

ADITYA BIRLA



HIL/LHD/ENV/MoEF/386

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 Pakhar Bauxite Mining (115.13 ha) project of M/s Hindalco Industries Limited located in Dist- Lohardaga, Jharkhand for the period April'22 to September'22.

Ref: Environmental Clearance letter no J-11015/406/2007 -IA II (M) dated 27th Nov 2012

Sir,

With reference to the above, we are submitting herewith the Compliance status report of EC conditions for **Pakhar Bauxite Mining (115.13 ha)** project of **M/s Hindalco Industries Limited** located in Lohardaga, Jharkhand for the period April'22 to September'22.

The lease detail is as below.

Lease area (ha)	Production Capacity (MT)	Lease Period
115.13	300000	19.07.1996 to 31.03.2030

Hope you will find the same in order.

Thanking You

Yours Sincerely
FOR HINDALCO INDUSTRIES LIMITED

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

Enclosure: - As Above

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

Name of the Project : Pakhar Bauxite Mine (115.13 ha)
M/s Hindalco Industries Limited

Environment Clearance No. & date : J-11015/406/2007-IA.II(M), dated 27.11.2012

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

S No	Specific Conditions	Compliance Status
(i)	The project proponent shall obtain Consent to Operate from the Jharkhand State Pollution Control Board and effectively implement all the conditions stipulated therein.	Consent to operate is in place and conditions are being complied with the progress of mining. The existing consent operate is valid up to 31 December 2025.
(ii)	All the conditions stipulated by the Jharkhand State Pollution Control Board in their NOC shall be effectively implemented.	Implementations of 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 December 2025. Productions of bauxite are within limits specified in consent to operate.
(iii)	Corporate Environment Policy and hierarchical system for ensuring adherence to the policy and compliance with environmental regulation in accordance with the office memorandum dated 26.4.2011 issued by MoEF should be put in place.	Corporate Environment Policy and hierarchical system is in place.
(iv)	The Company shall submit within 3 month their policy towards Corporate Environment Responsibility which should inter-alia address (i) Standard operating process/procedure to bring Into focus any infringements/ deviation/ violation of environmental or forest norms/conditions, (ii) Hierarchical system or Administrative order of the company to deal with environmental issues and ensuring compliance EC conditions and (iii) System of reporting of non compliance/violation environmental norms to the Board of Directors of the Company and/or stakeholders or shareholders.	Policies towards Corporate Environment Responsibility is part of Corporate Environment policy and in place. The latest Corporate environment policy enumerating corporate responsibilities is attached as Annexure 6. Company has implemented a system in line with the above policies which addresses following points. (i) Standard operating process / process to bring into focus any infringement / deviation / violation of the environmental or forest norms / conditions, (ii) Hierarchical system or Administrative order of the company to deal with the environmental issues and for ensuring compliance with the

		EC conditions and (iii) System of reporting of non-compliances / violations of environmental norms to the Board of Directors of the company.
(v)	The environmental clearance is subject to approval of the State Land use Department, Government of Jharkhand for diversion of agricultural land for nonagricultural 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 (Land Owner) 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 state government approval.
(vi)	The critical habitat in the area including dens of python, fox and bear should be protected by adopting appropriate wildlife conservation measures.	Appropriate wildlife conservation measures are being taken which are as follows: - <ol style="list-style-type: none"> 1. Permanent pillars are established within the mine lease area. 2. Maintenance of the forest road 3. Ensured necessary air and noise pollution control measures. 4. Daily water sprinkling is being carried out on the forest road 5. Transportation is 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>
(vii)	The mining operations shall be restricted to above ground water table and it should not intersect the groundwater table. In case of working below the ground water table, prior approval of the Ministry of Environment and Forests and the Central Ground Water Authority shall be obtained, for which a detailed hydro-geological study shall be carried out.	Shallow depth mining is being done in the Pakhar Bauxite Mines and not intersected ground water. In future also, working zone will be restricted to above ground water table. We undertake that no mining is/was carried out below ground water table and the same status will be maintained in future also.
(viii)	The project proponent shall ensure that no natural watercourse and/or water resources	It is being ensured. No natural water course is obstructed due to mining

	shall be obstructed due to any mining operations. Adequate measures shall be taken for conservation and protection of the 1st and 2 nd order streams, if any emanating or passing through the mine lease during the course of mining operation.	activities.
(ix)	The topsoil shall temporarily be stored at earmarked site(s) only and it should not be kept unutilized for long. The topsoil shall be used for land reclamation and plantation.	Sequential backfilling and reclamation of the mined-out area are being implemented during mining operation. Topsoil is being spread over the back filled area in the process of reclamation. Data of back filling is enclosed as Annexure-4. This activity is being done progressively and continuously with the progress of mining activity.
(x)	The over burden (OB) generated during the mining operation shall be temporarily stacked at earmarked dump site(s) only for the purpose of backfilling. Backfilling shall commence from the third year onwards and thereafter the waste generated shall be concurrently backfilled in the mined out area. There shall be no external OB dump. An area of 16.39ha of the worked out pit shall be backfilled and reclaimed by plantation during the plan period. Monitoring and management of rehabilitated areas shall continue until the vegetation becomes self-sustaining. Compliance status should be submitted to the Ministry of Environment & Forests and its Regional Office, Bhubaneswar on six monthly basis.	The over burden (OB) generated during the mining operation was stacked at earmarked dump site(s) only for the purpose of back-filling. Entire OB dump is rehandled and used for reclamation. Monitoring and management of rehabilitated areas is continuing and will continue until the vegetation becomes self-sustaining. As on date there is no external dump. Compliance status is being submitted to the Ministry of Environment & Forests regularly on six monthly basis.
(xi)	Catch drains and siltation ponds of appropriate size shall be constructed for the working pit, temporary soil, OB and mineral dumps to arrest flow of silt and sediment directly into the agricultural fields, the Chaupat Nadi, the Kisko Nadi, the Shankh Nadi, Kisko Nallah, the Narachiya Nallah and other water bodies, 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 the monsoon and maintained properly. Garland drains, settling tanks and check dams of appropriate size, gradient and length shall be	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

	<p>constructed both around the mine pit and temporary over burden dumps to prevent run off of water and flow of sediments directly into the agricultural fields, the Chaupat Nadi, the Kisko Nadi, the Shankh Nadi, Kisko Nallah, the Narachiya Nallah and other water bodies and sump capacity should be designed keeping 50% safety margin over and above peak sudden rainfall (based on 50 years data) and maximum discharge in the area adjoining the mine site. Sump capacity should also provide adequate retention period to allow proper settling of silt material. Sedimentation pits should be constructed at the corners of the garland drains and desilted at regular intervals.</p>	<p>directly into the agricultural field and water bodies, if applicable.</p> <p>Sump of adequate capacity is being provided and maintained as required.</p> <p>No external dump exists in project area as on date.</p>
(xii)	<p>Dimension of the retaining wall at the toe of the temporary OB dumps and the OB benches within the mine to check run-off and siltation should be based on the rain fall data.</p>	<p>There is no external dump.</p>
(xiii)	<p>The void left unfilled in an area of 4.5ha shall be converted into water body. The higher benches of excavated void/mining pit shall be terraced and plantation done to stabilize the slopes. The slope of higher benches shall be made gentler for easy accessibility by local people to use the water body. Peripheral fencing shall be carried out all along the excavated area.</p>	<p>Water body exists in Mine lease area. Total 2.49 ha has been converted into water bodies within the lease.</p> <p>Further water bodies will be created as required.</p> <p>Mining is being carried out in a scientific manner as per Mining Plan.</p> <p>Fencing provided along excavated area.</p>
(xiv)	<p>Plantation shall be raised in an area of 24.09ha including a 7.5m wide green belt in the safety zone around the mining lease by planting the native species around reclaimed area, mine benches, around water body, along the roads etc. in consultation with the local DFO/Agriculture Department. The density of the trees should be around 1500 plants per hectare. Greenbelt shall be developed all along the mine lease area in a phased manner and shall be completed within first five years.</p>	<p>It is already in practice. Phase wise plantation of native species in consultation with forest department is being carried out within the safety zone and mined out/reclaimed pits.</p> <p>Total 3478 saplings have been planted between the period of April'22 to September'22 within the lease. Total 15.89 ha areas have been planted till date. In addition to these agricultural activities is going on reclaimed land as per the consent from landowners.</p> <p>Green belt development programme is in progress with progress of mining activities in a phased manner.</p>

