried out with advancement of mining operation. During April'23 to Sept'23 around 1500 saplings were planted. Total 4.53 ha areas have been planted till date. Rest to be complied during project period.



Plantation at Mines

Condition ix: - The project proponent shall ensure that there shall be no discharge from the mine.

Reply: - Ensured. There is no discharge from the mine.

Condition x: - The project proponent shall carry out regular monitoring of spring discharge and its quality near Shrengdag village on long term basis.

Reply: - Spring quality parameter of the near Sherengdag village has been monitored. Analysis report is attached as **Annexure -2**.

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

Reply: - A plan is drawn based on the discussion with Scientists of State unit office of Central Ground Water Board, Ranchi to implement suitable conservation measures to augment groundwater resources in the area and is also submitted to the Regional Director, Central Ground Water Board, Patna, for his further suggestions. As of now, to augment the ground water resource measures like no use of ground water, systematic backfilling, and effective drainage system so to not allow any mine water to flow outside mine lease area is being implemented. It may be noted that there is no chance to intersect ground water table during mining operation.

Condition xii: - 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: Considering that we strictly adhere to the compliance condition. It is made sure that the mining operate ground water table. A Piezometer has been installed for monitoring of ground water level. Water quality and water level report are attached herewith as **Annexure 1**.



Piezometer

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

Reply: - Water is collected from rainwater harvesting pond of Serengdag plateau. We are not using natural water bodies, ground water for mining purposes. We have obtained NOC for extraction of ground water from CGWB.



Rainwater Harvesting Pond



भारत सरकार
जल संसाधन विभाग
जल संसाधन विभाग
जल संसाधन विभाग
Government of India
Ministry of Jal Shakti
Department of Water Resources,
River Development & Ganga Rejuvenation
Central Ground Water Authority

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

Project Name:	Jalim Sanai Bauxite Mining Project (12.14 Ha)		
Project Address:	Jalim Sanai Bauxite Mining Project, Vill - Jalim Sanai, Tehsil - Bishunpur		
Village:	Jalim	Block:	Bishunpur
District:	Gumla	State:	Jharkhand
Pin Code:			
Communication Address:	Hindalco Industries, Ltd, Hindalco Complex, Court Road, Lohardaga, Jharkhand, Chaghra, Gumla, Jharkhand - 835302		
Address of CGWB Regional Office :	Central Ground Water Board Mid Eastern Region, 6th &amp;amp;amp; 7th Floor, Lok Nayak Jai Prakash Bhawan, Frazer Road Dak Banglow, Patna, Bihar - 800011		

1. NOC No.:	CGWA/NOC/MINREN/1/2023/7575	2. Date of Issuance:	03/04/2023				
3. Application No.:	21-4455/81/MIN/2019	4. Category (GWRE 2020):	Safe				
5. Project Status:	Existing Ground Water	6. NOC Type:	Renewal				
7. Valid from:	16/02/2023	8. Valid up to:	15/02/2025				
9. Ground Water Abstraction Permitted:							
Fresh Water		Saline Water		Dewatering		Total	
m ³ /day	m ³ /year	m ³ /day	m ³ /year	m ³ /day	m ³ /year	m ³ /day	m ³ /year
9.50	3467.50						
10. Details of ground water abstraction /Dewatering structures							

CGWB License

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

Reply: - Vehicle engaged in mining operation are regularly checked and maintenance of vehicle is being done. The vehicles are being covered with tarpaulin while transportation of mineral.



Covered transportation

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

Reply: - Wet drilling is in practice.



Wet Drilling

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

Reply: - Blasting time is fixed during Lunch Time i.e. 1.00 PM -2.00 PM. Controlled blasting method is in practice. All efforts and mitigative measures are being taken to mitigate the impact of blasting.

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

Reply: - There is no proposal for production enhancement.

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

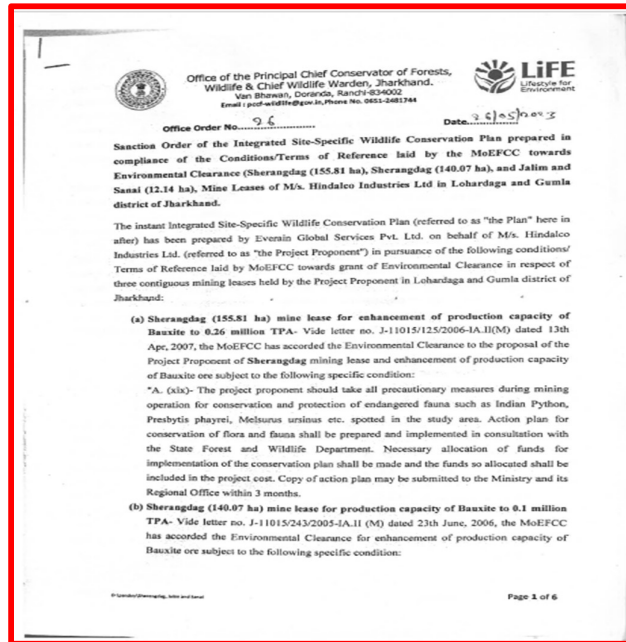
Reply: - There is no effluent discharge from Mine, hence ETP has not been installed. The sewage water from domestic uses is being collected through individual septic tanks & soak pits. Sludge is collected to an integrated soak pit. Arrangement has been made for Sherengdag group of Mines.

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

Reply: - Action taken for conservation of flora and fauna as under:

- 1) Permanent pillars are established within the mine lease area
- 2) Maintenance of the forest road
- 3) Ensured necessary air and noise pollution control measures.
- 4) Daily water sprinkling is being carried out on the forest road
- 5) Transportation is being done during daytime

Also, we have been granted letter of approval for the Integrated Site-specific Wildlife Conservation Plan via Office Order No.26 dated 26.05.2023 by PCCF, Wildlife, Ranchi.



Approved Letter

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

Reply: - Progressive mine Closure Plan along with scheme of mining has been approved by IBM. FMCP (part) is also approved by the authority. FMCP for total lease area will be prepared and 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 the present resource estimate, and peak rated production capacity mentioned in EC, Mining operation is being carried out.

GENERAL CONDITIONS: -

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

Reply: - Noted.

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

Reply: - Calendar plan including excavation, quantum of mineral bauxite and waste is being done as per IBM approved mining plan scheme. Report is attached as **Annexure 4**.

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

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

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

Reply: - Monitoring Reports of AAQ data is attached as **Annexure 2**.

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

Reply: - One mobile water tanker with a sprinkling facility has been provided along haul roads, loading unloading & at transfer points to arrest dust emissions.



Water sprinkling through tanker

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

Reply: - Noise monitoring is done regularly. Workers engaged in operation of HEMM, etc. are provided with ear plug / muffs. Monitoring report is enclosed as **Annexure 2**.

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

Reply: - There is no industrial wastewater generated from workshop within mine lease area. We are not discharging any wastewater outside mine lease area. Oil and grease traps are installed at suitable site in Sherengdag plateau.



Oil & Grease trap

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

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

Reply: - Complied. We are ensuring that the use of Personal Protective Equipment (PPE) should be done by individuals daily. Mine workers are being regularly and periodically sent to our own hospital for health checkups for any contraction of diseases due to exposure in dusty and noisy areas. Training on safety, health & environmental aspects of mining is being regularly imparted through VT training & other training programmes.

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

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

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

Reply: - Since it is an operational mine, hence this provision is not applicable. Currently, the Regional Office is located at Ranchi.

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

Reply: - Statement of actual expenses for environmental protection measure is attached as Annexure- 5.

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

Reply: - Agreed.

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

Reply: - Duly submitted.

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

Reply: - Complied. Copy submitted to the Regional office.

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

Reply: - Agreed.

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

Reply: - Complied. Copy of paper cuttings containing advertisements is already submitted.

Annexure 1

Piezometer Reading - Jalim & Sanai (12.14)

S No	Month	Depth (meter)
1	Apr-23	36.10
2	May-23	36.15
3	Jun-23	36.20
4	Jul-23	36.31
5	Aug-23	36.72
6	Sep-23	37.80



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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/2023/1952	Report Release Date : 12.06.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000000913F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1379
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Pit Quarry No 2 Jalim & Sanai Bauxite Mine (12.14ha)
		Sampling Date	: 12.04.2023 to 13.04.2023
Plant Status	: Operational	Sample Received Date	: 10.05.2023
Period of Analysis	: 10.05.2023 to 08.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 31	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear

NABL Accredited				
Discipline : Chemical			Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	69	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-24): 2019	33	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	7.9	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	15.3	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	0.014	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

[Signature]
Authorized Signatory

Dr. [Name] Sinha

Page 1 of 1

ELES Pvt Ltd, Technical Manager

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HATIA, RANCHI-834003 (JHARKHAND)
GST NO:- 20AAECE9713D124

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

CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2023/1952	Report Release Date : 12.06.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1379
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Pit Quarry No 2 Jalim & Sanai Bauxite Mine (12.14ha)
		Sampling Date	: 12.04.2023 to 13.04.2023
Plant Status	: Operational	Sample Received Date	: 10.05.2023
Period of Analysis	: 10.05.2023 to 08.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

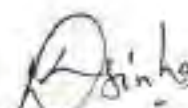
1	Average Temperature (°C) : 31	2	Barometric Pressure (mmHg) : 743
3	Relative Humidity (%) : 60	4	Weather Condition : Clear

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

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



****End of Report****


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



ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
HATIA, RANCHI-834003 (JHARKHAND)
GST NO:- 20AAECE9713D12A

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/2023/1953	Report Release Date : 12.06.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000000914F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1380
Address	: Lohardaga, Jharkhand-835302	Location	: Nava Prathmik Vidyalay (Dhanka Toli) Jalim & Sanai Bauxite Mine (12.14ha)
Plant Status	: Operational	Sampling Date	: 12.04.2023 to 13.04.2023
Period of Analysis	: 10.05.2023 to 08.06.2023	Sample Received Date	: 10.05.2023
		Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

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NABL Accredited				
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Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	66	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	35	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	8.1	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	15.7	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

Dr. Deependra Kumar Sinha
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, 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/2023/1953	Report Release Date	: 12.06.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1380
Address	: Lohardaga, Jharkhand-835302	Location	: Nava Prathmik Vidyalay (Dhanka Toli) Jalim & Sanai Bauxite Mine (12.14ha)
		Sampling Date	: 12.04.2023 to 13.04.2023
Plant Status	: Operational	Sample Received Date	: 10.05.2023
Period of Analysis	: 10.05.2023 to 08.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 31	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear

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

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



****End of Report****

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



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PLOT NO-30, MANSARVAR 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



CIN: U74999JH0028PTC011125

TEST REPORT

Test Report No.	: ELES/RNC/2023/1954	Report Release Date	: 12.06.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000000915F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1381
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Pit Quarry No 3 Jalim & Sanai Bauxite Mine (12.14ha)
		Sampling Date	: 12.04.2023 to 13.04.2023
Plant Status	: Operational	Sample Received Date	: 10.05.2023
Period of Analysis	: 10.05.2023 to 08.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 31	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear

NABL Accredited				
Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	64	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	33	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	7.1	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	17.5	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	0.012	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

Authorized Signatory
Dr. Deependra Kumar Sinha

Ph. D. Environmental Engg.
ELES Pvt. Ltd. Technical Manager

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ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
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

ON: U74599JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2023/1954	Report Release Date : 12.06.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1381
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Pit Quarry No 3 Jalim & Sansi Bauxite Mine (12.14ha)
		Sampling Date	: 12.04.2023 to 13.04.2023
Plant Status	: Operational	Sample Received Date	: 10.05.2023
Period of Analysis	: 10.05.2023 to 08.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 31	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear

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

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



****End of Report****

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



ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
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-8019

TEST REPORT

Test Report No.	: ELES/RNC/2023/1955	Report Release Date	: 12.06.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000000916F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1382
Address	: Lohardaga, Jharkhand-835302	Location	: Near Colony; Jalim & Sanai Bauxite Mine (12.14ha)
		Sampling Date	: 12.04.2023 to 13.04.2023
Plant Status	: Operational	Sample Received Date	: 10.05.2023
Period of Analysis	: 10.05.2023 to 08.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 31	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear

NABL Accredited				
Discipline : Chemical			Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	61	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	34	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	7.2	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	18.1	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	0.01	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

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

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ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPODANA
HATIA, RANCHI-834003 (JHARKHAND)
GST NO:- 20AAECF97130124

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/2023/1955	Report Release Date	: 12.06.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1382
Address	: Lohardaga, Jharkhand-835302	Location	: Near Colony; Jalim & Sanai Bauxite Mine (12.14ha)
		Sampling Date	: 12.04.2023 to 13.04.2023
Plant Status	: Operational	Sample Received Date	: 10.05.2023
Period of Analysis	: 10.05.2023 to 08.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 31	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	$\mu\text{g}/\text{m}^3$	IS:5182 (part-11); 2006;RA2017	<1.0	05(Annual)
Benzo (a) Pyrene*	ng/m^3	IS:5182 (Part-12); 2004;RA2019	<0.5	01(Annual)

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



****End of Report****


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



ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TURUBANA
MATHIA, RANCH-B34007 (JHARKHAND)
GST ID: 20AAEECV718012H

ENVIRONMENTAL SERVICES PVT. LTD.

