

MINERALS & MINERALS LIMITED

Regd. Office- Court Road, P.O. & Distt.-Lohardaga, Jharkhand-835302

Tel.-06526-223163

CIN NO. U26990JH1970PLC000875

Ref.: M&M/LHD/ENV/MoEF/425

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 Pakhar (15.58 ha) Bauxite Mining project of M/s Minerals & Minerals Limited located in Lohardaga, Jharkhand for the period April'23 to September'23 .

Ref: Environmental Clearance letter no J-11015/123/2006-IA II (M) dated 24th January 2007

Sir,

With reference to the above, we are submitting herewith the Compliance status report of EC conditions for **Pakhar (15.58 ha)** Bauxite Mining project of **M/s Minerals & Minerals Limited** located in Lohardaga, Jharkhand for the period April'23 to September'23 .

The lease detail is as below.

Lease area (ha)	Production Capacity (MT)	Lease Period
15.58	60000	28.04.1965 to 31.03.2030

Hope you will find the same in order.

Thanking You

Yours Sincerely

FOR Minerals & Minerals Limited



(Basudev Gangopadhyay)

AVP (Planning, Environment & Compliance)

Enclosure: - As Above

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

Name of the Project : **Pakhar Bauxite Mine (15.58 ha)**
M/s Minerals & Minerals Ltd

Environment Clearance No. & date : **J-11015/123/2006-IA.II(M), dated 24.01.2007**

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. Existing consent to operate is valid up to 31.03.2026. 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: - Land acquisition is being done with the permission of competent authority of State Government i.e. concerned Deputy Commissioner (D.C.) under CNT Act. The land lease agreement is being done with raiyat (Landowner) 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 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: - The mining operation is confined within shallow depth (20 m max) and not intersected ground water. In future also, working zones will be restricted to above ground water table. We undertake that no mining is/was carried out below ground water table and the same status will be maintained in future also.

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

Reply: - There is no natural watercourse and / or water resources within the mining lease area. Shallow depth mining methodology is adopted for mining process. Hence, there is no impact of mining operation on natural water course..

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

Reply: - Topsoil is being stacked properly with proper slope as and when required for its use for reclamation and rehabilitation. Sequential backfilling and reclamation of the mined-out area are being exercised during mining operation.

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 monthly basis.

Reply: - Overburden and waste rock from the mining pit are being used for back filling. Earlier OB dumps were being rehandled and is being backfilled into mining voids. A Major portion of the dump is rehandled. A very small quantity is left out which will be handled with the progress of mining activity in due course of time. Thus, there will not be any external dump at the end of mine life. Backfilling and plantation detail provided is attached in **Annexure-4**.

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 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.



Garland Drain

Condition viii: - Plantation shall be raised in an area of 6.98 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: - Plantation is being carried out around ML area with progress of mining. Nos of sapling planted till date is 12704 nos. In addition to this agricultural activity is going on reclaimed land. The 6.17 ha areas have been planted till date.



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 Pakhar village on long term basis.

Reply: - Spring water near Pakhar village is being 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 ground water resources in the area and is also submitted to the Regional Director, Central Ground Water Board, Patna, for his further suggestions. Suitable conservation measures to augment water resource in area are implemented viz construction of sump, etc. is being provided. 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: - The mining operation is confined within shallow depth (20 m max) and not intersected ground water. We are not using ground water for any mining purpose. 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: - We are not using natural water bodies, ground water for mining purposes. We have obtained NOC for ground water extraction from CGWB.



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: - To keep vehicular emissions under control, vehicles are periodically checked & repaired. All measures are being taken to control vehicular emission including covering with tarpaulin and non-overloading during transportation.



Tarpaulin covering during material loading-unloading



PUC Certificate

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 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 plant should be installed for the colony. ETP should also be provided for workshop and wastewater generated from mining operations.

Reply: - There is no effluent from mine. Hence, ETP has not been installed.

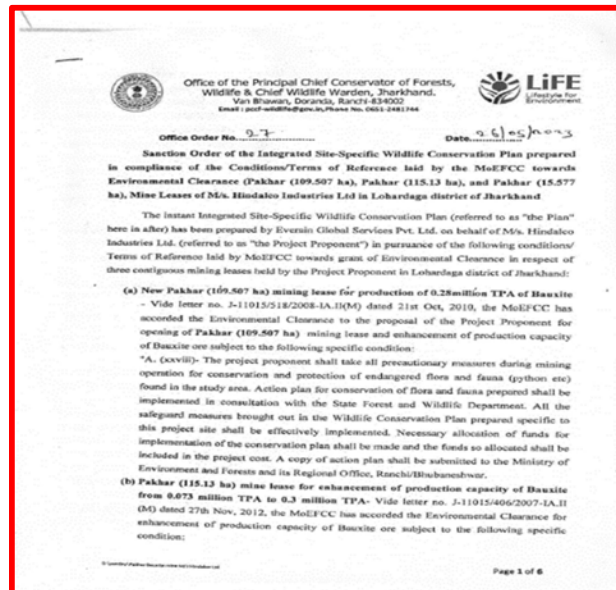
Condition xix: - The project proponent should take all precautionary measures during mining operation for conservation and protection of endangered fauna such as Indian Python etc. Spotted in the study area. Action plan for conservation of flora and fauna shall be prepared and implemented in consultation 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 are 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.27 dated 26.05.2023 by PCCF, Wildlife, Ranchi.



Approval 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 has been dully approved by Indian Bureau of Mines. FMCP related provision will be compiled 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 herewith 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 core zone as well as buffer zone. Monitoring is being carried out and reported to concern authorities. Report is attached as **Annexure 2**.

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

Reply: - Monitoring Reports are enclosed 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 no. of mobile water tanker with 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 being done regularly. Workers engaged in operation of HEMM, etc. are provided with ear plug / muffs. The 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 trap installed at suitable site in Pakhar plateau.

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 checkup for any contraction of diseases due to exposure in dusty and noisy areas. Training on safety, health and environmental aspects of mining is being regularly imparted through VT centre and also through various other training programmes conducted by the State Government, recognized agencies, etc.

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 in order 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: - Provision related to financial closure are not applicable as this is an operating Mine. Now Regional office is 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 Budgetary provision & actual expenses for environmental protection measure is submitted as **Annexure-5**. Now Regional office is at Ranchi.

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

Reply: - Agreed. Currently, Regional office is at Ranchi.

Condition xiii: - 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.

Condition xiv: - 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: - Displayed.

Condition xv: - 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. Copies of the advertisement made in the local newspapers, have already been submitted to the Regional Office.

Annexure 1

Piezometer Reading - Pakhar 15.58 ha

S No	Month	Depth (meter)
1	April'23	40.83
2	May'23	40.37
3	June'23	37.91
4	July'23	37.23
5	August'23	37.29
6	Sept'23	37.27



ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDAMA
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GST NO:- 20AAECE97130124

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TEST REPORT

Test Report No.	: ELES/RNC/2023/2012	Report Release Date	: 12.06.2023
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03.2023
ULR No.	: TC883923000000973F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1439
Address	: Lohardaga, Jharkhand-835302.	Location	: Near Mine Office Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 09.04.2023 to 10.04.2023
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)	: 33	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear
5	Longitude	: 84°36'36.29"E	6	Latitude	: 23°32'24.04"N

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	61	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	36	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	7.8	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	19.2	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	0.016	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)



Dr. Deendra Kumar Sinha

Authorized Signatory

Dr. Deendra Kumar Sinha

Ph. D. Environmental Engg.

ELES Pvt. Ltd. Technical Manager

****End of Report****

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

CIN: U74999JH2013PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2023/2012	Report Release Date : 12.06.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1439
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Office Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 09.04.2023 to 10.04.2023
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)	: 33	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear
5	Longitude	: 84°36'36.29"E	6	Latitude	: 23°32'24.04"N

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
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ULR No.	: TC883923000000974F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1440
Address	: Lohardaga, Jharkhand-835302	Location	: Near Weigh Bridge Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 09.04.2023 to 10.04.2023
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
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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	70	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	42	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	12.3	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	24.6	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	0.015	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	<2.0	06 (Annual)



Dr. Deependra Kumar Sinha

Authorized Signatory

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

End of Report

Page 1 of 1

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1	Average Temperature (°C)	: 33	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear
5	Longitude	: 84°36'34.50"E	6	Latitude	: 23°32'26.21"N

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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CIN: U74999JH2018PR1001125

TEST REPORT

Test Report No.	: ELES/RNC/2023/2014	Report Release Date	: 12.06.2023
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03.2023
ULR No.	: TC883923000000975F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/T441
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Quarry No- MI Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 09.04.2023 to 10.04.2023
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)	: 33	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear
5	Longitude	: 84°36'6.67"E	6	Latitude	: 23°32'9.19"N

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	64	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part-24): 2019	37	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	10.0	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	21.3	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	0.013	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)



Authorized Signatory

Dr. Deependra Kumar Sinha

Ph. D. Environmental Engg.