(xv)	Effective safeguard measures such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as around crushing and screening plant, loading and unloading point and transfer points. Extensive water sprinkling shall be carried out on haul roads. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.	Mobile water tankers 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. AAQ parameters are monitored from time to time which is enclosed as Annexure- 2.
(xvi)	The project authority should implement suitable conservation measures to augment ground water resources in the area in consultation with the Regional Director, Central Ground Water Board.	Rainwater harvesting pond is constructed within Mine and water is being harvested in mined out pit. It may be noted that there is no chance to intersect ground water table during mining operation.
(xvii)	Regular monitoring of ground water level and quality shall be carried out in and around the mine lease by establishing a network of existing wells and installing new piezometers during the operation. The periodic monitoring [(at least four times in a year- pre-monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January); once in each season)] shall be carried out in consultation with the State Ground Water Board/Central Ground Water Authority and the data thus collected may be sent regularly to the Ministry of Environment and Forests and its Regional Office Bhubneswar, the Central Ground Water Authority and the Regional Director, Central Ground Water Board. If at any stage, it is observed that the groundwater table is getting depleted due to the mining activity, necessary corrective measures shall be carried out.	We are not using ground water for any mining purpose. Piezometer has been installed for monitoring of ground water level. Water quality and water level report are attached herewith as Annexure 1.
(xviii)	Appropriate mitigative measures should be taken to prevent pollution of the Chaupat Nadi, the Kisko Nadi and the Shankh Nadi in consultation with the State Pollution Control Board.	Being complied, There is no discharge of mine water into any drainage network. Monitoring is being done.
(xix)	The project proponent shall obtain necessary prior permission of the competent authorities for drawl of requisite quantity of ground water, required for the project.	We are not using ground water for mining purpose. No Objection Certificate (NOC) for ground water abstraction from CGWB for Pakhar (115.13 ha) mines has been

		obtained for drinking purpose only.
(xx)	The project proponent shall practice suitable rainwater harvesting measures on long term basis and work out a detailed scheme for rainwater harvesting in consultation with the Central Groundwater Authority and submit a copy of the same to the Ministry of Environment and Forests and its Regional Office, Bhubneswar.	Rainwater is being harvested in mined out pit. Apart from rainwater harvesting pond, catch drain, sump etc is being provided with progress of mining activity. Backfilling and drainage system in mine is so designed that water do not flow outside mine lease area and gets recharge in mine lease area itself.
(xxi)	Vehicular emissions shall be kept under control and regularly monitored. Measures shall be taken for maintenance of vehicles used in mining operations and in transportation of mineral. The mineral transportation shall be carried out through the covered trucks only and the vehicles carrying the mineral shall not be overloaded.	Regular maintenance of vehicles are undertaken to minimize vehicular emission. All the transporters have been instructed to obtain PUC for their vehicles from the competent authority and submit to the concerned officer for verification. Bauxite is transported through tarpaulin cover trucks.
(xxii)	Drills shall either be operated with the dust extractors or equipped with water injection system.	Wet drilling is in practice.
(xxiii)	Blasting operation should be carried out only during the daytime. Controlled blasting should be practiced. The mitigative measures for control of ground vibrations 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 taken to mitigate impact of blasting.
(xxiv)	Mineral handling area shall be provided with adequate number of high efficiency dust extraction system. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.	Water sprinkling is being carried out regularly at loading, unloading and mineral handling areas as well as at all the transfer points by water sprinkler/ mobile water tanker.
(xxv)	Sewage treatment plant shall be installed for the colony. ETP shall also be provided for the workshop and wastewater generated during the mining operation.	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 suitable site in Pakhar plateau.
(xxvi)	Pre-placement medical examination and periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly.	System is already in place.
(xxvii)	It shall be ensured that the fluoride level in the	There is no issue found in respect of

	drinking water to be used by the workers in the project as well as to be provided to the public, if any, should meet the prescribed norms in this regard.	fluoride in and around the mines. Water monitoring report is annexed as Annexure-2 with this report.
(xxviii)	The project proponent shall take all precautionary measures during mining operation for conservation and protection of endangered fauna namely python, leaf monkey (Presbyits phayrei) etc. spotted in the study area. The critical habitats in the area including dens of python, fox and bear should be protected by adopting appropriate wildlife conservation measures and the conservation plan prepared specific to this project in consultation with the State Forest and Wildlife Department should effectively address the same. All the safeguard measures brought out in the Wildlife Conservation Plan prepared specific to this project site shall be effectively implemented in consultation with the State Forest and Wildlife Department A copy of approved wildlife conservation plan shall be submitted to the Ministry and its Regional Office, Bhubaneswar within 3 months.	All precautionary measures during mining operation for conservation and protection of endangered fauna are being taken care in consultation with forest Dept. as under 1) Permanent pillars are established within the mine lease area. 2) Maintenance of the forest road. 3) Ensured necessary air and noise pollution control measures. 4) Daily water sprinkling is being carried out on the forest road. 5) Transportation is being done only in daytime. 6) Patrolling is being done. 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.
(xxix)	Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile stp, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.	Since the project is in operation. Necessary infrastructure and facilities are already in place.
(xxx)	The critical parameters such as RSPM (Particulate matter with size less than 10 micron i.e PM10) and NOx in the ambient air within the impact zone, peak particle velocity at 300m distance or within the nearest habitation, whichever is closer shall be monitored periodically. Further, quality of discharged water shall also be monitored [(TDS, DO, PH and Total Suspended Solids (TSS)]. The monitored data shall be uploaded on the website of the company as well as displayed on a display board at the project site at a suitable location near the main gate of the Company in public domain. The Circular No. J-20012/1/2005-IA.II(M) dated 27.05.2009	Monitoring Reports is enclosed as Annexure-2. Presently, there is no discharge of water from the mines.

	issued by Ministry of Environment and Forests, which is available on the website of the Ministry www.envfor.nic.in shall also be referred in this regard for its compliance.	
(xxxii)	A Final Mine Closure Plan along with details of Corpus Fund shall be submitted to the Ministry of Environment & Forests 5 years in advance of final mine closure for approval.	Progressive Mine Closure Plan has been duly approved by Indian Bureau of Mine. FMCP related provision will be compiled as per applicable guideline and timelines mentioned in MCDR/IBM guideline who are competent authority to approve the same. Based on the present resource estimate, and peak rated production capacity mentioned in EC, Mining operation is being carried out.

S No	General Conditions	Compliance Status
(i)	No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment & Forests.	Noted.
(ii)	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 plan/ scheme. Report is attached herewith as Annexure 4.
(iii)	At least four ambient air quality-monitoring stations should be established in the core zone as well as in the buffer zone for RSPM (Particulate matter with size less than 10micron i.e., PM10) and NOx monitoring. Location of the stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board.	We have already established four ambient air quality monitoring stations in core zone as well as buffer zone. Monitoring is being carried out and reported to concern authorities. Report is attached as Annexure 2.
(iv)	Data on ambient air quality RSPM (Particulate matter with size less than 10micron i.e., PM10) and NOx) should be regularly submitted to the Ministry including its Regional office located at Bhubaneswar and the State Pollution Control Board / Central Pollution Control Board once in six months.	Report is attached as Annexure 2.
(v)	Fugitive dust emissions from all the sources should be controlled regularly. Water spraying arrangement on haul roads, loading and unloading and at transfer points should be	Mobile water tankers have been provided for sprinkling of water on haul roads and are being engaged at the places where active mining is in progress to arrest

	provided and properly maintained.	fugitive dust emission on regular basis.
(vi)	Measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in operations of HEMM, etc. should be provided with ear plugs / muffs.	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, ear plug and ear muffs.
(vii)	Industrial wastewater (workshop and waste water from the mine) should be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May, 1993 and 31st December, 1993 or as amended from time to time. Oil and grease trap should be installed before discharge of workshop effluents.	There is no Industrial wastewater generated from mine lease area. We are not discharging any wastewater outside mine lease area. Oil and grease trap is installed at Pakhar plateau.
(viii)	Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed	Complied. 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. Training on safety, health and environmental aspects of mining is being regularly imparted through VT centre and also through various other training programmes conducted by the State Government, recognized agencies, etc
(ix)	A separate environmental management cell with suitable qualified personnel should be set-up under the control of a Senior Executive, who will report directly, to the Head of the Organization.	Separate Environmental Management Cell (EMC) has been constituted and is functioning effectively. Copy is enclosed as Annexure-3.
(x)	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	Statement of actual expenses for environmental protection measure is enclosed as Annexure-5.

	located at Bhubaneswar.	
(xi)	The project authorities should inform to the Regional Office located at Bhubaneswar regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work	The provision related to financial closure is not applicable as this is an operating mine. Now Regional office is at Ranchi
(xii)	The Regional Office of this Ministry located at Bhubaneswar shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information / monitoring reports.	Noted. Currently, the Regional Office is located at Ranchi.
(xiii)	The project proponent shall submit six monthly reports on the status of compliance of the stipulated environmental clearance conditions including results of monitored data (both in hard copies as well as by e-mail) to the Ministry of Environment and Forests, its Regional Office Bhubaneswar, the respective Zonal Office of Central Pollution Control Board and the State Pollution Control Board. The proponent shall upload the status of compliance of the environmental clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the Ministry of Environment and Forests, Bhubaneswar, the respective Zonal Officer of Central Pollution Control Board and the State Pollution Control Board.	Being complied
(xiv)	A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parisad/ Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the Company by the proponent.	Duly submitted.
(xv)	The State Pollution Control Board should display a copy of the clearance letter at the Regional office, District Industry Centre and the Collector's office/ Tehsildar's Office for 30 days.	Displayed.
(xvi)	The environmental statement for each financial year ending 31st March in Form-V as is	Duly submitted.

	mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental clearance conditions and shall also be sent to the respective Regional Office of the Ministry of Environment and Forests, Bhubneswar by e-mail.	
(xvii)	The project authorities should advertise at least in two local newspapers of the District or State in which the project is located and widely circulated, one of which shall be in the vernacular language of the locality concerned, within 7 days of the issue of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and also at web site of the Ministry of Environment and Forests at http://envfonnic.in and a copy of the same should be forwarded to the Regional Office of this Ministry located at Bhubaneswar.	Complied in due time.