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



TEST REPORT

Test Report No.	: ELES/RNC/2023/1944	Report Release Date	: 12.06.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000000905F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1371
Address	: Lohardaga, Jharkhand-835302	Location	: Near Banjari Village Serengdag-A Bauxite Mines
		Sampling Date	: 14.04.2023 to 15.04.2023
Plant Status	: Operational	Sample Received Date	: 10.05.2023
Period of Analysis	: 10.05.2023 to 08.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 32	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear

NABL Accredited				
Discipline : Chemical			Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	63	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	30	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	6.9	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	19.1	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	0.008	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)



End of Report

Authorized Signatory

Dr. Deepanshu Kumar Sinha

Page 1 of 1

Ph. D., Environmental Engg.
ELES Pvt. Ltd. Technical Manager

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ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSARDVAR 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/2023/1944	Report Release Date	: 12.06.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1371
Address	: Lohardaga, Jharkhand-835302	Location	: Near Banjari Village Serengdag-A Bauxite Mines
		Sampling Date	: 14.04.2023 to 15.04.2023
Plant Status	: Operational	Sample Received Date	: 10.05.2023
Period of Analysis	: 10.05.2023 to 08.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 32	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear

Discipline : Chemical			Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene ^g	µg/m ³	IS:5182 (part-11): 2006;RA2017	<1.0	05(Annual)
Benzo (a) Pyrene ^g	ng/m ³	IS:5182 (Part-12): 2004;RA2019	<0.5	01(Annual)

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



****End of Report****

Dr. Deepan Kumar Sinha
Authorized Signatory
 Dr. Deepan Kumar Sinha
 Pb. D. Environmental Engg.
 ELES Pvt. Ltd. Technical Manager

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ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSARDHAR ENCLAVE, TUPUDANA
HATIA, RANCHI-834003 (JHARKHAND)
GST NO: 20AAK007130254

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/2023/1945	Report Release Date : 12.06.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC88392300000906F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1372
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pauri Village Serengdag-A Bauxite Mines
		Sampling Date	: 14.04.2023 to 15.04.2023
Plant Status	: Operational	Sample Received Date	: 10.05.2023
Period of Analysis	: 10.05.2023 to 08.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 32	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear

NABL Accredited				
Discipline : Chemical			Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	60	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	27	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	7.6	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	12.4	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	0.015	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	2.2	06 (Annual)



****End of Report****

[Signature]
Authorized Signatory
Dr. Deepak Kumar Singh
Principal Technical Manager

Page 1 of 1

ELES PVT. LTD. Technical Manager

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ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MAYSAROVAR ENCLAVE, TUPUDANA
PATIA, RANCHI-834003 (JHARKHAND)
GST NO:- 20AAECE07130324

ENGINEERING SERVICES PVT. LTD.
Email: info@elespl.co.in, eles.ranchi@gmail.com
Phone no.: 0651-2290303
Website : www.elespl.co.in

TEST REPORT

Test Report No. : ELES/RNC/2023/1945	Report Release Date : 12.06.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1372
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pauri Village Serengdag-A Bauxite Mines
		Sampling Date	: 14.04.2023 to 15.04.2023
Plant Status	: Operational	Sample Received Date	: 10.05.2023
Period of Analysis	: 10.05.2023 to 08.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved


METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 32	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear

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

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



****End of Report****


Authorized Signatory
Dr. Deepankar Kumar Shinde
Ph. D. Environmental Engg.
ELES Pvt. Ltd. Technical Manager

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ENVIRONMENTAL LABORATORIES &

FLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
HATA, RANCHI-834003 (JHARKHAND)
EST NO: MAARCE971301N

ENGINEERING SERVICES PVT. LTD.

Email: info@elesol.co.in, eles.ranchi@gmail.com
Phone no: 0651-2290102
Website: www.elespl.co.in



TEST REPORT

Test Report No. : ELES/RNC/2023/1946	Report Release Date : 12.06.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000000907F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1373
Address	: Lohardaga, Jharkhand-835302	Location	: Near Harup Village Screngdag-A Bauxite Mines
		Sampling Date	: 14.04.2023 to 15.04.2023
Plant Status	: Operational	Sample Received Date	: 10.05.2023
Period of Analysis	: 10.05.2023 to 08.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 32	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear

NABL Accredited

Discipline : Chemical

Group : Atmospheric Pollution

Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	60	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	37	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	6.9	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	11.8	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01	<2.0	06 (Annual)



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****End of Report****

Authorized Signatory

Dr. Deepa

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ENVIRONMENTAL LABORATORIES &

ENGINEERING SERVICES PVT. LTD.

PLOT NO-30, MANJAROVAR ENCLAVE, TUPUDANA
KATIA, RANCHI-834003 (JHARKHAND)
GST NO:- 20AAECER71101Z4

Email: info@elespl.co.in, eles.ranchi@gmail.com
Phone no.: 0653-2290103
Website: www.elespl.co.in

CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2023/1946	Report Release Date : 12.06.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1373
Address	: Lohardaga, Jharkhand-835302	Location	: Near Harup Village Serengdag-A Bauxite Mines
		Sampling Date	: 14.04.2023 to 15.04.2023
Plant Status	: Operational	Sample Received Date	: 10.05.2023
Period of Analysis	: 10.05.2023 to 08.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 32	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear

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

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



****End of Report****

Authorized Signatory

Dr. Debanjan
Ph. D. Environmental Engg
ELES Pvt Ltd, Ranchi, Jharkhand

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ENVIRONMENTAL LABORATORIES &

Plot No-36, Mansarovar Enclave, Turidwina
Batala, Jharkhand (Jharkhand)
EST No- 204222948124

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/2023/1947	Report Release Date	: 12.06.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000000908F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1374
Address	: Lohardaga, Jharkhand-835302	Location	: Near Paintoli Village Serengdag-A Bauxite Mines
Plant Status	: Operational	Sampling Date	: 14.04.2023 to 15.04.2023
Period of Analysis	: 10.05.2023 to 08.06.2023	Sample Received Date	: 10.05.2023
		Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 32	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear

NABL Accredited				
Discipline : Chemical			Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	63	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	34	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	8.8	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	13.2	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	0.012	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01	<2.0	06 (Annual)



Reviewed by

****End of Report****

Signature of the authorized signatory.

Authorized Signatory

Dr. Deepa

ELES Pvt. Ltd. Technical Manager

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ENVIRONMENTAL LABORATORIES &

PLOT NO-20, MANSAROVAR ENCLAVE, TUPUDANA,
HATIA, RANCHI-834003 (JHARKHAND)
GST NO:- 22AAEE0713D124

ENGINEERING SERVICES PVT. LTD.

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

Phone no. : 0651-2290103

Website : www.elespl.co.in

TEST REPORT

Test Report No. : ELES/RNC/2023/1947	Report Release Date : 12.06.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1374
Address	: Lohardaga, Jharkhand-835302	Location	: Near Paintoli Village Serengdag-A Bauxite Mines
		Sampling Date	: 14.04.2023 to 15.04.2023
Plant Status	: Operational	Sample Received Date	: 10.05.2023
Period of Analysis	: 10.05.2023 to 08.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C) : 32	2	Barometric Pressure (mmHg) : 743
3	Relative Humidity (%) : 60	4	Weather Condition : Clear

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

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



****End of Report****


Authorized Signatory
Dr. Geeta
Ph. D. Environmental Engg.
ELES Pvt. Ltd. Technical Manager

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ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPODANA
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

CIN: U74900JH2015PTL011125

TEST REPORT

Test Report No. : ELES/RAN/2023/0505	Report Release Date : 06.05.2023
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/DW/0390
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 11.04.2023
		Sample Received Date	: 26.04.2023
Mines Status	: Operational	Type of Sample	: Drinking Water
		Source/Location of Sample	: Jalim & Sanai (12.14ha) Bauxite Mine
Period of Analysis	: 26.04.2023 to 05.05.2023	Sampling Procedure	: ELES/DOC/SMPL/01
		Sample Collected By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

Discipline : Chemical		Group : Water		Regulatory Limit as per IS 10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
pH (at 25.1 °C)	-	APHA 23 rd Ed.2017, 4500-H ⁺	6.73	6.5-8.5	No Relaxation
Turbidity	NTU	APHA 23 rd Ed.2017, 2130 B	0.38	1.0	5.0
Taste	-	APHA 23 rd Ed.2017, 2160 C	Agreeable	Agreeable	Agreeable
Odour	-	IS 3025 (Part-5) :2018	Agreeable	Agreeable	Agreeable
Colour	Hazen	APHA 23 rd Ed.2017, 2120B&D	1.0	5	15
Total Dissolved Solids (TDS)	mg/L	APHA 23 rd Ed.2017, 2540B,C&D	326	500	2000
Chloride (as Cl)	mg/L	APHA 23 rd Ed.2017, 4500 Cl B	52.8	250	1000
Fluoride (as F)	mg/L	APHA 23 rd Ed.2017, 4500 F-D	BDL (DL: 0.1)	1.0	1.5
Total Alkalinity (as CaCO ₃)	mg/L	APHA 23 rd Ed.2017, 2320 B	92.8	200	600
Total Hardness (as CaCO ₃)	mg/L	APHA 23 rd Ed.2017, 2340 C	148	200	600
Sulphate (as SO ₄)	mg/l.	APHA 23 rd Ed.2017, 4500 SO ₄ ⁻² -E	28.8	200	400
Nitrate (as NO ₃)	mg/L	APHA 23 rd Ed.2017, 4500 NO ₃ -B	3.28	45	No Relaxation
Phenolic Compound (as C ₆ H ₅ OH)	mg/L	IS 3025 (Part-43):1992;RA2019	BDL (DL: 0.0005)	0.001	0.002

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ENGINEERING SERVICES PVT. LTD.