ELES Pvt. Ltd. Technical Manager

****End of Report****

Page 1 of 1

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TEST REPORT

Test Report No. : ELES/RNC/2023/2014	Report Release Date : 12.06.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1441
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Quarry No- M1 Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 09.04.2023 to 10.04.2023
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)	: 33	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear
5	Longitude	: 84°36'6.67"E	6	Latitude	: 23°32'9.19"N

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 &

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TEST REPORT

Test Report No.	: ELES/RNC/2023/2015	Report Release Date	: 12.06.2023
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03.2023
ULR No.	: TC883923000000976F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1442
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Quarry No-M4 Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 09.04.2023 to 10.04.2023
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)	: 33	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear
5	Longitude	: 84°36'8.99"E	6	Latitude	: 23°32'13.12"N

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	65	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part-24): 2019	36	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	8.4	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	22.8	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	0.010	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)



Authorized Signatory

Dr. Deependra Kumar Sinha

Pt. O. Environmental Engg.

ELES Pvt. Ltd. Technical Manager

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TEST REPORT

Test Report No. : ELES/RNC/2023/2015	Report Release Date : 12.06.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1442
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Quarry No-M4 Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 09.04.2023 to 10.04.2023
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)	: 33	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear
5	Longitude	: 84°36'8.99"E	6	Latitude	: 23°32'13.12"N

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 Egg.
ELES Pvt. Ltd. Technical Manager



ENVIRONMENTAL LABORATORIES &

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TEST REPORT

Test Report No.	: ELES/RNC/2023/1936	Report Release Date	: 12.06.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000000897F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1363
Address	: Lohardaga, Jharkhand-835302	Location	: Near Bunglapart Village Pakhar Bauxite Mine
Plant Status	: Operational	Sampling Date	: 19.04.2023 to 20.04.2023
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)	: 33	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 61	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	7.9	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	14.4	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-16): 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)



Reviewed by

End of Report

Authorized Signatory

Dr. Deependra Kumar Saha

Page 1 of 1

For D. Deependra Kumar Saha

ELES Pvt. Ltd. Technical Manager

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TEST REPORT

Test Report No. : ELES/RNC/2023/1936	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/1363
Address	: Lohardaga, Jharkhand-835302	Location	: Near Bunglapart Village Pakhar Bauxite Mine
		Sampling Date	: 19.04.2023 to 20.04.2023
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)	: 33	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 61	4	Weather Condition	: Clear

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

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



End of Report

Authorized Signatory

 Dr. Desperina Pratiksha Saha
 Ph. D., Environmental Engg.
 ELES Pvt. Ltd. Technical Manager

Page 1 of 1

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CIN: U71900JH2014PTC011125

TEST REPORT

Test Report No.	: ELES/RNC/2023/1937	Report Release Date	: 12.06.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000000898F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name:	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1364
Address:	: Lohardaga, Jharkhand-835302	Location:	: Yatri Shed (Near K-10) Pakhar Bauxite Mine
		Sampling Date	: 19.04.2023 to 20.04.2023
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)	: 33	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 61	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	36	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2004; RA2022	10.2	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	17.6	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****

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

Page 1 of 1

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TEST REPORT

Test Report No.	: ELES/RNC/2023/1937	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/1364
Address	: Lohardaga, Jharkhand-835302	Location	: Yatri Shed (Near K-10) Pakhar Bauxite Mine
		Sampling Date	: 19.04.2023 to 20.04.2023
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)	: 33	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 61	4	Weather Condition	: Clear

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

Remarks: (a)-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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TEST REPORT

Test Report No.	: ELES/RNC/2023/1938	Report Release Date	: 12.06.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000000899F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1365
Address	: Lohardaga, Jharkhand-835302	Location	: Near Ulkarmit Rajkiya Prathmik Vidyalaya Bunglapart Village Pakhar Bauxite Mine
Plant Status	: Operational	Sampling Date	: 19.04.2023 to 20.04.2023
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)	: 33	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 61	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	58	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	6.3	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	13.4	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)



Reviewed by

****End of Report****

Authorized Signatory

Dr. Debanjan Kumar Sinha

Page 1 of 1

PH: 0 Environmental Engg.
ELES/DOC/1111 Technical Manager

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TEST REPORT

Test Report No. : ELES/RNC/2023/1938	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/1365
Address	: Lohardaga, Jharkhand-835302	Location	: Near Utkarmit Rajkiya Prathamik Vidyalaya Bunglapart Village Pakhar Bauxite Mine
Plant Status	: Operational	Sampling Date	: 19.04.2023 to 20.04.2023
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)	: 33	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 61	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)
Berizo (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. Deepa Singh
 Ph.D. Environmental Engg
 ELES Pvt. Ltd. Technical Manager

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TEST REPORT

Test Report No.	: ELES/BNC/2023/1939	Report Release Date	: 12.06.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000000900F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1366
Address	: Lohardaga, Jharkhand-835302	Location	: Near Utkarmit Rajkiya Prathmik Vidyalaya Dumrapart Village Pakhar Bauxite Mine
		Sampling Date	: 19.04.2023 to 20.04.2023
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)	: 33	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 61	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	66	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	7.3	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	13.5	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	<0.002	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)



Reviewed by

End of Report

Authorized Signatory

Dr. Dipendra Kumar Singh

Page 1 of 1

Ph. D. Environmental Engg.
Chief Executive Technical Manager

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CIN: U74939RJ2008PTC01125

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TEST REPORT

Test Report No.	: ELES/RNC/2023/1939	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/1366
Address	: Lohardaga, Jharkhand-835302	Location	: Near Utkarmit Rajkiya Prathamik Vidyalaya Dumrapart Village Pakhar Bauxite Mine
		Sampling Date	: 19.04.2023 to 20.04.2023
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)	: 33	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 61	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene ^a	µg/m ³	IS:5182 (part-11); 2006;RA2017	<1.0	05(Annual)
Benz(a) Pyrene ^b	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. Deepanjita Kumar Sinha
Ph. D. Environmental Engg.
ELES Pvt. Ltd. Technical Manager

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TEST REPORT

Test Report No. : ELES/RAN/2023/0510	Report Release Date : 06.05.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RAN/2023/DW/0395
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 15.04.2023
		Sample Received Date	: 26.04.2023
Mines Status	: Non Operational	Type of Sample	: Drinking Water
		Source/Location of Sample	: Near Mine Office Pakhar (15.58 ha) 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 25.3 °C)	-	APHA 23 rd Ed.2017, 4500-H ¹	6.76	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	212	500	2000
Chloride (as Cl)	mg/L	APHA 23 rd Ed.2017, 4500 Cl B	28.6	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	78.8	200	600
Total Hardness (as CaCO ₃)	mg/L	APHA 23 rd Ed.2017, 2340 C	82.6	200	600
Sulphate (as SO ₄)	mg/L	APHA 23 rd Ed.2017, 4500 SO ₄ ²⁻ -E	19.6	200	400
Nitrate (as NO ₃)	mg/L	APHA 23 rd Ed.2017, 4500 NO ₃ -B	1.96	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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TEST REPORT

Test Report No. : ELES/RAN/2023/0510	Report Release Date : 06.05.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

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	21.8	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	0.386	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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TEST REPORT

Test Report No. : ELES/RAN/2023/0510	Report Release Date : 06.05.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

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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TEST REPORT

Test Report No. : ELES/RAN/2023/0510	Report Release Date : 06.05.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

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****

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



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TC-0039

TEST REPORT

Test Report No. : ELES/RNC/2023/2343	Report Release Date : 01.07.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023
ULR No. : TC883923000001265F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1816
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Office Pakhar (15.58 ha) Bauxite Mine
Plant Status	: Operational	Sampling Date	: 21.05.2023 to 22.05.2023
Period of Analysis	: 06.06.2023 to 07.06.2023	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)	: 36	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 58	4	Weather Condition	: Clear
5	Longitude	: 84°36'36.29"E	6	Latitude	: 23°32'24.04"N

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	31	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	6.3	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	22.6	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	0.013	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

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

Page 1 of 1

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CIN: 074999JH2018PTC011125

TEST REPORT

Test Report No.	: ELES/RNC/2023/2343	Report Release Date	: 01.07.2023
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1816
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Office Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 21.05.2023 to 22.05.2023
Plant Status	: Operational	Sample Received Date	: 06.06.2023
Period of Analysis	: 06.06.2023 to 07.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 36	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 58	4	Weather Condition	: Clear
5	Longitude	: 84°36'36.29"E	6	Latitude	: 23°32'24.04"N

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 &

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TEST REPORT

Test Report No. : ELES/RNC/2023/2344	Report Release Date : 01.07.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023
ULR No. : TC883923000001266F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1817
Address	: Lohardaga, Jharkhand-835302	Location	: Near Weigh Bridge Pakhar (15.58 ha) Bauxite Mine
Plant Status	: Operational	Sampling Date	: 21.05.2023 to 22.05.2023
Period of Analysis	: 06.06.2023 to 07.06.2023	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)	: 36	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 58	4	Weather Condition	: Clear
5	Longitude	: 84°36'34.50"E	6	Latitude	: 23°32'26.21"N