Signature

Pakhar Bauxite Mines (115.13 Ha)



Reclaimed area plantation FY22-23



New Plantation

Pakhar Bauxite Mines (115.13 Ha)



Photographs of Oil and Grease Trap



Photographs of covered truck

Pakhar Bauxite Mines (115.13 Ha)



Reclaimed area



Rainwater Harvesting Pond

Annexure 1		
Piezometer Reading - Pakhar 115.13Ha		
S No	Month	Depth (meter)
1	April'22	41.28
2	May'22	40.82
3	June'22	38.36
4	July'22	37.68
5	August'22	37.74
6	Sept'22	37.72



ENVIRONMENTAL LABORATORIES &

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TEST REPORT

Test Report No. : ELES/RNC/2022/0937A	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/1050A
Address	: Lohardaga, Jharkhand-835203	Location	: Near Mine Block-B, Quarry No.3 Pakhar Bauxite Mine (115.13 ha)
Plant Status	: Operational	Sampling Date	: 22/04/2022 to 23/04/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C) : 29	2	Barometric Pressure (mmHg) : 741
3	Relative Humidity (%) : 68	4	Weather Condition : Clear
5	Longitude : 84°36'6.85"E	6	Latitude : 23°32'26.58"N

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)	47
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	8.8
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	12.5
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)	0.054
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)	3.8

The Document stated as Test Report, is issued by the Laboratory under General Terms and Conditions, only on Company letter head in pre-approved format. The results shown in the Test Report refer or relates only to the job/analysis done by the Laboratory only. The information stated on the Test Report reflects the findings done by the Laboratory at the time of involvement only and within the limits of client's instructions. The Laboratory is responsible for all the information or data provided on the report, except the information which is provided by the client. The Report cannot be reproduced except in full and any part of the report is not taken out of context, without prior written approval of the Laboratory. The Report in full or in part shall not be published, advertise, used for any legal actions unless prior permission has been secured from the Management of the Laboratory. Attention is drawn to the limitation of liability, compensation and jurisdiction issues. Any unauthorized alteration & falsification of the content or appearance of the Test Report is unlawful and offenders may be prosecuted to the fullest extent of the law. All the samples are retained for 30days from the Date of release/issue of the Test Report. The samples from Regulatory bodies are to be retained as specified. Any type of Observations or Complaints regarding the Reports shall be done within 15days from the Date of Test Report released/issued. After the time period stated before, no complaints will be accepted. The entire Time schedule mentioned in Test Report is in 24hours format. Abbreviation used: N/A (Not Applicable); BDL (Below Detection Limit); LDL (Lower Detection Limit).



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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)	2.7
Benzo (a) Pyrene*	ng/m^3	USEPA 8270 C to -13A	01(Annual)	0.53

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

Authorized Signatory

SANDIP BERA
SENIOR MANAGER
ELES PVT. LTD.

****End of Report****

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

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Phone no : 0651-2290103

Website : www.elespl.co.in

TEST REPORT

Test Report No. : ELES/RNC/2022/0937B	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/1050B
Address	: Lohardaga, Jharkhand-835203	Location	: Near Mine Block-B, Quarry No.4 Pakhar Bauxite Mine (115.13 ha)
Plant Status	: Operational	Sampling Date	: 22/04/2022 to 23/04/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C) : 29	2	Barometric Pressure (mmHg) : 741
3	Relative Humidity (%) : 68	4	Weather Condition : Clear
5	Longitude : 84°35'56.03"E	6	Latitude : 23°32'24.36"N

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)	40
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	7.5
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)	0.051
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/2022/0937B	Report Release Date	: 12.05.2022
Work Order No.	: HIL/LHD/FY22-23/001	Work Order Date	: 01.04.2022

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	$\mu\text{g}/\text{m}^3$	ASTM D3687:2007	05(Annual)	2.8
Benzo (a) Pyrene*	ng/m^3	USEPA 8270 C to -13A	01(Annual)	0.37

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/2022/0937C	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/1050C
Address	: Lohardaga, Jharkhand-835203	Location	: Near Mine Block B, Quarry No-6 Pakhar Bauxite Mine (115.13 ha)
Plant Status	: Operational	Sampling Date	: 22/04/2022 to 23/04/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C) : 29	2	Barometric Pressure (mmHg) : 741
3	Relative Humidity (%) : 68	4	Weather Condition : Clear
5	Longitude : 84°36'55.57"E	6	Latitude : 23°32'59.14"N

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)	32
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	7.0
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)	0.037
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

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TEST REPORT

Test Report No. : ELES/RNC/2022/0937C	Report Release Date : 12.05.2022
Work Order No. : HIL/LHD/FY22-23/001	Work Order Date : 01.04.2022

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	$\mu\text{g}/\text{m}^3$	ASTM D3687:2007	05(Annual)	2.5
Benzo (a) Pyrene*	ng/m^3	USEPA 8270 C to -13A	01(Annual)	0.32

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/2022/0937D	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/1050D
Address	: Lohardaga, Jharkhand-835203	Location	: Near Mine Block-B, Quarry No.7 Pakhar Bauxite Mine (115.13 ha)
Plant Status	: Operational	Sampling Date	: 22/04/2022 to 23/04/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 29	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 68	4	Weather Condition	: Clear
5	Longitude	: 84°37'3.41"E	6	Latitude	: 23°33'8.04"N

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)	38
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)	8.3
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)	0.041
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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TEST REPORT

Test Report No.	: ELES/RNC/2022/0937D	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)	0.34

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/2022/0937E	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/1050E
Address	: Lohardaga, Jharkhand-835203	Location	: Near Bunglapart Village Pakhar Bauxite Mine
Plant Status	: Operational	Sampling Date	: 22/04/2022 to 23/04/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C) : 29	2	Barometric Pressure (mmHg) : 741
3	Relative Humidity (%) : 68	4	Weather Condition : Clear
5	Longitude : 84°35'36.40"E	6	Latitude : 23°33'6.92"N

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)	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)	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)	0.006
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/2022/0937E	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)	0.22

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

Authorized Signatory

SANDIP BERA
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TEST REPORT

Test Report No.	: ELES/RNC/2022/0937F	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/1050F
Address	: Lohardaga, Jharkhand-835203	Location	: Yatri Shed (Near K-10) Pakhar Bauxite Mine
Plant Status	: Operational	Sampling Date	: 22/04/2022 to 23/04/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 29	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 68	4	Weather Condition	: Clear
5	Longitude	: 84°37'29.76"E	6	Latitude	: 23°33'12.96"N

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	68
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)	<5.0
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	8.1
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)	0.031
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/2022/0937F	Report Release Date	: 12.05.2022
Work Order No.	: HIL/LHD/FY22-23/001	Work Order Date	: 01.04.2022

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	$\mu\text{g}/\text{m}^3$	ASTM D3687:2007	05(Annual)	2.8
Benzo (a) Pyrene*	ng/m^3	USEPA 8270 C to -13A	01(Annual)	0.25

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

Authorized Signatory

SANDIP BERA
SENIOR MANAGER
ELES PVT. LTD.

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Page 2 of 2

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TEST REPORT

Test Report No.	: ELES/RNC/2022/0937G	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/1050G
Address	: Lohardaga, Jharkhand-835203	Location	: Near Utkarmit Rajkiya Prathmik Vidyalaya Bunglapart Village
Plant Status	: Operational	Sampling Date	: 22/04/2022 to 23/04/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 29	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 68	4	Weather Condition	: Clear
5	Longitude	: 84°36'4.75"E	6	Latitude	: 23°32'40.97"N

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)	<5.0
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	6.8
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)	0.008
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)	2.5

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TEST REPORT

Test Report No.	: ELES/RNC/2022/0937G	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)	0.24

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

Authorized Signatory

SANDIP BERA
SENIOR MANAGER
ELES PVT. LTD.

