



HIL/LHD/ENV/MoEF/ 706

Date: 23.05.2024

To,
The Dy. Director General of Forest (C)
Ministry of Environment, Forests and Climate Changes
2nd Floor, Headquarter-Jharkhand State Housing Board
Harmu Chowk, Ranchi, Jharkhand-834002

Sub: Compliance Report of EC conditions for Serengdag Bauxite Mining (77.89 ha) project of M/s Hindalco Industries Limited located in Dist- Gumla, Jharkhand for the period October'23 to March'24.

Ref: EC Identification No. EC23B001JH161552 dated 11th October 2023.

Sir,

With reference to the above, we are submitting herewith the Compliance status report of EC conditions for **Serengdag (77.89 Ha)** Bauxite Mining project of **M/s Hindalco Industries Limited** located in Gumla, Jharkhand for the period October'23 to March'24.

The lease detail is as below.

Lease area (ha)	Production Capacity (MT)	Lease Period
77.89	100000	04.10.1978 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, ranchiispcb@gmail.com, roranchi47@gmail.com

Hindalco Industries Limited

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Corporate ID No.: L27020MH1958PLC011238

Name of the Project : Serangdag Bauxite Mine (77.89 ha)
M/s Hindalco Industries Ltd

Environment Clearance No & date : EC23B001JH161552, dated 11.10.2023

Period of Compliance Report : From 1st October'23 to 31st March'2024

A. Specific Conditions

**Condition 1-This Environmental Clearance is valid subject to the following condition below-
That this project has**

- a. Obtained all legal rights to operate at concerned place.**
- b. Complied with all existing concerned laws of the land and**
- c. Complied with the decisions of SEIAA on the issue of Environmental Clearance till date.**

Reply – Agreed. All the legal rights and concerned laws are already complied with. The decisions of SEIAA on the issue of Environmental Clearance are being/will be complied.

Condition 2- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary and on either side of approach road in two rows with the spacing of 3x3m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, morality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Clime Change. Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

Reply to Condition 2- Progressive plantation is being carried out in consultation with local forest Dept. Total 2000 nos. of saplings have been planted during the FY 2023-24 within this lease. A total of 5.49 ha areas have been planted till date. In addition to these, agricultural activities (bio plantation) is going on in the reclaimed land as per the consent from landowners. Safety Zone plantation work is already being carried out. Plant survival rate is being taken care of by regular watering and manuring. Protection of saplings by fencing pillar and chain link fencing is being done. Photographs of plantation and chain link fencing are attached below.



Plantation at Mines

Condition 3- No mining/activity shall be undertaken in the forest land or deemed forest without obtaining requisite prior forestry clearance.

Reply to Condition 3- Noted. However, there is no forest land in our mining lease area. Therefore, we are not doing any mining/activity in the forest area.

Condition 4 - The project proponent may apply simultaneously for forest and NBWL clearance in order to complete the formalities without undue delay which till process on their respective merits, no rights will vest in or accrue to them unless all clearance are obtained, if applicable.

Reply to Condition 4 - Noted. However, there is no forest land within the lease hold area. Therefore, there is no need for forest clearance. This mine is also located beyond the ESZ boundary. Hence, NBWL is not applicable for this mine.

B. Statutory Compliance

Condition 1-This Environmental Clearance (EC) is subject to orders/ judgment of Hon'ble Supreme Court of India, Hon'ble High Court, Hon'ble NGT and any other Court of Law, Common Cause Conditions as may be applicable.

Reply to Condition 1 – Noted. However, common cause condition is not applicable for this mine.

Condition 2- In the writ petition (Civil) no. 202/1995, T.N. Godaverman Thirumulpad vs union of India and Ors. the Hon'ble Supreme Court passed an order dated 03.06.2022 " National Park or Wildlife Sanctuary must have an ESZ of minimum 01 km in which the activities prescribed and prescribed in the guidelines of 09th February, 2011 shall be strictly adhered to".

Reply to Condition 2- Noted. However, this mine is tentatively 10 kms away from Mahuadanr ESZ boundary.

Condition 3- The Project proponent complies with all the statutory requirements and judgement of Hon'ble Supreme Court dated 2nd August, 2017 in Writ Petition (Civil) No. 114 of 2014 in matter of common cause versus Union of India & Ors before commencing the mining operations.

Reply to Condition 3- Noted. However, common cause condition is not applicable for this mine.

Condition 4- The Hon'ble Supreme Court vide order dated 08.01.2020 in W.P. (Civil) No. 114/2014 in the matter of Common Cause vs. Union of India has directed that the area which has been mined should be restored so that grass and other vegetation including trees can grow in the mining area for the benefit of animals.

"The mining lease holders shall, after ceasing mining operations, undertake re-grassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc."

Reply to Condition 4- This is running mine. Backfilling & reclamation in the mined-out area are being done simultaneously as per the approved mining plan and progressive mine closure plan. However, at the end of final closure of the mine the entire mined out area will be backfilled and reclaimed for the purpose of plantation, re-grassing, constructing rainwater harvesting pond and agricultural activity as per final mine closure plan.

Condition 5- The State Government concerned shall ensure that mining operation shall not be commenced till the entire compensation levied, if any, for illegal mining paid by the Project Proponent through their respective Department of Mining & Geology in strict compliance of Judgement of Hon'ble Supreme Court dated 2nd August. 2017 in Writ Petition (Civil) No. 114 of 2014 in matter of Common Cause versus Union of India & Ors.

Reply to Condition 5- There had been no illegal mining involved. Hence, there is no demand from the State Government regarding common cause matter for Serangdag Bauxite Mine.

Condition 6- This Environmental Clearance shall become operational only after receiving formal NBWL Clearance from MoEF&CC subsequent to the recommendations of the Standing Committee of National Board for Wildlife. if applicable to the Project.

Reply to Condition 6- Noted. However, this mine is located beyond the ESZ boundary. Hence, it is not applicable for this mine.

Condition 7- This Environmental Clearance shall become operational only after receiving formal Forest Clearance (FC) under the provision of the Forest Conservation Act. 1980. If applicable to the Project.

Reply to Condition 7- Noted. However, no forest area is involved in the lease area. So, this condition is not applicable for this mine.

Condition 8- Project Proponent (PP) shall obtain Consent to Operate after grant of EC and effectively implement all the conditions stipulated therein. The mining activity shall not commence prior to obtaining Consent to Establish / Consent to Operate from the concerned State Pollution Control Board/Committee.

Reply to Condition 8- Noted. Valid CTE and CTO have already been received from JSPCB, Ranchi.

Condition 9- The PP shall adhere to the provision of the Mines Act, 1952, Mines and Mineral (Development & Regulation) Act, 2015 and rules & regulations made there under. PP shall adhere to various circulars issued by Directorate General Mines Safety (DGMS) and Indian Bureau of Mines from time to time.

Reply to Condition 9- This is an operative mine and all the provisions and regulations made under Mines Act, 1952 and MMDR Act, 2015 and various circulars issued by Directorate General Mines Safety (DGMS) and Indian Bureau of Mines are being adhered to.

Condition 10- The Project Proponent shall obtain consent from all the concerned landowners, before mining operations, as per the provisions of the MMDR Act, 1957 and rules made there under in respect of lands which are not owned by it.

Reply to Condition 10- Agreed. This is an operative mine. Therefore, the land is acquired for mining purpose only after getting the written consent from the respective landowners followed by the DC's order.

Condition 11- The Project Proponent shall follow the mitigation measures provided in MoEF & CC's Office Memorandum No. Z-11013/57/2014-IAJI (M), dated 29th October. 2014 titled "Impact of mining activities on Habitations-Issues related to the mining Projects wherein Habitations and villages are the part of mine lease areas or Habitations and villages are surrounded by the mine lease area".

Reply to Condition 11- Noted and being adhered to.

Condition 12- The Project Proponent shall obtain necessary prior permission of the competent authorities for drawl of requisite quantity of surface water and from CGWA for withdrawal of ground water for the project.

Reply to Condition 12- Noted. We have obtained NOC for withdrawal of groundwater for drinking purposes only from CGWA/CGWB. The Scan copy of the same NOC is attached below.

(भूखन निकाली हेतु अनापत्ति प्रमाण पत्र)
NO OBJECTION CERTIFICATE (NOC) FOR GROUND WATER ABSTRACTION

Project Name:	Serangdag Bauxite Mining Project (140.07 Ha)		
Project Address:	Serangdag Bauxite Mining Project, Vill - Serangdag, Paurni And Hanrup, Tehsil - Bishampur And Ghaghra		
Village:	Serangdag	Block:	Ghaghra
District:	Gumla	State:	Jharkhand
Pin Code:			
Communication Address:	Hindarco Industries Ltd. Hindalco Complex, Court Road, Lohardaga, Jharkhand, Ghaghra, Gumla, Jharkhand - 835302		
Address of CGWB Regional Office:	Central Ground Water Board Mid Eastern Region, 6th &amp;amp; 7th Floor, Lok Nayak Jai Prakash Bhawan, Fraser Road, Dak Banglow, Patna, Bihar - 800011		

1. NOC No.:	COWA/NOC/MIN/REN/1/2023/7574	2. Date of issuance:	03/04/2023
3. Application No.:	21-4/487/JH/MIN/2019	4. Category:	Safe (GWRE 2020)
5. Project Status:	Existing Ground Water	6. NOC Type:	Renewal
7. Valid from:	16/02/2023	8. Valid up to:	15/02/2025

9. Ground Water Abstraction Permitted:				Dewatering		Total	
Fresh Water		Saline Water					
m ³ /day	m ³ /year	m ³ /day	m ³ /year	m ³ /day	m ³ /year	m ³ /day	m ³ /year
9.50	3467.50						

10. Details of ground water abstraction (Dewatering structures)

Total Existing No.:	1	Total Proposed No.:	0
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NOC for Groundwater

Condition 13- A copy of EC letter will be marked to concerned Panchayat / local NGO etc. if any from whom suggestion / representation has been received while processing the proposal.

Reply to Condition 13- Noted. The EC Letter has been submitted to Gram Panchayat Mukhiya, District Industries Centre, MoEF&CC, JSPCB, Deputy Commissioner and Zila Parishad. Acknowledgment copy of the same is attached herewith as **Annexure-9**.

Condition 14- State Pollution Control Board/Committee shall be responsible for display of this EC letter at its Regional office, District Industries Centre, and Collector's office/ Tehsildar's Office for 30 days.

Reply to Condition 14- Noted. The EC Letter has been submitted to JSPCB for display of same at its Regional office and other government offices. Acknowledgment copy of the same is attached herewith as **Annexure-9**.

Condition 15- The Project Authorities should widely advertise about the grant of this EC letter by printing the same in at least two local newspapers, one of which shall be in vernacular language of the concerned area. The advertisement shall be done within 7 days of the issue of the clearance letter mentioning that the instant project has been accorded EC and copy of the EC letter is available with the State Pollution Control Board/Committee and website of the Ministry of Environment, Forest and Climate Change (www. Environment clearance.nic.in). A copy of the advertisement may be forwarded to the concerned MoEF & CC Regional Office for compliance and record.

Reply to Condition 15- Noted and complied. The information regarding grant of EC has been published in two local newspapers, namely “Hindustan” and “Hindustan Times.” Copies of the advertisement in local newspapers have already been submitted to the Regional Office of MoEF&CC, Ranchi and JSPCB, Ranchi along with the Six-monthly EC compliance report, vide letter no. HIL/LHD/ENV/MoEF/418 dated 25.11.2023. The copy of the same advertisement in the newspapers is attached below.

पर्यावरण स्वीकृति के संबंध में
हिण्डालको इण्डस्ट्रीज लिमिटेड की सेरेंगदाग बॉक्साईट खदान (क्षेत्रफल : 77.89 हे०), बॉक्साईट 100000 टी.पी.ए की उत्पादन क्षमता के साथ गांव : सेरेंगदाग, हंनरूप एवं पवनरी तालुका बिशुनपुर एवं घघरा, जिला गुमला, झारखंड का एस.ई.आई.ए.ए. झारखंड से पुनः मान्य ईसी प्रदान किया गया है।

पर्यावरण स्वीकार करेक बारे में
हिण्डालको इण्डस्ट्रीज लिमिटेड कर सेरेंगदाग बॉक्साईट खदान (क्षेत्रफल : 77.89 हे०), बॉक्साईट 100000 टी.पी.ए कर उत्पादन क्षमता कर साथ गांव : सेरेंगदाग, हंनरूप और पवनरी तालुका बिशुनपुर एवं घघरा, जिला गुमला, झारखंड कर एस.ई.आई.ए.ए. झारखंड बट से फिर से मानेक ले ईसी देवल गेले है।

Advertisement in the “Hindustan” Newspaper

पर्यावरण स्वीकृति के संबंध में
हिण्डालको इण्डस्ट्रीज लिमिटेड की सेरेंगदाग बॉक्साईट खदान (क्षेत्रफल : 77.89 हे०), बॉक्साईट 100000 टी.पी.ए की उत्पादन क्षमता के साथ गांव : सेरेंगदाग, हंनरूप एवं पवनरी तालुका बिशुनपुर एवं घघरा, जिला गुमला, झारखंड का एस.ई.आई.ए.ए. झारखंड से पुनः मान्य ईसी प्रदान किया गया है।

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Advertisement in the “Hindustan Times” Newspaper

Condition 16- The Project Proponent shall inform the MoEF & CC for any change in ownership of the mining lease. In case there is any change in ownership or mining lease is transferred then mining operation shall only be carried out after transfer of EC as per provisions of the para 11 of EIA Notification, 2006 as amended from time to time.

Reply to Condition 16- Noted and will be informed if applicable.

Condition 17- In all Stone Mining projects, depending upon the air pollution estimates based upon fuel use in operations and activities of the respective projects; required monitoring station-based air quality monitoring shall be done in the influence area of the project with needed mitigation conditions to ensure sustainable. Stone mining as per guidelines, circulars and norms of MOEFCC / Hon'ble NGT or any other directives of regulatory / statutory bodies and competent Courts.

PP to take preventive steps to avoid flash flood conditions arising from mining operations and probably run off in rainy season conditions.

Reply to Condition 17- This is not a stone mine. It is a bauxite mine and all the mitigation measures are being taken to prevent air pollution in Serangdag Bauxite Mine. As shallow depth mining is being carried out, there is no chance of flash flood conditions arising from mining operations.

Condition 18- PP shall maintain minimum distance from Reserved / Protected Forests as stipulated in applicable guidelines.

Reply to Condition 18- Noted and being adhered to.

Condition 19- All statutory clearances shall be obtained before the start of mining operations.

Reply to Condition 19- All statutory clearances have already been obtained as it is a running mine.

C. Air Quality monitoring and preservation

Condition 1- The Project Proponent shall install a minimum of 3 (three) online Ambient Air Quality Monitoring Stations with 1 (one) in upwind and 2 (two) in downwind direction based on long term climatological data about wind direction such that an angle of 120° is made between the monitoring locations to monitor critical parameters, relevant for mining operations, of air pollution viz. PM10, PM2.5, NO₂, CO and SO₂ etc. as per the methodology mentioned in NAAQS Notification No. B-2901 6/20/90/PCUI, dated 18.11.2009, covering the aspects of transportation and use of heavy machinery in the impact zone. The ambient air quality shall also be monitored at prominent places like office buildings, canteen etc. as per the site condition to ascertain the exposure characteristics at specific places. The above data shall be digitally displayed within 03 months in front of the main Gate of the mine site.

Reply to Condition 1- We have established four ambient air quality monitoring stations in the core zone as well as buffer zone. Monitoring is being carried out and reported to the concerned authorities. Report is attached as **Annexure 2**. A display board is already installed in front of mine gate office. We have already installed an online PM10 analyzer at mine site.

Condition 2- Effective safeguard measures for prevention of dust generation and subsequent Suppression (like regular water sprinkling, metaled road construction etc.) shall be carried out in areas prone to air pollution wherein high levels of PM10 and PM2.5 are evident such as haul road, loading and unloading point and transfer points. The Fugitive dust emissions from all sources shall be regularly controlled by installation of required equipment/ machineries and preventive maintenance. Use of suitable water-soluble chemical dust suppressing agents may be explored for better effectiveness of dust control system. It shall be ensured that the air pollution level conforms to the standards prescribed by the MoEF&CC/ Central Pollution Control Board.

Reply to Condition 2- Continuous water sprinkling is being done to prevent dust suppression on haul road. Online PM10 analyzer has been installed for regular monitoring purpose. Suitable water-soluble chemical dust suppressing agents will be used in future if required.

Condition 3-Approved devices for dust suppression shall be installed.

Reply to Condition 3- USEPA approved online PM10 analyzer has been installed in mine as per the directives of JSPCB. However, dust suppression is also being done by sprinkling water through mobile water tankers.



Dust Suppression through water tanker.

Condition 4- Personnel working in dusty areas should be provided with 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. A detailed report shall be sent to the Pollution Control Board periodically.

Reply to Condition 4- All the workers have been provided with PPEs including dust mask and dust respirators. Periodical Occupational health surveillance program of the workers is being carried out and records maintained as per statute. IME & PME report has been attached as **Annexure 6**.

Condition 5- 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 Jharkhand State Pollution Control Board and its concerned Regional Office. The criteria pollutant levels are namely SPM, RSPM, SO₂, NO_x (ambient levels) or critical sectoral parameters, indicated for the project shall be monitored and displayed at a convenient location near the project shall be monitored and displayed at a convenient location near the main gate of the company in the company in the public domain.

Reply to Condition 5- Six-monthly EC compliance along with Environmental monitoring reports is being uploaded on company website regularly. The same is also being submitted to the Regional Office of MoEF&CC, Ranchi and JSPCB, Ranchi. An Environmental Display board is already installed at the Mine Main Gate.

D. Water quality monitoring and preservation:

Condition 1- In case, immediate mining scheme envisages intersection of ground water table, then Environmental Clearance shall become operational only after receiving formal clearance from CGWA. In case, mining operation involves intersection of ground water table at a later stage, then PP shall ensure that prior approval from CGWA and MoEF&CC is in place before such mining operations. The permission for intersection of ground water table shall essentially be based on detailed hydro-geological study of the area.

Reply to Condition 1- Noted. Since shallow depth mining is being carried out in Serangdag Bauxite Mine. Therefore, Mining operation does not involve intersection of ground water table. However, we are regularly monitoring the ground water table through installation of piezometer. The copy of the same report is attached herewith as **Annexure-1**.

As the water table is not intersecting during mining operation, the detailed hydro-geological study is not applicable for this mine.

Condition 2- Regular monitoring of the flow rate of the springs and perennial nallahs flowing in and around the mine lease shall be carried out and records maintained. The natural water bodies and or streams which are flowing in and around the village, should not be disturbed. The Water Table should be nurtured so as not to go down below the pre-mining period. In case of any water scarcity in the area, the Project Proponent has to provide water to the villagers for their use. A provision for regular monitoring of water tables in open dug wall located in village should be incorporated to ascertain the impact of mining over ground water table. The Report on changes in Ground water level and quality shall be submitted on a six-monthly basis to the Regional Office of the Ministry, CGWA and State Groundwater Department / State Pollution Control Board.

Reply to Condition 2- Noted. Regular monitoring of drinking water along with stream and spring water is being carried out. As shallow depth mining is being carried out, there is no intersection of the groundwater table during the mining operation at present and in the future. A piezometer has also been installed in mine for monitoring of ground water level. Drinking water is being provided to nearby villages regularly.

The ground water level and water quality reports are being submitted regularly on a six-monthly basis to the regional office of the Ministry, CGWA, and JSPCB. The same are attached herewith as **Annexure 1 and 2**.

Condition 3-Project Proponent shall regularly monitor and maintain records w.r.t. ground water level and quality in and around the mine lease by establishing a network of existing wells as well as new piezo-meter installations during the mining operation in consultation with Central Ground Water Authority/ State Ground Water Department. The Report on changes in Ground water level and quality shall be submitted on a six-monthly basis to the Regional

Office of the Ministry. CGWA and State Groundwater Department / State Pollution Control Board.

Reply to Condition 3- We regularly monitor and maintain records w.r.t. ground water level and quality in and around the mine lease. However, we are not using groundwater for any mining purposes. As shallow depth mining is being carried out, there is no intersection of the groundwater table during the mining operation at present and in the future. A piezometer has also been installed in the mine to monitor ground water level.

The ground water level and water quality reports are being submitted regularly on a six-monthly basis to the regional office of the Ministry, CGWA, and JSPCB. The same are attached herewith as **Annexure 1 and 2.**



Piezometer

Condition 4- The Project Proponent shall undertake regular monitoring of natural water course/ water resources/ springs and perennial nallahs existing/ flowing in and around the mine lease and maintain its records. The project proponent shall undertake regular monitoring of water quality upstream and downstream of water bodies passing within and nearby/ adjacent to the mine lease and maintain its records. Sufficient number of gullies shall be provided at appropriate places within the lease for management of water. PP shall carry out regular monitoring w.r.t. pH and included the same in monitoring plan. The parameters to be monitored shall include their water quality vis-à-vis suitability for usage as per CPCB criteria and flow rate. It shall be ensured that no obstruction and/ or alteration be made to water bodies during mining operations without justification and prior approval of MoEF&CC. The monitoring of water courses/ bodies existing in lease area shall be carried out four times in a year viz. pre- monsoon (April-May), Monsoon (August), post-monsoon (November) and winter (January) and the record of monitored data may be sent regularly to Ministry of Environment, Forest and Climate Change and is Regional Office. Central Ground Water Authority and Regional Director, Central Ground Water Board, State Pollution Control Board and Central Pollution Control Board. Clearly showing the trend analysis on a six-monthly basis.

Reply to Condition 4- Regular monitoring of water quality parameters of natural water course/ water resources/ springs and perennial nallahs existing/ flowing in and around the mine lease is being carried out and record is being maintained for the same.

However, we are not using groundwater for any mining purposes. As shallow depth mining is being carried out, there is no intersection of the groundwater table during the mining operation at present and in the future. No natural watercourse and/or water resource is being and will be obstructed due to mining operations.

The water quality reports are being submitted regularly on a six-monthly basis to the regional office of the Ministry, CGWA, and JSPCB. The same are attached herewith as **Annexure 2**.

Condition 5- Quality of polluted water generated from mining operations which include Chemical Oxygen Demand (COD) in mines run-off: acid mine drainage and metal contamination in runoff shall be monitored along with Total Suspended Solids (TDS), Dissolved Oxygen (DO), pH and Total Suspended Solids (TSS). The monitored data shall be uploaded on the website of the company as well as displayed at the project site in public domain, on a display board at a suitable location near the main gate of the Company. The circular No. J- 20012/1/2006-IAJI (M) dated 27.05.2009 issued by Ministry of Environment, Forest and Climate Change may also be referred to in this regard.

Reply to Condition 5- There is no polluted water generated during mining operations. However, a negligible amount of wastewater is generated in the workshop from washing vehicles, and an Oil & grease trap system is already installed for Sherangdag group of mines to treat this effluent. The treated water is in close circuit and being reused for washing of vehicle in the workshop.

Furthermore, the quality of this treated water is being monitored regularly and all water parameters are within permissible limits. The monitoring report is attached herewith as **Annexure- 2**

The monitoring report is being uploaded on company website along with Six-monthly EC Compliance report regularly. An Environmental Display board is already installed at the Mine Main Gate.

Condition 6- Project Proponent shall plan, develop and implement rainwater harvesting measures on long term basis to augment ground water resources in the area consultation with Central Ground Water Board/ State Groundwater Department. A report on amount of water recharged needs to be submitted to Regional Office MoEF&CC annually.

Reply to Condition 6 - Rainwater harvesting pond with proper fencing has been already constructed on long term basis to augment ground water in the area of Sherangdag plateau, in consultation with Central Ground Water Board. Photographs of the same have been attached below. Water Positivity study for Sherangdag Group of Mines has been carried out recently. Total amount of water recharge has been found to be 22092.50 m³/Annum.



