



HIL/LHD/ENV/MoEF/435

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 Chiro-Kukud (152.57 ha) Bauxite Mining project of M/s Hindalco Industries Limited located in Latehar, Jharkhand for the period April'23 to September'23.

Ref: Environmental Clearance letter no J-11015/240/2006-IA II(M) dated 17th May 2007

Sir,

With reference to the above, we are submitting herewith the Compliance status report of EC conditions for **Chiro-Kukud (152.57 ha)** Bauxite Mining project of **M/s Hindalco Industries Limited** located in Latehar, Jharkhand for the period April'23 to September'23. The lease details are below.

| Lease area (ha) | Production Capacity (MT) | Lease Period |
|-----------------|--------------------------|--------------------------|
| 152.57 | 100000 | 29.01.1985 to 28.01.2035 |

Hope you will find the same in order.

Thanking You

Yours Sincerely
FOR HINDALCO INDUSTRIES LIMITED

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

Enclosure: - As Above

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Registered Office: Ahura Centre, 1st Floor, B Wing, Mahakali Caves Road, Andheri (East), Mumbai 400 093, India
T: +91 22 6691 7000 | F: +91 22 6691 7001
Corporate ID No.: L27020MH1958PLC011238

Name of the Project : **Chiro Kukud Bauxite Mine (152.57 ha)**
M/s Hindalco Industries Ltd

Environment Clearance No & date : **J-11015/240/2006-IA. II (M), dated 17.5.2007**

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

A. Specific Conditions

Condition 1- Environmental Clearance is subject to final order of the Hon'ble Supreme Court of India in the matter of Goa foundation Vs Union of India in writ petition (civil) no 460 of 2004, as may be applicable to this project.

Reply to Condition 1 - Noted.

Condition 2- Environmental Clearance is subject to obtaining clearance from Wildlife (Protection) Act '1972 from the competent authority.

Reply to Condition 2- The Mine has not been in operation since 24 April 2018 as this matter is subjudice.

Condition 3- All the conditions stipulated by SPCB in their NOC shall be effectively implemented.

Reply to Condition 3- Implementation of the stipulated conditions in NOC are fulfilled post which consent to operate has been obtained from time to time when mine was in operation. The Mine is not in operation since 24 April 2018.

Condition 4- The environmental clearance is subject to approval of the state land use Department, Government of Jharkhand for diversion of agricultural land for non-agricultural use.

Reply to Condition 4- The Mine has not been in operation since 24 April 2018. The land acquisition was being done with the permission of a competent authority of the State Government i.e. concerned Deputy Commissioner (D.C.) under CNT Act. The land lease agreement was being done with Raiyat (Landowner) with permission of the State Govt with provision of returning the land as per the norms set by D.C. Land acquisition was having state government approval.

Condition 5- Mining shall not intersect groundwater. The mine working shall be restricted to above ground water table. Prior approval of the Ministry of Environment & Forests and Central Ground Water Authority shall be obtained for mining below water table.

Reply to Condition 5- The Mine has not been in operation since 24 April 2018. At no point of time mining activities intersected the ground water table when mine was operational. In future also, post resumption of mining, it will be restricted 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 6- The project proponent shall ensure that the mining shall be carried out in small blocks and at a given point of time active mining shall not be more than 2.0 ha.

Reply to Condition 6- The Mine has not been in operation since 24 April 2018.

Condition 7- The project proponent shall ensure that no natural water course shall be obstructed due to any mining operations.

Reply to Condition 7- The Mine has not been in operation since 24 April 2018. No natural watercourse obstructed when mine was operational.

Condition 8- Topsoil, if any, shall be stacked properly with proper slope with adequate measures and should be used for reclamation and rehabilitation of mined out areas.

Reply to Condition 8- The Mine has not been in operation since 24 April 2018. Sequential backfilling and reclamation of the mined-out area practiced when mine was operational.

Condition 9- The overburden generated during the initial year shall be kept as a temporary dump. Concurrent backfilling starts from the 2nd year onwards and there shall be no external dump at the end of the mine life.

Reply to Condition 9- The Mine has not been in operation since 24 April 2018. The over burdens generated during the initial year are kept as temporary dump. Concurrent backfilling started from the 2nd year onwards. There is no external dump as on date and earlier dumps were re-handled.

Data is enclosed as Annexure 4.

Condition 10- The entire excavated area of 86 ha shall be reclaimed, out of which 66 ha land shall be returned to raiyats for agricultural purposes and in 20 ha plantation shall be raised. Monitoring and management of rehabilitated areas should continue until the vegetation becomes self-sustaining. Compliance status should be submitted to the Ministry of Environment & Forest on a six-month basis.

Reply to Condition 10- This was being complied with and also will be complied with in future post resumption of mining work.

Condition 11- Catch drains and siltation ponds of appropriate size should be constructed to arrest silt and sediment flows from mine working. The water so collected should be utilized for watering the mine area, roads, green belt development etc. The drains should be regularly desilted particularly after monsoon and maintained properly.

Garland drain (size, gradient and length) shall be constructed for mine pit and sump capacity should be designed keeping 50% safety margin over and above peak sudden rainfall (based on 50 years data) and maximum discharge in the area adjoining the mine site. Sump capacity

should also provide adequate retention period to allow proper setting of silt material. Sedimentation pits should be constructed at the corners of the garland drains and desilted at regular intervals.

Reply to Condition 11- The Mine has not been in operation since 24 April 2018. During the operation period of mines, Catch drains of appropriate size have been constructed to arrest silt and sediment flows from mine working. The water collected was utilized for watering the mine area, roads, green belt development etc. The drains were regularly desilted particularly after monsoon and maintained properly. Garland drains and sump of appropriate size were provided when mine was operational.

Condition 12- Dimension of the retaining wall at the OB benches within the mine to check run-off and siltation should be based on rainfall data.

Reply to Condition 12- The Mine has not been in operation since 24 April 2018 hence not applicable as of now.

Condition 13- Plantation shall be raised in an area of 20.0 ha including a green belt of adequate width by planting the native species around the ML area, roads, reclaimed area etc. in consultation with the local DFO / Agriculture Department. The density of the trees should be around 1500 plants per ha.

Reply to Condition 13- Plantation was carried out progressively. The Mine has not been in operation since 24 April 2018.

Condition 14- 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 to Condition 14- The Mine has not been in operation since 24 April 2018. Suitable measures such as garland drain have been adopted to augment ground water resources in the area when mine was operational. It may be noted that there was no chance to intersect ground water table during mining operation.

Condition 15- Regular monitoring of ground water level and quality should be carried out by establishing a network of existing wells and constructing new piezometers during the mining operation. The monitoring should be carried out four times in a year – pre-monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January) and the data thus collected may be sent regularly to MOEF, Central Ground water Authority and Regional Director Central Ground Water Board.

Reply to Condition 15- Mine has not been in operation since 24 April 2018. This condition was complied with and also will be complied with in future post resumption of mining work.

Condition 16- Prior permission from the competent authority should be obtained for the drawl of water from the surface water bodies.

Reply to Condition 16- The Mine has not been in operation since 24 April 2018. Not used any natural water for mining purposes when mine was operational. Water used for sprinkling and gardening was drawn from rainwater harvesting ponds.

Condition 17- Vehicular emissions should be kept under control and regularly monitored. Measures shall be taken for maintenance of vehicles used in mining operations and transportation of minerals. The vehicles should be covered with a tarpaulin and shall not be overloaded.

Reply to Condition 17- The Mine has not been in operation since 24 April 2018. Vehicles engaged in mining operation were regularly checked and maintained. The vehicles used were covered with tarpaulin while transportation of mineral when mine was operational.

Condition 18- Drills should either be operated with dust extractors or should be equipped with a water injection system.

Reply to Condition 18- The Mine has not been in operation since 24 April 2018. Wet drilling was done for dust suppression when mine was in operation.

Condition 19- Blasting operation should be carried out only during the daytime. Controlled blasting should be practiced. The mitigative measures for control of ground vibration and to arrest fly rocks and boulders should be implemented.

Reply to Condition 19- The Mine has not been in operation since 24 April 2018. However, for this mine blasting time was fixed during Lunch Time i.e. 1.00 PM -2.00 PM. Controlled blasting method practiced when mine was in operation.

Condition 20- Consent to operate should be obtained from SPCB prior to start of enhanced production from the mine.

Reply to Condition 20- There is no proposal for production enhancement.

Condition 21- Sewage treatment plant should be installed for the colony. ETP should also be provided for workshops and wastewater generated from mining operations.

Reply to Condition 21- The Mine has not been in operation since 24 April 2018. There was no effluent discharge from Mine, hence ETP is not required to install.

Condition 22- The project proponent should take all precautionary measures during mining operation for conservation and protection of endangered fauna such as Leopard, Indian Wolf, Indian elephant, Indian small civet, 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. The necessary allocation of funds for implementation of the conservation plan shall be made and the funds so allocated shall be included in the project cost. A copy of the action plan may be submitted to the Ministry and its Regional Office within 3 months.

Reply to Condition 22- The Mine has not been in operation since 24 April 2018. Wildlife conservation plan has already been approved by PCCF, Ranchi. However, a fresh wildlife conservation plan has already been submitted to PCCF, Ranchi for its approval.

Condition 23- A Final Mine Closure plan along with details of Corpus Fund should be submitted to the Ministry of Environment & Forest 5 years in advance of final mine closure for approval.

Reply to Condition 23- Progressive Mine closure plan and Final mine closure plan (part) has been approved by IBM. FMCP for the entire lease will be prepared & will be submitted in due time as per the procedure mentioned in law. Based on present resource estimate and peak rated production capacity, mining operation will be done.

B. General Conditions

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

Reply to Condition 1- Noted

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

Reply to Condition 2- Noted but the Mine has not been in operation since 24 April 2018.

Condition 3- Four ambient air quality-monitoring stations should be established in the core zone as well as in the buffer zone for RPM, SPM, 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 to Condition 3- The Mine has not been in operation since 24 April 2018.

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

Condition 4- Data on ambient air quality (RPM, SPM, SO₂, and NO_x) should be regularly submitted to the Ministry including its regional office located at Bhubaneswar and the State Pollution Control Board / Central pollution Control Board once in six months.

Reply to Condition 4- The Mine is not in operation since 24 April 2018.

Monitoring Reports is attached as **Annexure 2**.

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

Reply to Condition 5- The Mine has not been in operation since 24 April 2018.

Water tankers with sprinkling facilities were provided for haul roads, loading unloading & at transfer points when mine was operational.

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

Reply to Condition 6- The Mine has not been in operation since 24 April 2018.

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

Reply to Condition 7- There is no generation of wastewater from the mine as of now. Compliance with this condition will be adhered to as applicable. As of date, mine is not operational.

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

Reply to Condition 8- The Mine is not in operation since 24 April 2018.

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

Reply to Condition 9- A suitable environmental management cell has been developed with qualified personnel. Copy is enclosed as **Annexure- 3**.

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

Reply to Condition 10- The Mine has not been in operation since 24 April 2018. This was an operating Mine and hence provision related to financial closure not applicable.

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

Reply to Condition 11- The funds earmarked for environmental protection measures are budgeted. The cost of environmental protection measures is attached as **Annexure 5**. Now the Regional office is at Ranchi.

Condition 12- The Regional Office of this Ministry located at Bhubaneswar shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation

to the officer (s) of the Regional Office by furnishing the requisite data / information / monitoring reports.

Reply to Condition 12- Agreed. Now the Regional office is at Ranchi.

Condition 13- The project proponent shall submit six monthly report on the status of the implementation of the stipulated environmental safeguards to the Ministry of Environment and Forests its Regional Office, Bhubaneshwar CPCB and State Pollution Control Board.

Reply to Condition 13- Duly submitted. Now the Regional office is at Ranchi.

Condition 14- A copy of clearance letter will be marked to concerned Panchayat / local NGO, if any, from whom suggestion / representation has been received while processing the proposal.

Reply to Condition 14- Complied.

Condition 15- State Pollution Control Board should display a copy of the clearance letter at the Regional office, District Industry Center and Collector's office / Tehsildar's Office for 30 days.

Reply to Condition 15- Displayed.

Condition 16- 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 Bhubaneshwar.

Reply to Condition 16- Already done and copies submitted with earlier six-monthly compliance report.

**ENVIRONMENTAL LABORATORIES & ENGINEERING
SERVICES PVT.LTD.**

Plot No.30, Mansarovar Enclave, Tupudana,Hatia,Ranchi-834003,
Jharkhand.

Chiro-Kukud Bauxite Mine-Environmental Monitoring Report

April 2023



CONTENT

| Hindalco Industries : Chiro Kukud Bauxite Mine | | Environmental Monitoring Report | April 2023 |
|--|---|---------------------------------|------------|
| Chiro Kukud Bauxite Mine | | | |
| AMBIENT AIR QUALITY- CORE ZONE | | | |
| 1 | Kukud Village/Near Mine area | | |
| 2 | Kukud Village/Near Weigh Bridge | | |
| 3 | Chiro Village/Near Mgazine | | |
| 4 | Chiro Village/Near Pillar No.1 | | |
| AMBIENT AIR QUALITY- BUFFER ZONE | | | |
| 1 | Kudag Village/ Near Hindalco Campus | | |
| 2 | Jaljali Village/Near Shiv Temple Sabag Road | | |
| 3 | Amtahi Village/Near Tailoring Centre | | |
| 4 | Ambakona Village | | |





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ENGINEERING SERVICES PVT. LTD.

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



TC-8838

TEST REPORT

| | | | |
|-----------------|----------------------|---------------------|--------------|
| Test Report No. | : ELES/RNC/2023/1976 | Report Release Date | : 12.06.2023 |
| Work Order No. | : 13612310218 | Work Order Date | : 21.04.2023 |
| ULR No. | : TC88392300000937F | | |

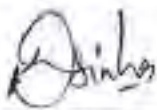
| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|--------------------|-------------------------------|----------------------|--|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2023/AA/1403 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Kukud Village/Near Mine Area Chiro-Kukud Bauxite Mine (152.57ha) |
| Plant Status | : Non Operational | Sampling Date | : 29.04.2023 to 30.04.2023 |
| 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) | : 35 | 2 | Barometric Pressure (mmHg) | : 743 |
| 3 | Relative Humidity (%) | : 62 | 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 | 34 | 60 (24hrs) |
| Sulphur Di-Oxide (SO ₂) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-2): 2001; RA2022 | 10.5 | 80 (24hrs) |
| Nitrogen Di-Oxide (NO ₂) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-6): 2006; RA2022 | 23.3 | 80 (24hrs) |
| Ozone (O ₃) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-9): 1974; RA2019 | <20.0 | 100 (8hrs) |
| Ammonia (NH ₃) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part- 25): 2018 | <10.0 | 400 (24hrs) |
| Carbon Monoxide (CO) | mg/m^3 | IS 5182 (Part-10): 1999; RA2019 | <1.0 | 2 (8hrs) |
| Lead (Pb) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-22): 2004; RA2019 | 0.012 | 1 (24hrs) |
| Nickel (Ni) | ng/m^3 | IS 5182 (Part-26):2020 | <6.0 | 20 (Annual) |
| Arsenic (As) | ng/m^3 | ELES/AIR/SOP/01 | <2.0 | 06 (Annual) |



****End of Report****


Authorized Signatory
Dr. Deependra Kumar Singh
P.T. Environmental Engg.
ELES Pvt. Ltd. Technical Manager

Page 1 of 1

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Website : www.elespl.co.in

CIN: U74998MH2016PTC011225

TEST REPORT

| | | | |
|-----------------|----------------------|---------------------|--------------|
| Test Report No. | : ELES/RNC/2023/1976 | 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/1403 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Kukud Village/Near Mine Area Chiro-Kukud Bauxite Mine (152.57ha) |
| | | Sampling Date | : 29.04.2023 to 30.04.2023 |
| Plant Status | : Non 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) | : 35 | 2 | Barometric Pressure (mmHg) | : 743 |
| 3 | Relative Humidity (%) | : 62 | 4 | Weather Condition | : Clear |

