

ADITYA BIRLA



HIL/LHD/ENV/MoEF/389

Date: 25.11.2022

To,  
The Additional Principal Chief Conservator of Forest (C)  
Ministry of Environment, Forests and Climate Changes  
Regional Office (ECZ), Ranchi-834002.

**Sub:** Compliance Report of EC conditions for Amtipani Bauxite Mining project of M/s Hindalco Industries Limited located in Dist- Gumla, Jharkhand for the period April'22 to September'22.

**Ref:** Environmental Clearance letter no J-11015/241/2005-IA II (M) dated 14<sup>th</sup> August 2006

Sir,

With reference to the above, we are submitting herewith the Compliance status report of EC conditions for **Amtipani Bauxite mining project of M/s Hindalco Industries Limited** located in Gumla, Jharkhand for the period April'22 to September'22.

The lease detail is as below.

Lease area (ha)	Production Capacity (MT)	Lease Period
190.95	150000	13.03.2006 to 12.03.2056

Hope you will find the same in order.

Thanking You

Yours Sincerely  
FOR HINDALCO INDUSTRIES LIMITED

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

Enclosure: - As Above

CC: [ro.ranchi-mef@gov.in](mailto:ro.ranchi-mef@gov.in), [mef@ori.nic.in](mailto:mef@ori.nic.in), [mef@nic.in](mailto:mef@nic.in), [mef.or@nic.in](mailto:mef.or@nic.in), [mccb.cpcb@nic.in](mailto:mccb.cpcb@nic.in), [zokolkatta.cpcb@nic.in](mailto:zokolkatta.cpcb@nic.in), [ranchi.cpcb@gmail.com](mailto:ranchi.cpcb@gmail.com), [roranchi47@gmail.com](mailto:roranchi47@gmail.com)

**Name of the Project** : Amtipani Bauxite Mine (190.95 ha)  
M/s Hindalco Industries Ltd

**Environment Clearance No & date** : J - 11015/241/2005-IA.II (M), dated 14.08.2006

**Period of compliance Report** : From 1<sup>st</sup> April 2022 to 30<sup>th</sup> September 2022

S No	Conditions	Compliance Status
<b>Specific Conditions</b>		
1	All the conditions stipulated by the State Pollution Control Board in their NOC should be effectively implemented.	Implementations of stipulated conditions in NOC are full filled post which consent to operate has been granted by SPCB from time to time. The existing consent to operate is valid up to 31.12.2025. Productions of bauxite are within limits specified in Consent to Operate.
2	The mining operations shall not intersect groundwater table. Prior approval of the MoEF and CGWA shall be obtained for mining below water table.	The mining operation confined within shallow depth (20 m max) and not intersected ground water. In future also, working zone will be restricted to above ground water table.  We undertake that no mining is/was carried out below ground water table and the same status will be maintain in future also.
3	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.	Land acquisition is being done with permission of competent authority of State Government i.e. concerned Deputy Commissioner (D.C.) under CNT Act. The land lease agreement is being done with raiyat (Landowner) for about 20 years with permission of State Govt with provision of returning the land as per the norms set by D.C. The compensation and facilities are being provided as per norms set in agreement. Thus, land acquisition has the approval of State Government.
4	Topsoil shall be stacked properly with proper slope with adequate measures and should be used for reclamation and rehabilitation of mined out areas.	Topsoil is being stacked temporarily, if applicable and stacked separately with proper slope & is being used for reclamation and rehabilitation simultaneously with mining operation.

5	<p>The waste generated in the initial period shall be dumped temporarily and backfilled in the mined-out area. There shall be no permanent external OB dump in the project area. Concurrent backfilling should start from the fifth year onwards. Monitoring and management of rehabilitated areas should continue until the vegetation becomes self-sustaining. Compliance status should be submitted to the Ministry of Environment &amp; Forests on six monthly basis.</p>	<p>During mining concurrent backfilling of waste in worked out quarry is in practice.</p> <p>We are reviewing progress on continuous basis. Monitoring and management of rehabilitation are continuous through supervision. All three existing dumps have been exhausted by backfilling in the mine voids in a systematic and scientific manner.</p> <p>Compliance status is being submitted to the Ministry of Environment &amp; Forests &amp; Climate Change on six monthly basis.</p>
6	<p>Catch drains and siltation ponds of appropriate size should be constructed to arrest silt and sediment flows from soil and mineral dump. 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 settling of silt material. Sedimentation pits should be constructed at the corners of the garland drains and desilted at regular intervals.</p>	<p>No run-off is generated from mining activities. However, to collect &amp; manage rainwater during monsoon, part of mined out area is used as settling tank for the runoff. Rainwater stored is being used for watering the mine area, roads, green belt development and sprinkling as necessary.</p> <p>Catch drains, Garland drains of appropriate size are being constructed in both around the mine pit to prevent runoff of water and flow of sediments directly into the agricultural field and water bodies, if applicable.</p> <p>Sump of adequate capacity is being provided and maintained as required.</p>
7	<p>Plantation shall be raised in an area of 79.3 ha including a green belt of adequate width by planting the native species around the ML area, roads, etc. in consultation with the local DFO/Agriculture Department. The density of the trees should be around 1500 plants per ha.</p>	<p>Progressive plantation is being carried out.</p> <p>During FY 2022-23 total 2300 nos. of trees have been planted. Total 16.930 ha areas have been planted till date. In addition to this agricultural activity is going on in reclaimed land as per the consent from landowners.</p> <p>Green belt development programme is in progress with progress of mining activities.</p>

8	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.	Suitable conservation measures to augment ground water have been taken as directed in NOC granted by CGWB e.g. Constructing water harvesting pond etc. Catchment areas are being enhanced for accumulation of surface water in the harvested pond. Catchment drains are also being made and are being repaired time to time.  We are not using any ground water for mining activities.
9	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.	The mining operation is not intersecting ground water table.  We are not using ground water for any mining purpose.  Piezometer has been installed for monitoring of ground water level. Water quality and water level report are attached herewith as <b>Annexure 1</b> .
10	Prior permission from the competent authority should be obtained for drawl of water from the surface water bodies.	Rainwater harvested during rainy season is being used for sprinkling on haul roads, mining activities and raising plantation. We are using water harvested by us and not stream water/surface water bodies for mining purposes.
11	The project proponent shall monitor the spring discharge on long term basis (at least one major spring) both in terms of quantity and quality of water and records maintained. Six monthly report should be submitted to the Ministry of Environment and Forests and its Regional Office located at Bhubneshwar.	Spring is being monitored; Analysis report is attached as <b>Annexure 2</b> . Currently MoEF regional office is located at Ranchi.
12	Vehicular emissions should be kept under control and regularly monitored. Measures shall be taken for maintenance of vehicles used in mining operations and in transportation of mineral. The vehicles should be covered with a tarpaulin and shall not be overloaded.	Regular maintenance of vehicles is being done to minimize vehicular emission. All measures are being taken to control vehicular emission. The vehicles are being covered with tarpaulin while transportation of mineral.
13	Drills should either be operated with dust extractors or should be equipped with water injection system	Wet drilling is in practice.
14	Blasting operation should be carried out only during the daytime. Controlled blasting should be practiced. The mitigative measures for control of	Blasting time is fixed during Lunch Time i.e. 1.00 PM -2.00 PM. Controlled blasting method is in practice. All efforts

	ground vibrations and to arrest fly rocks and boulders should be implemented	such as use of Nonel and delay, reduction in charge per delay etc. are being taken to mitigate impact of blasting.
15	Consent to operate should be obtained from SPCB prior to start of production of mine	Consent to operate has been obtained prior to start of production. The existing consent to operate validity is up to 31.12.2025.
16	Sewage treatment plant should be installed for the colony. ETP should also be provided for workshop and wastewater generated from mining operations.	<p>There is no industrial wastewater generation from workshop within mine lease area. hence, ETP has not been installed.</p> <p>However, for washing of HEMM, Effluent treatment mechanism (Oil and grease trap) has been installed in Amtipani mine lease area.</p> <p>The sewage water from domestic uses is being collected through individual septic tanks &amp; soak pits.</p>
17	Land ouster and land loser/affected people should be compensated and rehabilitated as per the National Policy on Resettlement and Rehabilitation of project Affected Families (NPRR), 2003	Land ouster and land loser/affected people are being compensated and rehabilitated as per statute/guidelines.
18	The higher benches of the excavated void to be converted into water reservoir shall be terraced and afforested to stabilize the slopes. Peripheral fencing shall be done along the excavated area.	Water harvesting pond has been terraced and afforested to stabilize slopes. Peripheral fencing provided along excavated area.
19	A Final Mine Closure Plan along with details of Corpus Fund should be submitted to the Ministry of Environment & Forests 5 years in advance of final mine closure for approval.	<p>Mining Plan along with progressive mine closure plan has been approved by Indian Bureau of Mines. Final Mine Closure Plan will be submitted in due time as per applicable guideline and timelines mentioned in MCDR/IBM guideline who are competent authority to approve the same.</p> <p>Based on present resource estimate and peak rated production capacity mentioned in EC, Mining operation is being carried out.</p>

General Condition		
S No	Conditions	Compliance Status
1	No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment & Forests.	Noted.
2	No change in the calendar plan including excavation, quantum of mineral bauxite and waste should be made.	Calendar plan including excavation, quantum of mineral bauxite and waste is being done as per IBM approved mining scheme and in scientific manner. Report is attached herewith as <b>Annexure 4</b> .
3	Conservation measures for protection of flora and fauna in the core & buffer zone should be drawn up in consultation with the local forest and wildlife departments.	We have prepared Wildlife Conservation Plan in consultation with State Forest Department and also obtained approval letter from Principal Chief Conservator of Forest, Wildlife & Chief Wildlife Warden, Jharkhand for conservation and protection of flora and fauna in the core and buffer zone for Amtipani Bauxite Mines. Approval letter (Memo No 1863, dated 02.12.2021) has been submitted to your good office on 21.02.2022.
4	Four ambient air quality-monitoring stations should be established in the core zone as well as in the buffer zone for RPM, SPM, SO <sub>2</sub> , NO <sub>x</sub> monitoring. Location of the stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board.	We have already established four ambient air quality monitoring stations in core zone as well as buffer zone. Monitoring is being carried out and reported to concern authorities. Report is attached as <b>Annexure 2</b> .
5	Data on ambient air quality (RPM, SPM, SO <sub>2</sub> and NO <sub>x</sub> ) should be regularly submitted to the Ministry including its Regional office located at Bhopal and the State Pollution Control Board / Central Pollution Control Board once in six months.	Being adhered to. Monitoring report is attached as <b>Annexure-2</b> .
6	Fugitive dust emissions from all the sources should be controlled regularly. Water spraying arrangement on haul roads, loading and unloading and at transfer points should be provided and properly maintained.	Mobile water tanker with sprinkling facility has been provided along haul roads, loading, unloading & at transfer points to arrest dust generation.
7	Measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in operations of HEMM, etc. should be provided with ear plugs / muffs.	Being Complied. PPEs are provided to workers.

8	Industrial wastewater (workshop and waste water from the mine) should be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May, 1993 and 31st December, 1993 or as amended from time to time. Oil and grease trap should be installed before discharge of workshop effluents.	There is no industrial wastewater generation from workshop within mine lease area. We are not discharging any wastewater outside mine lease area. However, for washing of HEMM, Effluent treatment mechanism (Oil and grease trap) has been installed in Amtipani mine lease area.
9	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.	PPE's provided.  Periodic training on safety & occupational health are being imparted to workers and health checks up conducted.
10	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	A separate environmental management cell with suitable qualified personnel is already formed and informed attached as <b>Annexure 3</b> .
11	The project authorities should inform to the Regional Office located at Bhubneshwar regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.	Mining Plan along with progressive mine closure plan has been approved by IBM, Ranchi. This is an operating mine, hence provision related to financial closure not applicable.  Currently, the Regional Office is located at Ranchi.
12	The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry and its Regional Office located at Bhubneshwar.	Budget is being prepared for purpose and expenditure is being reported to the ministry is attached as <b>Annexure 5</b> .
13	The project authorities should inform to the Regional Office located at Bhubneshwar regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.	Already mentioned above vide Point no. 11
14	The Regional Office of this Ministry located at Bhubneshwar shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information / monitoring reports.	Agreed and is being done. Currently, the Regional Office is located at Ranchi.
15	A copy of clearance letter will be marked to concerned Panchayat / local NGO, if any, from whom and suggestion / representation has been received while processing the proposal.	Complied.