Rainwater Harvesting Pond

Condition 7- Industrial wastewater (workshop and wastewater from the mine) should be properly collected and treated so as to conform to the notified standards prescribed from time to time. The standards shall be prescribed through Consent to Operate (CTO) issued by concerned State Pollution Control Board (SPCB). The workshop effluent shall be treated after its initial passage through Oil and grease trap.

Reply to Condition 7- There is no polluted water generated during mining operations. However, a negligible amount of wastewater is generated in the workshop from washing vehicles, and an Oil & grease trap system is already installed for Sherengdag group of mines to treat this effluent. The treated water is in close circuit and being reused for washing of vehicle in the workshop.

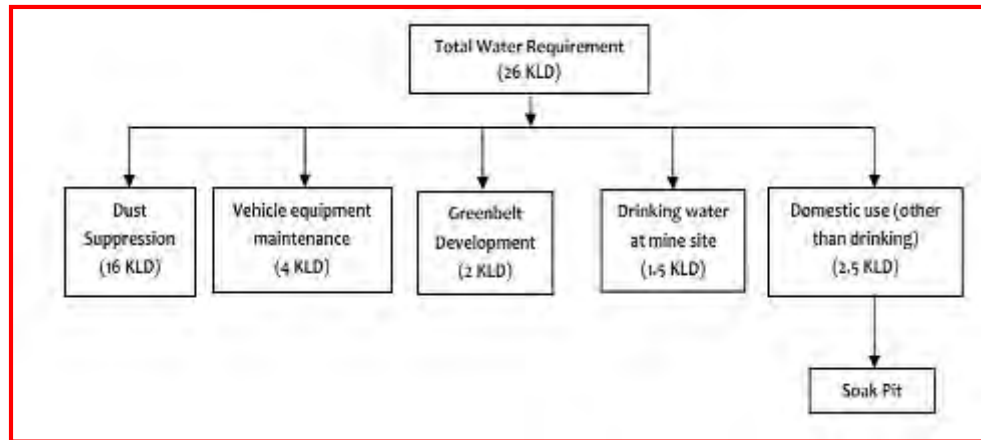
Furthermore, the quality of this treated water is being monitored regularly and all water parameters are within permissible limits. The monitoring report is attached herewith as **Annexure- 2**.



Washing Ramp and Oil and Grease Trap

Condition 8- The water balance/water auditing shall be carried out and measures for reducing the consumption of water shall be taken up and reported to the Regional Office of the MoEF&CC and State Pollution Control Board/Committee.

Reply to Condition 8- Noted. The water balance for this mine is attached below. We are taking water from rainwater harvesting pond for sprinkling and other activities. We are not abstracting any ground water for mining purposes. However, we have obtained NOC from CGWA for drinking purposes only. We have also conducted water study for Sherangdag group of mines and prepared a report. Based on the water study this mine has been turned out to be a water positive mine.



Water Balance

Condition 9- The mining operations shall be restricted to ground above the water table, and it should not intersect the groundwater table. In case of working below the ground water table. Prior approval of the Ground Water Directorate, Government of Jharkhand / Central Ground Water Board shall be obtained. Benches height and slope shall be maintained as per approved Mining Plan. The Mining Plan has to be got approved by concerned authorities as per IBM or equivalent agencies. Safety measures shall be adopted in line with DGMS Guidelines.

Reply to Condition 9- Noted. We are not using groundwater for any mining purposes. As shallow depth mining is being carried out, there is no intersection of the groundwater table during the mining operation at present and in the future.

A piezometer has been installed for monitoring of ground water level. The Mining Plan has already been approved by IBM, Ranchi and Safety measures like Benches height and slope are being maintained as per the guideline by DGMS.

Condition 10- The project proponent shall ensure that no natural watercourse and / or water resources shall be obstructed / diverted due to any mining operations. Adequate measures shall be taken for conservation and protection of the first order and the second order streams. If any emanating / passing through the mine lease area during the course of mining operation.

Reply to Condition 10- There is no natural watercourse and / or water resources within the mining lease area. As Shallow depth mining methodology is adopted for mining process. Hence, there is no impact of mining operation on natural water course.

Condition 11- The project proponent shall implement approved conservation measures to augment ground water resources in the area in consultation with the Ground Water Directorate, Government of Jharkhand/ Central Ground Water Board.

Reply to Condition 11- A detailed plan to augment groundwater has been prepared, and suitable measures like creation of water harvesting ponds etc., are being taken for the augmentation of groundwater in the area of Sherangdag Plateau, in consultation with the Central Ground Water Board.

Condition 12- The project proponent shall, if required, obtain necessary prior permission/NOC from the competent authorities for drawl of requisite quantity of water required from the source for the project.

Reply to Condition 12- No Objection Certificate (NOC) for ground water abstraction has been obtained for drinking purposes only from CGWB/CGWA. The same NOC is attached in the Condition No.12 of Section (B) Statutory Compliance.

However, rainwater harvested during rainy season, is being used for sprinkling on haul roads and raising plantation. We are not using groundwater for any mining purposes.

Condition 13- Suitable rainwater harvesting measures shall be planned and implemented in consultation with the Ground Water Directorate, Government of Jharkhand / Central Ground Water Board.

Reply to Condition 13- Suitable measures such as creation of rainwater harvesting ponds, etc., are implemented in the area of Sherangdag Plateau, in consultation with the Central Ground Water Board.

E. Noise and vibration monitoring and prevention

Condition 1- The peak particle velocity at 500 m distance or within the nearest habitation, whichever is closer shall be monitored periodically as per applicable DGMS Guidelines.

Reply to Condition 1- Noted and being adhered to. Blast vibration study is being carried out at regular interval and the report is attached herewith as **Annexure 8**.

Condition 2- The illumination and sound at night at project sites disturb the villages in respect of both human and animal population. Consequent sleeping disorders and stress may affect the health in the villages located close to mining operations. Habitations have a right for darkness and minimal noise levels at night. PPs must ensure that the biological clock of the villages is not disturbed: by orienting the floodlights/ masks away from the villagers and keeping the noise levels well within the prescribed limits for day /night hours.

Reply to Condition 2- Noted. Mining operation is restricted to daytime only. So, there is no disturbance created in the nearby villages regarding illumination and sound.

Condition 3-The Project Proponent shall take measures for control of noise levels below 85 dBA in the work environment. The workers engaged in operations of HEMM. etc. should be provided with ear plugs /muffs. All personnel including labours working in dusty area shall be provided with protective respiratory devices along with adequate training, awareness and information on safety and health aspects. The PP shall be held responsible in case it has been found that workers/ personals/ labours are working without personal protective equipment.

Reply to Condition 3- Noted. The noise level monitoring is being conducted at a regular interval. The noise level is below the prescribed norms. Report has been attached as **Annexure 2**. All workers engaged in operation have been provided with PPEs. Training in Health and safety is being imparted by the respective officials.

F. Mining Plan:

Condition 1- The Project Proponent shall adhere to the working parameters of the mining plan which was submitted at the time of EC appraisal wherein year-wise plan was mentioned for total excavation i.e. quantum of mineral, waste. over burden. inter burden and topsoil etc. No change in basic mining proposal like mining technology, total excavation, mineral & waste production, lease area and scope of working (viz. method of mining, overburden & dump management, O.B & dump mining, mineral transportation mode. ultimate depth of mining etc.) shall not be carried out without prior approval of the Ministry of Environment Forest and Climate Change which entail adverse environmental impacts even if it is a part of approved mining plan modified after grant of EC or granted by State Govt. in the form to Short Term Permit (STP), Query license or any other name.

Reply to Condition 1- Noted and being adhered to.

Condition 2- . The Project Proponent shall get the Final Mine Closure Plan along with Financial Assurance approved from Indian Bureau of Mines/Department of Mining & Geology as required under the Provision of the MMDR Act. 1957 and Rules/ Guidelines made there under. A copy of approved final mine closure plan shall be submitted within 2 months of the approval of the same from the competent authority to the concerned Regional Office of the Ministry of Environment, Forest and Climate Change for record and verification.

Reply to Condition 2- Noted and will be adhered in due course.

Condition 3-The land-use of the mine lease area at various stages of the mining scheme as well as at the end-of-life shall be governed as per the approved Mining Plan. The excavation vis-à-vis backfilling in the mine lease area and corresponding afforestation to be raised in the reclaimed area shall be governed as per the approved mining plan. PP shall ensure the monitoring and management of rehabilitated areas until the vegetation becomes self-sustaining. The compliance status shall be submitted half-yearly to the MoEF&CC and its concerning the Regional Office.

Reply to Condition 3- Noted and being adhered. The excavated area is being back filled concurrently and back filled area is used for afforestation/agricultural activity as required after

reclamation. Monitoring and management of rehabilitated areas is continuing through supervision. Photograph is attached below.



Reclaimed Land

Condition 4- No change in mining technology and scope of working should be made without prior approval of the Statutory authorities / Department of Mines, Government of Jharkhand / Jharkhand State Pollution Control Board, Ranchi during the EC period.

Reply to Condition 4- Noted.

Condition 5- No change in the calendar plan including excavation, quantum of mineral and waste should be made.

Reply to Condition 5- Calendar plan including excavation, quantum of mineral bauxite and waste is being done as per IBM approved mining scheme and in scientific manner. Data pertaining to excavation, quantum of mineral bauxite etc. are mentioned in report attached as **Annexure 4**.

Condition 6- The Project proponent shall make all internal roads pucca as per approved specification of Govt. of Jharkhand and shall maintain a good housekeeping by regular cleaning and wetting of the haul roads and the premises.

Reply to Condition 6- Internal haul road has been provided as per approved specifications. Regular housekeeping and water sprinkling is being carried out for fugitive dust suppression.

Condition 7- The Project proponent shall maintain register for production and dispatch and submit return to the Board.

Reply to Condition 7- Noted and is being complied with, as per the requirement. However, Monthly as well as annual return is being submitted to IBM and District Mining office at stipulated timeframe.

Condition 8- Dispensary facilities for First Aid shall be provided at site.

Reply to Condition 8- Dispensary facilities is available for Serangdag Bauxite Mine. Photographs are attached below.



Dispensary Facility at mines

G. Land Reclamation

Condition 1- The Overburden (O.B.) generated during the mining operations shall be stacked at earmarked OB dump site(s) only and it should not be kept active for a long period of time. The physical parameters of the OB dumps are like height, width and angle of slope shall be governed as per the approved Mining Plan as per the guidelines/circulars issued by D.G.M.S w.r.t safety in mining operations shall be strictly adhered to maintain the stability of topsoil/OB dumps. The topsoil shall be used for land reclamation and plantation.

Reply to Condition 1: - Overburden and waste rock are being used for concurrent backfilling, and topsoil is being spread on the backfilled area for reclamation as per mining plan approved by IBM. Currently, there is no OB dump present in the mine lease area. All Safety measures are being adhered to the guidelines/circulars issued by DGMS. Data pertaining to backfilling is enclosed as **Annexure 4**. Monitoring and management of rehabilitated areas is being done through effective supervision.

Condition 2- The reject/ waste generated during the mining operations shall be stacked at earmarked waste dump site(s) only. The physical parameters of the waste dumps are like height, width and angle of slope shall be governed as per the approved Mining Plan as per the guidelines/circulars issued by DGMS w.r.t. safety in mining operations shall be strictly adhered to maintain the stability of waste dumps.

Reply to Condition 2- Overburden and waste rock are being used for concurrent backfilling, and topsoil is being spread on the backfilled area for reclamation as per mining plan approved by IBM.

Currently, there is no OB dump present in the mine lease area. All Safety measures are being adhered to the guidelines/circulars issued by DGMS. Data pertaining to backfilling is enclosed as **Annexure 4**. Monitoring and management of rehabilitated areas is being done through effective supervision.

Condition 3- The reclamation of waste dump sites shall be done in scientific manner as per the Approved Mining Plan cum Progressive Mine Closure Plan.

Reply to Condition 3- The land reclamation of OB dumps is being done after concurrent backfilling as per approved mining plan in scientific manner. Photograph of the same is attached in reply to Condition 3 of Section (F) Mining Plan.

Condition 4- The slope of dumps shall be vegetated in a scientific manner with suitable native species to maintain the slope stability, prevent erosion and surface run off. The selection of local species regulates local climatic parameters and helps in adaptation of plant species to the microclimate. The gullies formed on slopes should be adequately taken care of as it impacts the overall stability of dumps. The dump mass should be consolidated with the help of dozer/ compactors thereby ensuring proper filling/ leveling of dump mass. In critical areas, use of geo textiles/ geo-membranes / clay liners / Bentonite etc. shall be undertaken for stabilization of the dump.

Reply to Condition 4- Noted. Currently, there is no OB dump present in the mine lease area as we are following concurrent backfilling and reclamation process in scientific manner.

Condition 5- The Project Proponent shall carry out slope stability study in case the dump height is more than 30 meters. The slope stability report shall be submitted to concerned regional office of MoEF&CC.

Reply to Condition 5- Noted. There is no dump present currently on site as we are following concurrent backfilling and reclamation process. Therefore, this condition is not applicable for this mine.

Condition 6- Catch drains, settling tanks and ponds of appropriate size shall be constructed around the mine working, mineral yards and Topsoil/OB/Waste dumps to prevent run off of water and flow of sediments directly into the water bodies (Nallah/ River/ Pond etc.). The collected water should be utilized for watering the mine area, roads, green belt development, plantation etc. The drains/ sedimentation sumps, etc. shall be de-silted regularly, particularly after monsoon season, and maintained properly.

Reply to Condition 6- To collect & manage rainwater during monsoon, part of mined out area is used as a settling tank for the runoff. Rainwater stored is being used for watering the mine area, roads, green belt development and sprinkling as necessary. Catch drains, Garland drains of appropriate size are being constructed in both around the mine pit to prevent runoff of water and flow of sediments directly into the agricultural field and water bodies, if applicable.



Garland drains

Condition 7- Check dams of appropriate size, gradient and length shall be constructed around mine pit and OB dumps to prevent storm run-off and sediment flow into adjoining water bodies. A safety margin of 50% shall be kept for designing of sump structures over and above peak rainfall (based on 50 years data) and maximum discharge in the mine and its adjoining which shall also help in providing adequate retention time period thereby allowing proper settling of sediments/ silt material. The sedimentation pits/ sumps shall be constructed at the corners of the garland drains.

Reply to Condition 7- To collect & manage rainwater during monsoon, part of mined out area is used as a settling tank for the runoff. Rainwater stored is being used for watering the mine area, roads, green belt development and sprinkling as necessary. Appropriate check dam has been provided.



Check dam/ Catchment Area

Condition 8- The topsoil, if any, shall temporarily be stored at earmarked site(s) within the mine lease only and should not be kept unutilized for long. The physical parameters of the topsoil dumps are like height, width and angle of slope shall be governed as per the approved mining Plan and as per the guidelines framed by DGMS w.r.t. safety in mining operations shall be strictly adhered to maintain the stability of dumps. The topsoil shall be used for land reclamation and plantation purposes.

Reply to Condition 8- Topsoil is being used for reclamation and rehabilitation simultaneously. Temporary soil is being stacked separately in the mining premises, if required and the same is being used for reclamation purpose within a month. There is no external OB dump. The excavated area is being back filled concurrently and back filled area is used for afforestation/agricultural activity as required. Monitoring and management of rehabilitated areas is continuing through supervision.

H. Transportation

Condition 1- No Transportation of the minerals shall be allowed in case of roads passing through villages habitations. In such cases, PP shall construct a 'bypass' road for the purpose of transportation of the minerals leaving an adequate gap (say at least 200 meters) so that the adverse impact of sound and dust along with chances of accidents could be mitigated. All costs resulting from widening and strengthening of existing public road network shall be borne by the PP in consultation with nodal State Govt. Department. Transportation of minerals through road movement in case of existing village/ rural roads shall be allowed in consultation with nodal State Govt. Department only after required strengthening such that the carrying capacity of roads is increased to handle the traffic load. The pollution due to transportation load on the environment will be effectively controlled and water sprinkling will also be done regularly. Vehicular emissions shall be kept under control and regularly monitored. Project should obtain Pollution Under Control (PUC) certificate for all the vehicles from authorized pollution testing centers.

Reply to Condition 1- Haul Road has been constructed for transportation of minerals. Mobile water tankers with sprinkling facility have been provided along-haul roads, loading, unloading & at transfer points to arrest dust emission. Regular maintenance of vehicles is undertaken to minimize vehicular emission. All measures are being taken to control vehicular emission. The vehicles are being covered with tarpaulin while transportation of mineral. PUC Certificates have been attached as Annexure 7.



Tarpaulin covered truck.

Condition 2- The Main haulage road within the mine lease should be provided with a permanent water sprinkling arrangement for dust suppression. Other roads within the mine lease should be wetted regularly with tanker-mounted water sprinkling system. The other areas of dust generation like crushing zone, material transfer points, material yards etc. should invariably be provided with dust suppression arrangements. The air pollution control equipment like bag filters, vacuum suction hoods, dry fogging system etc. shall be installed in Crushers, belt-conveyors, and other areas prone to air pollution. The belt conveyor should be fully covered to avoid generation of dust while transportation. PP shall take necessary measures to avoid generation of fugitive dust emissions.

Reply to Condition 2- Haul Road has been constructed for transportation of minerals. Mobile water tankers with sprinkling facilities have been provided on long-haul roads, loading, unloading & at transfer points to arrest dust emission. Regular maintenance of vehicles is undertaken to minimize vehicular emission. All measures are being taken to control vehicular emission. The vehicles are being covered with tarpaulin while transportation of mineral.

Condition 3- Vehicular emissions shall be kept under control by regular repairing of transport roads and regular air quality monitoring. Measures shall be taken for maintenance of vehicles used in mining operations and in transportation of minerals. The mineral transportation shall be carried out through the covered trucks only and the vehicles carrying the mineral shall not be overloaded. No transportation of stone / sand outside the mine lease area shall be carried out after sunset.

Reply to Condition 3- To keep vehicular emissions under control, vehicles are periodically checked & repaired. All measures are being taken to control vehicular emission. All vehicles are covered with tarpaulins, and non-overloading guidelines are being followed during transportation of minerals. No transportation of minerals outside the mine lease area is carried out after sunset.

I. Greenbelt

Condition 1-The Project Proponent shall develop greenbelt in 7.5m wide safety zone all along the mine lease boundary as per the guidelines of CPCB in order to arrest pollution emanating from mining operations within the lease. The whole Green belt shall be developed within the first 5 years starting from the windward side of the active mining area. The development of greenbelt shall be governed as per the EC granted by the Ministry irrespective of the stipulation made in approved mine plan.

Reply to Condition 1- Green belt development work is in progress in safety zone of mine lease already. Plantation work is being governed as per approved mining plan and EC granted.



Plantation at mines

Condition 2- The Project Proponent shall carry out plantation/ afforestation in backfilled and reclaimed area of mining lease. around water body, along the roadsides, in community areas etc. by planting the native species in consultation with the State Forest Department/ Agriculture Department/ Rural development department/ Tribal Welfare Department/ Gram Panchayat is such that only those species be selected which are of use to the local people. The CPCB guidelines in this respect shall also be adhered. The density of the trees should be around 2500 saplings per Hectare. Adequate budgetary provision shall be made for the protection and care of trees.

Reply to Condition 2- Progressive plantation of native species is being carried out in consultation with local forest department within mining lease, reclaimed area etc. Total 2000 nos. saplings have been planted in FY 2023-24 within the lease. Total 5.49 ha areas have been planted till date. In addition to these agricultural activities (bio plantation) is going on reclaimed land as per the consent from landowners. The Green belt development program is in progress with the progress of mining activities.





Plantation at Mine

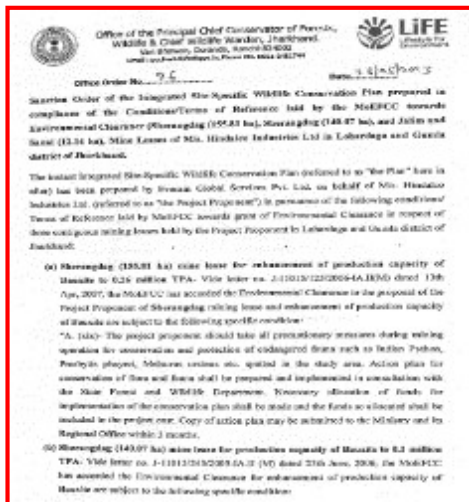
Condition 3- The Project Proponent shall make necessary alternative arrangements for livestock feed by developing grazing land with a view to compensating those areas which are coming within the mine lease. The development of such grazing land shall be done in consultation with the State Government. In this regard, Project Proponent should essentially

implement the directions of the Hon'ble Supreme Court with regard to acquisition of grazing land. The sparse trees on such grazing ground, which provides mid- day shelter from the scorching sun, should be scrupulously guarded/ protected against felling and plantation of such trees should be promoted.

Reply to Condition 3- As per the agreement by DC, we are acquiring land on the lease basis in consultation with the State Government and with the consent of the landowner. After completing mining operation followed by reclamation and topsoil spreading, we return the land to the landowners for agriculture purpose or plantation whichever is desired by them (landowners /villagers). Hence, we do not deteriorate the quality of the land and there is no need to create grazing land. No cutting of trees/ felling of trees are involved in the mining process.

Condition 4- The Project Proponent shall undertake all precautionary measures for conservation and protection of endangered flora and fauna and Schedule-I species during mining operation. A Wildlife Conservation Plan shall be prepared for the same clearly delineating action to be taken for conservation of flora and fauna. The Plan shall be approved by Chief Wildlife Warden of the State Govt.

Reply to Condition 4- We have prepared Integrated Site-specific Wildlife Conservation in consultation with State Forest Department and obtained approval letter from Principal Chief Conservator of Forest, Wildlife & Chief Wildlife Warden, Jharkhand via Office Order No.26 dated 26.05.2023 for conservation and protection of flora and fauna in the core and buffer zone for Sherengdag Group of Mines. However, Mine is located outside an eco-sensitive zone.



Integrated Site-specific Wildlife Conservation Plan for Sherengdag Group of Mines

Condition 5- And implemented in consultation with the State Forest and Wildlife Department. A copy of the Wildlife Conservation Plan and its implementation status (annual) shall be submitted to the Regional Office of the Ministry.

Reply to Condition 5- Noted and complied with.

Condition 6- The Project proponent shall not cut trees / carry out tree felling in leased out area without the permission of competent authority.

Reply to Condition 6- No cutting of trees/ felling of trees are involved in the mining process.

J. Public hearing and human health issues:

Condition 1- The Project Proponent shall appoint an Occupational Health Specialist for Regular as well as Periodical medical examination of the workers engaged in the mining activities, as per the DGMS guidelines. The records shall be maintained properly. PP shall also carry out Occupational health check-ups in respect of workers which are having ailments, like BP, diabetes, habitual smoking, etc. The check-ups shall be undertaken once in six months and necessary remedial/ preventive measures be taken. A status report on the same may be sent to MoEF&CC Regional Office and DGMS on a half-yearly basis.

Reply to Condition 1- Regular and periodical medical examination of the workers engaged in the project is being carried out and records are being maintained by Medical Officer. IME/PME record is attached in compliance report as Annexure 6.

Condition 2- . The Project Proponent must demonstrate commitment to work towards 'Zero Harm' from their mining activities and carry out Health Risk Assessment (HRA) for identification workplace hazards and assess their potential risks to health and determine appropriate control measures to protect the health and wellbeing of workers and nearby community. The proponent shall maintain accurate and systematic records of the HRA. The HRA for neighborhood has to focus on Public Health Problems like Malaria, Tuberculosis, HIV, Anaemia, Diarrhea in children under five, respiratory infections due to biomass cooking. The proponent shall also create awareness and educate the nearby community and workers for Sanitation, Personal Hygiene, Hand washing, not to defecate in the open, Women Health and Hygiene (Providing Sanitary Napkins), hazard of tobacco and alcohol use. The Proponent shall carry out base line HRA for all the categories of workers and thereafter every five years.