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

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



****End of Report****


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

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Website: www.elespl.co.in



TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2023/1977 | Report Release Date : 12.06.2023 |
| Work Order No. : 13612310218 | Work Order Date : 21.04.2023 |
| ULR No. : TC883923000000938F | |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|--------------------|-------------------------------|----------------------|---|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2023/AA/1404 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Kukud Village/Near Weigh Bridge Chiro-Kukud Bauxite Mine (152.57ha) |
| Plant Status | : Non Operational | Sampling Date | : 29.04.2023 to 30.04.2023 |
| 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) : 35 | 2 | Barometric Pressure (mmHg) : 743 |
| 3 | Relative Humidity (%) : 62 | 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 | 77 | 100 (24hrs) |
| Particulate Matter (PM2.5) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part- 24): 2019 | 43 | 60 (24hrs) |
| Sulphur Di-Oxide (SO ₂) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-2): 2001; RA2022 | 9.8 | 80 (24hrs) |
| Nitrogen Di-Oxide (NO ₂) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-6): 2006; RA2022 | 20.1 | 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 | 0.019 | 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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"Save Environment, Save Future"



ENVIRONMENTAL LABORATORIES &

PLDT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
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TEST REPORT

| | | | |
|-----------------|----------------------|---------------------|--------------|
| Test Report No. | : ELES/RNC/2023/1977 | 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/1404 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Kukud Village/Near Weigh Bridge Chiro-Kukud Bauxite Mine (152.57ha) |
| | | Sampling Date | : 29.04.2023 to 30.04.2023 |
| Plant Status | : Non 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 |

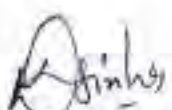
| METEOROLOGICAL INFORMATION | | | | | |
|----------------------------|--------------------------|------|---|----------------------------|---------|
| 1 | Average Temperature (°C) | : 35 | 2 | Barometric Pressure (mmHg) | : 743 |
| 3 | Relative Humidity (%) | : 62 | 4 | Weather Condition | : Clear |

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

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



****End of Report****


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



ENVIRONMENTAL LABORATORIES &

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Website : www.elespl.co.in



TEST REPORT

| | | | |
|-----------------|----------------------|---------------------|--------------|
| Test Report No. | : ELES/RNC/2023/1978 | Report Release Date | : 12.06.2023 |
| Work Order No. | : 13612310218 | Work Order Date | : 21.04.2023 |
| ULR No. | : TC88392300000939F | | |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|--------------------|-------------------------------|----------------------|---|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2023/AA/1405 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Chiro Village/Near Magazine Chiro-Kukud Bauxite Mine (152.57ha) |
| | | Sampling Date | : 29.04.2023 to 30.04.2023 |
| Plant Status | : Non 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) | : 35 | 2 | Barometric Pressure (mmHg) | : 743 |
| 3 | Relative Humidity (%) | : 62 | 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 | 29 | 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 | 19.7 | 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 | 0.007 | 1 (24hrs) |
| Nickel (Ni) | ng/m ³ | IS 5182 (Part-26):2020 | <6.0 | 20 (Annual) |
| Arsenic (As) | ng/m ³ | ELES/AIR/SOP/01 | <2.0 | 06 (Annual) |



****End of Report****

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

Page 1 of 1

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CIN: U74999JH2018PTC011125

TEST REPORT

| | | | |
|-----------------|----------------------|---------------------|--------------|
| Test Report No. | : ELES/RNC/2023/1978 | 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/1405 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Chiro Village/Near Magazine Chiro-Kukud Bauxite Mine (152.57ha) |
| | | Sampling Date | : 29.04.2023 to 30.04.2023 |
| Plant Status | : Non 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) | : 35 | 2 | Barometric Pressure (mmHg) | : 743 |
| 3 | Relative Humidity (%) | : 62 | 4 | Weather Condition | : Clear |

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

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



****End of Report****

Authorized Signatory

Dr. Deependra Kumar Sinha

Ph. D. Environmental Engg.

ELES Pvt. Ltd. Technical Manager

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Website : www.elespl.co.in



TC-0030

TEST REPORT

| | | | |
|-----------------|----------------------|---------------------|--------------|
| Test Report No. | : ELES/RNC/2023/1979 | Report Release Date | : 12.06.2023 |
| Work Order No. | : 13612310218 | Work Order Date | : 21.04.2023 |
| ULR No. | : TC883923000000940F | | |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|--------------------|-------------------------------|----------------------|--|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2023/AA/1406 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Chiro Village/Near Pillar No.1 Chiro-Kukud Bauxite Mine (152.57ha) |
| Plant Status | : Non Operational | Sampling Date | : 29.04.2023 to 30.04.2023 |
| 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) | : 35 | 2 | Barometric Pressure (mmHg) | : 743 |
| 3 | Relative Humidity (%) | : 62 | 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 | 70 | 100 (24hrs) |
| Particulate Matter (PM2.5) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part- 24): 2019 | 37 | 60 (24hrs) |
| Sulphur Di-Oxide (SO ₂) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-2): 2001; RA2022 | 8.2 | 80 (24hrs) |
| Nitrogen Di-Oxide (NO ₂) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-6): 2006; RA2022 | 21.4 | 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 | 0.011 | 1 (24hrs) |
| Nickel (Ni) | ng/m^3 | IS 5182 (Part-26):2020 | <6.0 | 20 (Annual) |
| Arsenic (As) | ng/m^3 | ELES/AIR/SOP/01 | <2.0 | 06 (Annual) |



****End of Report****


 Authorized Signatory
 U. Deepshikha Narain
 Ph.D. Environmental Engg.
 ELES Pvt. Ltd. Technical Manager

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Phone no.: 0651-2290103

Website : www.elespl.co.in

CIN: U74999JH2016PTC011125

TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2023/1979 | 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/1406 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Chiro Village/Near Pillar No.1 Chiro-Kukud Bauxite Mine (152.57ha) |
| Plant Status | : Non Operational | Sampling Date | : 29.04.2023 to 30.04.2023 |
| 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 |

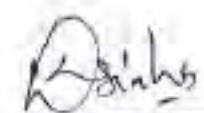
| METEOROLOGICAL INFORMATION | | | | | |
|----------------------------|--------------------------|------|---|----------------------------|---------|
| 1 | Average Temperature (°C) | : 35 | 2 | Barometric Pressure (mmHg) | : 743 |
| 3 | Relative Humidity (%) | : 62 | 4 | Weather Condition | : Clear |

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

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



****End of Report****


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

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TEST REPORT

| | | | |
|-----------------|----------------------|---------------------|--------------|
| Test Report No. | : ELES/RNC/2023/1984 | Report Release Date | : 12.06.2023 |
| Work Order No. | : 13612310218 | Work Order Date | : 21.04.2023 |
| ULR No. | : TC883923000000945F | | |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|--------------------|-------------------------------|----------------------|---|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2023/AA/1411 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Kudag Village / Near Hindalco Campus |
| | | Sampling Date | : 28.04.2023 to 29.04.2023 |
| Plant Status | : Non 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) | : 35 | 2 | Barometric Pressure (mmHg) | : 743 |
| 3 | Relative Humidity (%) | : 62 | 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 | 7.6 | 80 (24hrs) |
| Nitrogen Di-Oxide (NO ₂) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-6): 2006; RA2022 | 22.5 | 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
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Dr. Deependra Kumar Sinha
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ELES Pvt. Ltd. Technical Manager

Page 1 of 1

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ENVIRONMENTAL LABORATORIES &

ENGINEERING SERVICES PVT. LTD.

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

CIN: U74399JH2018PTC011125

TEST REPORT

| | | | |
|-----------------|----------------------|---------------------|--------------|
| Test Report No. | : ELES/RNC/2023/1984 | 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/1411 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Kudag Village / Near Hindalco Campus |
| | | Sampling Date | : 28.04.2023 to 29.04.2023 |
| Plant Status | : Non 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) | : 35 | 2 | Barometric Pressure (mmHg) | : 743 |
| 3 | Relative Humidity (%) | : 62 | 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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Website: www.elespl.co.in



TEST REPORT

| | | | |
|-----------------|----------------------|---------------------|--------------|
| Test Report No. | : ELES/RNC/2023/1985 | Report Release Date | : 12.06.2023 |
| Work Order No. | : 13612310218 | Work Order Date | : 21.04.2023 |
| ULR No. | : TC883923000000946F | | |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|--------------------|-------------------------------|----------------------|--|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2023/AA/1412 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Jaljali Village/Near Shiv Temple Sabag Road. |
| | | Sampling Date | : 28.04.2023 to 29.04.2023 |
| Plant Status | : Non 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) | : 35 | 2 | Barometric Pressure (mmHg) | : 743 |
| 3 | Relative Humidity (%) | : 62 | 4 | Weather Condition | : Clear |

| NABL Accredited | | | | |
|--------------------------------------|--------------------------|---------------------------------|-------------------------------|------------------|
| Discipline : Chemical | | | Group : Atmospheric Pollution | |
| Parameter | Unit | Test Protocol | Result | Regulatory Limit |
| Particulate Matter (PM10) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-23): 2006; RA2022 | 60 | 100 (24hrs) |
| Particulate Matter (PM2.5) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part- 24): 2019 | 32 | 60 (24hrs) |
| Sulphur Di-Oxide (SO ₂) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-2): 2001; RA2022 | 6.9 | 80 (24hrs) |
| Nitrogen Di-Oxide (NO ₂) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-6): 2006; RA2022 | 15.2 | 80 (24hrs) |
| Ozone (O ₃) | $\mu\text{g}/\text{m}^2$ | 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 | 0.008 | 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
Authorized Signatory
Dr. Deependra Kumar Sinha
Ph. D. Environmental Engg.
ELES Pvt. Ltd. Technical Manager

Page 1 of 1

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CIN: U74300JH2013PTC011125

TEST REPORT

| | | | |
|-----------------|----------------------|---------------------|--------------|
| Test Report No. | : ELES/RNC/2023/1985 | 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/1412 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Jaljali Village/Near Shiv Temple Sabag Road. |
| | | Sampling Date | : 28.04.2023 to 29.04.2023 |
| Plant Status | : Non 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) | : 35 | 2 | Barometric Pressure (mmHg) | : 743 |
| 3 | Relative Humidity (%) | : 62 | 4 | Weather Condition | : Clear |

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

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



****End of Report****


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

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TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2023/1986 | Report Release Date : 12.06.2023 |
| Work Order No. : 13612310218 | Work Order Date : 21.04.2023 |
| ULR No. : TC883923000000947F | |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|---|---|--|---|
| Customer Name : Hindalco Industries Limited | Address : Lohardaga, Jharkhand-835302 | Sample Ref. No. : ELES/RNC/2023/AA/1413 | Location : Amtahi Village/Near Tailoring Centre |
| Plant Status : Non Operational | Period of Analysis : 10.05.2023 to 08.06.2023 | Sampling Date : 28.04.2023 to 29.04.2023 | 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) : 35 | 2 | Barometric Pressure (mmHg) : 743 |
| 3 | Relative Humidity (%) : 62 | 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 | 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 | 7.5 | 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 | <0.002 | 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
Authorized Signatory
 Dr. P. Environmental Engg.

Page 1 of 1

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Phone no.: 0651-2290103

Website: www.elespl.co.in

TEST REPORT

| | | | |
|-----------------|----------------------|---------------------|--------------|
| Test Report No. | : ELES/RNC/2023/1986 | 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/1413 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Amtahi Village/Near Tailoring Centre |
| | | Sampling Date | : 28.04.2023 to 29.04.2023 |
| Plant Status | : Non 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) | : 35 | 2 | Barometric Pressure (mmHg) | : 743 |
| 3 | Relative Humidity (%) | : 62 | 4 | Weather Condition | : Clear |

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

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



****End of Report****


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

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CIN: MPP9598HVBMP0011111

TEST REPORT

| | | | |
|-----------------|----------------------|---------------------|--------------|
| Test Report No. | : ELES/RNC/2023/1987 | Report Release Date | : 12.06.2023 |
| Work Order No. | : 13612310218 | Work Order Date | : 21.04.2023 |
| ULR No. | : TC883923000000948F | | |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|--------------------|-------------------------------|----------------------|----------------------------|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2023/AA/1414 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Ambakona Village |
| Plant Status | : Non Operational | Sampling Date | : 28.04.2023 to 29.04.2023 |
| 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) | : 35 | 2 | Barometric Pressure (mmHg) | : 743 |
| 3 | Relative Humidity (%) | : 62 | 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 | 68 | 100 (24hrs) |
| Particulate Matter (PM2.5) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part- 24): 2019 | 35 | 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 | 20.3 | 80 (24hrs) |
| Ozone (O ₃) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-9): 1974; RA2019 | <20.0 | 100 (8hrs) |
| Ammonia (NH ₃) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part- 25): 2018 | <10.0 | 400 (24hrs) |
| Carbon Monoxide (CO) | mg/m^3 | IS 5182 (Part-10): 1999; RA2019 | <1.0 | 2 (8hrs) |
| Lead (Pb) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-22): 2004; RA2019 | <0.002 | 1 (24hrs) |
| Nickel (Ni) | ng/m^3 | IS 5182 (Part-26):2020 | <6.0 | 20 (Annual) |
| Arsenic (As) | ng/m^3 | ELES/AIR/SOP/01 | <2.0 | 06 (Annual) |



****End of Report****

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

Page 1 of 1

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Website : www.elespl.co.in

QIN.U74.0899H2018PFC01122F

TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2023/1987 | 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/1414 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Ambakona Village |
| | | Sampling Date | : 28.04.2023 to 29.04.2023 |
| Plant Status | : Non 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) | : 35 | 2 | Barometric Pressure (mmHg) | : 743 |
| 3 | Relative Humidity (%) | : 62 | 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. Desendra Kumar Sinha
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ELES Pvt. Ltd. Technical Manager

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**ENVIRONMENTAL LABORATORIES & ENGINEERING
SERVICES PVT.LTD.**

Plot No.30, Mansarovar Enclave, Tupudana,Hatia,Ranchi-834003,
Jharkhand.