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Page 2 of 2

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No.	: ELES/RNC/2022/0937H	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/1050H
Address	: Lohardaga, Jharkhand-835203	Location	: Near Utkarmit Rajkiya Prathmik Vidyalaya Dumrapart Village
Plant Status	: Operational	Sampling Date	: 22/04/2022 to 23/04/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 29	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 68	4	Weather Condition	: Clear
5	Longitude	: 84°37'29.39"E	6	Latitude	: 23°33'39.63"N

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)	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)	5.7
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)	0.007
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)	2.8

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TEST REPORT

Test Report No.	: ELES/RNC/2022/0937H	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)	0.22

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

Authorized Signatory

SANDIP BERA
SENIOR MANAGER
ELES PVT. LTD

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Page 2 of 2

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

Pakhar (115.13) Bauxite Mine-Environmental Monitoring Report

May 2022



CONTENT

Hindalco Industries : Pakhar (115.13)		Environmental Monitoring Report	May2022
Pakhar (115.13)			
AMBIENT AIR QUALITY- CORE ZONE			
1	Near Mine Block-B, Quarry No.3		
2	Near Mine Block-B, Quarry No.4		
3	Near Mine Block B, Quarry No - 6		
4	Near Mine Block-B, Quarry No.7		
AMBIENT AIR QUALITY- BUFFER ZONE			
1	Near Bunglapart Village		
2	Yatri Shed (Near K-10)		
3	Near Utkarmit Rajkiya Prathmik Vidyalaya Bunglapart Village		
4	Near Utkarmit Rajkiya Prathmik Vidyalaya Dumrapart Village		
AMBIENT NOISE			
WORKZONE/SPOT NOISE			
WORKSHOP EFFLUENT			
DRINKING WATER ANALYSIS			





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TEST REPORT

Test Report No. : ELES/RNC/2022/1348A	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/1356A
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Block-B, Quarry No.3 Pakhar Bauxite Mine (115.13 ha)
Plant Status	: Operational	Sampling Date	: 09/05/2022 to 10/05/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C) : 27	2	Barometric Pressure (mmHg) : 741
3	Relative Humidity (%) : 67	4	Weather Condition : Clear
5	Longitude : 84°36'6.85"E	6	Latitude : 23°32'26.58"N

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)	44
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	7.5
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)	0.037
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)	3.0

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CIN: U74999JH2018PTC011125

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TEST REPORT

Test Report No. : ELES/RNC/2022/1348A	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)	0.39

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

****End of Report****


Authorized Signatory
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SENIOR MANAGER
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TEST REPORT

Test Report No. : ELES/RNC/2022/1348B	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/1356B
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Block-B, Quarry No.4 Pakhar Bauxite Mine (115.13 ha)
Plant Status	: Operational	Sampling Date	: 09/05/2022 to 10/05/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C) : 27	2	Barometric Pressure (mmHg) : 741
3	Relative Humidity (%) : 67	4	Weather Condition : Clear
5	Longitude : 84°35'56.03"E	6	Latitude : 23°32'24.36"N

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)	33
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	6.5
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	8.5
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)	0.043
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)	3.2

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CIN: U74999JH2018PTC011125

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TEST REPORT

Test Report No. : ELES/RNC/2022/1348B	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)	0.25

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

****End of Report****


Authorized Signatory
SANDIP BERA
SENIOR MANAGER
ELES PVT. LTD.

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TEST REPORT

Test Report No. : ELES/RNC/2022/1348C	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/1356C
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Block B, Quarry No-6 Pakhar Bauxite Mine (115.13 ha)
Plant Status	: Operational	Sampling Date	: 09/05/2022 to 10/05/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C) : 27	2	Barometric Pressure (mmHg) : 741
3	Relative Humidity (%) : 67	4	Weather Condition : Clear
5	Longitude : 84°36'55.57"E	6	Latitude : 23°32'59.14"N

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)	29
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)	8.6
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)	0.23
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/2022/1348C	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)	0.27

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

Authorized Signatory

SANDIP BERA
SENIOR MANAGER
ELES PVT. LTD.

****End of Report****



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TEST REPORT

Test Report No. : ELES/RNC/2022/1348D	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/1356D
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Block-B, Quarry No.7 Pakhar Bauxite Mine (115.13 ha)
Plant Status	: Operational	Sampling Date	: 09/05/2022 to 10/05/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 27	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 67	4	Weather Condition	: Clear
5	Longitude	: 84°37'3.41"E	6	Latitude	: 23°33'8.04"N

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	60
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)	6.9
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)	0.036
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/2022/1348D	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)	2.5
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/2022/1348E	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/1356E
Address	: Lohardaga, Jharkhand-835302	Location	: Near Bunglapart Village Pakhar Bauxite Mine
Plant Status	: Operational	Sampling Date	: 09/05/2022 to 10/05/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 27	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 67	4	Weather Condition	: Clear
5	Longitude	: 84°35'36.40"E	6	Latitude	: 23°33'6.92"N

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)	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)	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)	0.003
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/2022/1348E	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/2022/1348F	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/1356F
Address	: Lohardaga, Jharkhand-835302	Location	: Yatri Shed (Near K-10) Pakhar Bauxite Mine
Plant Status	: Operational	Sampling Date	: 09/05/2022 to 10/05/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 27	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 67	4	Weather Condition	: Clear
5	Longitude	: 84°37'29.76"E	6	Latitude	: 23°33'12.96"N

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	56
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)	5.2
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	8.3
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)	0.024
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)	2.3

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TEST REPORT

Test Report No. : ELES/RNC/2022/1348F	Report Release Date : 14.06.2022
Work Order No. : HIL/LHD/FY22-23/001	Work Order Date : 01.04.2022

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	$\mu\text{g}/\text{m}^3$	ASTM D3687:2007	05(Annual)	2.6
Benzo (a) Pyrene*	ng/m^3	USEPA 8270 C to -13A	01(Annual)	0.27

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

****End of Report****

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
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TEST REPORT

Test Report No. : ELES/RNC/2022/1348G	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/1356G
Address	: Lohardaga, Jharkhand-835302	Location	: Near Utkarmit Rajkiya Prathmik Vidyalaya Bunglapart Village
Plant Status	: Operational	Sampling Date	: 09/05/2022 to 10/05/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 27	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 67	4	Weather Condition	: Clear
5	Longitude	: 84°36'4.75"E	6	Latitude	: 23°32'40.97"N

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)	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/2022/1348G	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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SENIOR MANAGER
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TEST REPORT

Test Report No. : ELES/RNC/2022/1348H	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/1356H
Address	: Lohardaga, Jharkhand-835302	Location	: Near Utkarmit Rajkiya Prathmik Vidyalaya Dumrapart Village
Plant Status	: Operational	Sampling Date	: 09/05/2022 to 10/05/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 27	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 67	4	Weather Condition	: Clear
5	Longitude	: 84°37'29.39"E	6	Latitude	: 23°33'39.63"N

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)	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)	6.7
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)	<0.002
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)	2.2

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Test Report No. : ELES/RNC/2022/1348H	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/2022/1355D	Report Release Date : 14.06.2022
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CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Date	: 10.05.2022
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}	
Pakhar Mines (115.13 ha.)	dB(A)	IS 9989:1981, RA 2020	Day Time	70	75 dB(A) Day Time & 70 dB(A) Night Time
Sample ID: ELES/RNC/2022/AN/1363D			Night Time	58	

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TEST REPORT

Test Report No. : ELES/RNC/2022/1356D	Report Release Date : 14.06.2022
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CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sampling Date	: 10.05.2022
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 at Pakhar Bauxite Mines (115.13 ha.)	dB(A)	IS 9989:1981, RA 2020	Day Time	72	75 dB(A) Day Time
Sample ID: ELES/RNC/2022/AN/1364D					

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TEST REPORT

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

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/EF/1365B
Address	: Lohardaga, Jharkhand-835302	Location	: Pakhar-115.13 Bauxite Mines
Plant Status	: Operational	Sampling Date	: 10/05/2022
		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	8.3	5.5-9.0
Total Suspended Solids (TSS)	mg/L	IS 3025 (Part-17):2022	52	100
Temperature	°C	IS 3025 (Part-9):1984; RA 2017	29.4	Shall not exceed 5°C above the receiving Water Temperature
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part-16):1984	1638	--
Chemical Oxygen Demand (COD)	mg/L	IS 3025 (Part-58): 2006; RA 2017	60	250
Biochemical Oxygen Demand (BOD)	mg/L	IS 3025 (Part-44): 1993; RA 2019	13	30
Oil & Grease	mg/L	APHA 23 rd Ed.2017,5520B	1.4	10
Calcium (as Ca)	mg/L	APHA 23rd Edition 2017, 3500 B	15	--
Iron (as Fe)	mg/L	APHA 23rd Edition, 3111 B&C	2.86	3
Aluminum (as Al)	mg/L	APHA 23rd Edition, 3125 B	1.98	--

