



HIL/LHD/ENV/MoEF/393

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 Shrengdag (155.81 ha) Bauxite Mining project of M/s Hindalco Industries Limited located in Gumla, Jharkhand for the period April'22 to September'22.

Ref: Environmental Clearance letter no J-11015/125/2006-IA II(M) dated 13th April 2007

Sir,

With reference to the above, we are submitting herewith the Compliance status report of EC conditions for **Shrengdag (155.81 ha)** 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
155.81	260000	16.10.1974 to 31.03.2030

Hope you will find the same in order.

Thanking You

Yours Sincerely
FOR HINDALCO INDUSTRIES LIMITED

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

Enclosure: - As Above

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Name of the Project : Sherengdag Bauxite Mine (155.81 ha)
M/s Hindalco Industries Limited

Environment Clearance No. & date : J-11015/125/2006-IA.II (M), dated 13.04.2007

Period of compliance Report : From 1st April 2022 to 30th September 2022

S No	Conditions	Compliance Status
Specific Conditions		
1	All the conditions stipulated by SPCB in their NOC shall be effectively implemented.	Implementations of the stipulated conditions in NOC are fulfilled post which consent to operate has been obtained from time to time. The existing consent to operate is valid up to 31.12.2022. Productions of bauxite are within limits specified in consent to operate.
2	The environmental clearance is subject to approval of the state land use Department, Government of Jharkhand for diversion of agricultural land for non-agricultural use.	The 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 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.
3	The exploration shall be completed within 2.5 years and thereafter the proponent shall come up with a firm proposal for mining, based on the estimated reserves. The reclamation plan, post mine land use and progressive greenbelt development plan shall also be prepared and submitted with the revised proposal.	Required exploration is already done. Mining plan/ Mining Scheme based on current reserves/resource estimate is duly approved by IBM. The reclamation plan, post mine land use and progressive greenbelt development plan have been covered in Mining Plan/Mining scheme which is approved by IBM. The current mining scheme is valid till 31.03.2025.
4	Mining shall not intersect groundwater. The mine working shall be restricted to ground water table. Prior approval of the Ministry of Environment & Forests and Central Ground Water Authority shall be obtained for mining below water table.	Mining is being done at shallow depth. Thus, there is no chance to intersect ground water table during mining operation. Working zone restricted to above ground water table. We undertake that no mining is/was carried out below ground water table and the same status will be maintained in future also.

5	The Project proponent shall ensure that no natural watercourse shall be obstructed due to any mining operations.	It is being ensured. No natural watercourse has been obstructed and the same will be ensured going forward.
6	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 temporarily stacked properly with proper slope as and when required for its use for reclamation and rehabilitation. Sequential backfilling and reclamation of the mined-out area is being exercised during mining operation.
7	The waste generated shall be concurrently backfilled in the mined-out area. There shall be no external OB dump. Monitoring and management of rehabilitated areas should continue until the vegetation becomes self-sustaining. Compliance status should be submitted to the Ministry of Environment & Forest on six-month basis.	Overburden and waste rock from the mining pit are being used for back filling. Backfilling and plantation detail provided in Annexure - 4 No external OB dump is in the project area. Monitoring and management of rehabilitated areas is continuous through supervision.
8	Catch drains and siltation ponds of appropriate size should be constructed to arrest silt and sediment flows from mine working. The water so collected should be utilized for watering the mine area, roads, green belt development etc. The drains should be regularly desilted particularly after monsoon and maintained properly. Garland drain (size, gradient and length) shall be constructed for mine pit and sump capacity should be designed keeping 50% safety margin over and above peak sudden rainfall (based on 50 years data) and maximum discharge in the area adjoining the mine site. Sump capacity should also provide adequate retention period to allow proper setting of silt material. Sedimentation pits should be constructed at the corners of the garland drains and desilted at regular intervals.	No run-off is generated from mining activities. However, to collect & manage rainwater during monsoon, part of mined out area is used as settling tank for the runoff. Rainwater stored is being used for watering the mine area, roads, green belt development and sprinkling as necessary. Catch drains, Garland drains of appropriate size are being constructed in both around the mine pit to prevent runoff of water and flow of sediments directly into the agricultural field and water bodies, if applicable. Sump of adequate capacity is being provided and maintained as required.
9	Plantation shall be raised in an area of 70.68 ha including a green belt of adequate width by planting the native species around the ML area, roads, reclaimed area etc. in consultation with the local DFO / Agriculture Department. The density of the trees should be around 1500 plants per ha.	Progressive plantation is being carried out in and around the ML area. Total 3000 no sapling planted between April'22 to September'22. Total 23.92 ha areas have been planted till date. In addition to this agricultural activity is going on reclaimed land as per the consent from landowners.
10	The project authority should implement suitable conservation measures to augment ground water	A Plan has been prepared for conservation to augment ground water measures and suitable

	resources in the area in consultation with the Regional Director, Central Ground Water Board.	<p>conservation measures as directed in plan and also as directed in NOC granted by CGWB e.g. Constructing Rain water harvesting pond, catch drain, garland drain etc is being undertaken.</p> <p>The drainage system and backfilling is being done in such manner that water gets recharged with in mine lease arca itself and do not flow outside mine lease area.</p>
11	Regular monitoring of ground water level and quality should be carried out by establishing a network of existing wells and constructing new piczometers 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.	<p>Mining is being done at shallow depth. Thus, there is no chance to intersect ground water table during mining operation. We are not using ground water for any mining purpose.</p> <p>Piezometer has been installed for monitoring of ground water level. Water quality and water level report are attached herewith as Annexure 1.</p>
12	Prior permission from the competent authority should be obtained for drawl of water from the surface water bodies.	<p>Rainwater harvested during rainy season is being used for sprinkling on haul roads and raising plantation. No water from natural sources is being used for mining purposes. However, we have obtained NOC for extraction of ground water from CGWB.</p> <p>There is no chance to intersect ground water table during mining operation as total mining depth is around 20m (maximum).</p>
13	Water monitoring both for quality and quantity shall be carried out at four locations namely one spring and three streams. Six monthly report should be submitted to the Ministry of Environment and Forest and its Regional Office located at Bhubneshwar.	Spring and stream are being monitored; Analysis report is attached as Annexure 2 .
14	Vehicular emissions should be kept under control and regularly monitored. Measures shall be taken for maintenance of vehicles used in mining operations and transportation of mineral. The vehicles should be covered with a tarpaulin and shall not be overloaded.	<p>To keep vehicular emissions in control, company vehicles are periodically checked and repaired as and when required. All the transporters have been instructed to obtain PUC for their vehicles from the competent authority and submit to the concerned officer for verification.</p> <p>Vehicles are covered with tarpaulin and are being properly loaded while transportation.</p>

15	Drills should either be operated with dust extractors or should be equipped with water injection system.	Wet drilling is in practice.
16	Blasting operation should be carried out only during the daytime. Controlled blasting should be practiced. The mitigative measures for control of ground vibration and to arrest fly rocks and boulders should be implemented.	Blasting time is fixed during Lunch Time i.e. 1.00 PM -2.00 PM. Controlled blasting method is in practice. Ground vibration study has been conducted by IIT, Kharagpur. All efforts are being done to mitigate impact of blasting.
17	Consent to operate should be obtained from SPCB prior to start of enhanced production from the mine.	There is no proposal for production enhancement as of now.
18	Sewage treatment plant should be installed for the colony. ETP should also be provided for workshop and wastewater generated from mining operations.	The sewage water from domestic uses is being collected through individual Septic Tank and Soak Pits. Effluent treatment mechanism (Oil-grease trap) are installed at mine site.
19	The project proponent should take all precautionary measures during mining operation for conservation and protection of endangered fauna such as Indian Python, <i>Presbytis phayrei</i> , <i>Melurus ursinus</i> etc. Spotted in the study area. Action plan for conservation of flora and fauna shall be prepared and implemented in consultation with the State Forest and Wildlife Department. Necessary allocation of funds for implementation of the conservation plan shall be made and the funds so allocated shall be included in the project cost. Copy of action plan may be submitted to the Ministry and its Regional Office within 3 months.	<p>No endangered species of Flora and Fauna have been reported in the project area.</p> <p>Suitable conservation measures to protect endangered flora & fauna implemented as under</p> <ol style="list-style-type: none"> 1. Permanent pillars are established within the mine lease area. 2. Maintenance of the forest road being done. 3. Ensured necessary air and noise pollution control measures. 4. Regular water sprinkling is being carried out on the forest road. 5. Transportation done only in daytime. 6. Patrolling is being done. <p>However, Draft WLCP report has already been prepared by EX PCCF in consultation with state forest department. The final report will be submitted soon for its approval.</p>
20	A Final Mine Closure plan along with details of Corpus Fund should be submitted to the Ministry of Environment & Forest 5 years in advance of final mine closure for approval.	Final Mine Closure Plan of surrendered (part) area duly approved by Indian Bureau of Mines. Final mine closure plan along with details of corpus fund for entire life of the mine will be submitted to MoEF in due time as per applicable guideline and timelines mentioned in MCDR/IBM guideline who are competent authority to approve the same.

		Based on the present resource estimate, and peak rated production capacity mentioned in EC, Mining operation is being carried out.
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GENERAL CONDITIONS

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 & Forest	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. Report is attached herewith as Annexure 4 .
3	Four ambient air quality-monitoring station should be established in the core zone as well as in the buffer zone for RPM, SPM, SO ₂ , NO _x monitoring. Location of the stations should be decided based on the metrological data, topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board.	We have already established four ambient air quality monitoring stations in core zone as well as buffer zone. Monitoring is being carried out and reported to concern authorities. Report is attached as Annexure 2 .
4	Data on ambient air quality (RPM, SPM, SO ₂ , NO _x) should be regularly submitted to the Ministry including its Regional office located at Bhubneshwar and the State Pollution Control Board / Central pollution Control Board once in six months.	Monitoring Reports is enclosed as Annexure 2 .
5	Fugitive dust emission from all the sources should be controlled regularly. Water spraying arrangements on haul roads, loading and unloading and at transfer points should be provided and properly maintained.	Two nos. of water tanker have been provided for sprinkling of water on haul roads and are generally being engaged at the places where active mining is in progress to contain fugitive dust. Water spraying at loading, unloading, and transfer points is being done.
6	Measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in operation of HEMM, etc. should be provided with ear plug / muffs.	Noise monitoring is being done regularly at various locations of the work zone area. Workers engaged in operation of HEMMs, etc have been provided with PPEs such as earplug and earmuffs.