Chiro-Kukud Bauxite Mine-Environmental Monitoring Report

May 2023



CONTENT

| Hindalco Industries : Chiro Kukud Bauxite Mine | |
|--|---|
| Environmental Monitoring Report May 2023 | |
| Chiro Kukud Bauxite Mine | |
| | AMBIENT AIR QUALITY- CORE ZONE |
| 1 | Kukud Village/Near Mine area |
| 2 | Kukud Village/Near Weigh Bridge |
| 3 | Chiro Village/Near Mgazine |
| 4 | Chiro Village/Near Pillar No.1 |
| | AMBIENT AIR QUALITY- BUFFER ZONE |
| 1 | Kudag Village/ Near Hindalco Campus |
| 2 | Jaljali Village/Near Shiv Temple Sabag Road |
| 3 | Amtahi Village/Near Tailoring Centre |
| 4 | Ambakona Village |





ENVIRONMENTAL LABORATORIES &

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Website : www.elespl.co.in



TEST REPORT

| | | | |
|-----------------|----------------------|---------------------|--------------|
| Test Report No. | : ELES/RNC/2023/2307 | Report Release Date | : 01.07.2023 |
| Work Order No. | : 13612310218 | Work Order Date | : 21.04.2023 |
| ULR No. | : TC883923000001229F | | |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|--------------------|-------------------------------|----------------------|--|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2023/AA/1780 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Kukud Village/Near Mine Area Chiro-Kukud Bauxite Mine (152.57ha) |
| | | Sampling Date | : 27.05.2023 to 28.05.2023 |
| Plant Status | : Non Operational | Sample Received Date | : 06.06.2023 |
| Period of Analysis | : 06.06.2023 to 09.06.2023 | Type of Sample | : Ambient Air |
| | | Sample Drawn By | : ELES/DOC/SMPL/02 |
| | | Sample Condition | : Sealed & Preserved |

| METEOROLOGICAL INFORMATION | | | | | |
|----------------------------|--------------------------|------|---|----------------------------|---------|
| 1 | Average Temperature (°C) | : 37 | 2 | Barometric Pressure (mmHg) | : 742 |
| 3 | Relative Humidity (%) | : 59 | 4 | Weather Condition | : Clear |

| NABL Accredited | | | | |
|--------------------------------------|-------------------|---------------------------------|-------------------------------|------------------|
| Discipline : Chemical | | | Group : Atmospheric Pollution | |
| Parameter | Unit | Test Protocol | Result | Regulatory Limit |
| Particulate Matter (PM10) | µg/m ³ | IS 5182 (Part-23): 2006; RA2022 | 62 | 100 (24hrs) |
| Particulate Matter (PM2.5) | µg/m ³ | IS 5182 (Part- 24): 2019 | 31 | 60 (24hrs) |
| Sulphur Di-Oxide (SO ₂) | µg/m ³ | IS 5182 (Part-2): 2001; RA2022 | 11.7 | 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 | 0.01 | 1 (24hrs) |
| Nickel (Ni) | ng/m ³ | IS 5182 (Part-26):2020 | <6.0 | 20 (Annual) |
| Arsenic (As) | ng/m ³ | ELES/AIR/SOP/01 | <2.0 | 06 (Annual) |



****End of Report****

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

Page 1 of 1

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CIN: U74999JH2018PT001125

TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2023/2307 | 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/1780 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Kukud Village/Near Mine Area Chiro-Kukud Bauxite Mine (152.57ha) |
| Plant Status | : Non Operational | Sampling Date | : 27.05.2023 to 28.05.2023 |
| Period of Analysis | : 06.06.2023 to 09.06.2023 | 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) | : 37 | 2 | Barometric Pressure (mmHg) | : 742 |
| 3 | Relative Humidity (%) | : 59 | 4 | Weather Condition | : Clear |

| Discipline : Chemical | | Group : Atmospheric Pollution | | |
|-----------------------|-------------------|--------------------------------|--------|------------------|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit |
| 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/2023/2308 | Report Release Date | : 01.07.2023 |
| Work Order No. | : 13612310218 | Work Order Date | : 21.04.2023 |
| ULR No. | : TC883923000001230F | | |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|--------------------|-------------------------------|----------------------|---|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2023/AA/1781 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Kukud Village/Near Weigh Bridge Chiro-Kukud Bauxite Mine (152.57ha) |
| | | Sampling Date | : 27.05.2023 to 28.05.2023 |
| Plant Status | : Non Operational | Sample Received Date | : 06.06.2023 |
| Period of Analysis | : 06.06.2023 to 09.06.2023 | Type of Sample | : Ambient Air |
| | | Sample Drawn By | : ELES/DOC/SMPL/02 |
| | | Sample Condition | : Sealed & Preserved |

| METEOROLOGICAL INFORMATION | | | | | |
|----------------------------|--------------------------|------|---|----------------------------|---------|
| 1 | Average Temperature (°C) | : 37 | 2 | Barometric Pressure (mmHg) | : 742 |
| 3 | Relative Humidity (%) | : 59 | 4 | Weather Condition | : Clear |

| NABL Accredited | | | | |
|--------------------------------------|-------------------|---------------------------------|-------------------------------|------------------|
| Discipline : Chemical | | | Group : Atmospheric Pollution | |
| Parameter | Unit | Test Protocol | Result | Regulatory Limit |
| Particulate Matter (PM10) | µg/m ³ | IS 5182 (Part-23): 2006; RA2022 | 71 | 100 (24hrs) |
| Particulate Matter (PM2.5) | µg/m ³ | IS 5182 (Part-24): 2019 | 39 | 60 (24hrs) |
| Sulphur Di-Oxide (SO ₂) | µg/m ³ | IS 5182 (Part-2): 2001; RA2022 | 11.3 | 80 (24hrs) |
| Nitrogen Di-Oxide (NO ₂) | µg/m ³ | IS 5182 (Part-6): 2006; RA2022 | 18.6 | 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 | 0.019 | 1 (24hrs) |
| Nickel (Ni) | ng/m ³ | IS 5182 (Part-26):2020 | <6.0 | 20 (Annual) |
| Arsenic (As) | ng/m ³ | ELES/AIR/SOP/01 | <2.0 | 06 (Annual) |



****End of Report****

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

Page 1 of 1

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Website : www.elespl.co.in

TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2023/2308 | 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/1781 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Kukud Village/Near Weigh Bridge Chiro-Kukud Bauxite Mine (152.57ha) |
| Plant Status | : Non Operational | Sampling Date | : 27.05.2023 to 28.05.2023 |
| Period of Analysis | : 06.06.2023 to 09.06.2023 | 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) | : 37 | 2 | Barometric Pressure (mmHg) | : 742 |
| 3 | Relative Humidity (%) | : 59 | 4 | Weather Condition | : Clear |

| Discipline : Chemical | | Group : Atmospheric Pollution | | |
|-----------------------|-------------------|--------------------------------|--------|------------------|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit |
| 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/2023/2309 | Report Release Date | : 01.07.2023 |
| Work Order No. | : 13612310218 | Work Order Date | : 21.04.2023 |
| ULR No. | : TC883923000001231F | | |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|--------------------|-------------------------------|----------------------|---|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2023/AA/1782 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Chiro Village/Near Magazine Chiro-Kukud Bauxite Mine (152.57ha) |
| Plant Status | : Non Operational | Sampling Date | : 27.05.2023 to 28.05.2023 |
| Period of Analysis | : 06.06.2023 to 09.06.2023 | 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) | : 37 | 2 | Barometric Pressure (mmHg) | : 742 |
| 3 | Relative Humidity (%) | : 59 | 4 | Weather Condition | : Clear |

NABL Accredited

Discipline : Chemical

Group : Atmospheric Pollution

| Parameter | Unit | Test Protocol | Result | Regulatory Limit |
|--------------------------------------|-------------------|---------------------------------|--------|------------------|
| Particulate Matter (PM10) | µg/m ³ | IS 5182 (Part-23): 2006; RA2022 | 65 | 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 | 8.3 | 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 | 0.013 | 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 | 05 (Annual) |



****End of Report****

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

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TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2023/2309 | 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/1782 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Chiro Village/Near Magazine Chiro-Kukud Bauxite Mine (152.57ha) |
| | | Sampling Date | : 27.05.2023 to 28.05.2023 |
| Plant Status | : Non Operational | Sample Received Date | : 06.06.2023 |
| Period of Analysis | : 06.06.2023 to 09.06.2023 | Type of Sample | : Ambient Air |
| | | Sample Drawn By | : ELES/DOC/SMPL/02 |
| | | Sample Condition | : Sealed & Preserved |


| METEOROLOGICAL INFORMATION | | | | | |
|----------------------------|--------------------------|------|---|----------------------------|---------|
| 1 | Average Temperature (°C) | : 37 | 2 | Barometric Pressure (mmHg) | : 742 |
| 3 | Relative Humidity (%) | : 59 | 4 | Weather Condition | : Clear |

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

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



****End of Report****


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



ENVIRONMENTAL LABORATORIES &

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Website : www.elespl.co.in



LIN: U74999JH2018PTC011125

TEST REPORT

| | | | |
|-----------------|----------------------|---------------------|--------------|
| Test Report No. | : ELES/RNC/2023/2310 | Report Release Date | : 01.07.2023 |
| Work Order No. | : 13612310218 | Work Order Date | : 21.04.2023 |
| ULR No. | : TC883923000001232F | | |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|--------------------|-------------------------------|----------------------|--|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2023/AA/1783 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Chiro Village/Near Pillar No.1 Chiro-Kukud Bauxite Mine (152.57ha) |
| | | Sampling Date | : 27.05.2023 to 28.05.2023 |
| Plant Status | : Non Operational | Sample Received Date | : 06.06.2023 |
| Period of Analysis | : 06.06.2023 to 09.06.2023 | Type of Sample | : Ambient Air |
| | | Sample Drawn By | : ELES/DOC/SMPL/02 |
| | | Sample Condition | : Sealed & Preserved |

METEOROLOGICAL INFORMATION

| | | | | | |
|---|--------------------------|------|---|----------------------------|---------|
| 1 | Average Temperature (°C) | : 37 | 2 | Barometric Pressure (mmHg) | : 742 |
| 3 | Relative Humidity (%) | : 59 | 4 | Weather Condition | : Clear |

NABL Accredited

Discipline : Chemical

Group : Atmospheric Pollution

| Parameter | Unit | Test Protocol | Result | Regulatory Limit |
|--------------------------------------|--------------------------|---------------------------------|--------|------------------|
| Particulate Matter (PM10) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-23): 2006; RA2022 | 64 | 100 (24hrs) |
| Particulate Matter (PM2.5) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-24): 2019 | 32 | 60 (24hrs) |
| Sulphur Di-Oxide (SO ₂) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-2): 2001; RA2022 | 7.2 | 80 (24hrs) |
| Nitrogen Di-Oxide (NO ₂) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-6): 2006; RA2022 | 16.6 | 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 | 0.014 | 1 (24hrs) |
| Nickel (Ni) | ng/m^3 | IS 5182 (Part-26):2020 | <6.0 | 20 (Annual) |
| Arsenic (As) | ng/m^3 | ELES/AIR/SOP/01 | <2.0 | 06 (Annual) |



****End of Report****

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

Page 1 of 1

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ENVIRONMENTAL LABORATORIES &

ENGINEERING SERVICES PVT. LTD.

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Website : www.elespl.co.in

CIN: U74999JH2018PTC011125

TEST REPORT

| | | | |
|-----------------|----------------------|---------------------|--------------|
| Test Report No. | : ELES/RNC/2023/2310 | Report Release Date | : 01.07.2023 |
| Work Order No. | : I3612310218 | Work Order Date | : 21.04.2023 |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|--------------------|-------------------------------|----------------------|--|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2023/AA/1783 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Chiro Village/Near Pillar No.1 Chiro-Kukud Bauxite Mine (152.57ha) |
| | | Sampling Date | : 27.05.2023 to 28.05.2023 |
| Plant Status | : Non Operational | Sample Received Date | : 06.06.2023 |
| Period of Analysis | : 06.06.2023 to 09.06.2023 | Type of Sample | : Ambient Air |
| | | Sample Drawn By | : ELES/DOC/SMPL/02 |
| | | Sample Condition | : Sealed & Preserved |

| METEOROLOGICAL INFORMATION | | | | | |
|----------------------------|--------------------------|------|---|----------------------------|---------|
| 1 | Average Temperature (°C) | : 37 | 2 | Barometric Pressure (mmHg) | : 742 |
| 3 | Relative Humidity (%) | : 59 | 4 | Weather Condition | : Clear |

| Discipline : Chemical | | Group : Atmospheric Pollution | | |
|-----------------------|-------------------|--------------------------------|--------|------------------|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit |
| 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/2023/2315 | Report Release Date : 01.07.2023 |
| Work Order No. : 13612310218 | Work Order Date : 21.04.2023 |
| ULR No. : TC883923000001237F | |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|--------------------|-------------------------------|----------------------|---|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2023/AA/1788 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Kudag Village / Near Hindalco Campus |
| | | Sampling Date | : 28.05.2023 to 29.05.2023 |
| Plant Status | : Non Operational | Sample Received Date | : 06.06.2023 |
| Period of Analysis | : 06.06.2023 to 09.06.2023 | 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) | : 741 |
| 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) | µg/m ³ | IS 5182 (Part-23): 2006; RA2022 | 62 | 100 (24hrs) |
| Particulate Matter (PM2.5) | µg/m ³ | IS 5182 (Part- 24): 2019 | 30 | 60 (24hrs) |
| Sulphur Di-Oxide (SO ₂) | µg/m ³ | IS 5182 (Part-2): 2001; RA2022 | 8.1 | 80 (24hrs) |
| Nitrogen Di-Oxide (NO ₂) | µg/m ³ | IS 5182 (Part-6): 2006; RA2022 | 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 | <0.002 | 1 (24hrs) |
| Nickel (Ni) | ng/m ³ | IS 5182 (Part-26):2020 | <6.0 | 20 (Annual) |
| Arsenic (As) | ng/m ³ | ELES/AIR/SOP/01 | <2.0 | 06 (Annual) |



****End of Report****

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

Page 1 of 1

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ENVIRONMENTAL LABORATORIES &

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CIN: U74999JH2028PTC031125

TEST REPORT

| | | | |
|-----------------|----------------------|---------------------|--------------|
| Test Report No. | : ELES/RNC/2023/2315 | 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/1788 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Kudag Village / Near Hindalco Campus |
| | | Sampling Date | : 28.05.2023 to 29.05.2023 |
| Plant Status | : Non Operational | Sample Received Date | : 06.06.2023 |
| Period of Analysis | : 06.06.2023 to 09.06.2023 | 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) | : 741 |
| 3 | Relative Humidity (%) | : 61 | 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. Deepenora Kumar Sinha
Ph. D. Environmental Engg
ELES Pvt. Ltd. Technical Manager



ENVIRONMENTAL LABORATORIES &

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TEST REPORT

| | | | |
|-----------------|----------------------|---------------------|--------------|
| Test Report No. | : ELES/RNC/2023/2316 | Report Release Date | : 01.07.2023 |
| Work Order No. | : 13612310218 | Work Order Date | : 21.04.2023 |
| ULR No. | : TC883923000001238F | | |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|--------------------|-------------------------------|----------------------|--|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2023/AA/1789 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Jaljali Village/Near Shiv Temple Sabag Road. |
| Plant Status | : Non Operational | Sampling Date | : 28.05.2023 to 29.05.2023 |
| Period of Analysis | : 06.06.2023 to 09.06.2023 | 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) | : 741 |
| 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) | µg/m ³ | IS 5182 (Part-23): 2006; RA2022 | 54 | 100 (24hrs) |
| Particulate Matter (PM2.5) | µg/m ³ | IS 5182 (Part- 24): 2019 | 27 | 60 (24hrs) |
| Sulphur Di-Oxide (SO ₂) | µg/m ³ | IS 5182 (Part-2): 2001; RA2022 | 5.4 | 80 (24hrs) |
| Nitrogen Di-Oxide (NO ₂) | µg/m ³ | IS 5182 (Part-6): 2006; RA2022 | 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 | 0.008 | 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
Authorized Signatory
Dr. Deependra Kumar Sinha
Off. O. Environmental Engg.
ELES Pvt. Ltd. Technical Manager

Page 1 of 1

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CIN: U74999JH2018PTC011125

TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2023/2316 | 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/1789 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Jaljali Village/Near Shiv Temple Sabag Road. |
| Plant Status | : Non Operational | Sampling Date | : 28.05.2023 to 29.05.2023 |
| Period of Analysis | : 06.06.2023 to 09.06.2023 | 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) | : 741 |
| 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) |
| 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. D. Environmental Engg.
 ELES Pvt. Ltd. Technical Manager



ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
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TEST REPORT

| | | | |
|-----------------|----------------------|---------------------|--------------|
| Test Report No. | : ELES/RNC/2023/2317 | Report Release Date | : 01.07.2023 |
| Work Order No. | : 13612310218 | Work Order Date | : 21.04.2023 |
| ULR No. | : TC883923000001239F | | |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|--------------------|-------------------------------|----------------------|--|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2023/AA/1790 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Amtahi Village/Near Tailoring Centre |
| | | Sampling Date | : 28.05.2023 to 29.05.2023 |
| Plant Status | : Non Operational | Sample Received Date | : 06.06.2023 |
| Period of Analysis | : 06.06.2023 to 09.06.2023 | 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) | : 741 |
| 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 | 6.5 | 80 (24hrs) |
| Nitrogen Di-Oxide (NO ₂) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-6): 2006; RA2022 | 11.8 | 80 (24hrs) |
| Ozone (O ₃) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-9): 1974; RA2019 | <20.0 | 100 (8hrs) |
| Ammonia (NH ₃) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part- 25): 2018 | <10.0 | 400 (24hrs) |
| Carbon Monoxide (CO) | mg/m^3 | IS 5182 (Part-10): 1999; RA2019 | <1.0 | 2 (8hrs) |
| Lead (Pb) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-22): 2004; RA2019 | <0.002 | 1 (24hrs) |
| Nickel (Ni) | ng/m^3 | IS 5182 (Part-26):2020 | <6.0 | 20 (Annual) |
| Arsenic (As) | ng/m^3 | ELES/AIR/SOP/01 | <2.0 | 06 (Annual) |



****End of Report****

Authorized Signatory
Dr. Deependra Kumar Sinha

Page 1 of 1

ELES/DOC/SMPL/02 Technical Manager

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CIN: U74999JH2012PTC011225

TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2023/2317 | 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/1790 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Amtahi Village/Near Tailoring Centre |
| Plant Status | : Non Operational | Sampling Date | : 28.05.2023 to 29.05.2023 |
| Period of Analysis | : 06.06.2023 to 09.06.2023 | 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) | : 741 |
| 3 | Relative Humidity (%) | : 61 | 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
H. K. Singh, B.Tech. (Environ. Engg.)
ELES Pvt. Ltd. Technical Manager



ENVIRONMENTAL LABORATORIES &

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TC-8039

TEST REPORT

| | | | |
|-----------------|----------------------|---------------------|--------------|
| Test Report No. | : ELES/RNC/2023/2318 | Report Release Date | : 01.07.2023 |
| Work Order No. | : 13612310218 | Work Order Date | : 21.04.2023 |
| ULR No. | : TC883923000001240F | | |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|--------------------|-------------------------------|----------------------|----------------------------|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2023/AA/1791 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Ambakona Village |
| Plant Status | : Non Operational | Sampling Date | : 28.05.2023 to 29.05.2023 |
| Period of Analysis | : 06.06.2023 to 09.06.2023 | 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) | : 741 |
| 3 | Relative Humidity (%) | : 61 | 4 | Weather Condition | : Clear |

NABL Accredited

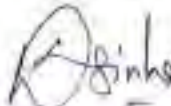
Discipline : Chemical

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 | 56 | 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 | 7.3 | 80 (24hrs) |
| Nitrogen Di-Oxide (NO ₂) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-6): 2006; RA2022 | 19.8 | 80 (24hrs) |
| Ozone (O ₃) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-9): 1974; RA2019 | <20.0 | 100 (8hrs) |
| Ammonia (NH ₃) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part- 25): 2018 | <10.0 | 400 (24hrs) |
| Carbon Monoxide (CO) | mg/m^3 | IS 5182 (Part-10): 1999; RA2019 | <1.0 | 2 (8hrs) |
| Lead (Pb) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-22): 2004; RA2019 | <0.002 | 1 (24hrs) |
| Nickel (Ni) | ng/m^3 | IS 5182 (Part-26):2020 | <6.0 | 20 (Annual) |
| Arsenic (As) | ng/m^3 | ELES/AIR/SOP/01 | <2.0 | 06 (Annual) |



****End of Report****


Authorized Signatory
Dr. Deependra Kumar Sinha
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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Website : www.elespl.co.in

CIN: U74999JH2018PTC011125

TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2023/2318 | 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/1791 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Ambakona Village |
| | | Sampling Date | : 28.05.2023 to 29.05.2023 |
| Plant Status | : Non Operational | Sample Received Date | : 06.06.2023 |
| Period of Analysis | : 06.06.2023 to 09.06.2023 | Type of Sample | : Ambient Air |
| | | Sample Drawn By | : ELES/DOC/SMPL/02 |
| | | Sample Condition | : Sealed & Preserved |

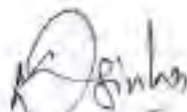
| METEOROLOGICAL INFORMATION | | | | | |
|----------------------------|--------------------------|------|---|----------------------------|---------|
| 1 | Average Temperature (°C) | : 36 | 2 | Barometric Pressure (mmHg) | : 741 |
| 3 | Relative Humidity (%) | : 61 | 4 | Weather Condition | : Clear |

| 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
 M. Sc. in Environmental Engg.
 E.I.S. Pvt. Ltd. Technical Manager

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SERVICES PVT.LTD.**

Plot No.30, Mansarovar Enclave, Tupudana,Hatia,Ranchi-834003,
Jharkhand.

Chiro-Kukud Bauxite Mine-Environmental Monitoring Report

June 2023



CONTENT

| Hindalco Industries : Chiro Kukud Bauxite Mine Environmental Monitoring Report June 2023 | |
|---|---|
| Chiro Kukud Bauxite Mine | |
| | AMBIENT AIR QUALITY- CORE ZONE |
| 1 | Kukud Village/Near Mine area |
| 2 | Kukud Village/Near Weigh Bridge |
| 3 | Chiro Village/Near Mgazine |
| 4 | Chiro Village/Near Pillar No.1 |
| | AMBIENT AIR QUALITY- BUFFER ZONE |
| 1 | Kudag Village/ Near Hindalco Campus |
| 2 | Jaljali Village/Near Shiv Temple Sabag Road |
| 3 | Amtahi Village/Near Tailoring Centre |
| 4 | Ambakona Village |
| | |





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TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2023/2807 | Report Release Date : 29.07.2023 |
| Work Order No. : 13612310218 | Work Order Date : 21.04.2023 |
| ULR No. : TC883923000001672F | |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|--------------------|-------------------------------|----------------------|--|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2023/AA/1987 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Kukud Village/Near Mine Area Chiro-Kukud Bauxite Mine (152.57ha) |
| | | Sampling Date | : 15.06.2023 to 16.06.2023 |
| Mines Status | : Operational | Sample Received Date | : 17.06.2023 |
| Period of Analysis | : 17.06.2023 to 27.06.2023 | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Drawn By | : ELES Pvt. Ltd. |
| | | Sample Condition | : Sealed & Preserved |

| METEOROLOGICAL INFORMATION | | | | | |
|----------------------------|--------------------------|------|---|----------------------------|---------|
| 1 | Average Temperature (°C) | : 33 | 2 | Barometric Pressure (mmHg) | : 739 |
| 3 | Relative Humidity (%) | : 60 | 4 | Weather Condition | : Clear |

| NABL Accredited | | | | |
|--------------------------------------|-------------------|---------------------------------|-------------------------------|------------------|
| Discipline : Chemical | | | Group : Atmospheric Pollution | |
| Parameter | Unit | Test Protocol | Result | Regulatory Limit |
| Particulate Matter (PM10) | µg/m ³ | IS 5182 (Part-23): 2006; RA2022 | 68 | 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 | 12.1 | 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 | 0.008 | 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****

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

Page 1 of 1

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Website: www.elespl.co.in

TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2023/2807 | 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/1987 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Kukud Village/Near Mine Area Chiro-Kukud Bauxite Mine (152.57ha) |
| Mines Status | : Operational | Sampling Date | : 15.06.2023 to 16.06.2023 |
| Period of Analysis | : 17.06.2023 to 27.06.2023 | Sample Received Date | : 17.06.2023 |
| | | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Drawn By | : ELES Pvt. Ltd. |
| | | Sample Condition | : Sealed & Preserved |

| METEOROLOGICAL INFORMATION | | | | | |
|----------------------------|--------------------------|------|---|----------------------------|---------|
| 1 | Average Temperature (°C) | : 33 | 2 | Barometric Pressure (mmHg) | : 739 |
| 3 | Relative Humidity (%) | : 60 | 4 | Weather Condition | : Clear |

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

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



****End of Report****

Authorised Signatory

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

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



TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2023/2808 | Report Release Date : 29.07.2023 |
| Work Order No. : 13612310218 | Work Order Date : 21.04.2023 |
| ULR No. : TC883923000001673F | |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|--------------------|-------------------------------|----------------------|---|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2023/AA/1988 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Kukud Village/Near Weigh Bridge Chiro-Kukud Bauxite Mine (152.57ha) |
| Mines Status | : Operational | Sampling Date | : 15.06.2023 to 16.06.2023 |
| Period of Analysis | : 17.06.2023 to 27.06.2023 | Sample Received Date | : 17.06.2023 |
| | | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Drawn By | : ELES Pvt. Ltd. |
| | | Sample Condition | : Sealed & Preserved |

METEOROLOGICAL INFORMATION

| | | | | | |
|---|--------------------------|------|---|----------------------------|---------|
| 1 | Average Temperature (°C) | : 33 | 2 | Barometric Pressure (mmHg) | : 739 |
| 3 | Relative Humidity (%) | : 60 | 4 | Weather Condition | : Clear |

NABL Accredited

| Discipline : Chemical | | Group : Atmospheric Pollution | | |
|--------------------------------------|-------------------|---------------------------------|--------|------------------|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit |
| Particulate Matter (PM10) | µg/m ³ | IS 5182 (Part-23): 2006; RA2022 | 76 | 100 (24hrs) |
| Particulate Matter (PM2.5) | µg/m ³ | IS 5182 (Part- 24): 2019 | 41 | 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 | 23.4 | 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 | 0.012 | 1 (24hrs) |
| Nickel (Ni) | ng/m ³ | IS 5182 (Part-26):2020 | <6.0 | 20 (Annual) |
| Arsenic (As) | ng/m ³ | ELES/AIR/SOP/01 | <2.0 | 06 (Annual) |



****End of Report****

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

Page 1 of 1

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ENVIRONMENTAL LABORATORIES &

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

TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2023/2808 | 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/1988 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Kukud Village/Near Weigh Bridge Chiro-Kukud Bauxite Mine (152.57ha) |
| | | Sampling Date | : 15.06.2023 to 16.06.2023 |
| Mines Status | : Operational | Sample Received Date | : 17.06.2023 |
| Period of Analysis | : 17.06.2023 to 27.06.2023 | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Drawn By | : ELES Pvt. Ltd. |
| | | Sample Condition | : Sealed & Preserved |

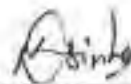
| METEOROLOGICAL INFORMATION | | | | | |
|----------------------------|--------------------------|------|---|----------------------------|---------|
| 1 | Average Temperature (°C) | : 33 | 2 | Barometric Pressure (mmHg) | : 739 |
| 3 | Relative Humidity (%) | : 60 | 4 | Weather Condition | : Clear |

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

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



****End of Report****


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



ENVIRONMENTAL LABORATORIES &

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Website : www.elespl.co.in



TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2023/2809 | Report Release Date : 29.07.2023 |
| Work Order No. : 13612310218 | Work Order Date : 21.04.2023 |
| ULR No. : TC883923000001674F | |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|--------------------|-------------------------------|----------------------|---|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2023/AA/1989 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Chiro Village/Near Magazine Chiro-Kukud Bauxite Mine (152.57ha) |
| | | Sampling Date | : 15.06.2023 to 16.06.2023 |
| Mines Status | : Operational | Sample Received Date | : 17.06.2023 |
| Period of Analysis | : 17.06.2023 to 27.06.2023 | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Drawn By | : ELES Pvt. Ltd. |
| | | Sample Condition | : Sealed & Preserved |

| METEOROLOGICAL INFORMATION | | | | | |
|----------------------------|--------------------------|------|---|----------------------------|---------|
| 1 | Average Temperature (°C) | : 33 | 2 | Barometric Pressure (mmHg) | : 739 |
| 3 | Relative Humidity (%) | : 60 | 4 | Weather Condition | : Clear |

| NABL Accredited | | | | |
|--------------------------------------|-------------------|---------------------------------|-------------------------------|------------------|
| Discipline : Chemical | | | Group : Atmospheric Pollution | |
| Parameter | Unit | Test Protocol | Result | Regulatory Limit |
| Particulate Matter (PM10) | µg/m ³ | IS 5182 (Part-23): 2006; RA2022 | 61 | 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 | 7.5 | 80 (24hrs) |
| Nitrogen Di-Oxide (NO ₂) | µg/m ³ | IS 5182 (Part-6): 2006; RA2022 | 18.2 | 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 | 0.010 | 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) |



****End of Report****

Authorized Signatory

Jr. Deependra Kumar Sinha

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

Page 1 of 1

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ENVIRONMENTAL LABORATORIES &

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Website: www.elespl.co.in

CIN: U74900JH2008PTC011129

TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2023/2809 | 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/1989 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Chiro Village/Near Magazine Chiro-Kukud Bauxite Mine (152.57ha) |
| | | Sampling Date | : 15.06.2023 to 16.06.2023 |
| Mines Status | : Operational | Sample Received Date | : 17.06.2023 |
| Period of Analysis | : 17.06.2023 to 27.06.2023 | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Drawn By | : ELES Pvt. Ltd. |
| | | Sample Condition | : Sealed & Preserved |

| METEOROLOGICAL INFORMATION | | | | | |
|----------------------------|--------------------------|------|---|----------------------------|---------|
| 1 | Average Temperature (°C) | : 33 | 2 | Barometric Pressure (mmHg) | : 739 |
| 3 | Relative Humidity (%) | : 60 | 4 | Weather Condition | : Clear |

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

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



****End of Report****

Authorised Signatory

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

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TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2023/2810 | Report Release Date : 29.07.2023 |
| Work Order No. : 13612310218 | Work Order Date : 21.04.2023 |
| ULR No. : TC883923000001675F | |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|--------------------|-------------------------------|----------------------|--|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2023/AA/1990 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Chiro Village/Near Pillar No.1 Chiro-Kukud Bauxite Mine (152.57ha) |
| | | Sampling Date | : 15.06.2023 to 16.06.2023 |
| Mines Status | : Operational | Sample Received Date | : 17.06.2023 |
| Period of Analysis | : 17.06.2023 to 27.06.2023 | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Drawn By | : ELES Pvt. Ltd. |
| | | Sample Condition | : Sealed & Preserved |

| METEOROLOGICAL INFORMATION | | | | | |
|----------------------------|--------------------------|------|---|----------------------------|---------|
| 1 | Average Temperature (°C) | : 33 | 2 | Barometric Pressure (mmHg) | : 739 |
| 3 | Relative Humidity (%) | : 60 | 4 | Weather Condition | : Clear |

| NABL Accredited | | | | |
|--------------------------------------|-------------------|---------------------------------|-------------------------------|------------------|
| Discipline : Chemical | | | Group : Atmospheric Pollution | |
| Parameter | Unit | Test Protocol | Result | Regulatory Limit |
| Particulate Matter (PM10) | µg/m ³ | IS 5182 (Part-23): 2006; RA2022 | 58 | 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 | 6.4 | 80 (24hrs) |
| Nitrogen Di-Oxide (NO ₂) | µg/m ³ | IS 5182 (Part-6): 2006; RA2022 | 19.1 | 80 (24hrs) |
| Ozone (O ₃) | µg/m ³ | IS 5182 (Part-9): 1974; RA2019 | <20.0 | 100 (8hrs) |
| Ammonia (NH ₃) | µg/m ³ | IS 5182 (Part- 25): 2018 | <10.0 | 400 (24hrs) |
| Carbon Monoxide (CO) | mg/m ³ | IS 5182 (Part-10): 1999; RA2019 | <1.0 | 2 (8hrs) |
| Lead (Pb) | µg/m ³ | IS 5182 (Part-22): 2004; RA2019 | 0.009 | 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****