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TEST REPORT

Test Report No. : ELES/RNC/2022/1359D	Report Release Date : 14/06/2022
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CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/DW/1367D
Address	: Lohardaga, Jharkhand-835302	Location	: Drinking Water Pakhar-115.13 Bauxite Mines
Plant Status	: Operational	Sampling Date	: 10/05/2022
		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	0.09	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	182	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	40.2	200
Total Alkalinity (as CaCO ₃)	mg/L	IS 3025 (Part-23):1986	33.4	200
Chloride (as Cl)	mg/L	IS 3025 (Part-32): 1988: RA 2014	9.8	250

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TEST REPORT

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

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	5.3	200
Nitrate (as NO ₃)	mg/L	IS 3025 (Part-34): 1988	1.91	45
Fluoride (as F)	mg/L	APHA 23rd Edition 2017,4500-F--D	0.1333	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	14	75
Magnesium (as Mg)	mg/L	IS 3025 (Part-46):1994	1.3	30
Iron (as Fe)	mg/L	APHA 23rd Edition, 3111 B&C	0.222	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/2022/1359D	Report Release Date : 14/06/2022
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Parameter	Unit	Test Protocol	Result	Regulatory Limit
				as per IS:10500:2012
				Acceptable Limit
Arsenic (as As)	mg/L	APHA 23rd Edition, 3111 B&C	<0.005	0.01
Selenium (as Se)	mg/L	APHA 23rd Edition, 3125 B	<0.01	0.01
Mercury (as Hg)	mg/L	IS 3025 (Part-48): 2000	<0.001	0.001
Nickel (as Ni)	mg/L	APHA 23rd Edition, 3111 B&C	<0.01	0.02
Mineral Oil*	mg/L	IS 3025 (Part-39): 1991	<0.01	0.5
Anionic Detergents (as MBAS)*	mg/L	Annex K of IS 13428:2005	<0.05	0.2
Polynuclear Aromatic Hydrocarbons (PAHs)*	mg/L	SO-IN-MUL-TE-023	<0.00005	0.0001
Polychlorinated Biphenyls (PCBs)*	mg/L	SO-IN-MUL-TE-022	<0.00005	0.0005
Total Coliforms	MPN/100ml	IS 15185:2016	Not Detected	Should Not Detected
Escheria Coli	MPN/100ml	IS 15185:2016	Not Detected	Should Not Detected
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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TEST REPORT

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

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

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

****End of Report****


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

Pakhar (115.13) Bauxite Mine-Environmental Monitoring Report

June 2022



CONTENT

Hindalco Industries : Pakhar (115.13)		Environmental Monitoring Report	June 2022
Pakhar (115.13)			
AMBIENT AIR QUALITY- CORE ZONE			
1	Near Mine Block-B, Quarry No.3		
2	Near Mine Block-B, Quarry No.4		
3	Near Mine Block B, Quarry No - 6		
4	Near Mine Block-B, Quarry No.7		
AMBIENT AIR QUALITY- BUFFER ZONE			
1	Near Bunglapart Village		
2	Yatri Shed (Near K-10)		
3	Near Utkarmit Rajkiya Prathmik Vidyalaya Bunglapart Village		
4	Near Utkarmit Rajkiya Prathmik Vidyalaya Dumrapart Village		





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TEST REPORT

Test Report No. : ELES/RNC/2022/1611A	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/1791A
Address	: Lohardaga, Jharkhand-835203	Location	: Near Mine Block-B, Quarry No.3 Pakhar Bauxite Mine (115.13 ha)
Plant Status	: Operational	Sampling Date	: 09/06/2022 to 10/06/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C) : 29	2	Barometric Pressure (mmHg) : 741
3	Relative Humidity (%) : 68	4	Weather Condition : Clear
5	Longitude : 84°36'6.85"E	6	Latitude : 23°32'26.58"N

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	62
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	60 (24hrs)	33
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	7.1
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	8.1
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)	0.042
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/2022/1611A	Report Release Date : 15.07.2022
Work Order No. : HIL/LHD/FY22-23/001	Work Order Date : 01.04.2022

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	$\mu\text{g}/\text{m}^3$	ASTM D3687:2007	05(Annual)	2.4
Benzo (a) Pyrene*	ng/m^3	USEPA 8270 C to -13A	01(Annual)	0.38

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

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TEST REPORT

Test Report No. : ELES/RNC/2022/1611B	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/1791B
Address	: Lohardaga, Jharkhand-835203	Location	: Near Mine Block-B, Quarry No.4 Pakhar Bauxite Mine (115.13 ha)
Plant Status	: Operational	Sampling Date	: 09/06/2022 to 10/06/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 29	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 68	4	Weather Condition	: Clear
5	Longitude	: 84°35'56.03"E	6	Latitude	: 23°32'24.36"N

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	68
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)	7.4
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	10.4
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)	0.029
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)	2.9

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TEST REPORT

Test Report No. : ELES/RNC/2022/1611B	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)	0.27

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

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TEST REPORT

Test Report No. : ELES/RNC/2022/1611C	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/1791C
Address	: Lohardaga, Jharkhand-835203	Location	: Near Mine Block B, Quarry No-6 Pakhar Bauxite Mine (115.13 ha)
Plant Status	: Operational	Sampling Date	: 09/06/2022 to 10/06/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 29	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 68	4	Weather Condition	: Clear
5	Longitude	: 84°36'55.57"E	6	Latitude	: 23°32'59.14"N

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)	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)	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)	0.025
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)	<2.0

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TEST REPORT

Test Report No. : ELES/RNC/2022/1611C	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)	2.2
Benzo (a) Pyrene*	ng/m^3	USEPA 8270 C to -13A	01(Annual)	0.28

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

****End of Report****

Authorized Signatory

SANDIP BERA
SENIOR MANAGER
ELES PVT. LTD.

Page 2 of 2

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No.	: ELES/RNC/2022/1611D	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/1791D
Address	: Lohardaga, Jharkhand-835203	Location	: Near Mine Block-B, Quarry No.7 Pakhar Bauxite Mine (115.13 ha)
Plant Status	: Operational	Sampling Date	: 09/06/2022 to 10/06/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 29	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 68	4	Weather Condition	: Clear
5	Longitude	: 84°37'3.41"E	6	Latitude	: 23°33'8.04"N

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	62
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	60 (24hrs)	28
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	6.4
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	10.2
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)	0.037
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/2022/1611D	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)	2.2
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/2022/1611E	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/1791E
Address	: Lohardaga, Jharkhand-835203	Location	: Near Bunglapart Village Pakhar Bauxite Mine
Plant Status	: Operational	Sampling Date	: 09/06/2022 to 10/06/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 29	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 68	4	Weather Condition	: Clear
5	Longitude	: 84°35'36.40"E	6	Latitude	: 23°33'6.92"N

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	37
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)	5.6
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)	0.002
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/2022/1611E	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.

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TEST REPORT

Test Report No. : ELES/RNC/2022/1611F	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/1791F
Address	: Lohardaga, Jharkhand-835203	Location	: Yatri Shed (Near K-10) Pakhar Bauxite Mine
Plant Status	: Operational	Sampling Date	: 09/06/2022 to 10/06/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C) : 29	2	Barometric Pressure (mmHg) : 741
3	Relative Humidity (%) : 68	4	Weather Condition : Clear
5	Longitude : 84°37'29.76"E	6	Latitude : 23°33'12.96"N

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)	<5.0
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	5.9
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)	0.023
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

Test Report No. : ELES/RNC/2022/1611F	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)	2.2
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/2022/1611G	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/1791G
Address	: Lohardaga, Jharkhand-835203	Location	: Near Utkarmit Rajkiya Prathamik Vidyalaya Bunglapart Village
Plant Status	: Operational	Sampling Date	: 09/06/2022 to 10/06/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 29	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 68	4	Weather Condition	: Clear
5	Longitude	: 84°36'4.75"E	6	Latitude	: 23°32'40.97"N

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	33
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)	6.8
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)	0.003
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/2022/1611G	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.

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Phone no : 0651-2290103

Website : www.elespl.co.in

CIN: U74999/JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2022/1611H	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/1791H
Address	: Lohardaga, Jharkhand-835203	Location	: Near Utkarmit Rajkiya Prathamik Vidyalaya Dumrapart Village
Plant Status	: Operational	Sampling Date	: 09/06/2022 to 10/06/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 29	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 68	4	Weather Condition	: Clear
5	Longitude	: 84°37'29.39"E	6	Latitude	: 23°33'39.63"N

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	30
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	60 (24hrs)	13
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)	5.3
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)	<0.002
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/2022/1611H	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
ELES PVT. LTD.