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	64	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	10.8	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	22.5	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	0.011	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****

Dr. Deependra Kumar Sinha
Authorized Signatory
Dr. Deependra Kumar Sinha

Page 1 of 1

PA: D. Environmental Engrg.
ELES Pvt. Ltd. Technical Manager

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TEST REPORT

Test Report No.	: ELES/RNC/2023/2344	Report Release Date	: 01.07.2023
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1817
Address	: Lohardaga, Jharkhand-835302	Location	: Near Weigh Bridge Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 21.05.2023 to 22.05.2023
Plant Status	: Operational	Sample Received Date	: 06.06.2023
Period of Analysis	: 06.06.2023 to 07.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 36	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 58	4	Weather Condition	: Clear
5	Longitude	: 84°36'34.50"E	6	Latitude	: 23°32'26.21"N

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
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ELES Pvt. Ltd, Technical Manager



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TEST REPORT

Test Report No.	: ELES/RNC/2023/2345	Report Release Date	: 01.07.2023
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03.2023
ULR No.	: TC883923000001267F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1818
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Quarry No- M1 Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 21.05.2023 to 22.05.2023
Plant Status	: Operational	Sample Received Date	: 06.06.2023
Period of Analysis	: 06.06.2023 to 07.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 36	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 58	4	Weather Condition	: Clear
5	Longitude	: 84°36'6.67"E	6	Latitude	: 23°32'9.19"N

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	31	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	8.3	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	18.9	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	0.008	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****

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

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TEST REPORT

Test Report No. : ELES/RNC/2023/2345	Report Release Date : 01.07.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1818
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Quarry No- M1 Pakhar (15.58 ha) Bauxite Mine
Plant Status	: Operational	Sampling Date	: 21.05.2023 to 22.05.2023
Period of Analysis	: 06.06.2023 to 07.06.2023	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)	: 36	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 58	4	Weather Condition	: Clear
5	Longitude	: 84°36'6.67"E	6	Latitude	: 23°32'9.19"N

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
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ELES Pvt. Ltd. Technical Manager

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TEST REPORT

Test Report No. : ELES/RNC/2023/2346	Report Release Date : 01.07.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023
ULR No. : TC883923000001268F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1819
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Quarry No-M4 Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 21.05.2023 to 22.05.2023
Plant Status	: Operational	Sample Received Date	: 06.06.2023
Period of Analysis	: 06.06.2023 to 07.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 36	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 58	4	Weather Condition	: Clear
5	Longitude	: 84°36'8.99"E	6	Latitude	: 23°32'13.12"N

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	29	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	17.3	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	0.008	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. Deependra Kumar Sinha
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 Dr. Deependra Kumar Sinha
 P.T. Dr. Environmental Engg.
 ELES Pvt. Ltd. Technical Manager

Page 1 of 1

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ENVIRONMENTAL LABORATORIES &

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

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Website : www.elespl.co.in

CIN: U74998JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2023/2346	Report Release Date : 01.07.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1819
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Quarry No-M4 Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 21.05.2023 to 22.05.2023
Plant Status	: Operational	Sample Received Date	: 06.06.2023
Period of Analysis	: 06.06.2023 to 07.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 36	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 58	4	Weather Condition	: Clear
5	Longitude	: 84°36'8.99"E	6	Latitude	: 23°32'13.12"N

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 &

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TEST REPORT

Test Report No. : ELES/RNC/2023/2267	Report Release Date : 01.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000001189F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindaleo Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1740
Address	: Lehardaga, Jharkhand-835302	Location	: Near Bunglapart Village Pakhar Bauxite Mine
Plant Status	: Operational	Sampling Date	: 21.05.2023 to 22.05.2023
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)	: 34	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	67	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-24): 2019	31	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	7.0	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	16.2	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	<0.002	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
Ph. D. Environmental Engg
ELES Pvt. Ltd. Technical Manager

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ENVIRONMENTAL LABORATORIES &

ENGINEERING SERVICES PVT. LTD.

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TEST REPORT

Test Report No.	: ELES/RNC/2023/2267	Report Release Date	: 01.07.2023
Work Order No.	: 13612319218	Work Order Date	: 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1740
Address	: Lohardaga, Jharkhand-835302	Location	: Near Bunglapart Village Pakhar Bauxite Mine
Plant Status	: Operational	Sampling Date	: 21.05.2023 to 22.05.2023
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/SMP/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 34	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)3004;RA2019	<0.5	01(Annual)

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



End of Report


 Authorized Signatory
 Dr. Desendra Kumar Sinha
 B.Tech Environmental Engg.
 ELES Pvt. Ltd. Technical Manager

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ENVIRONMENTAL LABORATORIES &

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CIN: U74999JH2013PP001125

TEST REPORT

Test Report No. : ELES/RNC/2023/2268	Report Release Date : 01.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000001190F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name : Hindalco Industries Limited	Address : Lohardaga, Jharkhand-835302	Sample Ref. No. : ELES/RNC/2023/AA/174	Location : Yatri Shed (Near K-10) Pakhar Bauxite Mine
Plant Status : Operational	Period of Analysis : 06.06.2023 to 08.06.2023	Sampling Date : 21.05.2023 to 22.05.2023	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) : 34	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	60	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part-24): 2019	33	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	7.6	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	14.2	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	30 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)



End of Report

Deependra Kumar Sinha
Authorized Signatory
Dr. Deependra Kumar Sinha
ELES/RNC/2023/AA/174
Technical Manager

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TEST REPORT

Test Report No.	: ELES/RNC/2023/2268	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/1741
Address	: Lohardaga, Jharkhand-835302	Location	: Yarn Shed (Near K-10) Pakhar Bauxite Mine
		Sampling Date	: 21.05.2023 to 22.05.2023
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/DGC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 34	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 Edg.
 ELES Pvt. Ltd. Technical Manager

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ENVIRONMENTAL LABORATORIES &

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TEST REPORT

Test Report No.	: ELES/RNC/2023/2269	Report Release Date	: 01.07.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000001191F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1742
Address	: Lohardaga, Jharkhand-835302	Location	: Near Ukarmit Rajkiya Prathamik Vidyalaya Bunglapan Village Pakhar Bauxite Mine
		Sampling Date	: 21.05.2023 to 22.05.2023
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)	: 34	2	Barometric Pressure (mmHg)	: 763
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	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	10.9	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	<0.002	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
 Dr. Deependra Kumar Sinha
 P.O. Environmental Engrg.
 ELES Pvt. Ltd. Technical Manager

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ENVIRONMENTAL LABORATORIES &

ENGINEERING SERVICES PVT. LTD.

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TEST REPORT

Test Report No. : ELES/RNC/2023/2269	Report Release Date : 01.07.2023
Work Order No. : J3612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1742
Address	: Lohardaga, Jharkhand-835302	Location	: Near Utkarmit Rajkiya Prathamik Vidyalaya Bungalow Village Pakhar Bauxite Mine
		Sampling Date	: 21.05.2023 to 22.05.2023
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)	: 34	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)
Benz(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. Deepshikha
 Authorized Signatory
 Dr. Deepshikha Kunter Saha
 Ph. 2. Environmental and
 ELES Pvt. Ltd. Technical Manager

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ENVIRONMENTAL LABORATORIES &

PLOT NO-20, MANSAROVAR ENCLAVE, TUPUDANA,
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TEST REPORT

Test Report No. : ELES/RNC/2023/2270	Report Release Date : 01.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
U/LR No. : TC883923000001192F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1743
Address	: Lohardaga, Jharkhand-835302	Location	: Near Utkarmit Rajkiya Pradhik Vidyalaya Dumrapart Village Pakhar Bauxite Mine
		Sampling Date	: 21.05.2023 to 22.05.2023
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)	: 34	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	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-3): 2001; RA2022	6.8	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	11.9	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's Jt. Technical Manager

Page 1 of 1

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ENVIRONMENTAL LABORATORIES &

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TEST REPORT

Test Report No. : ELES/RNC/2023/2270	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/1743
Address	: Lohardaga, Jharkhand-835302	Location	: Near Ukamit Raikya Prathamik Vidyalaya Dumrapart Village Pakhar Bauxite Mine
Plant Status	: Operational	Sampling Date	: 21.05.2023 to 23.05.2023
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)	: 34	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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CIN: U24599JH2018PTC011225

TEST REPORT

Test Report No. : ELES/RNC/2023/2827	Report Release Date : 29.07.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023
ULR No. : TC883923000001692F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name : Minerals & Minerals Limited	Address : Lohardaga, Jharkhand-835302	Sample Ref. No. Location : ELES/RNC/2023/AA/2159 Near Mine Office Pakhar (15.58 ha) Bauxite Mine	Sampling Date : 18.06.2023 to 19.06.2023 Sample Received Date : 26.06.2023 Type of Sample : Ambient Air Sampling Procedure : ELES/DOC/SMPL/02 Sample Drawn By : ELES Pvt. Ltd. Sample Condition : Sealed & Preserved
Mines Status : Non Operational	Period of Analysis : 26.06.2023 to 07.07.2023		