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

Page 1 of 1

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Website : www.elespl.co.in

TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2023/2810 | 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/1990 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Chiro Village/Near Pillar No.1 Chiro-Kukud Bauxite Mine (152.57ha) |
| | | Sampling Date | : 15.06.2023 to 16.06.2023 |
| Mines Status | : Operational | Sample Received Date | : 17.06.2023 |
| Period of Analysis | : 17.06.2023 to 27.06.2023 | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Drawn By | : ELES Pvt. Ltd. |
| | | Sample Condition | : Sealed & Preserved |

| METEOROLOGICAL INFORMATION | | | | | |
|----------------------------|--------------------------|------|---|----------------------------|---------|
| 1 | Average Temperature (°C) | : 33 | 2 | Barometric Pressure (mmHg) | : 739 |
| 3 | Relative Humidity (%) | : 60 | 4 | Weather Condition | : Clear |

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

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



****End of Report****

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

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Website: www.elespl.co.in



TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2023/2811 | Report Release Date : 29.07.2023 |
| Work Order No. : 13612310218 | Work Order Date : 21.04.2023 |
| ULR No. : TC883923000001676F | |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|--------------------|-------------------------------|----------------------|---|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2023/AA/1991 |
| Address | : Jharkhaga, Jharkhand-835302 | Location | : Kudag Village / Near Hindalco Campus |
| | | Sampling Date | : 15.06.2023 to 16.06.2023 |
| Mines Status | : Operational | Sample Received Date | : 17.06.2023 |
| Period of Analysis | : 17.06.2023 to 27.06.2023 | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Drawn By | : ELES Pvt. Ltd. |
| | | Sample Condition | : Sealed & Preserved |

| METEOROLOGICAL INFORMATION | | | | | |
|----------------------------|--------------------------|------|---|----------------------------|---------|
| 1 | Average Temperature (°C) | : 34 | 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) | µg/m ³ | IS 5182 (Part-23): 2006; RA2022 | 56 | 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 | 7.6 | 80 (24hrs) |
| Nitrogen Di-Oxide (NO ₂) | µg/m ³ | IS 5182 (Part-6): 2006; RA2022 | 15.7 | 80 (24hrs) |
| Ozone (O ₃) | µg/m ³ | IS 5182 (Part-9): 1974; RA2019 | <20.0 | 100 (8hrs) |
| Ammonia (NH ₃) | µg/m ³ | IS 5182 (Part- 25): 2018 | <10.0 | 400 (24hrs) |
| Carbon Monoxide (CO) | mg/m ³ | IS 5182 (Part-10): 1999; RA2019 | <1.0 | 2 (8hrs) |
| Lead (Pb) | µg/m ³ | IS 5182 (Part-22): 2004; RA2019 | <0.002 | 1 (24hrs) |
| Nickel (Ni) | ng/m ³ | IS 5182 (Part-26):2020 | <6.0 | 20 (Annual) |
| Arsenic (As) | ng/m ³ | ELES/AIR/SOP/01 | <2.0 | 06 (Annual) |



****End of Report****

Authorised Signatory

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

Page 1 of 1

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CIN: U74999JH2014PTC031125

ENVIRONMENTAL LABORATORIES &

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Website : www.elespl.co.in

TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2023/2811 | 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/1991 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Kudag Village / Near Hindalco Campus |
| | | Sampling Date | : 15.06.2023 to 16.06.2023 |
| Mines Status | : Operational | Sample Received Date | : 17.06.2023 |
| Period of Analysis | : 17.06.2023 to 27.06.2023 | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Drawn By | : ELES Pvt. Ltd. |
| | | Sample Condition | : Sealed & Preserved |

| METEOROLOGICAL INFORMATION | | | | | |
|----------------------------|--------------------------|------|---|----------------------------|---------|
| 1 | Average Temperature (°C) | : 34 | 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* | µg/m ³ | IS:5182 (Part-11): 2006;RA2017 | <1.0 | 05(Annual) |
| Benzo (a) Pyrene* | ng/m ³ | IS:5182 (Part-12): 2004;RA2019 | <0.5 | 01(Annual) |

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



****End of Report****

Dr. Deependra Kumar Sinha

Authorised Signatory

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

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TC-8820

TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2023/2812 | Report Release Date : 29.07.2023 |
| Work Order No. : 13612310218 | Work Order Date : 21.04.2023 |
| ULR No. : TC883923000001677F | |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|--------------------|-------------------------------|----------------------|--|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2023/AA/1992 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Jajjali Village/Near Shiv Temple Sabag Road. |
| | | Sampling Date | : 15.06.2023 to 16.06.2023 |
| Mines Status | : Operational | Sample Received Date | : 17.06.2023 |
| Period of Analysis | : 17.06.2023 to 27.06.2023 | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Drawn By | : ELES Pvt. Ltd. |
| | | Sample Condition | : Sealed & Preserved |

| METEOROLOGICAL INFORMATION | | | | | |
|----------------------------|--------------------------|------|---|----------------------------|---------|
| 1 | Average Temperature (°C) | : 34 | 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) | µg/m ³ | IS 5182 (Part-23): 2006; RA2022 | 49 | 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 | 6.2 | 80 (24hrs) |
| Nitrogen Di-Oxide (NO ₂) | µg/m ³ | IS 5182 (Part-6): 2006; RA2022 | 20.8 | 80 (24hrs) |
| Ozone (O ₃) | µg/m ³ | IS 5182 (Part-9): 1974; RA2019 | <20.0 | 100 (8hrs) |
| Ammonia (NH ₃) | µg/m ³ | IS 5182 (Part- 25): 2018 | <10.0 | 400 (24hrs) |
| Carbon Monoxide (CO) | mg/m ³ | IS 5182 (Part-10): 1999; RA2019 | <1.0 | 2 (8hrs) |
| Lead (Pb) | µg/m ³ | IS 5182 (Part-22): 2004; RA2019 | 0.005 | 1 (24hrs) |
| Nickel (Ni) | ng/m ³ | IS 5182 (Part-26):2020 | <6.0 | 20 (Annual) |
| Arsenic (As) | ng/m ³ | ELES/AIR/SOP/01 | <2.0 | 06 (Annual) |



****End of Report****

Authorized Signatory

Jr. Deependra Kumar Sinha

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

Page 1 of 1

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ENVIRONMENTAL LABORATORIES &

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Website : www.elespl.co.in

CIN: U74995JH018PTC031125

TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2023/2812 | Report Release Date : 29.07.2023 |
| Work Order No. : 13612310218 | Work Order Date : 21.04.2023 |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|--------------------|-------------------------------|----------------------|--|
| Customer Name | : Hindaleo Industries Limited | Sample Ref. No. | : ELES/RNC/2023/AA/1992 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Jaljali Village/Near Shiv Temple Sabag Road. |
| | | Sampling Date | : 15.06.2023 to 16.06.2023 |
| Mines Status | : Operational | Sample Received Date | : 17.06.2023 |
| Period of Analysis | : 17.06.2023 to 27.06.2023 | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Drawn By | : ELES Pvt. Ltd. |
| | | Sample Condition | : Sealed & Preserved |

| METEOROLOGICAL INFORMATION | | | | | |
|----------------------------|--------------------------|------|---|----------------------------|---------|
| 1 | Average Temperature (°C) | : 34 | 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* | 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****

Deependra Kumar Sinha
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/2023/2813 | Report Release Date : 29.07.2023 |
| Work Order No. : 13612310218 | Work Order Date : 21.04.2023 |
| ULR No. : TC883923000001678F | |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|--------------------|-------------------------------|----------------------|--|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2023/AA/1993 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Amtahi Village/Near Tailoring Centre |
| | | Sampling Date | : 16.06.2023 to 17.06.2023 |
| Mines Status | : Operational | Sample Received Date | : 17.06.2023 |
| Period of Analysis | : 17.06.2023 to 27.06.2023 | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Drawn By | : ELES Pvt. Ltd. |
| | | Sample Condition | : Sealed & Preserved |

METEOROLOGICAL INFORMATION

| | | | | | |
|---|--------------------------|------|---|----------------------------|---------|
| 1 | Average Temperature (°C) | : 33 | 2 | Barometric Pressure (mmHg) | : 743 |
| 3 | Relative Humidity (%) | : 60 | 4 | Weather Condition | : Clear |

NABL Accredited

Discipline : Chemical

Group : Atmospheric Pollution

| Parameter | Unit | Test Protocol | Result | Regulatory Limit |
|--------------------------------------|-------------------|---------------------------------|--------|------------------|
| Particulate Matter (PM10) | µg/m ³ | IS 5182 (Part-23): 2006; RA2022 | 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 | 8.3 | 80 (24hrs) |
| Nitrogen Di-Oxide (NO ₂) | µg/m ³ | IS 5182 (Part-6): 2006; RA2022 | 18.3 | 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 | 0.012 | 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) |



Deependra Kumar Sinha

Authorised Signatory

Jr. 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/2023/2813 | 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/1993 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Amtahi Village/Near Tailoring Centre |
| | | Sampling Date | : 16.06.2023 to 17.06.2023 |
| Mines Status | : Operational | Sample Received Date | : 17.06.2023 |
| Period of Analysis | : 17.06.2023 to 27.06.2023 | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Drawn By | : ELES Pvt. Ltd. |
| | | Sample Condition | : Sealed & Preserved |

| METEOROLOGICAL INFORMATION | | | | | |
|----------------------------|--------------------------|------|---|----------------------------|---------|
| 1 | Average Temperature (°C) | : 34 | 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* | µg/m ³ | IS:5182 (Part-11): 2006;RA2017 | <1.0 | 05(Annual) |
| Benzo (a) Pyrene* | ng/m ³ | IS:5182 (Part-12): 2004;RA2019 | <0.5 | 01(Annual) |

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



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

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

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CIN: U74999HR2018PTC011115

TC-8839

TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2023/2814 | Report Release Date : 29.07.2023 |
| Work Order No. : 13612310218 | Work Order Date : 21.04.2023 |
| ULR No. : TC883923000001679F | |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|---|---|--|---------------------------------------|
| Customer Name : Hindalco Industries Limited | Address : Lohardaga, Jharkhand-835302 | Sample Ref. No. : ELES/RNC/2023/AA/1994 | Location : Ambakona Village |
| Mines Status : Operational | Period of Analysis : 17.06.2023 to 27.06.2023 | Sampling Date : 16.06.2023 to 17.06.2023 | Sample Received Date : 17.06.2023 |
| | | Type of Sample : Ambient Air | Sampling Procedure : ELES/DOC/SMPL/02 |
| | | Sample Drawn By : ELES Pvt. Ltd. | Sample Condition : Sealed & Preserved |

| METEOROLOGICAL INFORMATION | | | |
|----------------------------|-------------------------------|---|----------------------------------|
| 1 | Average Temperature (°C) : 33 | 2 | Barometric Pressure (mmHg) : 743 |
| 3 | Relative Humidity (%) : 60 | 4 | Weather Condition : Clear |

| NABL Accredited | | | | |
|--------------------------------------|-------------------|---------------------------------|-------------------------------|------------------|
| Discipline : Chemical | | | Group : Atmospheric Pollution | |
| Parameter | Unit | Test Protocol | Result | Regulatory Limit |
| Particulate Matter (PM10) | µg/m ³ | IS 5182 (Part-23): 2006; RA2022 | 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 | 6.7 | 80 (24hrs) |
| Nitrogen Di-Oxide (NO ₂) | µg/m ³ | IS 5182 (Part-6): 2006; RA2022 | 23.4 | 80 (24hrs) |
| Ozone (O ₃) | µg/m ³ | IS 5182 (Part-9): 1974; RA2019 | <20.0 | 100 (8hrs) |
| Ammonia (NH ₃) | µg/m ³ | IS 5182 (Part- 25): 2018 | <10.0 | 400 (24hrs) |
| Carbon Monoxide (CO) | mg/m ³ | IS 5182 (Part-10): 1999; RA2019 | <1.0 | 2 (8hrs) |
| Lead (Pb) | µg/m ³ | IS 5182 (Part-22): 2004; RA2019 | <0.002 | 1 (24hrs) |
| Nickel (Ni) | ng/m ³ | IS 5182 (Part-26):2020 | <6.0 | 20 (Annual) |
| Arsenic (As) | ng/m ³ | ELES/AIR/SOP/01 | <2.0 | 06 (Annual) |



****End of Report****

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

ELES Pvt. Ltd. Technical Manager

Page 1 of 1

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Website : www.elespl.co.in

TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2023/2814 | 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/1994 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Ambakona Village |
| | | Sampling Date | : 16.06.2023 to 17.06.2023 |
| Mines Status | : Operational | Sample Received Date | : 17.06.2023 |
| Period of Analysis | : 17.06.2023 to 27.06.2023 | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Drawn By | : ELES Pvt. Ltd. |
| | | Sample Condition | : Sealed & Preserved |

| METEOROLOGICAL INFORMATION | | | | | |
|----------------------------|--------------------------|------|---|----------------------------|---------|
| 1 | Average Temperature (°C) | : 33 | 2 | Barometric Pressure (mmHg) | : 743 |
| 3 | Relative Humidity (%) | : 60 | 4 | Weather Condition | : Clear |

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

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



****End of Report****


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

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**ENVIRONMENTAL LABORATORIES & ENGINEERING
SERVICES PVT.LTD.**

Plot No.30, Mansarovar Enclave, Tupudana,Hatia,Ranchi-834003,
Jharkhand.

Chiro-Kukud Bauxite Mine-Environmental Monitoring Report

July 2023



CONTENT

| Hindalco Industries : Chiro Kukud Bauxite Mine | | Environmental Monitoring Report | July 2023 |
|--|---|---------------------------------|-----------|
| Chiro Kukud Bauxite Mine | | | |
| | AMBIENT AIR QUALITY- CORE ZONE | | |
| 1 | Kukud Village/Near Mine area | | |
| 2 | Kukud Village/Near Weigh Bridge | | |
| 3 | Chiro Village/Near Mgazine | | |
| 4 | Chiro Village/Near Pillar No.1 | | |
| | AMBIENT AIR QUALITY- BUFFER ZONE | | |
| 1 | Kudag Village/ Near Hindalco Campus | | |
| 2 | Jaljali Village/Near Shiv Temple Sabag Road | | |
| 3 | Amtahi Village/Near Tailoring Centre | | |
| 4 | Ambakona Village | | |





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CIN: U74999RJ2018PTC011125

TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2023/2990 | Report Release Date : 08.08.2023 |
| Work Order No. : 13612310218 | Work Order Date : 21.04.2023 |
| ULR No. : TC883923000001837F | |

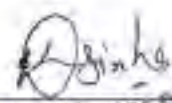
| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|--------------------|-------------------------------|----------------------|--|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2023/AA/2776 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Kukud Village/Near Mine Area Chiro-Kukud Bauxite Mine (152.57ha) |
| Mines Status | : Operational | Sampling Date | : 28.07.2023 to 29.07.2023 |
| Period of Analysis | : 31.07.2023 to 07.08.2023 | Sample Received Date | : 31.07.2023 |
| | | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Drawn By | : ELES Pvt. Ltd. |
| | | Sample Condition | : Sealed & Preserved |

| METEOROLOGICAL INFORMATION | | | | | |
|----------------------------|--------------------------|------|---|----------------------------|-----------------|
| 1 | Average Temperature (°C) | : 26 | 2 | Barometric Pressure (mmHg) | : 740 |
| 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 | 60 | 100 (24hrs) |
| Particulate Matter (PM2.5) | µg/m ³ | IS 5182 (Part-24): 2019 | 32 | 60 (24hrs) |
| Sulphur Di-Oxide (SO ₂) | µg/m ³ | IS 5182 (Part-2): 2001; RA2022 | 9.4 | 80 (24hrs) |
| Nitrogen Di-Oxide (NO ₂) | µg/m ³ | IS 5182 (Part-6): 2006; RA2022 | 18.2 | 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****


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

Page 1 of 1

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CIN: U74999JH2018PTC011125

TEST REPORT

| | | | |
|-----------------|----------------------|---------------------|--------------|
| Test Report No. | : ELES/RNC/2023/2990 | 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/2776 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Kukud Village/Near Mine Area Chiro-Kukud Bauxite Mine (152.57ha) |
| | | Sampling Date | : 28.07.2023 to 29.07.2023 |
| Mines Status | : Operational | Sample Received Date | : 31.07.2023 |
| Period of Analysis | : 31.07.2023 to 07.08.2023 | 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) | : 740 |
| 3 | Relative Humidity (%) | : 65 | 4 | Weather Condition | : Partly Cloudy |