16	State Pollution Control Board should display a copy of the clearance letter at the Regional office, District Industry Centre and Collector's office/ Tehsildar's Office for 30 days.	Displayed.
17	The project authorities should advertise at least in two local newspapers widely circulated, one of which shall be in the vernacular language of the locality concerned, within 7 days of the issue of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and also at web site of the Ministry of Environment and Forests at <a href="http://envfor.nic.in">http://envfor.nic.in</a> and a copy of the same should be forwarded to the Regional Office of this Ministry located Bhubneshwar.	Complied. (Documents already submitted).



**Signature**



AMTIPANI BAUXITE MINE  
M/S HINDALCO INDUSTRIES LTD  
PHOTOGRAPHS



**(Potato Cultivation in Reclaimed areas)**



**(Potato and paddy Cultivation in reclaimed areas)**

**AMTIPANI BAUXITE MINE  
M/S HINDALCO INDUSTRIES LTD  
PHOTOGRAPHS**



**(Plantation in Reclaimed areas)**

**AMTIPANI BAUXITE MINE  
M/S HINDALCO INDUSTRIES LTD  
PHOTOGRAPHS**



**(Miyawaki Concept Plantation at Safety zones)**



**AMTIPANI BAUXITE MINE  
M/S HINDALCO INDUSTRIES LTD  
PHOTOGRAPHS**



**(Rainwater harvesting pond)**



**(Water sprinkling at mine)**

AMTIPANI BAUXITE MINE  
M/S HINDALCO INDUSTRIES LTD  
PHOTOGRAPHS



(Washing Ramp and oil-grease trap)



(Tarpaulin covered Truck)

### **Annexure 1**

#### **Piezometer reading - Amtipani Bauxite Mines**

<b>S No</b>	<b>Month</b>	<b>Depth (meter)</b>
1	Apr-22	32.66
2	May-22	32.85
3	Jun-22	33.14
4	Jul-22	32.89
5	Aug-22	32.41
6	Sep-22	32.11



CIN: U74999JH2018PTC011125

# ENVIRONMENTAL LABORATORIES &

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## TEST REPORT

Test Report No.	: ELES/RNC/2022/0935Q	Report Release Date	: 12.05.2022
Work Order No.	: HIL/LHD/FY22-23/001	Work Order Date	: 01.04.2022

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/1048Q
Address	: Lohardaga, Jharkhand-835203	Location	: Mine Entrance Gate Amtipani Bauxite Mine
Plant Status	: Operational	Sampling Date	: 20/04/2022 to 21/04/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 31	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 70	4	Weather Condition	: Clear
5	Longitude	: 84°15'16.28"E	6	Latitude	: 23°20'42.71"N

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	52
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	60 (24hrs)	23
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	<5.0
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	8.6
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004	1 (24hrs)	0.003
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01:2021	6 (Annual)	<2.0

Page 1 of 2

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**"Save Environment, Save Future"**



CIN: U74999JH2018PTC011125

## ENVIRONMENTAL LABORATORIES &

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### TEST REPORT

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Work Order No.	: HIL/LHD/FY22-23/001	Work Order Date	: 01.04.2022

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	$\mu\text{g}/\text{m}^3$	ASTM D3687:2007	05(Annual)	<2.0
Benzo (a) Pyrene*	$\text{ng}/\text{m}^3$	USEPA 8270 C to -13A	01(Annual)	0.23

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

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

  
Authorized Signatory  
**SANDIP BERA**  
SENIOR MANAGER  
ELES PVT. LTD.

Page 2 of 2

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Work Order No.	: HIL/LHD/FY22-23/001	Work Order Date	: 01.04.2022

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/1048R
Address	: Lohardaga, Jharkhand-835203	Location	: Near Mine Office/WB Amtipani Bauxite Mine
Plant Status	: Operational	Sampling Date	: 20/04/2022 to 21/04/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

## METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 31	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 70	4	Weather Condition	: Clear
5	Longitude	: 84°15'29.19"E	6	Latitude	: 23°20'36.64"N

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	52
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	60 (24hrs)	29
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	5.6
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	10.2
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004	1 (24hrs)	0.003
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01:2021	6 (Annual)	<2.0

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### TEST REPORT

Test Report No.	: ELES/RNC/2022/0935R	Report Release Date	: 12.05.2022
Work Order No.	: HIL/LHD/FY22-23/001	Work Order Date	: 01.04.2022

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	$\mu\text{g}/\text{m}^3$	ASTM D3687:2007	05(Annual)	<2.0
Benzo (a) Pyrene*	$\text{ng}/\text{m}^3$	USEPA 8270 C to -13A	01(Annual)	0.25

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

Authorized Signatory  
**SANDIP BERA**  
SENIOR MANAGER  
ELES PVT. LTD.

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

Page 2 of 2

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# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
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## TEST REPORT

Test Report No. : ELES/RNC/2022/0935S	Report Release Date : 12.05.2022
Work Order No. : HIL/LHD/FY22-23/001	Work Order Date : 01.04.2022

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/1048S
Address	: Lohardaga, Jharkhand-835203	Location	: Mines Near Quarry - 1C Amtipani Bauxite Mine
Plant Status	: Operational	Sampling Date	: 20/04/2022 to 21/04/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 31	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 70	4	Weather Condition	: Clear

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	63
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	60 (24hrs)	31
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	6.9
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	8.5
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004	1 (24hrs)	0.014
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01:2021	6 (Annual)	2.4

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CIN: U74999JH2018PTC011225

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### TEST REPORT

Test Report No.	: ELES/RNC/2022/0935S	Report Release Date	: 12.05.2022
Work Order No.	: HIL/LHD/FY22-23/001	Work Order Date	: 01.04.2022

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	$\mu\text{g}/\text{m}^3$	ASTM D3687:2007	05(Annual)	2.5
Benzo (a) Pyrene*	$\text{ng}/\text{m}^3$	USEPA 8270 C to -13A	01(Annual)	0.29

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

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**SANDIP BERA**  
SENIOR MANAGER  
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CIN: U74999/JH2018PTC011125

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## TEST REPORT

Test Report No.	: ELES/RNC/2022/0935T	Report Release Date	: 12.05.2022
Work Order No.	: HIL/LHD/FY22-23/001	Work Order Date	: 01.04.2022

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/1048T
Address	: Lohardaga, Jharkhand-835203	Location	: Mines Near Quarry - 7A Amtipani Bauxite Mine
Plant Status	: Operational	Sampling Date	: 20/04/2022 to 21/04/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 31	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 70	4	Weather Condition	: Clear

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	62
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	60 (24hrs)	26
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	5.5
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	10.2
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	$\text{mg}/\text{m}^3$	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004	1 (24hrs)	0.018
Nickel (Ni)	$\text{ng}/\text{m}^3$	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	$\text{ng}/\text{m}^3$	ELES/AIR/SOP/01:2021	6 (Annual)	2.3

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### TEST REPORT

Test Report No. : ELES/RNC/2022/0935T	Report Release Date : 12.05.2022
Work Order No. : HIL/LHD/FY22-23/001	Work Order Date : 01.04.2022

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	$\mu\text{g}/\text{m}^3$	ASTM D3687:2007	05(Annual)	2.8
Benzo (a) Pyrene*	$\text{ng}/\text{m}^3$	USEPA 8270 C to -13A	01(Annual)	0.24

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

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Authorized Signatory  
**SANDIP BERA**  
SENIOR MANAGER  
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### TEST REPORT

Test Report No.	: ELES/RNC/2022/0935E	Report Release Date	: 12.05.2022
Work Order No.	: HIL/LHD/FY22-23/001	Work Order Date	: 01.04.2022

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/1048E
Address	: Lohardaga, Jharkhand-835203	Location	: Near Pakri Gada Village
Plant Status	: Operational	Sampling Date	: 19/04/2022 to 20/04/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 29	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 66	4	Weather Condition	: Clear
5	Longitude	: 84°14'52.25"N	6	Latitude	: 23°17'41.21"E

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	60
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	60 (24hrs)	26
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	<5.0
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	8.8
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004	1 (24hrs)	0.014
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01:2021	6 (Annual)	<2.0

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CIN: U74999JH2018PTC011125

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Website : [www.elespl.co.in](http://www.elespl.co.in)**TEST REPORT**

Test Report No. : ELES/RNC/2022/0935E	Report Release Date : 12.05.2022
Work Order No. : HIL/LHD/FY22-23/001	Work Order Date : 01.04.2022

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	$\mu\text{g}/\text{m}^3$	ASTM D3687:2007	05(Annual)	2.3
Benzo (a) Pyrene*	$\text{ng}/\text{m}^3$	USEPA 8270 C to -13A	01(Annual)	0.24

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

Authorized Signatory  
**SANDIP BERA**  
SENIOR MANAGER  
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CIN: U74999JH2018PTC011125

### TEST REPORT

Test Report No.	: ELES/RNC/2022/0935F	Report Release Date	: 12.05.2022
Work Order No.	: HIL/LHD/FY22-23/001	Work Order Date	: 01.04.2022

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/1048F
Address	: Lohardaga, Jharkhand-835203	Location	: Near Pol Pol Village
Plant Status	: Operational	Sampling Date	: 19/04/2022 to 20/04/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 29	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 66	4	Weather Condition	: Clear

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	53
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	60 (24hrs)	25
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	<5.0
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	5.3
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004	1 (24hrs)	0.008
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01:2021	6 (Annual)	<2.0

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CIN: U74899/JH2018PTC011113

## ENVIRONMENTAL LABORATORIES &

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### TEST REPORT

Test Report No.	: ELES/RNC/2022/0935F	Report Release Date	: 12.05.2022
Work Order No.	: HIL/LHD/FY22-23/001	Work Order Date	: 01.04.2022

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	$\mu\text{g}/\text{m}^3$	ASTM D3687:2007	05(Annual)	<2.0
Benzo (a) Pyrene*	$\text{ng}/\text{m}^3$	USEPA 8270 C to -13A	01(Annual)	0.21

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

Authorized Signatory  
**SANDIP BERA**  
SENIOR MANAGER  
ELES PVT. LTD.

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

Page 2 of 2

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# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
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## TEST REPORT

Test Report No. : ELES/RNC/2022/0935G	Report Release Date : 12.05.2022
Work Order No. : HIL/LHD/FY22-23/001	Work Order Date : 01.04.2022

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/1048G
Address	: Lohardaga, Jharkhand-835203	Location	: Near Dipa Kujam Village
Plant Status	: Operational	Sampling Date	: 18/04/2022 to 19/04/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 30	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 71	4	Weather Condition	: Clear

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	53
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	60 (24hrs)	19
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	<5.0
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	6.5
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	$\text{mg}/\text{m}^3$	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004	1 (24hrs)	0.008
Nickel (Ni)	$\text{ng}/\text{m}^3$	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	$\text{ng}/\text{m}^3$	ELES/AIR/SOP/01:2021	6 (Annual)	<2.0

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### TEST REPORT

Test Report No.	: ELES/RNC/2022/0935G	Report Release Date	: 12.05.2022
Work Order No.	: HIL/LHD/FY22-23/001	Work Order Date	: 01.04.2022

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	$\mu\text{g}/\text{m}^3$	ASTM D3687:2007	05(Annual)	<2.0
Benzo (a) Pyrene*	$\text{ng}/\text{m}^3$	USEPA 8270 C to -13A	01(Annual)	<0.20

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

Authorized Signatory

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SANDIP BERA  
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## TEST REPORT

Test Report No. : ELES/RNC/2022/0935H	Report Release Date : 12.05.2022
Work Order No. : HIL/LHD/FY22-23/001	Work Order Date : 01.04.2022

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/1048H
Address	: Lohardaga, Jharkhand-835203	Location	: Near Shakhupani Village
Plant Status	: Operational	Sampling Date	: 20/04/2022 to 21/04/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 31	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 70	4	Weather Condition	: Clear

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	50
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	60 (24hrs)	22
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	<5.0
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	8.3
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004	1 (24hrs)	0.004
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01:2021	6 (Annual)	<2.0

### Page 1 of 2

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CIN: U74999JH2011PTC011125

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Website : [www.elespl.co.in](http://www.elespl.co.in)**TEST REPORT**

Test Report No.	: ELES/RNC/2022/0935H	Report Release Date	: 12.05.2022
Work Order No.	: HIL/LHD/FY22-23/001	Work Order Date	: 01.04.2022

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	$\mu\text{g}/\text{m}^3$	ASTM D3687:2007	05(Annual)	2.8
Benzo (a) Pyrene*	$\text{ng}/\text{m}^3$	USEPA 8270 C to -13A	01(Annual)	<0.20

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

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

  
Authorized Signatory  
**SANDIP BERA**  
SENIOR MANAGER  
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Plot No.30, Mansarovar Enclave, Tupudana,Hatia,Ranchi-834003,  
Jharkhand.