Reply to Condition 2- Regular awareness programs are being carried out to educate the local community on healthcare, sanitation, hygiene etc. We have organized preventive and curative camps to control Malaria epidemic. Also, the Tuberculosis patient in the neighborhood are being provided with the "Poshan Kit" under PM Nikshye Yojana. We collaborate with Jharkhand State AIDS control society to conduct awareness programme. Moreover, we are working to make Ghagra and Bishunpur block Anaemia free, in this regard we have conducted more than 7000 strip tests to identify cases and take proper actions.

Also, awareness has been created for Sanitation, Personal Hygiene, Hand washing and not to defecate in the open periodically through "Swachta Abhiyan". Education and awareness for Women Health and Hygiene, hazard of tobacco and alcohol use is being given on regular intervals to the local villagers.

All workers and company staff are provided with proper PPEs. Base line HRA for all the categories of workers will be carried out in the future. However, we conduct IME/PME for the health and wellbeing of the workers in the mines.



Regular Health Awareness Programmes

Condition 3- The Proponent shall carry out Occupational health surveillance which be a part of HRA and include Biological Monitoring where practical and feasible, and the tests and investigations relevant to the exposure (e.g. for Dust X-Ray chest: For Noise Audiometric: for Lead Exposure Blood Lead. For Welders Full Ophthalmologic Assessment: for Manganese Miners a complete Neurological Assessment by a Certified Neurologist. and Manganese (Mn) Estimation in Blood: For Inorganic Chromium- Fortnightly skin inspection of hands and forearms by a responsible person. Except routine tests all tests would be carried out in a Lab accredited by NABH. Records of Health Surveillance must be kept for 30 years, including the results of and the records of Physical examination and tests. The record of exposure due to materials like Asbestos, Hard Rock Mining, Silica, Gold, Kaolin, Aluminum, Iron, Manganese, Chromium, Lead, Uranium needs to be handed over to the Mining Department of the State in case the life of the mine is less than 30 years. It would be obligatory for the State Mines Departments to make arrangements for the safe and secure storage of the records including X-Ray. Only conventional X-Ray will be accepted for recording purposes and not the digital one). X-Ray must meet ILO criteria (17 x14 inches and of good quality).

Reply to Condition 3- Occupational health surveillance is being conducted in regular intervals by specialized doctors and nurses. A total 12 number of medical camp and 2 nos. of mega medical camps have been organized in the FY 2023-24. Periodical medical examination of the workers engaged in the project is being carried out and records are being maintained by Medical Officer. IME/PME record is attached in compliance report as **Annexure 6**.

Condition 4- The Proponent shall maintain a record of performance indicators for workers which includes. (a) there should not be a significant decline in their Body Mass Index, and it should stay between 18.5 -24.9, (b) the Final Chest X-Ray compared with the base line X-Ray should not show any capacities (c) At the end of their leaving job there should be no Diminution in their Lung Functions Forced Expiratory Volume in one second (FEV1), Forced Vital Capacity (FVC), and the ratio) unless they are smokers which has to be adjusted, and the effect of age, (d) their hearing should not be affected. As a proof an Audiogram (first and last need to be presented), (c) they should not have developed any Persistent Back Pain, Neck Pain, and the movement of their Hip, Knee and other joints should have a normal range of movement. (f) they should not have suffered loss of any body part. The record of the same should be submitted to the Regional Office, MoEF&CC annually along with details of the relief and compensation paid to workers having the above indications.

Reply to Condition 4- Noted and being complied with. However, Regular, and periodical medical examination of the workers engaged in the project is being carried out and records are being maintained. IME/PME record is attached in compliance report as **Annexure 6**.

Condition 5-The Project Proponent shall ensure that 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.

Reply to Condition 5- Personnel working in dusty areas are provided with proper respiratory devices. Regular training is being conducted on occupational health and work safety environments.

Condition 6- Project Proponent shall make provision for the housing for workers/labours or shall construct labor camps within/outside (company owned land) with necessary basic infrastructure/ facilities like fuel for cooking, mobile toilets. mobile STP, safe drinking water. medical health care, crèche for kids etc. The housing may be provided in the form of temporary structures which can be removed after the completion of the project-related

infrastructure. The domestic wastewater should be treated with STP in order to avoid contamination of underground water.

Reply to Condition 6- Rest shelters have been provided to laborers. As most of the workers/laborers are from local village, there is no need for labor camps.

Condition 7- The activities proposed in the Action plan prepared for addressing the issues raised during the Public Hearing shall be completed as per the budgetary provisions mentioned in the Action Plan and within the stipulated time frame. The Status Report on implementation of Action Plan shall be submitted to the concerned Regional Office of the Ministry along with District Administration.

Reply to Condition 7- Noted. The issues raised during the Public Hearing are being implemented as per the budgetary provision.

Condition 8- Measures should be taken for control of noise levels below prescribed norms in the work environment. Workers engaged in operations of HEMM, etc. should be provided with ear plugs /muffs.

Reply to Condition 8- Noise level is maintained below prescribed norms and is being monitored by NABL accredited laboratory. The report is attached as **Annexure 2**. All the workers engaged in operations of HEMM are provided with earplugs.

K. Corporate Environment Responsibility (CER):

Condition 1- The activities and budget earmarked for Corporate Environmental Responsibility (CER) as per Ministry's O.M No 22-65/2017 -IA. II (M) dated 01.05.2018 or as proposed by EAC should be kept in a separate bank account. The activities proposed for CER shall be implemented in a time bound manner and annual report of implementation of the same along with documentary proof viz. photographs, purchase document, latitude & longitude of infrastructure developed & road constructed needs to be submitted to Regional Office MoEF&CC annually along with audited statement.

Reply to Condition 1- Every year, the funds earmarked for environmental protection measures is being budgeted separately and its expenditure is being reported to the regional office of Ministry. The copy of the same is attached as **Annexure 5**.

Condition 2-Project Proponent shall keep the funds earmarked for environmental protection measures in a separate account and refrain from diverting the same for other purposes. The Year wise expenditure of such funds should be reported to the MoEF&CC and its concerned Regional Office.

Reply to Condition 2- Every year, the funds earmarked for environmental protection measures is being budgeted separately and its expenditure is being reported to the regional office of Ministry. The copy of the same is attached as **Annexure 5**.

Condition 3- The funds earmarked for environmental protection measures should be kept in a separate account and should not be diverted for other purposes. Year wise expenditure should be reported to the Jharkhand State Pollution Control Board, Ranchi. PP shall carry out CSR activities as per Government Guidelines (% of Profit / turnover) or at least Rs 1 per ton whichever is higher.

Reply to Condition 3- Every year, the funds earmarked for CSR measures is being budgeted separately as per the govt. guidelines and its expenditure is being reported to the Ministry and JSPCB. The copy of the same is attached as **Annexure 5**.

Condition 4- The environmental statement for each financial year ending 31st March in Form-V as is mandated to be submitted by the project proponent to the Jharkhand 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 the status of compliance of EC conditions and shall also be sent to the concerned Regional Office of JSPCB by e-mail.

Reply to Condition 4- Environment statement is being submitted regularly to Member Secretary, JSPCB. Also, the status of compliance of EC conditions is uploaded on the website of the company on regular basis.

L. Miscellaneous:

Condition 1- The Project Proponent shall prepare a digital map (land use & land cover) of the entire lease area once in five years for the purpose of monitoring land use pattern and submit a report concerned Regional Office of the MoEF & CC.

Reply to Condition 1 – Noted and will be complied with. However, Digital Map of land use and land cover is being prepared every year and is being submitted to IBM Ranchi. The same is attached herewith as **Annexure 10**.

Condition 2- The Project Authorities should inform the Regional office regarding the date of financial closures and final approval of the project by the concerned authorities start of land development work.

Reply to Condition 2- This is an operative mine hence provision related to financial closure is not applicable.

Condition 3- It shall be mandatory for the project management to submit six (06) monthly compliance report in respect of the stipulated prior environmental clearance terms and conditions in hard copies and soft copies to the regulatory authority concerned Regional office of MoEF & CC at Ranchi and Jharkhand State Pollution Control Board (J.S.P.C.B.). Ranchi/ JCPCB/ SEIAA.

Reply to Condition 3- Six monthly reports on the status of the EC are being submitted regularly.

Condition 4- A separate 'Environmental Management Cell' with suitable qualified manpower should be set-up under the control of a Senior Executive. The Senior Executive shall report directly to the Head of the Organization. Adequate number of qualified Environmental Scientists and Mining Engineers shall be appointed and submit a report to RO, MoEF&CC.

Reply to Condition 4- A separate environmental management cell with suitable qualified personnel has been set up under the control of a Senior Executive, who is reporting directly to the Head of the Organization. The same is being attached herewith as **Annexure 3**.

Condition 5- The concerned Regional Office of the MoEF&CC shall randomly monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the MoEF&CC officer(s) by furnishing the requisite data / information /monitoring reports.

Reply to Condition 5- Noted and Agreed.

Condition 6- Concealing factual data or submission of false/fabricated data may result in revocation of this environmental clearance and attract action under the provisions of Environment (Protection) Act. 1986.

Reply to Condition 6- Noted.

Condition 7- The Ministry / SEIAA / SEAC may revoke or suspend the clearance. if implementation of any of the above conditions is not satisfactory.

Reply to Condition 7- Noted.

Condition 8- The Ministry /SEIAA /SEAC reserves the right to stipulate additional conditions if found necessary. The Company in a time-bound manner shall implement these conditions.

Reply to Condition 8- Noted & Agreed.

Condition 9- No blasting shall be carried out after sunset. Blasting operation shall be carried out only during Daytime, Controlled blasting shall be practiced. The mitigative measures for control of ground vibrations and to arrest fly rocks and boulders should be implemented.

Reply to Condition 9- Blasting time is fixed during Lunch Time i.e. 12:00 PM -1:00 PM. Controlled blasting method is in practice. Ground vibration study has been conducted periodically. Efforts and mitigative measures are being taken to reduce the impact of the blast.

Condition 10- Drilling shall either be operated with dust extractors or equipped with a water injection system.

Reply to Condition 10- Wet Drilling practice is adopted at our mines.



Wet Drilling

Condition 11- Pre-placement medical examination and periodical medical examination of the workers engaged in the project conducted by a Registered Medical Officer shall be carried out and records maintained.

Reply to Condition 11- Pre-placement medical examination and periodical medical examination of the workers engaged in the project are being carried out and records maintained as per statute. IME/PME report is attached as **Annexure-6**

Condition 12- Provision shall be made for the housing of construction labor at a suitable place away from the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets / septic tanks, safe drinking water, medical health care, etc. The housing may be in the form of temporary structures to be removed after the completion of the project.

Reply to Condition 12- This is an existing mine, and all the necessary basic facilities has been provided to the workers. Also, as most of the workers/laborers are from local village, so there is no need of housing infrastructure/ labor camps.

Condition 13-Proper Safety measures as per statutory requirement shall be implemented around the mined-out Pit prior to closure of site.

Reply to Condition 13- Noted and being adhered to.

Condition 14- The Project Proponent shall submit six monthly report on the expenditure incurred on environmental management plan submitted by them.

Reply to Condition 14- Environmental Expenditure is being submitted six-monthly. The report is attached as **Annexure 5**.

Condition 15- Since blasting and mining on Hillock / Rock out crop may also be carried out. Suitable scheme for access / ramp to the highest elevation with gradient shall be submitted for approval from competent authorities.

Reply to Condition 15- We are doing mining operations in a very shallow depth of plateau areas. During mining operations, we carry out drilling and blasting to produce bauxite. After removing OB, we are extracting bauxite from the mine pit. However, there are no outcrops of rock in surrounding areas of our mine, hence this is not applicable for our mine.

Condition 16- A separate environmental management /monitoring cell with suitable qualified personnel should be set up under the control of a Senior Executive. who will report directly to the Head of the Organization.

Reply to Condition 16- A separate environmental management cell with suitable qualified personnel has been set up under the control of a Senior Executive, who is reporting directly to the Head of the Organization. The same is being attached herewith as **Annexure 3**.

Condition 17- The Jharkhand State Pollution Control Board, Ranchi directly or through its Regional Office shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) by furnishing the requisite data information /monitoring reports.

Reply to Condition 17- Noted and Agreed.

Condition 18- A copy of the clearance letter shall be sent by the project proponent to concerned Panchayat, Zila Parishad / 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 project proponent.

Reply to Condition 18- A copy of the clearance letter has been submitted to panchayat office and Zila parishad. No suggestions were received from urban bodies/ local NGOs while processing the proposal.

Condition 19- It shall be mandatory for the project management to submit six (06) monthly compliance report in respect of the stipulated prior environmental clearance terms and conditions in hard copies and soft copies to the regulatory authority concerned Regional Office of MoEF & CC at Ranchi and Jharkhand State Pollution Control Board (J.S.P.C.B.) Ranchi/SEIAA/CPCB.

Reply to Condition 19- Six monthly reports on the status of the EC are being submitted regularly.

Condition 20- Concealing factual data or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act. 1986.

Reply to Condition 20- Noted.

Condition 21- The Authority reserves the right to add any new condition or modify the above conditions to revoke the clearance if conditions stipulated above are not implemented to the satisfaction of Authority or for that matter for any other Administrative reason.

Reply to Condition 21- Noted and agreed.

Condition 22- In case of any deviation or alteration in the project proposed from those submitted to SEIAA, Jharkhand for clearance, a fresh reference should be made to SEIAA to assess the adequacy of the conditions imposed and to incorporate any new conditions if required.

Reply to Condition 22- Noted and agreed.

Condition 23- The above stipulations would be enforced among others under the Water- (Prevention & Control of Pollution) Act, 1974. the Air (Prevention & Control of Pollution) Act. 1981 the Environment (Protection) Act, 1986. Hazardous and other Wastes (Management and Transboundary Movement) Rules. 2016 and the Public Liability Insurance Act. 1991 along with their amendments and rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/ High Court of Jharkhand and another Court of Law relating to the subject matter.

Reply to Condition 23- Noted.

Condition 24- The SEIAA, Jharkhand or any other competent Authority may alter modify the above conditions or stipulate any further condition in the interest of Environment protection.

Reply to Condition 24- Noted and agreed.

Condition 25-The Environmental Clearance accorded shall be valid for the period of lease of the mine. The PP shall not increase production rate and alter lease area during the validity of Environmental Clearance.

Reply to Condition 25- Noted and agreed.

Condition 26-Any Appeal against this Environmental Clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.

Reply to Condition 26- Noted.

Annexure 1

Piezometer Reading - Shrengdag-B (77.89 ha)

S No	Month	Depth (meter)
1	Oct-23	36.12
2	Nov-23	36.55
3	Dec-23	36.75
4	Jan-24	36.84
5	Feb-24	36.75
6	Mar-24	37.10



ENVIRONMENTAL LABORATORIES &

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TEST REPORT

Test Report No. : ELES/RNC/2023/4401	Report Release Date : 22.11.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3927
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Pit Quarry No.2B Srengdag-B Bauxite Mines (140.07ha)
		Sampling Date	: 12.10.2023 to 13.10.2023
Mines Status	: Operational	Sample Received Date	: 28.10.2023
Period of Analysis	: 28.10.2023 to 09.11.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 26	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 55	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	53	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	32	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	6.5	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	19.1	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	0.01	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01	<2.0	06 (Annual)



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TEST REPORT

Test Report No. : ELES/RNC/2023/4401	Report Release Date : 22.11.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

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

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



****End of Report****


Authorised Signatory
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TEST REPORT

Test Report No. : ELES/RNC/2023/4402	Report Release Date : 22.11.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3928
Address	: Lohardaga, Jharkhand-835302	Location	: Near Baisbhatan Village Serengdag-B Bauxite Mines (140.07ha)
		Sampling Date	: 12.10.2023 to 13.10.2023
Mines Status	: Operational	Sample Received Date	: 28.10.2023
Period of Analysis	: 28.10.2023 to 09.11.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 26	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 55	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	52	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	30	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	6.3	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	22.1	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	0.009	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01	<2.0	06 (Annual)

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TEST REPORT

Test Report No. : ELES/RNC/2023/4402	Report Release Date : 22.11.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

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

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



****End of Report****


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TEST REPORT

Test Report No. : ELES/RNC/2023/4403	Report Release Date : 22.11.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3929
Address	: Lohardaga, Jharkhand-835302	Location	: Block 2A (Prohopat Village) Serengdag-B Bauxite Mines (140.07ha)
		Sampling Date	: 12.10.2023 to 13.10.2023
Mines Status	: Operational	Sample Received Date	: 28.10.2023
Period of Analysis	: 28.10.2023 to 09.11.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 26	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 55	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	50	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	27	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	5.8	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	20.2	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	0.006	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)

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TEST REPORT

Test Report No. : ELES/RNC/2023/4403	Report Release Date : 22.11.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

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

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



****End of Report****

Authorized Signatory

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ELES Pvt. Ltd. Technical Manager



ENVIRONMENTAL LABORATORIES &

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TEST REPORT

Test Report No. : ELES/RNC/2023/4404	Report Release Date : 22.11.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3930
Address	: Lohardaga, Jharkhand-835302	Location	: Harup Block C (Proposed) Serengdag-B Bauxite Mines (140.07ha)
		Sampling Date	: 12.10.2023 to 13.10.2023
Mines Status	: Operational	Sample Received Date	: 28.10.2023
Period of Analysis	: 28.10.2023 to 09.11.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 26	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 55	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	49	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part-24): 2019	30	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	5.9	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	20.1	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part-25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	0.007	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)



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TEST REPORT

Test Report No. : ELES/RNC/2023/4404	Report Release Date : 22.11.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

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

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



****End of Report****

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TEST REPORT

Test Report No. : ELES/RNC/2023/4393	Report Release Date : 22.11.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3919
Address	: Lohardaga, Jharkhand-835302	Location	: Near Banjari Village Serengdag-A Bauxite Mines (155.81ha)
		Sampling Date	: 10.10.2023 to 11.10.2023
Mines Status	: Operational	Sample Received Date	: 28.10.2023
Period of Analysis	: 28.10.2023 to 09.11.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 26	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 55	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	45	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	22	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-3): 2001; RA2022	5.9	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	17.1	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)

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CIN: U74999JH2015PT011132

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TEST REPORT

Test Report No. : ELES/RNC/2023/4393	Report Release Date : 22.11.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

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

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



****End of Report****

Authorised Signatory

M. Deependra Kumar Singh
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ELES Pvt. Ltd. Technical Manager

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TEST REPORT

Test Report No. : ELES/RNC/2023/4394	Report Release Date : 22.11.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3920
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pauri Village Serengdag-A Bauxite Mines (155.81ha)
		Sampling Date	: 10.10.2023 to 11.10.2023
Mines Status	: Operational	Sample Received Date	: 28.10.2023
Period of Analysis	: 28.10.2023 to 09.11.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 26	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 55	4	Weather Condition	: Clear

Discipline : Chemical

Group : Atmospheric Pollution

Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	48	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	25	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	6.5	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	16.3	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	0.009	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01	<2.0	06 (Annual)

Page 1 of 2

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CIN: U74999JH2018PT001127

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TEST REPORT

Test Report No. : ELES/RNC/2023/4394	Report Release Date : 22.11.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

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

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



****End of Report****

Authorized Signatory

Deependra Kumar Singh
B.Tech. Environmental Engg.
ELES Pvt. Ltd. Technical Manager

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TEST REPORT

Test Report No. : ELES/RNC/2023/4395	Report Release Date : 22.11.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3921
Address	: Lohardaga, Jharkhand-835302	Location	: Near Harup Village Serengdag-A Bauxite Mines (155.81ha)
		Sampling Date	: 10.10.2023 to 11.10.2023
Mines Status	: Operational	Sample Received Date	: 28.10.2023
Period of Analysis	: 28.10.2023 to 09.11.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 26	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 55	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	49	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	22	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	5.8	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	18.2	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)

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CIN: U74999JH2018PTC011129

TEST REPORT


Test Report No. : ELES/RNC/2023/4395	Report Release Date : 22.11.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

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

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



****End of Report****



Authorised Signatory
Mr. Deependra Kumar Jaiswal
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ELES Pvt. Ltd. Technical Manager

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TEST REPORT

Test Report No. : ELES/RNC/2023/4396	Report Release Date : 22.11.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3922
Address	: Lohardaga, Jharkhand-835302	Location	: Near Paintoli Village Serengdag-A Bauxite Mines (155.81ha)
		Sampling Date	: 10.10.2023 to 11.10.2023
Mines Status	: Operational	Sample Received Date	: 28.10.2023
Period of Analysis	: 28.10.2023 to 09.11.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 26	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 55	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	49	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	31	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	5.7	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	18.2	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)

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TEST REPORT

Test Report No. : ELES/RNC/2023/4396	Report Release Date : 22.11.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

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

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



****End of Report****

Authorized Signatory

J. Deependra Kumar Singh
En. Environmental Engg
ELES Pvt. Ltd. Technical Manager

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CIN: U74999JH2018PTC011125

TC-8839

TEST REPORT

Test Report No. : ELES/RNC/2023/4744	Report Release Date : 21.12.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4214
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Pit Quarry No 2B Serengdag-B Bauxite Mines (140.07ha)
		Sampling Date	: 10.11.2023 to 11.11.2023
Mines Status	: Operational	Sample Received Date	: 24.11.2023
Period of Analysis	: 24.11.2023 to 08.12.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 22	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 53	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	59	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	34	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	6.9	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	21.7	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	0.014	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

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

Page 1 of 1

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CIN: U74999JH3018PTCO11125

TEST REPORT

Test Report No. : ELES/RNC/2023/4744	Report Release Date : 21.12.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4214
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Pit Quarry No 2B Serengdag-B Bauxite Mines (140.07ha)
		Sampling Date	: 10.11.2023 to 11.11.2023
Mines Status	: Operational	Sample Received Date	: 24.11.2023
Period of Analysis	: 24.11.2023 to 08.12.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved


METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 22	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 53	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C ₆ H ₆)*	µg/m ³	IS 5182 (Part-1)2006;RA2017	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m ³	IS 5182 (Part-12)2004;RA2019	<0.5	01(Annual)

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



****End of Report****


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



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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2023/4745	Report Release Date : 21.12.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4215
Address	: Lohardaga, Jharkhand-835302	Location	: Near Baisbhatan Village Serengdag-B Bauxite Mines (140.07ha)
		Sampling Date	: 10.11.2023 to 11.11.2023
Mines Status	: Operational	Sample Received Date	: 24.11.2023
Period of Analysis	: 24.11.2023 to 08.12.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 22	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 53	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	60	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-24): 2019	35	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	7.1	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	24.4	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	0.013	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

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

Page 1 of 1

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CIN: U72909JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2023/4745	Report Release Date : 21.12.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4215
Address	: Lohardaga, Jharkhand-835302	Location	: Near Baisbhatan Village Serengdag-B Bauxite Mines (140.07ha)
		Sampling Date	: 10.11.2023 to 11.11.2023
Mines Status	: Operational	Sample Received Date	: 24.11.2023
Period of Analysis	: 24.11.2023 to 08.12.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

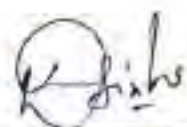
METEOROLOGICAL INFORMATION					
1	Average Temperature ($^{\circ}$ C)	: 22	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 53	4	Weather Condition	: Clear

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

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



****End of Report****


Authorized Signatory
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ELES Pvt. Ltd. Technical Manager