7	<p>Industrial wastewater (workshops and wastewater from the mine) Should be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May, 1993 and 31st December, 1993 or as amended from time to time. Oil and grease trap should be installed before discharge of workshop effluents.</p>	<p>There is no industrial wastewater generated from workshop within mine lease area. We are not discharging any wastewater outside mine lease area. Oil and grease pit is installed at mine site.</p>
8	<p>Personnel working in dusty areas should wear protective respiratory devices and they should also provided with adequate training and information on safety and health aspects.</p> <p>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.</p>	<p>Use of Personal Protective Equipment (PPE) by the individuals is being ensured. All the mine workers are being regularly and periodically sent to our own hospital for health checkup for any contraction of diseases due to exposure in dusty and noisy areas.</p> <p>Training on safety, health and environmental aspects of mining is being regularly imparted through VT centre and through various other training programmes conducted by the State Government, recognized agencies, etc.</p>
9	<p>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.</p>	<p>Separate Environmental Management Cell (EMC) has been constituted and is functioning effectively. Copy is enclosed as Annexure -3.</p>
10	<p>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.</p>	<p>Not applicable, as this is an operating mine.</p>
11	<p>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.</p>	<p>Statement of budgetary provision and actual expenses for the year 2022-23 for environmental protection measure is enclosed. Separate funds earmarked for environmental protection measures annexed as Annexure -5. Now Regional office is at Ranchi</p>
12	<p>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.</p>	<p>Agreed. Now Regional office is at Ranchi</p>
13	<p>The project proponent shall submit six monthly report on the status of the implementation of the stipulated environmental safeguards to the Ministry of Environment and Forests, its Regional Officer, Bhubaneshwar, Central Pollution Control Board and State Pollution</p>	<p>Duly submitted.</p>

	Control Board.	
14	A copy of clearance letter will be marked to concerned Panchayat / local NGO, if any, from whom suggestion / representation has been received while processing the proposal.	Complied.
15	State Pollution Control Board should display a copy of the clearance letter at the Regional office, District Industry Center and Collector's office / Tehsildar's Office for 30 days.	Displayed.
16	The project authorities should advertise at least in two local newspapers widely circulated, one of which locality concerned, within 7days of the issue of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and also at web site of the Ministry of Environment and Forests at http://envfor.nic.in and a copy of the same should be forwarded to the Regional Office of this Ministry located Bhubneshwar.	Complied. Copies, of the advertisement made in the local newspapers, have already been submitted to the Regional Office.



Signature

Sherengdag -A Bauxite Mines (155.81 Ha)



Plantation over reclaimed area



Agriculture over reclaimed area



Washing Ramp and Oil and grease trap

Sherengdag -A Bauxite Mines (155.81 Ha)



Tarpaulin covered truck



Bio-Fencing Barrier



Rainwater Harvesting Pond

Annexure 1		
Piezometer reading - Shrengdag (155.81 Ha)		
S No	Month	Depth (meter)
1	Apr-22	31.20
2	May-22	31.12
3	Jun-22	31.25
4	Jul-22	31.55
5	Aug-22	31.76
6	Sep-22	31.75



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TEST REPORT

Test Report No. : ELES/RNC/2022/0932A	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/1045A
Address	: Lohardaga, Jharkhand-835203	Location	: Near Weigh Bridge Serengdag-A Bauxite Mines
Plant Status	: Operational	Sampling Date	: 14/04/2022 to 15/04/2022
		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 (%)	: 71	4	Weather Condition	: Clear

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	72
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	60 (24hrs)	39
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	5.8
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	11.7
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004	1 (24hrs)	0.032
Nickel (Ni)	ng/m ³	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01:2021	6 (Annual)	2.8

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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)	2.5
Benzo (a) Pyrene*	ng/m^3	USEPA 8270 C to -13A	01(Annual)	0.37

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

Authorized Signatory

****End of Report****

SANDIP BERA
SENIOR MANAGER
ELES PVT. LTD.

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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/1045B
Address	: Lohardaga, Jharkhand-835203	Location	: BKB Quarry Serengdag-A Bauxite Mines
Plant Status	: Operational	Sampling Date	: 14/04/2022 to 15/04/2022
		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 (%)	: 71	4	Weather Condition	: Clear

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	78
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	60 (24hrs)	44
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	6.0
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	12.7
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004	1 (24hrs)	0.026
Nickel (Ni)	ng/m ³	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01:2021	6 (Annual)	3.4

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Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	$\mu\text{g}/\text{m}^3$	ASTM D3687:2007	05(Annual)	2.7
Benzo (a) Pyrene*	ng/m^3	USEPA 8270 C to -13A	01(Annual)	0.47

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

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ENGINEERING SERVICES PVT. LTD.

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Phone no : 0651-2290103

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TEST REPORT

Test Report No. : ELES/RNC/2022/0932C	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/1045C
Address	: Lohardaga, Jharkhand-835203	Location	: Mine Pit Quarry No.2A Serengdag-A Bauxite Mines
Plant Status	: Operational	Sampling Date	: 14/04/2022 to 15/04/2022
		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 (%) : 71	4	Weather Condition : Clear

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	66
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	60 (24hrs)	30
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	<5.0
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	10.1
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004	1 (24hrs)	0.030
Nickel (Ni)	ng/m ³	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01:2021	6 (Annual)	2.3

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TEST REPORT

Test Report No. : ELES/RNC/2022/0932C	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*	ng/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/2022/0932D	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/1045D
Address	: Lohardaga, Jharkhand-835203	Location	: Mine Pit Quarry No.2B Serengdag-A Bauxite Mines
Plant Status	: Operational	Sampling Date	: 14/04/2022 to 15/04/2022
		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 (%)	: 71	4	Weather Condition	: Clear

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	75
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	60 (24hrs)	37
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	5.9
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	12.3
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004	1 (24hrs)	0.043
Nickel (Ni)	ng/m ³	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01:2021	6 (Annual)	3.3

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TEST REPORT

Test Report No. : ELES/RNC/2022/0932D	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)	2.4
Benzo (a) Pyrene*	ng/m^3	USEPA 8270 C to -13A	01(Annual)	0.26

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/2022/0932E	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/1045E
Address	: Lohardaga, Jharkhand-835203	Location	: Near Banjari Village
Plant Status	: Operational	Sampling Date	: 14/04/2022 to 15/04/2022
		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 (%)	: 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)	64
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	60 (24hrs)	23
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	<5.0
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	8.7
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/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)	0.027
Nickel (Ni)	ng/m^3	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01:2021	6 (Annual)	3.1

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TEST REPORT

Test Report No.	: ELES/RNC/2022/0932E	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*	ng/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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TEST REPORT

Test Report No. : ELES/RNC/2022/0932F	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/1045F
Address	: Lohardaga, Jharkhand-835203	Location	: Near Pauri Village
Plant Status	: Operational	Sampling Date	: 14/04/2022 to 15/04/2022
		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 (%)	: 71	4	Weather Condition	: Clear

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	66
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	60 (24hrs)	29
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	<5.0
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	9.7
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004	1 (24hrs)	0.019
Nickel (Ni)	ng/m ³	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01:2021	6 (Annual)	2.7

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Test Report No.	: ELES/RNC/2022/0932F	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)	2.4
Benzo (a) Pyrene*	ng/m^3	USEPA 8270 C to -13A	01(Annual)	0.41

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/2022/0932G	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/1045G
Address	: Lohardaga, Jharkhand-835203	Location	: Near Harup Village
Plant Status	: Operational	Sampling Date	: 14/04/2022 to 15/04/2022
		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 (%)	: 71	4	Weather Condition	: Clear

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	51
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	60 (24hrs)	27
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	<5.0
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	9.2
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004	1 (24hrs)	0.018
Nickel (Ni)	ng/m ³	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01:2021	6 (Annual)	2.6

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TEST REPORT

Test Report No. : ELES/RNC/2022/0932G	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)	2.1
Benzo (a) Pyrene*	ng/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/2022/0932H	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/1045H
Address	: Lohardaga, Jharkhand-835203	Location	: Near Paintoli Village
Plant Status	: Operational	Sampling Date	: 14/04/2022 to 15/04/2022
		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 (%)	: 71	4	Weather Condition	: Clear

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	57
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	60 (24hrs)	26
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	<5.0
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	7.7
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004	1 (24hrs)	0.017
Nickel (Ni)	ng/m ³	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01:2021	6 (Annual)	2.3

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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*	ng/m^3	USEPA 8270 C to -13A	01(Annual)	0.32

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

Authorized Signatory

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

Shrengdag A Bauxite Mine-Environmental Monitoring Report

May 2022



CONTENT

Hindalco Industries : Shrengdag A Bauxite Mine Environmental Monitoring Report		May2022
Shrengdag A Bauxite Mine		
AMBIENT AIR QUALITY- CORE ZONE		
1	Near Weigh Bridge	
2	BKB Quarry	
3	Mine Pit Quarry No.2A	
4	Mine Pit Quarry No.2B	
AMBIENT AIR QUALITY- BUFFER ZONE		
1	Near Banjari Village	
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3	Near Harup Village	
4	Near Paintoli Village	
AMBIENT NOISE		
WORKZONE/SPOT NOISE		
WORKSHOP EFFLUENT		
DRINKING WATER ANALYSIS		