**Amtipani Bauxite Mine-Environmental Monitoring Report**

May 2022



## CONTENT

Hindalco Industries : Amtipani Bauxite Mine		Environmental Monitoring Report	May2022
<b>Amtipani Bauxite Mine</b>			
<b>AMBIENT AIR QUALITY- CORE ZONE</b>			
1	Mine Entrance Gate		
2	Near Mine Office/WB		
3	Mines Near Quarry - 1C		
4	Mines Near Quarry - 7A		
<b>AMBIENT AIR QUALITY- BUFFER ZONE</b>			
1	Near Pakri Gada Village		
2	Near Pol Pol Village		
3	Near Shakhuapani Village		
4	Near Dipa Kujam Village		
<b>AMBIENT NOISE</b>			
<b>WORKZONE/SPOT NOISE</b>			
<b>WORKSHOP EFFLUENT</b>			
<b>DRINKING WATER ANALYSIS</b>			







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## TEST REPORT

Test Report No. : ELES/RNC/2022/1351Q	Report Release Date : 14.06.2022
Work Order No. : HIL/LHD/FY22-23/001	Work Order Date : 01.04.2022

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/1359Q
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Entrance Gate Amtipani Bauxite Mine
Plant Status	: Operational	Sampling Date	: 16/05/2022 to 17/05/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 28	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 69	4	Weather Condition	: Clear
5	Longitude	: 84°15'16.28"E	6	Latitude	: 23°20'42.71"N

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	44
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	60 (24hrs)	25
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	5.2
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	8.1
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004	1 (24hrs)	0.009
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01:2021	6 (Annual)	<2.0

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### TEST REPORT

Test Report No.	: ELES/RNC/2022/1351Q	Report Release Date	: 14.06.2022
Work Order No.	: HIL/LHD/FY22-23/001	Work Order Date	: 01.04.2022

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	$\mu\text{g}/\text{m}^3$	ASTM D3687:2007	05(Annual)	<2.0
Benzo (a) Pyrene*	$\text{ng}/\text{m}^3$	USEPA 8270 C to -13A	01(Annual)	0.27

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

Authorized Signatory

**SANDIP BERA**  
**SENIOR MANAGER**  
**ELES PVT. LTD.**

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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2022/1351R	Report Release Date : 14.06.2022
Work Order No. : HIL/LHD/FY22-23/001	Work Order Date : 01.04.2022

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/1359R
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Office/WB Amtipani Bauxite Mine
Plant Status	: Operational	Sampling Date	: 16/05/2022 to 17/05/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 28	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 69	4	Weather Condition	: Clear
5	Longitude	: 84°15'29.19"E	6	Latitude	: 23°20'36.64"N

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	49
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	60 (24hrs)	20
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	<5.0
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	8.8
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004	1 (24hrs)	0.002
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01:2021	6 (Annual)	<2.0

Page 1 of 2

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# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2022/1351R	Report Release Date : 14.06.2022
Work Order No. : HIL/LHD/FY22-23/001	Work Order Date : 01.04.2022

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	$\mu\text{g}/\text{m}^3$	ASTM D3687:2007	05(Annual)	2.6
Benzo (a) Pyrene*	$\text{ng}/\text{m}^3$	USEPA 8270 C to -13A	01(Annual)	0.24

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

Authorized Signatory

**SANDIP BERA**  
SENIOR MANAGER  
ELES PVT. LTD.

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

Page 2 of 2

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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2022/1351S	Report Release Date : 14.06.2022
Work Order No. : HIL/LHD/FY22-23/001	Work Order Date : 01.04.2022

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/1359S
Address	: Lohardaga, Jharkhand-835302	Location	: Mines Near Quarry - 1C Amtipani Bauxite Mine
Plant Status	: Operational	Sampling Date	: 16/05/2022 to 17/05/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

## METEOROLOGICAL INFORMATION

1	Average Temperature (°C) : 28	2	Barometric Pressure (mmHg) : 741
3	Relative Humidity (%) : 69	4	Weather Condition : Clear

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	54
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part-24): 2019	60 (24hrs)	23
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	5.2
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	8.0
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004	1 (24hrs)	0.003
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01:2021	6 (Annual)	2.4

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CIN: U74999/JH2018PTC011125

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### TEST REPORT

Test Report No. : ELES/RNC/2022/1351S	Report Release Date : 14.06.2022
Work Order No. : HIL/LHD/FY22-23/001	Work Order Date : 01.04.2022

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	$\mu\text{g}/\text{m}^3$	ASTM D3687:2007	05(Annual)	2.7
Benzo (a) Pyrene*	$\text{ng}/\text{m}^3$	USEPA 8270 C to -13A	01(Annual)	0.24

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

Authorized Signatory

**SANDIP BERA**  
SENIOR MANAGER  
ELES PVT. LTD.

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## TEST REPORT

Test Report No.	: ELES/RNC/2022/1351T	Report Release Date	: 14.06.2022
Work Order No.	: HIL/LHD/FY22-23/001	Work Order Date	: 01.04.2022

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/1359T
Address	: Lohardaga, Jharkhand-835302	Location	: Mines Near Quarry - 7A Amtipani Bauxite Mine
Plant Status	: Operational	Sampling Date	: 16/05/2022 to 17/05/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

## METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 28	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 69	4	Weather Condition	: Clear

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	59
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	60 (24hrs)	24
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	<5.0
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	11.5
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	$\text{mg}/\text{m}^3$	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004	1 (24hrs)	0.020
Nickel (Ni)	$\text{ng}/\text{m}^3$	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	$\text{ng}/\text{m}^3$	ELES/AIR/SOP/01:2021	6 (Annual)	2.9

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CIN: U74999JH2018PTC011125

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### TEST REPORT

Test Report No. : ELES/RNC/2022/1351T	Report Release Date : 14.06.2022
Work Order No. : HIL/LHD/FY22-23/001	Work Order Date : 01.04.2022

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	$\mu\text{g}/\text{m}^3$	ASTM D3687:2007	05(Annual)	2.3
Benzo (a) Pyrene*	$\text{ng}/\text{m}^3$	USEPA 8270 C to -13A	01(Annual)	0.22

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

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

Authorized Signatory  
**SANDIP BERA**  
SENIOR MANAGER  
ELES PVT. LTD.





CIN: U74902JH2018PTC031125

# ENVIRONMENTAL LABORATORIES &

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## TEST REPORT

Test Report No.	: ELES/RNC/2022/1351G	Report Release Date	: 14.06.2022
Work Order No.	: HIL/LHD/FY22-23/001	Work Order Date	: 01.04.2022

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/1359G
Address	: Lohardaga, Jharkhand-835302	Location	: Near Dipa Kujam Village
Plant Status	: Operational	Sampling Date	: 17/05/2022 to 18/05/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 27	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 69	4	Weather Condition	: Clear

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	43
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	60 (24hrs)	20
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	<5.0
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	7.4
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	$\text{mg}/\text{m}^3$	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004	1 (24hrs)	<0.002
Nickel (Ni)	$\text{ng}/\text{m}^3$	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	$\text{ng}/\text{m}^3$	ELES/AIR/SOP/01:2021	6 (Annual)	<2.0

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CIN: U74999JH2018PTC011125

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Test Report No.	: ELES/RNC/2022/1351G	Report Release Date	: 14.06.2022
Work Order No.	: HIL/LHD/FY22-23/001	Work Order Date	: 01.04.2022

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	$\mu\text{g}/\text{m}^3$	ASTM D3687:2007	05(Annual)	<2.0
Benzo (a) Pyrene*	$\text{ng}/\text{m}^3$	USEPA 8270 C to -13A	01(Annual)	<0.20

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

Authorized Signatory

**SANDIP BERA**  
**SENIOR MANAGER**  
**ELES PVT. LTD.**

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### TEST REPORT

Test Report No. : ELES/RNC/2022/1351H	Report Release Date : 14.06.2022
Work Order No. : HIL/LHD/FY22-23/001	Work Order Date : 01.04.2022

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/1359H
Address	: Lohardaga, Jharkhand-835302	Location	: Near Shakhupani Village
Plant Status	: Operational	Sampling Date	: 16/05/2022 to 17/05/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

### METEOROLOGICAL INFORMATION

1	Average Temperature (°C) : 28	2	Barometric Pressure (mmHg) : 741
3	Relative Humidity (%) : 69	4	Weather Condition : Clear

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	46
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	60 (24hrs)	15
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	<5.0
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	6.8
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004	1 (24hrs)	<0.002
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01:2021	6 (Annual)	<2.0

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### TEST REPORT

Test Report No. : ELES/RNC/2022/1351H	Report Release Date : 14.06.2022
Work Order No. : HIL/LHD/FY22-23/001	Work Order Date : 01.04.2022

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	$\mu\text{g}/\text{m}^3$	ASTM D3687:2007	05(Annual)	<2.0
Benzo (a) Pyrene*	$\text{ng}/\text{m}^3$	USEPA 8270 C to -13A	01(Annual)	0.22

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

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

Authorized Signatory

**SANDIP BERA**  
SENIOR MANAGER  
ELES PVT. LTD.

Page 2 of 2

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## TEST REPORT

Test Report No. : ELES/RNC/2022/1351L	Report Release Date : 14.06.2022
Work Order No. : HIL/LHD/FY22-23/001	Work Order Date : 01.04.2022

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/1359L
Address	: Lohardaga, Jharkhand-835302	Location	: Near Ambakana Pit / NKCP Camp; Gurdari Bauxite Mine
		Sampling Date	: 16/05/2022 to 17/05/2022
Plant Status	: Operational	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 29	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 71	4	Weather Condition	: Clear

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	59
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	60 (24hrs)	23
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	6.5
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	8.6
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	$\text{mg}/\text{m}^3$	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004	1 (24hrs)	0.018
Nickel (Ni)	$\text{ng}/\text{m}^3$	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	$\text{ng}/\text{m}^3$	ELES/AIR/SOP/01:2021	6 (Annual)	<2.0

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### TEST REPORT

Test Report No.	: ELES/RNC/2022/1351L	Report Release Date	: 14.06.2022
Work Order No.	: HIL/LHD/FY22-23/001	Work Order Date	: 01.04.2022

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	$\mu\text{g}/\text{m}^3$	ASTM D3687:2007	05(Annual)	<2.0
Benzo (a) Pyrene*	$\text{ng}/\text{m}^3$	USEPA 8270 C to -13A	01(Annual)	0.22

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

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

Authorized Signatory

**SANDIP BERA**  
SENIOR MANAGER  
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## TEST REPORT

Test Report No. : ELES/RNC/2022/1351K	Report Release Date : 14.06.2022
Work Order No. : HIL/LHD/FY22-23/001	Work Order Date : 01.04.2022

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/1359K
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Weigh Bridge Gurdari Bauxite Mine
Plant Status	: Operational	Sampling Date	: 16/05/2022 to 17/05/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

## METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 29	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 71	4	Weather Condition	: Clear
5	Longitude	: 84°14'40.25"N	6	Latitude	: 23°19'9.21"E

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	55
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	60 (24hrs)	22
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	5.2
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	9.7
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004	1 (24hrs)	0.009
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01:2021	6 (Annual)	2.7

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### TEST REPORT

Test Report No. : ELES/RNC/2022/1351K	Report Release Date : 14.06.2022
Work Order No. : HIL/LHD/FY22-23/001	Work Order Date : 01.04.2022

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	$\mu\text{g}/\text{m}^3$	ASTM D3687:2007	05(Annual)	<2.0
Benzo (a) Pyrene*	$\text{ng}/\text{m}^3$	USEPA 8270 C to -13A	01(Annual)	0.24

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

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

  
Authorized Signatory  
**SANDIP BERA**  
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## TEST REPORT

Test Report No. : ELES/RNC/2022/13551	Report Release Date : 14.06.2022
---------------------------------------	----------------------------------

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Date	: 17.05.2022
Address	: Lohardaga, Jharkhand-835203	Type of Sample	: Ambient Noise
Plant Status	: Operational	Sampling procedure	: ELES/DOC/SMPL/03
		Sample Drawn By	: ELES Pvt. Ltd.