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TC-8839

TEST REPORT

Test Report No. : ELES/RNC/2023/4746	Report Release Date : 21.12.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4216
Address	: Lohardaga, Jharkhand-835302	Location	: Block 2A (Prohopat Village) Serengdag-B Bauxite Mines (140.07ha)
		Sampling Date	: 10.11.2023 to 11.11.2023
Mines Status	: Operational	Sample Received Date	: 24.11.2023
Period of Analysis	: 24.11.2023 to 08.12.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 22	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 53	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	55	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	30	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	7.1	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	22.6	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	0.010	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

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

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TEST REPORT

Test Report No. : ELES/RNC/2023/4746	Report Release Date : 21.12.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4216
Address	: Lohardaga, Jharkhand-835302	Location	: Block 2A (Prohopat Village) Serengdag-B Bauxite Mines (140.07ha)
		Sampling Date	: 10.11.2023 to 11.11.2023
Mines Status	: Operational	Sample Received Date	: 24.11.2023
Period of Analysis	: 24.11.2023 to 08.12.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 22	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 53	4	Weather Condition	: Clear

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

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



****End of Report****


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

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TC-8839

TEST REPORT

Test Report No. : ELES/RNC/2023/4747	Report Release Date : 21.12.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023


CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4217
Address	: Lohardaga, Jharkhand-835302	Location	: Harup Block C (Proposed) Serengdag-B Bauxite Mines (140.07ha)
		Sampling Date	: 10.11.2023 to 11.11.2023
Mines Status	: Operational	Sample Received Date	: 24.11.2023
Period of Analysis	: 24.11.2023 to 08.12.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 22	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 53	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	56	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	34	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	6.5	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	22.4	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	0.011	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****


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

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2023/4747	Report Release Date : 21.12.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4217
Address	: Lohardaga, Jharkhand-835302	Location	: Harup Block C (Proposed) Serengdag-B Bauxite Mines (140.07ha)
		Sampling Date	: 10.11.2023 to 11.11.2023
Mines Status	: Operational	Sample Received Date	: 24.11.2023
Period of Analysis	: 24.11.2023 to 08.12.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved


METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 22	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 53	4	Weather Condition	: Clear

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

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



****End of Report****


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



ENVIRONMENTAL LABORATORIES &

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TEST REPORT

Test Report No. : ELES/RNC/2023/4736	Report Release Date : 21.12.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4206
Address	: Loahardaga, Jharkhand-835302	Location	: Near Banjari Village Serengdag-A Bauxite Mines (155.81ha)
		Sampling Date	: 08.11.2023 to 09.11.2023
Mines Status	: Operational	Sample Received Date	: 24.11.2023
Period of Analysis	: 24.11.2023 to 08.12.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 22	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 55	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	57	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-24): 2019	29	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	6.8	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	22.6	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part-26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

Authorised Signatory

Dr. Deependra Kumar Sinha

Page 1 of 1

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CIN-U71999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2023/4736	Report Release Date : 21.12.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4206
Address	: Lohardaga, Jharkhand-835302	Location	: Near Banjari Village Serengdag-A Bauxite Mines (155.81ha)
		Sampling Date	: 08.11.2023 to 09.11.2023
Mines Status	: Operational	Sample Received Date	: 24.11.2023
Period of Analysis	: 24.11.2023 to 08.12.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved


METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 22	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 55	4	Weather Condition	: Clear

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

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



****End of Report****


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

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TEST REPORT

Test Report No. : ELES/RNC/2023/4737	Report Release Date : 21.12.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited.	Sample Ref. No.	: ELES/RNC/2023/AA/4207
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pauri Village Serengdag-A Bauxite Mines (155.81ha)
		Sampling Date	: 08.11.2023 to 09.11.2023
Mines Status	: Operational	Sample Received Date	: 24.11.2023
Period of Analysis	: 24.11.2023 to 08.12.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 22	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 55	4	Weather Condition	: Clear

Discipline : Chemical

Group : Atmospheric Pollution

Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	54	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-24): 2019	28	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	7.1	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	19.8	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	0.016	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/ATR/SOP/01	<2.0	06 (Annual)



Reviewed by

****End of Report****

Authorised Signatory
Dr. Deependra Kumar Sinha

M. D. Environmental Engg

ELES Pvt. Ltd. Technical Manager

Page 1 of 1

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CIN: U71999JH2018PTC011123

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TEST REPORT

Test Report No. : ELES/RNC/2023/4737	Report Release Date : 21.12.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4207
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pauri Village Serengdag-A Bauxite Mines (155.81 ha)
		Sampling Date	: 08.11.2023 to 09.11.2023
Mines Status	: Operational	Sample Received Date	: 24.11.2023
Period of Analysis	: 24.11.2023 to 08.12.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 22	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 55	4	Weather Condition	: Clear

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

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



****End of Report****

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

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EW-174599/JH2019/PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2023/4738	Report Release Date : 21.12.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4208
Address	: Lohardaga, Jharkhand-835302	Location	: Near Harup Village Serengdag-A Bauxite Mines (155.81ha)
		Sampling Date	: 10.11.2023 to 11.11.2023
Mines Status	: Operational	Sample Received Date	: 24.11.2023
Period of Analysis	: 24.11.2023 to 08.12.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 22	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 53	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	52	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	26	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	5.1	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	20.5	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01	<2.0	06 (Annual)



End of Report

Dr. Deependra Kumar Sinha
 Authorised Signatory
 Dr. Deependra Kumar Sinha
 P.H. Environmental Engg.
 ES Pvt. Ltd. Technical Manager

Page 1 of 1

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CIN: U71999JH4018PTC011115

TEST REPORT

Test Report No. : ELES/RNC/2023/4738	Report Release Date : 21.12.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindaleo Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4208
Address	: Lohardaga, Jharkhand-835302	Location	: Near Harup Village Serengdag-A Bauxite Mines (155.81ha)
		Sampling Date	: 10.11.2023 to 11.11.2023
Mines Status	: Operational	Sample Received Date	: 24.11.2023
Period of Analysis	: 24.11.2023 to 08.12.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 22	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 53	4	Weather Condition	: Clear

Discipline : Chemical


Group : Atmospheric Pollution

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

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



****End of Report****


 Authorised Signatory
 Dr. Deependra Kumar Sinha
 Ph. D Environmental Engg-
 ELES Pvt. Ltd. Technical Man^{gr}



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TC-0819

TEST REPORT

Test Report No. : ELES/RNC/2023/4739	Report Release Date : 21.12.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindaleo Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4209
Address	: Lohardaga, Jharkhand-835302	Location	: Near Paintoli Village Serengdag-A Bauxite Mines (155.81ha)
		Sampling Date	: 10.11.2023 to 11.11.2023
Mines Status	: Operational	Sample Received Date	: 24.11.2023
Period of Analysis	: 24.11.2023 to 08.12.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 22	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 53	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	58	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	36	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	6.6	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	20.8	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

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

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CIN: U74300JH01BPTCL123

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TEST REPORT

Test Report No. : ELES/RNC/2023/4739	Report Release Date : 21.12.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4209
Address	: Lohardaga, Jharkhand-835302	Location	: Near Paintoli Village Serengdag-A Bauxite Mines (155.81ha)
		Sampling Date	: 10.11.2023 to 11.11.2023
Mines Status	: Operational	Sample Received Date	: 24.11.2023
Period of Analysis	: 24.11.2023 to 08.12.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMP/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 22	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 53	4	Weather Condition	: Clear

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

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



****End of Report****

Authorized Signatory

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

Page 1 of 1

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ENVIRONMENTAL LABORATORIES &

ENGINEERING SERVICES PVT. LTD.

PLOT NO-33, MANSAROVAR ENCLAVE, TUPUDANA
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CIN: U74999JH03287P001125

TEST REPORT

Test Report No. : ELES/RAN/2023/3126	Report Release Date : 21.12.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RAN/2023/DW/3013
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 14.11.2023
		Sample Received Date	: 24.11.2023
Mines Status	: Operational	Type of Sample	: Drinking Water
Period of Analysis	: 24.11.2023 to 08.12.2023	Source/Location of Sample	: Serengdag-B Bauxite Mines
		Sampling Procedure	: ELES/DOC/SMPL/01
		Sample Collected By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

Discipline : Chemical		Group : Water		Regulatory Limit as per IS 10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
pH (at 24.7°C)	-	APHA 23 rd Ed.2017, 4500-H ⁺	6.68	6.5-8.5	No Relaxation
Turbidity	NTU	APHA 23 rd Ed.2017, 2130 B	0.78	1.0	5.0
Taste	-	APHA 23 rd Ed.2017, 2160 C	Agreeable	Agreeable	Agreeable
Odour	-	IS 3025 (Part-5) :2018	Agreeable	Agreeable	Agreeable
Colour	Hazen	APHA 23 rd Ed.2017, 2120B&D	1.0	5	15
Total Dissolved Solids (TDS)	mg/L	APHA 23 rd Ed.2017, 2540B,C&D	250	500	2000
Chloride (as Cl)	mg/L	APHA 23 rd Ed.2017, 4500 Cl B	50.8	250	1000
Fluoride (as F)	mg/L	APHA 23 rd Ed.2017, 4500 F-D	BDL (DL: 0.1)	1.0	1.5
Total Alkalinity (as CaCO ₃)	mg/L	APHA 23 rd Ed.2017, 2320 B	70.8	200	600
Total Hardness (as CaCO ₃)	mg/L	APHA 23 rd Ed.2017, 2340 C	130	200	600
Sulphate (as SO ₄)	mg/L	APHA 23 rd Ed.2017, 4500 SO ₄ ²⁻ -E	10.54	200	400
Nitrate (as NO ₃)	mg/L	APHA 23 rd Ed.2017, 4500 NO ₃ -B	1.86	45	No Relaxation
Phenolic Compound (as C ₆ H ₅ OH)	mg/L	IS 3025 (Part-43):1992;RA2019	BDL (DL: 0.0005)	0.001	0.002

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CIN: U74999JH2018FTCO11125

TEST REPORT

Test Report No. : ELES/RAN/2023/3126	Report Release Date : 21.12.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

Discipline : Chemical		Group : Water		Regulatory Limit as per IS10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
Cyanide (as CN)	mg/L	APHA 23 rd Ed.2017, 4500 CN-E	BDL (DL: 0.012)	0.05	No Relaxation
Residual Free Chlorine (RFC)	mg/L	IS 3025 (Part-26):2021	BDL (DL: 0.1)	0.02	1.0
Calcium (as Ca)	mg/L	APHA 23 rd Ed.2017, 3500 Ca B	33.6	75	200
Discipline : Chemical		Group : Residues in Water			
Aluminum (as Al)	mg/L	IS 3025 (Part-55): 2003; RA2019	BDL (DL: 0.02)	0.03	0.2
Arsenic (as As)	mg/L	IS 3025 (Part 37): 2022	BDL (DL: 0.005)	0.01	No Relaxation
Boron (as B)	mg/L	IS 3025(Part-57): 2005; RA2021	BDL (DL: 0.2)	0.5	1.0
Cadmium (as Cd)	mg/L	APHA 23 rd Ed.2017, 3111B	BDL (DL: 0.003)	0.003	No Relaxation
Total Chromium (as Cr)	mg/L	APHA 23 rd Ed.2017, 3111B	BDL (DL: 0.03)	0.05	No Relaxation
Copper (as Cu)	mg/L	APHA 23 rd Ed.2017, 3111B	BDL (DL: 0.03)	0.05	1.5
Iron (as Fe)	mg/L	APHA 23 rd Ed.2017, 3111B	0.138	1.0	1.0
Lead (as Pb)	mg/L	APHA 23 rd Ed.2017, 3111B	BDL (DL: 0.01)	0.01	No Relaxation
Manganese (as Mn)	mg/L	APHA 23 rd Ed.2017, 3111B	BDL (DL: 0.05)	0.1	0.3
Mercury (as Hg)	mg/L	IS 3025 (Part-48): 1994; RA2019	BDL (DL: 0.001)	0.001	No Relaxation
Selenium (as Se)	mg/L	IS 3025 (Part-56): 2003; RA2019	BDL (DL: 0.01)	0.01	No Relaxation
Zinc (as Zn)	mg/L	APHA 23 rd Ed.2017, 3111B	BDL (DL: 0.1)	5	15

Remarks: I. pH & RFC done at Lab.

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CIN: U74909JH2018PTC011125

TEST REPORT

Test Report No.	: ELES/RAN/2023/3126	Report Release Date	: 21.12.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

Discipline : Chemical		Group : Water		
Parameter	Unit	Test Protocol	Result	Regulatory Limit as per IS 10500:2012
Pesticides				
Alachlor*	µg/L	APHA	BDL (DL: 1.0)	20
Atrazine*	µg/L	APHA	BDL (DL: 1.0)	2
Aldrin/Dieldrin*	µg/L	APHA	BDL (DL: 0.01)	0.03
Alpha HCH*	µg/L	APHA	BDL (DL: 0.001)	0.01
Beta HCH*	µg/L	APHA	BDL (DL: 0.01)	0.04
Butachlor*	µg/L	APHA	BDL (DL: 10)	125
Chlorpyrifos*	µg/L	APHA	BDL (DL: 10)	30
Delta HCH*	µg/L	APHA	BDL (DL: 0.01)	0.04
2,4 dichlorophenoxyacetic acid*	µg/L	APHA	BDL (DL: 10)	30
DDT(o,p and p,p-isomers of DDT,DDE and DDD)*	µg/L	APHA	BDL (DL: 0.5)	1
Endosulfan (alpha, beta, and sulphate)*	µg/L	APHA	BDL (DL: 0.1)	0.4
Ethion*	µg/L	APHA	BDL (DL: 0.5)	3
Gamma HCH (Lindane)*	µg/L	APHA	BDL (DL: 0.5)	2
Isoproturon*	µg/L	APHA	BDL (DL: 0.5)	9

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TEST REPORT

Test Report No.	: ELES/RAN/2023/3126	Report Release Date	: 21.12.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

Discipline : Biological		Group : Water		Regulatory Limit as per IS 10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
Total Coliform	Per 100 mL	IS 15185:2016; RA 2021	Not Detected	Shall not be detected	
Escherichia Coli (E. Coli)	Per 100 mL	IS 15185:2016; RA 2021	Not Detected	Shall not be detected	
Discipline : Chemical		Group : Water		Regulatory Limit as per IS 10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
Anionic Surfactants (as MBAS)*	mg/L	IS 3025 Part 68	BDL (DL: 0.1)	0.2	1.0
Mineral Oil*	mg/L	CL-6, IS: 3025 (P-39)	BDL (DL: 0.1)	1.0	No relaxation
Polynuclear Aromatic Hydrocarbons (PAH)*	mg/L	APHA 23 rd Edition	BDL (DL: 0.0001)	0.0001	No relaxation
Polychlorinated Biphenyls (PCB)*	mg/L	APHA 23 rd Edition	BDL (DL: 0.0005)	0.0005	No relaxation

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



****End of Report****

Authorised Signatory

Dr. Deependra Kumar Sinha

Ph. D Environmental Engg.

Env Pvt. Ltd. Technical Manager

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TEST REPORT

Test Report No. : ELES/RNC/2024/0195	Report Release Date : 15.01.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883924000000178F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4794
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Pit Quarry No 2B Serengdag-B Bauxite Mines (140.07ha)
		Sampling Date	: 13.12.2023 to 14.12.2023
Mines Status	: Operational	Sample Received Date	: 26.12.2023
Period of Analysis	: 26.12.2023 to 08.01.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 47	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	56	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-24): 2019	37	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	7.8	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	23.3	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	0.014	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

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TEST REPORT

Test Report No.	: ELES/RNC/2024/0195	Report Release Date	: 15.01.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4794
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Pit Quarry No 2B Serengdag-B Bauxite Mines (140.07ha)
		Sampling Date	: 13.12.2023 to 14.12.2023
Mines Status	: Operational	Sample Received Date	: 26.12.2023
Period of Analysis	: 26.12.2023 to 08.01.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 47	4	Weather Condition	: Clear

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

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



****End of Report****

Authorised Signatory
Dr. Deependra Kumar Sinha
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DM: U78999JH2015PTC011325

TEST REPORT

Test Report No.	: ELES/RNC/2024/0196	Report Release Date	: 15.01.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883924000000179F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4795
Address	: Lohardaga, Jharkhand-835302	Location	: Near Baishbhatan Village Serengdag-B Bauxite Mines (140.07ha)
Mines Status	: Operational	Sampling Date	: 13.12.2023 to 14.12.2023
Period of Analysis	: 26.12.2023 to 08.01.2024	Sample Received Date	: 26.12.2023
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 47	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	57	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	26	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	8.3	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	21.2	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	0.009	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

Dr. Deependra Kumar Singh
Authorized Signatory
Dr. Deependra Kumar Singh

Page 1 of 1

Pr. D Environmental Engg

ELES Pvt. Ltd. Technical Annex

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ENVIRONMENTAL LABORATORIES &

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

CIN: U74999JG2018PTC011125

TEST REPORT

Test Report No.	: ELES/RNC/2024/0196	Report Release Date	: 15.01.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4795
Address	: Lohardaga, Jharkhand-835302	Location	: Near Baisbhatan Village Serengdag-B Bauxite Mines (140.07ha)
		Sampling Date	: 13.12.2023 to 14.12.2023
Mines Status	: Operational	Sample Received Date	: 26.12.2023
Period of Analysis	: 26.12.2023 to 08.01.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION


1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 47	4	Weather Condition	: Clear

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

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



****End of Report****


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

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ENVIRONMENTAL LABORATORIES &

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TC-8839

TEST REPORT

Test Report No.	: ELES/RNC/2024/0197	Report Release Date	: 15.01.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883924000000180F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4796
Address	: Lohardaga, Jharkhand-835302	Location	: Block 2A (Prohopat Village) Serengdag-B Bauxite Mines (140.07ha)
		Sampling Date	: 13.12.2023 to 14.12.2023
Mines Status	: Operational	Sample Received Date	: 26.12.2023
Period of Analysis	: 26.12.2023 to 08.01.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 47	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	58	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part-24): 2019	33	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	8.3	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	25.1	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part-25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	0.013	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

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

Page 1 of 1

ELES Pvt. Ltd. Technical Manager

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ENVIRONMENTAL LABORATORIES &

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TEST REPORT

Test Report No. : ELES/RNC/2024/0197	Report Release Date : 15.01.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4796
Address	: Lohardaga, Jharkhand-835302	Location	: Block 2A (Prohopat Village) Serengdag-B Bauxite Mines (140.07ha)
		Sampling Date	: 13.12.2023 to 14.12.2023
Mines Status	: Operational	Sample Received Date	: 26.12.2023
Period of Analysis	: 26.12.2023 to 08.01.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 47	4	Weather Condition	: Clear

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

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



****End of Report****


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

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CIN: U74999JH2015PTC011225

TEST REPORT

Test Report No. : ELES/RNC/2024/0198	Report Release Date : 15.01.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883924000000181F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4797
Address	: Lohardaga, Jharkhand-835302	Location	: Harup Block C (Proposed) Serengdag-B Bauxite Mines (140.07ha)
		Sampling Date	: 13.12.2023 to 14.12.2023
Mines Status	: Operational	Sample Received Date	: 26.12.2023
Period of Analysis	: 26.12.2023 to 08.01.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 47	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	59	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	31	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	7.2	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	23.1	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	0.015	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

(Signature)
Dr. Deependra Kumar Sinha
 Ph. D Environmental Engineering
 ELES Pvt. Ltd. Technical Manager

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TEST REPORT

Test Report No. : ELES/RNC/2024/0198	Report Release Date : 15.01.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4797
Address	: Lohardaga, Jharkhand-835302	Location	: Harup Block C (Proposed) Serengdag-B Bauxite Mines (140.07ha)
		Sampling Date	: 13.12.2023 to 14.12.2023
Mines Status	: Operational	Sample Received Date	: 26.12.2023
Period of Analysis	: 26.12.2023 to 08.01.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

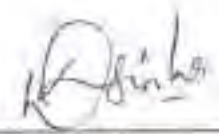
METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 47	4	Weather Condition	: Clear

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

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



****End of Report****


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

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ENVIRONMENTAL LABORATORIES &

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TC-0033

0761-4995919/0318PTC011123

TEST REPORT

Test Report No.	: ELES/RNC/2024/0191	Report Release Date	: 15.01.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883924000000174F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4790
Address	: Lohardaga, Jharkhand-835302	Location	: Near Banjari Village Serengdag-A Bauxite Mines (155.81 ha)
		Sampling Date	: 12.12.2023 to 13.12.2023
Mines Status	: Operational	Sample Received Date	: 26.12.2023
Period of Analysis	: 26.12.2023 to 08.01.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 49	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	62	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-24): 2019	33	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	7.4	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	28.1	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01	<2.0	06 (Annual)



Reviewed by

****End of Report****

Signature of Dr. Deependra Kumar Sinha
Authorized Signatory
Dr. Deependra Kumar Sinha
Pls. Do Environmental Care

Page 1 of 1

ELES Pvt. Ltd. Technical Manager

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TEST REPORT

Test Report No. : ELES/RNC/2024/0191	Report Release Date : 15.01.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4790
Address	: Lohardaga, Jharkhand-835302	Location	: Near Banjari Village Serengdag-A Bauxite Mines (155.81ha)
		Sampling Date	: 12.12.2023 to 13.12.2023
Mines Status	: Operational	Sample Received Date	: 26.12.2023
Period of Analysis	: 26.12.2023 to 08.01.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 49	4	Weather Condition	: Clear

Discipline : Chemical

Group : Atmospheric Pollution

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

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



****End of Report****


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

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ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TIPUD/WA
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CIN: U74909WB2010PT0111135

TEST REPORT

Test Report No. : ELES/RNC/2024/0192	Report Release Date : 15.01.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883924000000175F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4791
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pauri Village Serengdag-A Bauxite Mines (155.81ha)
		Sampling Date	: 12.12.2023 to 13.12.2023
Mines Status	: Operational	Sample Received Date	: 26.12.2023
Period of Analysis	: 26.12.2023 to 08.01.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C) : 18	2	Barometric Pressure (mmHg) : 736
3	Relative Humidity (%) : 49	4	Weather Condition : Clear

Discipline : Chemical

Group : Atmospheric Pollution

Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	60	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	31	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	7.9	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	22.3	80 (24hrs)
Ozone (O ₃)	ug/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	ug/m ³	IS 5182 (Part-22): 2004; RA2019	0.012	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

[Signature]
Dhruvendra Kumar Sinha
 Ph. D Environmental Engg.
 ELES Pvt. Ltd. Technical Manager

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CIN: U74999JH2015PT0011325

ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TURIDANA
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TEST REPORT

Test Report No. : ELES/RNC/2024/0192	Report Release Date : 15.01.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4791
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pauri Village Serengdag-A Bauxite Mines (155.81ha)
		Sampling Date	: 12.12.2023 to 13.12.2023
Mines Status	: Operational	Sample Received Date	: 26.12.2023
Period of Analysis	: 26.12.2023 to 08.01.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 49	4	Weather Condition	: Clear

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

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



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

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CIN: U74999JH2018PTC0011125

TEST REPORT

Test Report No.	: ELES/RNC/2024/0193	Report Release Date	: 15.01.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883924000000176F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4792
Address	: Lohardaga, Jharkhand-835302	Location	: Near Harup Village Serengdag-A Bauxite Mines (155.81ha)
		Sampling Date	: 12.12.2023 to 13.12.2023
Mines Status	: Operational	Sample Received Date	: 26.12.2023
Period of Analysis	: 26.12.2023 to 08.01.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 49	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	58	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-24): 2019	31	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	6.4	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	22.1	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

Authorized Signatory
Dr. Deependra Kumar Sinha

Page 1 of 1

Pr. D. Environmental Engg.