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

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

CIN: U74999JH2016PTC011125

TEST REPORT

Test Report No. : ELES/RAN/2023/0505	Report Release Date : 06.05.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

Discipline : Chemical			Group : Water		Regulatory Limit as per IS10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit	
Cyanide (as CN)	mg/L	APHA 23 rd Ed.2017, 4500 CN-E	BDL (DL: 0.012)	0.05	No Relaxation	
Residual Free Chlorine (RFC)	mg/L	IS 3025 (Part-26):2021	BDL (DL: 0.1)	0.02	1.0	
Calcium (as Ca)	mg/L	APHA 23 rd Ed.2017, 3500 Ca B	36.6	75	200	

Discipline : Chemical			Group : Residues in Water		
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
Aluminum (as Al)	mg/L	IS 3025 (Part-55): 2003; RA2019	BDL (DL: 0.02)	0.03	0.2
Arsenic (as As)	mg/L	IS 3025 (Part 37): 2022	BDL (DL: 0.005)	0.01	No Relaxation
Boron (as B)	mg/L	IS 3025(Part-57): 2005; RA2021	BDL (DL: 0.2)	0.5	1.0
Cadmium (as Cd)	mg/L	APHA 23 rd Ed.2017, 3111B	BDL (DL: 0.003)	0.003	No Relaxation
Total Chromium (as Cr)	mg/L	APHA 23 rd Ed.2017, 3111B	BDL (DL: 0.03)	0.05	No Relaxation
Copper (as Cu)	mg/L	APHA 23 rd Ed.2017, 3111B	BDL (DL: 0.03)	0.05	1.5
Iron (as Fe)	mg/L	APHA 23 rd Ed.2017, 3111B	0.224	1.0	1.0
Lead (as Pb)	mg/L	APHA 23 rd Ed.2017, 3111B	BDL (DL: 0.01)	0.01	No Relaxation
Manganese (as Mn)	mg/L	APHA 23 rd Ed.2017, 3111B	BDL (DL: 0.05)	0.1	0.3
Mercury (as Hg)	mg/L	IS 3025 (Part-48): 1994; RA2019	BDL (DL: 0.001)	0.001	No Relaxation
Selenium (as Se)	mg/L	IS 3025 (Part-56): 2003; RA2019	BDL (DL: 0.01)	0.01	No Relaxation
Zinc (as Zn)	mg/L	APHA 23 rd Ed.2017, 3111B	BDL (DL: 0.1)	5	15

Remarks: 1. pH & RFC done at Lab.



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

CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RAN/2023/0505	Report Release Date : 06.05.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

Discipline : Chemical		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	APHA	BDL (DL: 1.0)	2
Aldrin/Dieldrin*	µg/L	APHA	BDL (DL: 0.01)	0.03
Alpha HCH*	µg/L	APHA	BDL (DL: 0.001)	0.01
Beta HCH*	µg/L	APHA	BDL (DL: 0.01)	0.04
Butachlor*	µg/L	APHA	BDL (DL: 10)	125
Chlorpyrifos*	µg/L	APHA	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	APHA	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

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

CIN: U74999JH2012PTC031225

TEST REPORT

Test Report No. : ELES/RAN/2023/0505	Report Release Date : 06.05.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

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

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



****End of Report****

Rekha Saxena
Authorised Signatory
Rekha Saxena
B. Sc, M. Sc (Botany)
Director
ELES Pvt. Ltd.



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



TC-8839

TEST REPORT

Test Report No.	: ELES/RNC/2023/2283	Report Release Date	: 01.07.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000001205F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1756
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Pit Quarry No 2 Jalim & Sanai Bauxite Mine (12.14ha)
		Sampling Date	: 14.05.2023 to 15.05.2023
Plant Status	: Operational	Sample Received Date	: 06.06.2023
Period of Analysis	: 06.06.2023 to 08.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 35	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear

NABL Accredited				
Discipline : Chemical			Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	63	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	30	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	7.5	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	17.2	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	0.011	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

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

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ENVIRONMENTAL LABORATORIES &

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

ENGINEERING SERVICES PVT. LTD.

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



CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No.	: ELES/RNC/2023/2284	Report Release Date	: 01.07.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000001206F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1757
Address	: Lohardaga, Jharkhand-835302	Location	: Nava Prathmik Vidyalay (Dhanka Toli) Jalim & Sanai Bauxite Mine (12.14ha)
Plant Status	: Operational	Sampling Date	: 14.05.2023 to 15.05.2023
Period of Analysis	: 06.06.2023 to 08.06.2023	Sample Received Date	: 06.06.2023
		Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 35	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear

NABL Accredited				
Discipline : Chemical			Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	61	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	32	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	7.9	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	12.9	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

Authorized Signatory
Dr. Deependra Kumar Sinha

Ph. D. Environmental Engg.
ELES Pvt. Ltd. Technical Manager

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ENVIRONMENTAL LABORATORIES &

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

ENGINEERING SERVICES PVT. LTD.

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

CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2023/2284	Report Release Date : 01.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1757
Address	: Lohardaga, Jharkhand-835302	Location	: Nava Prathmik Vidyalay (Dhanka Toli) Jalim & Sanai Bauxite Mine (12.14ha)
		Sampling Date	: 14.05.2023 to 15.05.2023
Plant Status	: Operational	Sample Received Date	: 06.06.2023
Period of Analysis	: 06.06.2023 to 08.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 35	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear

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

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



****End of Report****

Authorized Signatory

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

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ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
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



TC-8839

TEST REPORT

Test Report No.	: ELES/RNC/2023/2285	Report Release Date	: 01.07.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000001207F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1758
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Pit Quarry No 3 Jalim & Sanai Bauxite Mine (12.14ha)
		Sampling Date	: 14.05.2023 to 15.05.2023
Plant Status	: Operational	Sample Received Date	: 06.06.2023
Period of Analysis	: 06.06.2023 to 08.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 35	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear

NABL Accredited

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	60	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-24): 2019	28	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	6.7	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	14.2	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	0.006	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

Dr. Deependra Kumar Sinha
P.E. Environmental Engg.
ELES Pvt. Ltd. Technical Manager

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ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
HATIA, RANCHI-834003 (JHARKHAND)
GST NO:- 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/2023/2285	Report Release Date	: 01.07.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1758
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Pit Quarry No 3 Jalim & Sanai Bauxite Mine (12.14ha)
		Sampling Date	: 14.05.2023 to 15.05.2023
Plant Status	: Operational	Sample Received Date	: 06.06.2023
Period of Analysis	: 06.06.2023 to 08.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 35	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear

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

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



****End of Report****

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



ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
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/2023/2286	Report Release Date	: 01.07.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000001208F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1759
Address	: Lohardaga, Jharkhand-835302	Location	: Near Colony; Jalim & Sanai Bauxite Mine (12.14ha)
Plant Status	: Operational	Sampling Date	: 14.05.2023 to 15.05.2023
Period of Analysis	: 06.06.2023 to 08.06.2023	Sample Received Date	: 06.06.2023
		Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 35	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear

NABL Accredited				
Discipline : Chemical			Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	55	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	29	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	7.9	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	14.3	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	0.007	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

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

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ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDAMA
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

CIN: U74199JH2018PTC0211125

TEST REPORT

Test Report No.	: ELES/RNC/2023/2286	Report Release Date	: 01.07.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1759
Address	: Lohardaga, Jharkhand-835302	Location	: Near Colony; Jalim & Sanai Bauxite Mine (12.14ha)
Plant Status	: Operational	Sampling Date	: 14.05.2023 to 15.05.2023
Period of Analysis	: 06.06.2023 to 08.06.2023	Sample Received Date	: 06.06.2023
		Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 35	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-11)2006;RA2017	<1.0	05(Annual)
Benzo (a) Pyrene*	ng/m^3	IS 5182 (Part-12)2004;RA2019	<0.5	01(Annual)

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



****End of Report****

Authorized Signatory

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



ENVIRONMENTAL LABORATORIES &

PLOT NO-33, MANSAROVAR ENCLAVE, TUPUDANA
HATTA, RANCHI-834003 (JHARKHAND)
GST NO:- 20AAECE913DL24

ENGINEERING SERVICES PVT. LTD.

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



TEST REPORT

Test Report No.	: ELES/RNC/2023/2275	Report Release Date	: 01.07.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000001197F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1748
Address	: Lohardaga, Jharkhand-835302	Location	: Near Banjari Village Serengdag-A Bauxite Mines
		Sampling Date	: 13.05.2023 to 14.05.2023
Plant Status	: Operational	Sample Received Date	: 06.06.2023
Period of Analysis	: 06.06.2023 to 08.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 35	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

NABL Accredited				
Discipline : Chemical			Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	59	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part-24): 2019	26	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	5.7	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	13.5	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part-25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	0.005	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

Dr. Deependra Kumar Sinha
Authorized Signatory
Dr. Deependra Kumar Sinha
ELES PVT. LTD. Technical Manager

Page 1 of 1

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ENVIRONMENTAL LABORATORIES &

ENGINEERING SERVICES PVT. LTD.

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

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

CIN: UT4999102018PTC011175

TEST REPORT

Test Report No.	: ELES/RNC/2023/2275	Report Release Date	: 01.07.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited.	Sample Ref. No.	: ELES/RNC/2023/AA/1748
Address	: Lohardaga, Jharkhand-835302	Location	: Near Banjari Village Serengdag-A Bauxite Mines
		Sampling Date	: 13.05.2023 to 14.05.2023
Plant Status	: Operational	Sample Received Date	: 06.06.2023
Period of Analysis	: 06.06.2023 to 08.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved


METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 35	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

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

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



****End of Report****


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

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ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TIPUDHANA
HATIA, RANCHI-834003 (JHARKHAND)
GST NO.-20AAEC9713D123

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/2023/2276	Report Release Date	: 01.07.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000001198F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1749
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pauri Village Serengdag-A Bauxite Mines
		Sampling Date	: 13.05.2023 to 14.05.2023
Plant Status	: Operational	Sample Received Date	: 06.06.2023
Period of Analysis	: 06.06.2023 to 08.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 35	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

NABL Accredited				
Discipline : Chemical			Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	57	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	34	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	6.8	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	13.3	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	0.10	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	2.2	06 (Annual)



****End of Report****

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

Page 1 of 1

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ENVIRONMENTAL LABORATORIES &

ENGINEERING SERVICES PVT. LTD.

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
HATIA, RANCHI-834003 (JHARKHAND)
GST NO:- 20AAFC9713D124

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/2023/2276	Report Release Date : 01.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1749
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pauri Village Serengdag-A Bauxite Mines
Plant Status	: Operational	Sampling Date	: 13.05.2023 to 14.05.2023
Period of Analysis	: 06.06.2023 to 08.06.2023	Sample Received Date	: 06.06.2023
		Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved


METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 35	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

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

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



****End of Report****


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

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ENVIRONMENTAL LABORATORIES &

PLOT NO-50, MANSAROVAR ENCLAVE, TUPODANA
HATIA, RANCHI-834003 (JHARKHAND)
GST NO: 30AARCE99130124

ENGINEERING SERVICES PVT. LTD.

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



TC-8895

TEST REPORT

Test Report No.	: ELES/RNC/2023/2277	Report Release Date	: 01.07.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000001199F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1750
Address	: Lohardaga, Jharkhand-835302	Location	: Near Harup Village Serengdag-A Bauxite Mines
		Sampling Date	: 13.05.2023 to 14.05.2023
Plant Status	: Operational	Sample Received Date	: 06.06.2023
Period of Analysis	: 06.06.2023 to 08.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 35	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

NABL Accredited				
Discipline : Chemical			Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	59	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part-24): 2019	31	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	5.7	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	13.2	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part-25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

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

Page 1 of 1

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ENVIRONMENTAL LABORATORIES &

ENGINEERING SERVICES PVT. LTD.