METEOROLOGICAL INFORMATION			
1	Average Temperature (°C) : 33	2	Barometric Pressure (mmHg) : 759
3	Relative Humidity (%) : 59	4	Weather Condition : Clear
5	Longitude : 84°36'36.29"E	6	Latitude : 23°32'24.04"N

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	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	25.1	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	0.009	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)



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

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2023/2827	Report Release Date : 29.07.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2159
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Office Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 18.06.2023 to 19.06.2023
Mines Status	: Non Operational	Sample Received Date	: 26.06.2023
Period of Analysis	: 26.06.2023 to 07.07.2023	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)	: 33	2	Barometric Pressure (mmHg)	: 759
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear
5	Longitude	: 84°36'36.29"E	6	Latitude	: 23°32'24.04"N

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
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 ELES Pvt. Ltd. Technical Manager



ENVIRONMENTAL LABORATORIES &

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CIN: U74999JH2018PTC011225

TEST REPORT

Test Report No. : ELES/RNC/2023/2828	Report Release Date : 29.07.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023
ULR No. : TC883923000001693F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2160
Address	: Lohardaga, Jharkhand-835302	Location	: Near Weigh Bridge Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 18.06.2023 to 19.06.2023
Mines Status	: Non Operational	Sample Received Date	: 26.06.2023
Period of Analysis	: 26.06.2023 to 07.07.2023	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)	: 33	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear
5	Longitude	: 84°36'34.50"E	6	Latitude	: 23°32'26.21"N

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	69	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part-24): 2019	40	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	13.1	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	25.3	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	0.015	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	<2.0	06 (Annual)



****End of Report****

Page 1 of 1

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

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CIN: U74999JH2018P/CO11125

TEST REPORT

Test Report No. : ELES/RNC/2023/2828	Report Release Date : 29.07.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2160
Address	: Lohardaga, Jharkhand-838302	Location	: Near Weigh Bridge Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 18.06.2023 to 19.06.2023
Mines Status	: Non Operational	Sample Received Date	: 26.06.2023
Period of Analysis	: 26.06.2023 to 07.07.2023	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)	: 33	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear
5	Longitude	: 84°36'34.50"E	6	Latitude	: 23°32'26.21"N

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

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CIN: U74999JH7013PT001125

TEST REPORT

Test Report No.	: ELES/RNC/2023/2829	Report Release Date	: 29.07.2023
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03.2023
ULR No.	: TC883923000001694F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2161
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Quarry No- M1 Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 18.06.2023 to 19.06.2023
Mines Status	: Non Operational	Sample Received Date	: 26.06.2023
Period of Analysis	: 26.06.2023 to 07.07.2023	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)	: 33	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear
5	Longitude	: 84°36'6.67"E	6	Latitude	: 23°32'9.19"N

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	27	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	17.2	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	0.005	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****

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

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ENVIRONMENTAL LABORATORIES &

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TEST REPORT

Test Report No. : ELES/RNC/2023/2829	Report Release Date : 29.07.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2161
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Quarry No- M1 Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 18.06.2023 to 19.06.2023
Mines Status	: Non-Operational	Sample Received Date	: 26.06.2023
Period of Analysis	: 26.06.2023 to 07.07.2023	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)	: 33	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear
5	Longitude	: 84°36'6.67"E	6	Latitude	: 23°32'9.19"N

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
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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No.	: ELES/RNC/2023/2830	Report Release Date	: 29.07.2023
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03.2023
ULR No.	: FC883923000001695F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2162
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Quarry No-M4 Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 18.06.2023 to 19.06.2023
Mines Status	: Non Operational	Sample Received Date	: 26.06.2023
Period of Analysis	: 26.06.2023 to 07.07.2023	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)	: 33	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear
5	Longitude	: 84°36'8.99"E	6	Latitude	: 23°32'13.12"N

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	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	19.5	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****

Page 1 of 1

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

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TEST REPORT

Test Report No. : ELES/RNC/2023/2830	Report Release Date : 29.07.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2162
Address	: Lohardaga, Jharkhand-835302	Location:	: Near Mine Quarry No-M4 Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 18.06.2023 to 19.06.2023
Mines Status	: Non Operational	Sample Received Date	: 26.06.2023
Period of Analysis	: 26.06.2023 to 07.07.2023	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)	: 33	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear
5	Longitude	: 84°36'8.99"E	6	Latitude	: 23°32'13.12"N

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
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ELES Pvt Ltd Technical Manager



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TEST REPORT

Test Report No.	: ELES/RNC/2023/2823	Report Release Date	: 29.07.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000001688F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2155
Address	: Lohardaga, Jharkhand-835302	Location	: Near Bunglapart Village Pakher Bauxite Mine
		Sampling Date	: 17.06.2023 to 18.06.2023
Mines Status	: Operational	Sample Received Date	: 26.06.2023
Period of Analysis	: 26.06.2023 to 06.07.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMP/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 32	2	Barometric Pressure (mmHg)	: 739
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	62	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	33	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	7.4	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	18.5	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****

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

Page 1 of 1

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TEST REPORT

Test Report No. : ELES/RNC/2023/2823	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	Address : Lohardaga, Jharkhand-835302	Sample Ref. No. : ELES/RNC/2023/AA/2155	Location : Near Bunglapart Village Pakhar Bauxite Mine
Mines Status : Operational	Period of Analysis : 26.06.2023 to 06.07.2023	Sampling Date : 17.06.2023 to 18.06.2023	Sample Received Date : 26.06.2023
		Type of Sample : Ambient Air	Sampling Procedure : ELES/DOC/SMPL/02
		Sample Drawn By : ELES Pvt. Ltd.	Sample Condition : Sealed & Preserved

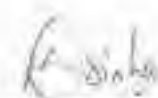
METEOROLOGICAL INFORMATION			
1	Average Temperature (°C) : 32	2	Barometric Pressure (mmHg) : 739
3	Relative Humidity (%) : 59	4	Weather Condition : Clear

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

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TEST REPORT

Test Report No. : ELES/RNC/2023/2824	Report Release Date : 29.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000001689F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name : Hindalco Industries Limited	Address : Lohardaga, Jharkhand-835302	Sample Ref. No. : ELES/RNC/2023/AA/2156	Location : Yatri Shed (Near K-10) Pakhar Bauxite Mine
Mines Status : Operational	Period of Analysis : 26.06.2023 to 06.07.2023	Sampling Date : 18.06.2023 to 19.06.2023	Sample Received Date : 26.06.2023
		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) : 739
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	31	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	8.3	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	16.8	30 (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
Jr. Deependra Kumar Sinha
Ph. D. Environmental Engg.

Page 1 of 1

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TEST REPORT

Test Report No. : ELES/RNC/2023/2824	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/2156
Address	: Lohardaga, Jharkhand-835302	Location	: Yatri Shed (Near K-10) Pakhar Bauxite Mine.
		Sampling Date	: 18.06.2023 to 19.06.2023
Mines Status	: Operational	Sample Received Date	: 26.06.2023
Period of Analysis	: 26.06.2023 to 06.07.2023	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)	: 33	2	Barometric Pressure (mmHg)	: 739
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;RA:2017	<1.0	05(Annual)
Benzo (a) Pyrene*	ng/m ³	IS:5182 (Part-12): 2004;RA:2019	<0.5	01(Annual)

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



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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ENVIRONMENTAL LABORATORIES &

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TEST REPORT

Test Report No. : ELES/RNC/2023/2825	Report Release Date : 29.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000001690F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name : Hindalco Industries Limited	Address : Lohardaga, Jharkhand-835302	Sample Ref. No. : ELES/RNC/2023/AA/2157	Location : Near Utkarmit Rajkiya Prathamik Vidyalaya Bunglapart Village Pakhar Bauxite Mine
Mines Status : Operational	Period of Analysis : 26.06.2023 to 06.07.2023	Sampling Date : 17.06.2023 to 18.06.2023	Sample Received Date : 26.06.2023
		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)	: 739
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	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	12.6	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****

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

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ENVIRONMENTAL LABORATORIES &

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CIN: U74309JH2016PP0051122A

TEST REPORT

Test Report No. : ELES/RNC/2023/2825	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/2157
Address	: Lohardaga, Jharkhand-835302	Location	: Near Utkarmit Rajkiya Prathmik Vidyalaya Bunglepart Village Pakhar Bauxite Mine
		Sampling Date	: 17.06.2023 to 18.06.2023
Mines Status	: Operational	Sample Received Date	: 26.06.2023
Period of Analysis	: 26.06.2023 to 06.07.2023	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)	: 32	2	Barometric Pressure (mmHg)	: 739
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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TEST REPORT

Test Report No.	: ELES/RNC/2023/2826	Report Release Date	: 29.07.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000001691F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2158
Address	: Lohardaga, Jharkhand-835302	Location	: Near Utkarmit Rajkiya Prathamik Vidyalaya Dumrapart Village Pakhar Bauxite Mine
		Sampling Date	: 18.06.2023 to 19.06.2023
Mines Status	: Operational	Sample Received Date	: 26.06.2023
Period of Analysis	: 26.06.2023 to 06.07.2023	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)	: 33	2	Barometric Pressure (mmHg)	: 739
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	57	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	7.4	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	10.5	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	<0.002	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 3