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TEST REPORT

Test Report No.	: ELES/RNC/2022/1350A	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/1358A
Address	: Lohardaga, Jharkhand-835302	Location	: Near Weigh Bridge Serengdag-A Bauxite Mines
Plant Status	: Operational	Sampling Date	: 12/05/2022 to 13/05/2022
		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 (%)	: 70	4	Weather Condition	: Clear

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	64
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	60 (24hrs)	32
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	5.5
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	12.0
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004	1 (24hrs)	0.041
Nickel (Ni)	ng/m ³	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01:2021	6 (Annual)	2.6

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CIN: U74999JH2018PTC011125

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TEST REPORT

Test Report No. : ELES/RNC/2022/1350A	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*	ng/m^3	USEPA 8270 C to -13A	01(Annual)	0.24

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

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TEST REPORT

Test Report No. : ELES/RNC/2022/1350B	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/1358B
Address	: Lohardaga, Jharkhand-835302	Location	: BKB Quarry Serengdag-A Bauxite Mines
Plant Status	: Operational	Sampling Date	: 12/05/2022 to 13/05/2022
		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 (%)	: 70	4	Weather Condition	: Clear

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	69
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	60 (24hrs)	36
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	5.5
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	8.9
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004	1 (24hrs)	0.029
Nickel (Ni)	ng/m ³	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01:2021	6 (Annual)	2.8

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TEST REPORT

Test Report No.	: ELES/RNC/2022/1350B	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)	2.2
Benzo (a) Pyrene*	ng/m^3	USEPA 8270 C to -13A	01(Annual)	0.31

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

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TEST REPORT

Test Report No.	: ELES/RNC/2022/1350C	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/1358C
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Pit Quarry No.2A Serengdag-A Bauxite Mines
Plant Status	: Operational	Sampling Date	: 12/05/2022 to 13/05/2022
		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 (%)	: 70	4	Weather Condition	: Clear

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	59
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	60 (24hrs)	23
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	5.8
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	11.8
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004	1 (24hrs)	0.024
Nickel (Ni)	ng/m ³	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01:2021	6 (Annual)	2.6

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CIN: U74999/JH2018PTC011125

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TEST REPORT

Test Report No.	: ELES/RNC/2022/1350C	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)	2.2
Benzo (a) Pyrene*	ng/m^3	USEPA 8270 C to -13A	01(Annual)	0.21

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

****End of Report****


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SANDIP BERA
SENIOR MANAGER
ELES PVT. LTD.

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2022/1350D	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/1358D
Address	: Lohardaga, Jharkhand-835203	Location	: Mine Pit Quarry No.2B Serengdag-A Bauxite Mines
Plant Status	: Operational	Sampling Date	: 12/05/2022 to 13/05/2022
		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 (%) : 70	4	Weather Condition : Clear

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	70
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	60 (24hrs)	32
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	5.5
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	8.6
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004	1 (24hrs)	0.026
Nickel (Ni)	ng/m ³	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01:2021	6 (Annual)	2.3

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TEST REPORT

Test Report No. : ELES/RNC/2022/1350D	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)	2.8
Benzo (a) Pyrene*	ng/m^3	USEPA 8270 C to -13A	01(Annual)	0.21

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

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TEST REPORT

Test Report No.	: ELES/RNC/2022/1350E	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/1358E
Address	: Lohardaga, Jharkhand-835302	Location	: Near Banjari Village
Plant Status	: Operational	Sampling Date	: 12/05/2022 to 13/05/2022
		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 (%)	: 70	4	Weather Condition	: Clear

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	53
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	60 (24hrs)	22
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	<5.0
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	7.5
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004	1 (24hrs)	0.012
Nickel (Ni)	ng/m ³	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01:2021	6 (Annual)	2.3

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CIN: U74999JH2018PTC011125

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TEST REPORT

Test Report No.	: ELES/RNC/2022/1350E	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*	ng/m^3	USEPA 8270 C to -13A	01(Annual)	0.22

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

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Page 2 of 2

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TEST REPORT

Test Report No. : ELES/RNC/2022/1350F	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/1358F
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pauri Village
Plant Status	: Operational	Sampling Date	: 12/05/2022 to 13/05/2022
		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 (%) : 70	4	Weather Condition : Clear

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	63
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	60 (24hrs)	23
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	5.9
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	9.3
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004	1 (24hrs)	0.015
Nickel (Ni)	ng/m ³	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01:2021	6 (Annual)	2.5

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TEST REPORT

Test Report No. : ELES/RNC/2022/1350F	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*	ng/m^3	USEPA 8270 C to -13A	01(Annual)	0.23

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

Authorized Signatory

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ELES PVT. LTD.

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TEST REPORT

Test Report No.	: ELES/RNC/2022/1350G	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/1358G
Address	: Lohardaga, Jharkhand-835302	Location	: Near Harup Village
Plant Status	: Operational	Sampling Date	: 12/05/2022 to 13/05/2022
		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 (%)	: 70	4	Weather Condition	: Clear

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	45
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	60 (24hrs)	20
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	<5.0
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	9.0
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004	1 (24hrs)	0.005
Nickel (Ni)	ng/m ³	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01:2021	6 (Annual)	2.1

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TEST REPORT

Test Report No.	: ELES/RNC/2022/1350G	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*	ng/m^3	USEPA 8270 C to -13A	01(Annual)	<0.20

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

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TEST REPORT

Test Report No.	: ELES/RNC/2022/1350H	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/1358H
Address	: Lohardaga, Jharkhand-835302	Location	: Near Paintoli Village
Plant Status	: Operational	Sampling Date	: 12/05/2022 to 13/05/2022
		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 (%)	: 70	4	Weather Condition	: Clear

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	55
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	60 (24hrs)	21
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	<5.0
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	7.6
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004	1 (24hrs)	0.018
Nickel (Ni)	ng/m ³	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01:2021	6 (Annual)	<2.0

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TEST REPORT

Test Report No.	: ELES/RNC/2022/1350H	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*	ng/m^3	USEPA 8270 C to -13A	01(Annual)	0.25

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

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Page 2 of 2

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TEST REPORT

Test Report No. : ELES/RNC/2022/1355E	Report Release Date : 14.06.2022
---------------------------------------	----------------------------------

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Date	: 13.05.2022
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 _{eq}	
Serengdag-A Mines Pit	dB(A)	IS 9989:1981, RA 2020	Day Time	71	75 dB(A) Day Time & 70 dB(A) Night Time
Sample ID: ELES/RNC/2022/AN/1363E			Night Time	56	

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TEST REPORT

Test Report No. : ELES/RNC/2022/1356E	Report Release Date : 14.06.2022
---------------------------------------	----------------------------------

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sampling Date	: 13.05.2022
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 _{eq}	
Near Poclain – Serengdag–A Bauxite Mines	dB(A)	IS 9989:1981, RA 2020	Day Time	73	75 dB(A) Day Time
Sample ID: ELES/RNC/2022/AN/1364E					

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TEST REPORT

Test Report No. : ELES/RNC/2022/1357C	Report Release Date : 14/06/2022
---------------------------------------	----------------------------------

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/EF/1365C
Address	: Lohardaga, Jharkhand-835302	Location	: Serengdag-A Bauxite Mines
Plant Status	: Operational	Sampling Date	: 13/05/2022
		Type of Sample	: Effluent Water
		Sampling Procedure	: ELES/DOC/SMPL/01
		Sample Condition	: Sealed & Preserved

Parameter	Unit	Test Protocol	Result	CPCB Regulatory Limits EPR,1986: Schedule VI (Inland Surface Water)
pH	-	APHA 23rd Edition 2017,4500-H+-B	8.1	5.5-9.0
Total Suspended Solids (TSS)	mg/L	IS 3025 (Part-17):2022	63	100
Temperature	°C	IS 3025 (Part-9):1984; RA 2017	30.2	Shall not exceed 5°C above the receiving Water Temperature
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part-16):1984	1328	--
Chemical Oxygen Demand (COD)	mg/L	IS 3025 (Part-58): 2006; RA 2017	52	250
Biochemical Oxygen Demand (BOD)	mg/L	IS 3025 (Part-44): 1993; RA 2019	12	30
Oil & Grease	mg/L	APHA 23 rd Ed.2017,5520B	1.5	10
Calcium (as Ca)	mg/L	APHA 23rd Edition 2017, 3500 B	14	--
Iron (as Fe)	mg/L	APHA 23rd Edition, 3111 B&C	1.56	3
Aluminum (as Al)	mg/L	APHA 23rd Edition, 3125 B	1.74	--

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TEST REPORT

Test Report No. : ELES/RNC/2022/1359E	Report Release Date : 14/06/2022
---------------------------------------	----------------------------------

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/DW/1367E
Address	: Lohardaga, Jharkhand-835302	Location	: Drinking Water Serengdag-A Bauxite Mines
Plant Status	: Operational	Sampling Date	: 13/05/2022
		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	7.2	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	151	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 ₃)	mg/L	APHA 23rd Edition 2017, 2340 C	27.1	200
Total Alkalinity (as CaCO ₃)	mg/L	IS 3025 (Part-23):1986	32.8	200
Chloride (as Cl)	mg/L	IS 3025 (Part-32): 1988: RA 2014	5.3	250

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TEST REPORT

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Parameter	Unit	Test Protocol	Result	Regulatory Limit as per IS:10500:2012
				Acceptable Limit
Sulphate (as SO ₄)	mg/L	IS 3025 (Part-24):1986	2.8	200
Nitrate (as NO ₃)	mg/L	IS 3025 (Part-34): 1988	2.04	45
Fluoride (as F)	mg/L	APHA 23rd Edition 2017,4500-F--D	0.1432	1
Ammoniacal Nitrogen (as NH ₃ -N)	mg/L	APHA 23rd Edition 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 ₆ H ₅ 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	7.8	75
Magnesium (as Mg)	mg/L	IS 3025 (Part-46):1994	1.9	30
Iron (as Fe)	mg/L	APHA 23rd Edition, 3111 B&C	0.129	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

Test Report No. : ELES/RNC/2022/1359E	Report Release Date : 14/06/2022
---------------------------------------	----------------------------------

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
Pesticides				
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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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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Jharkhand.