ELES Pvt. Ltd. Technical Manager

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CIN: U74309JH2012PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/0193	Report Release Date : 15.01.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4792
Address	: Lohardaga, Jharkhand-835302	Location	: Near Harup Village Serengdag-A Bauxite Mines (155.81ha)
		Sampling Date	: 12.12.2023 to 13.12.2023
Mines Status	: Operational	Sample Received Date	: 26.12.2023
Period of Analysis	: 26.12.2023 to 08.01.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION


1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 49	4	Weather Condition	: Clear

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

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



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

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CTD: U74909JH2010PT0011125

TEST REPORT

Test Report No.	: ELES/RNC/2024/0194	Report Release Date	: 15.01.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883924000000177F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4793
Address	: Lohardaga, Jharkhand-835302	Location	: Near Paintoli Village Serengdag-A Bauxite Mines (155.81ha)
		Sampling Date	: 12.12.2023 to 13.12.2023
Mines Status	: Operational	Sample Received Date	: 26.12.2023
Period of Analysis	: 26.12.2023 to 08.01.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 49	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	60	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	33	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	7.1	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	22.3	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (NI)	ng/m^3	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

R. Singh
Authorized Signatory
Dr. Deepak Kumar Sinha
Ph. D. Environmental Engg.

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CIN: U74399JH2011PT001125

TEST REPORT

Test Report No. : ELES/RNC/2024/0194	Report Release Date : 15.01.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4793
Address	: Lohardaga, Jharkhand-835302	Location	: Near Paintoli Village Serengdag-A Bauxite Mines (155.81ha)
		Sampling Date	: 12.12.2023 to 13.12.2023
Mines Status	: Operational	Sample Received Date	: 26.12.2023
Period of Analysis	: 26.12.2023 to 08.01.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 49	4	Weather Condition	: Clear

Discipline : Chemical


Group : Atmospheric Pollution

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

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



****End of Report****


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

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TEST REPORT

Test Report No. : ELES/RNC/2024/0519	Report Release Date : 05.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883924000000490F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/0304
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Pit Quarry No 2B Serengdag-B Bauxite Mines (140.07ha)
		Sampling Date	: 17.01.2024 to 18.01.2024
Mines Status	: Operational	Sample Received Date	: 20.01.2024
Period of Analysis	: 20.01.2024 to 30.01.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 19	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 45	4	Weather Condition	: Clear

Discipline : Chemical

Group : Atmospheric Pollution

Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	61	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-24): 2019	42	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	10.5	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	25.1	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	0.014	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part-26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

Dr. Deependra Kumar Sinha
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Page 1 of 1

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CIN: U74999JH2018PT0311123

TEST REPORT

Test Report No. : ELES/RNC/2024/0519	Report Release Date : 05.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/0304
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Pit Quarry No 2B Serengdag-B Bauxite Mines (140.07ha)
		Sampling Date	: 17.01.2024 to 18.01.2024
Mines Status	: Operational	Sample Received Date	: 20.01.2024
Period of Analysis	: 20.01.2024 to 30.01.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 19	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 45	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C ₆ H ₆) ^a	µg/m ³	IS 5182 (Part-11): 2006; RA2022	<1.0	05(Annual)
Benzó-(a)-Pyrene ^b	ng/m ³	IS 5182 (Part-12): 2004; RA2019	<0.5	01(Annual)

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



End of Report

Authorized Signatory

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

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TEST REPORT

Test Report No. : ELES/RNC/2024/0520	Report Release Date : 05.02.2024
Work Order No. : I3612310218	Work Order Date : 21.04.2023
ULR No. : TC883924000000491F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/0305
Address	: Lohardaga, Jharkhand-835302	Location	: Near Baisbhatan Village Serengdag-B Bauxite Mines (140.07ha)
		Sampling Date	: 17.01.2024 to 18.01.2024
Mines Status	: Operational	Sample Received Date	: 20.01.2024
Period of Analysis	: 20.01.2024 to 30.01.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 19	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 45	4	Weather Condition	: Clear

Discipline : Chemical

Group : Atmospheric Pollution

Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	61	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	33	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	9.1	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	25.5	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	0.019	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01	<2.0	06 (Annual)



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Dr. Deependra Kumar Sinha
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TEST REPORT

Test Report No. : ELES/RNC/2024/0520	Report Release Date : 05.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/0305
Address	: Lohardaga, Jharkhand-835302	Location	: Near Baishhatan Village Serengdag-B Bauxite Mines (140.07ha)
		Sampling Date	: 17.01.2024 to 18.01.2024
Mines Status	: Operational	Sample Received Date	: 20.01.2024
Period of Analysis	: 20.01.2024 to 30.01.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved


METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 19	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 45	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C ₆ H ₆)*	µg/m ³	IS 5182 (Part-11): 2006; RA2022	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m ³	IS 5182 (Part-12): 2004; RA2019	<0.5	01(Annual)

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



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Authorised Signatory
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 ELES Pvt. Ltd. Technical Manager

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CIN: U74999JH2018PTC011325

TEST REPORT

Test Report No. : ELES/RNC/2024/0521	Report Release Date : 05.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883924000000492F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/0306
Address	: Lohardaga, Jharkhand-835302	Location	: Block 2A (Prohopat Village) Serengdag-B Bauxite Mines (140.07ha)
		Sampling Date	: 17.01.2024 to 18.01.2024
Mines Status	: Operational	Sample Received Date	: 20.01.2024
Period of Analysis	: 20.01.2024 to 30.01.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 19	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 45	4	Weather Condition	: Clear

Discipline : Chemical

Group : Atmospheric Pollution

Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	63	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	35	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	9.1	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	27.6	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	0.016	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

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TEST REPORT

Test Report No.	: ELES/RNC/2024/0521	Report Release Date	: 05.02.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/0306
Address	: Lohardaga, Jharkhand-835302	Location	: Block 2A (Prohopat Village) Serengdag-B Bauxite Mines (140.07ha)
		Sampling Date	: 17.01.2024 to 18.01.2024
Mines Status	: Operational	Sample Received Date	: 20.01.2024
Period of Analysis	: 20.01.2024 to 30.01.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

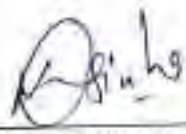
METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 19	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 45	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C ₆ H ₆)*	µg/m ³	IS 5182 (Part-11): 2006; RA2022	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m ³	IS 5182 (Part-12): 2004; RA2019	<0.5	01(Annual)

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



****End of Report****


Authorised Signatory
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TEST REPORT

Test Report No. : ELES/RNC/2024/0522	Report Release Date : 05.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883924000000493F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/0307
Address	: Lohardaga, Jharkhand-835302	Location	: Harup Block C (Proposed) Serengdag-B Bauxite Mines (140.07ha)
		Sampling Date	: 17.01.2024 to 18.01.2024
Mines Status	: Operational	Sample Received Date	: 20.01.2024
Period of Analysis	: 20.01.2024 to 30.01.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 19	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 45	4	Weather Condition	: Clear

Discipline : Chemical

Group : Atmospheric Pollution

Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	62	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	35	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	7.8	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	25.2	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	0.017	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

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TEST REPORT

Test Report No. : ELES/RNC/2024/0522	Report Release Date : 05.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/0307
Address	: Lohardaga, Jharkhand-835302	Location	: Harup Block C (Proposed) Serengdag-B Bauxite Mines (140.07ha)
		Sampling Date	: 17.01.2024 to 18.01.2024
Mines Status	: Operational	Sample Received Date	: 20.01.2024
Period of Analysis	: 20.01.2024 to 30.01.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 19	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 45	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C ₆ H ₆)*	µg/m ³	IS 5182 (Part-11); 2006; RA2022	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m ³	IS 5182 (Part-12); 2004; RA2019	<0.5	01(Annual)

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



****End of Report****

Authorized Signatory

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ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
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CIN: U74993JH2011PTC013333

TEST REPORT

Test Report No. : ELES/RNC/2024/0511	Report Release Date : 05.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883924000000482F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/0296
Address	: Lohardaga, Jharkhand-835302	Location	: Near Banjari Village Serengdag-A Bauxite Mines (155.81ha)
		Sampling Date	: 15.01.2024 to 16.01.2024
Mines Status	: Operational	Sample Received Date	: 20.01.2024
Period of Analysis	: 20.01.2024 to 30.01.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 19	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 45	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	67	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part-24): 2019	38	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	8.2	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	31.5	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part-25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/ATR/SOP/01	<2.0	06 (Annual)



****End of Report****

Dr. Deependra Kumar Sinha
Dy. Environmental Engg.

Page 1 of 1

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TEST REPORT

Test Report No. : ELES/RNC/2024/0511	Report Release Date : 05.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/0296
Address	: Lohardaga, Jharkhand-835302	Location	: Near Banjari Village Serengdag-A Bauxite Mines (155.81ha)
		Sampling Date	: 15.01.2024 to 16.01.2024
Mines Status	: Operational	Sample Received Date	: 20.01.2024
Period of Analysis	: 20.01.2024 to 30.01.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 19	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 45	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C ₆ H ₆)*	µg/m ³	IS 5182 (Part-11): 2006; RA2022	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m ³	IS 5182 (Part-12): 2004; RA2019	<0.5	01(Annual)

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



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Authorised Signatory

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CIN: U74999WA2018PT001125

TEST REPORT

Test Report No.	: ELES/RNC/2024/0512	Report Release Date	: 05.02.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883924000000483F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No	: ELES/RNC/2024/AA/0297
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pauri Village Serengdag-A Bauxite Mines (155.81ha)
		Sampling Date	: 15.01.2024 to 16.01.2024
Mines Status	: Operational	Sample Received Date	: 20.01.2024
Period of Analysis	: 20.01.2024 to 30.01.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 19	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 45	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	64	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	36	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	8.2	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	25.1	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	0.009	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

Authorized Signatory

Dr. Deependra Kumar Singh

Page 1 of 1

Ph. D Environmental Engg.

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CIN: U74300JH2018PTC021325

TEST REPORT

Test Report No. : ELES/RNC/2024/0512	Report Release Date : 05.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/0297
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pauri Village Serengdag-A Bauxite Mines (155.81ha)
		Sampling Date	: 15.01.2024 to 16.01.2024
Mines Status	: Operational	Sample Received Date	: 20.01.2024
Period of Analysis	: 20.01.2024 to 30.01.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved


METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 19	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 45	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C ₆ H ₆)*	µg/m ³	IS 5182 (Part-11): 2006; RA2022	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m ³	IS 5182 (Part-12): 2004; RA2019	<0.5	01(Annual)

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



****End of Report****


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TEST REPORT

Test Report No. : ELES/RNC/2024/0513	Report Release Date : 05.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883924000090484F	


CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindaleo Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/0298
Address	: Lohardaga, Jharkhand-835302	Location	: Near Harup Village Serengdag-A Bauxite Mines (155.81ha)
		Sampling Date	: 15.01.2024 to 16.01.2024
Mines Status	: Operational	Sample Received Date	: 20.01.2024
Period of Analysis	: 20.01.2024 to 30.01.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 19	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 45	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	63	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	35	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	7.8	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-5): 2006; RA2022	24.5	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****


 Authorised Signatory
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CIN: U74909JH2018PT0011175

TEST REPORT

Test Report No. : ELES/RNC/2024/0513	Report Release Date : 05.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hircalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/0298
Address	: Lohardaga, Jharkhand-835302	Location	: Near Harup Village Serengdag-A Bauxite Mines (155.81ha)
		Sampling Date	: 15.01.2024 to 16.01.2024
Mines Status	: Operational	Sample Received Date	: 20.01.2024
Period of Analysis	: 20.01.2024 to 30.01.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 19	2	Barometric Pressure (mmHg)	: 756
3	Relative Humidity (%)	: 45	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C ₆ H ₆)*	µg/m ³	IS 5182 (Part-11): 2006; RA,2022	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m ³	IS 5182 (Part-12): 2004; RA,2019	<0.5	01(Annual)

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



****End of Report****

Authorized Signatory
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TEST REPORT

Test Report No. : ELES/RNC/2024/0514	Report Release Date : 05.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883924000000485F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name : Hindalco Industries Limited	Address : Lohardaga, Jharkhand-835302	Sample Ref. No. : ELES/RNC/2024/AA/0299	Location : Near Paintoli Village Serengdag-A Bauxite Mines (155.81ha)
Mines Status : Operational	Period of Analysis : 20.01.2024 to 30.01.2024	Sampling Date : 15.01.2024 to 16.01.2024	Sample Received Date : 20.01.2024
		Type of Sample : Ambient Air	Sampling Procedure : ELES/DOC/SMPL/02
		Sampling Done By : ELES Pvt. Ltd	Sample Condition : Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C) : 19	2	Barometric Pressure (mmHg) : 736
3	Relative Humidity (%) : 45	4	Weather Condition : Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23); 2006; RA2022	64	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24); 2019	35	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2); 2001; RA2022	8.5	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6); 2006; RA2022	24.1	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9); 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25); 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10); 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-32); 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26);2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)



End of Report

Dr. Deependra Kumar Sinha
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 Ph.D Environmental Engg.

Page 1 of 1

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CIN: U71909JH2023PTC011117

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TEST REPORT

Test Report No. : ELES/RNC/2024/0514	Report Release Date : 05.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/0299
Address	: Lohrdaga, Jharkhand-835302	Location	: Near Paintoli Village Serengdag-A Bauxite Mines (155.81ha)
		Sampling Date	: 15.01.2024 to 16.01.2024
Mines Status	: Operational	Sample Received Date	: 20.01.2024
Period of Analysis	: 20.01.2024 to 30.01.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 19	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 45	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C ₆ H ₆)*	µg/m ³	IS 5182 (Part-11); 2006; RA2022	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m ³	IS 5182 (Part-12); 2004; RA2019	<0.5	01(Annual)

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



****End of Report****


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

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CIN: U74999JH2018PTC011125

TC-8839

TEST REPORT

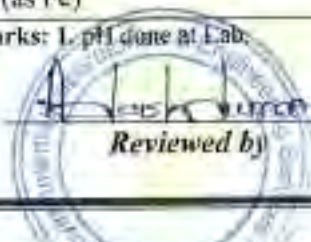
Test Report No. : ELES/RNC/2024/0587	Report Release Date : 06.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883924000000558F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/SW/0622
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 18.01.2024
		Sample Received Date	: 31.01.2024
Mines Status	: Operational	Type of Sample	: Surface Water
		Source of Sample	: Near Sherka Khanda, Shrengdag- B (140.07ha) Bauxite Mine
Period of Analysis	: 31.01.2024 to 05.02.2024	Sampling Procedure	: ELES/DOC/SMPL/01
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

Discipline : Chemical		Group : Water		Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
pH (at 24.5 °C)	-	IS 3025 (Part 11) : 2022	6.74	6.5-8.5
Temperature	°C	IS 3025 (Part 9):1984; RA2017	24.8	-
Chemical Oxygen Demand (COD)	-	IS 3025 (Part-58) :2006; RA2017	BDL (DL: 4.0)	-
Biochemical Oxygen Demand (BOD) (@ 20°C for 5 days)	mg/L	APHA 23 rd Ed.2017; 5210B	BDL (DL: 2.0)	3.0
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part 16):1984; RA2017	104	1500
Total Suspended Solids (TSS)	mg/L	IS 3025 (Part-17):2022	9.6	-
Oil & Grease	mg/L	IS 3025 (Part-39): 2021	BDL (DL: 0.1)	0.1
Calcium (as Ca)	mg/L	IS 3025 (Part-40) :1991, RA2019	4.7	--

Discipline : Chemical		Group : Residues in Water		Tolerance Limits
Parameter	Unit	Test Protocol	Result	
Aluminium (Al)	mg/L	IS 3025 (Part-55) :2003; RA2019	BDL (DL: 0.02)	0.03
Iron (as Fe)	mg/L	APHA23 rd Ed 2017; 3111B	0.107	50

Remarks: 1. pH done at Lab.



****End of Report****

Authorized Signatory
Dr. Deependra Kumar Singh

Page 1 of 1

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CIN: U74995JH2018PTC011725

TEST REPORT

Test Report No. : ELES/RNC/2024/0602	Report Release Date : 06.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883924000000573F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/SL/0637
Address	: Lohardaga, Jharkhand-835302.	Sampling Date	: 18.01.2024
		Sample Received Date	: 31.01.2024
Mines Status	: Operational	Type of Sample	: Soil
		Location of Sample	: Mine Pit Quarry No 2B Serengdag-B Bauxite Mines (140.04ha)
Period of Analysis	: 31.01.2024 to 05.02.2024	Sampling Procedure	: ELES/DOC/SMPL/05
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed

Discipline : Chemical

Group : Pollution & Environment

Parameter	Unit	Test Protocol	Result
pH (1:2) at 24.6 °C	-	IS 2720 (Part 26):1987; RA2021	5.18
Conductivity (1:2) at 24.6 °C	µS/cm	IS 14767: 2000; RA2021	228
Total Organic Carbon (TOC)	%	Soil Testing in India; 2011 (Walkley & Black Method)	0.01
Available Phosphorus (as P) (1:10)	kg/ha	Soil Testing in India; 2011	0.48
Potassium (as K)	mg/kg	IS 9497:1980; RA 2020	800
Available Nitrogen	%	Soil Testing in India; 2011	0.56
Chloride (1:2)	%	ELES/SOIL/SOP/01	0.01
Lead (as Pb)	mg/kg	US EPA 3050 A&B : 1996	BDL (DL: 0.1)
Cadmium (as Cd)	mg/kg	US EPA 3050 A&B : 1996	BDL (DL: 0.1)
Mercury (as Hg)	mg/kg	US EPA 7473 : 2007	BDL (DL: 0.01)
Magnesium (as Mg)	mg/kg	Soil Testing in India; 2011	226

Remarks: 1. pH done at Lab.

Reviewed by

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Authorised Signatory

Dr. Deependra Kumar Singh

Ph. D Environmental Engg

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/0602	Report Release Date : 06.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/SL/0637
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 18.01.2024
		Sample Received Date	: 31.01.2024
Mines Status	: Operational	Type of Sample	: Soil
		Location of Sample	: Mine Pit Quarry No 2B Serengdag-B Bauxite Mines (140.04ha)
Period of Analysis	: 31.01.2024 to 05.02.2024	Sampling Procedure	: ELES/DOC/SMPL/05
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed

Discipline: Chemical		Group: Pollution & Environment	
Parameter	Unit	Test Protocol	Result
Arsenic (as As)	mg/kg	IS 3025 (Part 37): 2022	BDL (DL: 0.005)
Selenium (as Se)	mg/kg	IS 3025 (Part-56) :2003; RA 2019	BDL (DL: 0.01)



Reviewed by

****End of Report****

Authorized Signatory
Dr. Deependra Kumar Sarin
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ELES Pvt. Ltd, Technical Manu



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TEST REPORT

Test Report No. : ELES/RNC/2024/1201	Report Release Date : 13.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883924000001137F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/1123
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Pit Quarry No 2B Serengdag-B Bauxite Mines (140.07ha)
		Sampling Date	: 09.02.2024 to 10.02.2024
Mines Status	: Operational	Sample Received Date	: 12.02.2024
Period of Analysis	: 12.02.2024 to 13.02.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 22	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 50	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23); 2006; RA2022	67	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24); 2019	36	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2); 2001; RA2022	8.2	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6); 2006; RA2022	22.8	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9); 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25); 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10); 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22); 2004; RA2019	0.010	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26);2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)



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

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TEST REPORT

Test Report No. : ELES/RNC/2024/1269	Report Release Date : 26.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/1123
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Pit Quarry No 2B Serengdag-B Bauxite Mines (140.07ha)
		Sampling Date	: 09.02.2024 to 10.02.2024
Mines Status	: Operational	Sample Received Date	: 12.02.2024
Period of Analysis	: 12.02.2024 to 21.02.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved


METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 22	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 50	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C ₆ H ₆)*	µg/m ³	IS 5182 (Part-11); 2006; RA2022	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m ³	IS 5182 (Part-12); 2004; RA2019	<0.5	01(Annual)

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



****End of Report****


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

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TEST REPORT

Test Report No. : ELES/RNC/2024/1202	Report Release Date : 13.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883924000001138F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindaleo Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/1124
Address	: Lohardaga, Jharkhand-835302	Location	: Near Baishbhatan Village Serengdag-B Bauxite Mines (140.07 ha)
		Sampling Date	: 09.02.2024 to 10.02.2024
Mines Status	: Operational	Sample Received Date	: 12.02.2024
Period of Analysis	: 12.02.2024 to 13.02.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 22	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 50	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	58	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	30	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	7.8	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	23.3	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	0.008	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

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Dr. Deependra Kumar Sinha
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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/1270	Report Release Date : 26.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/1124
Address	: Lohardaga, Jharkhand-835302	Location	: Near Baisbhatan Village Serengdag-B Bauxite Mines (140.07 ha)
		Sampling Date	: 09.02.2024 to 10.02.2024
Mines Status	: Operational	Sample Received Date	: 12.02.2024
Period of Analysis	: 12.02.2024 to 21.02.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

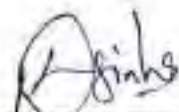
METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 22	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 50	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C ₆ H ₆)*	µg/m ³	IS 5182 (Part-11); 2006; RA2022	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m ³	IS 5182 (Part-12); 2004; RA2019	<0.5	01(Annual)

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



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

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CIN: U74999JH018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/1203	Report Release Date : 13.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883924000001139F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/1125
Address	: Lohardaga, Jharkhand-835302	Location	: Block 2A (Prohopat Village) Serengdag-B Bauxite Mines (140.07ha)
Mines Status	: Operational	Sampling Date	: 09.02.2024 to 10.02.2024
Period of Analysis	: 12.02.2024 to 13.02.2024	Sample Received Date	: 12.02.2024
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 22	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 50	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	60	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	32	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	8.9	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	24.2	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	0.009	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	2.0	06 (Annual)



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

****End of Report****

Page 1 of 1

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/1271	Report Release Date : 26.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/1125
Address	: Lohardaga, Jharkhand-835302	Location	: Block 2A (Prohopat Village) Serengdag-B Bauxite Mines (140.07ha)
		Sampling Date	: 09.02.2024 to 10.02.2024
Mines Status	: Operational	Sample Received Date	: 12.02.2024
Period of Analysis	: 12.02.2024 to 21.02.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 22	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 50	4	Weather Condition	: Clear

Discipline: Chemical

Group: Atmospheric Pollution

Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C ₆ H ₆)*	µg/m ³	IS 5182 (Part-11): 2006; RA2022	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m ³	IS 5182 (Part-12): 2004; RA2019	<0.5	01(Annual)

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



****End of Report****

Authorized Signatory

Dr. Deependra Kumar Sinha
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ELES PVT Ltd. Technical Manager

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/1204	Report Release Date : 13.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883924000001140F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/1126
Address	: Lohardaga, Jharkhand-835302	Location	: Harup Block C (Proposed) Serengdag-B Bauxite Mines (140.07ha)
		Sampling Date	: 09.02.2024 to 10.02.2024
Mines Status	: Operational	Sample Received Date	: 12.02.2024
Period of Analysis	: 12.02.2024 to 13.02.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 22	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 50	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	57	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	30	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	6.9	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	23.7	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	0.012	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)

Reviewed by

Authorised Signatory

 Dr. Deependra Kumar Sinha
 Pft. Environmental Engineering
 Technical Manager

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TEST REPORT

Test Report No. : ELES/RNC/2024/1272	Report Release Date : 26.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/1126
Address	: Lohardaga, Jharkhand-835302	Location	: Harup Block C (Proposed) Serengdag-B Bauxite Mines (140.07ha)
		Sampling Date	: 09.02.2024 to 10.02.2024
Mines Status	: Operational	Sample Received Date	: 12.02.2024
Period of Analysis	: 12.02.2024 to 21.02.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 22	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 50	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C ₆ H ₆)*	µg/m ³	IS 5182 (Part-11): 2006; RA2022	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m ³	IS 5182 (Part-12): 2004; RA2019	<0.5	01(Annual)