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
PATIA, RANCHI-834003 (JHARKHAND)
GST NO:- 20AAEC97312D124

Email: info@elaspl.co.in, elas_ranchi@gmail.com
Phone no.: 0661-2290103
Website : www.elaspl.co.in

CIN: U72999JH2018PT0011123

TEST REPORT

Test Report No. : ELES/RNC/2023/2277	Report Release Date : 01.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindaleo Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1750
Address	: Lohardaga, Jharkhand-835302	Location	: Near Harup Village Serengdag-A Bauxite Mines
Plant Status	: Operational	Sampling Date	: 13.05.2023 to 14.05.2023
Period of Analysis	: 06.06.2023 to 08.06.2023	Sample Received Date	: 06.06.2023
		Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 35	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

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

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



****End of Report****


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

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ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAHOVAR ENCLAVE, TURF/DANA
HATIA, RANCHI-834003 (JHARKHAND)
GST NO:- 30AAEC237130124

ENGINEERING SERVICES PVT. LTD.

Email: info@elespl.co.in, eles.ranchi@gmail.com
Phone no.: 0652-2290103
Website: www.elespl.co.in



TEST REPORT

Test Report No. : ELES/RNC/2023/2278	Report Release Date : 01.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000001200F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1751
Address	: Lohardaga, Jharkhand-835302	Location	: Near Paintoli Village Serengdag-A Bauxite Mines
		Sampling Date	: 13.05.2023 to 14.05.2023
Plant Status	: Operational	Sample Received Date	: 06.06.2023
Period of Analysis	: 06.06.2023 to 08.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 35	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

NABL Accredited				
Discipline : Chemical			Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	60	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	29	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	7.5	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	12.5	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	0.016	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01	<2.0	06 (Annual)



Reviewed by

****End of Report****

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

Page 1 of 1

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ENVIRONMENTAL LABORATORIES &

ENGINEERING SERVICES PVT. LTD.

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
HATIA, RANCHI-834003 (JHARKHAND)
GST NO:- 20AA4CE9713D124

Email: info@elespl.co.in, elas.ranchi@gmail.com
Phone no.: 0651-2190103
Website: www.elespl.co.in

CIN:U73999RA2018PTC021123

TEST REPORT

Test Report No. : ELES/RNC/2023/2278	Report Release Date : 01.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1751
Address	: Lohardaga, Jharkhand-835302	Location	: Near Paintoli Village Serengdag-A Bauxite Mines
		Sampling Date	: 13.05.2023 to 14.05.2023
Plant Status	: Operational	Sample Received Date	: 06.06.2023
Period of Analysis	: 06.06.2023 to 08.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 35	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear


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

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



Reviewed by

****End of Report****


 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, 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



CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2023/2795	Report Release Date : 29.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000001660F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1975
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Pit Quarry No 2 Jalim & Sanai Bauxite Mine (12.14ha)
		Sampling Date	: 14.06.2023 to 15.06.2023
Mines Status	: Operational	Sample Received Date	: 17.06.2023
Period of Analysis	: 17.06.2023 to 27.06.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C) : 32	2	Barometric Pressure (mmHg) : 738
3	Relative Humidity (%) : 59	4	Weather Condition : Clear

NABL Accredited

Discipline : Chemical

Group : Atmospheric Pollution

Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	67	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	37	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	8.1	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	22.7	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	0.007	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01	<2.0	06 (Annual)



Deependra Kumar Sinha

Authorised Signatory

****End of Report****

Jr. Deependra Kumar Sinha

Ph. D. Environmental Engg.

ELES Pvt. Ltd. Technical Manager

Page 1 of 1

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ENGINEERING SERVICES PVT. LTD.

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

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

CIN: U74998JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2023/2795	Report Release Date : 29.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1975
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Pit Quarry No 2 Jalim & Sanai Bauxite Mine (12.14ha)
Mines Status	: Operational	Sampling Date	: 14.06.2023 to 15.06.2023
Period of Analysis	: 17.06.2023 to 27.06.2023	Sample Received Date	: 17.06.2023
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 32	2	Barometric Pressure (mmHg)	: 738
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

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

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



****End of Report****


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



ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
HATIA, RANCHI-834003 (JHARKHAND)
GST NO:- 20AAECE9713D1ZM

ENGINEERING SERVICES PVT. LTD.

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



CIN: U74599JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2023/2796	Report Release Date : 29.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000001661F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1976
Address	: Lohardaga, Jharkhand-835302	Location	: Nava Prathmik Vidyalay (Dhanka Toli) Jalim & Sanai Bauxite Mine (12.14ha)
Mines Status	: Operational	Sampling Date	: 14.06.2023 to 15.06.2023
Period of Analysis	: 17.06.2023 to 27.06.2023	Sample Received Date	: 17.06.2023
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 32	2	Barometric Pressure (mmHg)	: 738
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

NABL Accredited

Discipline : Chemical

Group : Atmospheric Pollution

Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	54	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	30	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	8.2	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	16.4	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

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

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ENVIRONMENTAL LABORATORIES &

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

ENGINEERING SERVICES PVT. LTD.

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

CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2023/2796	Report Release Date : 29.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1976
Address	: Lohardaga, Jharkhand-835302	Location	: Nava Prathmik Vidyalay (Dhanka Toli) Jalim & Sanai Bauxite Mine (12.14ha)
		Sampling Date	: 14.06.2023 to 15.06.2023
Mines Status	: Operational	Sample Received Date	: 17.06.2023
Period of Analysis	: 17.06.2023 to 27.06.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

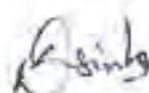
METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 32	2	Barometric Pressure (mmHg)	: 738
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

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

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



****End of Report****


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



ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
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/2023/2797	Report Release Date : 29.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000001662F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1977
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Pit Quarry No 3 Jalim & Sanai Bauxite Mine (12.14ha)
		Sampling Date	: 14.06.2023 to 15.06.2023
Mines Status	: Operational	Sample Received Date	: 17.06.2023
Period of Analysis	: 17.06.2023 to 27.06.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C) : 32	2	Barometric Pressure (mmHg) : 738
3	Relative Humidity (%) : 59	4	Weather Condition : Clear

NABL Accredited

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	56	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-24): 2019	25	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	7.3	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	16.7	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	0.009	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

R. Sinha
Authorized Signatory
Jr. Deependra Kumar 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:- 20AAECE9713D124

ENGINEERING SERVICES PVT. LTD.

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

CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2023/2797	Report Release Date : 29.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1977
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Pit Quarry No 3 Jalim & Sanai Bauxite Mine (12.14ha)
Mines Status	: Operational	Sampling Date	: 14.06.2023 to 15.06.2023
Period of Analysis	: 17.06.2023 to 27.06.2023	Sample Received Date	: 17.06.2023
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

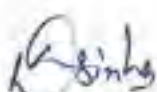
METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 32	2	Barometric Pressure (mmHg)	: 738
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

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

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



****End of Report****


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



ENVIRONMENTAL LABORATORIES &

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

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/2023/2798	Report Release Date : 29.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000001663F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1978
Address	: Lohardaga, Jharkhand-835302	Location	: Near Colony; Jalim & Sanai Bauxite Mine (12.14ha)
Mines Status	: Operational	Sampling Date	: 14.06.2023 to 15.06.2023
Period of Analysis	: 17.06.2023 to 27.06.2023	Sample Received Date	: 17.06.2023
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 32	2	Barometric Pressure (mmHg)	: 738
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

NABL Accredited

Discipline : Chemical

Group : Atmospheric Pollution

Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	49	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	25	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	6.1	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	18.5	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	0.011	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

Authorised Signatory

Jr. 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

CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2023/2798	Report Release Date : 29.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1978
Address	: Lohardaga, Jharkhand-835302	Location	: Near Colony; Jalim & Sanai Bauxite Mine (12.14ha)
		Sampling Date	: 14.06.2023 to 15.06.2023
Mines Status	: Operational	Sample Received Date	: 17.06.2023
Period of Analysis	: 17.06.2023 to 27.06.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 32	2	Barometric Pressure (mmHg)	: 738
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

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

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



****End of Report****


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



ENVIRONMENTAL LABORATORIES &

ENGINEERING SERVICES PVT. LTD.

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

Email: info@elespl.co.in, eles.ranchi@gmail.com
Phone no:- 0661-2290103
Website: www.elespl.co.in



TEST REPORT

Test Report No. : ELES/RNC/2023/2787	Report Release Date : 29.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000001652F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1967
Address	: Lohardaga, Jharkhand-835302	Location	: Near Banjari Village Serengdag-A Bauxite Mines
		Sampling Date	: 12.06.2023 to 13.06.2023
Mines Status	: Operational	Sample Received Date	: 17.06.2023
Period of Analysis	: 17.06.2023 to 27.06.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 33	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

NABL Accredited				
Discipline : Chemical			Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	55	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	28	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	6.1	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	11.2	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	0.007	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

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

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ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
HATIA, RANCHI-834003 (JHARKHAND)
GST NO- 30AA2CE9713D124

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/2023/2787	Report Release Date : 29.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1967
Address	: Lojardaga, Jharkhand-835302	Location	: Near Banjari Village Serengdag-A Bauxite Mines
		Sampling Date	: 12.06.2023 to 13.06.2023
Mines Status	: Operational	Sample Received Date	: 17.06.2023
Period of Analysis	: 17.06.2023 to 27.06.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

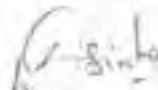
METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 33	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

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

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



****End of Report****


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



ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
HATIA, RANCHI-834003 (JHARKHAND)
GST NO: 20AAACE37130E24

ENGINEERING SERVICES PVT. LTD

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



TEST REPORT

Test Report No. : ELES/RNC/2023/2788	Report Release Date : 29.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000001653F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1968
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pauri Village Serengdag-A Bauxite Mines
		Sampling Date	: 12.06.2023 to 13.06.2023
Mines Status	: Operational	Sample Received Date	: 17.06.2023
Period of Analysis	: 17.06.2023 to 27.06.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 33	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

NABL Accredited				
Discipline : Chemical			Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	60	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-24): 2019	36	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	7.3	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	15.5	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	0.10	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

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

Page 1 of 1

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ENVIRONMENTAL LABORATORIES &

ENGINEERING SERVICES PVT. LTD.

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDAMA
NATIA, RANCHI-834003 (JHARKHAND)
GST NO:- 20448CER7130124

Email: info@elespl.co.in, eles.ranchi@gmail.com
Phone no.: 0651-2250103
Website : www.elespl.co.in

TEST REPORT

Test Report No. : ELES/RNC/2023/2788	Report Release Date : 29.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1968
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pauri Village Serengdag-A Bauxite Mines
		Sampling Date	: 12.06.2023 to 13.06.2023
Mines Status	: Operational	Sample Received Date	: 17.06.2023
Period of Analysis	: 17.06.2023 to 27.06.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 33	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

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

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



****End of Report****

Authorized Signatory

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



ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
HATIA, RANCHI-834003 (JHARKHAND)
GST NO:- 20AAEECE7130JZA

ENGINEERING SERVICES PVT. LTD.

Email: info@elespl.co.in, eles_ranchi@gmail.com

Phone no.: 0662-2290103

Website : www.elespl.co.in



TEST REPORT

Test Report No. : ELES/RNC/2023/2789	Report Release Date : 29.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000001654F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1969
Address	: Lohardaga, Jharkhand-835302	Location	: Near Harup Village Serengdag-A Bauxite Mines
		Sampling Date	: 13.06.2023 to 14.06.2023
Mines Status	: Operational	Sample Received Date	: 17.06.2023
Period of Analysis	: 17.06.2023 to 27.06.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 32	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

NABL Accredited				
Discipline : Chemical			Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	51	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-24): 2019	27	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	6.4	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	15.3	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

Dr. Deependra Kumar Sinha
 Authorised Signatory
 Dr. Deependra Kumar 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
HATTA, RANCHI-234003 (JHARKHAND)
GST NO-> 28AAEC9713D1E7

ENGINEERING SERVICES PVT. LTD.