Location	Unit	Test Protocol	Result		Regulatory Limit (Industrial Zone)
			Time	L <sub>eq</sub>	
Near Mine Office Amtipani Bauxite Mines	dB(A)	IS 9989:1981, RA 2020	Day Time	64	75 dB(A) Day Time & 70 dB(A) Night Time
Sample ID: ELES/RNC/2022/AN/13631			Night Time	47	

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

  
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CIN: U74999JH2018PTC011125

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### TEST REPORT

Test Report No. : ELES/RNC/2022/13561	Report Release Date : 14.06.2022
---------------------------------------	----------------------------------

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name :	Hindalco Industries Limited	Sampling Date :	17.05.2022
Address :	Lohardaga, Jharkhand-835302	Type of Sample :	Workzone Noise
Plant Status :	Operational	Sampling procedure :	ELES/DOC/SMPL/03
		Sample Drawn By :	ELES Pvt. Ltd.

Location	Unit	Test Protocol	Result		Regulatory Limit (Industrial Zone)
			Time	L <sub>eq</sub>	
Mines Near Quarry – 7A Antipani Bauxite Mines	dB(A)	IS 9989:1981, RA 2020	Day Time	72	75 dB(A) Day Time
Sample ID: ELES/RNC/2022/AN/1364I					

Authorized Signatory

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

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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2022/13591	Report Release Date : 14/06/2022
---------------------------------------	----------------------------------

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/DW/13671
Address	: Lohardaga, Jharkhand-835302	Location	: Drinking Water of Amtipani Camp (Amtipani Bauxite Mines)
Plant Status	: Operational	Sampling Date	: 17/05/2022
		Type of Sample	: Drinking Water
		Sampling Procedure	: ELES/DOC/SMPL/01
		Sample Condition	: Sealed & Preserved

Parameter	Unit	Test Protocol	Result	Regulatory Limit
				as per IS:10500:2012 Acceptable Limit
pH	-	APHA 23rd Edition 2017,4500-H+-B	6.8	6.5-8.5
Color	Hazen	IS 3025 (Part-04): 1983	<1.0	5
Odour	-	IS 3025 (Part-05): 1983	Agreeable	Agreeable
Taste	-	IS 3025 (Part-07): 1984	Agreeable	Agreeable
Turbidity	NTU	APHA 23rd Edition 2017,2130 B	0.12	1
Free Residual Chlorine	mg/L	IS 3025 (Part-26): 1986	<0.1	0.2
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part-16):1984	180	500
Monochloramines	mg/L	APHA 23rd Edition 2017, 4500 Cl-G	<1.0	4
Dichloramines	mg/L	APHA 23rd Edition 2017, 4500 Cl-G	<1.0	4
Total Hardness (as CaCO <sub>3</sub> )	mg/L	APHA 23rd Edition 2017, 2340 C	40.8	200
Total Alkalinity (as CaCO <sub>3</sub> )	mg/L	IS 3025 (Part-23):1986	30.2	200
Chloride (as Cl)	mg/L	IS 3025 (Part-32): 1988: RA 2014	5.4	250

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## TEST REPORT

Test Report No. : ELES/RNC/2022/13591	Report Release Date : 14/06/2022
---------------------------------------	----------------------------------

Parameter	Unit	Test Protocol	Result	Regulatory Limit
				as per IS:10500:2012 Acceptable Limit
Sulphate (as SO <sub>4</sub> )	mg/L	IS 3025 (Part-24):1986	3.7	200
Nitrate (as NO <sub>3</sub> )	mg/L	IS 3025 (Part-34): 1988	2.88	45
Fluoride (as F)	mg/L	APHA 23rd Edition 2017,4500-F--D	0.1487	1
Ammoniacal Nitrogen (as NH <sub>3</sub> -N)	mg/L	APHA 23rd Ed. 2017, 4500 Norg-C	<0.1	0.5
Cyanide (as CN)	mg/L	IS 3025 (Part-27): 1986	<0.0125	0.05
Phenolic Compounds (as C <sub>6</sub> H <sub>5</sub> OH)	mg/L	IS 3025 (Part-43): 1992	<0.00002	0.001
Sulphide (as S)	mg/L	IS 3025 (Part-29): 1986	<0.04	0.05
Boron (as B)	mg/L	APHA 23rd Edition, 3125 B	<0.2	0.5
Calcium (as Ca)	mg/L	APHA 23rd Edition 2017, 3500 B	12.4	75
Magnesium (as Mg)	mg/L	IS 3025 (Part-46):1994	2.39	30
Iron (as Fe)	mg/L	APHA 23rd Edition, 3111 B&C	0.192	1
Manganese (as Mn)	mg/L	APHA 23rd Edition, 3111 B&C	<0.05	0.1
Aluminum (as Al)	mg/L	APHA 23rd Edition, 3125 B	<0.02	0.03
Cadmium (as Cd)	mg/L	APHA 23rd Edition, 3111 B&C	<0.003	0.003
Total Chromium (as Cr)	mg/L	APHA 23rd Edition, 3111 B&C	<0.03	0.05
Copper (as Cu)	mg/L	APHA 23rd Edition, 3111 B&C	<0.03	0.05
Lead (as Pb)	mg/L	APHA 23rd Edition, 3111 B&C	<0.01	0.01
Zinc (as Zn)	mg/L	APHA 23rd Edition, 3111 B&C	<0.1	5

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# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
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## TEST REPORT

Test Report No.	: ELES/RNC/2022/13591	Report Release Date	: 14/06/2022
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Parameter	Unit	Test Protocol	Result	Regulatory Limit
				as per IS:10500:2012
				Acceptable Limit
Arsenic (as As)	mg/L	APHA 23rd Edition, 3111 B&C	<0.005	0.01
Selenium (as Se)	mg/L	APHA 23rd Edition, 3125 B	<0.01	0.01
Mercury (as Hg)	mg/L	IS 3025 (Part-48): 2000	<0.001	0.001
Nickel (as Ni)	mg/L	APHA 23rd Edition, 3111 B&C	<0.01	0.02
Mineral Oil*	mg/L	IS 3025 (Part-39): 1991	<0.01	0.5
Anionic Detergents (as MBAS)*	mg/L	Annex K of IS 13428:2005	<0.05	0.2
Polynuclear Aromatic Hydrocarbons (PAHs)*	mg/L	SO-IN-MUL-TE-023	<0.00005	0.0001
Polychlorinated Biphenyls (PCBs)*	mg/L	SO-IN-MUL-TE-022	<0.00005	0.0005
Total Coliforms	MPN/ 100ml	IS 15185:2016	Not Detected	Should Not Detected
Escheria Coli	MPN/ 100ml	IS 15185:2016	Not Detected	Should Not Detected
<b>Pesticides</b>				
Alachlor*	µg/L	SO-IN-MUL-TE-020	<0.01	20
Atrazine*	µg/L	SO-IN-MUL-TE-020	<0.01	2
Aldrin/ Dieldrin*	µg/L	SO-IN-MUL-TE-020	<0.01	0.03
Alpha HCH*	µg/L	SO-IN-MUL-TE-020	<0.01	0.01
Beta HCH*	µg/L	SO-IN-MUL-TE-020	<0.01	0.04
Butachlor*	µg/L	SO-IN-MUL-TE-020	<0.01	125



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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2022/13591 Report Release Date : 14/06/2022

Parameter	Unit	Test Protocol	Result	Regulatory Limit
				as per IS:10500:2012 Acceptable Limit
Chlorpyriphos*	µg/L	SO-IN-MUL-TE-020	<0.01	30
Delta HCH*	µg/L	SO-IN-MUL-TE-020	<0.01	0.04
2,4- Dichlorophenoxyacetic acid*	µg/L	SO-IN-MUL-TE-020	<0.01	30
DDT (o, p and p, p – Isomers of DDT)*	µg/L	SO-IN-MUL-TE-020	<0.01	1
Endosulfan (alpha, beta, and sulphate)*	µg/L	SO-IN-MUL-TE-020	<0.01	0.4
Ethion*	µg/L	SO-IN-MUL-TE-020	<0.01	3
Gamma — HCH (Lindane)*	µg/L	SO-IN-MUL-TE-020	<0.01	2
Isoproturon*	µg/L	SO-IN-MUL-TE-020	<0.01	9
Malathion*	µg/L	SO-IN-MUL-TE-020	<0.01	190
Methyl parathion*	µg/L	SO-IN-MUL-TE-020	<0.01	0.3
Monocrotophos*	µg/L	SO-IN-MUL-TE-020	<0.01	1
Phorate*	µg/L	SO-IN-MUL-TE-020	<0.01	2
DDE (o, p and p, p – Isomers of DDE)*	µg/L	SO-IN-MUL-TE-020	<0.01	1
DDD (o, p and p, p – Isomers of DDD)*	µg/L	SO-IN-MUL-TE-020	<0.01	1

Remarks: (\*) All the parameters are outsourced to other Lab.

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

Authorized Signatory  
**SANDIP BERA**  
SENIOR MANAGER

Page 4 of 4

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

**Amtipani Bauxite Mine-Environmental Monitoring Report**

**June 2022**



## CONTENT

Hindaleo Industries : Amtipani Bauxite Mine		Environmental Monitoring Report	June 2022
<b>Amtipani Bauxite Mine</b>			
<b>AMBIENT AIR QUALITY- CORE ZONE</b>			
1	Mine Entrance Gate		
2	Near Mine Office/WB		
3	Mines Near Quarry - 1C		
4	Mines Near Quarry - 7A		
<b>AMBIENT AIR QUALITY- BUFFER ZONE</b>			
1	Near Pakri Gada Village		
2	Near Pol Pol Village		
3	Near Shakhuapani Village		
4	Near Dipa Kujam Village		
<b>SPRING WATER</b>			







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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No.	: ELES/RNC/2022/1609Q	Report Release Date	: 15.07.2022
Work Order No.	: HIL/LHD/FY22-23/001	Work Order Date	: 01.04.2022

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/1793Q
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Entrance Gate Amtipani Bauxite Mine
Plant Status	: Operational	Sampling Date	: 14/06/2022 to 15/06/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

## METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 26	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 68	4	Weather Condition	: Clear
5	Longitude	: 84°15'16.28"E	6	Latitude	: 23°20'42.71"N

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	42
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	60 (24hrs)	22
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	<5.0
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	9.2
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004	1 (24hrs)	0.002
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01:2021	6 (Annual)	<2.0

Page 1 of 2

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### TEST REPORT

Test Report No. : ELES/RNC/2022/1609Q	Report Release Date : 15.07.2022
Work Order No. : HIL/LHD/FY22-23/001	Work Order Date : 01.04.2022

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	$\mu\text{g}/\text{m}^3$	ASTM D3687:2007	05(Annual)	<2.0
Benzo (a) Pyrene*	$\text{ng}/\text{m}^3$	USEPA 8270 C to -13A	01(Annual)	0.22

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

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

  
Authorized Signatory  
**SANDIP BERA**  
SENIOR MANAGER  
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## TEST REPORT

Test Report No. : ELES/RNC/2022/1609R	Report Release Date : 15.07.2022
Work Order No. : HIL/LHD/FY22-23/001	Work Order Date : 01.04.2022

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/1793R
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Office/WB Amtipani Bauxite Mine
Plant Status	: Operational	Sampling Date	: 14/06/2022 to 15/06/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

## METEOROLOGICAL INFORMATION

1	Average Temperature (°C) : 26	2	Barometric Pressure (mmHg) : 741
3	Relative Humidity (%) : 68	4	Weather Condition : Clear
5	Longitude : 84°15'29.19"E	6	Latitude : 23°20'36.64"N

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	45
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	60 (24hrs)	21
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	<5.0
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	7.6
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004	1 (24hrs)	<0.002
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01:2021	6 (Annual)	<2.0

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### TEST REPORT

Test Report No. : ELES/RNC/2022/1609R	Report Release Date : 15.07.2022
Work Order No. : HIL/LHD/FY22-23/001	Work Order Date : 01.04.2022

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	$\mu\text{g}/\text{m}^3$	ASTM D3687:2007	05(Annual)	<2.0
Benzo (a) Pyrene*	$\text{ng}/\text{m}^3$	USEPA 8270 C to -13A	01(Annual)	<0.20

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

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

  
Authorized Signatory  
**SANDIP BERA**  
SENIOR MANAGER  
ELES PVT. LTD.