Shrengdag A Bauxite Mine-Environmental Monitoring Report

June 2022



CONTENT

Hindalco Industries : Shrengdag A Bauxite Mine Environmental Monitoring Report		June 2022
Shrengdag A Bauxite Mine		
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1	Near Weigh Bridge	
2	BKB Quarry	
3	Mine Pit Quarry No.2A	
4	Mine Pit Quarry No.2B	
AMBIENT AIR QUALITY- BUFFER ZONE		
1	Near Banjari Village	
2	Near Pauri Village	
3	Near Harup Village	
4	Near Paintoli Village	
SPRING WATER		
STREAM WATER		
1	Lapsore Nala (Upstream)	
2	Lapsore Nala (Downstream)	





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TEST REPORT

Test Report No.	: ELES/RNC/2022/1616A	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/1790A
Address	: Lohardaga, Jharkhand-835302	Location	: Near Weigh Bridge Serengdag-A Bauxite Mines
Plant Status	: Operational	Sampling Date	: 06/06/2022 to 07/06/2022
		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 (%)	: 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)	62
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	60 (24hrs)	34
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	6.1
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	10.6
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/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)	0.028
Nickel (Ni)	ng/m^3	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01:2021	6 (Annual)	2.7

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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)	2.4
Benzo (a) Pyrene*	ng/m^3	USEPA 8270 C to -13A	01(Annual)	0.32

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

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TEST REPORT

Test Report No. : ELES/RNC/2022/1616B	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/1790B
Address	: Lohardaga, Jharkhand-835302	Location	: BKB Quarry Serengdag-A Bauxite Mines
Plant Status	: Operational	Sampling Date	: 06/06/2022 to 07/06/2022
		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 (%) : 71	4	Weather Condition : Clear

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	67
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	60 (24hrs)	30
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	5.4
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	9.5
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004	1 (24hrs)	0.027
Nickel (Ni)	ng/m ³	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01:2021	6 (Annual)	2.2

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TEST REPORT

Test Report No. : ELES/RNC/2022/1616B	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)	2.3
Benzo (a) Pyrene*	ng/m^3	USEPA 8270 C to -13A	01(Annual)	0.28

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

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TEST REPORT

Test Report No. : ELES/RNC/2022/1616C	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/1790C
Address	: Lohardaga, Jharkhand-83530	Location	: Mine Pit Quarry No.2A Serengdag-A Bauxite Mines
Plant Status	: Operational	Sampling Date	: 06/06/2022 to 07/06/2022
		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 (%)	: 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)	57
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	60 (24hrs)	24
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	<5.0
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	8.0
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/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)	0.025
Nickel (Ni)	ng/m^3	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01:2021	6 (Annual)	2.1

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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*	ng/m^3	USEPA 8270 C to -13A	01(Annual)	<0.20

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

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TEST REPORT

Test Report No. : ELES/RNC/2022/1616D	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/1790D
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Pit Quarry No.2B Serengdag-A Bauxite Mines
Plant Status	: Operational	Sampling Date	: 06/06/2022 to 07/06/2022
		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 (%)	: 71	4	Weather Condition	: Clear

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	67
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	60 (24hrs)	36
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	5.3
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	7.2
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004	1 (24hrs)	0.028
Nickel (Ni)	ng/m ³	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01:2021	6 (Annual)	2.5

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CIN: U74599JH2018PTC011125

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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)	2.3
Benzo (a) Pyrene*	ng/m^3	USEPA 8270 C to -13A	01(Annual)	0.25

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

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TEST REPORT

Test Report No. : ELES/RNC/2022/1616E	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/1790E
Address	: Lohardaga, Jharkhand-835302	Location	: Near Banjari Village
Plant Status	: Operational	Sampling Date	: 06/06/2022 to 07/06/2022
		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 (%)	: 71	4	Weather Condition	: Clear

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	50
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	60 (24hrs)	18
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	<5.0
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	8.2
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004	1 (24hrs)	0.008
Nickel (Ni)	ng/m ³	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01:2021	6 (Annual)	<2.0

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2022/1616E	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*	ng/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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TEST REPORT

Test Report No. : ELES/RNC/2022/1616F	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/1790F
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pauri Village
Plant Status	: Operational	Sampling Date	: 06/06/2022 to 07/06/2022
		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 (%)	: 71	4	Weather Condition	: Clear

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	52
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	60 (24hrs)	21
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	<5.0
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	9.2
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004	1 (24hrs)	0.006
Nickel (Ni)	ng/m ³	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01:2021	6 (Annual)	<2.0

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TEST REPORT

Test Report No. : ELES/RNC/2022/1616F	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*	ng/m^3	USEPA 8270 C to -13A	01(Annual)	0.22

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

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TEST REPORT

Test Report No. : ELES/RNC/2022/1616G	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/1790G
Address	: Lohardaga, Jharkhand-835302	Location	: Near Harup Village
Plant Status	: Operational	Sampling Date	: 06/06/2022 to 07/06/2022
		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 (%) : 71	4	Weather Condition : Clear

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	43
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	60 (24hrs)	25
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	<5.0
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	8.4
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004	1 (24hrs)	0.007
Nickel (Ni)	ng/m ³	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01:2021	6 (Annual)	<2.0

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TEST REPORT

Test Report No. : ELES/RNC/2022/1616G	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*	ng/m^3	USEPA 8270 C to -13A	01(Annual)	<0.20

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

Authorized Signatory

SANDIP BERA
SENIOR MANAGER
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TEST REPORT

Test Report No. : ELES/RNC/2022/1616H	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/1790H
Address	: Lohardaga, Jharkhand-835302	Location	: Near Paintoli Village
Plant Status	: Operational	Sampling Date	: 06/06/2022 to 07/06/2022
		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 (%) : 71	4	Weather Condition : Clear

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	47
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	60 (24hrs)	19
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	<5.0
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	8.2
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004	1 (24hrs)	0.011
Nickel (Ni)	ng/m ³	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01:2021	6 (Annual)	<2.0

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TEST REPORT

Test Report No. : ELES/RNC/2022/1616H	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*	ng/m^3	USEPA 8270 C to -13A	01(Annual)	0.24

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

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SANDIP BERA
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TEST REPORT

Test Report No. : ELES/RNC/2022/1629B	Report Release Date : 15/07/2022
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CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/SW/1800B
Address	: Lohardaga, Jharkhand-835302	Location	: Spring Water - Serengdag-A Bauxite Mines
Plant Status	: Operational	Sampling Date	: 07/06/2022
		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	7.1	6.5-8.5
Color	Hazen	IS 3025 (Part-04): 1983	2	300
Odour	-	IS 3025 (Part-05): 1983	Unobjectionable	Unobjectionable
Turbidity	NTU	APHA 23rd Edition 2017,2130 B	0.38	--
Free Residual Chlorine	mg/L	IS 3025 (Part-26): 1986	<0.1	--
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part-16):1984	924	1500
Total Hardness (as CaCO ₃)	mg/L	APHA 23rd Edition 2017, 2340 C	270	--
Total Alkalinity (as CaCO ₃)	mg/L	IS 3025 (Part-23):1986	247	--
Chloride (as Cl)	mg/L	IS 3025 (Part-32): 1988: RA 2014	23.2	600
Sulphate (as SO ₄)	mg/L	IS 3025 (Part-24):1986	49.3	400
Fluoride (as F)	mg/L	APHA 23rd Edition 2017,4500-F-D	0.1088	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/2022/1629B 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	73.1	--
Magnesium (as Mg)	mg/L	IS 3025 (Part-46):1994	21.2	--
Iron (as Fe)	mg/L	APHA 23rd Edition, 3111 B&C	0.654	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	0.232	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	7.7	4.0 (Minimum)

****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/2022/1628A	Report Release Date	: 15/07/2022
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CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/SW/1799A
Address	: Lohardaga, Jharkhand-835302	Location	: Lapsore Nala (Upstream) Serengdag-A Bauxite Mines
Plant Status	: Operational	Sampling Date	: 07/06/2022
		Type of Sample	: Surface Water (Stream 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	8	300
Odour	-	IS 3025 (Part-05): 1983	Unobjectionable	Unobjectionable
Turbidity	NTU	APHA 23rd Edition 2017,2130 B	0.32	--
Free Residual Chlorine	mg/L	IS 3025 (Part-26): 1986	<0.1	--
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part-16):1984	1027	1500
Total Hardness (as CaCO ₃)	mg/L	APHA 23rd Edition 2017, 2340 C	339	--
Total Alkalinity (as CaCO ₃)	mg/L	IS 3025 (Part-23):1986	244	--
Chloride (as Cl)	mg/L	IS 3025 (Part-32): 1988: RA 2014	78.4	600
Sulphate (as SO ₄)	mg/L	IS 3025 (Part-24):1986	43.4	400
Fluoride (as F)	mg/L	APHA 23rd Edition 2017,4500-F-D	0.1253	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/2022/1628A 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	0.271	--
Calcium (as Ca)	mg/L	APHA 23rd Edition 2017, 3500 B	92.4	--
Magnesium (as Mg)	mg/L	IS 3025 (Part-46):1994	26.3	--
Iron (as Fe)	mg/L	APHA 23rd Edition, 3111 B&C	0.621	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	0.358	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	7.4	4.0 (Minimum)

****End of Report****


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SENIOR MANAGER
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TEST REPORT

Test Report No. : ELES/RNC/2022/1628B	Report Release Date : 15/07/2022
---------------------------------------	----------------------------------