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

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



****End of Report****


Authorised Signatory
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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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Website : www.elespl.co.in



TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2023/2991 | Report Release Date : 08.08.2023 |
| Work Order No. : 13612310218 | Work Order Date : 21.04.2023 |
| ULR No. : TC883923000001838F | |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|--------------------|-------------------------------|----------------------|---|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2023/AA/2777 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Kukud Village/Near Weigh Bridge Chiro-Kukud Bauxite Mine (152.57ha) |
| Mines Status | : Operational | Sampling Date | : 28.07.2023 to 29.07.2023 |
| Period of Analysis | : 31.07.2023 to 07.08.2023 | Sample Received Date | : 31.07.2023 |
| | | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Drawn By | : ELES Pvt. Ltd. |
| | | Sample Condition | : Sealed & Preserved |

METEOROLOGICAL INFORMATION

| | | | |
|---|-------------------------------|---|-----------------------------------|
| 1 | Average Temperature (°C) : 26 | 2 | Barometric Pressure (mmHg) : 740 |
| 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 | 65 | 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 | 15.3 | 80 (24hrs) |
| Nitrogen Di-Oxide (NO ₂) | µg/m ³ | IS 5182 (Part-6): 2006; RA2022 | 18.4 | 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 | 0.009 | 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) |



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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ENVIRONMENTAL LABORATORIES &

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

CIN: U74999JH0218PFC011125

TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2023/2991 | 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/2777 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Kukud Village/Near Weigh Bridge Chiro-Kukud Bauxite Mine (152.57ha) |
| | | Sampling Date | : 28.07.2023 to 29.07.2023 |
| Mines Status | : Operational | Sample Received Date | : 31.07.2023 |
| Period of Analysis | : 31.07.2023 to 07.08.2023 | 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) | : 740 |
| 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****

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



ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
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TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2023/2992 | Report Release Date : 08.08.2023 |
| Work Order No. : 13612310218 | Work Order Date : 21.04.2023 |
| ULR No. : TC883923000001839F | |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|--------------------|-------------------------------|----------------------|---|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2023/AA/2778 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Chiro Village/Near Magazine Chiro-Kukud Bauxite Mine (152.57ha) |
| | | Sampling Date | : 28.07.2023 to 29.07.2023 |
| Mines Status | : Operational | Sample Received Date | : 31.07.2023 |
| Period of Analysis | : 31.07.2023 to 07.08.2023 | 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) | : 740 |
| 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 | 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 | 6.7 | 80 (24hrs) |
| Nitrogen Di-Oxide (NO ₂) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-6): 2006; RA2022 | 15.6 | 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 | 0.006 | 1 (24hrs) |
| Nickel (Ni) | ng/m^3 | IS 5182 (Part-26):2020 | <6.0 | 20 (Annual) |
| Arsenic (As) | $\mu\text{g}/\text{m}^3$ | ELES/AIR/SOP/01 | <2.0 | 06 (Annual) |



****End of Report****


Authorized Signatory
Dr. Deependra Kumar Sinha

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

Page 1 of 1

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ENVIRONMENTAL LABORATORIES &

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Website : www.elespl.co.in

CIN: U74999JH2013PTC011125

TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2023/2992 | 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/2778 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Chiro Village/Near Magazine Chiro-Kukud Bauxite Mine (152.57ha) |
| | | Sampling Date | : 28.07.2023 to 29.07.2023 |
| Mines Status | : Operational | Sample Received Date | : 31.07.2023 |
| Period of Analysis | : 31.07.2023 to 07.08.2023 | 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) | : 740 |
| 3 | Relative Humidity (%) | : 65 | 4 | Weather Condition | : Partly Cloudy |

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

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



****End of Report****

Authorised Signatory

Dr. Deependra Kumar Sinha

Ph. D, Environmental Engg.

ELES Pvt. Ltd. Technical Manager



ENVIRONMENTAL LABORATORIES &

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TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2023/2993 | Report Release Date : 08.08.2023 |
| Work Order No. : 13612310218 | Work Order Date : 21.04.2023 |
| ULR No. : TC883923000001840F | |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|--------------------|--------------------------------|----------------------|--|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2023/AA/2779 |
| Address | : Lohardaga, Jharkhand-835302. | Location | : Chiro Village/Near Pillar No.1 Chiro-Kukud Bauxite Mine (152.57ha) |
| | | Sampling Date | : 28.07.2023 to 29.07.2023 |
| Mines Status | : Operational | Sample Received Date | : 31.07.2023 |
| Period of Analysis | : 31.07.2023 to 07.08.2023 | 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) | : 740 |
| 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 | 51 | 100 (24hrs) |
| Particulate Matter (PM2.5) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part- 24): 2019 | 26 | 60 (24hrs) |
| Sulphur Di-Oxide (SO ₂) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-2): 2001; RA2022 | 5.8 | 80 (24hrs) |
| Nitrogen Di-Oxide (NO ₂) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-6): 2006; RA2022 | 22.3 | 80 (24hrs) |
| Ozone (O ₃) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-9): 1974; RA2019 | <20.0 | 100 (8hrs) |
| Ammonia (NH ₃) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part- 25): 2018 | <10.0 | 400 (24hrs) |
| Carbon Monoxide (CO) | mg/m^3 | IS 5182 (Part-10): 1999; RA2019 | <1.0 | 2 (8hrs) |
| Lead (Pb) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-22): 2004; RA2019 | 0.005 | 1 (24hrs) |
| Nickel (Ni) | ng/m^3 | IS 5182 (Part-26):2020 | <6.0 | 20 (Annual) |
| Arsenic (As) | ng/m^3 | ELES/AIR/SOP/01 | <2.0 | 06 (Annual) |



****End of Report****


Authorized Signatory
Dr. Deependra Kumar Sinha
Pb. D. Environmental Engg.

Page 1 of 1

ELES Pvt. Ltd. Technical Manager

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CIN: U74998JH2018PTC011125

TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2023/2993 | 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/2779 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Chiro Village/Near Pillar No.1 Chiro-Kukud Bauxite Mine (152.57ha) |
| | | Sampling Date | : 28.07.2023 to 29.07.2023 |
| Mines Status | : Operational | Sample Received Date | : 31.07.2023 |
| Period of Analysis | : 31.07.2023 to 07.08.2023 | 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) | : 740 |
| 3 | Relative Humidity (%) | : 65 | 4 | Weather Condition | : Partly Cloudy |

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

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



****End of Report****


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



ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
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CIN: U74999JH2018PTC011215

TC-8839

TEST REPORT

| | | | |
|-----------------|----------------------|---------------------|--------------|
| Test Report No. | : ELES/RNC/2023/2994 | Report Release Date | : 08.08.2023 |
| Work Order No. | : 13612310218 | Work Order Date | : 21.04.2023 |
| ULR No. | : TC883923000001841F | | |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|--------------------|-------------------------------|----------------------|---|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2023/AA/2780 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Kudag Village / Near Hindalco Campus |
| | | Sampling Date | : 28.07.2023 to 29.07.2023 |
| Mines Status | : Operational | Sample Received Date | : 31.07.2023 |
| Period of Analysis | : 31.07.2023 to 07.08.2023 | 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) | : 740 |
| 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 | 50 | 100 (24hrs) |
| Particulate Matter (PM2.5) | µg/m ³ | IS 5182 (Part- 24): 2019 | 24 | 50 (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 | 5.8 | 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) |



****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 &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
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Phone no.: 0651-2290103

Website : www.elespl.co.in

CIN: L74999JH2018PTC011125

TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2023/2994 | 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/2780 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Kudag Village / Near Hindalco Campus |
| | | Sampling Date | : 28.07.2023 to 29.07.2023 |
| Mines Status | : Operational | Sample Received Date | : 31.07.2023 |
| Period of Analysis | : 31.07.2023 to 07.08.2023 | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Drawn By | : ELES Pvt. Ltd. |
| | | Sample Condition | : Sealed & Preserved |

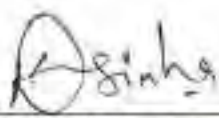
| METEOROLOGICAL INFORMATION | | | | | |
|----------------------------|--------------------------|------|---|----------------------------|-----------------|
| 1 | Average Temperature (°C) | : 26 | 2 | Barometric Pressure (mmHg) | : 740 |
| 3 | Relative Humidity (%) | : 65 | 4 | Weather Condition | : Partly Cloudy |

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

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



****End of Report****


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



ENVIRONMENTAL LABORATORIES &

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TC-8839

CIN: U74999JH2018PTC011125

TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2023/2995 | Report Release Date : 08.08.2023 |
| Work Order No. : 13612310218 | Work Order Date : 21.04.2023 |
| ULR No. : TC883923000001842F | |

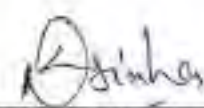
| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|--------------------|-------------------------------|----------------------|--|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2023/AA/2781 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Jaljali Village/Near Shiv Temple Sabag Road. |
| | | Sampling Date | : 28.07.2023 to 29.07.2023 |
| Mines Status | : Operational | Sample Received Date | : 31.07.2023 |
| Period of Analysis | : 31.07.2023 to 07.08.2023 | 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) | : 740 |
| 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 | 45 | 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 | 16.7 | 80 (24hrs) |
| Ozone (O ₃) | µg/m ³ | IS 5182 (Part-9): 1974; RA2019 | <20.0 | 100 (8hrs) |
| Ammonia (NH ₃) | µg/m ³ | IS 5182 (Part- 25): 2018 | <10.0 | 400 (24hrs) |
| Carbon Monoxide (CO) | mg/m ³ | IS 5182 (Part-10): 1999; RA2019 | <1.0 | 2 (8hrs) |
| Lead (Pb) | µg/m ³ | IS 5182 (Part-22): 2004; RA2019 | 0.01 | 1 (24hrs) |
| Nickel (Ni) | ng/m ³ | IS 5182 (Part-26):2020 | <6.0 | 20 (Annual) |
| Arsenic (As) | ng/m ³ | ELES/AIR/SOP/01 | <2.0 | 06 (Annual) |



****End of Report****


Dr. Deepankar Singh
Pn. D. Environmental Engg
ELES PVT Ltd. Technical Manager

Page 1 of 1

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ENVIRONMENTAL LABORATORIES &

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

CIN: U74999JH2018PTC011125

TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2023/2995 | 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/2781 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Jaljali Village/Near Shiv Temple Sabag Road. |
| | | Sampling Date | : 28.07.2023 to 29.07.2023 |
| Mines Status | : Operational | Sample Received Date | : 31.07.2023 |
| Period of Analysis | : 31.07.2023 to 07.08.2023 | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Drawn By | : ELES Pvt. Ltd. |
| | | Sample Condition | : Sealed & Preserved |

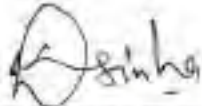
| METEOROLOGICAL INFORMATION | | | | | |
|----------------------------|--------------------------|------|---|----------------------------|-----------------|
| 1 | Average Temperature (°C) | : 26 | 2 | Barometric Pressure (mmHg) | : 740 |
| 3 | Relative Humidity (%) | : 65 | 4 | Weather Condition | : Partly Cloudy |

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

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



****End of Report****


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



ENVIRONMENTAL LABORATORIES &

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



TEST REPORT

| | | | |
|-----------------|----------------------|---------------------|--------------|
| Test Report No. | : ELES/RNC/2023/2996 | Report Release Date | : 08.08.2023 |
| Work Order No. | : 13612310218 | Work Order Date | : 21.04.2023 |
| ULR No. | : TC883923000001843F | | |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|--------------------|-------------------------------|----------------------|--|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2023/AA/2782 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Amtahi Village/Near Tailoring Centre |
| | | Sampling Date | : 29.07.2023 to 30.07.2023 |
| Mines Status | : Operational | Sample Received Date | : 31.07.2023 |
| Period of Analysis | : 31.07.2023 to 07.08.2023 | 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) | : 739 |
| 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 | 57 | 100 (24hrs) |
| Particulate Matter (PM2.5) | µg/m ³ | IS 5182 (Part- 24): 2019 | 30 | 60 (24hrs) |
| Sulphur Di-Oxide (SO ₂) | µg/m ³ | IS 5182 (Part-2): 2001; RA2022 | 6.9 | 80 (24hrs) |
| Nitrogen Di-Oxide (NO ₂) | µg/m ³ | IS 5182 (Part-6): 2006; RA2022 | 13.7 | 80 (24hrs) |
| Ozone (O ₃) | µg/m ³ | IS 5182 (Part-9): 1974; RA2019 | <20.0 | 100 (8hrs) |
| Ammonia (NH ₃) | µg/m ³ | IS 5182 (Part- 25): 2018 | <10.0 | 400 (24hrs) |
| Carbon Monoxide (CO) | mg/m ³ | IS 5182 (Part-10): 1999; RA2019 | <1.0 | 2 (8hrs) |
| Lead (Pb) | µg/m ³ | IS 5182 (Part-22): 2004; RA2019 | <0.002 | 1 (24hrs) |
| Nickel (Ni) | ng/m ³ | IS 5182 (Part-26):2020 | <6.0 | 20 (Annual) |
| Arsenic (As) | ng/m ³ | ELES/AIR/SOP/01 | <2.0 | 06 (Annual) |



****End of Report****

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

Page 1 of 1

ELES Pvt. Ltd. Technical Manager

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ENVIRONMENTAL LABORATORIES &

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

CIN: U74999JH2018PTC011125

TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2023/2996 | 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/2782 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Amtahi Village/Near Tailoring Centre |
| | | Sampling Date | : 29.07.2023 to 30.07.2023 |
| Mines Status | : Operational | Sample Received Date | : 31.07.2023 |
| Period of Analysis | : 31.07.2023 to 07.08.2023 | 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) | : 739 |
| 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****

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

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ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
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TC 8826

CIN: U74999JH2018FTCO11125

TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2023/2997 | Report Release Date : 08.08.2023 |
| Work Order No. : 13612310218 | Work Order Date : 21.04.2023 |
| ULR No. : TC883923000001844F | |

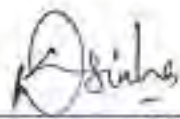
| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|--------------------|-------------------------------|----------------------|----------------------------|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2023/AA/2783 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Ambakona Village |
| | | Sampling Date | : 29.07.2023 to 30.07.2023 |
| Mines Status | : Operational | Sample Received Date | : 31.07.2023 |
| Period of Analysis | : 31.07.2023 to 07.08.2023 | 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) | : 739 |
| 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 | 22 | 60 (24hrs) |
| Sulphur Di-Oxide (SO ₂) | µg/m ³ | IS 5182 (Part-2): 2001; RA2022 | 5.3 | 80 (24hrs) |
| Nitrogen Di-Oxide (NO ₂) | µg/m ³ | IS 5182 (Part-6): 2006; RA2022 | 17.9 | 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


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

Page 1 of 1

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ENVIRONMENTAL LABORATORIES &

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

TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2023/2997 | 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/2783 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Ambakona Village |
| | | Sampling Date | : 29.07.2023 to 30.07.2023 |
| Mines Status | : Operational | Sample Received Date | : 31.07.2023 |
| Period of Analysis | : 31.07.2023 to 07.08.2023 | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Drawn By | : ELES Pvt. Ltd. |
| | | Sample Condition | : Sealed & Preserved |

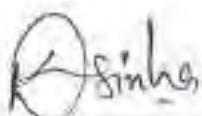
| METEOROLOGICAL INFORMATION | | | |
|----------------------------|-------------------------------|---|-----------------------------------|
| 1 | Average Temperature (°C) : 27 | 2 | Barometric Pressure (mmHg) : 739 |
| 3 | Relative Humidity (%) : 64 | 4 | Weather Condition : Partly Cloudy |

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

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



****End of Report****


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

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**ENVIRONMENTAL LABORATORIES & ENGINEERING
SERVICES PVT.LTD.**

Plot No.30, Mansarovar Enclave, Tupudana, Hatia, Ranchi-834003,
Jharkhand.