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## TEST REPORT

Test Report No. : ELES/RNC/2022/1609S	Report Release Date : 15.07.2022
Work Order No. : HIL/LHD/FY22-23/001	Work Order Date : 01.04.2022

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/1793S
Address	: Lohardaga, Jharkhand-835302	Location	: Mines Near Quarry - 1C Amtipani Bauxite Mine
Plant Status	: Operational	Sampling Date	: 14/06/2022 to 15/06/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

## METEOROLOGICAL INFORMATION

1	Average Temperature (°C) : 26	2	Barometric Pressure (mmHg) : 741
3	Relative Humidity (%) : 68	4	Weather Condition : Clear

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	55
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	60 (24hrs)	25
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	<5.0
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	8.2
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	$\text{mg}/\text{m}^3$	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004	1 (24hrs)	0.008
Nickel (Ni)	$\text{ng}/\text{m}^3$	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	$\text{ng}/\text{m}^3$	ELES/AIR/SOP/01:2021	6 (Annual)	2.5



CIN: U74999JH2018PTC011125

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### TEST REPORT

Test Report No. : ELES/RNC/2022/1609S	Report Release Date : 15.07.2022
Work Order No. : HIL/LHD/FY22-23/001	Work Order Date : 01.04.2022

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	$\mu\text{g}/\text{m}^3$	ASTM D3687-2007	05(Annual)	<2.0
Benzo (a) Pyrene*	$\text{ng}/\text{m}^3$	USEPA 8270 C to -13A	01(Annual)	0.23

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

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

  
Authorized Signatory  
**SANDIP BERA**  
SENIOR MANAGER  
ELES PVT. LTD.

Page 2 of 2

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# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
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## TEST REPORT

Test Report No. : ELES/RNC/2022/1609T	Report Release Date : 15.07.2022
Work Order No. : HIL/LHD/FY22-23/001	Work Order Date : 01.04.2022

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/1793T
Address	: Lohardaga, Jharkhand-835302	Location	: Mines Near Quarry - 7A Amtipani Bauxite Mine
Plant Status	: Operational	Sampling Date	: 14/06/2022 to 15/06/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

## METEOROLOGICAL INFORMATION

1	Average Temperature (°C) : 26	2	Barometric Pressure (mmHg) : 741
3	Relative Humidity (%) : 68	4	Weather Condition : Clear

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	51
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	60 (24hrs)	20
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	<5.0
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	11.0
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	$\text{mg}/\text{m}^3$	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004	1 (24hrs)	0.010
Nickel (Ni)	$\text{ng}/\text{m}^3$	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	$\text{ng}/\text{m}^3$	ELES/AIR/SOP/01:2021	6 (Annual)	2.2

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## ENVIRONMENTAL LABORATORIES &

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### TEST REPORT

Test Report No. : ELES/RNC/2022/1609T	Report Release Date : 15.07.2022
Work Order No. : HIL/LHD/FY22-23/001	Work Order Date : 01.04.2022

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	$\mu\text{g}/\text{m}^3$	ASTM D3687:2007	05(Annual)	2.4
Benzo (a) Pyrene*	$\text{ng}/\text{m}^3$	USEPA 8270 C to -13A	01(Annual)	<0.20

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

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

  
Authorized Signatory  
**SANDIP BERA**  
SENIOR MANAGER  
ELES PVT. LTD.

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# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
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## TEST REPORT

Test Report No.	: ELES/RNC/2022/1609E	Report Release Date	: 15.07.2022
Work Order No.	: HIL/LHD/FY22-23/001	Work Order Date	: 01.04.2022

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/1793E
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pakri Gada Village
Plant Status	: Operational	Sampling Date	: 14/06/2022 to 15/06/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

## METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 26	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 68	4	Weather Condition	: Clear
5	Longitude	: 84°14'52.25"N	6	Latitude	: 23°17'41.21"E

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	47
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	60 (24hrs)	23
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	<5.0
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	7.2
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004	1 (24hrs)	0.006
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01:2021	6 (Annual)	<2.0

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CIN: U74599/JH2018PTC011225

## ENVIRONMENTAL LABORATORIES &

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### TEST REPORT

Test Report No. : ELES/RNC/2022/1609E	Report Release Date : 15.07.2022
Work Order No. : HIL/LHD/FY22-23/001	Work Order Date : 01.04.2022

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	$\mu\text{g}/\text{m}^3$	ASTM D3687:2007	05(Annual)	<2.0
Benzo (a) Pyrene*	$\text{ng}/\text{m}^3$	USEPA 8270 C to -13A	01(Annual)	0.22

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

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Authorized Signatory  
**SANDIP BERA**  
SENIOR MANAGER  
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CIN: U74998JH0218PTC021125

## TEST REPORT

Test Report No.	: ELES/RNC/2022/1609F	Report Release Date	: 15.07.2022
Work Order No.	: HIL/LHD/FY22-23/001	Work Order Date	: 01.04.2022

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/1793F
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pol Pol Village
Plant Status	: Operational	Sampling Date	: 14/06/2022 to 15/06/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 26	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 68	4	Weather Condition	: Clear

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	41
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	60 (24hrs)	23
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	<5.0
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	7.1
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004	1 (24hrs)	0.007
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01:2021	6 (Annual)	<2.0

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CIN: U74999JH2018PTC011125

## ENVIRONMENTAL LABORATORIES &

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### TEST REPORT

Test Report No. : ELES/RNC/2022/1609F	Report Release Date : 15.07.2022
Work Order No. : HIL/LHD/FY22-23/001	Work Order Date : 01.04.2022

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	$\mu\text{g}/\text{m}^3$	ASTM D3687:2007	05(Annual)	<2.0
Benzo (a) Pyrene*	$\text{ng}/\text{m}^3$	USEPA 8270 C to -13A	01(Annual)	<0.20

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

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

Authorized Signatory

**SANDIP BERA**  
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# ENVIRONMENTAL LABORATORIES &

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## TEST REPORT

Test Report No.	: ELES/RNC/2022/1609G	Report Release Date	: 15.07.2022
Work Order No.	: HIL/LHD/FY22-23/001	Work Order Date	: 01.04.2022

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/1793G
Address	: Lohardaga, Jharkhand-835302	Location	: Near Dipa Kujam Village
Plant Status	: Operational	Sampling Date	: 13/06/2022 to 14/06/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

## METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 26	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 71	4	Weather Condition	: Clear

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	49
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	60 (24hrs)	26
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	<5.0
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	7.2
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	$\text{mg}/\text{m}^3$	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004	1 (24hrs)	<0.002
Nickel (Ni)	$\text{ng}/\text{m}^3$	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	$\text{ng}/\text{m}^3$	ELES/AIR/SOP/01:2021	6 (Annual)	<2.0

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CIN: U74999/JH018PTC011125

## ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
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### TEST REPORT

Test Report No.	: ELES/RNC/2022/1609G	Report Release Date	: 15.07.2022
Work Order No.	: HIL/LHD/FY22-23/001	Work Order Date	: 01.04.2022

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	$\mu\text{g}/\text{m}^3$	ASTM D3687:2007	05(Annual)	<2.0
Benzo (a) Pyrene*	$\text{ng}/\text{m}^3$	USEPA 8270 C to -13A	01(Annual)	<0.20

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

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

  
Authorized Signatory  
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# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
HATIA, RANCHI-834003 (JHARKHAND)  
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CIN: U74999JH2018PTC011325

## TEST REPORT

Test Report No.	: ELES/RNC/2022/1609H	Report Release Date	: 15.07.2022
Work Order No.	: HIL/LHD/FY22-23/001	Work Order Date	: 01.04.2022

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/1793H
Address	: Lohardaga, Jharkhand-835302	Location	: Near Shakhupani Village
Plant Status	: Operational	Sampling Date	: 14/06/2022 to 15/06/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

## METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 26	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 68	4	Weather Condition	: Clear

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	45
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-24): 2019	60 (24hrs)	23
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	<5.0
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	9.0
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	$\text{mg}/\text{m}^3$	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004	1 (24hrs)	<0.002
Nickel (Ni)	$\text{ng}/\text{m}^3$	IS 5182 (Part-26): 2020	20 (Annual)	<6.0
Arsenic (As)	$\text{ng}/\text{m}^3$	ELES/AIR/SOP/01:2021	6 (Annual)	<2.0

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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2022/1609H	Report Release Date : 15.07.2022
Work Order No. : HIL/LHD/FY22-23/001	Work Order Date : 01.04.2022

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	$\mu\text{g}/\text{m}^3$	ASTM D3687:2007	05(Annual)	<2.0
Benzo (a) Pyrene*	$\text{ng}/\text{m}^3$	USEPA 8270 C to -13A	01(Annual)	<0.20

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

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

  
Authorized Signatory  
**SANDIP BERA**  
SENIOR MANAGER  
ELES PVT. LTD.

### Page 2 of 2

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## TEST REPORT

Test Report No. : ELES/RNC/2022/1629E	Report Release Date : 15/07/2022
---------------------------------------	----------------------------------

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/SW/1800E
Address	: Lohardaga, Jharkhand-835302	Location	: Spring Water - Amtipani Bauxite Mines
Plant Status	: Operational	Sampling Date	: 15/06/2022
		Type of Sample	: Surface Water
		Sampling Procedure	: ELES/DOC/SMPL/01
		Sample Condition	: Sealed & Preserved

Parameter	Unit	Test Protocol	Result	As per CPCB & IS2296:1982 (Class-C)
				Tolerance Limit
pH	-	APHA 23rd Edition 2017,4500-H+-B	7.0	6.5-8.5
Color	Hazen	IS 3025 (Part-04): 1983	3	300
Odour	-	IS 3025 (Part-05): 1983	Unobjectionable	Unobjectionable
Turbidity	NTU	APHA 23rd Edition 2017,2130 B	0.15	--
Free Residual Chlorine	mg/L	IS 3025 (Part-26): 1986	<0.1	--
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part-16):1984	832	1500
Total Hardness (as CaCO <sub>3</sub> )	mg/L	APHA 23rd Edition 2017, 2340 C	253	--
Total Alkalinity (as CaCO <sub>3</sub> )	mg/L	IS 3025 (Part-23):1986	212	--
Chloride (as Cl)	mg/L	IS 3025 (Part-32): 1988; RA 2014	38.5	600
Sulphate (as SO <sub>4</sub> )	mg/L	IS 3025 (Part-24):1986	41.9	400
Fluoride (as F)	mg/L	APHA 23rd Edition 2017,4500-F-D	0.1282	1.5
Cyanide (as CN)	mg/L	IS 3025 (Part-27): 1986	<0.0125	0.05



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### TEST REPORT

Test Report No. : ELES/RNC/2022/1629E Report Release Date : 15/07/2022

Parameter	Unit	Test Protocol	Result	As per CPCB & IS2296:1982 (Class-C)
				Tolerance Limit
Boron (as B)	mg/L	APHA 23rd Edition, 3125 B	<0.2	--
Calcium (as Ca)	mg/L	APHA 23rd Edition 2017, 3500 B	68.5	--
Magnesium (as Mg)	mg/L	IS 3025 (Part-46):1994	19.9	--
Iron (as Fe)	mg/L	APHA 23rd Edition, 3111 B&C	0.466	50
Manganese (as Mn)	mg/L	APHA 23rd Edition, 3111 B&C	<0.05	--
Cadmium (as Cd)	mg/L	APHA 23rd Edition, 3111 B&C	<0.003	0.01
Total Chromium (as Cr)	mg/L	APHA 23rd Edition, 3111 B&C	<0.03	0.05
Copper (as Cu)	mg/L	APHA 23rd Edition, 3111 B&C	<0.03	1.5
Lead (as Pb)	mg/L	APHA 23rd Edition, 3111 B&C	<0.01	0.1
Zinc (as Zn)	mg/L	APHA 23rd Edition, 3111 B&C	0.362	15
Arsenic (as As)	mg/L	APHA 23rd Edition, 3111 B&C	<0.005	0.2
Selenium (as Se)	mg/L	APHA 23rd Edition, 3125 B	<0.01	0.05
Mercury (as Hg)	mg/L	IS 3025 (Part-48): 2000	<0.001	--
Dissolved Oxygen (DO)	mg/L	IS 3025 (Part-38) : 2014	7.3	4.0 (Minimum)

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

  
Authorized Signatory  
**SANDIP BERA**  
SENIOR MANAGER  
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Plot No.30, Mansarovar Enclave, Tupudana,Hatia,Ranchi-834003,  
Jharkhand.