Page 2 of 2

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

Pakhar (115.13) Bauxite Mine-Environmental Monitoring Report

July 2022



CONTENT

Hindalco Industries : Pakhar (115.13) Bauxite Mine July 2022		Environmental Monitoring Report
Pakhar (115.13) Bauxite Mine		
AMBIENT AIR QUALITY- CORE ZONE		
1	Near Mine Block-B, Quarry No.3	
2	Near Mine Block-B, Quarry No.4	
3	Near Mine Block B, Quarry No - 6	
4	Near Mine Block-B, Quarry No.7	
AMBIENT AIR QUALITY- BUFFER ZONE		
1	Near Bunglapart Village	
2	Yatri Shed (Near K-10)	
3	Near Utkarmit Rajkiya Prathmik Vidyalaya Bunglapart Village	
4	Near Utkarmit Rajkiya Prathmik Vidyalaya Dumrapart Village	





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TEST REPORT

Test Report No. : ELES/RNC/2022/1767A	Report Release Date : 18.08.2022
---------------------------------------	----------------------------------

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/5199A
Address	: Lohardaga, Jharkhand-835203	Location	: Near Mine Block-B, Quarry No.3 Pakhar Bauxite Mine (115.13 ha)
Plant Status	: Operational	Sampling Date	: 21/07/2022 to 22/07/2022
		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 (%)	: 68	4	Weather Condition	: Clear
5	Longitude	: 84°36'6.85"E	6	Latitude	: 23°32'26.58"N

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)	23
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)	7.9
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)	0.019
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)	2.9

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TEST REPORT

Test Report No. : ELES/RNC/2022/1767A

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)	2.2
Benzo (a) Pyrene*	ng/m^3	USEPA 8270 C to -13A	01(Annual)	0.32

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/2022/1767B	Report Release Date : 18.08.2022
---------------------------------------	----------------------------------

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/5199B
Address	: Lohardaga, Jharkhand-835203	Location	: Near Mine Block-B, Quarry No.4 Pakhar Bauxite Mine (115.13 ha)
Plant Status	: Operational	Sampling Date	: 21/07/2022 to 22/07/2022
		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 (%)	: 68	4	Weather Condition	: Clear
5	Longitude	: 84°35'56.03"E	6	Latitude	: 23°32'24.36"N

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	65
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)	6.2
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	9.4
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)	0.021
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/2022/1767B	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)	3.4
Benzo (a) Pyrene*	ng/m^3	USEPA 8270 C to -13A	01(Annual)	0.34

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/2022/1767C	Report Release Date : 18.08.2022
---------------------------------------	----------------------------------

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/5199C
Address	: Lohardaga, Jharkhand-835203	Location	: Near Mine Block B, Quarry No-6 Pakhar Bauxite Mine (115.13 ha)
Plant Status	: Operational	Sampling Date	: 21/07/2022 to 22/07/2022
		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 (%)	: 68	4	Weather Condition	: Clear
5	Longitude	: 84°36'55.57"E	6	Latitude	: 23°32'59.14"N

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)	20
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)	8.3
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)	0.018
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/2022/1767C	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)	0.23

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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CIN: U74999JH2018PTC011225

ENVIRONMENTAL LABORATORIES &

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TEST REPORT

Test Report No. : ELES/RNC/2022/1767D	Report Release Date : 18.08.2022
---------------------------------------	----------------------------------

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/5199D
Address	: Lohardaga, Jharkhand-835203	Location	: Near Mine Block-B, Quarry No.7 Pakhar Bauxite Mine (115.13 ha)
Plant Status	: Operational	Sampling Date	: 21/07/2022 to 22/07/2022
		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 (%)	: 68	4	Weather Condition	: Clear
5	Longitude	: 84°37'3.41"E	6	Latitude	: 23°33'8.04"N

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	60
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)	7.7
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	11.6
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)	0.022
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/2022/1767D	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)	2.9
Benzo (a) Pyrene*	ng/m^3	USEPA 8270 C to -13A	01(Annual)	0.27

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

Authorized Signatory

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

****End of Report****

Page 2 of 2

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TEST REPORT

Test Report No. : ELES/RNC/2022/1767E	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/5199E
Address	: Lohardaga, Jharkhand-835203	Location	: Near Bunglapart Village Pakhar Bauxite Mine
Plant Status	: Operational	Sampling Date	: 21/07/2022 to 22/07/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 26	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 70	4	Weather Condition	: Clear
5	Longitude	: 84°35'36.40"E	6	Latitude	: 23°33'6.92"N

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)	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)	6.4
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)	0.003
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/2022/1767E	Report Release Date : 18.08.2022
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Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 11): 2004	05(Annual)	<2.0
Benzo (a) Pyrene*	ng/m^3	IS 5182 (Part- 12): 2006	01(Annual)	<0.20

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

Authorized Signatory

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

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TEST REPORT

Test Report No. : ELES/RNC/2022/1767F	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/5199F
Address	: Lohardaga, Jharkhand-835203	Location	: Yatri Shed (Near K-10) Pakhar Bauxite Mine
Plant Status	: Operational	Sampling Date	: 21/07/2022 to 22/07/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 26	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 70	4	Weather Condition	: Clear
5	Longitude	: 84°37'29.76"E	6	Latitude	: 23°33'12.96"N

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)	24
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)	6.7
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)	2.2

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TEST REPORT

Test Report No. : ELES/RNC/2022/1767F	Report Release Date : 18.08.2022
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Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 11): 2004	05(Annual)	2.5
Benzo (a) Pyrene*	ng/m^3	IS 5182 (Part- 12): 2006	01(Annual)	<0.20

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

Authorized Signatory

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

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TEST REPORT

Test Report No. : ELES/RNC/2022/1767G	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/5199G
Address	: Lohardaga, Jharkhand-835203	Location	: Near Utkarmit Rajkiya Prathmik Vidyalaya Bunglapart Village
Plant Status	: Operational	Sampling Date	: 21/07/2022 to 22/07/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 26	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 70	4	Weather Condition	: Clear
5	Longitude	: 84°36'4.75"E	6	Latitude	: 23°32'40.97"N

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	30
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)	6.1
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)	0.004
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/2022/1767G	Report Release Date : 18.08.2022
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Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 11): 2004	05(Annual)	<2.0
Benzo (a) Pyrene*	ng/m^3	IS 5182 (Part- 12): 2006	01(Annual)	<0.20

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

****End of Report****

Authorized Signatory

Dr. Deependra Kumar Sinha
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TEST REPORT

Test Report No. : ELES/RNC/2022/1767H	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/5199H
Address	: Lohardaga, Jharkhand-835203	Location	: Near Utkarmit Rajkiya Prathmik Vidyalaya Dumrapart Village
Plant Status	: Operational	Sampling Date	: 21/07/2022 to 22/07/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 26	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 70	4	Weather Condition	: Clear
5	Longitude	: 84°37'29.39"E	6	Latitude	: 23°33'39.63"N

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	32
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)	6.0
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)	0.004
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/2022/1767H	Report Release Date	: 18.08.2022
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Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 11): 2004	05(Annual)	<2.0
Benzo (a) Pyrene*	ng/m^3	IS 5182 (Part- 12): 2006	01(Annual)	<0.20

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

Authorized Signatory

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

****End of Report****

Page 2 of 2

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SERVICES PVT.LTD.**

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

Pakhar (115.13ha) Bauxite Mine-Environmental Monitoring Report

August 2022



CONTENT

Hindalco Industries : Pakhar (115.13ha) Bauxite Mine August 2022		Environmental Monitoring Report
Pakhar (115.13ha) Bauxite Mine		
AMBIENT AIR QUALITY- CORE ZONE		
1	Near Mine Block-B, Quarry No.3	
2	Near Mine Block-B, Quarry No.4	
3	Near Mine Block B, Quarry No - 6	
4	Near Mine Block-B, Quarry No.7	
AMBIENT AIR QUALITY- BUFFER ZONE		
1	Near Bunglapart Village	
2	Yatri Shed (Near K-10)	
3	Near Utkarmit Rajkiya Prathmik Vidyalaya Bunglapart Village	
4	Near Utkarmit Rajkiya Prathmik Vidyalaya Dumrapart Village	





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TEST REPORT

Test Report No. : ELES/RNC/2022/1887A	Report Release Date : 16.09.2022
---------------------------------------	----------------------------------

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/3004A
Address	: Lohardaga, Jharkhand-835203	Location	: Near Mine Block-B, Quarry No.3 Pakhar Bauxite Mine (115.13 ha)
Plant Status	: Operational	Sampling Date	: 08/08/2022 to 09/08/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 67	4	Weather Condition	: Clear
5	Longitude	: 84°36'6.85"E	6	Latitude	: 23°32'26.58"N

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)	24
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)	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)	0.016
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/2022/1887A

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)	2.4
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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TEST REPORT

Test Report No. : ELES/RNC/2022/1887B	Report Release Date : 16.09.2022
---------------------------------------	----------------------------------

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/3004B
Address	: Lohardaga, Jharkhand-835203	Location	: Near Mine Block-B, Quarry No.4 Pakhar Bauxite Mine (115.13 ha)
Plant Status	: Operational	Sampling Date	: 08/08/2022 to 09/08/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 67	4	Weather Condition	: Clear
5	Longitude	: 84°35'56.03"E	6	Latitude	: 23°32'24.36"N

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)	24
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	7.7
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)	0.018
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/2022/1887B