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TEST REPORT

Test Report No. : ELES/RNC/2023/2826	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/2158
Address	: Lohardaga, Jharkhand-835302	Location	: Near Utkarmit Rajkiya Prathamik Vidyalaya Dumrapart Village Pakhar Bauxite Mine
Mines Status	: Operational	Sampling Date	: 18.06.2023 to 19.06.2023
Period of Analysis	: 25.06.2023 to 06.07.2023	Sample Received Date	: 26.06.2023
		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)	: 739
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
.. Deependra Kumar Sinha
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ELES Pvt. Ltd. Technical Manager

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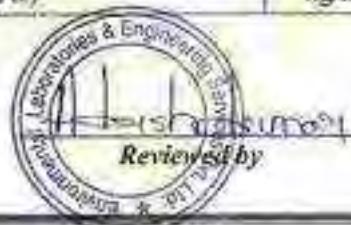
TEST REPORT

Test Report No.	: ELES/RNC/2023/2954	Report Release Date	: 08.08.2023
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03.2023
ULR No.	: TC883923000001801F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2625
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Office Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 21.07.2023 to 22.07.2023
Mines Status	: Non Operational	Sample Received Date	: 25.07.2023
Period of Analysis	: 25.07.2023 to 03.08.2023	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)	: 737
3	Relative Humidity (%)	: 65	4	Weather Condition	: Partly Cloudy
5	Longitude	: 84°36'36.29"E	6	Latitude	: 23°32'24.04"N

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	48	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	5.9	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	20.4	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	0.005	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
Ph. Environmental Engg.
ELES Pvt. Ltd, Technical Manager

Page 1 of 1

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Website: www.elespl.co.in

CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2023/2954	Report Release Date : 08.08.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No	: ELES/RNC/2023/AA/2625
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Office Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 21.07.2023 to 22.07.2023
Mines Status	: Non Operational	Sample Received Date	: 25.07.2023
Period of Analysis	: 25.07.2023 to 03.08.2023	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)	: 737
3	Relative Humidity (%)	: 65	4	Weather Condition	: Partly Cloudy
5	Longitude	: 84°36'36.29"E	6	Latitude	: 23°32'24.04"N

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

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TEST REPORT

Test Report No. : ELES/RNC/2023/2955	Report Release Date : 08.08.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2626
Address	: Lohardaga, Jharkhand-835302	Location	: Near Weigh Bridge Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 21.07.2023 to 22.07.2023
Mines Status	: Non Operational	Sample Received Date	: 25.07.2023
Period of Analysis	: 25.07.2023 to 03.08.2023	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)	: 737
3	Relative Humidity (%)	: 65	4	Weather Condition	: Partly Cloudy
5	Longitude	: 84°36'34.50"E	6	Latitude	: 23°32'26.21"N

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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TC-8639

TEST REPORT

Test Report No. : ELES/RNC/2023/2956	Report Release Date : 08.08.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023
ULR No. : TC883923000001803F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name : Minerals & Minerals Limited	Address : Lohardaga, Jharkhand-835302	Sample Ref. No. : ELES/RNC/2023/AA/2627	Location : Near Mine Quarry No- M1 Pakhar (15.58 ha) Bauxite Mine
Mines Status : Non Operational	Period of Analysis : 25.07.2023 to 03.08.2023	Sampling Date : 21.07.2023 to 22.07.2023	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) : 27	2 Barometric Pressure (mmHg) : 737
3 Relative Humidity (%) : 63	4 Weather Condition : Partly Cloudy
5 Longitude : 84°36'6.67"E	6 Latitude : 23°32'9.19"N

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	24	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	7.1	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	15.8	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	0.009	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)



Authorized Signatory

Dr. Deependra Kumar Sinha

****End of Report****

Page 1 of 1

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

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CIN: U74999JM2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2023/2956	Report Release Date : 08.08.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name : Minerals & Minerals Limited	Address : Lohardaga, Jharkhand-835302	Sample Ref. No. : ELES/RNC/2023/AA/2627	Location : Near Mine Quarry No- M1 Pakhar (15.58 ha) Bauxite Mine
Mines Status : Non Operational	Period of Analysis : 25.07.2023 to 03.08.2023	Sampling Date : 21.07.2023 to 22.07.2023	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)	: 27	2	Barometric Pressure (mm Hg)	: 737
3	Relative Humidity (%)	: 65	4	Weather Condition	: Partly Cloudy
5	Longitude	: 84°36'6.67"E	6	Latitude	: 23°32'9.19"N

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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TEST REPORT

Test Report No. : ELES/RNC/2023/2957	Report Release Date : 08.08.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023
ULR No. : TC883923000001804F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2628
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Quarry No-M4 Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 21.07.2023 to 22.07.2023
Mines Status	: Non Operational	Sample Received Date	: 25.07.2023
Period of Analysis	: 25.07.2023 to 03.08.2023	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)	: 737
3	Relative Humidity (%)	: 65	4	Weather Condition	: Partly Cloudy
5	Longitude	: 84°36'8.99"E	6	Latitude	: 23°32'13.12"N

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	46	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	5.1	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	15.4	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/SOP01	<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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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
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CIN: U74999JH2018PT0011125

TEST REPORT

Test Report No. : ELES/RNC/2023/2957	Report Release Date : 08.08.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2628
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Quarry No-M4 Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 21.07.2023 to 22.07.2023
Mines Status	: Non Operational	Sample Received Date	: 25.07.2023
Period of Analysis	: 25.07.2023 to 03.08.2023	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)	: 737
3	Relative Humidity (%)	: 65	4	Weather Condition	: Partly Cloudy
5	Longitude	: 84°36'8.99"E	6	Latitude	: 23°32'13.12"N

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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TEST REPORT

Test Report No. : ELES/RNC/2023/2950	Report Release Date : 08.08.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923006001797F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name : Hindalco Industries Limited	Address : Lohardaga, Jharkhand-835302	Sample Ref. No. : ELES/RNC/2023/AA/2621	Location : Near Bungalow Village Pakhar Bauxite Mine
Mines Status : Operational	Period of Analysis : 25.07.2023 to 02.08.2023	Sampling Date : 20.07.2023 to 21.07.2023	Sample Received Date : 25.07.2023
		Type of Sample : Ambient Air	Sampling Procedure : ELES/DOC/SAMPL-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 (%) : 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	52	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part-24): 2019	37	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	6.2	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	<0.002	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

Environmental Engineer

ELES Pvt. Ltd. Technical Manager

Page 1 of 1

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CIN: U74999RJ2019PT0021123

TEST REPORT

Test Report No.	: ELES/RNC/2023/2950	Report Release Date	: 08.08.2023
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/2621
Address	: Lohardaga, Jharkhand-835302	Location	: Near Bungalapan Village Pakhar Bauxite Mine
		Sampling Date	: 20.07.2023 to 21.07.2023
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/SAMPL/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 (%)	: 64	4	Weather Condition	: Partly Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene ^o	µg/m ³	IS:5182 (Part-11): 2006/RA2017	<1.0	05 (Annual)
Benzo (a) Pyrene ^o	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
Authorised Signatory
 Dr. Deependra Kumar Sinha
 P. O. Environmental Engg
 ELES Pvt. Ltd. Technical Manager

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TEST REPORT

Test Report No. : ELES/RNC/2023/2951	Report Release Date : 08.08.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000801798F	


CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2622
Address	: Lohardaga, Jharkhand-835302	Location	: Yatri Shed (Near K-10) Pakhar Bauxite Mine
		Sampling Date	: 21.07.2023 to 22.07.2023
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/SMPU/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION			
1. Average Temperature (°C)	: 27	2. Barometric Pressure (mmHg)	: 737
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	51	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	7.1	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	3 (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

Page 1 of 1

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ENVIRONMENTAL LABORATORIES &

ENGINEERING SERVICES PVT. LTD.