**Amtipani Bauxite Mine-Environmental Monitoring Report**

**July 2022**



## CONTENT

Hindalco Industries : Amtipani Bauxite Mine		Environmental Monitoring Report	July 2022
<b>Amtipani Bauxite Mine</b>			
<b>AMBIENT AIR QUALITY- CORE ZONE</b>			
1	Mine Entrance Gate		
2	Near Mine Office/WB		
3	Mines Near Quarry - 1C		
4	Mines Near Quarry - 7A		
<b>AMBIENT AIR QUALITY- BUFFER ZONE</b>			
1	Near Pakri Gada Village		
2	Near Pol Pol Village		
3	Near Shakhuapani Village		
4	Near Dipa Kujam Village		





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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No.	: ELES/RNC/2022/1769Q	Report Release Date	: 18.08.2022
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CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/5201Q
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Entrance Gate Amtipani Bauxite Mine (190.95 ha)
Plant Status	: Operational	Sampling Date	: 04/07/2022 to 05/07/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 26	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 70	4	Weather Condition	: Clear
5	Longitude	: 84°15'16.28"E	6	Latitude	: 23°20'42.71"N

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	36
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part-24): 2019	60 (24hrs)	16
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	<5.0
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	7.2
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004	1 (24hrs)	<0.002
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01:2021	6 (Annual)	<2.0

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## TEST REPORT

Test Report No.	: ELES/RNC/2022/1769R	Report Release Date	: 18.08.2022
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CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/5201R
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Office/WB Amtipani Bauxite Mine (190.95 ha)
Plant Status	: Operational	Sampling Date	: 04/07/2022 to 05/07/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 26	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 70	4	Weather Condition	: Clear
5	Longitude	: 84°15'29.19"E	6	Latitude	: 23°20'36.64"N

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	36
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	60 (24hrs)	13
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	<5.0
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	6.2
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004	1 (24hrs)	<0.002
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01:2021	6 (Annual)	<2.0

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### TEST REPORT

Test Report No. : ELES/RNC/2022/1769R Report Release Date : 18.08.2022

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	$\mu\text{g}/\text{m}^3$	ASTM D3687:2007	05(Annual)	<2.0
Benzo (a) Pyrene*	$\text{ng}/\text{m}^3$	USEPA 8270 C to -13A	01(Annual)	<0.20

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

Authorized Signatory

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

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

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## TEST REPORT

Test Report No.	: ELES/RNC/2022/1769S	Report Release Date	: 18.08.2022
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CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/5201S
Address	: Lohardaga, Jharkhand-835302	Location	: Mines Near Quarry - 1C Amtipani Bauxite Mine (190.95 ha)
Plant Status	: Operational	Sampling Date	: 04/07/2022 to 05/07/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 26	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 70	4	Weather Condition	: Clear

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	50
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	60 (24hrs)	22
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	5.2
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	7.9
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004	1 (24hrs)	0.005
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01:2021	6 (Annual)	2.4

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### TEST REPORT

Test Report No. : ELES/RNC/2022/1769S Report Release Date : 18.08.2022

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	$\mu\text{g}/\text{m}^3$	ASTM D3687:2007	05(Annual)	<2.0
Benzo (a) Pyrene*	$\text{ng}/\text{m}^3$	USEPA 8270 C to -13A	01(Annual)	<0.20

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/2022/1769T	Report Release Date : 18.08.2022
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CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/5201T
Address	: Lohardaga, Jharkhand-835302	Location	: Mines Near Quarry - 7A Amtipani Bauxite Mine (190.95 ha)
Plant Status	: Operational	Sampling Date	: 04/07/2022 to 05/07/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

### METEOROLOGICAL INFORMATION

1	Average Temperature (°C) : 26	2	Barometric Pressure (mmHg) : 741
3	Relative Humidity (%) : 70	4	Weather Condition : Clear

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	43
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	60 (24hrs)	15
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	<5.0
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	8.3
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004	1 (24hrs)	0.005
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01:2021	6 (Annual)	2.6

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## TEST REPORT

Test Report No.	: ELES/RNC/2022/1769T	Report Release Date	: 18.08.2022
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Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	$\mu\text{g}/\text{m}^3$	ASTM D3687:2007	05(Annual)	<2.0
Benzo (a) Pyrene*	$\text{ng}/\text{m}^3$	USEPA 8270 C to -13A	01(Annual)	<0.20

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

Authorized Signatory

Dr. Deependra Kumar Sinha  
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CIN: U74959JH2019PTC011125

## TEST REPORT

Test Report No.	: ELES/RNC/2022/1769E	Report Release Date	: 18.08.2022
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CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/5201E
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pakri Gada Village
Plant Status	: Operational	Sampling Date	: 04/07/2022 to 05/07/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 27	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 72	4	Weather Condition	: Clear
5	Longitude	: 84°14'52.25"N	6	Latitude	: 23°17'41.21"E

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	45
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	60 (24hrs)	27
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	6.6
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	7.8
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004	1 (24hrs)	0.004
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01:2021	6 (Annual)	<2.0

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CIN: U74950JH2013PTC011125

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### TEST REPORT

Test Report No. : ELES/RNC/2022/1769E	Report Release Date : 18.08.2022
---------------------------------------	----------------------------------

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 11): 2004	05(Annual)	2.3
Benzo (a) Pyrene*	$\text{ng}/\text{m}^3$	IS 5182 (Part- 12): 2006	01(Annual)	<0.20

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: U74998JH0218PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2022/1769F	Report Release Date : 18.08.2022
---------------------------------------	----------------------------------

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/5201F
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pol Pol Village
Plant Status	: Operational	Sampling Date	: 04/07/2022 to 05/07/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

## METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 27	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 72	4	Weather Condition	: Clear

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	42
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	60 (24hrs)	25
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	<5.0
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	7.4
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004	1 (24hrs)	0.004
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01:2021	6 (Annual)	<2.0

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### TEST REPORT

Test Report No. : ELES/RNC/2022/1769F	Report Release Date : 18.08.2022
---------------------------------------	----------------------------------

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 11): 2004	05(Annual)	<2.0
Benzo (a) Pyrene*	$\text{ng}/\text{m}^3$	IS 5182 (Part- 12): 2006	01(Annual)	<0.20

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

Authorized Signatory

Dr. Deependra Kumar Sinha  
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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2022/1769G	Report Release Date : 18.08.2022
---------------------------------------	----------------------------------

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/5201G
Address	: Lohardaga, Jharkhand-835302	Location	: Near Dipa Kujan Village
Plant Status	: Operational	Sampling Date	: 05/07/2022 to 06/07/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

## METEOROLOGICAL INFORMATION

1	Average Temperature (°C) : 27	2	Barometric Pressure (mmHg) : 741
3	Relative Humidity (%) : 70	4	Weather Condition : Clear

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	44
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	60 (24hrs)	21
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	<5.0
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	8.8
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	$\text{mg}/\text{m}^3$	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004	1 (24hrs)	0.004
Nickel (Ni)	$\text{ng}/\text{m}^3$	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	$\text{ng}/\text{m}^3$	ELES/AIR/SOP/01:2021	6 (Annual)	<2.0





CIN: U74999JH2018PTC011125

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### TEST REPORT

Test Report No. : ELES/RNC/2022/1769G Report Release Date : 18.08.2022

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 11): 2004	05(Annual)	<2.0
Benzo (a) Pyrene*	$\text{ng}/\text{m}^3$	IS 5182 (Part- 12): 2006	01(Annual)	<0.20

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

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

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

Page 2 of 2

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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2022/1769H	Report Release Date : 18.08.2022
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CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/5201H
Address	: Lohardaga, Jharkhand-835302	Location	: Near Shakhuapani Village
Plant Status	: Operational	Sampling Date	: 04/07/2022 to 05/07/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

## METEOROLOGICAL INFORMATION

1	Average Temperature (°C) : 27	2	Barometric Pressure (mmHg) : 741
3	Relative Humidity (%) : 72	4	Weather Condition : Clear

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	46
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	60 (24hrs)	20
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	<5.0
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	7.4
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	$\text{mg}/\text{m}^3$	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	1 (24hrs)	0.003
Nickel (Ni)	$\text{ng}/\text{m}^3$	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	$\text{ng}/\text{m}^3$	ELES/AIR/SOP/01:2021	6 (Annual)	<2.0

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CIN: U74999JH2018PTC011125

### TEST REPORT

Test Report No.	: ELES/RNC/2022/1769H	Report Release Date	: 18.08.2022
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Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 11): 2004	05(Annual)	2.2
Benzo (a) Pyrene*	$\text{ng}/\text{m}^3$	IS 5182 (Part- 12): 2006	01(Annual)	<0.20

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

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

Authorized Signatory

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

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

**Amtipani (190.95 ha) Bauxite Mine-Environmental Monitoring Report**

**August 2022**



## CONTENT

Hindalco Industries : Amtipani (190.95 ha) Bauxite Mine August 2022		Environmental Monitoring Report
<b>Amtipani(190.95ha) Bauxite Mine</b>		
<b>AMBIENT AIR QUALITY- CORE ZONE</b>		
1	Mine Entrance Gate	
2	Near Mine Office/WB	
3	Mines Near Quarry - 1C	
4	Mines Near Quarry - 7A	
<b>AMBIENT AIR QUALITY- BUFFER ZONE</b>		
1	Near Pakri Gada Village	
2	Near Pol Pol Village	
3	Near Shakhuapani Village	
4	Near Dipa Kujam Village	





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## TEST REPORT

Test Report No. : ELES/RNC/2022/1889Q	Report Release Date : 16.09.2022
---------------------------------------	----------------------------------

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/3187Q
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Entrance Gate Amtipani Bauxite Mine (190.95 ha)
Plant Status	: Operational	Sampling Date	: 17/08/2022 to 18/08/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 68	4	Weather Condition	: Clear
5	Longitude	: 84°15'16.28"E	6	Latitude	: 23°20'42.71"N

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	33
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	60 (24hrs)	17
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	<5.0
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	7.7
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004	1 (24hrs)	<0.002
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01:2021	6 (Annual)	<2.0

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## TEST REPORT

Test Report No. : ELES/RNC/2022/1889Q Report Release Date : 16.09.2022

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	$\mu\text{g}/\text{m}^3$	ASTM D3687:2007	05(Annual)	<2.0
Benzo (a) Pyrene*	$\text{ng}/\text{m}^3$	USEPA 8270 C to -13A	01(Annual)	<0.20

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

Authorized Signatory

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

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

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## TEST REPORT

Test Report No. : ELES/RNC/2022/1889R	Report Release Date : 16.09.2022
---------------------------------------	----------------------------------

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/3187R
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Office/WB Amtipani Bauxite Mine (190.95 ha)
Plant Status	: Operational	Sampling Date	: 17/08/2022 to 18/08/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 68	4	Weather Condition	: Clear
5	Longitude	: 84°15'29.19"E	6	Latitude	: 23°20'36.64"N

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	35
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	60 (24hrs)	18
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	<5.0
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	6.7
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004	1 (24hrs)	<0.002
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01:2021	6 (Annual)	<2.0

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### TEST REPORT

Test Report No. : ELES/RNC/2022/1889R	Report Release Date : 16.09.2022
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Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	$\mu\text{g}/\text{m}^3$	ASTM D3687:2007	05(Annual)	<2.0
Benzo (a) Pyrene*	$\text{ng}/\text{m}^3$	USEPA 8270 C to -13A	01(Annual)	<0.20

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

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

Authorized Signatory

Dr. Deependra Kumar Sinha  
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## TEST REPORT

Test Report No. : ELES/RNC/2022/1889S	Report Release Date : 16.09.2022
---------------------------------------	----------------------------------

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/3187S
Address	: Lohardaga, Jharkhand-835302	Location	: Mines Near Quarry - 1C Antipani Bauxite Mine (190.95 ha)
Plant Status	: Operational	Sampling Date	: 17/08/2022 to 18/08/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 68	4	Weather Condition	: Clear

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	40
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	60 (24hrs)	21
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	5.4
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	8.1
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004	1 (24hrs)	0.006
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01:2021	6 (Annual)	<2.0

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### TEST REPORT

Test Report No. : ELES/RNC/2022/1889S	Report Release Date : 16.09.2022
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Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	$\mu\text{g}/\text{m}^3$	ASTM D3687:2007	05(Annual)	<2.0
Benzo (a) Pyrene*	$\text{ng}/\text{m}^3$	USEPA 8270 C to -13A	01(Annual)	<0.20

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

Authorized Signatory

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

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

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## TEST REPORT

Test Report No. : ELES/RNC/2022/1889T	Report Release Date : 16.09.2022
---------------------------------------	----------------------------------

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/3187T
Address	: Lohardaga, Jharkhand-835302	Location	: Mines Near Quarry - 7A Amtipani Bauxite Mine (190.95 ha)
Plant Status	: Operational	Sampling Date	: 17/08/2022 to 18/08/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 68	4	Weather Condition	: Clear

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	45
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	60 (24hrs)	19
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	5.8
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	6.9
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004	1 (24hrs)	0.004
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01:2021	6 (Annual)	2.1

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### TEST REPORT

Test Report No. : ELES/RNC/2022/1889T	Report Release Date : 16.09.2022
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Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	$\mu\text{g}/\text{m}^3$	ASTM D3687:2007	05(Annual)	<2.0
Benzo (a) Pyrene*	$\text{ng}/\text{m}^3$	USEPA 8270 C to -13A	01(Annual)	<0.20