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/SW/1799B
Address	: Lohardaga, Jharkhand-835302	Location	: Lapsore Nala (Downstream) Serengdag-A Bauxite Mines
Plant Status	: Operational	Sampling Date	: 07/06/2022
		Type of Sample	: Surface Water (Stream 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	6.8	6.5-8.5
Color	Hazen	IS 3025 (Part-04): 1983	11	300
Odour	-	IS 3025 (Part-05): 1983	Unobjectionable	Unobjectionable
Turbidity	NTU	APHA 23rd Edition 2017,2130 B	0.34	--
Free Residual Chlorine	mg/L	IS 3025 (Part-26): 1986	<0.1	--
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part-16):1984	1012	1500
Total Hardness (as CaCO ₃)	mg/L	APHA 23rd Edition 2017, 2340 C	361	--
Total Alkalinity (as CaCO ₃)	mg/L	IS 3025 (Part-23):1986	215	--
Chloride (as Cl)	mg/L	IS 3025 (Part-32): 1988: RA 2014	102	600
Sulphate (as SO ₄)	mg/L	IS 3025 (Part-24):1986	55.5	400
Fluoride (as F)	mg/L	APHA 23rd Edition 2017,4500-F-D	0.1412	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/2022/1628B 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	0.302	--
Calcium (as Ca)	mg/L	APHA 23rd Edition 2017, 3500 B	97.2	--
Magnesium (as Mg)	mg/L	IS 3025 (Part-46):1994	28.7	--
Iron (as Fe)	mg/L	APHA 23rd Edition, 3111 B&C	0.682	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	0.302	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	7.5	4.0 (Minimum)

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

Shrengdag A Bauxite Mine-Environmental Monitoring Report

July 2022



CONTENT

Hindalco Industries : Shrengdag A Bauxite Mine Environmental Monitoring Report		July 2022
Shrengdag A Bauxite Mine		
	AMBIENT AIR QUALITY- CORE ZONE	
1	Near Weigh Bridge	
2	BKB Quarry	
3	Mine Pit Quarry No.2A	
4	Mine Pit Quarry No.2B	
	AMBIENT AIR QUALITY- BUFFER ZONE	
1	Near Banjari Village	
2	Near Pauri Village	
3	Near Harup Village	
4	Near Paintoli Village	





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TEST REPORT

Test Report No. : ELES/RNC/2022/1768A	Report Release Date : 18.08.2022
---------------------------------------	----------------------------------

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/5200A
Address	: Lohardaga, Jharkhand-835302	Location	: Near Weigh Bridge; Serengdag-A Bauxite Mines(155.81ha)
Plant Status	: Operational	Sampling Date	: 18/07/2022 to 19/07/2022
		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 (%)	: 69	4	Weather Condition	: Clear

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	54
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	60 (24hrs)	21
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	5.5
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	10.8
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004	1 (24hrs)	0.016
Nickel (Ni)	ng/m ³	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01:2021	6 (Annual)	2.3

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TEST REPORT

Test Report No. : ELES/RNC/2022/1768A	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)	3.2
Benzo (a) Pyrene*	ng/m^3	USEPA 8270 C to -13A	01(Annual)	0.24

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/2022/1768B	Report Release Date : 18.08.2022
---------------------------------------	----------------------------------

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/5200B
Address	: Lohardaga, Jharkhand-835302	Location	: BKB Quarry; Serengdag-A Bauxite Mines(155.81ha)
Plant Status	: Operational	Sampling Date	: 18/07/2022 to 19/07/2022
		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 (%)	: 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)	60
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	60 (24hrs)	22
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	5.8
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	12.4
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/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)	0.017
Nickel (Ni)	ng/m^3	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01:2021	6 (Annual)	<2.0



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TEST REPORT

Test Report No. : ELES/RNC/2022/1768B	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)	2.6
Benzo (a) Pyrene*	ng/m^3	USEPA 8270 C to -13A	01(Annual)	0.28

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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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2022/1768C	Report Release Date : 18.08.2022
---------------------------------------	----------------------------------

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/5200C
Address	: Lohardaga, Jharkhand-83530	Location	: Mine Pit Quarry No.2A; Serengdag - A Bauxite Mines (155.81ha)
Plant Status	: Operational	Sampling Date	: 18/07/2022 to 19/07/2022
		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 (%)	: 69	4	Weather Condition	: Clear

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	50
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	60 (24hrs)	16
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	<5.0
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	6.3
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004	1 (24hrs)	0.008
Nickel (Ni)	ng/m ³	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01:2021	6 (Annual)	<2.0

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TEST REPORT

Test Report No. : ELES/RNC/2022/1768C	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*	ng/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/2022/1768D	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/5200D
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Pit Quarry No.2B Serengdag-A Bauxite Mines (155.81ha)
Plant Status	: Operational	Sampling Date	: 18/07/2022 to 19/07/2022
		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 (%)	: 69	4	Weather Condition	: Clear

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	57
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	60 (24hrs)	21
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	<5.0
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	9.6
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004	1 (24hrs)	0.011
Nickel (Ni)	ng/m ³	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01:2021	6 (Annual)	2.3

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TEST REPORT

Test Report No. : ELES/RNC/2022/1768D	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*	ng/m^3	USEPA 8270 C to -13A	01(Annual)	0.24

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

****End of Report****

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



ENVIRONMENTAL LABORATORIES &

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TEST REPORT

Test Report No. : ELES/RNC/2022/1768E	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/5200E
Address	: Lohardaga, Jharkhand-835302	Location	: Near Banjari Village
Plant Status	: Operational	Sampling Date	: 18/07/2022 to 19/07/2022
		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 (%) : 69	4	Weather Condition : Clear

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	48
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	60 (24hrs)	17
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	<5.0
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	7.1
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004	1 (24hrs)	0.006
Nickel (Ni)	ng/m ³	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01:2021	6 (Annual)	<2.0

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TEST REPORT

Test Report No. : ELES/RNC/2022/1768E	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*	ng/m^3	USEPA 8270 C to -13A	01(Annual)	<0.20

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

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Authorized Signatory

Dr. Deependra Kumar Sinha
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TEST REPORT

Test Report No. : ELES/RNC/2022/1768F	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/5200F
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pauri Village
Plant Status	: Operational	Sampling Date	: 18/07/2022 to 19/07/2022
		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 (%)	: 69	4 Weather Condition : Clear

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	44
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	60 (24hrs)	16
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	<5.0
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	6.6
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004	1 (24hrs)	0.004
Nickel (Ni)	ng/m ³	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01:2021	6 (Annual)	<2.0

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TEST REPORT

Test Report No. : ELES/RNC/2022/1768F 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*	ng/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/2022/1768G	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/5200G
Address	: Lohardaga, Jharkhand-835302	Location	: Near Harup Village
Plant Status	: Operational	Sampling Date	: 18/07/2022 to 19/07/2022
		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 (%)	: 69	4	Weather Condition	: Clear

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	38
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	60 (24hrs)	14
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	<5.0
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	6.2
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004	1 (24hrs)	0.004
Nickel (Ni)	ng/m ³	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01:2021	6 (Annual)	<2.0

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TEST REPORT

Test Report No. : ELES/RNC/2022/1768G 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*	ng/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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****End of Report****

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

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TEST REPORT

Test Report No. : ELES/RNC/2022/1768H	Report Release Date : 18.08.2022
---------------------------------------	----------------------------------

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/5200H
Address	: Lohardaga, Jharkhand-835302	Location	: Near Paintoli Village
Plant Status	: Operational	Sampling Date	: 18/07/2022 to 19/07/2022
		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 (%)	: 69	4	Weather Condition	: Clear

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	46
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	60 (24hrs)	22
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	<5.0
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	7.6
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004	1 (24hrs)	0.007
Nickel (Ni)	ng/m ³	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01:2021	6 (Annual)	<2.0

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TEST REPORT

Test Report No. : ELES/RNC/2022/1768H	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*	ng/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****

Page 2 of 2

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

Shrengdag A(155.81ha) Bauxite Mine-Environmental Monitoring Report

August 2022



CONTENT

Hindalco Industries : Shrengdag A(155.81ha) Bauxite Mine August 2022		Environmental Monitoring Report
Shrengdag A(155.81ha) Bauxite Mine		
AMBIENT AIR QUALITY- CORE ZONE		
1	Near Weigh Bridge	
2	BKB Quarry	
3	Mine Pit Quarry No.2A	
4	Mine Pit Quarry No.2B	
AMBIENT AIR QUALITY- BUFFER ZONE		
1	Near Banjari Village	
2	Near Pauri Village	
3	Near Harup Village	
4	Near Paintoli Village	





CIN: U74999JH2018PTC011125

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TEST REPORT

Test Report No.	: ELES/RNC/2022/1888A	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/3005A
Address	: Lohardaga, Jharkhand-835302	Location	: Near Weigh Bridge; Serengdag-A Bauxite Mines(155.81ha)
Plant Status	: Operational	Sampling Date	: 11/08/2022 to 12/08/2022
		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 (%)	: 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)	57
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	60 (24hrs)	20
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	5.3
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	9.2
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/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)	0.012
Nickel (Ni)	ng/m^3	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01:2021	6 (Annual)	<2.0

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TEST REPORT

Test Report No. : ELES/RNC/2022/1888A 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)	2.8
Benzo (a) Pyrene*	ng/m^3	USEPA 8270 C to -13A	01(Annual)	0.25

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/2022/1888B	Report Release Date : 16.09.2022
---------------------------------------	----------------------------------

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/3005B
Address	: Lohardaga, Jharkhand-835302	Location	: BKB Quarry; Serengdag-A Bauxite Mines(155.81ha)
Plant Status	: Operational	Sampling Date	: 11/08/2022 to 12/08/2022
		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 (%)	: 68	4 Weather Condition : Clear

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	58
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	60 (24hrs)	25
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	6.2
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	8.9
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004	1 (24hrs)	0.015
Nickel (Ni)	ng/m ³	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01:2021	6 (Annual)	3.1