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IN-0739904211890011111

TEST REPORT

Test Report No. : ELES/RNC/2023/2951	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/2622
Address	: Lohardaga, Jharkhand-835302	Location	: Yatri Shed (Near B-10) Pakhar Bauxite Mine
		Sampling Date	: 21.07.2023 to 22.07.2023
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)	: 737
3	Relative Humidity (%)	: 65	4	Weather Condition	: Partly Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	ug/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. Debendra Kumar Sinha
Ph. D. Environmental Engg.
ELES Pvt. Ltd. Technical Manager

Page 1 of 1

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ENVIRONMENTAL LABORATORIES &

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TEST REPORT

Test Report No. : ELES/RNC/2023/2952	Report Release Date : 08.08.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
U.I.R No. : TC883923000001799F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name : Hindalco Industries Limited	Address : (ohardaga, Jharkhand-835302)	Sample Ref. No. : ELES/RNC/2023/AA/2623	Location : Near Utikarnoli Rajkiya Prathmik Vidyalaya Bungalpart Village Pakhar Bauxite Mine
Mines Status : Operational	Period of Analysis : 25.07.2023 to 02.08.2023	Sampling Date : 20.07.2023 to 21.07.2023	Sample Received Date : 25.07.2023
		Type of Sample : Ambient Air	Sampling Procedure : ELES/DOC/SMP1/02
		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 (%) : 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	46	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	5.4	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	15.1	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
PR. O. B. Wansakar Singh
ELES Pvt. Ltd. Technical Manager

Page 1 of 1

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TEST REPORT

Test Report No. : ELES/RNC/2023/2952	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/3623
Address	: Lohardaga, Jharkhand-835302	Location	: Near Utkarmit Rajkiya Prathamik Vidyalaya Bunglapart Village Pakhar Bauxite Mine
		Sampling Date	: 20.07.2023 to 21.07.2023
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/SMP/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 (%)	: 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

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

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TEST REPORT

Test Report No. : ELES/RNC/2023/2953	Report Release Date : 08.08.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000001800F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2624
Address	: Lohardaga, Jharkhand-835302	Location	: Near Utkarsh Rajkya Prathmik Vidyalaya Dumrapari Village Pakhar Bauxite Mine
		Sampling Date	: 21.07.2023 to 22.07.2023
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/SMP/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 27	2	Barometric Pressure (mmHg)	: 737
3	Relative Humidity (%)	: 65	4	Weather Condition	: Partly Cloudy

NABL Accredited		Group : Atmospheric Pollution		
Discipline : Chemical				
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	6.2	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	8.8	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)



R. Sinha
Authorized Signatory

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Dr. Dipankar Kumar Sinha

Page 1 of 1

Ph. D. Environmental Engg.

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CIN: 073999672019PT0011125

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TEST REPORT

Test Report No. : ELES/RNC/2023/2933	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-835303	Sample Ref. No. : ELES/RNC/2023/AA/2624	Location : Near Utkarshi Rajkiya Prathmik Vidyalaya Dumrapart Village Pakhar Bauxite Mine
Mines Status : Operational	Period of Analysis : 25.07.2023 to 02.08.2023	Sampling Date : 21.07.2023 to 22.07.2023	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) : 27	2. Barometric Pressure (mmHg) : 737
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


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

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CIN: U74999JH2018RYC011125

TEST REPORT

Test Report No. : ELES/RNC/2023/3397	Report Release Date : 09.09.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023
ULR No. : TC883923000002165F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name : Minerals & Minerals Limited	Address : Lohardaga, Jharkhand-835302	Sample Ref. No. : ELES/RNC/2023/AA/3021	Location : Near Mine Office Pakhar (15.58 ha) Bauxite Mine
Mines Status : Non Operational	Period of Analysis : 26.08.2023 to 08.09.2023	Sampling Date : 19.08.2023 to 20.08.2023	Sample Received Date : 26.08.2023
		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) : 25	2 Barometric Pressure (mmHg) : 736
3 Relative Humidity (%) : 65	4 Weather Condition : Partly Cloudy
5 Longitude : 84°36'36.29"E	6 Latitude : 23°32'24.04"N

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	21	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	5.2	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	17.6	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	0.008	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. Deependra Kumar Sinha
ELES Pvt. Ltd. Technical Manager

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2023/3397	Report Release Date : 09.09.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3021
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Office Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 19.08.2023 to 20.08.2023
Mines Status	: Non Operational	Sample Received Date	: 26.08.2023
Period of Analysis	: 26.08.2023 to 08.09.2023	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 (%)	: 65	4	Weather Condition	: Partly Cloudy
5	Longitude	: 84°36'36.29"E	6	Latitude	: 23°32'24.04"N

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
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ELES Pvt. Ltd. Technical Manager

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TEST REPORT

Test Report No. : ELES/RNC/2023/3398	Report Release Date : 09.09.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023
ULR No. : TC883923000002166F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3022
Address	: Lohardaga, Jharkhand-835302	Location	: Near Weigh Bridge Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 19.08.2023 to 20.08.2023
Mines Status	: Non Operational	Sample Received Date	: 26.08.2023
Period of Analysis	: 26.08.2023 to 08.09.2023	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 (%)	: 65	4	Weather Condition	: Partly Cloudy
5	Longitude	: 84°36'34.50"E	6	Latitude	: 23°32'26.21"N

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	7.2	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	19.2	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)



Reviewed by

****End of Report****

Authorised Signatory

Dr. Deependra Kumar Sinha

Ph. D Environmental Engg.

ELES Pvt. Ltd. Technical Manager

Page 1 of 1

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TEST REPORT

Test Report No. : ELES/RNC/2023/3398	Report Release Date : 09.09.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3022
Address	: Lohardaga, Jharkhand-835302	Location	: Near Weigh Bridge Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 19.08.2023 to 20.08.2023
Mines Status	: Non Operational	Sample Received Date	: 26.08.2023
Period of Analysis	: 26.08.2023 to 08.09.2023	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 (%)	: 65	4	Weather Condition	: Partly Cloudy
5	Longitude	: 84°36'34.50"E	6	Latitude	: 23°32'26.21"N

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
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ENGINEERING SERVICES PVT. LTD.

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TEST REPORT

Test Report No. : ELES/RNC/2023/3399	Report Release Date : 09.09.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023
ULR No. : TC883923000002167F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3023
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Quarry No- M1 Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 19.08.2023 to 20.08.2023
Mines Status	: Non Operational	Sample Received Date	: 26.08.2023
Period of Analysis	: 26.08.2023 to 08.09.2023	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 (%)	: 65	4	Weather Condition	: Partly Cloudy
5	Longitude	: 84°36'6.67"E	6	Latitude	: 23°32'9.19"N

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	20	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	8.3	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	14.2	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****

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

Page 1 of 1

ELES Pvt. Ltd. Technical Manager

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ENGINEERING SERVICES PVT. LTD.

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

CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No.	: ELES/RNC/2023/3399	Report Release Date	: 09.09.2023
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3023
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Quarry No- M1 Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 19.08.2023 to 20.08.2023
Mines Status	: Non Operational	Sample Received Date	: 26.08.2023
Period of Analysis	: 26.08.2023 to 08.09.2023	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 (%)	: 65	4	Weather Condition	: Partly Cloudy
5	Longitude	: 84°36'6.67"E	6	Latitude	: 23°32'9.19"N

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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CIN: U74999JH2018PTC0011125

TEST REPORT

Test Report No.	: ELES/RNC/2023/3400	Report Release Date	: 09.09.2023
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03.2023
ULR No.	: TC883923000002168F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3024
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Quarry No-M4 Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 19.08.2023 to 20.08.2023
Mines Status	: Non Operational	Sample Received Date	: 26.08.2023
Period of Analysis	: 26.08.2023 to 08.09.2023	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 (%)	: 65	4	Weather Condition	: Partly Cloudy
5	Longitude	: 84°36'8.99"E	6	Latitude	: 23°32'13.12"N

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	42	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	5.5	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	18.7	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 Singh
Ph. D. Environmental Engg.
ELES Pvt. Ltd. Technical Manager

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

CIN: U74399JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2023/3400	Report Release Date : 09.09.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3024
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Quarry No-M4 Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 19.08.2023 to 20.08.2023
Mines Status	: Non Operational	Sample Received Date	: 26.08.2023
Period of Analysis	: 26.08.2023 to 08.09.2023	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 (%)	: 65	4	Weather Condition	: Partly Cloudy
5	Longitude	: 84°36'8.99"E	6	Latitude	: 23°32'13.12"N

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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GATEWAY TO GURGAON
SO. NO. 168/16/2011/1

Plot No. 11, Sector 10, Gurgaon, Haryana
GATEWAY TO GURGAON
SO. NO. 168/16/2011/1



TEST REPORT

Test Report No. : ELES/RNC/2023/3465	Report Release Date : 09.09.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000002173F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindaleo Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3029
Address	: Lohardaga, Jharkhand-835302	Location	: Near Bunglapart Village Pakhar Bauxite Mine
		Sampling Date	: 18.08.2023 to 19.08.2023
Mines Status	: Operational	Sample Received Date	: 26.08.2023
Period of Analysis	: 26.08.2023 to 08.09.2023	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)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	48	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	5.8	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	<0.002	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
 Technical Manager
 ELES Pvt. Ltd.

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TEST REPORT

Test Report No. : ELES/RNC/2023/3405	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/3029
Address	: Lohardaga, Jharkhand-835302	Location	: Near Sunglapart Village Pakhar Bauxite Mine
Mines Status	: Operational	Sampling Date	: 18.08.2023 to 19.08.2023
Period of Analysis	: 26.08.2023 to 08.09.2023	Sample Received Date	: 26.08.2023
		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


Authorized Signatory
Of Geoply India Pvt. Ltd. State
Pollution Control Board,
ELES Pvt. Ltd. Technical Manager



ENVIRONMENTAL LABORATORY PVT. LTD.