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



****End of Report****


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

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QIN: 074983W2028P70911125

TEST REPORT

Test Report No. : ELES/RNC/2024/1197	Report Release Date : 13.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883924000001133F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/1119
Address	: Lohardaga, Jharkhand-835302	Location	: Near Banjari Village Serengdag-A Bauxite Mines (155.81ha)
		Sampling Date	: 08.02.2024 to 09.02.2024
Mines Status	: Operational	Sample Received Date	: 12.02.2024
Period of Analysis	: 12.02.2024 to 13.02.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 23	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 50	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	60	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-24): 2019	32	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	6.8	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	24.3	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part-10): 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01	<2.0	06 (Annual)

[Signature]
Reviewed by

****End of Report****

[Signature]
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Dr. Deepanjali Kumar Sinha

Page 1 of 1

Ph.D Environmental Engg

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TEST REPORT

Test Report No. : ELES/RNC/2024/1265	Report Release Date : 26.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/1119
Address	: Lohardaga, Jharkhand-835302	Location	: Near Banjari Village Serengdag-A Bauxite Mines (155.81ha)
		Sampling Date	: 08.02.2024 to 09.02.2024
Mines Status	: Operational	Sample Received Date	: 12.02.2024
Period of Analysis	: 12.02.2024 to 21.02.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 23	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 50	4	Weather Condition	: Clear

Discipline: Chemical

Group: Atmospheric Pollution

Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C ₆ H ₆)*	µg/m ³	IS 5182 (Part-11): 2006; RA2022	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m ³	IS 5182 (Part-12): 2004; RA2019	<0.5	01(Annual)

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



Reviewed by

****End of Report****

Authorised Signatory

Dr. Deepshikha Kumar, Jind
Ph. D Environmental Engg.
ELES Pvt. Ltd. Technical Director

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CIN: U74809/JH2018PTC011123

TEST REPORT

Test Report No. : ELES/RNC/2024/1198	Report Release Date : 13.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883924000001134F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/1120
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pauri Village Serengdag-A Bauxite Mines (155.81ha)
Mines Status	: Operational	Sampling Date	: 08.02.2024 to 09.02.2024
Period of Analysis	: 12.02.2024 to 13.02.2024	Sample Received Date	: 12.02.2024
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 23	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 50	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	59	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	32	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	6.8	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	21.8	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	0.006	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)

[Signature]
Reviewed by

****End of Report****

[Signature]
Authorized Signatory
Dr. Deependra Kumar Singh

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Website | www.elespl.co.in

CIN: U74999JH2013PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/1266	Report Release Date : 26.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/1120
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pauri Village Serengdag-A Bauxite Mines (155.81 ha)
		Sampling Date	: 08.02.2024 to 09.02.2024
Mines Status	: Operational	Sample Received Date	: 12.02.2024
Period of Analysis	: 12.02.2024 to 21.02.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 23	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 50	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C ₆ H ₆)*	µg/m ³	IS 5182 (Part-11): 2006; RA2022	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m ³	IS 5182 (Part-12): 2004; RA2019	<0.5	01(Annual)

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


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****End of Report****


Authorized Signatory
Dr. Deependra Kumar Singh
Ph. D Environmental Engg
ELES Pvt. Ltd. Ranch/Jharkhand

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CIN: 074395SH2018PT021125

TEST REPORT

Test Report No. : ELES/RNC/2024/1199	Report Release Date : 13.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883924000001135F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/1121
Address	: Lohardaga, Jharkhand-835302	Location	: Near Harup Village Serengdag-A Bauxite Mines (155.81 ha)
Mines Status	: Operational	Sampling Date	: 08.02.2024 to 09.02.2024
Period of Analysis	: 12.02.2024 to 13.02.2024	Sample Received Date	: 12.02.2024
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 23	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 50	4	Weather Condition	: Clear

Discipline : Chemical

Group : Atmospheric Pollution

Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	60	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-24): 2019	32	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	6.9	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	21.8	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part-10): 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01	<2.0	06 (Annual)



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****End of Report****

Signature of the authorized signatory.
Authorized Signatory
Dr. Deependra Kumar Singh

Page 1 of 1

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TEST REPORT

Test Report No. : ELES/RNC/2024/1267	Report Release Date : 26.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/1121
Address	: Lohardaga, Jharkhand-835302	Location	: Near Harup Village Serengdag-A Bauxite Mines (155.81ha)
		Sampling Date	: 08.02.2024 to 09.02.2024
Mines Status	: Operational	Sample Received Date	: 12.02.2024
Period of Analysis	: 12.02.2024 to 21.02.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

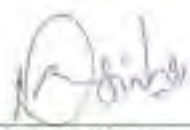
1	Average Temperature (°C)	: 23	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 50	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C ₆ H ₆)*	µg/m ³	IS 5182 (Part-11): 2006; RA2022	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m ³	IS 5182 (Part-12): 2004; RA2019	<0.5	01(Annual)

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



****End of Report****


Authorised Signatory
 Dr. Dhanendra Kumar Paul
 Ph. D. Environmental Engg.
 ELES Pvt. Ltd. Technical Director

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TEST REPORT

Test Report No. : ELES/RNC/2024/1268	Report Release Date : 26.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/1122
Address	: Lohardaga, Jharkhand-835302	Location	: Near Paintoli Village Serengdag-A Bauxite Mines (155.81ha)
		Sampling Date	: 08.02.2024 to 09.02.2024
Mines Status	: Operational	Sample Received Date	: 12.02.2024
Period of Analysis	: 12.02.2024 to 21.02.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 23	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 50	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C ₆ H ₆)*	µg/m ³	IS 5182 (Part-11): 2006; RA2022	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m ³	IS 5182 (Part-12): 2004; RA2019	<0.5	01(Annual)

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



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****End of Report****

Authorized Signatory

Dr. Deependra Kumar Singh
Ph. D Environmental Engg
ELES Pvt.Ltd. Ranchi Jharkhand

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TEST REPORT

Test Report No. : ELES/RAN/2024/1316	Report Release Date : 11.03.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RAN/2024/DW/1166
Address	: Lohardaga, Jharkhand-835302.	Sampling Date	: 10.02.2024
		Sample Received Date	: 14.02.2024
Mines Status	: Operational	Type of Sample	: Drinking Water
Period of Analysis	: 14.02.2024 to 23.02.2024	Source/Location of Sample	: Serengdag-B Bauxite Mines
		Sampling Procedure	: ELES/DOC/SMPL/01
		Sample Collected By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

Discipline : Chemical		Group : Water		Regulatory Limit as per IS 10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
pH (at 24.6 °C)	-	APHA 23 rd Ed.2017, 4500-H ⁺	7.18	6.5-8.5	No Relaxation
Turbidity	NTU	APHA 23 rd Ed.2017, 2130 B	0.77	1.0	5.0
Taste	-	APHA 23 rd Ed.2017, 2160 C	Agreeable	Agreeable	Agreeable
Odour	-	IS 3025 (Part-5) :2018	Agreeable	Agreeable	Agreeable
Colour	Hazen	APHA 23 rd Ed.2017, 2120B&D	1.0	5	15
Total Dissolved Solids (TDS)	mg/L	APHA 23 rd Ed.2017, 2540B,C&D	278	500	2000
Chloride (as Cl ⁻)	mg/L	APHA 23 rd Ed.2017, 4500 Cl B	52.8	250	1000
Fluoride (as F ⁻)	mg/L	APHA 23 rd Ed.2017, 4500 F-D	0.23	1.0	1.5
Total Alkalinity (as CaCO ₃)	mg/L	APHA 23 rd Ed.2017, 2320 B	128	200	600
Total Hardness (as CaCO ₃)	mg/L	APHA 23 rd Ed.2017, 2340 C	112	200	600
Sulphate (as SO ₄ ²⁻)	mg/L	APHA 23 rd Ed.2017, 4500 SO ₄ ²⁻ -E	16.8	200	400
Nitrate (as NO ₃ ⁻)	mg/L	APHA 23 rd Ed.2017, 4500 NO ₃ ⁻ -B	2.70	45	No Relaxation
Phenolic Compound (as C ₆ H ₅ OH)	mg/L	IS 3025 (Part-43):1992:RA2019	BDL (DL: 0.001)	0.001	0.002

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TEST REPORT

Test Report No. : ELES/RAN/2024/1316	Report Release Date : 11.03.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

Discipline : Chemical		Group : Water		Regulatory Limit as per IS10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
Cyanide (as CN)	mg/L	APHA 23 rd Ed.2017, 4500 CN-E	BDL (DL: 0.012)	0.05	No Relaxation
Residual Free Chlorine (RFC)	mg/L	IS 3025 (Part-26):2021	BDL (DL: 0.1)	0.02	1.0
Calcium (as Ca)	mg/L	APHA 23 rd Ed.2017, 3500 Ca B	29.8	75	200
Discipline : Chemical		Group : Residues in Water			
Aluminum (as Al)	mg/L	IS 3025 (Part-55): 2003; RA2019	BDL (DL: 0.02)	0.03	0.2
Arsenic (as As)	mg/L	IS 3025 (Part 37): 2022	BDL (DL: 0.005)	0.01	No Relaxation
Boron (as B)	mg/L	IS 3025(Part-57): 2005; RA2021	BDL (DL: 0.2)	0.5	1.0
Cadmium (as Cd)	mg/L	APHA 23 rd Ed.2017, 3111B	BDL (DL: 0.003)	0.003	No Relaxation
Total Chromium (as Cr)	mg/L	APHA 23 rd Ed.2017, 3111B	BDL (DL: 0.03)	0.05	No Relaxation
Copper (as Cu)	mg/L	APHA 23 rd Ed.2017, 3111B	BDL (DL: 0.03)	0.05	1.5
Iron (as Fe)	mg/L	APHA 23 rd Ed.2017, 3111B	0.348	1.0	1.0
Lead (as Pb)	mg/L	APHA 23 rd Ed.2017, 3111B	BDL (DL: 0.01)	0.01	No Relaxation
Manganese (as Mn)	mg/L	APHA 23 rd Ed.2017, 3111B	BDL (DL: 0.05)	0.1	0.3
Mercury (as Hg)	mg/L	IS 3025 (Part-48): 1994; RA2019	BDL (DL: 0.001)	0.001	No Relaxation
Selenium (as Se)	mg/L	IS 3025 (Part-56): 2003; RA2019	BDL (DL: 0.01)	0.01	No Relaxation
Zinc (as Zn)	mg/L	APHA 23 rd Ed.2017, 3111B	BDL (DL: 0.1)	5	15

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CIN: U74999JH2018PTC011125

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TEST REPORT

Test Report No. : ELES/RAN/2024/1316	Report Release Date : 11.03.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

Discipline : Chemical		Group : Water		Regulatory Limit as per IS 10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
Pesticides					
Alachlor*	µg/L	APHA 23 rd Edition 6630 B&C	BDL (DL: 1.0)	20	No Relaxation
Atrazine*	µg/L	APHA 23 rd Edition 6630 B&C	BDL (DL: 1.0)	2.0	No Relaxation
Aldrin/Dieldrin*	µg/L	APHA 23 rd Edition 6630 B&C	BDL (DL: 0.01)	0.03	No Relaxation
Alpha HCH*	µg/L	USEPA 508:1985	BDL (DL: 0.001)	0.01	No Relaxation
Beta HCH*	µg/L	USEPA 508:1985	BDL (DL: 0.01)	0.04	No Relaxation
Butachlor*	µg/L	APHA 23 rd Edition 6630 B&C	BDL (DL: 10)	125	No Relaxation
Chlorpyrifos*	µg/L	USEPA 8141 A	BDL (DL: 10)	30	No Relaxation
Delta HCH*	µg/L	USEPA 508:1985	BDL (DL: 0.01)	0.04	No Relaxation
2,4 dichlorophenoxyacetic acid*	µg/L	APHA 23 rd Edition 6640 B	BDL (DL: 10)	30	No Relaxation
DDT(o,p and p,p-isomers of DDT,DDE and DDD)*	µg/L	APHA 23 rd Edition 6630 B&C	BDL (DL: 0.5)	1.0	No Relaxation
Endosulfan (alpha, beta, and sulphate)*	µg/L	APHA 23 rd Edition 6630 B&C	BDL (DL: 0.1)	0.4	No Relaxation
Ethion*	µg/L	USEPA 1657 A	BDL (DL: 0.5)	3.0	No Relaxation
Gamma HCH (Lindane)*	µg/L	USEPA 508:1985	BDL (DL: 0.5)	2.0	No Relaxation
Isoproturon*	µg/L	USEPA 532:2000	BDL (DL: 0.5)	9.0	No Relaxation

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CIN: U74999JH2018PTC011125

ENVIRONMENTAL LABORATORIES &

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

ENGINEERING SERVICES PVT. LTD.

Email: info@elespl.co.in, eles.ranchi@gmail.com
Phone no.: 0651-2290103
Website : www.elespl.co.in

TEST REPORT

Test Report No. : ELES/RAN/2024/1316	Report Release Date : 11.03.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

Discipline : Biological		Group : Water		Regulatory Limit	
				as per IS 10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
Total Coliform	Per 100 mL	IS 15185:2016; RA 2021	Not Detected	Shall not be detected	
Escherichia Coli (E. Coli)	Per 100 mL	IS 15185:2016; RA 2021	Not Detected		
Discipline : Chemical		Group : Water		Regulatory Limit	
				as per IS 10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
Anionic Surfactants (as MBAS)*	mg/L	IS 3025 (Part- 68) : 2019 (RA2023)	BDL (DL: 0.1)	0.2	1.0
Polynuclear Aromatic Hydrocarbons (PAH)*	mg/L	APHA 23 rd Edition: 6-440 B	BDL (DL: 0.0001)	0.0001	No Relaxation
Polychlorinated Biphenyls (PCB)*	mg/L	APHA 23 rd Edition: 6431 B	BDL (DL: 0.0005)	0.0005	No Relaxation

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



****End of Report****


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

Page 4 of 4

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"Save Environment, Save Future"



ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
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Email: info@elespl.co.in, eles.ranchi@gmail.com

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Website : www.elespl.co.in

CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RAN/2024/1334	Report Release Date : 11.03.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sampling Date	: 10.02.2024 to 11.02.2024
Address	: Lohardaga, Jharkhand-835302	Sampling Received Date	: 14.02.2024
		Type of Sample	: Ambient Noise
		Sampling procedure	: ELES/DOC/SMPL/03
		Sampling Done By	: ELES Pvt. Ltd.
Mines Status	: Operational	Period of Analysis	: 14.02.2024 to 20.02.2024

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 23	2	Barometric Pressure (mmHg)	: 738
3	Relative Humidity (%)	: 50	4	Weather Condition	: Clear

Location	Unit	Test Protocol	Result		Regulatory Limit (Industrial Zone)
			Time	L_{eq}	
Near Mine Pit Serengdag- B Bauxite Mines (155.81ha)	dB(A)	IS 9989:1981, RA 2020	Day Time	71	75 dB(A) Day Time & 70 dB(A) Night Time
			Night Time	57	
Sample ID: ELES/RAN/2024/AN/1169					



****End of Report****

Authorised Signatory

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

Page 1 of 1

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"Save Environment, Save Future"



ENVIRONMENTAL LABORATORIES &

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

CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RAN/2024/1348	Report Release Date : 11.03.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sampling Date	: 10.02.2024
Address	: Lohardaga, Jharkhand-835302	Sampling Received Date	: 14.02.2024
		Type of Sample	: Workzone Noise
Mines Status	: Operational	Sampling procedure	: ELES/DOC/SMPL/03
		Sampling Done By	: ELES Pvt. Ltd.
		Period of Analysis	: 14.02.2024 to 20.02.2024

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 23	2	Barometric Pressure (mmHg)	: 738
3	Relative Humidity (%)	: 50	4	Weather Condition	: Clear

Location	Unit	Test Protocol	Result		Regulatory Limit (Industrial Zone)
			Time	L_{eq}	
Mine Pit Quarry No 2B Serengdag-B Bauxite Mines (140.07ha)	dB(A)	IS 4758:1968; RA 2017	Day Time	76	90 dB (A)
Sample ID: ELES/RAN/2024/WN/1172					



****End of Report****

Authorised Signatory

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

TEST REPORT


Test Report No. : ELES/RNC/2024/1497	Report Release Date : 10.04.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/1445
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Pit Quarry No 2B Serengdag-B Bauxite Mines (140.07ha)
		Sampling Date	: 15.03.2024 to 16.03.2024
Mines Status	: Operational	Sample Received Date	: 18.03.2024
Period of Analysis	: 18.03.2024 to 23.03.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 24	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 46	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	71	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part-24): 2019	45	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	7.4	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	25.9	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part-25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019 (NIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	0.013	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m ³	ELES/GC/SOP/06	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m ³	ELES/GC/SOP/05	<0.5	01(Annual)

Reviewed by :

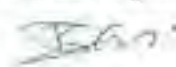


(Saswata Burman Roy, Dy. Quality Manager)

****End of Report****



Authorised Signatory :



(Bapan Das, Dy. Technical Manager)

TEST REPORT

Test Report No. : ELES/RNC/2024/1498	Report Release Date : 10.04.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/1446
Address	: Lohardaga, Jharkhand-835302	Location	: Near Baisbhatan Village Serengdag-B Bauxite Mines (140.07 ha)
		Sampling Date	: 15.03.2024 to 16.03.2024
Mines Status	: Operational	Sample Received Date	: 18.03.2024
Period of Analysis	: 18.03.2024 to 23.03.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 24	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 46	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	55	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part-24): 2019	24	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	7.1	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	26.4	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part-25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	0.015	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m ³	ELES/GC/SOP/06	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m ³	ELES/GC/SOP/05	<0.5	01(Annual)

Reviewed by :



(Saswata Burman Roy, Dy. Quality Manager)

****End of Report****



Authorised Signatory :



(Bapan Das, Dy. Technical Manager)

TEST REPORT

Test Report No. : ELES/RNC/2024/1499	Report Release Date : 10.04.2024
Work Order No. : I3612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/1447
Address	: Lohardaga, Jharkhand-835302	Location	: Block 2A (Prohopat Village) Serengdag-B Bauxite Mines (140.07ha)
		Sampling Date	: 15.03.2024 to 16.03.2024
Mines Status	: Operational	Sample Received Date	: 18.03.2024
Period of Analysis	: 18.03.2024 to 23.03.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 24	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 46	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	67	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	38	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	7.3	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	22.8	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	0.012	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m ³	ELES/GC/SOP/06	<2.5	05(Annual)
Benzo(a)-Pyrene	ng/m ³	ELES/GC/SOP/05	<0.5	01(Annual)

Reviewed by :



(Saswata Burman Roy, Dy. Quality Manager)

****End of Report****



Authorised Signatory :



(Bapan Das, Dy. Technical Manager)

TEST REPORT

Test Report No. : ELES/RNC/2024/1493	Report Release Date : 19.04.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindaleo Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/1441
Address	: Lohardaga, Jharkhand-835302	Location	: Near Banjari Village Serengdag-A Bauxite Mines (155.81ha)
		Sampling Date	: 14.03.2024 to 15.03.2024
Mines Status	: Operational	Sample Received Date	: 18.03.2024
Period of Analysis	: 18.03.2024 to 23.03.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 24	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 46	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	57	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part-24): 2019	35	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	7.4	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	27.1	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part-25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	0.009	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m ³	ELES/GC/SOP/06	<2.5	05 (Annual)
Benzo-(a)-Pyrene	ng/m ³	ELES/GC/SOP/05	<0.5	01 (Annual)

Reviewed by :




(Saswata Burman Roy, Dy. Quality Manager)

End of Report



Authorised Signatory :



(Bapan Das, Dy. Technical Manager)

TEST REPORT

Test Report No. : ELES/BNC/2024/1494	Report Release Date : 10.04.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindaleo Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/1442
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pauri Village Serangdag-A Bauxite Mines (155.8 Ha)
		Sampling Date	: 14.03.2024 to 15.03.2024
Mines Status	: Operational	Sample Received Date	: 18.03.2024
Period of Analysis	: 18.03.2024 to 23.03.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 24	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 46	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	55	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	29	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	7.5	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	24.2	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	0.009	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m ³	ELES/GC/SOP/06	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m ³	ELES/GC/SOP/05	<0.5	01(Annual)

Reviewed by :



(Saswata Burman Roy, Dy. Quality Manager)

****End of Report****



Authorised Signatory :



(Bipan Das, Dy. Technical Manager)



TEST REPORT

Test Report No. : ELES/RNC/2024/1495	Report Release Date : 10.04.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/1443
Address	Lohmunga, Jharkhand-835302	Location	: Near Harup Village Serengdog-A Bauxite Mines (155.81ha)
		Sampling Date	: 14.03.2024 to 15.03.2024
Mines Status	: Operational	Sample Received Date	: 18.03.2024
Period of Analysis	: 18.03.2024 to 23.03.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 24	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 46	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	55	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part-24): 2019	28	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	6.3	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	24.2	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part-25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m ³	ELES/GC/SOP/06	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m ³	ELES/GC/SOP/05	<0.5	01(Annual)

Reviewed by:

(Saswata Burman Roy, Dy. Quality Manager)

****End of Report****



Authorised Signatory:

(Bipan Das, Dy. Technical Manager)

TEST REPORT


Test Report No. : ELES/RNC/2024/1496	Report Release Date : 10.04.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/144#
Address	: Lohardaga, Jharkhand-835302	Location	: Near Paintoli Village Serengdag-A Bauxite Mines (155.81km)
		Sampling Date	: 14.03.2024 to 15.03.2024
Mines Status	: Operational	Sample Received Date	: 18.03.2024
Period of Analysis	: 18.03.2024 to 23.03.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SM/PL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 24	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 46	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	53	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part-24): 2019	27	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	9.6	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	24.2	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part-25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part-10): 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	0.009	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m ³	ELES/GC/SOP/06	<2.5	05 (Annual)
Benzo-(a)-Pyrene	ng/m ³	ELES/GC/SOP/05	<0.5	01 (Annual)

Reviewed by :



(Saswata Burman Roy, Dy. Quality Manager)

End of Report

Authorised Signatory :



(Bapan Das, Dy. Technical Manager)



Page 1 of 1

TEST REPORT

Test Report No. : ELES/RNC/2024/1551	Report Release Date : 10.04.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/SW/1459
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 15.03.2024
		Sample Received Date	: 18.03.2024
Mines Status	: Operational	Type of Sample	: Surface Water
		Source of Sample	: Spring Water
		Location of Sample	: Chapa Kona, Serengdag-B Bauxite Mine (140.07ha)
Period of Analysis	: 18.03.2024 to 29.03.2024	Sampling Procedure	: ELES/DOC/SMPL/01
		Sample Collected By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

Discipline : Chemical		Group : Water		Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
pH (at 25.1 °C)	-	IS 3025 (Part 13) : 2022	6.78	6.5-8.5
Colour	Hazen	IS 3025 (Part 4) : 2021	3.0	300
Odour	-	IS 3025 (Part-5) : 2018	Unobjectionable	--
Taste	-	APHA 23 rd Ed.2017, 2160 C	N/A	--
Turbidity	mg/L	IS 3025 (Part-10) :1984;RA2017	0.78	--
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part 16):1984; RA2017	216	1500
Total Alkalinity (as CaCO ₃)	mg/L	IS 3025 (Part-23) :1986; RA2019	91.4	--
Total Hardness (as CaCO ₃)	mg/L	IS 3025 (Part-21) : 2009; RA2019	104	--
Sulphate (as SO ₄)	mg/L	IS 3025 (Part 24) : 1986; RA2019	5.8	400
Nitrate (as NO ₃)	mg/L	APHA 23 rd Ed.2017, 4500 NO ₃ -B	1.52	50
Chloride (as Cl)	mg/L	IS 3025 (Part-32) :1988; RA2019	6.2	600
Fluoride (as F)	mg/L	IS 3025 (Part-60) :2008; RA2019	BDL (DL: 0.1)	1.5
Cyanide (as CN)	mg/L	APHA 23 rd Ed.2017, 4500 CN-E	BDL (DL: 0.012)	0.05
Phenols Compounds (as C ₆ H ₅ OH)	mg/l	IS 3025 (Part-43): 1992;RA2019	BDL (DL: 0.001)	0.005



TEST REPORT

Test Report No. : ELES/RNC/2024/1551	Report Release Date : 10.04.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

Discipline: Chemical		Group: Water		Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
Calcium (as Ca)	mg/L	IS 3025 (Part-40): 1991;RA2019	27.7	—
Free Residual Chlorine (RFC)	mg/L	IS 3025 (Part-26) ;2021	BDL (DL: 0.1)	—
Anionic Surfactants (as MBAS)	mg/L	APHA 24 th Ed.2023, 5540-C	BDL (DL: 0.025)	1.0
Discipline: Chemical		Group: Residues in Water		
Aluminium (as Al)	mg/L	IS 3025 (Part-55) ;2003; RA2019	BDL (DL: 0.02)	—
Arsenic (as As)	mg/L	IS 3025 (Part-37): 2022	BDL (DL: 0.005)	0.2
Boron (as B)	mg/L	IS 3025 (Part-57) ;2021	BDL (DL: 0.2)	—
Cadmium (as Cd)	mg/L	APHA 23 rd Ed.2017; 3111B	BDL (DL: 0.003)	0.01
Total Chromium (as Cr)	mg/L	APHA 23 rd Ed.2017; 3111B	BDL (DL: 0.03)	—
Copper (as Cu)	mg/L	APHA 23 rd Ed.2017; 3111B	BDL (DL: 0.03)	1.5
Iron (as Fe)	mg/L	APHA 23 rd Ed.2017; 3111B	0.088	50
Lead (as Pb)	mg/L	APHA 23 rd Ed.2017, 3111 B	BDL (DL: 0.01)	0.1
Manganese (as Mn)	mg/L	APHA 23 rd Ed.2017; 3111 B	BDL (DL: 0.05)	—
Mercury (as Hg)	mg/L	IS 3025 (Part-48) :1994; RA2019	BDL (DL: 0.001)	—
Selenium (as Se)	mg/L	IS 3025 (Part-56) :2003; RA2019	BDL (DL: 0.01)	0.05
Zinc (as Zn)	mg/L	APHA 23 rd Ed.2017, 3111 B	BDL (DL: 0.1)	15
Polynuclear Aromatic Hydrocarbons (PAH)	ug/L	ELES/GC/SOP/04	BDL (DL: 0.05)	—

Remarks:1. pH & RFC done at Lab.