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TEST REPORT

Test Report No. : ELES/RNC/2022/1888B 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*	ng/m^3	USEPA 8270 C to -13A	01(Annual)	0.21

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/2022/1888C	Report Release Date : 16.09.2022
---------------------------------------	----------------------------------

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/3005C
Address	: Lohardaga, Jharkhand-83530	Location	: Mine Pit Quarry No.2A; Serengdag - A Bauxite Mines (155.81ha)
Plant Status	: Operational	Sampling Date	: 11/08/2022 to 12/08/2022
		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 (%) : 68	4	Weather Condition : Clear

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	48
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	60 (24hrs)	19
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	<5.0
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	7.1
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004	1 (24hrs)	0.005
Nickel (Ni)	ng/m ³	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m ³	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/2022/1888C	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*	ng/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/2022/1888D	Report Release Date : 16.09.2022
---------------------------------------	----------------------------------

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/3005D
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Pit Quarry No.2B Serengdag-A Bauxite Mines (155.81ha)
Plant Status	: Operational	Sampling Date	: 11/08/2022 to 12/08/2022
		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 (%) : 68	4	Weather Condition : Clear

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	55
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	60 (24hrs)	27
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	5.3
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	7.4
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004	1 (24hrs)	0.009
Nickel (Ni)	ng/m ³	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01:2021	6 (Annual)	2.2

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TEST REPORT

Test Report No. : ELES/RNC/2022/1888D 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*	ng/m^3	USEPA 8270 C to -13A	01(Annual)	<0.20

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

Authorized Signatory

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ELES Pvt. Ltd. Technical Manager

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TEST REPORT

Test Report No. : ELES/RNC/2022/1888E	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/3005E
Address	: Lohardaga, Jharkhand-835302	Location	: Near Banjari Village
Plant Status	: Operational	Sampling Date	: 11/08/2022 to 12/08/2022
		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 (%)	: 68	4	Weather Condition	: Clear

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	40
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	60 (24hrs)	14
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	<5.0
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	7.7
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004	1 (24hrs)	0.003
Nickel (Ni)	ng/m ³	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01:2021	6 (Annual)	<2.0

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TEST REPORT

Test Report No.	: ELES/RNC/2022/1888E	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*	ng/m^3	USEPA 8270 C to -13A	01(Annual)	<0.20

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

Authorized Signatory

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TEST REPORT

Test Report No. : ELES/RNC/2022/1888F	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/3005F
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pauri Village
Plant Status	: Operational	Sampling Date	: 11/08/2022 to 12/08/2022
		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 (%)	: 68	4	Weather Condition	: Clear

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	47
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	60 (24hrs)	16
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	<5.0
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	8.4
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004	1 (24hrs)	0.005
Nickel (Ni)	ng/m ³	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01:2021	6 (Annual)	<2.0

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TEST REPORT

Test Report No. : ELES/RNC/2022/1888F 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*	ng/m^3	USEPA 8270 C to -13A	01(Annual)	<0.20

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

Authorized Signatory

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TEST REPORT

Test Report No. : ELES/RNC/2022/1888G	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/3005G
Address	: Lohardaga, Jharkhand-835302	Location	: Near Harup Village
Plant Status	: Operational	Sampling Date	: 11/08/2022 to 12/08/2022
		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 (%) : 68	4	Weather Condition : Clear

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	41
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	60 (24hrs)	18
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	<5.0
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	7.8
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004	1 (24hrs)	<0.002
Nickel (Ni)	ng/m ³	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01:2021	6 (Annual)	<2.0

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TEST REPORT

Test Report No. : ELES/RNC/2022/1888G 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*	ng/m^3	USEPA 8270 C to -13A	01(Annual)	<0.20

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

Authorized Signatory

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TEST REPORT

Test Report No.	: ELES/RNC/2022/1888H	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/3005H
Address	: Lohardaga, Jharkhand-835302	Location	: Near Paintoli Village
Plant Status	: Operational	Sampling Date	: 11/08/2022 to 12/08/2022
		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 (%)	: 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)	18
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	5.2
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	8.4
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/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)	0.003
Nickel (Ni)	ng/m^3	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01:2021	6 (Annual)	<2.0

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TEST REPORT

Test Report No.	: ELES/RNC/2022/1888H	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*	ng/m^3	USEPA 8270 C to -13A	01(Annual)	<0.20

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

Authorized Signatory

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ELES Pvt. Ltd. Technical Manager

****End of Report****

Page 2 of 2

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"Save Environment, Save Future"

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

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

Serengdag-A Bauxite Mine-Environmental Monitoring Report

September 2022



CONTENT

Hindalco Industries : Serengdag-A Bauxite Mine		Environmental Monitoring Report	September 2022
Serengdag-A Bauxite Mine			
AMBIENT AIR QUALITY- CORE ZONE			
1	Near Weigh Bridge		
2	BKB Quarry		
3	Mine Pit Quarry No.2A		
4	Mine Pit Quarry No.2B		
AMBIENT AIR QUALITY- BUFFER ZONE			
1	Near Banjari Village		
2	Near Pauri Village		
3	Near Harup Village		
4	Near Paintoli Village		
AMBIENT NOISE MONITORING			
WORKZONE NOISE MONITORING			
DRINKING WATER ANALYSIS			
EFFLUENT WATER ANALYSIS			





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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No.	: ELES/RNC/2022/1990	Report Release Date	: 06.10.2022
ULR No.	: TC883922000001088F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/3215
Address	: Lohardaga, Jharkhand-835203	Location	: Near Weigh Bridge Serengdag-A Bauxite Mines
Plant Status	: Operational	Sampling Date	: 26/09/2022 to 27/09/2022
Period of Analysis	: 01/10/2022 to 06/10/2022	Registration Date	: 01/10/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 26.7	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 67	4	Weather Condition	: Cloudy

Discipline	: Chemical	Group	: Atmospheric Pollution	
Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	52
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	60 (24hrs)	23
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	5.7
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	8.6
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0

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TEST REPORT

Test Report No. : ELES/RNC/2022/1990	Report Release Date : 06.10.2022
ULR No. : TC883922000001088F	

Discipline	: Chemical	Group	: Atmospheric Pollution	
Parameter	Unit	Test Protocol	Regulatory Limit	Result
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004	1 (24hrs)	0.007
Nickel (Ni)	ng/m^3	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01:2021	6 (Annual)	<2.0

****End of Report****

Rekha Saxena
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Rekha Saxena
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Director
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ENVIRONMENTAL LABORATORIES &

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TEST REPORT

Test Report No. : ELES/RNC/2022/1990	Report Release Date : 06.10.2022
--------------------------------------	----------------------------------

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/3215
Address	: Lohardaga, Jharkhand-835203	Location	: Near Weigh Bridge Serengdag-A Bauxite Mines
		Sampling Date	: 26/09/2022 to 27/09/2022
Plant Status	: Operational	Registration Date	: 01/10/2022
Period of Analysis	: 01/10/2022 to 06/10/2022	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C) : 26.7	2	Barometric Pressure (mmHg) : 742
3	Relative Humidity (%) : 67	4	Weather Condition : Cloudy

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	µg/m ³	ASTM D3687:2007	05(Annual)	2.3
Benzo(a)Pyrene*	ng/m ³	USEPA 8270 C to -13A	01(Annual)	0.22

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

****End of Report****

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Page 1 of 1

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No.	: ELES/RNC/2022/1991	Report Release Date	: 06.10.2022
ULR No.	: TC883922000001089F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/3216
Address	: Lohardaga, Jharkhand-835203	Location	: BKB Quarry Serengdag-A Bauxite Mines
Plant Status	: Operational	Sampling Date	: 26/09/2022 to 27/09/2022
Period of Analysis	: 01/10/2022 to 06/10/2022	Registration Date	: 01/10/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 26.7	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 67	4	Weather Condition	: Cloudy

Discipline	: Chemical	Group	: Atmospheric Pollution	
Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	54
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	60 (24hrs)	22
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	5.6
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	9.1
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0

Page 1 of 2

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CIN: U74999JH2018PTC011123

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TEST REPORT

Test Report No. : ELES/RNC/2022/1991	Report Release Date : 06.10.2022
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CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/3216
Address	: Lohardaga, Jharkhand-835203	Location	: BKB Quarry Serengdag-A Bauxite Mines
		Sampling Date	: 26/09/2022 to 27/09/2022
Plant Status	: Operational	Registration Date	: 01/10/2022
Period of Analysis	: 01/10/2022 to 06/10/2022	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C) : 26.7	2	Barometric Pressure (mmHg) : 742
3	Relative Humidity (%) : 67	4	Weather Condition : Cloudy

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	µg/m ³	ASTM D3687:2007	05(Annual)	2.4
Benzo(a)Pyrene*	ng/m ³	USEPA 8270 C to -13A	01(Annual)	0.23

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

****End of Report****

Rekha Saxena
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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No.	: ELES/RNC/2022/1991	Report Release Date	: 06.10.2022
ULR No.	: TC883922000001089F		

Discipline	: Chemical	Group	: Atmospheric Pollution	
Parameter	Unit	Test Protocol	Regulatory Limit	Result
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004	1 (24hrs)	0.012
Nickel (Ni)	ng/m^3	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01:2021	6 (Annual)	2.1

****End of Report****

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No.	: ELES/RNC/2022/1992	Report Release Date	: 06.10.2022
ULR No.	: TC883922000001090F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/3217
Address	: Lohardaga, Jharkhand-835203	Location	: Mine Pit Quarry No.2A Serengdag-A Bauxite Mines
Plant Status	: Operational	Sampling Date	: 26/09/2022 to 27/09/2022
Period of Analysis	: 01/10/2022 to 06/10/2022	Registration Date	: 01/10/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 26.7	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 67	4	Weather Condition	: Cloudy