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)	2.7
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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Authorized Signatory
Dr. Deependra Kumar Sinha
Ph. D. Environmental Engg.
ELES Pvt. Ltd. Technical Manager

Page 2 of 2

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CIN: U74999/JH2018PTC011125

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TEST REPORT

Test Report No. : ELES/RNC/2022/1887C	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/3004C
Address	: Lohardaga, Jharkhand-835203	Location	: Near Mine Block B, Quarry No-6 Pakhar Bauxite Mine (115.13 ha)
Plant Status	: Operational	Sampling Date	: 08/08/2022 to 09/08/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 67	4	Weather Condition	: Clear
5	Longitude	: 84°36'55.57"E	6	Latitude	: 23°32'59.14"N

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	49
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)	5.3
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
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)	<2.0

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TEST REPORT

Test Report No.	: ELES/RNC/2022/1887C	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)	0.24

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

Authorized Signatory

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

****End of Report****



ENVIRONMENTAL LABORATORIES &

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TEST REPORT

Test Report No. : ELES/RNC/2022/1887D	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/3004D
Address	: Lohardaga, Jharkhand-835203	Location	: Near Mine Block-B, Quarry No.7 Pakhar Bauxite Mine (115.13 ha)
Plant Status	: Operational	Sampling Date	: 08/08/2022 to 09/08/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 67	4	Weather Condition	: Clear
5	Longitude	: 84°37'3.41"E	6	Latitude	: 23°33'8.04"N

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)	24
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)	11.1
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)	0.017
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/2022/1887D	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)	2.3
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****

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TEST REPORT

Test Report No.	: ELES/RNC/2022/1887E	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/3004E
Address	: Lohardaga, Jharkhand-835203	Location	: Near Bunglapart Village Pakhar Bauxite Mine
Plant Status	: Operational	Sampling Date	: 08/08/2022 to 09/08/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 67	4	Weather Condition	: Clear
5	Longitude	: 84°35'36.40"E	6	Latitude	: 23°33'6.92"N

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	33
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)	5.4
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)	<0.002
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/2022/1887E	Report Release Date	: 16.09.2022
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Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 11): 2004	05(Annual)	<2.0
Benzo (a) Pyrene*	ng/m^3	IS 5182 (Part- 12): 2006	01(Annual)	<0.20

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

Authorized Signatory

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

****End of Report****

Page 2 of 2

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CIN: U74999JH2018PTC031125

TEST REPORT

Test Report No.	: ELES/RNC/2022/1887F	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/3004F
Address	: Lohardaga, Jharkhand-835203	Location	: Yatri Shed (Near K-10) Pakhar Bauxite Mine
Plant Status	: Operational	Sampling Date	: 08/08/2022 to 09/08/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 67	4	Weather Condition	: Clear
5	Longitude	: 84°37'29.76"E	6	Latitude	: 23°33'12.96"N

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)	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)	6.9
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)	0.008
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/2022/1887F	Report Release Date	: 16.09.2022
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Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 11): 2004	05(Annual)	2.2
Benzo (a) Pyrene*	ng/m^3	IS 5182 (Part- 12): 2006	01(Annual)	<0.20

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

****End of Report****

Authorized Signatory

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

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TEST REPORT

Test Report No.	: ELES/RNC/2022/1887G	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/3004G
Address	: Lohardaga, Jharkhand-835203	Location	: Near Utkarmit Rajkiya Prathmik Vidyalaya Bunglapart Village
Plant Status	: Operational	Sampling Date	: 08/08/2022 to 09/08/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 67	4	Weather Condition	: Clear
5	Longitude	: 84°36'4.75"E	6	Latitude	: 23°32'40.97"N

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	32
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	60 (24hrs)	15
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)	6.5
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)	<0.002
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/2022/1887G	Report Release Date : 16.09.2022
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Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 11): 2004	05(Annual)	<2.0
Benzo (a) Pyrene*	ng/m^3	IS 5182 (Part- 12): 2006	01(Annual)	<0.20

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

Authorized Signatory

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

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CIN: U74999JH2018PTC011123

TEST REPORT

Test Report No.	: ELES/RNC/2022/1887H	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/3004H
Address	: Lohardaga, Jharkhand-835203	Location	: Near Utkarmit Rajkiya Prathmik Vidyalaya Dumrapart Village
Plant Status	: Operational	Sampling Date	: 08/08/2022 to 09/08/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 67	4	Weather Condition	: Clear
5	Longitude	: 84°37'29.39"E	6	Latitude	: 23°33'39.63"N

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)	6.8
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)	0.005
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/2022/1887H	Report Release Date : 16.09.2022
---------------------------------------	----------------------------------

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

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

Authorized Signatory

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

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

Pakhar (115.13) Bauxite Mine-Environmental Monitoring Report

September 2022



CONTENT

Hindalco Industries : Pakhar (115.13)		Environmental Monitoring Report	September 2022
Pakhar (115.13)			
	AMBIENT AIR QUALITY- CORE ZONE		
1	Near Mine Block-B, Quarry No.3		
2	Near Mine Block-B, Quarry No.4		
3	Near Mine Block B, Quarry No - 6		
4	Near Mine Block-B, Quarry No.7		
	AMBIENT AIR QUALITY- BUFFER ZONE		
1	Near Bunglapart Village		
2	Yatri Shed (Near K-10)		
3	Near Utkarmit Rajkiya Prathmik Vidyalaya Bunglapart Village		
4	Near Utkarmit Rajkiya Prathmik Vidyalaya Dumrapart Village		
	WORKSHOP EFFLUENT		
	DRINKING WATER ANALYSIS		





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TEST REPORT

Test Report No. : ELES/RNC/2022/2272	Report Release Date : 11.11.2022
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CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/3277
Address	: Lohardaga, Jharkhand-835203	Location	: Near Mine Block-B, Quarry No.3 Pakhar Bauxite Mine (115.13 ha)
Plant Status	: Operational	Sampling Date	: 12/09/2022 to 13/09/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 24	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 65	4	Weather Condition	: Clear
5	Longitude	: 84°36'6.85"E	6	Latitude	: 23°32'26.58"N

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)	21
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	5.2
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)	0.010
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/2022/2272	Report Release Date : 11.11.2022
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Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	$\mu\text{g}/\text{m}^3$	ASTM D3687:2007	05(Annual)	2.3
Benzo (a) Pyrene*	ng/m^3	USEPA 8270 C to -13A	01(Annual)	0.24

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

Authorized Signatory

SANDIP BERA
SENIOR MANAGER
ELES PVT. LTD.

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Page 2 of 2

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TEST REPORT

Test Report No. : ELES/RNC/2022/2273	Report Release Date : 11.11.2022
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CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/3278
Address	: Lohardaga, Jharkhand-835203	Location	: Near Mine Block-B, Quarry No.4 Pakhar Bauxite Mine (115.13 ha)
Plant Status	: Operational	Sampling Date	: 12/09/2022 to 13/09/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 24	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 65	4	Weather Condition	: Clear
5	Longitude	: 84°35'56.03"E	6	Latitude	: 23°32'24.36"N

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)	20
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2017	80 (24hrs)	6.4
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2001; RA2017	80 (24hrs)	10.6
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)	0.015
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)	2.9

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TEST REPORT

Test Report No. : ELES/RNC/2022/2273	Report Release Date : 11.11.2022
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Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	$\mu\text{g}/\text{m}^3$	ASTM D3687:2007	05(Annual)	2.4
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.

****End of Report****



CIN: U74999JH2018PTC011125

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TEST REPORT

Test Report No. : ELES/RNC/2022/2274	Report Release Date : 11.11.2022
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CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/3279
Address	: Lohardaga, Jharkhand-835203	Location	: Near Mine Block B, Quarry No-6 Pakhar Bauxite Mine (115.13 ha)
Plant Status	: Operational	Sampling Date	: 12/09/2022 to 13/09/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C) : 24	2	Barometric Pressure (mmHg) : 741
3	Relative Humidity (%) : 65	4	Weather Condition : Clear
5	Longitude : 84°36'55.57"E	6	Latitude : 23°32'59.14"N

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	42
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)	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)	0.006
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/2022/2274	Report Release Date : 11.11.2022
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Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	$\mu\text{g}/\text{m}^3$	ASTM D3687:2007	05(Annual)	<2.0
Benzo (a) Pyrene*	ng/m^3	USEPA 8270 C to -13A	01(Annual)	<0.20

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

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SANDIP BERA
SENIOR MANAGER
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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No.	: ELES/RNC/2022/2275	Report Release Date	: 11.11.2022
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CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/3280
Address	: Lohardaga, Jharkhand-835203	Location	: Near Mine Block-B, Quarry No.7 Pakhar Bauxite Mine (115.13 ha)
Plant Status	: Operational	Sampling Date	: 12/09/2022 to 13/09/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 24	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 65	4	Weather Condition	: Clear
5	Longitude	: 84°37'3.41"E	6	Latitude	: 23°33'8.04"N

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)	5.3
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)	0.009
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