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

Phone no.: 0651-2290103

Website: www.elespl.co.in

CIN: U74900JH2018PT0011125

TEST REPORT

Test Report No. : ELES/RNC/2023/2789	Report Release Date : 29.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1969
Address	: Lohardaga, Jharkhand-835302	Location	: Near Harup Village Serengdag-A Bauxite Mines
Mines Status	: Operational	Sampling Date	: 13.06.2023 to 14.06.2023
Period of Analysis	: 17.06.2023 to 27.06.2023	Sample Received Date	: 17.06.2023
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved


METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 32	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

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

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



****End of Report****


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



ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
HATIA, RANCHI-834003 (JHARKHAND)
GST NO- 20AAFC0297130A34

ENGINEERING SERVICES PVT. LTD

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



TEST REPORT

Test Report No. : ELES/RNC/2023/2790	Report Release Date : 29.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000001655F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1970
Address	: Lohardaga, Jharkhand-835302	Location	: Near Paintoli Village Serengdag-A Bauxite Mines
		Sampling Date	: 13.06.2023 to 14.06.2023
Mines Status	: Operational	Sample Received Date	: 17.06.2023
Period of Analysis	: 17.06.2023 to 27.06.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 32	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

NABL Accredited				
Discipline : Chemical			Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	54	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	25	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	6.7	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	15.9	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	0.011	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

Authorised Signatory
Jr. Deependra Kumar Sini
Ph. D. Environmental Engg
ELES Pvt. Ltd., Technical Manager

Page 1 of 1

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ENGINEERING SERVICES PVT. LTD.

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
HATIA, RANCHI-834003 (JHARKHAND)
GST NO:- 33AAECE9713D1Z4

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

Phone no: 0651-2290103

Website : www.elespl.co.in

CIN: U74399JH0318PTC211165

TEST REPORT

Test Report No. : ELES/RNC/2023/2790	Report Release Date : 29.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1970
Address	: Lohardaga, Jharkhand-835302	Location	: Near Paintoli Village Serengdag-A Bauxite Mines
		Sampling Date	: 13.06.2023 to 14.06.2023
Mines Status	: Operational	Sample Received Date	: 17.06.2023
Period of Analysis	: 17.06.2023 to 27.06.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 32	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

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

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



Authorized Signatory

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

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ENVIRONMENTAL LABORATORIES &

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

ENGINEERING SERVICES PVT. LTD.

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



TC-4839

TEST REPORT

Test Report No. : ELES/RNC/2023/2934	Report Release Date : 08.08.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000001781F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2605
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Pit Quarry No 2 Jalim & Sanai Bauxite Mine (12.14ha)
Mines Status	: Operational	Sampling Date	: 17.07.2023 to 18.07.2023
Period of Analysis	: 25.07.2023 to 02.08.2023	Sample Received Date	: 25.07.2023
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 26	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 65	4	Weather Condition	: Partly Cloudy

NABL Accredited

Discipline : Chemical

Group : Atmospheric Pollution

Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	56	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	23	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	5.5	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	16.1	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

Authorized Signatory

Dr. Deependra Kumar Sinha

Environmental Engg.
ELES Pvt. Ltd. Technical Manager

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ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
HATIA, RANCHI-834003 (JHARKHAND)
GST NO:- 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/2023/2934	Report Release Date	: 08.08.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2605
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Pit Quarry No 2 Jalim & Sanai Bauxite Mine (12.14ha)
		Sampling Date	: 17.07.2023 to 18.07.2023
Mines Status	: Operational	Sample Received Date	: 25.07.2023
Period of Analysis	: 25.07.2023 to 02.08.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 26	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 65	4	Weather Condition	: Partly Cloudy

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

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



****End of Report****

Authorised Signatory

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



CIN: U74999JH2018PTC011125

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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/2023/2935	Report Release Date : 08.08.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2606
Address	: Lohardaga, Jharkhand-835302	Location	: Nava Prathmik Vidyalay (Dhanka Toli) Jalim & Sanai Bauxite Mine (12.14ha)
Mines Status	: Operational	Sampling Date	: 17.07.2023 to 18.07.2023
Period of Analysis	: 25.07.2023 to 02.08.2023	Sample Received Date	: 25.07.2023
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C) : 26	2	Barometric Pressure (mmHg) : 736
3	Relative Humidity (%) : 65	4	Weather Condition : Partly Cloudy

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

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



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Authorised Signatory
Dr. Despendra 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@gmail.com
Phone no.: 0651-2290103
Website: www.elespl.co.in



TEST REPORT

Test Report No. : ELES/RNC/2023/2936	Report Release Date : 08.08.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000001783F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2607
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Pit Quarry No 3 Jalim & Sanai Bauxite Mine (12.14ha)
		Sampling Date	: 17.07.2023 to 18.07.2023
Mines Status	: Operational	Sample Received Date	: 25.07.2023
Period of Analysis	: 25.07.2023 to 02.08.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 26	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 65	4	Weather Condition	: Partly Cloudy

NABL Accredited

Discipline : Chemical

Group : Atmospheric Pollution

Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	52	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	23	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	6.2	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	13.6	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	0.005	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

Authorized Signatory
Dr. Deependra Kumar Sinha
Ph. B. 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@gmail.com

Phone no.: 0651-2290103

Website : www.elespl.co.in

CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2023/2936	Report Release Date : 08.08.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2607
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Pit Quarry No 3 Jalim & Sanai Bauxite Mine (12.14ha)
		Sampling Date	: 17.07.2023 to 18.07.2023
Mines Status	: Operational	Sample Received Date	: 25.07.2023
Period of Analysis	: 25.07.2023 to 02.08.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

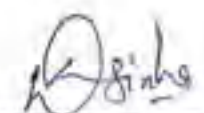
METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 26	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 65	4	Weather Condition	: Partly Cloudy

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

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



****End of Report****


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



ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
HATIA, RANCHI-834003 (JHARKHAND)
GST NO:- 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/2023/2937	Report Release Date : 08.08.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000001784F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2608
Address	: Lohardaga, Jharkhand-835302	Location	: Near Colony; Jalim & Sanai Bauxite Mine (12.14ha)
Mines Status	: Operational	Sampling Date	: 17.07.2023 to 18.07.2023
Period of Analysis	: 25.07.2023 to 02.08.2023	Sample Received Date	: 25.07.2023
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 26	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 65	4	Weather Condition	: Partly Cloudy

NABL Accredited				
Discipline : Chemical			Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	43	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	22	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	5.4	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	16.2	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	0.009	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

Authorised Signatory

Dr. Deependra Kumar Sinha

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ELES Pvt. Ltd. Technical Manager

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ENVIRONMENTAL LABORATORIES &

ENGINEERING SERVICES PVT. LTD.

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

Email: info@elespl.co.in, eles.ranchi@gmail.com
Phone no.: 0652-2290103
Website: www.elespl.co.in

CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2023/2937	Report Release Date : 08.08.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2608
Address	: Lohardaga, Jharkhand-835302	Location	: Near Colony; Jalim & Sanai Bauxite Mine (12.14ha)
		Sampling Date	: 17.07.2023 to 18.07.2023
Mines Status	: Operational	Sample Received Date	: 25.07.2023
Period of Analysis	: 25.07.2023 to 02.08.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION			
1	Average Temperature (°C) : 26	2	Barometric Pressure (mmHg) : 736
3	Relative Humidity (%) : 65	4	Weather Condition : Partly Cloudy

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

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



****End of Report****

Authorised Signatory

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

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ENVIRONMENTAL LABORATORIES &

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

ENGINEERING SERVICES PVT. LTD.

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



CIN: U74999JH2018PTC0211125

TEST REPORT

Test Report No. : ELES/RNC/2023/2926	Report Release Date : 08.08.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000001773F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2597
Address	: Lohardaga, Jharkhand-835302	Location	: Near Banjari Village Serengdag-A Bauxite Mines
		Sampling Date	: 15.07.2023 to 16.07.2023
Mines Status	: Operational	Sample Received Date	: 25.07.2023
Period of Analysis	: 25.07.2023 to 02.08.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 27	2	Barometric Pressure (mmHg)	: 738
3	Relative Humidity (%)	: 66	4	Weather Condition	: Partly Cloudy

NABL Accredited				
Discipline : Chemical			Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	49	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part-24): 2019	23	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	5.5	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	9.2	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part-25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)



End of Report

Authorized Signatory

Dr. Desandra Kumar Sinha

ELES Pvt. Ltd. Technical Manager

Page 1 of 1

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ENVIRONMENTAL LABORATORIES &

ENGINEERING SERVICES PVT. LTD.

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

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

CIN: U71999JH2018PTC011113

TEST REPORT

Test Report No. : ELES/RNC/2023/2926	Report Release Date : 08.08.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2597
Address	: Lohardaga, Jharkhand-835302	Location	: Near Banjari Village Serengdag-A Bauxite Mines
		Sampling Date	: 15.07.2023 to 16.07.2023
Mines Status	: Operational	Sample Received Date	: 25.07.2023
Period of Analysis	: 25.07.2023 to 02.08.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 27	2	Barometric Pressure (mmHg)	: 738
3	Relative Humidity (%)	: 66	4	Weather Condition	: Partly Cloudy

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

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



****End of Report****


 Dr. Dipendra 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:- 20AAECC97130124

ENGINEERING SERVICES PVT. LTD.

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



CIN: U74999JH2014PT011113

TEST REPORT

Test Report No.	: ELES/RNC/2023/2927	Report Release Date	: 08.08.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000001774E		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2598
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pauri Village Serengdag-A Bauxite Mines
		Sampling Date	: 15.07.2023 to 16.07.2023
Mines Status	: Operational	Sample Received Date	: 25.07.2023
Period of Analysis	: 25.07.2023 to 02.08.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 27	2	Barometric Pressure (mmHg)	: 738
3	Relative Humidity (%)	: 66	4	Weather Condition	: Partly Cloudy

NABL Accredited

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	54	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part-24): 2019	30	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	8.1	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	12.2	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part-25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	0.10	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

Authorized Signatory
Dr. Deependra Kumar Sinha
Pb. 2, Environmental Engg.
ELES Pvt. Ltd. - Technical Manager

Page 1 of 1

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

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

CIN: U74399JH2016PT011113

TEST REPORT

Test Report No.	: ELES/RNC/2023/2927	Report Release Date	: 08.08.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited.	Sample Ref. No.	: ELES/RNC/2023/AA/2598
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pauri Village Serengdag-A Bauxite Mines
		Sampling Date	: 15.07.2023 to 16.07.2023
Mines Status	: Operational	Sample Received Date	: 25.07.2023
Period of Analysis	: 25.07.2023 to 02.08.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

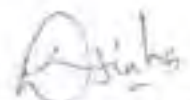
METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 27	2	Barometric Pressure (mmHg)	: 738
3	Relative Humidity (%)	: 66	4	Weather Condition	: Partly Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	µg/m ³	IS:5182 (Part-11): 2006;RA2017	<L0	05(Annual)
Benzo (a) Pyrene*	ng/m ³	IS:5182 (Part-12): 2004;RA2019	<0.5	01(Annual)

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



****End of Report****


Authorized Signatory
 Dr. Deependra Kumar Singh
 Ph. O. Environmental Engg.
 ELES Pvt. Ltd. Technical Manager

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

ENGINEERING SERVICES PVT. LTD.