Discipline	: Chemical	Group	: Atmospheric Pollution	
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)	22
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	<5.0
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	8.2
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2022/1992	Report Release Date : 06.10.2022
ULR No. : TC883922000001090F	

Discipline	: Chemical	Group	: Atmospheric Pollution	
Parameter	Unit	Test Protocol	Regulatory Limit	Result
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004	1 (24hrs)	0.005
Nickel (Ni)	ng/m^3	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01:2021	6 (Annual)	<2.0

Rekha Saxena
Authorized Signatory

****End of Report****

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TEST REPORT

Test Report No. : ELES/RNC/2022/1992	Report Release Date : 06.10.2022
--------------------------------------	----------------------------------

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/3217
Address	: Lohardaga, Jharkhand-835203	Location	: Mine Pit Quarry No.2A Serengdag-A Bauxite Mines
Plant Status	: Operational	Sampling Date	: 26/09/2022 to 27/09/2022
Period of Analysis	: 01/10/2022 to 06/10/2022	Registration Date	: 01/10/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 26.7	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 67	4	Weather Condition	: Cloudy

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	µg/m ³	ASTM D3687:2007	05(Annual)	<2.0
Benzo(a)Pyrene*	ng/m ³	USEPA 8270 C to -13A	01(Annual)	<0.20

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

****End of Report****

Rekha Saxena
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Website : www.elespl.co.in



CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No.	: ELES/RNC/2022/1993	Report Release Date	: 06.10.2022
ULR No.	: TC883922000001091F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/3218
Address	: Lohardaga, Jharkhand-835203	Location	: Mine Pit Quarry No.2B Serengdag-A Bauxite Mines
Plant Status	: Operational	Sampling Date	: 26/09/2022 to 27/09/2022
Period of Analysis	: 01/10/2022 to 06/10/2022	Registration Date	: 01/10/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 26.7	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 67	4	Weather Condition	: Cloudy

Discipline	: Chemical	Group	: Atmospheric Pollution	
Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	50
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part-24): 2019	60 (24hrs)	27
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	5.5
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	8.8
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part-25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2022/1993	Report Release Date : 06.10.2022
ULR No. : TC883922000001091F	

Discipline	: Chemical	Group	: Atmospheric Pollution	
Parameter	Unit	Test Protocol	Regulatory Limit	Result
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004	1 (24hrs)	0.009
Nickel (Ni)	ng/m^3	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01:2021	6 (Annual)	2.3

****End of Report****

Rekha Saxena
Authorized Signatory

Rekha Saxena
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Director
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TEST REPORT

Test Report No. : ELES/RNC/2022/1993	Report Release Date : 06.10.2022
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CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/3218
Address	: Lohardaga, Jharkhand-835203	Location	: Mine Pit Quarry No.2B Serengdag-A Bauxite Mines
		Sampling Date	: 26/09/2022 to 27/09/2022
Plant Status	: Operational	Registration Date	: 01/10/2022
Period of Analysis	: 01/10/2022 to 06/10/2022	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 26.7	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 67	4	Weather Condition	: Cloudy

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	µg/m ³	ASTM D3687:2007	05(Annual)	2.6
Benzo(a)Pyrene*	ng/m ³	USEPA 8270 C to -13A	01(Annual)	0.27

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

****End of Report****

Rekha Saxena
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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No.	: ELES/RNC/2022/1994	Report Release Date	: 06.10.2022
ULR No.	: TC883922000001092F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/3219
Address	: Lohardaga, Jharkhand-835203	Location	: Near Banjari Village Serengdag-A Bauxite Mines
Plant Status	: Operational	Sampling Date	: 26/09/2022 to 27/09/2022
Period of Analysis	: 01/10/2022 to 06/10/2022	Registration Date	: 01/10/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 26.7	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 67	4	Weather Condition	: Cloudy

Discipline	: Chemical	Group	: Atmospheric Pollution	
Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	41
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	60 (24hrs)	24
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	<5.0
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	9.5
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No.	: ELES/RNC/2022/1994	Report Release Date	: 06.10.2022
ULR No.	: TC883922000001092F		

Discipline	: Chemical	Group	: Atmospheric Pollution	
Parameter	Unit	Test Protocol	Regulatory Limit	Result
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004	1 (24hrs)	0.003
Nickel (Ni)	ng/m^3	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01:2021	6 (Annual)	<2.0

****End of Report****

Rekha Saxena
Authorized Signatory

Rekha Saxena
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TEST REPORT

Test Report No. : ELES/RNC/2022/1994	Report Release Date : 06.10.2022
--------------------------------------	----------------------------------

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/3219
Address	: Lohardaga, Jharkhand-835203	Location	: Near Banjari Village Serengdag-A Bauxite Mines
Plant Status	: Operational	Sampling Date	: 26/09/2022 to 27/09/2022
Period of Analysis	: 01/10/2022 to 06/10/2022	Registration Date	: 01/10/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 26.7	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 67	4	Weather Condition	: Cloudy

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	µg/m ³	ASTM D3687:2007	05(Annual)	<2.0
Benzo(a)Pyrene*	ng/m ³	USEPA 8270 C to -13A	01(Annual)	<0.20

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

****End of Report****

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No.	: ELES/RNC/2022/1995	Report Release Date	: 06.10.2022
ULR No.	: TC883922000001093F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/3220
Address	: Lohardaga, Jharkhand-835203	Location	: Near Pauri Village Serengdag-A Bauxite Mines
Plant Status	: Operational	Sampling Date	: 26/09/2022 to 27/09/2022
Period of Analysis	: 01/10/2022 to 06/10/2022	Registration Date	: 01/10/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 26.7	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 67	4	Weather Condition	: Cloudy

Discipline	: Chemical	Group	: Atmospheric Pollution	
Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	44
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	60 (24hrs)	20
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	6.1
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	9.0
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0

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TEST REPORT

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ULR No.	: TC883922000001093F		

Discipline	: Chemical	Group	: Atmospheric Pollution	
Parameter	Unit	Test Protocol	Regulatory Limit	Result
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004	1 (24hrs)	0.004
Nickel (Ni)	ng/m^3	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01:2021	6 (Annual)	2.2

****End of Report****

Rekha Saxena
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TEST REPORT

Test Report No. : ELES/RNC/2022/1995	Report Release Date : 06.10.2022
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CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/3220
Address	: Lohardaga, Jharkhand-835203	Location	: Near Pauri Village Serengdag-A Bauxite Mines
Plant Status	: Operational	Sampling Date	: 26/09/2022 to 27/09/2022
Period of Analysis	: 01/10/2022 to 06/10/2022	Registration Date	: 01/10/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 26.7	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 67	4	Weather Condition	: Cloudy

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	µg/m ³	• ASTM D3687:2007	05(Annual)	<2.0
Benzo(a)Pyrene*	ng/m ³	USEPA 8270 C to -13A	01(Annual)	<0.20

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

****End of Report****

Rekha Saxena
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B. Sc, M. Sc. (Botany)
Director
ELES PVT LTD

Page 1 of 1

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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/2022/1996	Report Release Date	: 06.10.2022
ULR No.	: TC883922000001094F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/3221
Address	: Lohardaga, Jharkhand-835203	Location	: Near Harup Village Serengdag-A Bauxite Mines
Plant Status	: Operational	Sampling Date	: 26/09/2022 to 27/09/2022
Period of Analysis	: 01/10/2022 to 06/10/2022	Registration Date	: 01/10/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 26.7	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 67	4	Weather Condition	: Cloudy

Discipline	: Chemical	Group	: Atmospheric Pollution	
Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	36
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	60 (24hrs)	17
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	<5.0
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	7.2
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No.	: ELES/RNC/2022/1996	Report Release Date	: 06.10.2022
ULR No.	: TC883922000001094F		

Discipline	: Chemical	Group	: Atmospheric Pollution	
Parameter	Unit	Test Protocol	Regulatory Limit	Result
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22); 2004	1 (24hrs)	0.002
Nickel (Ni)	ng/m^3	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01:2021	6 (Annual)	<2.0

****End of Report****

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TEST REPORT

Test Report No. : ELES/RNC/2022/1996	Report Release Date : 06.10.2022
--------------------------------------	----------------------------------

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/3221
Address	: Lohardaga, Jharkhand-835203	Location	: Near Harup Village Serengdag-A Bauxite Mines
Plant Status	: Operational	Sampling Date	: 26/09/2022 to 27/09/2022
Period of Analysis	: 01/10/2022 to 06/10/2022	Registration Date	: 01/10/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 26.7	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 67	4	Weather Condition	: Cloudy

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	µg/m ³	ASTM D3687:2007	05(Annual)	<2.0
Benzo(a)Pyrene*	ng/m ³	USEPA 8270 C to -13A	01(Annual)	<0.20

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

****End of Report****

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No.	: ELES/RNC/2022/1997	Report Release Date	: 06.10.2022
ULR No.	: TC883922000001095F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/3222
Address	: Lohardaga, Jharkhand-835203	Location	: Near Paintoli Village Serengdag-A Bauxite Mines
Plant Status	: Operational	Sampling Date	: 26/09/2022 to 27/09/2022
Period of Analysis	: 01/10/2022 to 06/10/2022	Registration Date	: 01/10/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 26.7	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 67	4	Weather Condition	: Cloudy

Discipline	: Chemical	Group	: Atmospheric Pollution	
Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	39
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	60 (24hrs)	23
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	<5.0
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	7.0
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2014	100 (8hrs)	<20.0
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	400 (24hrs)	<10.0
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	2 (8hrs)	<1.0

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TEST REPORT

Test Report No. : ELES/RNC/2022/1997	Report Release Date : 06.10.2022
ULR No. : TC883922000001095F	

Discipline	: Chemical	Group	: Atmospheric Pollution	
Parameter	Unit	Test Protocol	Regulatory Limit	Result
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004	1 (24hrs)	0.005
Nickel (Ni)	ng/m^3	IS 5182(Part-26):2020	20 (Annual)	<6.0
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01:2021	6 (Annual)	<2.0