TEST REPORT

Test Report No.	: ELES/RNC/2024/1551	Report Release Date	: 10.04.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
Pesticides				
Alachlor	µg/L	ELES/GC/SOP/01	BDL (DL: 0.5)	--
Atrazine	µg/L	ELES/GC/SOP/01	BDL (DL: 0.5)	--
Butachlor	µg/L	ELES/GC/SOP/01	BDL (DL: 0.5)	--
Chlorpyrifos	µg/L	ELES/GC/SOP/01	BDL (DL: 0.5)	--
Ethion	µg/L	ELES/GC/SOP/01	BDL (DL: 0.5)	--
Malathion	µg/L	ELES/GC/SOP/01	BDL (DL: 0.5)	--
Methyl parathion	µg/L	ELES/GC/SOP/01	BDL (DL: 0.1)	--
Monocrotophos	µg/L	ELES/GC/SOP/01	BDL (DL: 0.5)	--
Phorate	µg/L	ELES/GC/SOP/01	BDL (DL: 0.5)	--
Phorate Sulphone	µg/L	ELES/GC/SOP/01	BDL (DL: 0.5)	--
Dieldrin	µg/L	ELES/GC/SOP/02	BDL (DL: 0.01)	--
Alpha HCH	µg/L	ELES/GC/SOP/02	BDL (DL: 0.006)	--
Beta HCH	µg/L	ELES/GC/SOP/02	BDL (DL: 0.02)	--
Delta HCH	µg/L	ELES/GC/SOP/02	BDL (DL: 0.02)	--
Gamma HCH (Lindane)	µg/L	ELES/GC/SOP/02	BDL (DL: 0.02)	--
Endosulfan (alpha, beta and sulphate)	µg/L	ELES/GC/SOP/02	BDL (DL: 0.05)	--
DDT(o,p and p,p-isomers of DDT,DDEand DDD)	µg/L	ELES/GC/SOP/02	BDL (DL: 0.05)	--



TEST REPORT

Test Report No. : ELES/RNC/2024/1551	Report Release Date : 10.04.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

Discipline : Biological		Group : Water		Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
Total Coliform	CFU/100 mL	IS 15185: 2016, RA2021	3.45×10 ²	5000
Escherichia Coll	CFU/100 mL	IS 15185: 2016; RA2021	32.0	—

Reviewed by :

(Saswata Burman Roy, Dy. Quality Manager)

****End of Report****

Authorised Signatory :

(Bapan Das, Dy. Technical Manager)





Annexure 3

Date – 20.05.2024

Office Order

Environmental Cell has been re-constituted at Serengdag Bauxite Mine (Area 77.89 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. Akhilesh Sinha (Coordinator)
2. Mr. Narayan Pramanik (Geologist)
3. Ms. Abhilasha Singh– Environment Engineer
4. Mr. Anand Prakash Tiwari – Environment Engineer

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

A handwritten signature in blue ink, appearing to read "Basudev", with a horizontal line underneath.

Basudev Gangopadhyay
AVP (Planning, Environment & Compliance)

Annexure 4

Production, Mined Out, Back Filled and Over Burden removal from October'23 to March'24								
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	102292	0.68	0.32	68480.59
3	Hisri (New) Bauxite Mine	14.55	100000	19.07.1981 to 31.03.2030	42069	0.8	0.00	39067.98
4	Pakhar (8.09) Bauxite Mine	8.09	80000	16.05.1973 to 31.03.2030	NIL	NIL	NIL	NIL
5	Pakhar (35.12) Bauxite Mine	35.12	200000	17.04.1975 to 31.03.2030	NIL	NIL	NIL	NIL
6	Pakhar (115.13) Bauxite Mine	115.13	300000	19.07.1996 to 31.03.2030	130749.2	2.06	0.56	534025.4
7	Sherangdag-A Bauxite Mine	155.81	260000	16.10.1974 to 31.03.2030	11950	0.81	0.76	55693.68
8	Serangdag-B Bauxite Mine	77.89	100000	04.10.1978 to 31.03.2030	36230	2.81	1.65	116122.92
9	Jalim & Sanai Bauxite Mine	12.14	50000	16.10.1974 to 31.03.2030	16450	0.07	0.06	17533.27
10	Gurdari Bauxite Mine	584.19	325000	23.03.1985 to 22.03.2035	145680	5.91	3.23	201022.508
11	Kujam - I Bauxite Mine	80.87	150000	13.03.2006 to 12.03.2056	5480	0.46	2.91	72661.44
12	Kujam - II Bauxite Mine	157.38	300000	24.03.2006 to 23.03.2056	66000	2.79	9.53	61380.23
13	Amtipani Bauxite Mine	190.95	150000	13.03.2006 to 12.03.2056	48600	1.85	1.15	131087.65

Minerals & Minerals Limited								
14	Pakhar (109.507) Bauxite Mine	109.507	280000	26.07.2008 to 25.07.2058	142288	1.01	1.12	213450.18
15	Pakhar (15.58) Bauxite Mine	15.58	60000	28.04.1965 to 31.03.2030	NIL	NIL	NIL	NIL
16	Bimarla Bauxite Mine	134.526	300000	18.07.2009 to 17.07.2059	67450	3.41	3.29	101973.71
17	Amtipani Chirodih Bauxite Mines	130.01	450000	11.01.2017 to 10.01.2067	123330	8.583	5.67	208720.97

*Static information about the mines included in the above table

Basudev Gangopadhyay
AVP (Planning, Environment and Compliance)

Annexure-5

BREAK UP THE COST OF ENVIRONMENTAL MEASURES DURING THE YEAR 2023-24

The composite cost during the year 2023-24 for environmental protection & pollution control by Jharkhand Mines division of M/s Hindalco Industries Ltd & M/s Minerals & Minerals Ltd for implementation of the suggested measures in EC at our all the operating mines in the state of Jharkhand-namely Bagru (75.41 ha), Hisri New (14.55 ha), Bhusar (65.31 ha), Pakhar (115.13 ha), Pakhar (109.507 ha), Pakhar (15.58 ha), Pakhar (8.09 ha), Pakhar (35.12 ha), Sherangdag (155.81 ha), Serangdag (77.89 ha), Jalim & Sanai (12.14 ha), Bimarla Bauxite Mines (134.526 ha), Gurdari (584.19 ha), Amtipani (190.95 ha), Kujam I (80.87 ha) Kujam II (157.38 ha), and Amtipani Chirodih (130.01 ha) Bauxite Mines.

S No	Description	Budget (in Rupees) FY 2023-24	Actual (in Rupees) FY 2023-24 (From Oct'23 to Mar'24)
1	Pollution Control & Environment monitoring	1,57,41,102.00	73,14,906.01
2	Reclamation/ Back filing & Rehabilitation**	1,36,62,095.00	6,53,29,973.21
3	Green belt, Plantation & Water sprinkling arrangement	67,45,898.00	32,08,288.90
4	Rural Development	6,19,33,534.00	2,08,14,673.36

**Part of OB removed cost.



Basudev Gangopadhyay
AVP (Planning, Environment & Compliance)



No-1

1

RAJENDRA HOSPITAL
Hindalco Industries Limited
Mines Division, Lohardaga-835302 (Jharkhand)
Out Patient Department Registration Card

Name of the Patient Budhu Oraon

Age 50 Y Sex M

Address S GDB

Registration No. Date of Registration 29/11/23

Employee Dependent Non Employee Re Checkup

BP 140/80 mm Hg

Wt - 65

Ht - 164 cm

FORM "O"
(See Rule 29 F(2) and 29L)
REPORT OF MEDICAL EXAMINATION UNDER RULE 29 B
(TO BE ISSUED IN TRIPLICATE)**

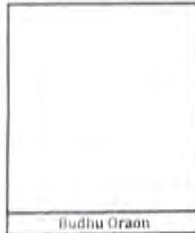
Certificate No: SHRENGDAG 90907

Certified that Budhu Oraon employed as Mining Mate in Shrengdag Bauxite Mines, Form-A No. _____
has been examined for a Periodical medical examination. He appears to be 50 years of age.
The findings of the examining authority are given in the attached sheet. It is considered that Budhu Oraon

Is medically fit for any employment in mines.

Is suffering from _____ and is medically unfit for
(i) Any employment in mines, or
(ii) Any employment below ground, or
(iii) Any employment or work _____

Is suffering from _____ and should get this disability *cured/controlled and should be again
examined within a period of _____ months. He appear for re-examination with the result
of test of _____ and the opinion of _____
specialist from _____ He may be permitted/not permitted to carry on
his duties during this period.



Budhu Oraon

Signature of the examining authority
Name and designation in Block Letter

DR OMPRAKASH DUBEY
Sr. CONSULTANT
Reg.No.33297/ BR2002
Dr. Omprakash Dubey
Sr Consultant
Hindalco Mines Divi, Lohardaga
Reg No -33297, BR-2002

Place Rajendra Hospital, Lohardaga

Date:-29/11/23

*Delete whatever not applicable.

**One copy of the certificate shall be handed over to the person concerned and another copy shall be sent to the Manager of the mine concerned by registered post and the third copy shall be retained by the examining authority.

Report of the Examining Authority

(To be filled in for every medical examination whether initial or periodical or re-examination or after cure/control of disability)

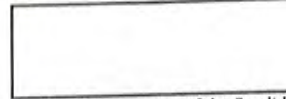
Annexure to Certificate No.

SHRENGDAG 90907 as a result of medical examination on

29-11-2023

Identification Mark:

A cutmark on Rt leg



Left thumb impression of the Candidate

1 General Development

2 Height 164 cms

3 Weight 65 Kgs

4 Eyes

(i) Visual Acuity - Distant Vision (with or with NORMAL)

Right Eye 6/6 Left Eye 6/6 without glasses

(ii) Any organic disease of eyes NO

* (iii) Night Blindness NO

* (iv) Colour Blindness NO

(v) Squint NO

(*to be tested in special cases)

5 Ears

(i) Hearing: Right Ear WNL Left Ear WNL

(ii) Any organic disease NO

6 Respiratory System:

Chest Measurement

(i) After full inspiration 90 cms

(ii) After full expiration 86 cms

7 Circulatory System

Blood Pressure 140/80 mm of Hg

Pulse 70 per minute

8 Abdomen

Tenderness CNAD

Liver CNAD

Spleen CNAD

Tumor CNAD

9 Nervous System

History of Fits or Epilepsy NO

Paralysis NO

Mental Health NORMAL

10 Loco Motor System

NORMAL

11 Skin FAIR

12 Hernia NIL

13 Hydrocele NIL

14 Any other abnormality NO

15 Urine ACIDIC

Reaction ACIDIC

Albumin NIL

Sugar NIL

16 Skia gram of chest NORMAL

17 Any other test considered necessary by the examining authority

18 Any opinion of specialist considered necessary

ECG, SPIROMETRY TEST, AUDIOMETRY TEST & BLOOD TEST

NA

Signature of Examining Authority

Dr. Anil Kash Dubey

Sr. Consultant

Place : Hindalco Industries LTD

Mines Divn. - Lohardaga Mines Divn., Lohardaga

Reg. No - 33297, B-2002

**Report of Medical Examination as per the recommendations of
National Safety Conferences in Mines**

(To be used in continuation with Form "O")

Certificate No. SHRENGDAG 90907

Name Budhu Oraon

Identification Marks A cutmark on Rt leg

1. Cardiological Assessment

Auscultation	S1	
	S2	
	Additional Sound	
Electrocardiograph (12 Leads) Findings		normal

Clinically Normal

Enclosed ECG

2. Neurological Assessment

Findings	Normal/Abnormal
Superficial Reflexes	NORMAL
Deep Reflexes	NORMAL
Peripheral Circulation	NORMAL
Vibrational Syndromes	NORMAL

3. ILO Classification of Chest Radiograph

Perfusion of Pneumoconiotic opacities	Grades	Types
Absent	1	0/0

Enclosed Chest Radiograph

ID: 12797

29-11-2023 13:12:40

Budhu Oraon

Male 50Years

164cm 65kg 140/80 mmHg

HR : 70 bpm
P : 91 ms
PR : 125 ms
QRS : 80 ms
QT/QTc : 370/399 ms
P/QRS/T : 53/66/13 °
RV5/SV1 : 1.879/0.756 mV

Diagnosis Information:

Sinus Rhythm

Normal ECG



Dr. Omprakash Dubey
Sr. Consultant
Hindalco Mines Divi., Lohardega
Reg. No.-33297, BR-2002

Report Confirmed by:

4. Audiometry Findings

Conduction Type	Left Ear	Right Ear
Ear Conduction	Normal	Normal
Bone Conduction	Normal/Abnormal	Normal/Abnormal

Enclosed Audiometry Report

5. Pathological/Microbiological Investigations

S.No.	Tests	Findings
1	Blood-TC, DC, Hb%, ESR, Platelets Count	NA
2	Blood Sugar- Random	112 mg/dl
3	Lipid Profile	NA
4	Blood Urea and Serum Creatinine	NA
5	Routine Examination of Urine	NA
6	Stool Routine	NA

Enclosed Investigation Reports

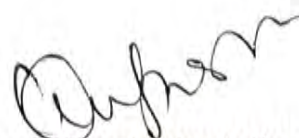
6. Special Test for Mn exposure (NOT APPLICABLE)

Neurological Disturbances	Behavioral Disturbances	Present/Not Present
	Speech Defect	Present/Not Present
	Tremor	Present/Not Present
	Adiadochokinesia	Present/Not Present
	Emotional Changes	Present/Not Present

Any other special Test Required

--

Signature of the Examination Authority


Dr. Omprakash Duboy
Sr. Consultant

Hindalco Mining Division, Jharia
Reg. No.-33297, BR 2002

Report of Medical Examination under Mines Rule 29B

(To be used in continuation with Form "O")

Certificate No. SHRENGDAG 90907

Name Budhu Oraon


Identification Marks A cutmark on Rt leg

Result of Lung Function Test (Spirometry)

Parameters	Predicted Value	Performed Value	% Of Predicted		
Forced Vital Capacity (FVC)	3.06	2.19	72		
Forced Exhalation Volume in 1 st Second (FEV1)	2.42	2.19	90		
FEV1/FVC	79.08	100	126		
Peak Expiratory Flow	8.14	4.36	106		

Enclosed Spirometry Report:

Signature of the Examination Authority


Dr. Omprakash Dubey
Sr. Consultant

Hindalco Mines Div., Lohardega
Reg. No.-33297, BR-2002
Pg. 5 of 5

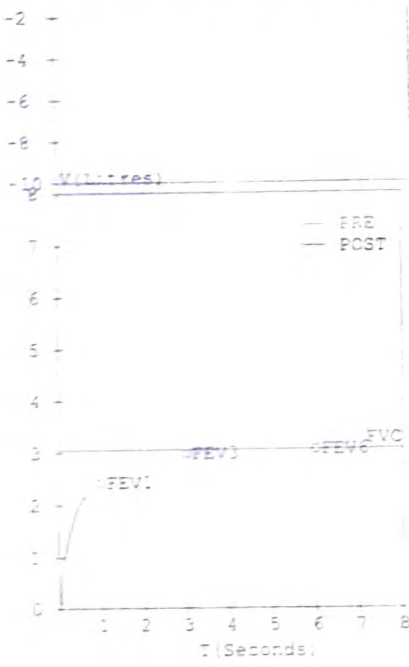
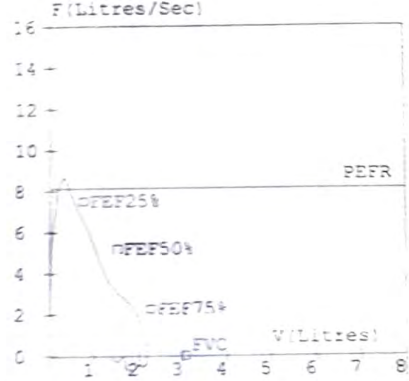
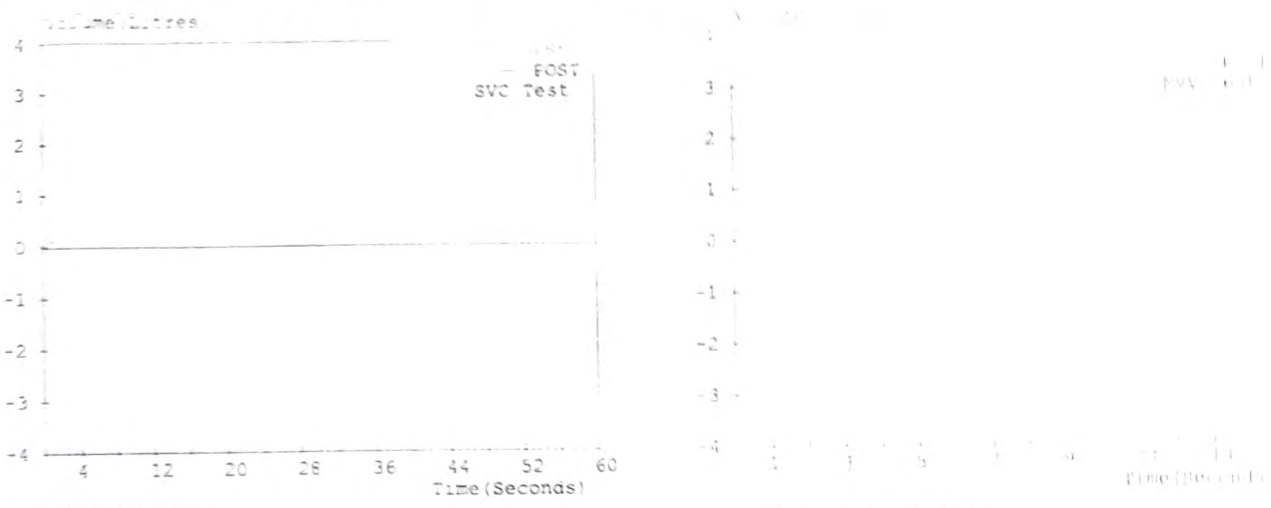
Rajendra Hospital

Palmer Ganj, Lohardaga



Patient: Budhu Oraon
 Refd. By:
 Pred. Eqns: RECORDERS
 Date : 29-11-2023 04:24 PM

Age : 50 Yrs Gender : Male
 Height : 165 Cms Smoker : No
 Weight : 65 Kgs Eth. Corr: 100
 ID : Shrengdag-90907Imp



Spirometry Results					
Parameter	Pred	M.Pre	%Pred	M.Post	%Pred *Imp
FVC (L)	03.06	02.19	072	-----	---
FEV1 (L)	02.42	02.19	090	-----	---
FEV1/FVC (%)	79.08	100	127	-----	---
FEF25-75 (L/s)	03.40	03.00	88	-----	---
PEFR (L/s)	08.14	08.66	106	-----	---
FIVC (L)	-----	00.76	---	-----	---
FEV.5 (L)	-----	02.06	---	-----	---
FEV3 (L)	02.97	02.19	074	-----	---
PIFR (L/s)	-----	00.80	---	-----	---
FEF75-85 (L/s)	-----	02.50	---	-----	---
FEF.2-1.2 (L/s)	05.96	06.31	106	-----	---
FEF 25% (L/s)	07.50	07.43	100	-----	---
FEF 50% (L/s)	05.19	04.80	92	-----	---
FEF 75% (L/s)	02.24	02.00	89	-----	---
FEV.5/FVC (%)	-----	94.06	---	-----	---
FEV3/FVC (%)	97.06	100.00	103	-----	---
FET (Sec)	-----	00.66	---	-----	---
ExptTime (Sec)	-----	00.03	---	-----	---
Lung Age (Yrs)	050	055	110	-----	---
FEV6 (L)	03.06	-----	---	-----	---
FIF 25% (L/s)	-----	26.4	---	-----	---
FIF 50% (L/s)	-----	3	---	-----	---
FIF 75% (L/s)	-----	-----	---	-----	---
SVC (L)	-----	-----	---	-----	---
ERV (L)	01.19	-----	---	-----	---
IRV (L)	-----	-----	---	-----	---
VE (L/min)	-----	-----	---	-----	---
RF (l/min)	-----	-----	---	-----	---
Ti (sec)	-----	-----	---	-----	---
Te (sec)	-----	-----	---	-----	---
VT (L)	-----	-----	---	-----	---
VT/Ti	-----	-----	---	-----	---
Ti/Ttot	-----	-----	---	-----	---
IC (L)	-----	-----	---	-----	---
MVV (L/min)	119	-----	---	-----	---
MRE (l/min)	-----	-----	---	-----	---
MVT (L)	-----	-----	---	-----	---

Pre Medication Report Indicates
 Mild Restriction as (FEV1/FVC)%Pred >95 and FVC%Pred <80

Dr. Anupam
 Dr. Anupam Prakash Dubey
 Sr. Consultant
 Hindalco Mines Div. Lohardaga
 Reg No -33297, BR-2002