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TEST REPORT

Test Report No. : ELES/RNC/2023/3406	Report Release Date : 09.09.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000002174F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3030
Address	: Lohardaga, Jharkhand-835302	Location	: Yatri-Shed (Near K-10) Pakhar Bauxite Mine
		Sampling Date	: 19.08.2023 to 20.08.2023
Mines Status	: Operational	Sample Received Date	: 26.08.2023
Period of Analysis	: 26.08.2023 to 08.09.2023	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	23	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	18.5	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****

Authorized Signatory
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ELES Pvt. Ltd. Gurgaon, Haryana

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ENVIRONMENTAL LABORATORIES

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TEST REPORT

Test Report No. : ELES/RNC/2023/3406	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	Address : Lehardaga, Jharkhand-835302	Sample Ref. No. : ELES/RNC/2023/AA/3030	Location : Yatri Shed (Near K-10) Pakhar Bauxite Mine
Mines Status : Operational	Period of Analysis : 26.08.2023 to 08.09.2023	Sampling Date : 19.08.2023 to 20.08.2023	Sample Received Date : 26.08.2023
		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****

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

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TEST REPORT

Test Report No. : ELES/RNC/2023/3407	Report Release Date : 09.09.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000002175F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3031
Address	: Lohardaga, Jharkhand-835302	Location	: Near Utkarmit Rajkiya Prathamik Vidyalaya Bunglapani Village Pakhar Bauxite Mine
		Sampling Date	: 18.08.2023 to 19.08.2023
Mines Status	: Operational	Sample Received Date	: 26.08.2023
Period of Analysis	: 26.08.2023 to 08.09.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SAMPL/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	42	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part-24): 2019	24	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	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	<0.002	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 Siroha
Authorised Signatory
 Dr. Deependra Kumar Siroha
 B-10, Environmental Park
 ELES Pvt. Ltd. Technical Manager

Page 1 of 1

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TEST REPORT

Test Report No. : ELES/RNC/2023/3408	Report Release Date : 09.09.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000002176F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3032
Address	: Lohardaga, Jharkhand-835302	Location	: Near Utkarmit Rajkiya Prathamik Vidyalaya-Dumrapan Village Pakhar Bauxite Mine
Mines Status	: Operational	Sampling Date	: 19.08.2023 to 20.08.2023
Period of Analysis	: 26.08.2023 to 08.09.2023	Sample Received Date	: 26.08.2023
		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	46	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	5.5	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2021	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

(Signature)
Authorised Signatory
 Dr. Deependra Kumar Singh
 Dr. D. K. Singh
 ELES Pvt. Ltd. Technical Manager

Page 1 of 1

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TEST REPORT

Test Report No. : ELES/RNC/2023/3408	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/3032
Address	: Lolardaga, Jharkhand-835302	Location	: Near Utkarmit Rajkiya Prathamik Vidyalaya Dumrapart Village- Pakhar Bauxite Mine
Mines Status	: Operational	Sampling Date	: 19.08.2023 to 20.08.2023
Period of Analysis	: 26.08.2023 to 08.09.2023	Sample Received Date	: 26.08.2023
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPLE/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****

[Signature]
Authorised Signatory
 Sr. Manager
 P. O. Environmental Group
 ELES Pvt. Ltd. Technical Manager

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CIN: U74999JH2018PTC011125

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TEST REPORT

Test Report No. : ELES/RAN/2023/1733	Report Release Date : 10.09.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RAN/2023/DW/1620
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 15.08.2023
		Sample Received Date	: 28.08.2023
Mines Status	: Non Operational	Type of Sample	: Drinking Water
Period of Analysis	: 28.08.2023 to 09.09.2023	Source/Location of Sample	: Near Mine Office Pakhar (15.58 ha) Bauxite Mine
		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 ⁺	6.84	6.5-8.5	No Relaxation
Turbidity	NTU	APHA 23 rd Ed.2017, 2130 B	0.28	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	364	500	2000
Chloride (as Cl)	mg/L	APHA 23 rd Ed.2017, 4500 Cl B	54.8	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	130	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	20.2	200	400
Nitrate (as NO ₃)	mg/L	APHA 23 rd Ed.2017, 4500 NO ₃ -B	1.48	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

Page 1 of 4

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RAN/2023/1733	Report Release Date : 10.09.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

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	34.2	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	0.248	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.



CIN: U74999JH2018PTC011125

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TEST REPORT

Test Report No.	: ELES/RAN/2023/1733	Report Release Date	: 10.09.2023
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03.2023

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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CIN: U74999JH2018PTC011125

ENVIRONMENTAL LABORATORIES &

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TEST REPORT

Test Report No.	: ELES/RAN/2023/1733	Report Release Date	: 10.09.2023
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03.2023

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 &

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CIN: U74993RJ2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2023/4005	Report Release Date : 28.10.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3422
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Office Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 15.09.2023 to 16.09.2023
Mines Status	: Non 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)	: 24	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 68	4	Weather Condition	: Cloudy
5	Longitude	: 84°36'36.29"E	6	Latitude	: 23°32'24.04"N

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	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	16.5	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	0.006	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)

Page 1 of 2

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CIN: U74999JH2018PTC011125

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TEST REPORT

Test Report No. : ELES/RNC/2023/4005	Report Release Date : 28.10.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

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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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2023/4006	Report Release Date : 28.10.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3423
Address	: Lohardaga, Jharkhand-835302	Location	: Near Weigh Bridge Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 15.09.2023 to 16.09.2023
Mines Status	: Non 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 (%)	: 68	4	Weather Condition	: Cloudy
5	Longitude	: 84°36'34.50"E	6	Latitude	: 23°32'26.21"N

Discipline : Chemical

Group : Atmospheric Pollution

Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	64	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	37	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	6.8	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	22.3	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	0.010	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)

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"Save Environment, Save Future"



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TEST REPORT

Test Report No. : ELES/RNC/2023/4006	Report Release Date : 28.10.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

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



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TEST REPORT

Test Report No. : ELES/RNC/2023/4007	Report Release Date : 28.10.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3424
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Quarry No- M1 Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 15.09.2023 to 16.09.2023
Mines Status	: Non 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 (%)	: 68	4	Weather Condition	: Cloudy
5	Longitude	: 84°36'6.67"E	6	Latitude	: 23°32'9.19"N

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	26	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	7.8	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	0.006	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)

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CIN: U74999/JH2018PTC011125

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TEST REPORT

Test Report No. : ELES/RNC/2023/4007	Report Release Date : 28.10.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

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
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ELES Pvt. Ltd. Technical Manager



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CIN: U72905UP2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2023/4008	Report Release Date : 28.10.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3425
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Quarry No-M4 Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 15.09.2023 to 16.09.2023
Mines Status	: Non 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 (%)	: 68	4	Weather Condition	: Cloudy
5	Longitude	: 84°36'8.99"E	6	Latitude	: 23°32'13.12"N

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	22	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	19.2	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	<2.0	06 (Annual)

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TEST REPORT

Test Report No. : ELES/RNC/2023/4008	Report Release Date : 28.10.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

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



TEST REPORT

Test Report No. : ELES/RNC/2023/4013	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/3430
Address	: Lohardaga, Jharkhand-835302	Location	: Near Bunglapart Village Pakhar Bauxite Mine
		Sampling Date	: 14.09.2023 to 15.09.2023
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)	: 734
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	39	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	15.1	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	<0.002	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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TEST REPORT


Test Report No. : ELES/RNC/2023/4013	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) ^a	µg/m ³	IS 5182 (Part-11)2006;RA2017	<1.0	05(Annual)
Benzo-(a)-Pyrene ^a	ng/m ³	IS 5182 (Part-12)2004;RA2019	<0.5	01(Annual)

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



****End of Report****


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

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TEST REPORT

Test Report No. : ELES/RNC/2023/4014	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/3431
Address	: Lohardaga, Jharkhand-835302	Location	: Yatri Shed (Near K-10) Pakhar Bauxite Mine
		Sampling Date	: 14.09.2023 to 15.09.2023
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)	: 734
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	19	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	5.2	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	17.5	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)

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TEST REPORT

Test Report No. : ELES/RNC/2023/4014	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
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Page 2 of 2

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TEST REPORT

Test Report No. : ELES/RNC/2023/4015	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/3452
Address	: Lohardaga, Jharkhand-835302	Location	: Near Utkarmit Rajkiya Prathmik Vidyalaya Bunglapart Village Pakhar Bauxite Mine
Mines Status	: Operational	Sampling Date	: 15.09.2023 to 16.09.2023
Period of Analysis	: 29.09.2023 to 10.10.2023	Sample Received Date	: 29.09.2023
		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)	: 738
3	Relative Humidity (%)	: 68	4	Weather Condition	: Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	35	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part-24): 2019	16	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	15.9	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	<0.002	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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TEST REPORT

Test Report No. : ELES/RNC/2023/4015	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
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TEST REPORT