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



TEST REPORT

Test Report No. : ELES/RNC/2023/2928	Report Release Date : 08.08.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000001775F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindaleo Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2599
Address	: Lohardaga, Jharkhand-835302	Location	: Near Harup Village Serengdag-A Bauxite Mines
		Sampling Date	: 16.07.2023 to 17.07.2023
Mines Status	: Operational	Sample Received Date	: 25.07.2023
Period of Analysis	: 25.07.2023 to 02.08.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 28	2	Barometric Pressure (mmHg)	: 738
3	Relative Humidity (%)	: 67	4	Weather Condition	: Partly Cloudy

NABL Accredited				
Discipline : Chemical			Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	47	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-24): 2019	23	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	6.1	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	12.7	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOR/01	<2.0	06 (Annual)



****End of Report****

Authorised Signatory

Dr. Deependra Kumar Sinha

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ELES Pvt. Ltd. Technical Manager

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

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

CIN: U74999JH3023PTC031125

TEST REPORT

Test Report No.	: ELES/RNC/2023/2928	Report Release Date	: 08.08.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2599
Address	: Lohardaga, Jharkhand-835302	Location	: Near Harup Village Serengdag-A Bauxite Mines
		Sampling Date	: 16.07.2023 to 17.07.2023
Mines Status	: Operational	Sample Received Date	: 25.07.2023
Period of Analysis	: 25.07.2023 to 02.08.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved


METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 28	2	Barometric Pressure (mmHg)	: 738
3	Relative Humidity (%)	: 67	4	Weather Condition	: Partly Cloudy

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

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



****End of Report****


Dr. Anshu Singh
Ph. D. Environmental Engg.
ELES Pvt. Ltd. Technical Manager

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ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSARDHAR ENCLAVE, TUPUDANA
HATIA, RANCHI-834003 (JHARKHAND)
GST NO:- 20AAAC097130124

ENGINEERING SERVICES PVT. LTD.

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



Q/N U/N F28H2018PTCD11123

TEST REPORT

Test Report No. : ELES/RNC/2023/2929	Report Release Date : 08.08.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000001776F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name : Hindalco Industries Limited	Address : Lohardaga, Jharkhand-835302	Sample Ref. No. : ELES/RNC/2023/AA/2600	Location : Near Paintoli Village Serengdag-A Bauxite Mines
Mines Status : Operational	Period of Analysis : 25.07.2023 to 02.08.2023	Sampling Date : 16.07.2023 to 17.07.2023	Sample Received Date : 25.07.2023
		Type of Sample : Ambient Air	Sampling Procedure : ELES/DOC/SMPL/02
		Sample Drawn By : ELES Pvt. Ltd.	Sample Condition : Sealed & Preserved

METEOROLOGICAL INFORMATION			
1	Average Temperature (°C) : 28	2	Barometric Pressure (mmHg) : 738
3	Relative Humidity (%) : 67	4	Weather Condition : Partly Cloudy

NABL Accredited				
Discipline : Chemical			Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	51	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	27	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	5.4	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	13.2	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	0.008	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<1.0	06 (Annual)



****End of Report****

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

Page 1 of 1

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HATIA, RANCHI-834003 (JHARKHAND)
GST NO:- 20AAECE9713D124

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

CIN: U74399JH2118PFC011121

TEST REPORT

Test Report No. : ELES/RNC/2023/2929	Report Release Date : 08.08.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name : Hindalco Industries Limited	Address : Lohardaga, Jharkhand-835302	Sample Ref. No. : ELES/RNC/2023/AA/2600	Location : Near Paintoli Village Serengdag-A Bauxite Mines
Mines Status : Operational	Period of Analysis : 25.07.2023 to 02.08.2023	Sampling Date : 16.07.2023 to 17.07.2023	Sample Received Date : 25.07.2023
		Type of Sample : Ambient Air	Sampling Procedure : ELES/DOC/SMPL/02
		Sample Drawn By : ELES Pvt. Ltd.	Sample Condition : Sealed & Preserved


METEOROLOGICAL INFORMATION			
1	Average Temperature (°C) : 28	2	Barometric Pressure (mmHg) : 738
3	Relative Humidity (%) : 67	4	Weather Condition : Partly Cloudy

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

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



****End of Report****


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, 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

CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2023/3385	Report Release Date : 09.09.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2952
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Pit Quarry No 2 Jalim & Sanai Bauxite Mine (12.14ha)
		Sampling Date	: 16.08.2023 to 17.08.2023
Mines Status	: Operational	Sample Received Date	: 19.08.2023
Period of Analysis	: 19.08.2023 to 29.08.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 24	2	Barometric Pressure (mmHg)	: 735
3	Relative Humidity (%)	: 66	4	Weather Condition	: Partly Cloudy

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

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



****End of Report****

Authorised Signatory
Dr. Daependra 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@gmail.com
Phone no.: 0651-2290103
Website: www.elespl.co.in



TEST REPORT

Test Report No. : ELES/RNC/2023/3386	Report Release Date : 09.09.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000002154F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2953
Address	: Lohardaga, Jharkhand-835302	Location	: Nava Prathmik Vidyalay (Dhanka Toli) Jalim & Sami Bauxite Mine (12.14ha)
Mines Status	: Operational	Sampling Date	: 16.08.2023 to 17.08.2023
Period of Analysis	: 19.08.2023 to 29.08.2023	Sample Received Date	: 19.08.2023
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 24	2	Barometric Pressure (mmHg)	: 735
3	Relative Humidity (%)	: 66	4	Weather Condition	: Partly Cloudy

NABL Accredited				
Discipline : Chemical			Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	44	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	20	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	6.5	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	16.7	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

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

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

ENGINEERING SERVICES PVT. LTD.

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

Phone no.: 0651-2290103

Website : www.elespl.co.in

CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2023/3386	Report Release Date : 09.09.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2953
Address	: Lohardaga, Jharkhand-835302.	Location	: Nava Prathmik Vidyalay (Dhanka Toli) Jalim & Sanai Bauxite Mine (12.14ha)
Mines Status	: Operational	Sampling Date	: 16.08.2023 to 17.08.2023
Period of Analysis	: 19.08.2023 to 29.08.2023	Sample Received Date	: 19.08.2023
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

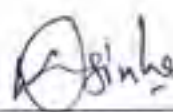
METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 24	2	Barometric Pressure (mmHg)	: 735
3	Relative Humidity (%)	: 66	4	Weather Condition	: Partly Cloudy

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

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



****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:- 20AAECE3713D124

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/2023/3387	Report Release Date : 09.09.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000002155F	

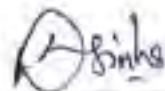
CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2954
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Pit Quarry No 3 Jalim & Sanai Bauxite Mine (12.14ha)
Mines Status	: Operational	Sampling Date	: 16.08.2023 to 17.08.2023
Period of Analysis	: 19.08.2023 to 29.08.2023	Sample Received Date	: 19.08.2023
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 24	2	Barometric Pressure (mmHg)	: 735
3	Relative Humidity (%)	: 66	4	Weather Condition	: Partly Cloudy

NABL Accredited				
Discipline : Chemical			Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	48	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	19	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	5.7	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	12.2	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****


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

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ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
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

CIN: U74999JH2018PTC031125

TEST REPORT

Test Report No. : ELES/RNC/2023/3387	Report Release Date : 09.09.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2954
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Pit Quarry No 3 Jalim & Sanai Bauxite Mine (12.14ha)
		Sampling Date	: 16.08.2023 to 17.08.2023
Mines Status	: Operational	Sample Received Date	: 19.08.2023
		Type of Sample	: Ambient Air
Period of Analysis	: 19.08.2023 to 29.08.2023	Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

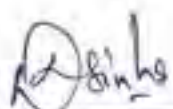
METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 24	2	Barometric Pressure (mmHg)	: 735
3	Relative Humidity (%)	: 66	4	Weather Condition	: Partly Cloudy

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

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



****End of Report****


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



ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
HATIA, RANCHI-834003 (JHARKHAND)
GST NO:- 29AAECE97130124

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/2023/3388	Report Release Date : 09.09.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000002156F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2955
Address	: Lohardaga, Jharkhand-835302	Location	: Near Colony; Jalim & Sanai Bauxite Mine (12.14ha)
		Sampling Date	: 16.08.2023 to 17.08.2023
Mines Status	: Operational	Sample Received Date	: 19.08.2023
Period of Analysis	: 19.08.2023 to 29.08.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 24	2	Barometric Pressure (mmHg)	: 735
3	Relative Humidity (%)	: 66	4	Weather Condition	: Partly Cloudy

NABL Accredited				
Discipline : Chemical			Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	47	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part-24): 2019	19	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	5.9	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	19.1	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part-25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	0.005	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

Dr. Deependra Kumar Sinha
Authorised Signatory
 Dr. Deependra Kumar Sinha

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Pr. D. Chandra Mohan
 ELES Pvt. Ltd. Technical Manager

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ENVIRONMENTAL LABORATORIES &

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

ENGINEERING SERVICES PVT. LTD.

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

Phone no.: 0651-2290103

Website : www.elespl.co.in

CIN: U74999JH2018PTC0121125

TEST REPORT

Test Report No. : ELES/RNC/2023/3388	Report Release Date : 09.09.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2955
Address	: Lohardaga, Jharkhand-835302	Location	: Near Colony; Jalim & Sanai Bauxite Mine (12.14ha)
		Sampling Date	: 16.08.2023 to 17.08.2023
Mines Status	: Operational	Sample Received Date	: 19.08.2023
Period of Analysis	: 19.08.2023 to 29.08.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

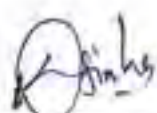
METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 24	2	Barometric Pressure (mmHg)	: 735
3	Relative Humidity (%)	: 66	4	Weather Condition	: Partly Cloudy

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

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



****End of Report****


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

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ENVIRONMENTAL LABO METRICS PVT. LTD.

Environmental Labo Metrics Pvt. Ltd.
C-10, Sector-10, Gurgaon, Haryana
India. Phone: 01299-420000

Environmental Labo Metrics Pvt. Ltd.
C-10, Sector-10, Gurgaon, Haryana
India. Phone: 01299-420000



TEST REPORT

Test Report No. : ELES/RNC/2023/3381	Report Release Date : 09.09.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000002149F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2948
Address	: Lohardaga, Jharkhand-835302	Location	: Near Banjari Village Serengdag-A Bauxite Mines
		Sampling Date	: 15.08.2023 to 16.08.2023
Mines Status	: Operational	Sample Received Date	: 19.08.2023
Period of Analysis	: 19.08.2023 to 29.08.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 26	2	Barometric Pressure (mmHg)	: 735
3	Relative Humidity (%)	: 64	4	Weather Condition	: Partly Cloudy

NABL Accredited				
Discipline : Chemical			Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	43	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	19	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	<5.0	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	10.7	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

Dr. Deshpande
Authorised Signatory
 Dr. Deshpande Kumar Shinde
 Sr. ID. Environmental Engg.
 ELES Pvt. Ltd. Technical Manager

Page 1 of 1

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ISO 17025:2017 (CALIBRATION), ISO 17025:2017 (TESTING)

ISO 17025:2017 (METROLOGY)

ISO 17025:2017 (CHEMISTRY)

TEST REPORT

Test Report No. : ELES/RNC/2023/3381	Report Release Date : 09.09.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2948
Address	: Lohardaga, Jharkhand-835302	Location	: Near Banjari Village Srengdag-A Bauxite Mines
Mines Status	: Operational	Sampling Date	: 15.08.2023 to 16.08.2023
Period of Analysis	: 19.08.2023 to 29.08.2023	Sample Received Date	: 19.08.2023
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 26	2	Barometric Pressure (mmHg)	: 735
3	Relative Humidity (%)	: 64	4	Weather Condition	: Partly Cloudy

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

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



****End of Report****

[Signature]
Authorised Signatory
 Sr. Quality Control Officer
 Sr. Environmental Officer
 ELES Private, Technical (MGT)@E

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Environmental Laboratory
ELES PVT. LTD.
B-10, Sector-10, Gurgaon
Haryana-122001



TEST REPORT

Test Report No.	: ELES/RNC/2023/3382	Report Release Date	: 09.09.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000002150F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2949
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pauri Village Serengdag-A Bauxite Mines
		Sampling Date	: 15.08.2023 to 16.08.2023
Mines Status	: Operational	Sample Received Date	: 19.08.2023
Period of Analysis	: 19.08.2023 to 29.08.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 26	2	Barometric Pressure (mmHg)	: 735
3	Relative Humidity (%)	: 64	4	Weather Condition	: Partly Cloudy

NABL Accredited				
Discipline : Chemical			Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	50	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	27	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	6.8	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	14.4	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	0.008	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

Dr. Deeparaj Kumar Singh
Authorised Signatory
 Dr. Deeparaj Kumar Singh
 Ex. Sr. Environmental Engg.
 ELES Pvt. Ltd. Technical Manager

Page 1 of 1

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ENVIRONMENTAL LABORATORIES PVT. LTD.