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

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

*Authorized Signatory*  
Dr. Deependra Kumar Sinha  
Ph. D. Environmental Engg.  
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CIN: U74999JH2018PTC011225

## TEST REPORT

Test Report No.	: ELES/RNC/2022/1889H	Report Release Date	: 16.09.2022
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CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/3187H
Address	: Lohardaga, Jharkhand-835302	Location	: Near Shakhuapani Village
Plant Status	: Operational	Sampling Date	: 15/08/2022 to 16/08/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 68	4	Weather Condition	: Clear

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	40
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	60 (24hrs)	22
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	<5.0
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	8.0
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	$\text{mg}/\text{m}^3$	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	1 (24hrs)	<0.002
Nickel (Ni)	$\text{ng}/\text{m}^3$	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	$\text{ng}/\text{m}^3$	ELES/AIR/SOP/01:2021	6 (Annual)	<2.0

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### TEST REPORT

Test Report No. : ELES/RNC/2022/1889H Report Release Date : 16.09.2022

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 11): 2004	05(Annual)	<2.0
Benzo (a) Pyrene*	$\text{ng}/\text{m}^3$	IS 5182 (Part- 12): 2006	01(Annual)	<0.20

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

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/2022/1889E	Report Release Date : 16.09.2022
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CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/3187E
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pakri Gada Village
Plant Status	: Operational	Sampling Date	: 15/08/2022 to 16/08/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 68	4	Weather Condition	: Clear
5	Longitude	: 84°14'52.25"N	6	Latitude	: 23°17'41.21"E

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	44
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	60 (24hrs)	20
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	<5.0
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	8.8
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004	1 (24hrs)	<0.002
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01:2021	6 (Annual)	<2.0

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CHN-074993042018PTC01125

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### TEST REPORT

Test Report No. : ELES/RNC/2022/1889E	Report Release Date : 16.09.2022
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Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 11): 2004	05(Annual)	<2.0
Benzo (a) Pyrene*	$\text{ng}/\text{m}^3$	IS 5182 (Part- 12): 2006	01(Annual)	<0.20

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

Authorized Signatory

Dr. Deependra Kumar Sinha  
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### TEST REPORT

Test Report No.	: ELES/RNC/2022/1889F	Report Release Date	: 16.09.2022
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CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/3187F
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pol Pol Village
Plant Status	: Operational	Sampling Date	: 15/08/2022 to 16/08/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 68	4	Weather Condition	: Clear

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	37
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	60 (24hrs)	14
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	<5.0
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	6.3
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004	1 (24hrs)	<0.002
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01:2021	6 (Annual)	<2.0

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CIN: U74999JH2018PTC011125

## ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
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### TEST REPORT

Test Report No. : ELES/RNC/2022/1889F Report Release Date : 16.09.2022

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 11): 2004	05(Annual)	<2.0
Benzo (a) Pyrene*	$\text{ng}/\text{m}^3$	IS 5182 (Part- 12): 2006	01(Annual)	<0.20

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

Authorized Signatory

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

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

Page 2 of 2

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## ENVIRONMENTAL LABORATORIES &

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CIN: U74933JH2018PTC011125

### TEST REPORT

Test Report No.	: ELES/RNC/2022/1889G	Report Release Date	: 16.09.2022
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CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/3187G
Address	: Lohardaga, Jharkhand-835302	Location	: Near Dipa Kujam Village
Plant Status	: Operational	Sampling Date	: 15/08/2022 to 16/08/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 68	4	Weather Condition	: Clear

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	39
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	60 (24hrs)	15
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	<5.0
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	7.8
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	$\text{mg}/\text{m}^3$	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004	1 (24hrs)	<0.002
Nickel (Ni)	$\text{ng}/\text{m}^3$	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	$\text{ng}/\text{m}^3$	ELES/AIR/SOP/01:2021	6 (Annual)	<2.0

#### Page 1 of 2

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CIN: U74999JH2018PTC011125

### TEST REPORT

Test Report No. : ELES/RNC/2022/1889G	Report Release Date : 16.09.2022
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Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 11): 2004	05(Annual)	<2.0
Benzo (a) Pyrene*	$\text{ng}/\text{m}^3$	IS 5182 (Part- 12): 2006	01(Annual)	<0.20

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

Authorized Signatory

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

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

Page 2 of 2

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

**Antipani Bauxite Mine-Environmental Monitoring Report**

**September 2022**



## CONTENT

Hindalco Industries : Amtipani Bauxite Mine		Environmental Monitoring Report	September 2022
<b>Amtipani Bauxite Mine</b>			
<b>AMBIENT AIR QUALITY- CORE ZONE</b>			
1	Mine Entrance Gate		
2	Near Mine Office/WB		
3	Mines Near Quarry - 1C		
4	Mines Near Quarry - 7A		
<b>AMBIENT AIR QUALITY- BUFFER ZONE</b>			
1	Near Pakri Gada Village		
2	Near Pol Pol Village		
3	Near Shakhuapani Village		
4	Near Dipa Kujam Village		
<b>DRINKING WATER ANALYSIS</b>			





# ENVIRONMENTAL LABORATORIES &

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## TEST REPORT

Test Report No. : ELES/RNC/2022/2304	Report Release Date : 11.11.2022
--------------------------------------	----------------------------------

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/3309
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Entrance Gate Amtipani Bauxite Mine (190.95 ha)
Plant Status	: Operational	Sampling Date	: 07/09/2022 to 08/09/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

## METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 24	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 65	4	Weather Condition	: Clear
5	Longitude	: 84°15'16.28"E	6	Latitude	: 23°20'42.71"N

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	32
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	60 (24hrs)	20
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	<5.0
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	8.5
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004	1 (24hrs)	<0.002
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01:2021	6 (Annual)	<2.0

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### TEST REPORT

Test Report No. : ELES/RNC/2022/2304	Report Release Date : 11.11.2022
--------------------------------------	----------------------------------

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	$\mu\text{g}/\text{m}^3$	ASTM D3687:2007	05(Annual)	<2.0
Benzo (a) Pyrene*	$\text{ng}/\text{m}^3$	USEPA 8270 C to -13A	01(Annual)	<0.20

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

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

  
Authorized Signatory  
**SANDIP BERA**  
SENIOR MANAGER  
ELES PVT. LTD.

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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2022/2305	Report Release Date : 11.11.2022
--------------------------------------	----------------------------------

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/3310
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Office/WB Amtipani Bauxite Mine (190.95 ha)
		Sampling Date	: 07/09/2022 to 08/09/2022
Plant Status	: Operational	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

## METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 24	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 65	4	Weather Condition	: Clear
5	Longitude	: 84°15'29.19"E	6	Latitude	: 23°20'36.64"N

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	36
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part-24): 2019	60 (24hrs)	16
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	<5.0
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	7.4
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004	1 (24hrs)	<0.002
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01:2021	6 (Annual)	<2.0

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## ENVIRONMENTAL LABORATORIES &

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### TEST REPORT

Test Report No. : ELES/RNC/2022/2305

Report Release Date : 11.11.2022

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	$\mu\text{g}/\text{m}^3$	ASTM D3687:2007	05(Annual)	<2.0
Benzo (a) Pyrene*	$\text{ng}/\text{m}^3$	USEPA 8270 C to -13A	01(Annual)	<0.20

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

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

Authorized Signatory  
**SANDIP BERA**  
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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No.	: ELES/RNC/2022/2306	Report Release Date	: 11.11.2022
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CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/3311
Address	: Lohardaga, Jharkhand-835302	Location	: Mines Near Quarry - 1C Amtipani Bauxite Mine (190.95 ha)
Plant Status	: Operational	Sampling Date	: 07/09/2022 to 08/09/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 24	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 65	4	Weather Condition	: Clear

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	37
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	60 (24hrs)	19
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	<5.0
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	8.6
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004	1 (24hrs)	0.003
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01:2021	6 (Annual)	<2.0

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CIN: U74999/JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2022/2306	Report Release Date : 11.11.2022
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Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	$\mu\text{g}/\text{m}^3$	ASTM D3687:2007	05(Annual)	<2.0
Benzo (a) Pyrene*	$\text{ng}/\text{m}^3$	USEPA 8270 C to -13A	01(Annual)	<0.20

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

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

Authorized Signatory  
**SANDIP BERA**  
SENIOR MANAGER  
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Page 2 of 2

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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2022/2307	Report Release Date : 11.11.2022
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CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/3312
Address	: Lohardaga, Jharkhand-835302	Location	: Mines Near Quarry - 7A Amtipani Bauxite Mine (190.95 ha)
Plant Status	: Operational	Sampling Date	: 07/09/2022 to 08/09/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 24	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 65	4	Weather Condition	: Clear

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	39
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	60 (24hrs)	21
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	<5.0
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	9.2
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	$\text{mg}/\text{m}^3$	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004	1 (24hrs)	0.006
Nickel (Ni)	$\text{ng}/\text{m}^3$	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	$\text{ng}/\text{m}^3$	ELES/AIR/SOP/01:2021	6 (Annual)	<2.0

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### TEST REPORT

Test Report No. : ELES/RNC/2022/2307	Report Release Date : 11.11.2022
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Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	$\mu\text{g}/\text{m}^3$	ASTM D3687:2007	05(Annual)	<2.0
Benzo (a) Pyrene*	$\text{ng}/\text{m}^3$	USEPA 8270 C to -13A	01(Annual)	<0.20

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

Authorized Signatory

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

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### TEST REPORT

Test Report No. : ELES/RNC/2022/2353H	Report Release Date : 11.11.2022
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CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/DW/3357H
Address	: Lohardaga, Jharkhand-835302	Location	: Drinking Water of Amtipani Camp Amtipani Bauxite Mines(190.95ha)
Plant Status	: Operational	Sampling Date	: 08/09/2022
		Type of Sample	: Drinking Water
		Sampling Procedure	: ELES/DOC/SMPL/01
		Sample Condition	: Sealed & Preserved

Parameter	Unit	Test Protocol	Result	Regulatory Limit
				as per IS:10500:2012 Acceptable Limit
pH	-	APHA 23rd Edition 2017,4500-H+-B	6.9	6.5-8.5
Color	Hazen	IS 3025 (Part-04): 1983	<1.0	5
Odour	-	IS 3025 (Part-05): 1983	Agreeable	Agreeable
Taste	-	IS 3025 (Part-07): 1984	Agreeable	Agreeable
Turbidity	NTU	APHA 23rd Edition 2017,2130 B	0.25	1
Free Residual Chlorine	mg/L	IS 3025 (Part-26): 1986	<0.1	0.2
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part-16):1984	190	500
Monochloramines	mg/L	APHA 23rd Edition 2017, 4500 Cl-G	<1.0	4
Dichloramines	mg/L	APHA 23rd Edition 2017, 4500 Cl-G	<1.0	4
Total Hardness (as CaCO <sub>3</sub> )	mg/L	APHA 23rd Edition 2017, 2340 C	38.0	200
Total Alkalinity (as CaCO <sub>3</sub> )	mg/L	IS 3025 (Part-23):1986	34.2	200
Chloride (as Cl)	mg/L	IS 3025 (Part-32): 1988: RA 2014	7.5	250

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## TEST REPORT

Test Report No. : ELES/RNC/2022/2353H	Report Release Date : 11.11.2022
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Parameter	Unit	Test Protocol	Result	Regulatory Limit as per IS:10500:2012
				Acceptable Limit
Sulphate (as SO <sub>4</sub> )	mg/L	IS 3025 (Part-24):1986	6.3	200
Nitrate (as NO <sub>3</sub> )	mg/L	IS 3025 (Part-34): 1988	5.52	45
Fluoride (as F)	mg/L	APHA 23rd Edition 2017,4500-F--D	0.1302	1
Ammoniacal Nitrogen (as NH <sub>3</sub> -N)	mg/L	APHA 23rd Ed. 2017, 4500 Norg-C	<0.1	0.5
Cyanide (as CN)	mg/L	IS 3025 (Part-27): 1986	<0.0125	0.05
Phenolic Compounds (as C <sub>6</sub> H <sub>5</sub> OH)	mg/L	IS 3025 (Part-43): 1992	<0.00002	0.001
Sulphide (as S)	mg/L	IS 3025 (Part-29): 1986	<0.04	0.05
Boron (as B)	mg/L	APHA 23rd Edition, 3125 B	<0.2	0.5
Calcium (as Ca)	mg/L	APHA 23rd Edition 2017, 3500 B	10.2	75
Magnesium (as Mg)	mg/L	IS 3025 (Part-46):1994	3.1	30
Iron (as Fe)	mg/L	APHA 23rd Edition, 3111 B&C	0.167	1
Manganese (as Mn)	mg/L	APHA 23rd Edition, 3111 B&C	<0.05	0.1
Aluminum (as Al)	mg/L	APHA 23rd Edition, 3125 B	<0.02	0.03
Cadmium (as Cd)	mg/L	APHA 23rd Edition, 3111 B&C	<0.003	0.003
Total Chromium (as Cr)	mg/L	APHA 23rd Edition, 3111 B&C	<0.03	0.05
Copper (as Cu)	mg/L	APHA 23rd Edition, 3111 B&C	<0.03	0.05
Lead (as Pb)	mg/L	APHA 23rd Edition, 3111 B&C	<0.01	0.01
Zinc (as Zn)	mg/L	APHA 23rd Edition, 3111 B&C	<0.1	5