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TEST REPORT

Test Report No. : ELES/RNC/2022/2275	Report Release Date : 11.11.2022
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Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	$\mu\text{g}/\text{m}^3$	ASTM D3687:2007	05(Annual)	2.6
Benzo (a) Pyrene*	ng/m^3	USEPA 8270 C to -13A	01(Annual)	0.22

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/2022/2354B	Report Release Date : 11.11.2022
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CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/EF/3358B
Address	: Lohardaga, Jharkhand-835302	Location	: Pakhar Bauxite Mines (115.13 ha)
Plant Status	: Operational	Sampling Date	: 13/09/2022
		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	8.1	5.5-9.0
Total Suspended Solids (TSS)	mg/L	IS 3025 (Part-17):2022	57	100
Temperature	°C	IS 3025 (Part-9):1984; RA 2017	26.1	Shall not exceed 5°C above the receiving Water Temperature
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part-16):1984	1526	--
Chemical Oxygen Demand (COD)	mg/L	IS 3025 (Part-58): 2006; RA 2017	51	250
Biochemical Oxygen Demand (BOD)	mg/L	IS 3025 (Part-44): 1993; RA 2019	8	30
Oil & Grease	mg/L	APHA 23 rd Ed.2017,5520B	1.7	10
Calcium (as Ca)	mg/L	APHA 23rd Edition 2017, 3500 B	22	--
Iron (as Fe)	mg/L	APHA 23rd Edition, 3111 B&C	2.65	3
Aluminum (as Al)	mg/L	APHA 23rd Edition, 3125 B	1.72	--

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TEST REPORT

Test Report No. : ELES/RNC/2022/2353D	Report Release Date : 11.11.2022
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CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/DW/3357D
Address	: Lohardaga, Jharkhand-835302	Location	: Drinking Water Pakhar Bauxite Mines (115.13 ha)
Plant Status	: Operational	Sampling Date	: 13/09/2022
		Type of Sample	: Drinking Water
		Sampling Procedure	: ELES/DOC/SMPL/01
		Sample Condition	: Sealed & Preserved

Parameter	Unit	Test Protocol	Result	Regulatory Limit
				as per IS:10500:2012 Acceptable Limit
pH	-	APHA 23rd Edition 2017,4500-H+-B	7.5	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	0.34	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	287	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	63.4	200
Total Alkalinity (as CaCO ₃)	mg/L	IS 3025 (Part-23):1986	54.8	200
Chloride (as Cl)	mg/L	IS 3025 (Part-32): 1988: RA 2014	8.8	250

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TEST REPORT

Test Report No. : ELES/RNC/2022/2353D	Report Release Date : 11.11.2022
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Parameter	Unit	Test Protocol	Result	Regulatory Limit
				as per IS:10500:2012
				Acceptable Limit
Sulphate (as SO ₄)	mg/L	IS 3025 (Part-24):1986	9.4	200
Nitrate (as NO ₃)	mg/L	IS 3025 (Part-34): 1988	3.38	45
Fluoride (as F)	mg/L	APHA 23rd Edition 2017,4500-F--D	0.1288	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	17.7	75
Magnesium (as Mg)	mg/L	IS 3025 (Part-46):1994	4.7	30
Iron (as Fe)	mg/L	APHA 23rd Edition, 3111 B&C	0.246	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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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2022/2353D	Report Release Date : 11.11.2022
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Parameter	Unit	Test Protocol	Result	Regulatory Limit as per IS:10500:2012
				Acceptable Limit
Arsenic (as As)	mg/L	APHA 23rd Edition, 3111 B&C	<0.005	0.01
Selenium (as Se)	mg/L	APHA 23rd Edition, 3125 B	<0.01	0.01
Mercury (as Hg)	mg/L	IS 3025 (Part-48): 2000	<0.001	0.001
Nickel (as Ni)	mg/L	APHA 23rd Edition, 3111 B&C	<0.01	0.02
Mineral Oil*	mg/L	IS 3025 (Part-39): 1991	<0.01	0.5
Anionic Detergents (as MBAS)*	mg/L	Annex K of IS 13428:2005	<0.05	0.2
Polynuclear Aromatic Hydrocarbons (PAHs)*	mg/L	SO-IN-MUL-TE-023	<0.00005	0.0001
Polychlorinated Biphenyls (PCBs)*	mg/L	SO-IN-MUL-TE-022	<0.00005	0.0005
Total Coliforms	MPN/ 100ml	IS 15185:2016	Not Detected	Should Not Detected
Escheria Coli	MPN/ 100ml	IS 15185:2016	Not Detected	Should Not Detected
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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CIN: U74999/JH2018PTC011125

TEST REPORT

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

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

****End of Report****

Authorized Signatory
SANDIP BERA
SENIOR MANAGER
ELES PVT. LTD.

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TEST REPORT

Test Report No.	: ELES/RNC/2022/2276	Report Release Date	: 11.11.2022
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CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/3281
Address	: Lohardaga, Jharkhand-835203	Location	: Near Bunglapart Village Pakhar Bauxite Mine
Plant Status	: Operational	Sampling Date	: 12/09/2022 to 13/09/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 24	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 65	4	Weather Condition	: Clear
5	Longitude	: 84°35'36.40"E	6	Latitude	: 23°33'6.92"N

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	34
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	60 (24hrs)	12
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)	6.5
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)	<0.002
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/2022/2276	Report Release Date : 11.11.2022
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Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 11): 2004	05(Annual)	<2.0
Benzo (a) Pyrene*	ng/m^3	IS 5182 (Part- 12): 2006	01(Annual)	<0.20

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

****End of Report****

Authorized Signatory
SANDIP BERA
SENIOR MANAGER
ELES PVT. LTD.

Page 2 of 2

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TEST REPORT

Test Report No. : ELES/RNC/2022/2277	Report Release Date : 11.11.2022
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CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/3282
Address	: Lohardaga, Jharkhand-835203	Location	: Yatri Shed (Near K-10) Pakhar Bauxite Mine
Plant Status	: Operational	Sampling Date	: 12/09/2022 to 13/09/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 24	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 65	4	Weather Condition	: Clear
5	Longitude	: 84°37'29.76"E	6	Latitude	: 23°33'12.96"N

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)	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)	0.004
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/2022/2277	Report Release Date : 11.11.2022
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Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 11): 2004	05(Annual)	<2.0
Benzo (a) Pyrene*	ng/m^3	IS 5182 (Part- 12): 2006	01(Annual)	<0.20

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

Authorized Signatory

SANDIP BERA
SENIOR MANAGER
ELES PVT. LTD.

****End of Report****



ENVIRONMENTAL LABORATORIES &

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TEST REPORT

Test Report No. : ELES/RNC/2022/2278	Report Release Date : 11.11.2022
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CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/3283
Address	: Lohardaga, Jharkhand-835203	Location	: Near Utkarmit Rajkiya Prathmik Vidyalaya Bunglapart Village
Plant Status	: Operational	Sampling Date	: 12/09/2022 to 13/09/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 24	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 65	4	Weather Condition	: Clear
5	Longitude	: 84°36'4.75"E	6	Latitude	: 23°32'40.97"N

Parameter	Unit	Test Protocol	Regulatory Limit	Result
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2017	100 (24hrs)	30
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	60 (24hrs)	13
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
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/2022/2278	Report Release Date : 11.11.2022
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Parameter	Unit	Test Protocol	Regulatory Limit	Result
Benzene*	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 11): 2004	05(Annual)	<2.0
Benzo (a) Pyrene*	ng/m^3	IS 5182 (Part- 12): 2006	01(Annual)	<0.20

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

****End of Report****

Authorized Signatory
SANDIP BERA
SENIOR MANAGER
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TEST REPORT

Test Report No. : ELES/RNC/2022/2279	Report Release Date : 11.11.2022
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CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2022/AA/3284
Address	: Lohardaga, Jharkhand-835203	Location	: Near Utkarmit Rajkiya Prathmik Vidyalaya Dumrapart Village
Plant Status	: Operational	Sampling Date	: 12/09/2022 to 13/09/2022
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 24	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 65	4	Weather Condition	: Clear
5	Longitude	: 84°37'29.39"E	6	Latitude	: 23°33'39.63"N

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)	15
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)	0.007
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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CIN: U74999JH2018PTC011125

ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
HATIA, RANCHI-834003 (JHARKHAND)
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TEST REPORT

Test Report No. : ELES/RNC/2022/2279

Report Release Date : 11.11.2022

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

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

****End of Report****

Authorized Signatory

SANDIP BERA
SENIOR MANAGER
ELES PVT. LTD.

Page 2 of 2

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"Save Environment, Save Future"



Annexure 3

Date – 01.09.2022

Office Order

Environmental Cell has been re-constituted at Pakhar Bauxite Mine (Area 115.13 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. S P Jha (Coordinator)
2. Mr. Anupam Kumar - 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.

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 Ashay
Basudev Gangopadhyay
AVP (Planning, Environment & Compliance)