Chiro-Kukud Bauxite Mine-Environmental Monitoring Report

August 2023



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| 3 | Amtahl Village/Near Tailoring Centre | | |
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Website : www.elespl.co.in



CIN: U74999MH2018PTC011125

U-8552

TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2023/3434 | Report Release Date : 09.09.2023 |
| Work Order No. : 13612310218 | Work Order Date : 21.04.2023 |
| ULR No. : TC883923000002202F | |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|--------------------|-------------------------------|----------------------|--|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2023/AA/3058 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Kukud Village/Near Mine Area Chiro-Kukud Bauxite Mine (152.57ha) |
| Mines Status | : Non Operational | Sampling Date | : 22.08.2023 to 23.08.2023 |
| 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) | : 737 |
| 3 | Relative Humidity (%) | : 85 | 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; RA2023 | 56 | 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 | 7.6 | 80 (24hrs) |
| Nitrogen Di-Oxide (NO ₂) | µg/m ³ | IS 5182 (Part-6): 2006; RA2022 | 20.5 | 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 | 0.009 | 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

Ph. D. Environmental Engg.

ELES Pvt. Ltd. Technical Manager

****End of Report****

Page 1 of 1

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

CIN: U74999JH2009PT001123

TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2023/3434 | 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/3058 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Kukud Village/Near Mine Area Chira-Kukud Bauxite Mine (152.57ha) |
| Mines Status | : Non Operational | Sampling Date | : 22.08.2023 to 23.08.2023 |
| 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) | : 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****


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

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Website : www.elespl.co.in



CIN: U74999JH26SRPTC01125

TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2023/3435 | Report Release Date : 09.09.2023 |
| Work Order No. : 13612310218 | Work Order Date : 21.04.2023 |
| ULR No. : TC883923000002203F | |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|--------------------|-----------------------------|----------------------|---|
| Customer Name | Hindalco Industries Limited | Sample Ref. No. | ELES/RNC/2023/AA/3059 |
| Address | Lohardaga, Jharkhand-855302 | Location | Kukud Village/Near Weigh Bridge Chiro-Kukud Bauxite Mine (152.57ha) |
| | | Sampling Date | 22.08.2023 to 23.08.2023 |
| 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/SAMPL/02 |
| | | Sample Drawn By | ELES Pvt. Ltd. |
| | | Sample Condition | Sealed & Preserved |

METEOROLOGICAL INFORMATION

| | | | | | |
|---|--------------------------|------|---|----------------------------|-----------------|
| 1 | Average Temperature (°C) | : 24 | 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 | 62 | 100 (24hrs) |
| Particulate Matter (PM2.5) | µg/m ³ | IS 5182 (Part- 24): 2019 | 31 | 60 (24hrs) |
| Sulphur Di-Oxide (SO ₂) | µg/m ³ | IS 5182 (Part-2): 2001; RA2022 | 13.5 | 80 (24hrs) |
| Nitrogen Di-Oxide (NO ₂) | µg/m ³ | IS 5182 (Part-6): 2006; RA2022 | 20.4 | 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 | 0.012 | 1 (24hrs) |
| Nickel (Ni) | ng/m ³ | IS 5182 (Part-26):2020 | <6.0 | 20 (Annual) |
| Arsenic (As) | ng/m ³ | ELES/AIR/SOP/01 | <2.0 | 06 (Annual) |



****End of Report****

Authorized Signatory
Dr. Deependra Kumar Sinha

Page 1 of 1

ELES Pvt. Ltd. Technical Manager

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CIN: U74900RU2012AP1C01125

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Phone no.: 0651-2290103

Website : www.elespl.co.in

TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2023/3435 | 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/3059 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Kukud Village/Near Weigh Bridge Chiro-Kukud Bauxite Mine (152.57ha) |
| | | Sampling Date | : 22.08.2023 to 23.08.2023 |
| 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 |

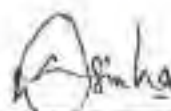
| METEOROLOGICAL INFORMATION | | | | | |
|----------------------------|--------------------------|------|---|----------------------------|-----------------|
| 1 | Average Temperature (°C) | : 24 | 2 | Barometric Pressure (mmHg) | : 737 |
| 3 | Relative Humidity (%) | : 65 | 4 | Weather Condition | : 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****


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



ENVIRONMENTAL LABORATORIES &

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Website : www.elespl.co.in



TEST REPORT

| | | | |
|-----------------|----------------------|---------------------|--------------|
| Test Report No. | : ELES/RNC/2023/3436 | Report Release Date | : 09,09,2023 |
| Work Order No. | : 13612310218 | Work Order Date | : 21.04.2023 |
| ULR No. | : TC883923000002204F | | |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|--------------------|-------------------------------|----------------------|---|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2023/AA/3060 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Chiro Village/Near Magazine Chiro-Kukud Bauxite Mine (152.57ha) |
| Mines Status | : Non Operational | Sampling Date | : 22.08.2023 to 23.08.2023 |
| 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/SMPL02 |
| | | Sample Drawn By | : ELES Pvt. Ltd. |
| | | Sample Condition | : Sealed & Preserved |

| METEOROLOGICAL INFORMATION | | | | | |
|----------------------------|--------------------------|------|---|----------------------------|-----------------|
| 1 | Average Temperature (°C) | : 24 | 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 | 52 | 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 | 5.5 | 80 (24hrs) |
| Nitrogen Di-Oxide (NO ₂) | µg/m ³ | IS 5182 (Part-6): 2006; RA2022 | 13.9 | 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/SOP01 | <2.0 | 06 (Annual) |



****End of Report****

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

Page 1 of 1

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Website: www.elespl.co.in

CIN: U74899JH0318PTC011125

TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2023/3436 | 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/3060 |
| Address | : Lchardaga, Jharkhand-835302 | Location | : Chiro Village/Near Magazine Chiro-Kukud Bauxite Mine (152.57ha) |
| | | Sampling Date | : 22.08.2023 to 23.08.2023 |
| 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) | : 24 | 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
Lt. Deependra Kumar Sinha
Ph. D. Environmental Engg.
ELES Pvt. Ltd, Technical Manager

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Website : www.elespl.co.in



TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2023/3437 | Report Release Date : 09.09.2023 |
| Work Order No. : 13612310218 | Work Order Date : 21.04.2023 |
| ULR No. : TC883923000002205F | |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|--------------------|-------------------------------|----------------------|--|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2023/AA/3061 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Chiro Village/Near Pillar No.1 Chiro-Kakud Bauxite Mine (152.57ha) |
| | | Sampling Date | : 22.08.2023 to 23.08.2023 |
| 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) | : 24 | 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 | 48 | 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 | 20.7 | 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 | 0.007 | 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) |



Authorized Signatory
Dr. Deependra Kumar Sinha

****End of Report****

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ENVIRONMENTAL LABORATORIES &

ENGINEERING SERVICES PVT. LTD.

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Website : www.elespl.co.in

CM 12488810103RPT031125

TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2023/3437 | 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/3061 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Chiro Village/Near Pillar No.1 Chiro-Kukud Bauxite Mine (152.57ha) |
| | | Sampling Date | : 22.08.2023 to 23.08.2023 |
| 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/SMPLA/2 |
| | | Sample Drawn By | : ELES Pvt. Ltd. |
| | | Sample Condition | : Sealed & Preserved |

| METEOROLOGICAL INFORMATION | | | | | |
|----------------------------|--------------------------|------|---|----------------------------|-----------------|
| 1 | Average Temperature (°C) | : 24 | 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. Dipendra Kumar Saha
 Ph. D Environmental Engg.
 ELES Pvt. Ltd, Technical Manager

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ENVIRONMENTAL LABORATORIES &

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Website : www.elespl.co.in



TEST REPORT

| | | | |
|-----------------|----------------------|---------------------|--------------|
| Test Report No. | : ELES/RNC/2023/3438 | Report Release Date | : 09.09.2023 |
| Work Order No. | : 13612310218 | Work Order Date | : 21.04.2023 |
| ULR No. | : TC883923000002206F | | |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|--------------------|-------------------------------|----------------------|---|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2023/AA/3062 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Kudag Village / Near Hindalco Campus |
| | | Sampling Date | : 22.08.2023 to 23.08.2023 |
| 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) | : 24 | 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 | 44 | 100 (24hrs) |
| Particulate Matter (PM2.5) | µg/m ³ | IS 5182 (Part-24): 2019 | 18 | 60 (24hrs) |
| Sulphur Di-Oxide (SO ₂) | µg/m ³ | IS 5182 (Part-2): 2001; RA2022 | 5.6 | 80 (24hrs) |
| Nitrogen Di-Oxide (NO ₂) | µg/m ³ | IS 5182 (Part-6): 2006; RA2022 | 5.1 | 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) | µg/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) |



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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Website: www.elespl.co.in

TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2023/3438 | 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/3062 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Kudag Village / Near Hindalco Campus |
| | | Sampling Date | : 22.08.2023 to 23.08.2023 |
| 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) | : 24 | 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****

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

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TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2023/3439 | Report Release Date : 09.09.2023 |
| Work Order No. : I3612310218 | Work Order Date : 21.04.2023 |
| ULR No. : TC883923000002207F | |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|--------------------|-------------------------------|----------------------|---|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2023/AA/3063 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Jajali Village/Near Shiv Temple Sabag Road. |
| | | Sampling Date | : 22.08.2023 to 23.08.2023 |
| 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) | : 24 | 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 | 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 | 5.6 | 80 (24hrs) |
| Nitrogen Di-Oxide (NO ₂) | µg/m ³ | IS 5182 (Part-6): 2006; RA2022 | 13.2 | 80 (24hrs) |
| Ozone (O ₃) | µg/m ³ | IS 5182 (Part-9): 1974; RA2019 | <20.0 | 100 (8hrs) |
| Ammonia (NH ₃) | µg/m ³ | IS 5182 (Part- 25): 2018 | <10.0 | 400 (24hrs) |
| Carbon Monoxide (CO) | mg/m ³ | IS 5182 (Part-10): 1999; RA2019 | <1.0 | 2 (8hrs) |
| Lead (Pb) | µg/m ³ | IS 5182 (Part-22): 2004; RA2019 | 0.01 | 1 (24hrs) |
| Nickel (Ni) | ng/m ³ | IS 5182 (Part-26):2020 | <6.0 | 20 (Annual) |
| Arsenic (As) | ng/m ³ | ELES/AIR/SOP/01 | <2.0 | 06 (Annual) |



****End of Report****

Dr. Deependra Kumar Sinha
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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Website : www.elespl.co.in

TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2023/3439 | 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/3063 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Jaljati Village/Near Shiv Temple Sabag Road. |
| Mines Status | : Non Operational | Sampling Date | : 22.08.2023 to 23.08.2023 |
| 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/OZ |
| | | Sample Drawn By | : ELES Pvt. Ltd. |
| | | Sample Condition | : Sealed & Preserved |

METEOROLOGICAL INFORMATION

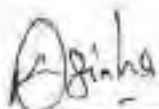
| | | | | | |
|---|--------------------------|------|---|----------------------------|-----------------|
| 1 | Average Temperature (°C) | : 24 | 2 | Barometric Pressure (mmHg) | : 737 |
| 3 | Relative Humidity (%) | : 65 | 4 | Weather Condition | : Partly Cloudy |

| 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****


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

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CIN: U71999HR2018PTC011333

TEST REPORT

| | | | |
|-----------------|----------------------|---------------------|--------------|
| Test Report No. | : ELES/RNC/2023/3440 | Report Release Date | : 09.09.2023 |
| Work Order No. | : 13612310218 | Work Order Date | : 21.04.2023 |
| ULR No. | : TC883923000002208F | | |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|--------------------|-------------------------------|----------------------|---|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2023/AA/3064 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Arntshi Village/Near Tailoring Centre |
| | | Sampling Date | : 23.08.2023 to 24.08.2023 |
| 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) | : 23 | 2 | Barometric Pressure (mmHg) | : 736 |
| 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 | 53 | 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 | 6.1 | 80 (24hrs) |
| Nitrogen Di-Oxide (NO ₂) | µg/m ³ | IS 5182 (Part-6): 2006; RA2022 | 16.1 | 80 (24hrs) |
| Ozone (O ₃) | µg/m ³ | IS 5182 (Part-9): 1974; RA2019 | <20.0 | 100 (8hrs) |
| Ammonia (NH ₃) | µg/m ³ | IS 5182 (Part- 25): 2018 | <10.0 | 400 (24hrs) |
| Carbon Monoxide (CO) | mg/m ³ | IS 5182 (Part-10): 1999; RA2019 | <1.0 | 2 (8hrs) |
| Lead (Pb) | µg/m ³ | IS 5182 (Part-22): 2004; RA2019 | <0.002 | 1 (24hrs) |
| Nickel (Ni) | ng/m ³ | IS 5182 (Part-26):2020 | <6.0 | 20 (Annual) |
| Arsenic (As) | ng/m ³ | ELES/AIR/SOP/01 | <2.0 | 06 (Annual) |



****End of Report****

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

Page 1 of 1

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ENVIRONMENTAL LABORATORIES &

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

TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2023/3440 | 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/3064 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Amtahi Village/Near Tailoring Centre |
| | | Sampling Date | : 23.08.2023 to 24.08.2023 |
| 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) | : 23 | 2 | Barometric Pressure (mmHg) | : 736 |
| 3 | Relative Humidity (%) | : 66 | 4 | Weather Condition | : Partly Cloudy |

| Discipline : Chemical | | Group : Atmospheric Pollution | | |
|-----------------------|-------------------|--------------------------------|--------|------------------|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit |
| 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****

Desha
Authorised Signatory
 Mr. Desendra Kumar Sinha
 Ph. D. Environmental Engg.
 ELES Pvt. Ltd. Technical Manager

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TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2023/3441 | Report Release Date : 09.09.2023 |
| Work Order No. : 13612310218 | Work Order Date : 21.04.2023 |
| ULR No. : TC883923000002209F | |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|--------------------|-----------------------------|----------------------|--------------------------|
| Customer Name | Hindalco Industries Limited | Sample Ref. No. | ELES/RNC/2023/AA/3065 |
| Address | Lohardaga, Jharkhand-835302 | Location | Ambakona Village |
| | | Sampling Date | 23.08.2023 to 24.08.2023 |
| 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) | : 23 | 2 | Barometric Pressure (mmHg) | : 736 |
| 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 | 42 | 100 (24hrs) |
| Particulate Matter (PM2.5) | µg/m ³ | IS 5182 (Part- 24): 2019 | 18 | 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 | 20.2 | 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) |



Reviewed by

****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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Website: www.elespl.co.in

ON: 07A899HQ0E8PT001125

TEST REPORT

| | | | |
|-----------------|----------------------|---------------------|--------------|
| Test Report No. | : ELES/RNC/2023/3441 | 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/3065 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Ambakona Village |
| | | Sampling Date | : 23.08.2023 to 24.08.2023 |
| 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 |

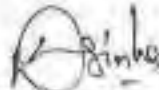
| METEOROLOGICAL INFORMATION | | | | | |
|----------------------------|--------------------------|------|---|----------------------------|-----------------|
| 1 | Average Temperature (°C) | : 23 | 2 | Barometric Pressure (mmHg) | : 736 |
| 3 | Relative Humidity (%) | : 66 | 4 | Weather Condition | : Partly Cloudy |

| Discipline : Chemical | | Group : Atmospheric Pollution | | |
|-----------------------|-------------------|--------------------------------|--------|------------------|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit |
| 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 Saha
 Ph. D. Environmental Engg
 ELES Pvt. Ltd, Technical Manager

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Plot No.30, Mansarovar Enclave, Tupudana,Hatia,Ranchi-834003,
Jharkhand.