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### TEST REPORT

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Parameter	Unit	Test Protocol	Result	Regulatory Limit as per IS:10500:2012
				Acceptable Limit
Arsenic (as As)	mg/L	APHA 23rd Edition, 3111 B&C	<0.005	0.01
Selenium (as Se)	mg/L	APHA 23rd Edition, 3125 B	<0.01	0.01
Mercury (as Hg)	mg/L	IS 3025 (Part-48): 2000	<0.001	0.001
Nickel (as Ni)	mg/L	APHA 23rd Edition, 3111 B&C	<0.01	0.02
Mineral Oil*	mg/L	IS 3025 (Part-39): 1991	<0.01	0.5
Anionic Detergents (as MBAS)*	mg/L	Annex K of IS 13428:2005	<0.05	0.2
Polynuclear Aromatic Hydrocarbons (PAHs)*	mg/L	SO-IN-MUL-TE-023	<0.00005	0.0001
Polychlorinated Biphenyls (PCBs)*	mg/L	SO-IN-MUL-TE-022	<0.00005	0.0005
Total Coliforms	MPN/ 100ml	IS 15185:2016	Not Detected	Should Not Detected
Escheria Coli	MPN/ 100ml	IS 15185:2016	Not Detected	Should Not Detected
<b>Pesticides</b>				
Alachlor*	µg/L	SO-IN-MUL-TE-020	<0.01	20
Atrazine*	µg/L	SO-IN-MUL-TE-020	<0.01	2
Aldrin/ Dieldrin*	µg/L	SO-IN-MUL-TE-020	<0.01	0.03
Alpha HCH*	µg/L	SO-IN-MUL-TE-020	<0.01	0.01
Beta HCH*	µg/L	SO-IN-MUL-TE-020	<0.01	0.04
Butachlor*	µg/L	SO-IN-MUL-TE-020	<0.01	125



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### TEST REPORT

Test Report No. : ELES/RNC/2022/2353H	Report Release Date : 11.11.2022
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Parameter	Unit	Test Protocol	Result	Regulatory Limit as per IS:10500:2012
				Acceptable Limit
Chlorpyriphos*	µg/L	SO-IN-MUL-TE-020	<0.01	30
Delta HCH*	µg/L	SO-IN-MUL-TE-020	<0.01	0.04
2,4- Dichlorophenoxyacetic acid*	µg/L	SO-IN-MUL-TE-020	<0.01	30
DDT (o, p and p, p – Isomers of DDT)*	µg/L	SO-IN-MUL-TE-020	<0.01	1
Endosulfan (alpha, beta, and sulphate)*	µg/L	SO-IN-MUL-TE-020	<0.01	0.4
Ethion*	µg/L	SO-IN-MUL-TE-020	<0.01	3
Gamma — HCH (Lindane)*	µg/L	SO-IN-MUL-TE-020	<0.01	2
Isoproturon*	µg/L	SO-IN-MUL-TE-020	<0.01	9
Malathion*	µg/L	SO-IN-MUL-TE-020	<0.01	190
Methyl parathion*	µg/L	SO-IN-MUL-TE-020	<0.01	0.3
Monocrotophos*	µg/L	SO-IN-MUL-TE-020	<0.01	1
Phorate*	µg/L	SO-IN-MUL-TE-020	<0.01	2
DDE (o, p and p, p – Isomers of DDE)*	µg/L	SO-IN-MUL-TE-020	<0.01	1
DDD (o, p and p, p – Isomers of DDD)*	µg/L	SO-IN-MUL-TE-020	<0.01	1

Remarks: (\*) All the parameters are outsourced to other Lab.

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### TEST REPORT

Test Report No.	: ELES/RNC/2022/2292	Report Release Date	: 11.11.2022
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CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/3297
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pakri Gada Village
		Sampling Date	: 05/09/2022 to 06/09/2022
Plant Status	: Operational	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 66	4	Weather Condition	: Clear
5	Longitude	: 84°14'52.25"N	6	Latitude	: 23°17'41.21"E

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	36
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	60 (24hrs)	19
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	<5.0
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	7.5
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004	1 (24hrs)	<0.002
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01:2021	6 (Annual)	<2.0

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CIN: U74999JH2016PTC011225

## ENVIRONMENTAL LABORATORIES &

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### TEST REPORT

Test Report No. : ELES/RNC/2022/2292	Report Release Date : 11.11.2022
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Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 11): 2004	05(Annual)	<2.0
Benzo (a) Pyrene*	$\text{ng}/\text{m}^3$	IS 5182 (Part- 12): 2006	01(Annual)	<0.20

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

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

Authorized Signatory  
**SANDIP BERA**  
SENIOR MANAGER  
ELES PVT. LTD.

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CIN: U74999JH2018PTC031125

## TEST REPORT

Test Report No.	: ELES/RNC/2022/2293	Report Release Date	: 11.11.2022
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CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/3298
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pol Pol Village
Plant Status	: Operational	Sampling Date	: 05/09/2022 to 06/09/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 66	4	Weather Condition	: Clear

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	38
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	60 (24hrs)	17
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	<5.0
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	6.2
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	$\text{mg}/\text{m}^3$	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004	1 (24hrs)	<0.002
Nickel (Ni)	$\text{ng}/\text{m}^3$	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	$\text{ng}/\text{m}^3$	ELES/AIR/SOP/01:2021	6 (Annual)	<2.0

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CIN: U74999JH2018PTC011125

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### TEST REPORT

Test Report No. : ELES/RNC/2022/2293	Report Release Date : 11.11.2022
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Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 11): 2004	05(Annual)	<2.0
Benzo (a) Pyrene*	$\text{ng}/\text{m}^3$	IS 5182 (Part- 12): 2006	01(Annual)	<0.20

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

Authorized Signatory

**SANDIP BERA**  
SENIOR MANAGER  
ELES PVT. LTD.

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

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## ENVIRONMENTAL LABORATORIES &

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### TEST REPORT

Test Report No. : ELES/RNC/2022/2294	Report Release Date : 11.11.2022
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CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/3300
Address	: Lohardaga, Jharkhand-835302	Location	: Near Shakhupani Village
Plant Status	: Operational	Sampling Date	: 05/09/2022 to 06/09/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 24	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 66	4	Weather Condition	: Clear

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	33
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	60 (24hrs)	16
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	<5.0
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	6.6
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004; RA2019	1 (24hrs)	<0.002
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01:2021	6 (Annual)	<2.0





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### TEST REPORT

Test Report No.	: ELES/RNC/2022/2294	Report Release Date	: 11.11.2022
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Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 11): 2004	05(Annual)	<2.0
Benzo (a) Pyrene*	$\text{ng}/\text{m}^3$	IS 5182 (Part- 12): 2006	01(Annual)	<0.20

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

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

Authorized Signatory

**SANDIP BERA**  
SENIOR MANAGER  
ELES PVT. LTD.

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### TEST REPORT

Test Report No.	: ELES/RNC/2022/2295	Report Release Date	: 11.11.2022
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CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/3299
Address	: Lohardaga, Jharkhand-835302	Location	: Near Dipa Kujam Village
Plant Status	: Operational	Sampling Date	: 05/09/2022 to 06/09/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 24	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 65	4	Weather Condition	: Clear

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	33
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	60 (24hrs)	16
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	<5.0
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	6.2
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004	1 (24hrs)	<0.002
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01:2021	6 (Annual)	<2.0

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CIN: U74999JH2018PTC011125

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### TEST REPORT

Test Report No. : ELES/RNC/2022/2295	Report Release Date : 11.11.2022
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Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 11): 2004	05(Annual)	<2.0
Benzo (a) Pyrene*	$\text{ng}/\text{m}^3$	IS 5182 (Part- 12): 2006	01(Annual)	<0.20

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

Authorized Signatory

**SANDIP BERA**  
SENIOR MANAGER  
ELES PVT. LTD.

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**"Save Environment, Save Future"**



Annexure 3

Date – 01.09.2022

**Office Order**

Environmental Cell has been re-constituted at Amtipani Bauxite Mine (Area 190.95 ha) comprising below mentioned team members. The team will ensure compliance of Environment Act, Regulation & Rule in respect of the said mines of Hindalco Industries Limited.

1. Mr. Yogendra Lihare (Coordinator)
2. Mr. Preet Ranjan - Geologist
3. Ms. Swetapadma Nanda-Environment Engineer
4. Mr. Abhay Kumar – 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 horizontal line underneath.

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

## Annexure 4

Production, Mined Out, Back Filled and Over Burden removal from April'22 to September'22								
S No	Name of the Mines	Mining lease area (ha)	Production Capacity (MT)*	Lease Period*	Production (MT)	Mined out area (ha)	Back filled area (ha)	Over burden (Cu.M)
1	Bagru bauxite Mine	75.41	85000	22.01.1974 to 31.03.2030	NIL	NIL	NIL	NIL
2	Bhusar Bauxite Mine	65.31	280000	11.07.1981 to 31.03.2030	116176	0.78	0.34	82296.15
3	Hisri (New) Bauxite Mine	14.55	100000	19.07.1981 to 31.03.2030	63046	0.34	0.23	47769.44
4	Kujam - I Bauxite Mine	80.87	150000	13.03.2006 to 12.03.2056	53620	1.74	1.18	39931.13
5	Kujam - II Bauxite Mine	157.38	300000	24.03.2006 to 23.03.2056	147610	4.79	2.56	181309.80
6	Amtipani Bauxite Mine	190.95	150000	13.03.2006 to 12.03.2056	96500	2.12	2.050	126569.80
7	Gurdari Bauxite Mine	584.19	325000	23.03.1985 to 22.03.2035	114070	3.65	2.68	292766.10
8	Shrengdag A Bauxite Mine	155.81	260000	16.10.1974 to 31.03.2030	53600	1.2	0.9	40876.3
9	Shrengdag B Bauxite Mine	140.07	100000	04.10.1978 to 31.03.2030	45750	0.8157	0.6184	44264.72
10	Jalim & Sanai Bauxite Mine	12.14	50000	16.10.1974 to 31.03.2030	25000	0.2413	0.2	8656.24
11	Orsapat Bauxite Mine	196.36	200000	17.07.1986	NIL	NIL	NIL	NIL

## Annexure 4

				to 16.07.2036				
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
15	Pakhar (115.13)	115.13	300000	19.07.1996 to 31.03.2030	87500	1.52	0.57	242684.08
<b>Minerals &amp; Minerals Limited</b>								
16	Pakhar (15.58)	15.58	60000	28.04.1965 to 31.03.2030	NIL	NIL	NIL	NIL
17	Pakhar (109.507)	109.507	280000	26.07.2008 to 25.07.2058	129700	0.29	0.00	26032.12
18	Bimarla Bauxite Mine	134.526	300000	18.07.2009 to 17.07.2059	54050	1.34	0.60	118183.21
19	Amtipani Chirodih Bauxite Mine (130.01 ha)	130.01	450000	11.01.2017 to 10.01.2067	NIL	NIL	NIL	NIL

\*Static information about the mines included in the above table

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

## Annexure-5

### BREAK UP THE COST OF ENVIRONMENTAL MEASURES DURING THE YEAR 2022-23

The composite cost during the year 2022-23 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 2022-23	Actual (in Rupees) FY 2022-23 (From April'22 to September'22)
1	Pollution Control & Environment monitoring	49,75,923.00	33,83,623.92
2	Reclamation/ Back filing & Rehabilitation**	5,83,65,000.00	5,07,53,126.66
3	Green belt, Plantation & Water sprinkling arrangement	48,76,825.00	45,85,322.59
4	Rural Development	3,10,21,250.00	2,39,91,751.19

\*\*Part of OB removed cost.

*for Ashay*  
Basudev Gangopadhyay  
AVP (Planning, Environment & Compliance)