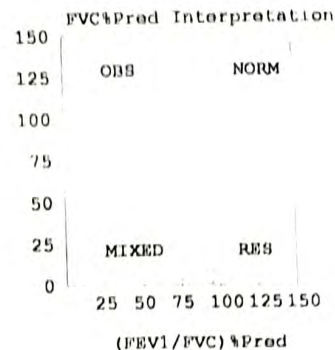
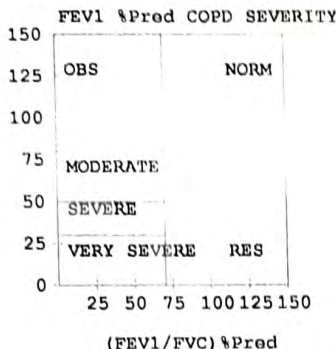
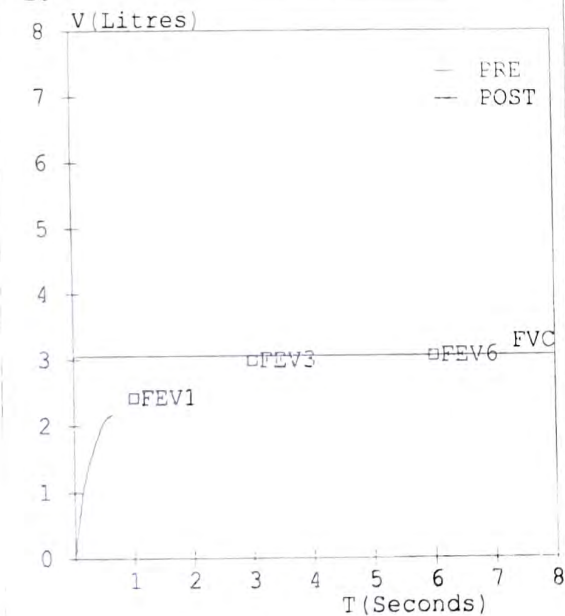
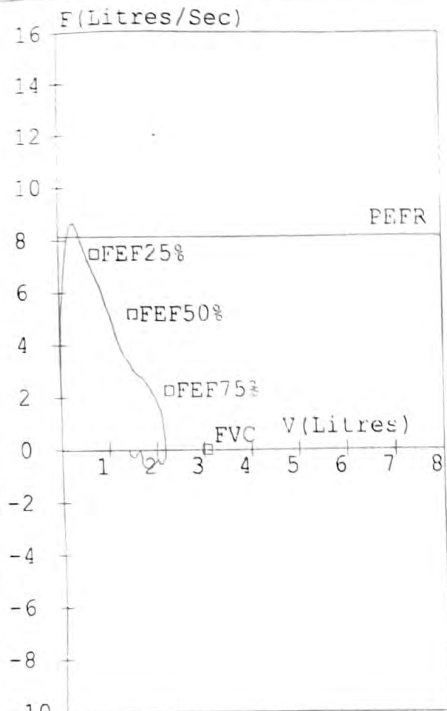
Rajendra Hospital

Palmer Ganj, Lohardaga

Patient: Budhu Oraon
 Date: 29-11-2023 04:24 PM

Age : 50 Yrs
 Height : 165 Cms
 Weight : 65 Kgs
 ID : Shrengdag-90907

Gender : Male
 Smoker : No
 Eth. Corr: 100
 Temp :



		FVC Results					
Parameter		Pred	M. Pre	%Pred	M. Post	%Pred	%Imp
FVC	(L)	03.06	02.19	072	-----	---	
FEV1	(L)	02.42	02.19	090	-----	---	
FEV1/FVC	(%)	79.08	100.00	126	-----	---	
FEF25-75	(L/s)	03.40	04.36	128	-----	---	
PEFR	(L/s)	08.14	08.66	106	-----	---	
FIVC	(L)	-----	00.76	---	-----	---	
FEV.5	(L)	-----	02.06	---	-----	---	
FEV3	(L)	02.97	02.19	074	-----	---	
PIFR	(L/s)	-----	00.80	---	-----	---	
FEF75-85	(L/s)	-----	02.50	---	-----	---	
FEF.2-1.2	(L/s)	05.96	06.31	106	-----	---	
FEF 25%	(L/s)	07.50	07.43	099	-----	---	
FEF 50%	(L/s)	05.19	04.85	093	-----	---	
FEF 75%	(L/s)	02.24	02.80	125	-----	---	
FEV.5/FVC	(%)	-----	94.06	---	-----	---	
FEV3/FVC	(%)	97.06	100.00	103	-----	---	
FET	(Sec)	-----	00.66	---	-----	---	
ExplTime	(Sec)	-----	00.03	---	-----	---	
Lung Age	(Yrs)	050	055	110	-----	---	
FEV6	(L)	03.06	-----	---	-----	---	
FIF25%	(L/s)	-----	05.41	---	-----	---	
FIF50%	(L/s)	-----	04.41	---	-----	---	
Pre-Test COPD Severity	(L/s)	-----	03.58	---	-----	---	

Test within normal limits

Pre Medication Report Indicates
 Mild Restriction as (FEV1/FVC)%Pred >95 and FVC%Pred <80

Dr. Om Prakash Dubey
 Orthopaedics
 Sr. Consultant

Hindalco Mines Divi, Lohardaga
 Reg. No -33297, BR-2002



RECORDERS AND MEDICARE SYSTEM PVT LTD

#196, Industrial Area Phase I, Panchkula, 134113

Patient ID : 0093

Name : Budhu Oraon

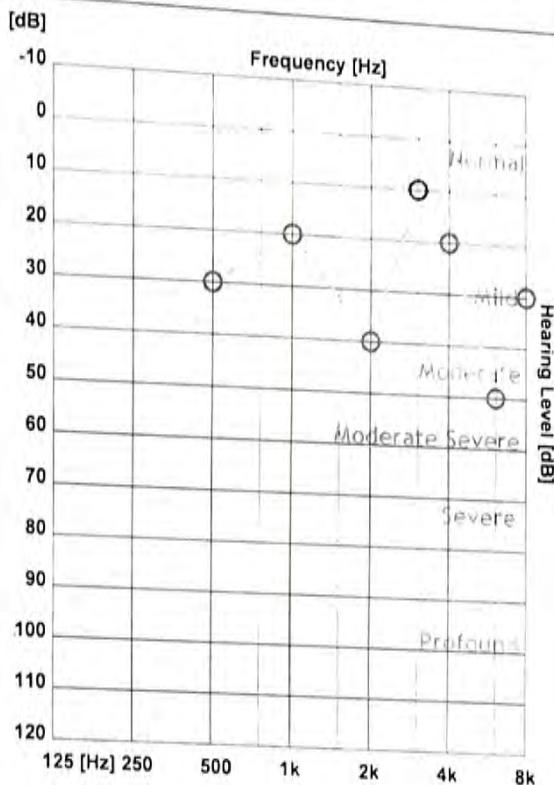
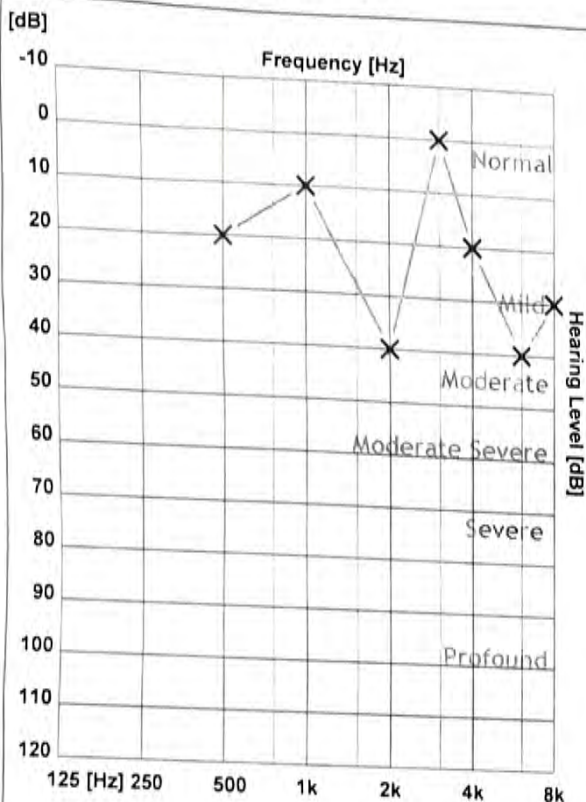
CR Number : 20231129121524

Registration Date : 29-Nov-2023

Age : 50

Gender : Male

Operator : RAJENDRA HOSPITAL LOHARDAGA



	125 Hz	250 Hz	500 Hz	750 Hz	1000 Hz	1500 Hz	2000 Hz	3000 Hz	4000 Hz	6000 Hz	8000 Hz
X - Air Left			20		10		40	0	20	40	30
O - Air Right			30		20		40	10	20	50	30
> - Bone Left											
< - Bone Right											

	Average	High	Mid	Low
AIR Left	N.A	22.50 dB	N.A	N.A
AIR Right	N.A	27.50 dB	N.A	N.A

Clinical Notes :

Not Found

within normal limits

[Signature]
 Dr. Omprakash Dubey
 Sr. Consultant

Hindalco Mines Divi, Lohardaga
 Reg. No.-33297, BR-2002

RAJENDRA HOSPITAL, LOHARDAGA

REPORT ON EYE TESTING

Name of Employee Budhu Oraon Age 50 Sex Male

Designation _____ Working since 12-10-2024

Name of Employer/Industry Hindalco Industries Ltd.(Mines Div.), Lohardaga

Form-A No. _____

Visual Acuity NORMAL

Colour Vision NORMAL

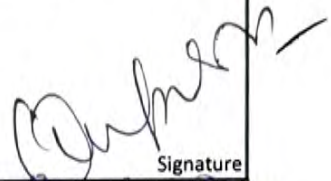
Anterior Segment NORMAL

PRESCRIPTION FOR GLASSES

RIGHT EYE					LEFT EYE			
SPH	CYL	AXIS	VISION		SPH	CYL	AXIS	VISION
				Distance				
				Reading				

RIGHT EYE					LEFT EYE			
SPH	CYL	AXIS	VISION		SPH	CYL	AXIS	VISION
				Near				
				Reading				

Advice/Remarks: DISTANCE AND NEAR READING OF VISION ARE NORMAL WITHOUT GLASSES



 Signature
Dr. Omprakash Dubey
 Sr. Consultant
 Hindalco Mines Div., Lohardaga
 Reg. No.-33297, BR-2002

Centre for Environment & Occupational Health

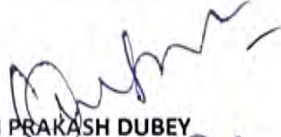
A Unit of Rajendra Hospital
Lohrdaga

Certificate No. SHRENGDAG 90907 Date: 29-11-2023
Name Budhu Oraon Age: 50 Sex: Male

CHEST X-RAY PA VIEW REPORT

Trachea: CENTRAL
Cardiac Shadow: NORMAL
Both Costophrenic & Cardiophrenic angles: NORMAL
Both side Bronchovascular markings are: PROMINENT
I.L.O. Classification of Opacities: 0/0

Impression:	Normal Chest X-Ray
--------------------	---------------------------


Dr. OM PRAKASH DUBEY
Sr. Consultant
Sr. Consultant

Hindalco Mines Div., Lohrdaga
Reg. No.-33297, BR-2002

[See rules 115 (2)]

Pollution Under Control Certificate

Authorised By :
Government of West Bengal

Date : **09/05/2024**
Time : **16:40:22 PM**
Validity upto : **08/11/2024**



Certificate SL. No. : WB04101260009572
Registration No. : JH09BB5582
Date of Registration : 06/Sep/2016
Month & Year of Manufacturing : May-2016
Valid Mobile Number : *****8779
Emission Norms : BHARAT STAGE III
Fuel : DIESEL
PUC Code : WB0410126
GSTIN :
Fees : Rs.300.00
MIL observation : No

Vehicle Photo with Registration plate
60 mm x 30 mm



Sr. No.	Pollutant (as applicable)	Units (as applicable)	Emission limits	Measured Value (upto 2 decimal places)
1	2	3	4	5
Idling Emissions	Carbon Monoxide (CO)	percentage (%)		
	Hydrocarbon, (THC/HC)	ppm		
High idling emissions	CO	percentage (%)		
	RPM	RPM	2500 ± 200	
	Lambda	-	1 ± 0.03	
Smoke Density	Light absorption coefficient	1/metre	2.45	0.3

This PUC certificate is system generated through the national register of motor vehicles and does not require any signature.

Note : 1. Vehicle owners to link their mobile numbers to registered vehicle by logging to <https://puc.parivahan.gov.in>

Authorised Signature with stamp of PUC operator
60mm x 20 mm

Date/Time Tran at 12:01:02 May 16, 2024
Trigger Source Geo: 0.500 mm/s, Mic: 2.000 pa.(L)
Range Geo: 254.0 mm/s
Record Time 3.499 sec (Auto=3Sec) at 1024 sps
Operator/Setup: Operator/30-04-23.MMB

Serial Number UM17407 V 10-90FB Micromate ISEE
Battery Level 3.5 Volts
Unit Calibration October 13, 2023 by UES New Delhi
File Name __TEMP.EVT

Notes

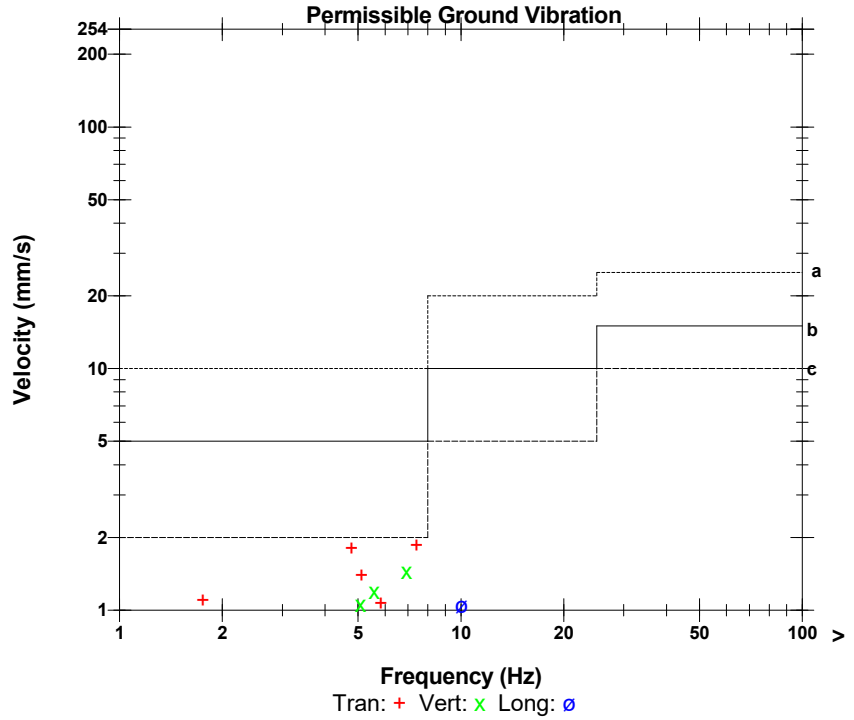
Location: SHB_B_BUX_MINES_16-05-24
Client:
User Name: HINDALCO INDUSRIES LT
General:

Microphone Linear Weighting
PSPL <0.500 pa.(L)
ZC Freq 4.2 Hz
Channel Test Passed (Freq = 19.7 Hz Amp = 1106 mv)

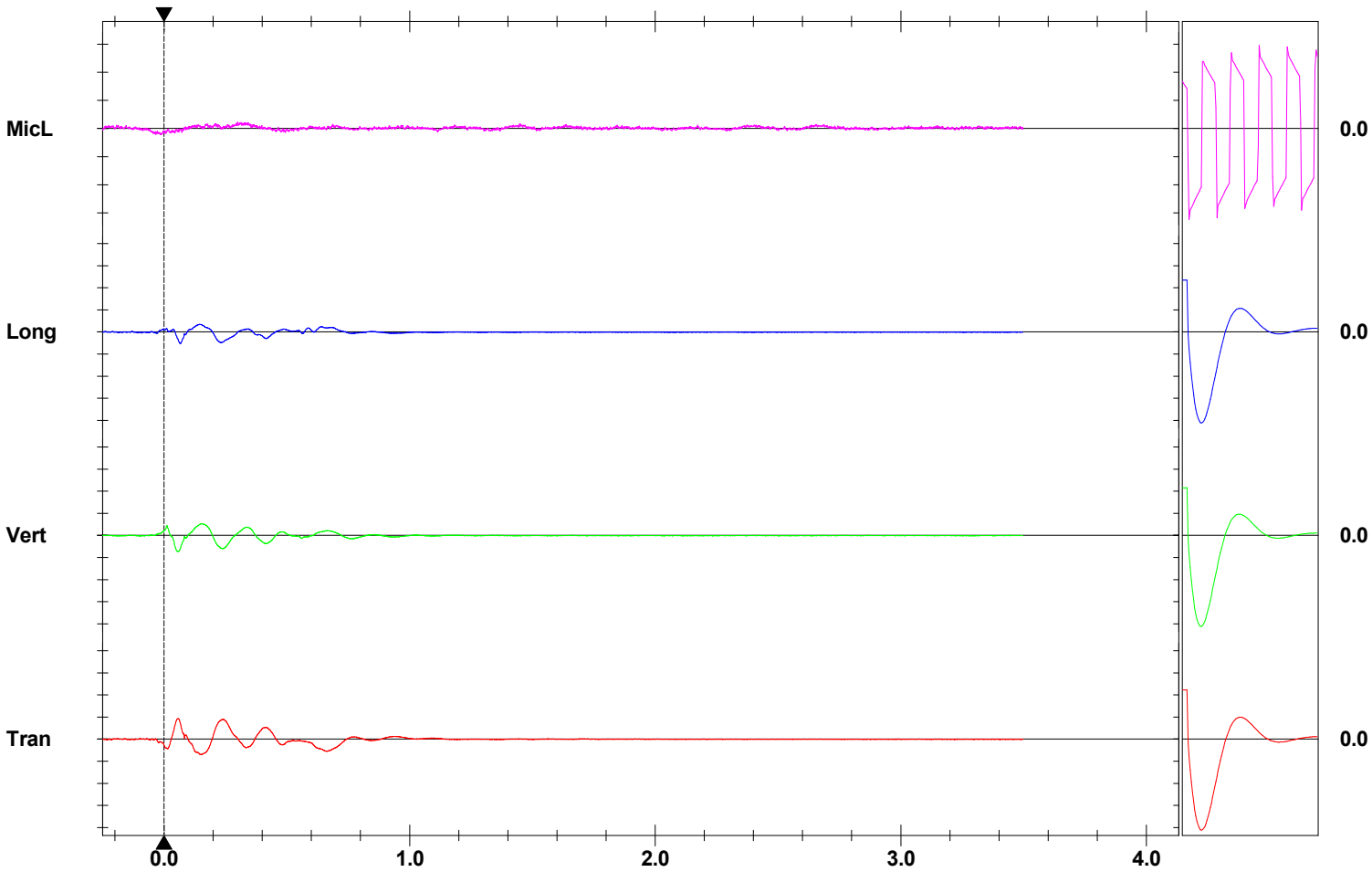
	Tran	Vert	Long	
PPV	1.860	1.458	1.048	mm/s
ZC Freq	7.4	6.9	10	Hz
Time (Rel. to Trig)	0.058	0.059	0.065	sec
Peak Acceleration	0.030	0.025	0.025	g
Peak Displacement	0.069	0.033	0.029	mm
Sensor Check	Passed	Passed	Passed	
Frequency	7.3	7.5	7.5	Hz
Overswing Ratio	4.2	4.3	3.9	

Peak Vector Sum 2.470 mm/s at 0.059 sec
N/A: Not Applicable

DGMS India (A)



- a) Industrial Buildings
- b) Domestic houses/structures
- c) Historic objects, sensitive structures





Ref No: HIL/LHD/ENV/ SERANGDAG-B / 387

Date: 02.11.2023

To
The Dy. Director General of Forest (C)
Ministry of Environment, Forests and Climate Changes
2nd Floor, Headquarter-Jharkhand State Housing Board
Harmu Chowk, Ranchi, Jharkhand-834002.

Sub: Intimation of revalidated EC grant of Serangdag Bauxite Mine (Area: 77.89 Ha) of Hindalco Industries Limited, with production capacity of Bauxite 100000 TPA Villages: Serangdag, Hanrup and Pauri, Taluka: Bishunpur & Ghagra, District: Gumla, Jharkhand.

Sir,

We would like to bring this to your notice that revalidated EC has been granted for Serangdag-B Bauxite Mine by SEIAA, Jharkhand.

A copy of issued Environmental Clearance is attached along with this letter for your ready reference.

Thanking You,

Yours Sincerely
For Hindalco Industries Ltd

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





Ref No: HIL/LHD/ENV/SERANGDAG-B/386

Date: 02.11.2023

To

The Member Secretary,
Jharkhand State Pollution Control Board,
TA Building, Dhurwa,
Ranchi (Jharkhand).

Sub: Intimation of revalidated EC grant of Serangdag Bauxite Mine (Area: 77.89 Ha) of Hindalco Industries Limited, with production capacity of Bauxite 100000 TPA near Villages: Serangdag, Hanrup and Pauri, Taluka: Bishunpur & Ghagra, District: Gumla, Jharkhand.

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Thanking You,

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For Hindalco Industries Ltd

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



o/c



Ref No: HIL/LHD/ENV/ SERANGDAG-B / 388

Date: 02.11.2023

To

Gram Panchayat Mukhiya,
Panchayat Bhawan, Aadar,
Block-Ghagra, Gumla.

Sub: Intimation of revalidated EC grant of Serangdag Bauxite Mine (Area: 77.89 Ha) of Hindalco Industries Limited, with production capacity of Bauxite 100000 TPA Villages: Serangdag, Hanrup and Pauri, Taluka: Bishunpur & Ghagra, District: Gumla, Jharkhand.

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

पञ्चायती गुमला
मुखिया
ग्राम-आदर पंचायत-आदर
घाघरा गुमला

ADITYA BIRLA



o/c

Ref No: HIL/LHD/ENV/ SERANGDAG-B / 390

Date: 02.11.2023

To

Zilla Parishad,
Gumla, Jharkhand.

Sub: Intimation of revalidated EC grant of Serangdag Bauxite Mine (Area: 77.89 Ha) of Hindalco Industries Limited, with production capacity of Bauxite 100000 TPA Villages: Serangdag, Hanrup and Pauri, Taluka: Bishunpur & Ghagra, District: Gumla, Jharkhand.

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Thanking You,

Yours Sincerely
For Hindalco Industries Ltd

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





o/c

Ref No: HIL/LHD/ENV/ SERANGDAG-B / 389

Date: 02.11.2023

To

District Industries Centre,
Gumla, Jharkhand.

Sub: Intimation of revalidated EC grant of Serangdag Bauxite Mine (Area: 77.89 Ha) of Hindalco Industries Limited, with production capacity of Bauxite 100000 TPA Villages: Serangdag, Hanrup and Pauri, Taluka: Bishunpur & Ghagra, District: Gumla, Jharkhand.

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Thanking You,

Yours Sincerely
For Hindalco Industries Ltd

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



Hindalco Industries Limited
Mines Division, Court Road, Lohardaga 835302, Jharkhand, India
T: +91 6526 224112/224015/223113 | E: hindalco@adityabirla.com | W: www.hindalco.com
Registered Office: Ahura Centre, 1st Floor, B Wing, Mahakali Caves Road, Andheri (East), Mumbai 400 093, India
T: +91 22 6691 7000 | F: +91 22 6691 7001
Corporate ID No.: L27020MH1958PLC011238



o/c

Ref No: HIL/LHD/ENV/ SERANGDAG-B /385

Date: 02.11.2023

To
The Deputy Commissioner,
Office of the Deputy Commissioner (District General Branch),
New Collectorate Building Nag-01, Room No.-09,
Gumla, Pin 835207 (Jharkhand)

Sub: Intimation of revalidated EC grant of Serangdag Bauxite Mine (Area: 77.89 Ha) of Hindalco Industries Limited, with production capacity of Bauxite 100000 TPA Villages: Serangdag, Hanrup and Paurri, Taluka: Bishunpur & Ghagra, District: Gumla, Jharkhand.

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Yours Sincerely
For Hindalco Industries Ltd

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



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Corporate ID No.: L27020MH1958PLC011238