****End of Report****

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TEST REPORT

Test Report No. : ELES/RNC/2022/1997	Report Release Date : 06.10.2022
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CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/3222
Address	: Lohardaga, Jharkhand-835203	Location	: Near Paintoli Village Serengdag-A Bauxite Mines
Plant Status	: Operational	Sampling Date	: 26/09/2022 to 27/09/2022
Period of Analysis	: 01/10/2022 to 06/10/2022	Registration Date	: 01/10/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 26.7	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 67	4	Weather Condition	: Cloudy

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	µg/m ³	ASTM D3687:2007	05(Annual)	<2.0
Benzo(a)Pyrene*	ng/m ³	USEPA 8270 C to -13A	01(Annual)	<0.20

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

****End of Report****

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CIN: U74999/JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2022/1998	Report Release Date : 06.10.2022
ULR No. : TC883922000001096F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Date	: 26.09.2022 to 27.09.2022
Address	: Lohardaga, Jharkhand-835203	Sampling Received Date	: 01.10.2022
Plant Status	: Operational	Type of Sample	: Ambient Noise
		Sampling procedure	: ELES/DOC/SMPL/03
		Sample Drawn By	: ELES Pvt. Ltd.
		Period of Analysis	: 01.10.2022 to 06.10.2022

Location	Unit	Test Protocol	Result		Regulatory Limit (Industrial Zone)
			Time	L _{eq}	
Serengdag-A Mines Pit	dB(A)	IS 9989:1981, RA 2001	Day Time	70	75 dB(A) Day Time & 70 dB(A) Night Time
Sample ID: ELES/RNC/2022/AN/3223			Night Time	52	

****End of Report****

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2021/1999	Report Release Date : 06.10.2022
ULR No. : TC883922000001097F	
CUSTOMER DETAILS	SAMPLE DETAILS
Customer Name : Hindalco Industries Limited	Sampling Date : 26.09.2022
Address : Lohardaga, Jharkhand-835203	Sampling Received Date : 01.10.2022
	Type of Sample : Work zone Noise
	Sampling procedure : ELES/DOC/SMPL/03
	Sample Drawn By : ELES Pvt. Ltd.
Plant Status : Operational	Period of Analysis : 01.10.2022 to 06.10.2022

Location	Unit	Test Protocol	Result		Regulatory Limit (Industrial Zone)
			Time	L _{eq}	
Serengdag-A Bauxite Mines - Near Poclairn	dB(A)	IS 9989:1981, RA 2001	Day Time	72	75 dB(A) Day Time
Sample ID: ELES/RNC/2022/AN/3224					

****End of Report****

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Website : www.elespl.co.in



CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No.	: ELES/RNC/2022/2000	Report Release Date	: 06.10.2022
ULR No.	: TC883922000001098F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/DW/3225
Address	: Lohardaga, Jharkhand-835203	Location	: Drinking Water - Serengdag-A Bauxite Mines
Plant Status	: Operational	Sampling Date	: 27/09/2022
Period of Analysis	: 01/10/2022 to 06/10/2022	Registration Date	: 01/10/2022
		Type of Sample	: Drinking Water
		Sampling Procedure	: ELES/DOC/SMPL/01
		Sample Condition	: Sealed & Preserved

Discipline	: Chemical	Group	: Water	
Parameter	Unit	Test Protocol	Result	Regulatory Limit as per IS:10500:2012 Acceptable Limit
pH	-	APHA 23rd Edition 2017,4500-H+-B	7.4	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	0.19	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	138	500
Monochloramines	mg/L	APHA 23rd Edition 2017, 4500 Cl-G	<1.0	--
Dichloramines	mg/L	APHA 23rd Edition 2017, 4500 Cl-G	<1.0	--
Total Hardness (as CaCO3)	mg/L	APHA 23rd Edition 2017, 2340 C	26.6	200
Total Alkalinity (as CaCO3)	mg/L	IS 3025 (Part-23):1986	30.4	200

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No.	: ELES/RNC/2022/2000	Report Release Date	: 06.10.2022
ULR No.	: TC883922000001098F		

Parameter	Unit	Test Protocol	Result	Regulatory Limit
				as per IS:10500:2012 Acceptable Limit
Chloride (as Cl)	mg/L	IS 3025 (Part-32): 1988: RA 2014	6.2	250
Sulphate (as SO ₄)	mg/L	IS 3025 (Part-24):1986	3.7	200
Nitrate (as NO ₃)	mg/L	IS 3025 (Part-34): 1988	1.88	45
Fluoride (as F)	mg/L	APHA 23rd Edition 2017,4500-F--D	0.1508	1
Ammoniacal Nitrogen (as NH ₃ -N)	mg/L	APHA 23rd Edition 2017, 4500 Norg-C	<0.1	--
Cyanide (as CN)	mg/L	IS 3025 (Part-27): 1986	<0.0125	0.05
Phenolic Compounds (as C ₆ H ₅ 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
Discipline	: Chemical	Group	: Residue in Water	
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	8.2	75
Magnesium (as Mg)	mg/L	IS 3025 (Part-46):1994	1.6	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
Aluminium (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

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No.	: ELES/RNC/2022/2000	Report Release Date	: 06.10.2022
ULR No.	: TC883922000001098F		

Parameter	Unit	Test Protocol	Result	Regulatory Limit
				as per IS:10500:2012 Acceptable Limit
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
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	0.001
Mercury (as Hg)	mg/L	IS 3025 (Part-48): 2000	<0.001	0.01
Nickel (as Ni)	mg/L	APHA 23rd Edition, 3111 B&C	<0.01	0.02

****End of Report****

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

Page 3 of 3

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Website : www.elespl.co.in

TEST REPORT

Test Report No. : ELES/RNC/2022/2000	Report Release Date : 06.10.2022
--------------------------------------	----------------------------------

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/DW/3225
Address	: Lohardaga, Jharkhand-835203	Location	: Drinking Water - Serengdag-A Bauxite Mines
Plant Status	: Operational	Sampling Date	: 27/09/2022
Period of Analysis	: 01/10/2022 to 06/10/2022	Registration Date	: 01/10/2022
		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
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
Pesticides				
Alachlor*	µg/L	SO-IN-MUL-TE-020	<0.01	20
Atrazine*	µg/L	SO-IN-MUL-TE-020	<0.01	2.1
Aldrin/ Dieldrin*	µg/L	SO-IN-MUL-TE-020	<0.01	0.03
Alpha HCH*	µg/L	SO-IN-MUL-TE-020	<0.01	0.02

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TEST REPORT

Test Report No. : ELES/RNC/2022/2000

Report Release Date : 06.10.2022

Parameter	Unit	Test Protocol	Result	Regulatory Limit
				as per IS:10500:2012
				Acceptable Limit
Beta HCH*	µg/L	SO-IN-MUL-TE-020	<0.01	0.03
Butachlor*	µg/L	SO-IN-MUL-TE-020	<0.01	120
Chlorpyriphos*	µg/L	SO-IN-MUL-TE-020	<0.01	26
Delta HCH*	µg/L	SO-IN-MUL-TE-020	<0.01	0.03
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	0.04
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	185
Methyl parathion*	µg/L	SO-IN-MUL-TE-020	<0.01	0.4
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****

Rekha Saxena
Authorized Signatory
Rekha Saxena
B. Sc, M. Sc. (Botany)

Director
ELES Pvt. Ltd.

Page 2 of 2

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CIN: U74999JH2018PTC011125


TEST REPORT

Test Report No. : ELES/RNC/2022/2354C	Report Release Date : 11.11.2022
---------------------------------------	----------------------------------

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/EF/3358C
Address	: Lohardaga, Jharkhand-835302	Location	: Serengdag-A Bauxite Mines (155.81 ha)
Plant Status	: Operational	Sampling Date	: 20/09/2022
		Type of Sample	: Effluent Water
		Sampling Procedure	: ELES/DOC/SMPL/01
		Sample Condition	: Sealed & Preserved

Parameter	Unit	Test Protocol	Result	CPCB Regulatory Limits EPR,1986: Schedule VI (Inland Surface Water)
pH	-	APHA 23rd Edition 2017,4500-H+-B	8.6	5.5-9.0
Total Suspended Solids (TSS)	mg/L	IS 3025 (Part-17):2022	71	100
Temperature	°C	IS 3025 (Part-9):1984; RA 2017	25.5	Shall not exceed 5°C above the receiving Water Temperature
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part-16):1984	1714	--
Chemical Oxygen Demand (COD)	mg/L	IS 3025 (Part-58): 2006; RA 2017	75	250
Biochemical Oxygen Demand (BOD)	mg/L	IS 3025 (Part-44): 1993; RA 2019	16	30
Oil & Grease	mg/L	APHA 23 rd Ed.2017,5520B	2.3	10
Calcium (as Ca)	mg/L	APHA 23rd Edition 2017, 3500 B	27	--
Iron (as Fe)	mg/L	APHA 23rd Edition, 3111 B&C	2.31	3
Aluminum (as Al)	mg/L	APHA 23rd Edition, 3125 B	2.02	--

****End of Report****


Authorized Signatory
SANDIP BERA
SENIOR MANAGER
ELES PVT. LTD.

Page 1 of 1

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Annexure 3

Date – 01.09.2022

Office Order

Environmental Cell has been re-constituted at Sherengdag Bauxite Mine (Area 155.81 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. Shambhu Basisth (Coordinator)
2. Mr. Rajarshi Majumdar- Geologist
3. Ms. Abhilasha Singh– 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", is positioned above the printed name.

Basudev Gangopadhyay
AVP (Planning, Environment & Compliance)


Annexure 4

Production, Mined Out, Back Filled and Over Burden removal from April'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
Minerals & Minerals Limited								
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
Basudev Gangopadhyay
AVP (Planning, Environment & Compliance)