Test Report No. : ELES/RNC/2023/4016	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/3433
Address	: Lohardaga, Jharkhand-835302	Location	: Near Utkarmit Rajkiya Prathamik Vidyalaya Dumrapart Village Pakhar Bauxite Mine
		Sampling Date	: 15.09.2023 to 16.09.2023
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)	: 24	2	Barometric Pressure (mmHg)	: 738
3	Relative Humidity (%)	: 68	4	Weather Condition	: Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	41	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	<5.0	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	7.3	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	<0.002	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	30 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)

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TEST REPORT

Test Report No. : ELES/RNC/2023/4016	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

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TEST REPORT

Test Report No. : ELES/RNC/2023/4147	Report Release Date : 31.10.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name : Minerals & Minerals Limited	Address : Lohardaga, Jharkhand-835302	Sampling Date : 15.09.2023 to 16.09.2023	Sampling Received Date : 30.09.2023
Mines Status : Non Operational		Type of Sample : Ambient Noise	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) : 24	2	Barometric Pressure (mmHg) : 736
3	Relative Humidity (%) : 68	4	Weather Condition : Cloudy

Location	Unit	Test Protocol	Result		Regulatory Limit (Industrial Zone)
			Time	Leq	
Near Mine Office Pakhar Bauxite Mine (15.58 ha)	dB(A)	IS 9989:1981, RA 2020	Day Time	63	75 dB(A) Day Time & 70 dB(A) Night Time
			Night Time	50	
Sample ID: ELES/RNC/2023/AN/3539					



Reviewed by

****End of Report****


Authorised Signatory
 Dr. Deependra Kumar Sinha
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TEST REPORT

Test Report No. : ELES/RNC/2023/4168	Report Release Date : 31.10.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sampling Date	: 15.09.2023
Address	: Lohardaga, Jharkhand-835302	Sampling Received Date	: 30.09.2023
		Type of Sample	: Workzone Noise
Mines Status	: Non 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)	: 736
3	Relative Humidity (%)	: 64	4 Weather Condition	: Partly Cloudy

Location	Unit	Test Protocol	Result		Regulatory Limit (Industrial Zone)
			Time	Leq	
Near Weigh Bridge – Pakhar Bauxite Mine (15.58 ha)	dB(A)	IS 4758:1968; RA 2017			90 dB (A)
Sample ID: ELES/RNC/2023/WN/3560			Day Time	75	



****End of Report****

Authorised Signatory
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TEST REPORT

Test Report No. : ELES/RNC/2023/4111	Report Release Date : 31.10.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/SW/3503
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 15.09.2023
		Sample Received Date	: 29.09.2023
Mines Status	: Non Operational	Type of Sample	: Surface Water
		Source of Sample	: Spring Water
Period of Analysis	: 29.09.2023 to 17.10.2023	Location of Sample	: Pakhar Bauxite Mine (15.58 ha)
		Sampling Procedure	: ELES/DOC/SMPL/01
		Sample Collected By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

Discipline : Chemical

Group : Water

Tolerance Limits

Parameter

Unit

Test Protocol

Result

as per IS 2296-1992
Class C
(Inland Surface Water)

pH (at 24.8 °C)	-	IS 3025 (Part 11) : 2022	6.66	6.5-8.5
Colour	Hazen	IS 3025 (Part -4) : 2021	3.0	300
Odour	-	IS 3025 (Part-5) : 2018	Unobjectionable	--
Taste	-	APHA 23 rd Ed.2017, 2160 C	N/A	--
Turbidity	mg/L	IS 3025 (Part-10) :1984;RA2017	0.44	--
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part 16):1984; RA2017	158	1500
Total Alkalinity (as CaCO ₃)	mg/L	IS 3025 (Part-23) :1986; RA2019	55	--
Total Hardness (as CaCO ₃)	mg/L	IS 3025 (Part-21) : 2009; RA2019	75	--
Sulphate (as SO ₄)	mg/L	IS 3025 (Part 24) : 1986; RA2019	5.0	400
Nitrate (as NO ₃)	mg/L	APHA 23 rd Ed.2017, 4500 NO ₃ -B	BDL (DL: 0.5)	50
Chloride (as Cl)	mg/L	IS 3025 (Part-32):1988; RA2019	12.3	600
Fluoride (as F)	mg/L	IS 3025 (Part-60) :2008; RA2019	BDL (DL: 0.1)	1.5
Cyanide (as CN)	mg/L	APHA 23 rd Ed.2017, 4500 CN-E	BDL (DL: 0.012)	0.05
Phenols Compounds (as C ₆ H ₅ OH)	mg/L	IS 3025 (Part-43): 1992;RA2019	BDL (DL: 0.0005)	0.005

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"Save Environment, Save Future"



ENVIRONMENTAL LABORATORIES &

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

ENGINEERING SERVICES PVT. LTD.

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TEST REPORT

Test Report No. : ELES/RNC/2023/4111	Report Release Date : 31.10.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

Discipline: Chemical		Group: Water		Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
Calcium (as Ca)	mg/L	IS 3025 (Part-40): 1991; RA2019	20	—
Free Residual Chlorine (RFC)	mg/L	IS 3025 (Part-26) :2021	BDL (DL: 0.1)	—
Discipline: Chemical		Group: Residues in Water		
Aluminium (as Al)	mg/L	IS 3025 (Part-55) :2003; RA2019	BDL (DL: 0.02)	—
Arsenic (as As)	mg/L	IS 3025 (Part 37): 2022	BDL (DL: 0.005)	0.2
Boron (as B)	mg/L	IS 3025 (Part-57) :2021	BDL (DL: 0.2)	—
Cadmium (as Cd)	mg/L	APHA23 rd Ed.2017; 3111B	BDL (DL: 0.003)	0.01
Total Chromium (as Cr)	mg/L	APHA 23 rd Ed.2017; 3111B	BDL (DL: 0.03)	—
Copper (as Cu)	mg/L	APHA 23 rd Ed.2017; 3111B	BDL (DL: 0.03)	1.5
Iron (as Fe)	mg/L	APHA 23 rd Ed.2017; 3111B	0.283	50
Lead (as Pb)	mg/L	APHA 23 rd Ed.2017, 3111 B	BDL (DL: 0.01)	0.1
Manganese (as Mn)	mg/L	APHA 23 rd Ed.2017; 3111 B	BDL (DL: 0.05)	—
Mercury (as Hg)	mg/L	IS 3025 (Part-48) :1994; RA2019	BDL (DL: 0.001)	—
Selenium (as Se)	mg/L	IS 3025 (Part-56) :2003; RA2019	BDL (DL: 0.01)	0.05
Zinc (as Zn)	mg/L	APHA 23 rd Ed.2017, 3111 B	BDL (DL: 0.1)	15
Discipline: Biological		Group: Water		
Total Coliform	CFU/100 ml.	IS 15185: 2016, RA2021	2.90×10 ³	5000
Escherichia Coli	CFU/100 mL	IS 15185:2016; RA2021	6.36×10 ²	—

Remarks: 1. pH & RFC done at Lab.



ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
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TEST REPORT

Test Report No. : ELES/RNC/2023/4111	Report Release Date : 31.10.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

Discipline: Chemical		Group: Water	
Parameter	Unit	Test Protocol	Result
Anionic Surfactants (as MBAS)*	mg/L	IS 3025 Part 68	<0.1
Mineral Oil*	mg/L	CL-6, IS: 3025 (P-39)	<0.1
Polynuclear Aromatic Hydrocarbons (PAH)*	mg/L	APHA 23 rd Edition	<0.0001
Pesticides			
Alachlor*	µg/L	APHA	<1.0
Atrazine*	µg/L	APHA	<1.0
Aldrin/Dieldrin*	µg/L	APHA	<0.01
Alpha HCH*	µg/L	APHA	<0.001
Beta HCH*	µg/L	APHA	<0.01
Butachlor*	µg/L	APHA	<10
Chlorpyrifos*	µg/L	APHA	<10
Delta HCH*	µg/L	APHA	<0.01
2,4 dichlorophenoxyacetic acid*	µg/L	APHA	<10
DDT(o,p and p,p-isomers of DDT,DDE and DDD)*	µg/L	APHA	<0.5
Endosulfan (alpha, beta, and sulphate)*	µg/L	APHA	<0.1
Ethion*	µg/L	APHA	<0.5
Gamma HCH (Lindane)*	µg/L	APHA	<0.5
Isoproturon*	µg/L	APHA	<0.5

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



Reviewed by

****End of Report****


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

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"Save Environment, Save Future"

MINERALS & MINERALS LIMITED

Regd. Office- Court Road, P.O. & Distt.-Lohardaga, Jharkhand-835302

Tel.-06526-223163

CIN NO. U26990JH1970PLC000875

Ref. :

Date

Annexure 3

Date – 28.10.2023

Office Order

Environmental Cell has been re-constituted at Pakhar Bauxite Mine (Area 15.58 ha) comprising below mentioned team members. The team will ensure compliance of Environment Act, Regulation & Rule in respect of the said mines of Minerals & Minerals Limited.

1. Mr. Deepak Kumar Jha (Coordinator)
2. Mr. Sayantan 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.

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.

Basudev Gangopadhyay
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