Chiro-Kukud Bauxite Mine-Environmental Monitoring Report



September- 2023

CONTENT

| Hindalco Industries : Chiro Kukud Bauxite Mine Environmental Monitoring Report September- 2023 | |
|---|---|
| Chiro Kukud Bauxite Mine | |
| | AMBIENT AIR QUALITY- CORE ZONE |
| 1 | Kukud Village/Near Mine area |
| 2 | Kukud Village/Near Weigh Bridge |
| 3 | Chiro Village/Near Mgazine |
| 4 | Chiro Village/Near Pillar No.1 |
| | AMBIENT AIR QUALITY- BUFFER ZONE |
| 1 | Kudag Village/ Near Hindalco Campus |
| 2 | Jaljali Village/Near Shiv Temple Sabag Road |
| 3 | Amtahi Village/Near Tailoring Centre |
| 4 | Ambakona Village |
| | AMBIENT NOISE |
| | WORKZONE NOISE |
| | |





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Website : www.elespl.co.in

TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2023/4042 | 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/3459 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Kukud Village/Near Mine Area Chiro-Kukud Bauxite Mine (152.57ha) |
| Mines Status | : Non Operational | Sampling Date | : 23.09.2023 to 24.09.2023 |
| Period of Analysis | : 29.09.2023 to 12.10.2023 | 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) | : 26 | 2 | Barometric Pressure (mmHg) | : 734 |
| 3 | Relative Humidity (%) | : 65 | 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 | 48 | 100 (24hrs) |
| Particulate Matter (PM2.5) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part- 24): 2019 | 22 | 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 | 17.2 | 80 (24hrs) |
| Ozone (O ₃) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-9): 1974; RA2019 | <20.0 | 100 (8hrs) |
| Ammonia (NH ₃) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part- 25): 2018 | <10.0 | 400 (24hrs) |
| Carbon Monoxide (CO) | mg/m^3 | IS 5182 (Part-10): 1999; RA2019 | <1.0 | 2 (8hrs) |
| Lead (Pb) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-22): 2004; RA2019 | 0.006 | 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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Website : www.elespl.co.in

CIN: U74999JH2018PTC011125

TEST REPORT


| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2023/4042 | 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



CIN: U74999JH2018PTC011125

ENVIRONMENTAL LABORATORIES &

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TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2023/4043 | 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/3460 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Kukud Village/Near Weigh Bridge Chiro-Kukud Bauxite Mine (152.57ha) |
| Mines Status | : Non Operational | Sampling Date | : 23.09.2023 to 24.09.2023 |
| Period of Analysis | : 29.09.2023 to 12.10.2023 | 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) | : 26 | 2 | Barometric Pressure (mmHg) | : 734 |
| 3 | Relative Humidity (%) | : 65 | 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 | 54 | 100 (24hrs) |
| Particulate Matter (PM2.5) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part- 24): 2019 | 28 | 60 (24hrs) |
| Sulphur Di-Oxide (SO ₂) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-2): 2001; RA2022 | 14.2 | 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 | 0.008 | 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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CIN: U74999JH2018PTC011125

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Website : www.elespl.co.in

TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2023/4043 | Report Release Date : 28.10.2023 |
| Work Order No. : 13612310218 | Work Order Date : 21.04.2023 |

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

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



****End of Report****


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



CIN: U74999JH2018PTC011125

ENVIRONMENTAL LABORATORIES &

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TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2023/4044 | 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/3461 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Chiro Village/Near Magazine Chiro-Kukud Bauxite Mine (152.57ha) |
| Mines Status | : Non Operational | Sampling Date | : 23.09.2023 to 24.09.2023 |
| Period of Analysis | : 29.09.2023 to 12.10.2023 | 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) | : 26 | 2 | Barometric Pressure (mmHg) | : 734 |
| 3 | Relative Humidity (%) | : 65 | 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 | 45 | 100 (24hrs) |
| Particulate Matter (PM2.5) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part- 24): 2019 | 24 | 60 (24hrs) |
| Sulphur Di-Oxide (SO ₂) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-2): 2001; RA2022 | 5.1 | 80 (24hrs) |
| Nitrogen Di-Oxide (NO ₂) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-6): 2006; RA2022 | 14.5 | 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) |

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CIN: U74998JH2018PPY011125

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TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2023/4044 | Report Release Date : 28.10.2023 |
| Work Order No. : 13612310218 | Work Order Date : 21.04.2023 |

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

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



****End of Report****


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



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TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2023/4045 | 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/3462 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Chiro Village/Near Pillar No.1 Chiro-Kukud Bauxite Mine (152.57ha) |
| Mines Status | : Non Operational | Sampling Date | : 23.09.2023 to 24.09.2023 |
| Period of Analysis | : 29.09.2023 to 12.10.2023 | 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) : 26 | 2 | Barometric Pressure (mmHg) : 734 |
| 3 | Relative Humidity (%) : 65 | 4 | Weather Condition : Partly Cloudy |

Discipline : Chemical

Group : Atmospheric Pollution

| Parameter | Unit | Test Protocol | Result | Regulatory Limit |
|--------------------------------------|--------------------------|---------------------------------|--------|------------------|
| Particulate Matter (PM10) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-23): 2006; RA2022 | 41 | 100 (24hrs) |
| Particulate Matter (PM2.5) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part- 24): 2019 | 19 | 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 | 17.2 | 80 (24hrs) |
| Ozone (O ₃) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-9): 1974; RA2019 | <20.0 | 100 (8hrs) |
| Ammonia (NH ₃) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part- 25): 2018 | <10.0 | 400 (24hrs) |
| Carbon Monoxide (CO) | mg/m^3 | IS 5182 (Part-10): 1999; RA2019 | <1.0 | 2 (8hrs) |
| Lead (Pb) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-22): 2004; RA2019 | 0.008 | 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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CIN: U74999/JH2018PT011125

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TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2023/4045 | 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/2023/4046 | 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/3463 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Kudag Village / Near Hindalco Campus |
| Mines Status | : Non Operational | Sampling Date | : 23.09.2023 to 24.09.2023 |
| Period of Analysis | : 29.09.2023 to 12.10.2023 | 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) | : 25 | 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 | 32 | 100 (24hrs) |
| Particulate Matter (PM2.5) | µg/m ³ | IS 5182 (Part- 24): 2019 | 15 | 60 (24hrs) |
| Sulphur Di-Oxide (SO ₂) | µg/m ³ | IS 5182 (Part-2): 2001; RA2022 | 5.1 | 80 (24hrs) |
| Nitrogen Di-Oxide (NO ₂) | µg/m ³ | IS 5182 (Part-6): 2006; RA2022 | 16.8 | 80 (24hrs) |
| Ozone (O ₃) | µg/m ³ | IS 5182 (Part-9): 1974; RA2019 | <20.0 | 100 (8hrs) |
| Ammonia (NH ₃) | µg/m ³ | IS 5182 (Part- 25): 2018 | <10.0 | 400 (24hrs) |
| Carbon Monoxide (CO) | mg/m ³ | IS 5182 (Part-10): 1999; RA2019 | <1.0 | 2 (8hrs) |
| Lead (Pb) | µg/m ³ | IS 5182 (Part-22): 2004; RA2019 | <0.002 | 1 (24hrs) |
| Nickel (Ni) | ng/m ³ | IS 5182 (Part-26):2020 | <6.0 | 20 (Annual) |
| Arsenic (As) | ng/m ³ | ELES/AIR/SOP/01 | <2.0 | 06 (Annual) |

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TEST REPORT


| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2023/4046 | 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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Ph. D. Environmental Engg.
ELES Pvt. Ltd. Technical Manager



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TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2023/4047 | 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/3464 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Jaljali Village/Near Shiv Temple Sabag Road. |
| Mines Status | : Non Operational | Sampling Date | : 23.09.2023 to 24.09.2023 |
| Period of Analysis | : 29.09.2023 to 12.10.2023 | 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) | : 25 | 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) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-23): 2006; RA2022 | 32 | 100 (24hrs) |
| Particulate Matter (PM2.5) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part- 24): 2019 | 15 | 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 | 15.9 | 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 | 0.01 | 1 (24hrs) |
| Nickel (Ni) | ng/m^3 | IS 5182 (Part-26):2020 | <6.0 | 20 (Annual) |
| Arsenic (As) | ng/m^3 | ELES/AIR/SOP/01 | <2.0 | 06 (Annual) |

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CIN: U74999RJ2018PTC011125

TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2023/4047 | 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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ELES Pvt. Ltd. Technical Manager



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TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2023/4048 | 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. | : FLES/RNC/2023/AA/3465 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Amtahi Village/Near Tailoring Centre |
| Mines Status | : Non Operational | Sampling Date | : 24.09.2023 to 25.09.2023 |
| Period of Analysis | : 29.09.2023 to 12.10.2023 | 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) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-23): 2006; RA2022 | 43 | 100 (24hrs) |
| Particulate Matter (PM2.5) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part- 24): 2019 | 20 | 60 (24hrs) |
| Sulphur Di-Oxide (SO ₂) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-2): 2001; RA2022 | 5.3 | 80 (24hrs) |
| Nitrogen Di-Oxide (NO ₂) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-6): 2006; RA2022 | 15.7 | 80 (24hrs) |
| Ozone (O ₃) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-9): 1974; RA2019 | <20.0 | 100 (8hrs) |
| Ammonia (NH ₃) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part- 25): 2018 | <10.0 | 400 (24hrs) |
| Carbon Monoxide (CO) | mg/m^3 | IS 5182 (Part-10): 1999; RA2019 | <1.0 | 2 (8hrs) |
| Lead (Pb) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-22): 2004; RA2019 | <0.002 | 1 (24hrs) |
| Nickel (Ni) | ng/m^3 | IS 5182 (Part-26):2020 | <6.0 | 20 (Annual) |
| Arsenic (As) | ng/m^3 | ELES/AIR/SOP/01 | <2.0 | 06 (Annual) |

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

CIN: U74300JH2018PT001185

TEST REPORT


| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2023/4048 | 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
 Seemanta 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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Website : www.elespl.co.in

CIN: U74599JH2018PTC011125

TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2023/4049 | 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/3466 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Ambakona Village |
| | | Sampling Date | : 24.09.2023 to 25.09.2023 |
| Mines Status | : Non Operational | Sample Received Date | : 29.09.2023 |
| Period of Analysis | : 29.09.2023 to 12.10.2023 | 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) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-23): 2006; RA2022 | 34 | 100 (24hrs) |
| Particulate Matter (PM2.5) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part- 24): 2019 | 16 | 60 (24hrs) |
| Sulphur Di-Oxide (SO ₂) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-2): 2001; RA2022 | <5.0 | 80 (24hrs) |
| Nitrogen Di-Oxide (NO ₂) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-6): 2006; RA2022 | 16.3 | 80 (24hrs) |
| Ozone (O ₃) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-9): 1974; RA2019 | <20.0 | 100 (8hrs) |
| Ammonia (NH ₃) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part- 25): 2018 | <10.0 | 400 (24hrs) |
| Carbon Monoxide (CO) | mg/m^3 | IS 5182 (Part-10): 1999; RA2019 | <1.0 | 2 (8hrs) |
| Lead (Pb) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-22): 2004; RA2019 | <0.002 | 1 (24hrs) |
| Nickel (Ni) | ng/m^3 | IS 5182 (Part-26):2020 | <6.0 | 20 (Annual) |
| Arsenic (As) | ng/m^3 | ELES/AIR/SOP/01 | <2.0 | 06 (Annual) |

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CIN: U74999JH0187FC012123

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Phone no.: 9551-2250103

Website : www.elespl.co.in**TEST REPORT**

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2023/4049 | 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
Deependra Kumar Sinha
Ph. D. Environmental Engg.
ELES Pvt. Ltd. Technical Manager

Page 2 of 2

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Website : www.elespl.co.in

TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2023/4138 | Report Release Date : 31.10.2023 |
| Work Order No. : 13612310218 | Work Order Date : 21.04.2023 |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|------------------|-------------------------------|------------------------|----------------------------|
| Customer Name | : Hindalco Industries Limited | Sampling Date | : 23.09.2023 to 24.09.2023 |
| Address | : Lohardaga, Jharkhand-835302 | Sampling Received Date | : 30.09.2023 |
| | | Type of Sample | : Ambient Noise |
| | | Sampling procedure | : ELES/DOC/SMPL/03 |
| | | Sample Drawn By | : ELES Pvt. Ltd. |
| Mines Status | : Non Operational | Period of Analysis | : 30.09.2023 to 10.10.2023 |

METEOROLOGICAL INFORMATION

| | | | |
|---|-------------------------------|---|-----------------------------------|
| 1 | Average Temperature (°C) : 26 | 2 | Barometric Pressure (mmHg) : 734 |
| 3 | Relative Humidity (%) : 65 | 4 | Weather Condition : Partly Cloudy |

| Location | Unit | Test Protocol | Result | | Regulatory Limit (Industrial Zone) |
|---|-------|--------------------------|-------------------------------------|-----|---|
| | | | Time | Leq | |
| Kukud Village/Near Mine Area Chiro-Kukud Bauxite Mine (152.57ha) | dB(A) | IS 9989:1981, RA 2020 | Day Time | 64 | 75 dB(A) Day Time & 70 dB(A) Night Time |
| | | | Night Time | 46 | |
| | | | Sample ID: ELES/RNC/2023/AN/3530 | | |



****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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CIN: U74999JH2018PTC011125

ENVIRONMENTAL LABORATORIES &

ENGINEERING SERVICES PVT. LTD.

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Website : www.elespl.co.in

TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2023/4160 | Report Release Date : 31.10.2023 |
| Work Order No. : 13612310218 | Work Order Date : 21.04.2023 |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|------------------|-------------------------------|------------------------|----------------------------|
| Customer Name | : Hindalco Industries Limited | Sampling Date | : 23.09.2023 |
| Address | : Lohardaga, Jharkhand-835302 | Sampling Received Date | : 30.09.2023 |
| | | Type of Sample | : Workzone Noise |
| | | Sampling procedure | : ELES/DOC/SMPL/03 |
| Mines Status | : Non Operational | Sample Drawn By | : ELES Pvt. Ltd. |
| | | Period of Analysis | : 30.09.2023 to 11.10.2023 |

METEOROLOGICAL INFORMATION

| | | | |
|---|-------------------------------|---|-----------------------------------|
| 1 | Average Temperature (°C) : 26 | 2 | Barometric Pressure (mmHg) : 738 |
| 3 | Relative Humidity (%) : 65 | 4 | Weather Condition : Partly Cloudy |

| Location | Unit | Test Protocol | Result | | Regulatory Limit (Industrial Zone) |
|--|-------|--------------------------|----------|-----------------|------------------------------------|
| | | | Time | L _{eq} | |
| Near Poclain – Chiro-Kukud Bauxite Mine (152.57ha) | dB(A) | IS 4758:1968; RA 2017 | Time | L _{eq} | 90 dB (A) |
| Sample ID: ELES/RNC/2023/WN/3552 | | | Day Time | 73 | |



****End of Report****


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



Annexure 3

Date – 01.11.2023

Office Order

Environmental Cell has been re-constituted at Chiro Kukud Bauxite Mine (Area 152.57 ha) comprising below mentioned team members. The team will ensure compliance with the Environment Act, Regulation & Rule in respect of the said mines of Hindalco Industries Limited.

1. Mr. Vijay Chauhan (Coordinator)
2. Mr. Praveen Pradhan -Geologist
3. Mr. Anand Prakash Tiwari – Environment Engineer

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

A handwritten signature in blue ink, appearing to read "Basudev Gangopadhyay", with a stylized flourish at the end.

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
AVP (Planning, Environment & Compliance)