Off: Sector-10, Gurgaon, Haryana
Regd. Office: Gurgaon, Haryana
Website: www.elsplab.com

Lab: Sector-10, Gurgaon, Haryana
Phone: 01299-421111
E-mail: info@elsplab.com

TEST REPORT

Test Report No. : ELES/RNC/2023/3382	Report Release Date : 09.09.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2949
Address	: Lojardaga, Jharkhand-835302	Location	: Near Pauri Village Serengdag-A Bauxite Mines
		Sampling Date	: 15.08.2023 to 16.08.2023
Mines Status	: Operational	Sample Received Date	: 19.08.2023
Period of Analysis	: 19.08.2023 to 29.08.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 26	2	Barometric Pressure (mmHg)	: 735
3	Relative Humidity (%)	: 64	4	Weather Condition	: Partly Cloudy

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

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



****End of Report****

Authorized Signatory
Dr. Deependra Kumar Singh
Regional Manager (Air)
ELES Pvt. Ltd. Technical Wing



TEST REPORT

Test Report No. : ELES/RNC/2023/3383	Report Release Date : 09.09.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
UIR No. : TC883923000002151F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2950
Address	: Lohardaga, Jharkhand-835302	Location	: Near Harup Village Serengdag-A Bauxite Mines
Mines Status	: Operational	Sampling Date	: 16.08.2023 to 17.08.2023
Period of Analysis	: 19.08.2023 to 29.08.2023	Sample Received Date	: 19.08.2023
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 24	2	Barometric Pressure (mmHg)	: 735
3	Relative Humidity (%)	: 66	4	Weather Condition	: Partly Cloudy

NABL Accredited				
Discipline : Chemical			Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	43	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	19	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	5.4	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	10.5	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

[Signature]
Authorised Signatory
 Dr. Debendra Kumar Singh
 Ph. D. Environmental Engg.
 ELES Pvt. Ltd. Technical Manager

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ENVIRONMENTAL LABORATORIES INDIA

Environmental Laboratories India Pvt. Ltd.

Plot No. 12, Sector 10, Gurgaon, Haryana - 122001

Phone: 0122-4151111

Mobile: 98100-11111

TEST REPORT

Test Report No. : ELES/RNC/2023/3383	Report Release Date : 09.09.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2950
Address	: Lohardaga, Jharkhand-815302	Location	: Near Harup Village Serengdag-A Bauxite Mines
		Sampling Date	: 16.08.2023 to 17.08.2023
Mines Status	: Operational	Sample Received Date	: 19.08.2023
Period of Analysis	: 19.08.2023 to 29.08.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 24	2	Barometric Pressure (mmHg)	: 735
3	Relative Humidity (%)	: 66	4	Weather Condition	: Partly Cloudy

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

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



****End of Report****

Authorized Signatory
 Mr. Deepak Kumar Singh
 Sr. Analyst
 ELES Pvt. Ltd. Technical Manager



TEST REPORT

Test Report No. : ELES/RNC/2023/3384	Report Release Date : 09.09.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2951
Address	: Lohardaga, Jharkhand-835302	Location	: Near Paintoli Village Serengdag-A Bauxite Mines
		Sampling Date	: 16.08.2023 to 17.08.2023
Mines Status	: Operational	Sample Received Date	: 19.08.2023
Period of Analysis	: 19.08.2023 to 29.08.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 24	2	Barometric Pressure (mmHg)	: 735
3	Relative Humidity (%)	: 66	4	Weather Condition	: Partly Cloudy

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

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


Reviewed by

****End of Report****


Authorized Signatory
Mr. Chayantra Kumar Singh
Pr. 2, Serengdag, Buxi
ELES Pvt. Ltd. Technical Manager



ENVIRONMENTAL LABORATORIES &

ENGINEERING SERVICES PVT. LTD.

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

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

Phone no.: 0651-2290103

Website: www.elespl.co.in

CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RAN/2023/1727	Report Release Date : 10.09.2023
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/DW/1614
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 11.08.2023
		Sample Received Date	: 28.08.2023
Mines Status	: Operational	Type of Sample	: Drinking Water
		Source/Location of Sample	: Jalim & Sanai (12.14ha) Bauxite Mine
Period of Analysis	: 28.08.2023 to 09.09.2023	Sampling Procedure	: ELES/DOC/SMPL/01
		Sample Collected By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

Discipline : Chemical		Group : Water		Regulatory Limit as per IS 10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
pH (at 24.8 °C)	-	APHA 23 rd Ed.2017, 4500-H ⁺	7.08	6.5-8.5	No Relaxation
Turbidity	NTU	APHA 23 rd Ed.2017, 2130 B	0.42	1.0	5.0
Taste	-	APHA 23 rd Ed.2017, 2160 C	Agreeable	Agreeable	Agreeable
Odour	-	IS 3025 (Part-5) :2018	Agreeable	Agreeable	Agreeable
Colour	Hazen	APHA 23 rd Ed.2017, 2120B&D	1.0	5	15
Total Dissolved Solids (TDS)	mg/L	APHA 23 rd Ed.2017, 2540B,C&D	308	500	2000
Chloride (as Cl)	mg/L	APHA 23 rd Ed.2017, 4500 Cl B	60.8	250	1000
Fluoride (as F)	mg/L	APHA 23 rd Ed.2017, 4500 F-D	BDL (DL: 0.1)	1.0	1.5
Total Alkalinity (as CaCO ₃)	mg/L	APHA 23 rd Ed.2017, 2320 B	108	200	600
Total Hardness (as CaCO ₃)	mg/L	APHA 23 rd Ed.2017, 2340 C	138	200	600
Sulphate (as SO ₄)	mg/L	APHA 23 rd Ed.2017, 4500 SO ₄ ⁻² -E	30.8	200	400
Nitrate (as NO ₃)	mg/L	APHA 23 rd Ed.2017, 4500 NO ₃ -B	2.48	45	No Relaxation
Phenolic Compound (as C ₆ H ₅ OH)	mg/L	IS 3025 (Part-43):1992;RA2019	BDL (DL: 0.0005)	0.001	0.002

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"Save Environment, Save Future"



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ENGINEERING SERVICES PVT. LTD.

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

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

Phone no.: 0651-2290103

Website : www.elespl.co.in

CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RAN/2023/1727	Report Release Date : 10.09.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

Discipline : Chemical		Group : Water		Regulatory Limit as per IS10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
Cyanide (as CN)	mg/L	APHA 23 rd Ed.2017, 4500 CN-E	BDL (DL: 0.012)	0.05	No Relaxation
Residual Free Chlorine (RFC)	mg/L	IS 3025 (Part-26):2021	BDL (DL: 0.1)	0.02	1.0
Calcium (as Ca)	mg/L	APHA 23 rd Ed.2017, 3500 Ca B	33.6	75	200
Discipline : Chemical		Group : Residues in Water			
Aluminum (as Al)	mg/L	IS 3025 (Part-55): 2003; RA2019	BDL (DL: 0.02)	0.03	0.2
Arsenic (as As)	mg/L	IS 3025 (Part 37): 2022	BDL (DL: 0.005)	0.01	No Relaxation
Boron (as B)	mg/L	IS 3025(Part-57): 2005; RA2021	BDL (DL: 0.2)	0.5	1.0
Cadmium (as Cd)	mg/L	APHA 23 rd Ed.2017, 3111B	BDL (DL: 0.003)	0.003	No Relaxation
Total Chromium (as Cr)	mg/L	APHA 23 rd Ed.2017, 3111B	BDL (DL: 0.03)	0.05	No Relaxation
Copper (as Cu)	mg/L	APHA 23 rd Ed.2017, 3111B	BDL (DL: 0.03)	0.05	1.5
Iron (as Fe)	mg/L	APHA 23 rd Ed.2017 , 3111B	0.198	1.0	1.0
Lead (as Pb)	mg/L	APHA 23 rd Ed.2017, 3111B	BDL (DL: 0.01)	0.01	No Relaxation
Manganese (as Mn)	mg/L	APHA 23 rd Ed.2017, 3111B	BDL (DL: 0.05)	0.1	0.3
Mercury (as Hg)	mg/L	IS 3025 (Part-48): 1994; RA2019	BDL (DL: 0.001)	0.001	No Relaxation
Selenium (as Se)	mg/L	IS 3025 (Part-56): 2003; RA2019	BDL (DL: 0.01)	0.01	No Relaxation
Zinc (as Zn)	mg/L	APHA 23 rd Ed.2017 , 3111B	BDL (DL: 0.1)	5	15

Remarks: 1. pH & RFC done at Lab.



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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

CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RAN/2023/1727	Report Release Date : 10.09.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

Discipline : Chemical		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	APHA	BDL (DL: 1.0)	2
Aldrin/Dieldrin*	µg/L	APHA	BDL (DL: 0.01)	0.03
Alpha HCH*	µg/L	APHA	BDL (DL: 0.001)	0.01
Beta HCH*	µg/L	APHA	BDL (DL: 0.01)	0.04
Butachlor*	µg/L	APHA	BDL (DL: 10)	125
Chlorpyrifos*	µg/L	APHA	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	APHA	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:- 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/RAN/2023/1727	Report Release Date : 10.09.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

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

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



****End of Report****

Rekha Saxena
Authorized Signatory
Rekha Saxena
B. Sc, M. Sc. (Botany)
Director
ELES Pvt. Ltd.



CIN: U74999JH2018PTC011125

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/2023/3985	Report Release Date : 28.10.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

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

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



****End of Report****


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



ENVIRONMENTAL LABORATORIES &

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

ENGINEERING SERVICES PVT. LTD.

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

CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2023/3986	Report Release Date : 28.10.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3403
Address	: Lohardaga, Jharkhand-835302	Location	: Nava Prathmik Vidyalay (Dhanka Toli) Jalim & Sanai Bauxite Mine (12.14ha)
		Sampling Date	: 11.09.2023 to 12.09.2023
Mines Status	: Operational	Sample Received Date	: 29.09.2023
Period of Analysis	: 29.09.2023 to 10.10.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 26	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 64	4	Weather Condition	: Partly Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	38	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	17	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	5.3	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	14.1	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)

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CIN: U74999JH2018PTC011125

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/2023/3986	Report Release Date : 28.10.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

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

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



****End of Report****


Authorized Signatory

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



ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
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

CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2023/3987	Report Release Date : 28.10.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3404
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Pit Quarry No 3 Jalim & Sanai Bauxite Mine (12.14ha)
		Sampling Date	: 11.09.2023 to 12.09.2023
Mines Status	: Operational	Sample Received Date	: 29.09.2023
Period of Analysis	: 29.09.2023 to 10.10.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 26	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 64	4	Weather Condition	: Partly Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	42	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	15	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	<5.0	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	10.8	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)

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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/2023/3987	Report Release Date : 28.10.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

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

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



****End of Report****


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



ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
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

CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2023/3988	Report Release Date : 28.10.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3405
Address	: Lohardaga, Jharkhand-835302	Location	: Near Colony; Jalim & Sanai Bauxite Mine (12.14ha)
		Sampling Date	: 11.09.2023 to 12.09.2023
Mines Status	: Operational	Sample Received Date	: 29.09.2023
Period of Analysis	: 29.09.2023 to 10.10.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 26	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 64	4	Weather Condition	: Partly Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	41	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	16	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	5.1	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	16.4	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01	<2.0	06 (Annual)

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CIN: U74999/JH2018PTC011125

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/2023/3988	Report Release Date : 28.10.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

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

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



****End of Report****


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

Page 2 of 2

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ENVIRONMENTAL LABORATORIES &

ENGINEERING SERVICES PVT. LTD.

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

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

CIN: U74399MH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2023/3981	Report Release Date : 28.10.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3398
Address	: Lohardaga, Jharkhand-835302	Location	: Near Banjari Village Serengdag-A Bauxite Mines (155.81ha)
		Sampling Date	: 10.09.2023 to 11.09.2023
Mines Status	: Operational	Sample Received Date	: 29.09.2023
Period of Analysis	: 29.09.2023 to 10.10.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DGC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 66	4	Weather Condition	: Partly Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	37	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part-24): 2019	15	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	<5.0	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	12.4	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part-25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)

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CIN: U74999JH2018PTC011125

ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPODANA
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/2023/3981	Report Release Date : 28.10.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

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

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



****End of Report****

Dr. Deependra Kumar Sinha
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, RANCHI-834003 (JHARKHAND)
GST NO:- 20AAECE97130124

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

CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2023/3982	Report Release Date : 28.10.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3399
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pauri Village Serengdag-A Bauxite Mines (155.81ha)
		Sampling Date	: 10.09.2023 to 11.09.2023
Mines Status	: Operational	Sample Received Date	: 29.09.2023
Period of Analysis	: 29.09.2023 to 10.10.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 66	4	Weather Condition	: Partly Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	43	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part-24): 2019	21	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	5.3	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	11.8	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part-25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	0.005	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)

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CIN: U74999JH2018FTC011125

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

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/2023/3982	Report Release Date : 28.10.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

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

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



****End of Report****


Authorised Signatory
Dr. Daeendra Kumar Sinha
Ph. D. Environmental Engg.
SLES Pvt. Ltd. Technical Manager

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

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

CIN: U74300JH0000197C0011225

TEST REPORT

Test Report No. : ELES/RNC/2023/3983	Report Release Date : 28.10.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindaleo Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3400
Address	: Lohardaga, Jharkhand-835302	Location	: Near Harup Village Serengdag-A Bauxite Mines (155.81ha)
		Sampling Date	: 10.09.2023 to 11.09.2023
Mines Status	: Operational	Sample Received Date	: 29.09.2023
Period of Analysis	: 29.09.2023 to 10.10.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 66	4	Weather Condition	: Partly Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	38	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	17	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	<5.0	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	11.7	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01	<2.0	06 (Annual)

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

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

Phone no.: 0651-2290103

Website : www.elespl.co.in

CIN: U74999JH2018FTC011125

TEST REPORT

Test Report No. : ELES/RNC/2023/3983	Report Release Date : 28.10.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

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

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



****End of Report****

Dr. Deependra Kumar Sinha
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, RANCHI-834003 (JHARKHAND)
GST NO:- 20AAECE9713D1Z4

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

DN: U74959MH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2023/3984	Report Release Date : 28.10.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3401
Address	: Lohardaga, Jharkhand-835302	Location	: Near Paintoli Village Serengdag-A Bauxite Mines (155.81ha)
		Sampling Date	: 10.09.2023 to 11.09.2023
Mines Status	: Operational	Sample Received Date	: 29.09.2023
Period of Analysis	: 29.09.2023 to 10.10.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 66	4	Weather Condition	: Partly Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	40	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	20	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	<5.0	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	15.2	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	0.007	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)

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PLOT NO-30, MANSARVAR 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

CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2023/3984	Report Release Date : 28.10.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

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

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



****End of Report****

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

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

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/2023/4133	Report Release Date : 31.10.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sampling Date	: 11.09.2023 to 12.09.2023
Address	: Lohardaga, Jharkhand-835302	Sampling Received Date	: 30.09.2023
		Type of Sample	: Ambient Noise
Mines Status	: Operational	Sampling procedure	: ELES/DOC/SMPL/03
		Sample Drawn By	: ELES Pvt. Ltd.
		Period of Analysis	: 30.09.2023 to 10.10.2023

METEOROLOGICAL INFORMATION

1	Average Temperature (°C) : 26	2	Barometric Pressure (mmHg) : 734
3	Relative Humidity (%) : 64	4	Weather Condition : Partly Cloudy

Location	Unit	Test Protocol	Result		Regulatory Limit (Industrial Zone)
			Time	L _{eq}	
Jalim & Sanai Bauxite Mines (12.14ha)	dB(A)	IS 9989:1981, RA 2020	Day Time	67	75 dB(A) Day Time & 70 dB(A) Night Time
Sample ID: ELES/RNC/2023/AN/3525			Night Time	49	



****End of Report****


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



ENVIRONMENTAL LABORATORIES &

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

ENGINEERING SERVICES PVT. LTD.

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

Phone no.: 0651-2290103

Website : www.elespl.co.in

CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2023/4155	Report Release Date : 31.10.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sampling Date	: 11.09.2023
Address	: Lohardaga, Jharkhand-835302	Sampling Received Date	: 30.09.2023
		Type of Sample	: Workzone Noise
Mines Status	: Operational	Sampling procedure	: ELES/DOC/SMPL/03
		Sample Drawn By	: ELES Pvt. Ltd.
		Period of Analysis	: 30.09.2023 to 11.10.2023

METEOROLOGICAL INFORMATION

1	Average Temperature (°C) : 27	2	Barometric Pressure (mmHg) : 734
3	Relative Humidity (%) : 63	4	Weather Condition : Partly Cloudy

Location	Unit	Test Protocol	Result		Regulatory Limit (Industrial Zone)
			Time	L _{eq}	
Near Loader – Jalim & Sanai Bauxite Mine (12.14ha)	dB(A)	IS 4758:1968; RA 2017	Time	L _{eq}	90 dB (A)
Sample ID: ELES/RNC/2023/WN/3547			Day Time	78	



****End of Report****


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



Annexure 3

Date – 28.10.2023

Office Order

Environmental Cell has been re-constituted at Jalim & Sanai Bauxite Mine (Area 12.14 ha) comprising below mentioned team members. The team will ensure compliance of Environment Act, Regulation & Rule in respect of the said mines of Hindalco Industries Limited.

1. Mr. Tripurari Singh (Coordinator)
2. Mr. Debjyoti Das (Geologist)
3. Ms. Abhilasha Singh– Environment Engineer
4. Mr. Anand Prakash Tiwari – Environment Engineer

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

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

Basudev Gangopadhyay
AVP (Planning, Environment & Compliance)

Annexure 4

Production, Mined Out, Back Filled and Over Burden removal from April'23 to September'23								
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	0	0	0.00	0.00
2	Bhusar Bauxite Mine	65.31	280000	11.07.1981 to 31.03.2030	148918	0.92	0.45	163157.26
3	Hisri (New) Bauxite Mine	14.55	100000	19.07.1981 to 31.03.2030	56738	0.4	0.49	27329.28
4	Kujam - I Bauxite Mine	80.87	150000	13.03.2006 to 12.03.2056	102270	2.1	1.61	157784.02
5	Kujam - II Bauxite Mine	157.38	300000	24.03.2006 to 23.03.2056	61110	3.02	1.21	134785.10
6	Amtipani Bauxite Mine	190.95	150000	13.03.2006 to 12.03.2056	100700	2.91	1.00	125875.50
7	Gurdari Bauxite Mine	584.19	325000	23.03.1985 to 22.03.2035	78106	3.07	2.38	242675.00
8	Shrengdag A Bauxite Mine	155.81	260000	16.10.1974 to 31.03.2030	14860	0.39	0.35	14280
9	Shrengdag B Bauxite Mine	140.07	100000	04.10.1978 to 31.03.2030	43320	1.12	1.15	77170
10	Jalim & Sanai Bauxite Mine	12.14	50000	16.10.1974 to 31.03.2030	26725	0.21	0.2	8750
11	Orsapat Bauxite Mine	196.36	200000	17.07.1986 to 16.07.2036	NIL	NIL	NIL	NIL
12	Chiro Kukud bauxite Mine	152.57	100000	29.01.1985 to 28.01.2035	NIL	NIL	NIL	NIL
13	Pakhar (8.09)	8.09	80000	16.05.1973 to 31.03.2030	NIL	NIL	NIL	NIL
14	Pakhar (35.12)	35.12	200000	17.04.1975 to 31.03.2030	NIL	NIL	NIL	NIL

Annexure 4

15	Pakhar (115.13)	115.13	300000	19.07.1996 to 31.03.2030	147508.00	2.29	0.4	532571.87
Minerals & Minerals Limited								
16	Pakhar (15.58)	15.58	60000	28.04.1965 to 31.03.2030	80.00	0.00	0.00	0.00
17	Pakhar (109.507)	109.507	280000	26.07.2008 to 25.07.2058	97720.00	1.93	0.71	237280.85
18	Bimarla Bauxite Mine	134.37	300000	18.07.2009 to 17.07.2059	39550	2.21	0.8	64913.65
19	Amtipani Chirodih Bauxite Mines	130.01	450000	11.01.2017 to 10.01.2067	84678	3.96	1.15	98519.66

*Static information about the mines included in the above table



Basudev Gangopadhyay
AVP (Planning, Environment and Compliance)

Annexure-5

BREAK UP THE COST OF ENVIRONMENTAL MEASURES DURING THE YEAR 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 Pakhar (115.13 ha), Pakhar (15.58 ha), Pakhar (109.507 ha), Pakhar (8.09 ha), Pakhar (35.12 ha), Serengdag (140.06 ha), Serengdag (155.81 ha), Jalim & Sanai (12.14 ha), Gurdari (584.19 ha), Amtipani (190.95 ha), Kujam I (80.97 ha) Kujam II (157.38 ha), Bagru (75.41 ha), Hisri New (14.55 ha), Chiro kukud (152.57 ha), Orsa pat (196.36 ha), Bhusar (65.31 ha), Bimarla Bauxite Mines (134.52 ha) and Amtipani Chirodih (130.01 ha) Bauxite Mine.

S No	Description	Budget (in Rupees) FY 2023-24	Actual (in Rupees) FY 2023-24 (From April'23 to September'23)
1	Pollution Control & Environment monitoring	1,57,41,102.00	82,15,825.36
2	Reclamation/ Back filing & Rehabilitation**	1,36,62,095.00	6,66,42,814.70
3	Green belt, Plantation & Water sprinkling arrangement	67,45,898.00	19,34,590.20
4	Rural Development	6,19,33,534.00	1,83,73,453.27

**Part of OB removed cost.

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